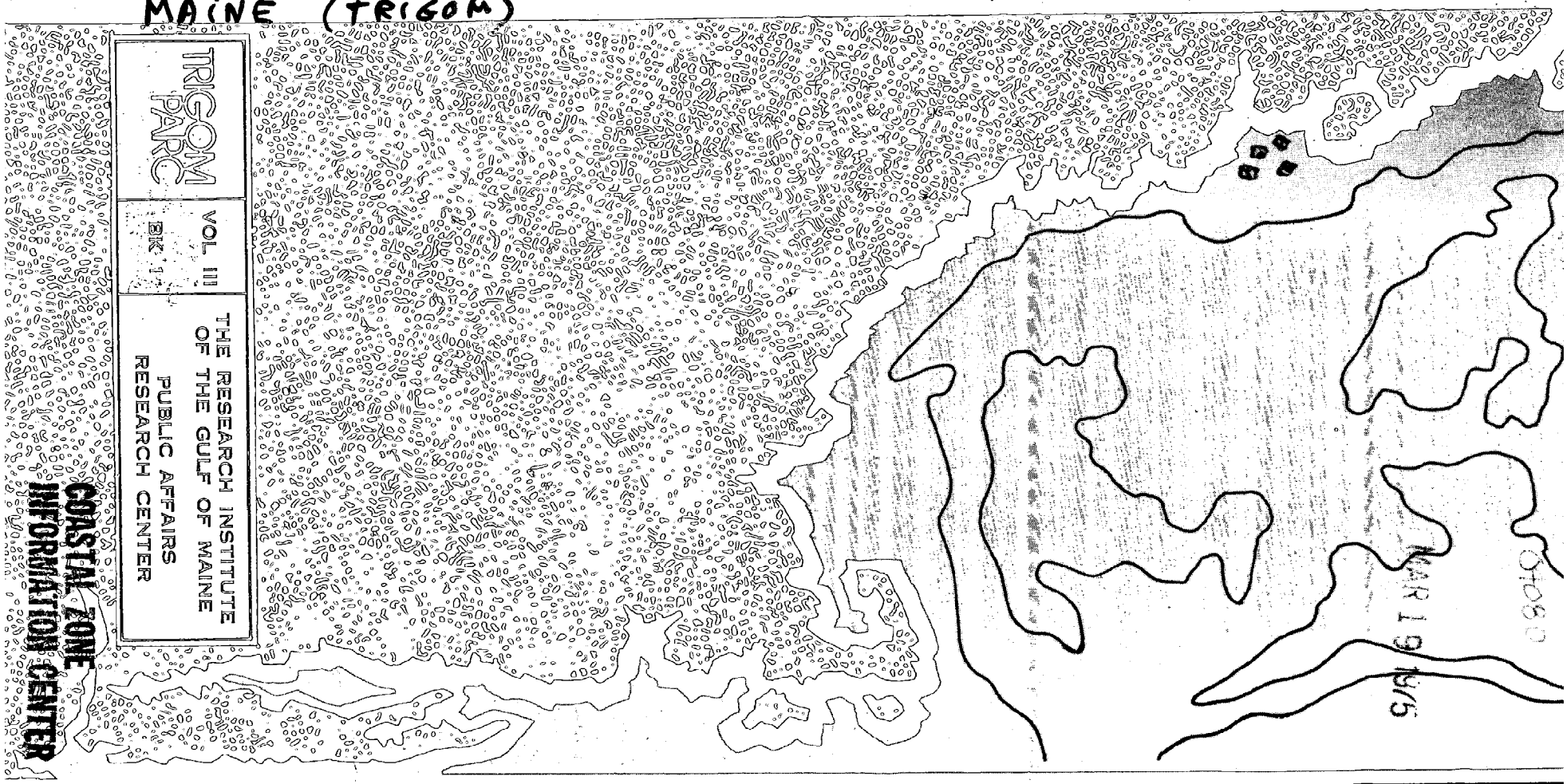
Coastal Zone
Information
Center

A Socio-Economic and Environmental Inventory of the North Atlantic Region

Sandy Hook to Bay of Fundy

MAINE (TRIGOM)



TRIGOM PARC

VOL III
BK 1

THE RESEARCH INSTITUTE
OF THE GULF OF MAINE

PUBLIC AFFAIRS
RESEARCH CENTER

COASTAL ZONE
INFORMATION CENTER

MAR 19 1975

TRIGOM

The Research Institute of the Gulf of Maine (TRIGOM) is a consortium of academic institutions and research agencies dedicated to the advancement of marine science and oceanography through cooperative efforts.

TRIGOM provides a variety of services to the marine science community through publications, meetings, and seminars on subjects of common interest. In addition, the Institute seeks to undertake its own projects which will help the state and region better plan for multiple uses of the coast and to manage its natural resources.

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04080

A Socio-Economic and Environmental Inventory of the North Atlantic Region

including the Outer Continental Shelf and adjacent waters from Sandy Hook, New Jersey, to Bay of Fundy

VOLUME III

Book 1

Submitted to Bureau of Land Management, Marine Minerals Division

as partial fulfillment of Contract 08550-CT3-8

November 1974

COASTAL ZONE
INFORMATION CENTER

The Research Institute of the Gulf of Maine
Box 2320
South Portland, Maine

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Pennsylvania
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Virginia
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A Additional Data Sources (Environmental)

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A.1 UNPUBLISHED DATA

The subject of unpublished data, raw data, technical memos, and informal reports is one that offers great potential for environmental data but at the same time great difficulty in successful capture. Our principal efforts were turned toward recovery of Data Bank information (see A.2) rather than the scattered pieces of unpublished reports. However, we did make one pilot project of a concentrated study on the Maine rivers (Appendix C.5) which went into more detail than was possible for the rest of the study area. Of primary concern was the unpublished literature associated with rivers and estuaries within the coastal drainage basins in Maine. For the majority of unpublished reports reviewed we found that the level of detail was generally narrow and local and that many reports were not pertinent. This meant that such an effort was considered premature for the entire region of this study. The methods demonstrated by the pilot Maine Rivers study are, however, useful to future efforts once site-specific data are needed.

One other area where we made extensive use of unpublished data was in the Geology of Beaches, Section 5.1 where use of the U. S. Army Corps of Engineers reports, House Documents, theses, and dissertations were all used to supplement the published scientific literature.

A.1.1 WELL LOG DATA

As an example, but by no means necessarily a typical one, we present the type of "other data sources" that are prevalent in the unpublished and less easy to obtain data. The following report presented as Attachment A.1-1 is a well log from Shell Mohawk No. B-93, an exploratory well drilled in 1970 southeast of the southern tip of Nova Scotia. This is the closest well drilled to Georges and Brown Bank and is located 70 miles from Shelburne, N.S. at about 42^{0} 50'N and 64^{0} 30'W.

This report was furnished by the Maine Bureau of Geology. Approximately seventy such exploratory wells have been drilled in Canadian waters on leased or permitted tracks shown in Attachment A-1. The majority of these wells are referenced as P & A (plugged and abandoned) and reportedly only four are cited as being potential producers. These four were, however, on leased tracts where reporting of findings is required as opposed to permit drilling which requires no disclosure.

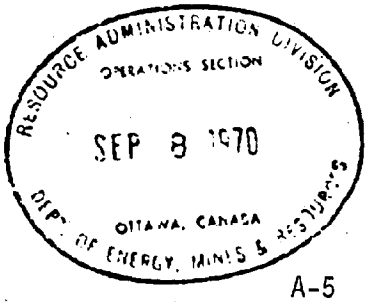
ATTACHMENT A.1

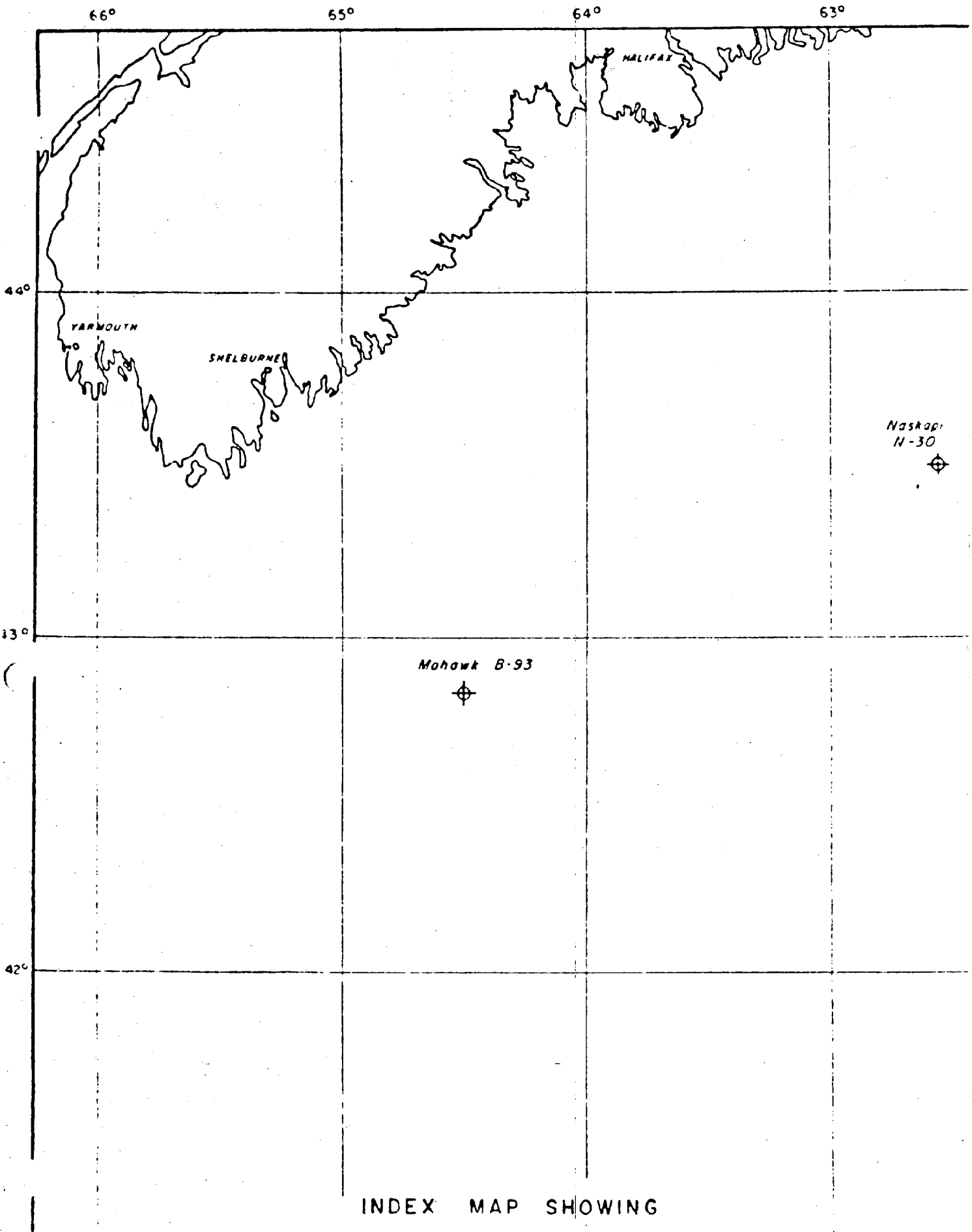
WELL HISTORY REPORT

SHELL MOHAWK B-93

SHELL CANADA LIMITED

SEPTEMBER 1970





INDEX MAP SHOWING

LOCATION OF SHELL MOHAWK B-93

INTRODUCTION

Shell Mohawk B-93 was located approximately seventy miles south of Shelburne, Nova Scotia, as shown on the attached index map. The purpose of the well was to test the un-faulted, low relief Mohawk anticlinal structure for hydrocarbon accumulations.

The drilling contractor was Southeastern Commonwealth Drilling Limited, utilizing the semi-submersible drilling vessel Sedco H. The vessel was anchored in a water depth of 384 feet. The well spudded May 3, 1970, and was drilled to a total depth of 6,975 feet. Rig release date was May 23, 1970. Protective casing strings were set at 1,148 feet and 3,488 feet.

The hole bottomed in granite after penetrating 6,930 feet of sediments. Lithology of the clastics consisted of shale, sands and dense carbonates. There were no shows and no testing was conducted.

SECTION III - GEOLOGICAL DATA

(A) STRATIGRAPHIC COLUMN

Undated to 1190'

Tops	Faunal	Floral	Thickness
Oligocene	above 1190-1370		180
Eocene	1370-1600		230
Paleocene	1600-2007		407
Lower Campanian to Turonian	2007-3590		1583
Cenomanian		3590-4385	795
Lower Cretaceous		4385-4397	12
Upper Jurassic		4397-5750	1353
Upper to Middle Jurassic		5750-5900	150
Middle Jurassic		5900-prob. 6930	1030
Basement - 6930';T.D. - 6995'			

(B) SIDEWALL SAMPLES

Refer to Pages 8 to 20.

(C) CONVENTIONAL CORE DESCRIPTION

None

(D) CONVENTIONAL CORE ANALYSIS

None

(E) SAMPLE DESCRIPTION

Refer to Pages 21 to 24.

SECTION III - GEOLOGICAL DATA - Addendum April 28, 1972

(F) FORMATION TOPS* (depths below Rotary Table)

GULLY GROUP	
Banquereau Formation @ base conductor pipe.	
Dawson Canyon Formation	2007
NOVA SCOTIA GROUP	
Shale facies included in unit above.	
WESTERN BANK GROUP	
MicMac - Abenaki Formations intertonguing	4397'
Mohawk Formation	5540'
BASEMENT (Intrusive)	6930'

* As defined in "Cenozoic and Mesozoic Stratigraphy of the Nova Scotia Shelf". N.L. McIver (Canadian Journal of Earth Sciences, 1972, Vol. 9 #1, pp. 54-70.)

Lithologic Descriptions - Drill Cuttings

Owing to the poor reliability of drill cuttings alone, the following descriptions are generalized from cuttings, mechanical logs and sidewall samples. For details of mineralogy, compaction, visible porosity, etc., please refer to the sidewall sample descriptions which accompany this report.

1190-1350	Sand; quartz, clear grains, very coarse, smooth, rounded, interbedded occasionally with greyish brown, silty, calcareous, fine grained sandstone and glauconitic sandstone, fine to medium
1350-1385	Sandstone; pale brown, fine to medium, silty, calcareous, glauconite grains common.
1385-1505	Shale; light green, silty, sandy, occasionally calcareous, minor glauconite content.
1505-1575	Mudstone; light green, sandy, silty, slightly calcareous, minor glauconite.
1575-1632	Glauconitic siltstone; light green, very argillaceous.
1632-1675	Sandy siltstone; light green, 20 percent dispersed very fine sand.
1675-1740	Silty shale; green, argillaceous content 80 percent, slightly micaceous, glauconitic.
1740-1835	Argillaceous siltstone; grey to green; interbedded with silty sandstone, grey to green, fine, glauconitic.
1835-1904	Shale; grey to olive green, silty, sandy, minor beds of fine sandstone with no visible porosity.
1904-1970	Calcareous siltstone; olive grey, trace sand.
1970-2015	Silty sandstone; dusky olive, well sorted, angular, slight porosity.
2015-2300	Siltstone; medium dark grey, calcareous, argillaceous, glauconitic.
2300-2335	Silty sandstone; grey to brown, very fine to fine, 40 percent silt.
2335-2433	Silty shale; green, interbedded with argillaceous, calcareous siltstone.

2433-2510	Shale; light olive green, scattered glauconite.
2510-2733	Silty shale; olive grey, calcareous, glauconitic.
2733-2860	Silty mudstone; green, slightly calcareous.
2860-2920	Silty mudstone; green interbedded with argillaceous siltstone
2920-3008	Mudstone; green, silty, calcareous, grading to shale.
3008-3090	Siltstone; green, sandy, calcareous.
3090-3136	Silty, shale; greyish olive; pelecypod remains.
3136-3155	Silty sand; greyish olive, very fine, well sorted.
3155-3622	Mudstone; greyish green to olive, silt 10 percent, calcareous material 10 percent, scattered glauconite.
3622-3689	Siltstone; light grey, argillaceous, calcareous material 10 percent, glauconite 10 percent.
3689-3841	Mudstone; light grey, calcareous, silty, glaucontitic; interbedded calcareous siltstone.
3841-3910	Siltstone; grey, calcareous, interbedded occasionally with silty shale.
3910-3935	Sandstone; clear, very fine to fine, quartzose, silty.
3935-4060	Silty mudstone; grey, calcareous and shale, light grey.
4060-4102	Silty shale; grey, calcareous.
4102-4182	Glauconitic sandstone; silty, calcareous, alternating with siltstone, very argillaceous, calcareous.
4182-4395	Siltstone; greenish brown, argillaceous, calcareous, with minor argillaceous limestone stringers.
4395-4580	Limestone; grey to light brown, sandy, silty, alternating with argillaceous dolomitic limestone.
4580-4633	Limestone; light to dark brown with limonitic stains, alternating with tight, argillaceous sandy units. Pittings and solution cavities common, filled with limonite. Limestones more argillaceous in lower beds.

4633-4746	Sandstone; light brown, silty, calcareous, grading to clean coarse sandstone with decreasing silt, increasing glauconite. Interbedded with calcareous shales.
4746-4940	Oolitic limestone; light grey, micro-crystalline matrix. Oolites 50-60 percent very coarse. Interbedded calcareous shales and mudstones.
4940-5120	Oolitic and dense limestone; cream to buff, occasionally sandy, and argillaceous, (5-10 percent). Siltstone and shale interbeds.
5120-5185	Sandstone; medium-dark grey, very fine to medium, very calcareous, interbedded with micro-crystalline limestone, light grey, slightly oolitic.
5185-5265	Oolitic and dense limestone; grey, sandy, Oolites 50-60 percent coarse, in micro-crystalline matrix, grading to crypto-crystalline limestone.
5265-5412	Limestone; brown to grey, micro to cryptocrystalline, occasionally oolitic. Interbedded with sandstone, pale brown, very fine, and calcareous siltstone.
5412-5610	Sandstone; light grey to cream, fine, well sorted, porosity 10 percent, alternating with siltstones; dark grey, calcareous. Occasional calcareous shale.
5610-5790	Sandstone; white to light grey, silty, calcareous, grading to sandstone; silty, dolomitic, fine, well sorted, friable, sub-rounded, quartzose, poor porosity. Interbedded with grey shales and variegated siltstones. Occasional beds of coal one to four feet thick.
5790-6170	Sandstone; clear to white, upper fine to medium, silty dolomitic, calcareous. Interbedded with sandstone; well sorted, friable, well rounded, quartzose, porosity 10-20 percent variegated siltstone, and silty shale.
6170-6310	Sandstone; cream, fine to medium, moderately sorted, well consolidated, sub-angular, quartzose, very calcareous. Interbedded with limestone, grey-brown, fossiliferous. Bioclastic frame work 20-30 percent, composed of brachiopod, pelecypod, crinoid, ostracod, and shell fragments. Some calcareous siltstone.
6310-6340	Shale; green calcareous, with minor beds of sandstone, light brown, fine, followed by oolitic limestone, grey.

6340-6406	Arkosic sandstone; clear to light grey, coarse, usually unconsolidated, well rounded, well sorted, feldspar 30 percent. Occasional beds of grey calcareous siltstone.
6406-6491	Sandy siltstone; grey and variegated.
6491-6612	Feldspathic sand; clear to white, coarse, angular. Pebbles common.
6612-6695	Sand; clear, medium to coarse, interbedded with oolitic limestone, 3-10 feet thick, and with calcareous siltstone, variegated.
6695-6940	Sandstone; light grey to clear, medium to coarse, well sorted, unconsolidated to friable, angular to sub-angular, quartzose and feldspathic, silty, porosity 15-25 percent; alternating with siltstones. Grades into unconsolidated beds of very coarse angular feldspathic sandstone, interbedded with sandy siltstones. Average composition of the latter sandstone is ortholcase feldspar (pink) 40-50 percent, quartz 50-60 percent, slightly micaceous. Orthoclase percentage increases as basement is approached.

APPENDIX A.2 Data Banks and Storage Areas

A.2.1 Introduction

A.2.2 Physical-Chemical NODC; WHOI

A.2.3 Biologic-bibliographic

A.2.4 Geological-NGSDC; WHOI

A.2.5 Meteorological - NCC; EDS; Bendix

A.2.6 ENDEX - EDBD

A.2.7 Others

A.2.1 INTRODUCTION

There are probably several dozen facilities that claim or in some way are qualified to say that they have an available data bank for open access of oceanographic or environmental data. A fairly recent review of most of these can be found in Interstate Electronics Corp. (1973) and NODC'S Environmental Data Base Directory (EDBD) (1973). However, only a few are fully operational or able to provide useful data on request. Parts of several reports were used in the present study to provide supplementary data or they were used in an evaluative process to show what might be useful in terms of the type of data stored and ease of retrieval. No attempt was made to sample or list all the available data banks. An abbreviated list is included, however, below:

FEDERAL DATA BANKS: GENERAL

United States Department of Agriculture, Soil Conservation Service: land inventory and monitoring - studies and surveys of erosion and sediment damages, flood plain indentification and utilization, land use changes and trends, and degradation of the environment resulting from improper use of soil, water and related resources; data base content: flood runoff; erosion and sediment.

United States Department of Commerce, National Oceanographic and Atmospheric Administration, Environmental Data Service: National Climatic Center; data base content: climatic publications, major climatic studies, original climatological manuscript records, digital climatological data, microfilm of climatological records (precip., snow cover, storms, synoptic).

United States Department of Commerce, National Oceanic and Atmospheric Administration: National Marine Fisheries Service; data base content: sewage sludge dumping, shellfish pollution.

United States Department of Commerce: National Weather Service: data base content: long range planning, priorities in monitoring.

United States Department of Commerce, National Oceanographic and Atmospheric Administration: National Oceanographic Data Center - Coastal Zone Data; data base content: coastal zone data.

United States Department of Commerce: National Technical Information Service; data base content: federal research and development reports.

United States Department of Commerce, Bureau of the Census: Population and Industrial Density Trends; data base content: population, national.

United States Air Force: Pollution Data Retreival System; data base content: environmental data, pollution abatement (coordination of all environmental data for U.S. Air Force).

United States Air Force: Water and Air Quality Data Coordination; data base content: water and air quality data.

United States Department of Health, Education and Welfare: National Institute of Health; data base content: heavy metals in water, dangerous and toxic metals in water, mercury and lead in water.

United States Department of the Interior: Bureau of Sport Fisheries and Wildlife; data base content: water quality data.

United States Department of the Interior, Geological Survey: Water Resources, National Water Data System; data base content: water quality data, administrative applications, water use data, stream-flow data, ground water data.

United States Department of the Interior, Geological Survey: National Water Data Exchange (NAWDEX); a federal interagency water data handling work group developing system design requirements for national handling of water data.

United States Department of the Interior; Earth Resources Observation Systems (EROS); data base content: thermal discharge images, aerial surveillance monitoring.

United States Department of Commerce, National Oceanic and Atmospheric Administration: National Sea Grant Program; data planning, marine science research.

United States Environmental Protection Agency: National Pesticide Monitoring Program and Shellfish Growing Areas.

United States Environmental Protection Agency: Oil and Hazardous Materials Incidents File; information on spills: location, body of water, quantity and type of material, source, containment method, environmental damage.

United States Environmental Protection Agency, Region 1: data on special enforcement problems, e.g., Sobin Chlor Alkali, Orrington, Maine.

United States Environmental Protection Agency, Region 1: file of applications for a permit to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES).

United States Environmental Protection Agency, Region 1: monitoring data collected under the National Pollutant Discharge Elimination System from point source dischargers.

United States National Space and Aeronautical Administration: Earth Resources Technological Satellite (ERTS A and B); data base content: algae blooms; IR detection of heavy concentrations of phosphates and nutrients.

United States Department of the Interior, Office of Water Resources Research: Generalized Information Processing System (GIPSY); data base content: water quality literature.

United States Department of Transportation, Coast Guard: Chemical Hazardous Spill Response System (CRIS); data base content: coastal zone pollution baselines, monitoring pollution, on scene oil spill clean up managers, wide range of pollution detection studies.

United States Department of Transportation, Coast Guard: Marine Environmental Protection Program; data base content: oil spill management, airborne surveillance; (developing a real time radar and IR detection and classification capability.

United States Department of Transportation, Coast Guard: Pollution incident Reporting System; data base content: pollution discharge data, oil and hazardous substance removal data, penalty action by Coast Guard.

United States Atomic Energy Commission; data base content: water quality, thermal discharge, reactor systems.

Atomic Energy Commission, Oak Ridge National Laboratory: Environmental Information System; data base content: water quality, thermal pollution, miscellaneous pollution studies.

United States Environmental Protection Agency, Office of Water Programs: Marine Baseline Planning, National Coastal Water Quality Monitoring Network; data base content: municipal sewage treatment waste discharge, water quality (STORET), indutrial discharge points, construction contract grants, fish kills, beach closure.

United States Environmental Protection Agency, Office of Water Programs: Water Quality Protection - Data Processing; data base content: National Estuarine Inventory (NEI), Dun and Bradstreet File, Office of Water Data Coordination - Department of the Interior (OWDC); (provides the data processing support of the EPA computer systems).

United States Environmental Protection Agency, Office of Water Programs: Water Quality Surveillance and Information System (STORET); data base

content: water quality properties (STORET), municipal waste discharge, industrial discharge points, construction contract grants, fish kills, state and county boundaries with overlay of sewage treatment; under development: river mile index (RMI) - AUTOMAP; Refuse Act Permit Plan (RAPP); thermal discharge points: water quality standards and specifications, general point source file for storage, manipulation, and retrieval of information on all types of point sources of water pollution and ultimately discharges will be realted to ambient water quality.

United States Federal Power Commission, Bureau of Power; data base content: information on air and water pollution emissions from steam-electric power plants; general plant information, specific plant characteristics, fuels used and composition, air quality data, water quality data.

It appears a first attempt at a complete listing of all available data sources was done as part of the MESA - New York Bight EDBD mentioned above and described subsequently.

A.2.2 PHYSICAL AND CHEMICAL DATA

LOCATION: NATIONAL OCEANOGRAPHIC DATA CENTER, WASHINGTON, D. C.

In response to a visit and formal request to NODC we obtained parts of an unpublished atlas which was in the process of being printed, which summarizes all available NODC data on various physical and one chemical property by plotting these and providing tabular summaries.

Figure A-1 shows the three areas covered. These are Area 4, 5, and 6 in the Western North Atlantic. The following types of data are available by each of these three areas, and are presented in Attachment A-1 with tables on pages and following. These tables are:

Table A-1 Temperature-salinity, a composite for all months

A-2 Temperature vs depth by seasonal quarters

A-3 Temperature vs depth with seasonal distribution plots

A-4 Salinity vs depth with seasonal distribution plots

A-5 Salinity vs depth with seasonal plots at standard depths

A-6 Oxygen vs depth sea surface values plotted

A-7 Phosphate vs depth sea surface values plotted

Temperature (Bathythermograph)

NODC has for some time maintained computer files of thermal structure determined from mechanical BT and XBT for the upper layers. Figure A-2 shows the density of observations for the study area by one degree squares. A summary of these data are presented as a sample for one month (February; Marsden 151 one degree 37.) on Table A-8.

Current Speed

The only data available from NODC for the Gulf of Maine and south of Cape Cod are based on ship position and drift (NODC H 1-9 printout). A sample summary is shown on Table A-9. Most of those points on Marsden Square 151 (Gulf of Maine) have too few data to be computed since there are less than four observations. South of MS 151 the number of vessels passing through increases and calculations are possible. However, as is rather obvious, this type of "course steered-course made good" determination is a rough approximation and subject to many errors of which the majority are likely to be in excess of the current velocity.

Source for more information and contact at NODC: Mr. Millington Lockwood, (202) 343-8345.

WOODS HOLE OCEANOGRAPHIC INSTITUTION (WHOI)

Several visits were made to WHOI to search for readily available physical data. It was not possible to search thoroughly but our efforts do indicate the types of data, form of storage, and general availability.

Temperature

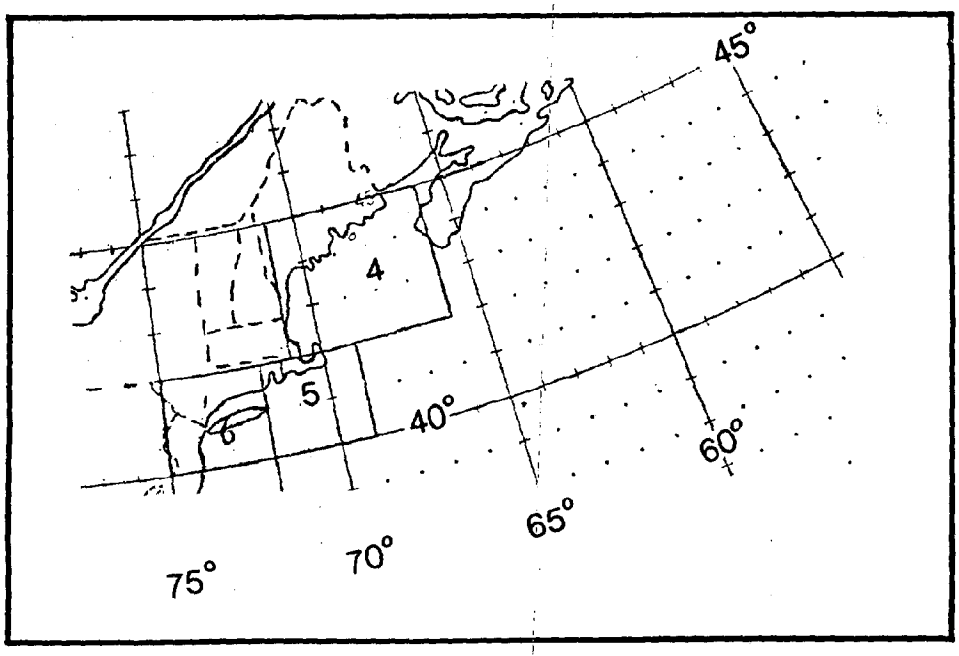
Monthly averages are available form one degree squares taken by BT and XBT. The original data and averages are recorded on 3" x 5" cards along with complete information on location and date taken. These data are also entered into data books.

Region covered: North Atlantic Ocean

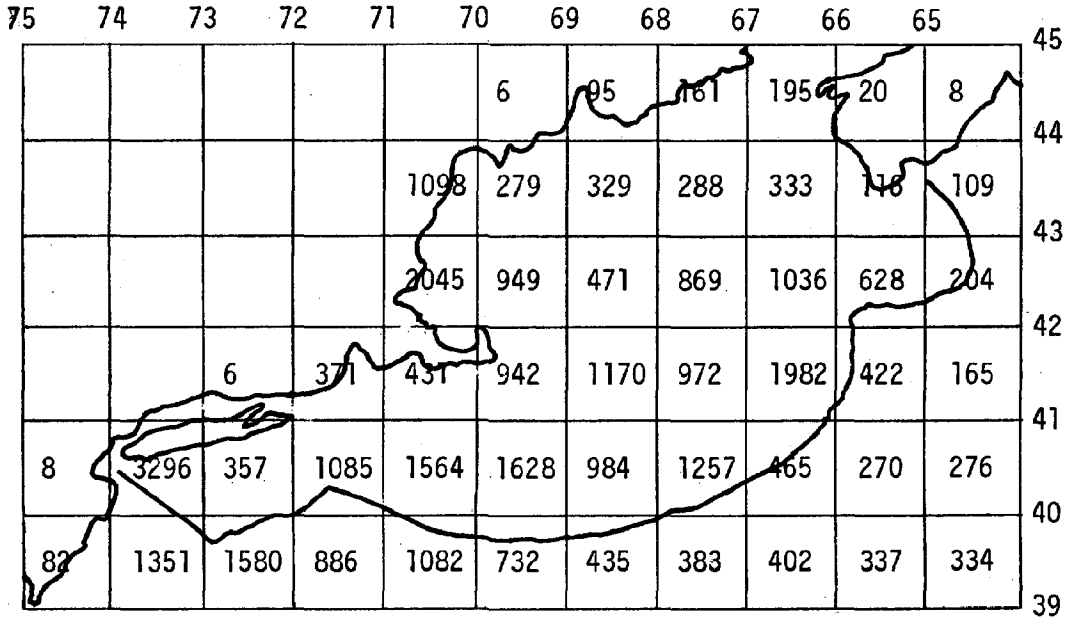
Period of coverage: 1940 to present

Quality: Most areas including inshore have sufficiently detailed average data to be reliable.

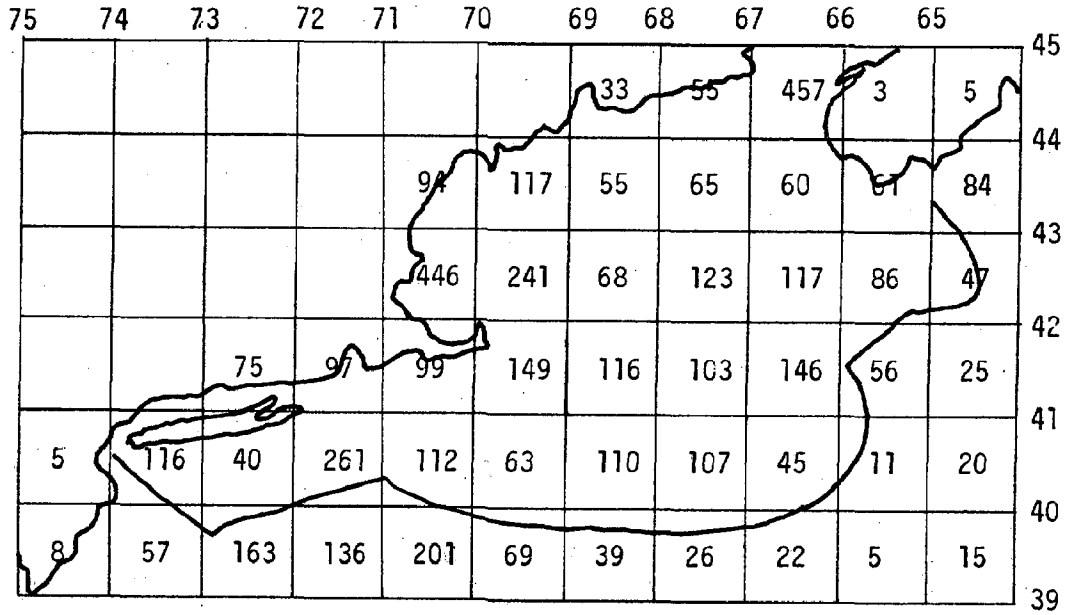
Publications: Serial Atlas of Marine Environment Folios 15 Florida Keys to Cape Cod, Walford and Wickland, American Geological Society, Serial Atlas Marine Environment Folio 21 - Average Monthly Sea Water Temperature, Nova Scotia to Long Island 1940-1959, J. R. Colton and R. Stoddard, American Geological Society, 1972.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-1	Physical and Chemical Data for Areas 4, 5 and 6



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-2	Bathythermograph Station Data



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-2a	Oceanographic Station Data

Contact at WHOI: Dr. Elizabeth Schroeder

Salinity

Similar to the temperature data, salinity measurements made by survey vessels of WHOI are recorded on data books and averaged by month and by one degree squares for the entire Atlantic Ocean.

Period of coverage: 1940 to present

Quality: Good; most areas have sufficient coverage for reliable averages (above 12 data points as a minimum). New data are frequently entered from recent cruises.

Contact at WHOI: Dr. Elizabeth Schroeder

Currents

Relatively few current measurements from towers, buoys, or bottom mounted instruments appear to be available. A larger listing of data was available but since the majority of these records were U. S. Coast Guard data, the original data were not transmitted to us. Also, data older than 10 years were considered to be invalid as they were "taken under primitive conditions" (personal communication, Ms. Susan Tarbell, WHOI). Those few data that were made available are for south of Georges Bank (due south of Nantucket Island), inshore of Jeffreys to Ledge, and at Woods Hole. Table A-10 presents these data. The stations are also plotted along with other bottom current data in Chapter 3, Figure 3-54A.

Additional Physical Data: Other bits of physical data obviously are taken, although probably not with any sizable length of record. A better summary can be found in the Environmental Data Base Directory (EDBD) issued by NOAA/NODC in 1973 and discussed subsequently in this text.

A.2.3 BIOLOGICAL DATA

NODC appears to have attempted the only file system for biological data readily available, although some specialized systems may exist at either private or institutional levels. The NODC capability is only bibliographic. A request for the complete printout for Marsden 151 and 152 produced 778 biological references from a total of 16,392 titles searched. The results of this printout will be integrated into the report bibliography and appear in a separate volume. An earlier request for this bibliographic printout in 1973 using subject codes of "Gulf of Maine", "Passamaquoddy Bay", and "Bay of Fundy" produced 38 titles from a total search of 13,899 titles. Only a few of the latter are included in the broader larger search of all ocean areas using Marsden

Squares 151 and 152 indicating the difference resulting from the use of place name subject codes and the Marsden numbers.

Contact for more information: Millington Lockwood, NODC
(202) 343-8345

A.2.4 GEOLOGICAL DATA

NATIONAL GEOPHYSICAL AND SOLAR-TERRESTIAL DATA CENTER (NGSDC)

Data that was formerly stored at NODC was transferred to NGSDC about 1972. A formal request to NGSDC for data located in the study area produced an old catalog (NODC, 1968) which inventoried data up to 1967. Three inventory charts show these data (Figure A-3 to A-5). Listed are cores and grab samples. The actual printout was examined but we determined that it was too raw a form to be of any immediate use. A more up-to-date catalog has been produced by NGSDC (1972). This document, Marine Geophysical Data Catalog, shows data for navigational bathymetric, magnetic, gravity, and seismic data.

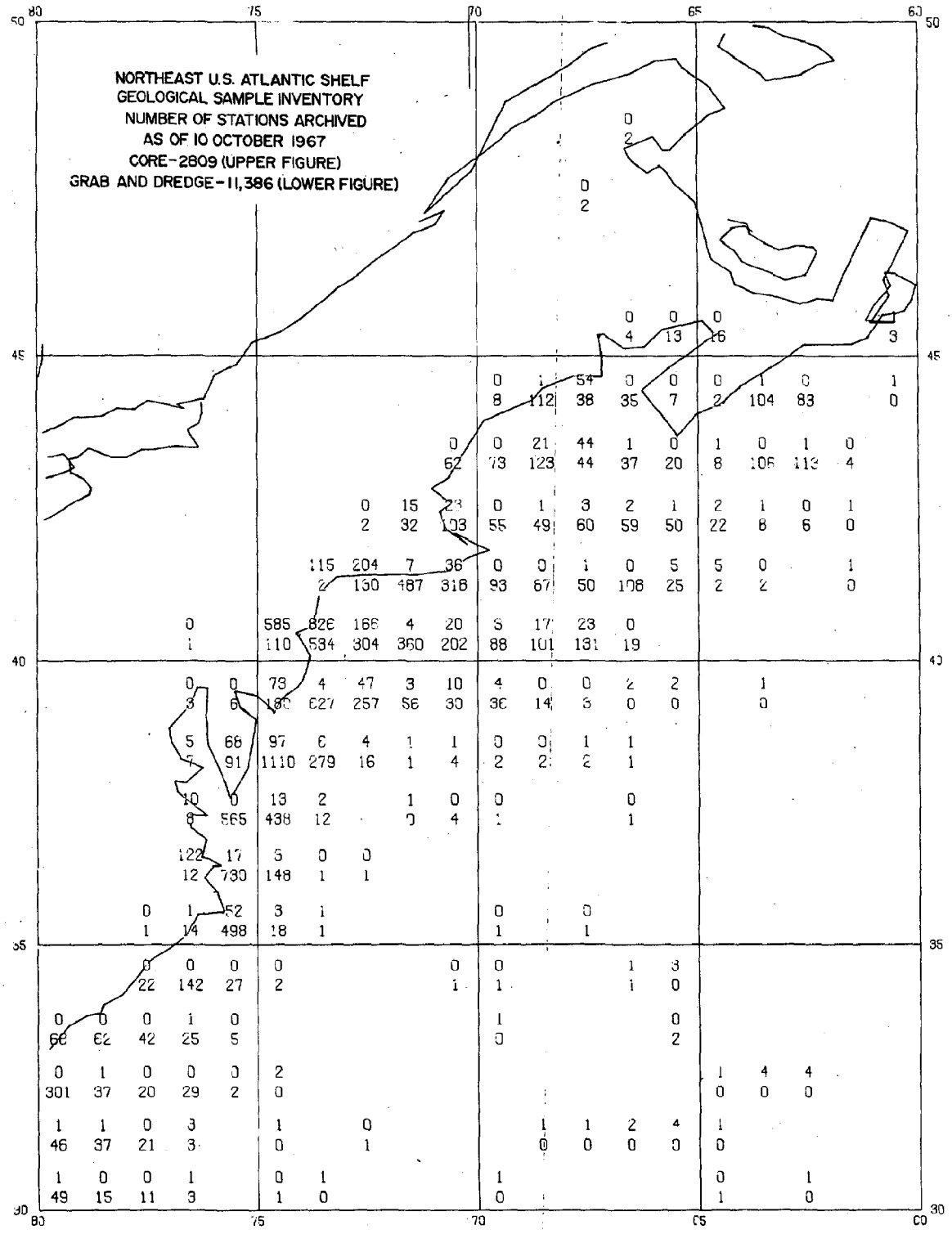
NODC

Part of the geologic data system still within NODC is the bottom photograph records. A large number of bottom photographs have been compiled in a computer access system. A request to this system produced 10 photo-citations in which only one was located in the Gulf of Maine. A section of the printout is given in Table A-12 as a sample.

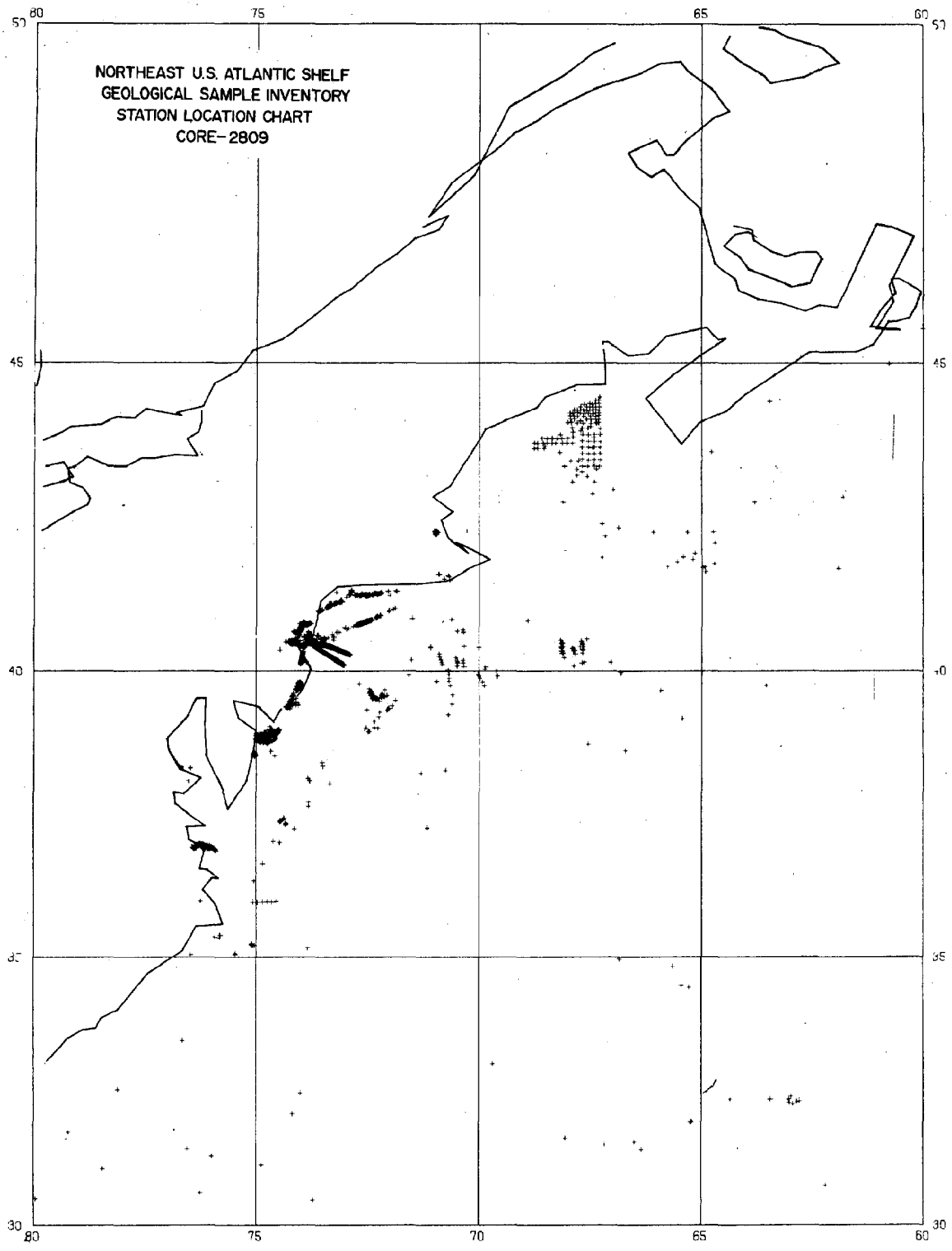
WHOI

Probably the best data bank and precise cataloging of geologic samples is to be found at WHOI where data from the Continental Margins Program collected under auspices and funding of U. S. Geological Survey are stored. An exhaustive listing of samples including a variety of geological properties is given in a single summary document (Hathaway, 1971). Figure A-6 shows the sample location and distribution while Table A-13 describes the actual sediment properties available. An updated description of the techniques used in curating, digitizing, and photographic documenting can be found in Driscoll (1973), Johnson and Driscoll (1972), and Gilman (1973) respectively. A list of cores taken by WHOI-ONR submersible ALVIN of samples collected in the study area is presented on Table A-14.

Contact at WHOI: Dr. Alan Driscoll, Supervisor of Core Lab.

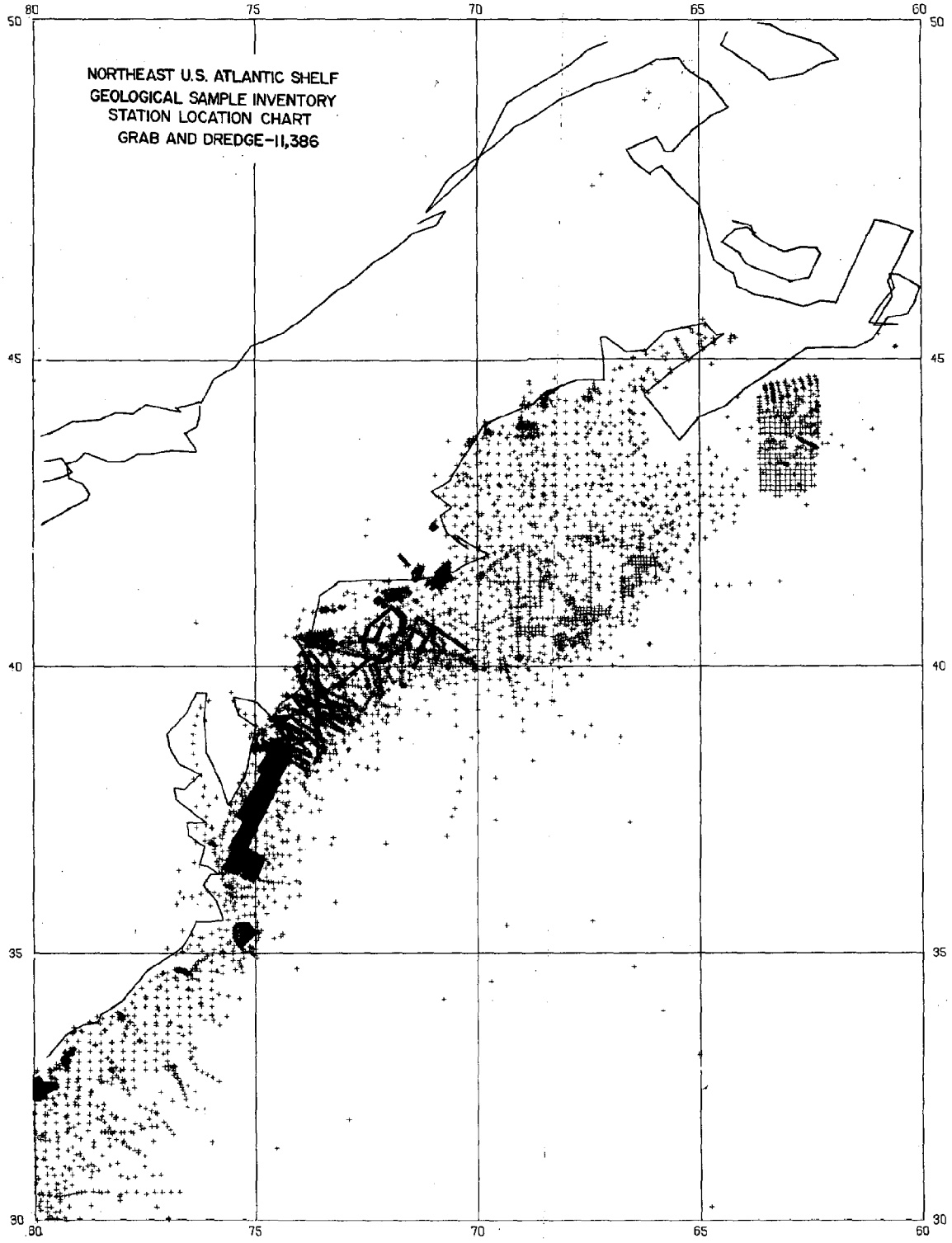


A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-3	Northeast U.S. Geologic Sample Inventory - Number of Stations



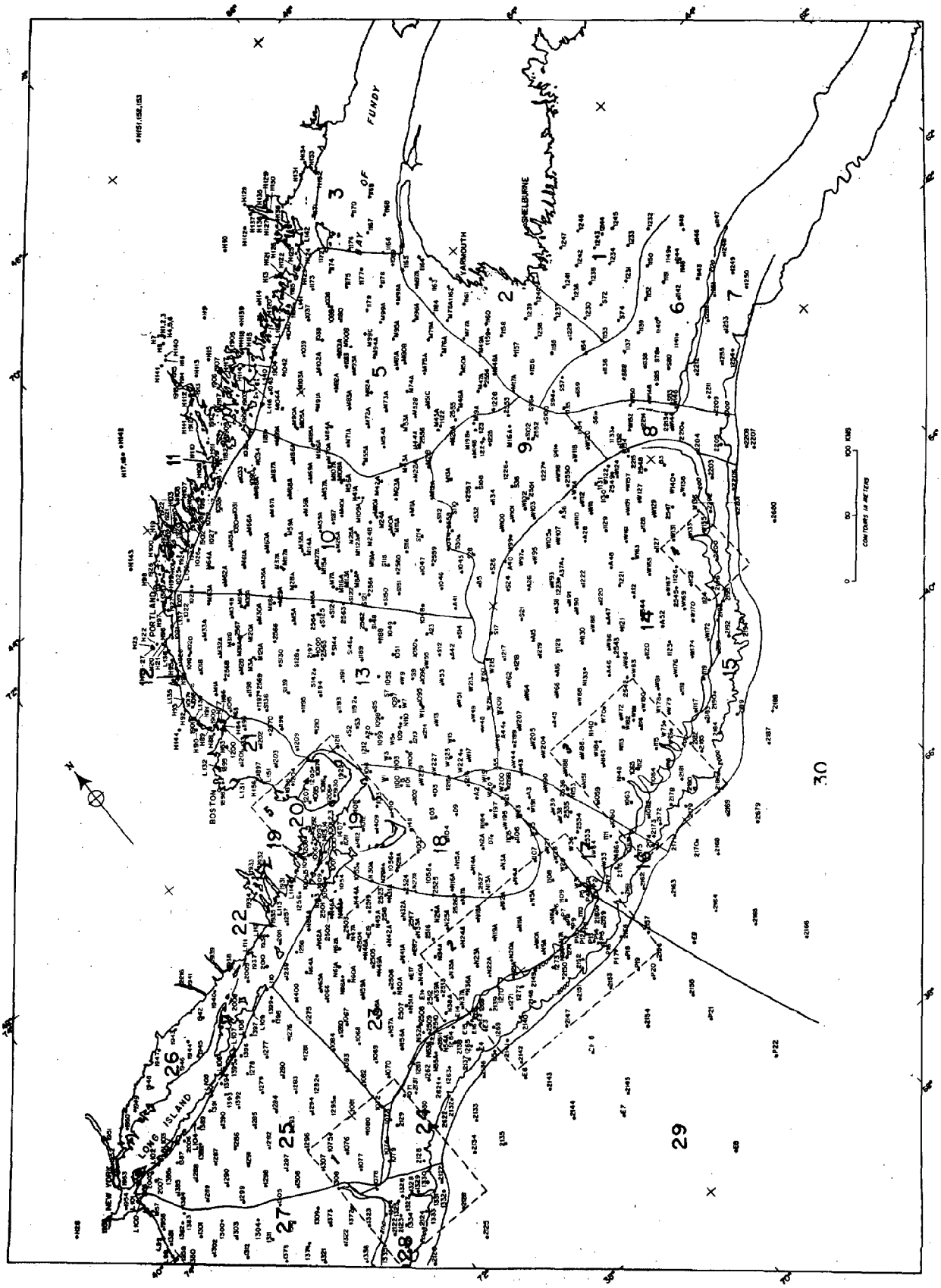
A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIGURE A-4 | Northeast U.S. Geologic Sample Inventory - Station Location Chart-Core



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC	FIGURE A-5	Northeast U.S. Geologic Sample Inventory - Station Location Chart-Grab and Dredge



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC	FIGURE A-6	Station Index Map (Hathaway, 1971)

A.2.5 METEOROLOGY

NATIONAL CLIMATIC CENTER, ASHVILLE (NCC)

The summary of synoptic meteorological observations (SSMO) is based on marine information from ships in passage reporting weather in standard forms, (includes cloud cover, wind, temperature, and pressure, generally taken every four hours.

Areas 6, 5, 4 (western North Atlantic) are well covered. Historically, records start in the mid 1800's and continue to the present with periods of few observations during WWI, WWII, and the Depression when there was little shipping. However, some quantum leaps in the volume of data appear around 1900, also after WWII and around 1961.

Each of the 30 or 40 major maritime nations collects the forms from commissioned ships. Data are then copied and mailed to other nations. For mailed data there is a lag of 3 to 4 months for U. S. ships, and up to two years for foreign ships. However, National Climatic Center also receives all radioed weather information from ships and has since April 1973 automatically put this information on magnetic tape. Although the data are current, the quality of this information is poorer than the written forms.

NCC also has synoptic data for a large region from the Synoptic Data File (useful only on large regions with inferences made from missing data points). They also have a large bank in microfilm and microfiche of satellite-gathered data. Parameters that might be extracted from these data are: cloud cover, wind (inferred), and sea surface temperature.

Skew points are usually cleaned from SSMO data before summarizing. NCC can provide many different formats and types of pointouts and plots. Old SSMO's should be carefully examined because the cleaning process was not done.

A sample of the type of data available for each one degree square follows on Table A-15. SSMO's are produced in collaboration with Naval Weather Service Command. We did not consider it within the scope of our study to obtain all 29 one degree squares necessary to cover our study area, but included the sample data only. Several atlases contain many of the basic data and are readily available.

In addition, all historical data for weather stations can be extracted by hand. Such an effort was outlined for one station, Eastport, Maine as a sample by NCC. The type of data (i.e., barograms, thermograms, wind records) were listed by each year which they are available. Estimates for the actual search were about $400 per station to produce all back records (W. T. Hodge, Personal Communication). Table A-16 is a

listing of the normally available data.

Contact at NCC: (704) 254-0961

ENVIRONMENTAL DATA SERVICE, NOAA (EDS)

EDS is a relative of the NOAA family and closely allied with NCC. The raw data are compiled by NCC and EDS analyzes these for specific locations and make probability charts for storm frequencies and the like. They also help with revisions of National Ocean Survey publications including coast descriptions, navigational hazards, and weather. A machine produced, annotated bibliography was prepared for TRIGOM primarily for physical oceanography. A similar special search could be done for meteorological data. These particular titles were used for the physical oceanography sections 3.2 and 4.3 of this report and appear in the KWIC bibliography in a separate volume at EDS: Bob Freeman (202) 343-7614.

BENDIX COMMERCIAL SERVICE CORP.

A specialized ship routing service is conducted by Bendix using basic U.S. Weather Bureau data. Contact at Bendix: Fred Pickhardt (201) 288-1550.

A.2.6 ENDEX-EDBD

A part of the EDS capability has been to prepare a special directory of data called Environmental Data Base Directory (EDBD) for the New York Bight Area. This program was compiled by NOAA/NODC for MESA (Marine Ecosystem Analysis). EDBD (1973) is a computer access system that lists the availability of oceanographic and environmental data that relate to the New York Bight. The major topics included are:

Physical/Chemical Oceanography

Biological/Chemical Oceanography

Geology/Geophysics and Sediment Chemistry

Chemistry (Water Column)

Air/Water Pollution

Meteorology

General

The first edition of the Directory was issued in September 1973 and contained information on data at 124 facilities, all with data pertaining to New York Bight. While there was the stated intent to produce subsequent updated versions of EDBD as of our last discussion in April 1974, there is no second version contemplated (Millington Lockwood, personal communication).

As an extension to EDBD, an additional task has been assigned requiring a visit to each of the 18 principal data repositories in the New York Bight region (mainly within our study area) to catalog in greater detail and more accuracy the available data contained at each facility. This activity should show up in On-going Research, Appendix C.3.

A.2.7 OTHER NATIONAL DATA BANKS

As we mentioned previously, at the outset we did not intend to locate, assess, or evaluate all the data banks. One of the more recent studies that has done a credible job of this sort of listing is Interstate Electronics Corporation (1973) in a review of data sources for water quality. We have contacted a portion of these sources for information not only on water quality but for physical and chemical data. Table A-17 lists those data banks believed to be useful for BLM. We have not verified these data sheets compiled by IEC. A more thorough investigation of several of these data banks was conducted as part of our analysis of Maine rivers including water quality and environment. These can be reviewed in our pilot study described in Appendix C.5.

STATE DATA BANKS

An increasing trend among state governments, faced with a growing information overload and access problem, is the development of comprehensive resource data banks. We were able to find three states in the study region which have moved in this direction. These are: Maine, Rhode Island, and New York. These will be briefly discussed below. Others may exist in the study area but were not evident in our investigation.

Maine: MIDAS

The Maine Information Display Analysis System (MIDAS) originally was developed by the Maine State Planning Office in cooperation with the Departments of Inland Fisheries and Game and Marine Resources. It is a computerized information system including the natural resources area with some subsystems relating to socio-economic considerations. A list of the files contained in MIDAS is presented below:

Accident Subsystem	Fish and wildlife, boating, hunting and snowmobile accident reports.

Species subsystem	Fish and wildlife population and condition of their habitat such as wetland inventory.
Harvest subsystem	Fish and wildlife harvesting information. Information is also available on the hunter and the fisherman.
License subsystem	Catalog of licenses obtained for fish and wildlife harvesting. Characteristics will be available on hunters and fishermen for 1971.
Land-Use Subsystem	Data available on current land and related water use. Wetland and deer wintering area information partially available.
Pollution Subsystem	Water quality data
Prosecution subsystem	Detailed information about the characteristics of the crime and the disposition of the cases. For 1971-1972.
U.S. Census Subsystem	The 1970 Census of Population and Housing Characteristics by city and town, county and State. Income data available also.
Master Indicies subsystem	City, town, county, river, lake, and other name and geographical area listings.

These files are drawn from records of a number of Agencies, including the Maine Departments of Environmental Protection, Forestry, Health and Welfare, Marine Resources, Inland Fish and Game, Bureau of Taxation; U.S. Departments of Agriculture, Commerce and Interior (Bureau of Sport Fisheries and Wildlife). A more detailed listing of data contained in each file is available from the Maine State Planning Office. Data may be retrieved for many of the files by town, county, or state planning unit. Access may be obtained through the State Planning Office by contacting Mr. Al Goodwin (telephone: 207/289-3261).

Rhode Island: Environmental Inventory

The Rhode Island Statewide Planning Program, in response to a directive from the Governor issued January 4, 1972, recently began the development of a computerized statewide environmental data bank. It will include "any element which is either a part of the environment or may have an effect upon the environment." (written communication, R.I. Statewide Planning, 1974). The system is based spatially on the Universal Transverse Mercator System (UTM) which is organized

by a grid with grid lines spaced one kilometer apart and subdivided into smaller units. The cell unit in Rhode Island is approximately 10 acres. Information is currently being transcribed to this grid system and computerized. The following is a list of elements already coded along with elements tentatively planned for future codings: (written communication, R.I. Statewide Planning, 1974).

FY 73 general soil types (twelve groups)
classification of present water quality (ten groups)
1961 land use (thirteen types)
public water service areas
public sewer service areas
traffic zones (685 for entire state)

FY 74 topography
vegetation
historic sites and areas
municipal zoning
fresh water wetlands
flood hazard areas

FY 75 urbanized areas (1965 & 1970)
1970 land use
transportation data (road type, volumes, access, etc.)
watershed areas
unique natural areas

New York: LUNR Inventory

The Land Use and Natural Resources (LUNR) Inventory was developed by by Cornell University for the State Department of Environmental Conservation in 1969. It, like Rhode Island, is based on the UTM coordinate system, and contains land use information on over 120 categories which break down generally into residential, industrial, agricultrual, forested uses and natural characteristics including soils, geology, topography, and hydrology (the hydrologic information is now in pilot study status, not accessible). Table A-18 details some of the information available. Data may be accessed by UTM grid, or by county. System access may be obtained through LUNR User Service, Cornell University, 468 Hollister Hall, Ithaca, New York 14850 (607) 256-3364.

A.2 REFERENCES

Driscoll, Alan H., 1973: Digitization of geological sample data at sea for use with MUDDIE program. WHOI-72-54, Woods Hole Oceanographic Institution, Woods Hole, Mass. for Office of Naval Research and National Science Foundation.

Gilman, Jeffrey A., 1973: Procedures for photographing W.H.O.I. sediment cores. Technical memorandum WHOI-1-73, Woods Hole Oceanographic Institution, Woods Hold, Mass.

Hathaway, John O. (ed.), 1971: Data file: continental margin program, Atlantic Coast of the United States. Ref. No. 71-15, Woods Hole Oceanographic Institution, Woods Hole, Mass. in cooperation with U.S. Geological Survey.

Johnson, D. A. and A. H. Driscoll, 1972: The curating of W.H.O.I.'s geological collections. Technical memorandum WHOI-2-72, Woods Hole Oceanographic Institution, Woods Hole, Mass.

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National Oceanographic Data Center, 1973: User's Guide to NODC's Data Services; key to oceanographic records documentation No. 1, NOAA U.S. Department of Commerce.

Weiss, Martin, 1968: Project description - geological sample inventory: U.S. North Atlantic Continental Shelf, 1 July, 1966 - 30 June, 1967. Publication G-16, NODC General Series, National Oceanographic Data Center, Washington, D.C.

AREA 4

AREA 4

TEMPERATURE - SALINITY COMPOSITE
ALL MONTHS

AREA 4

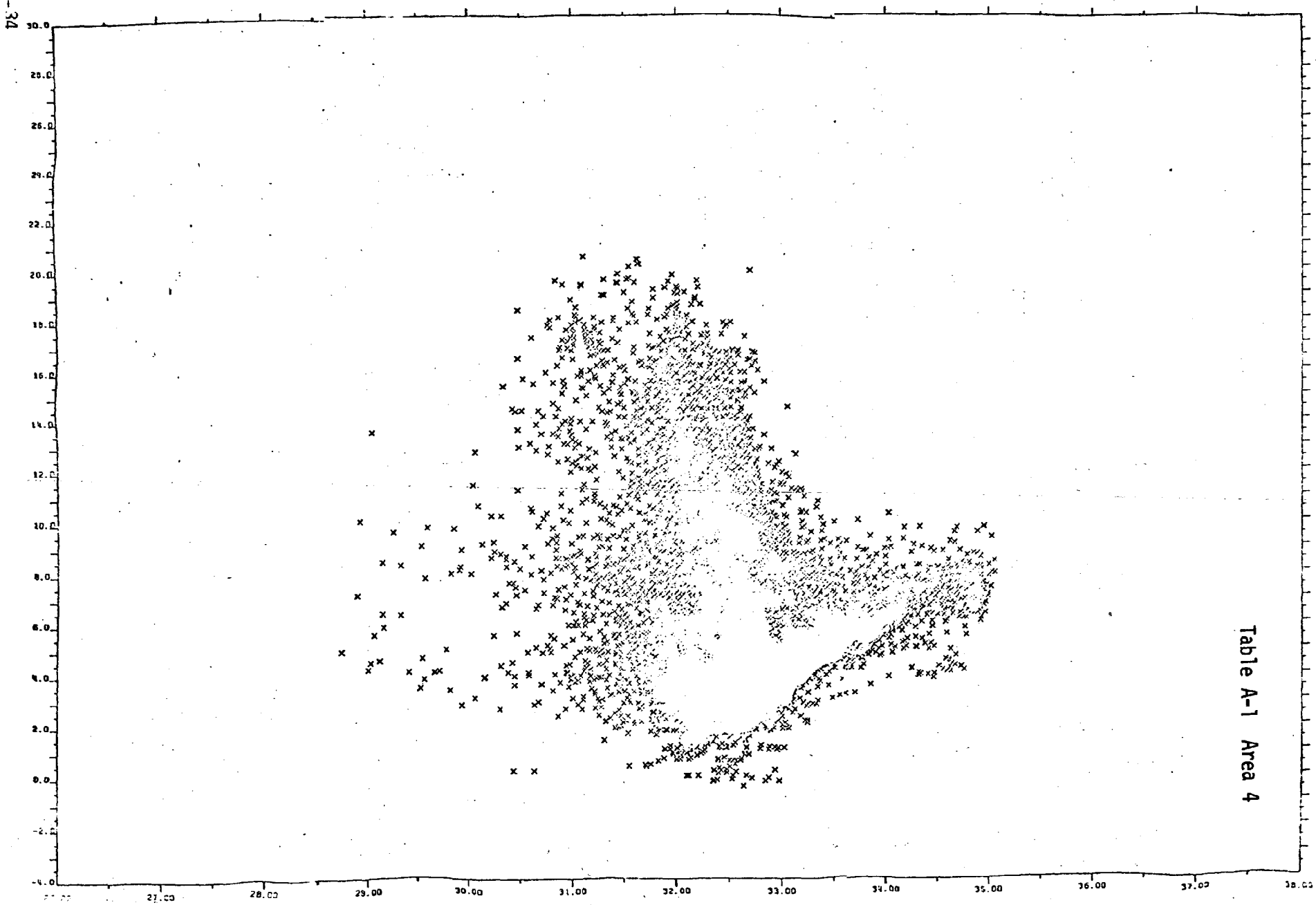


Table A-1 Area 4

ALL MONTHS

AREA 5

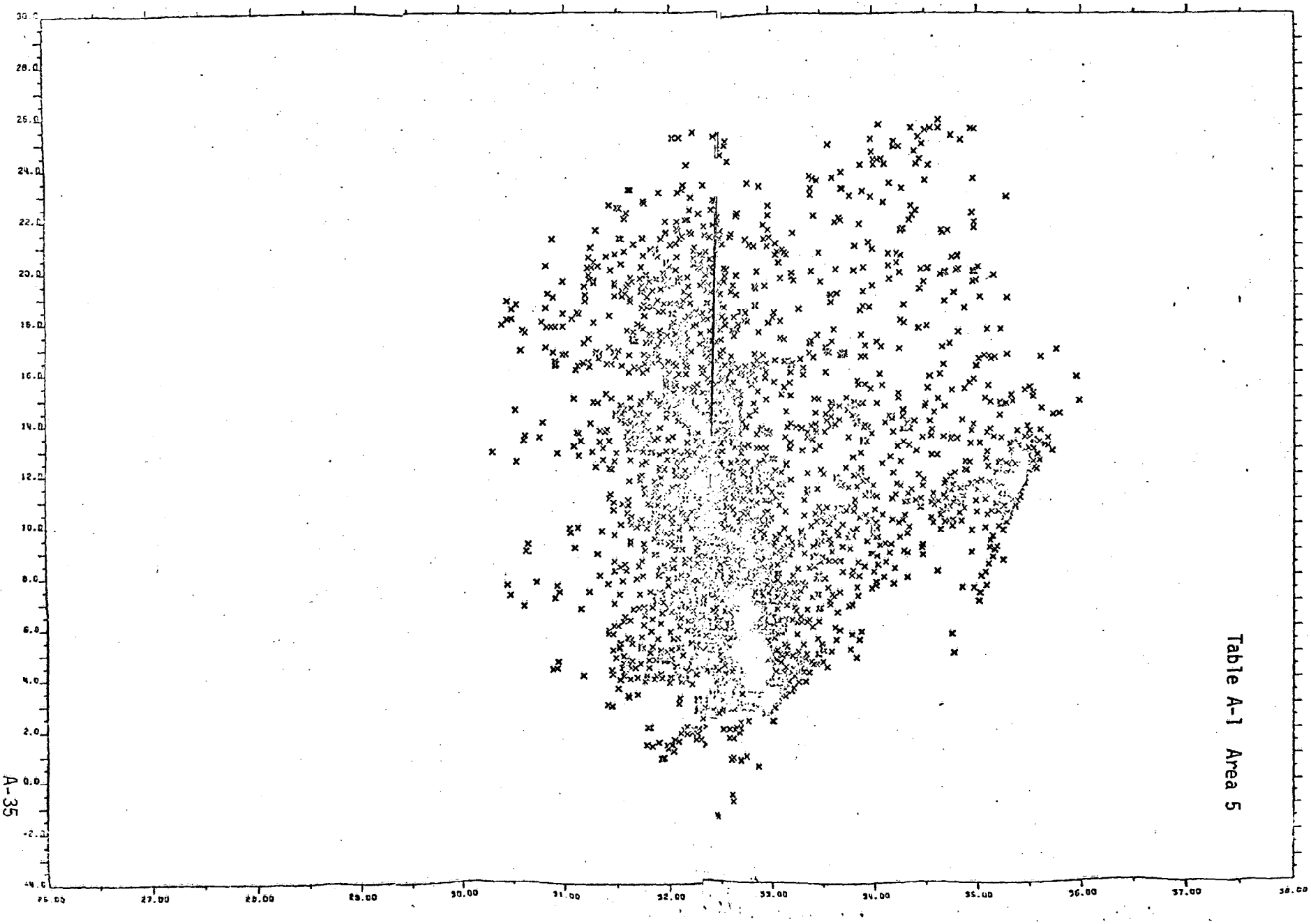


Table A-1 Area 5

EA 6

AREA 6

TEMPERATURE - SALINITY COMPOSITE
ALL MONTHS
AREA 6

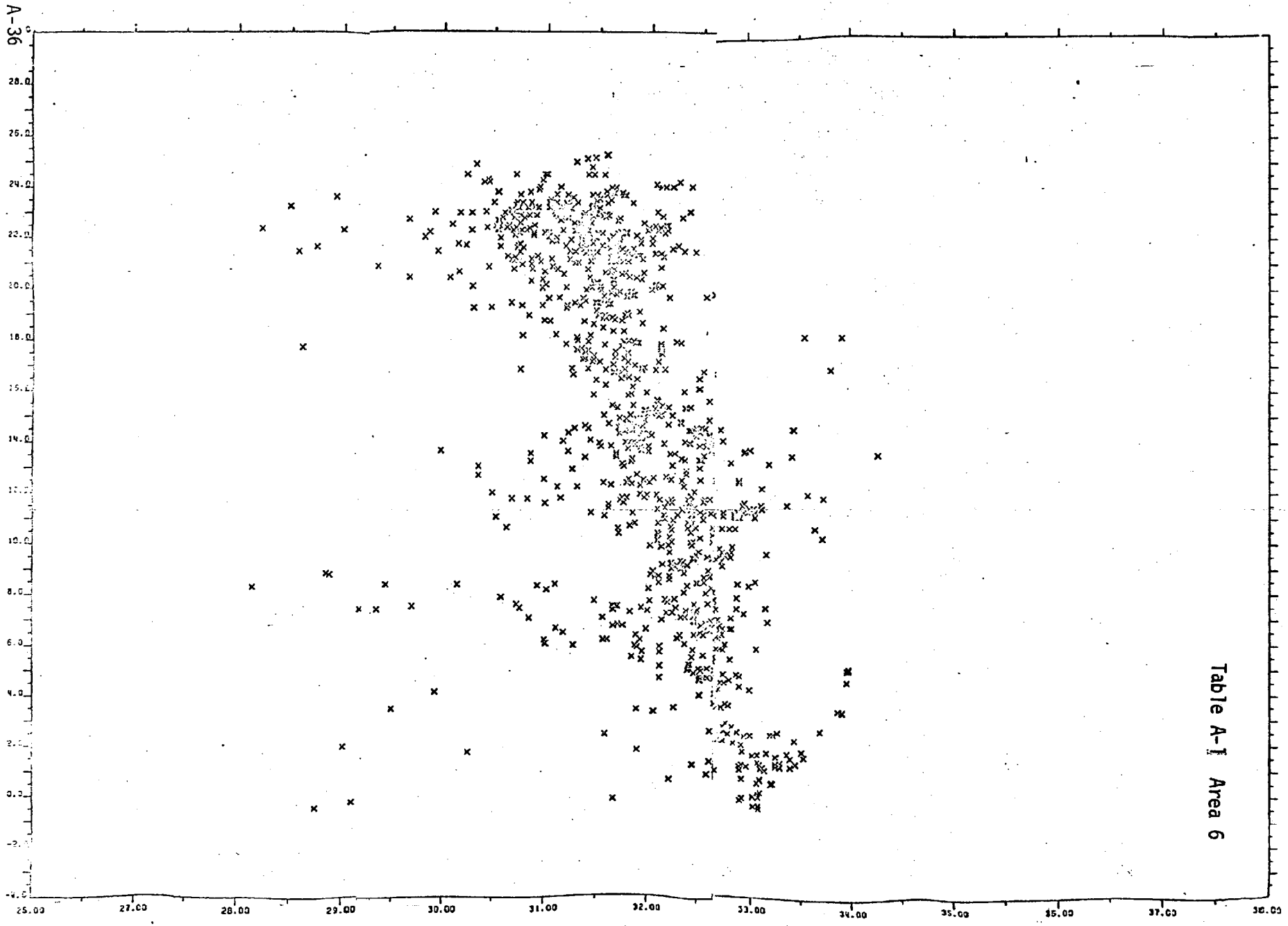
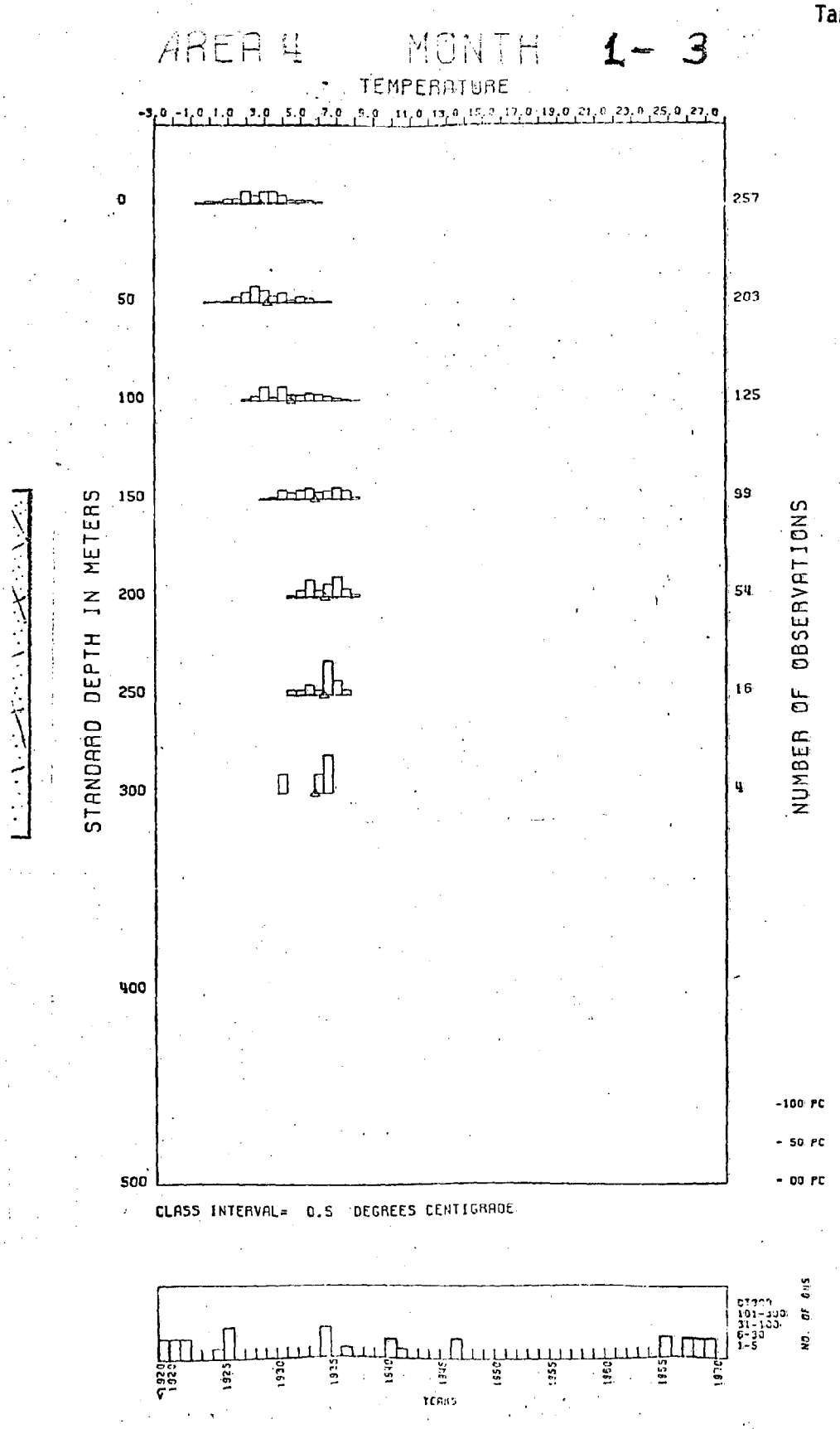
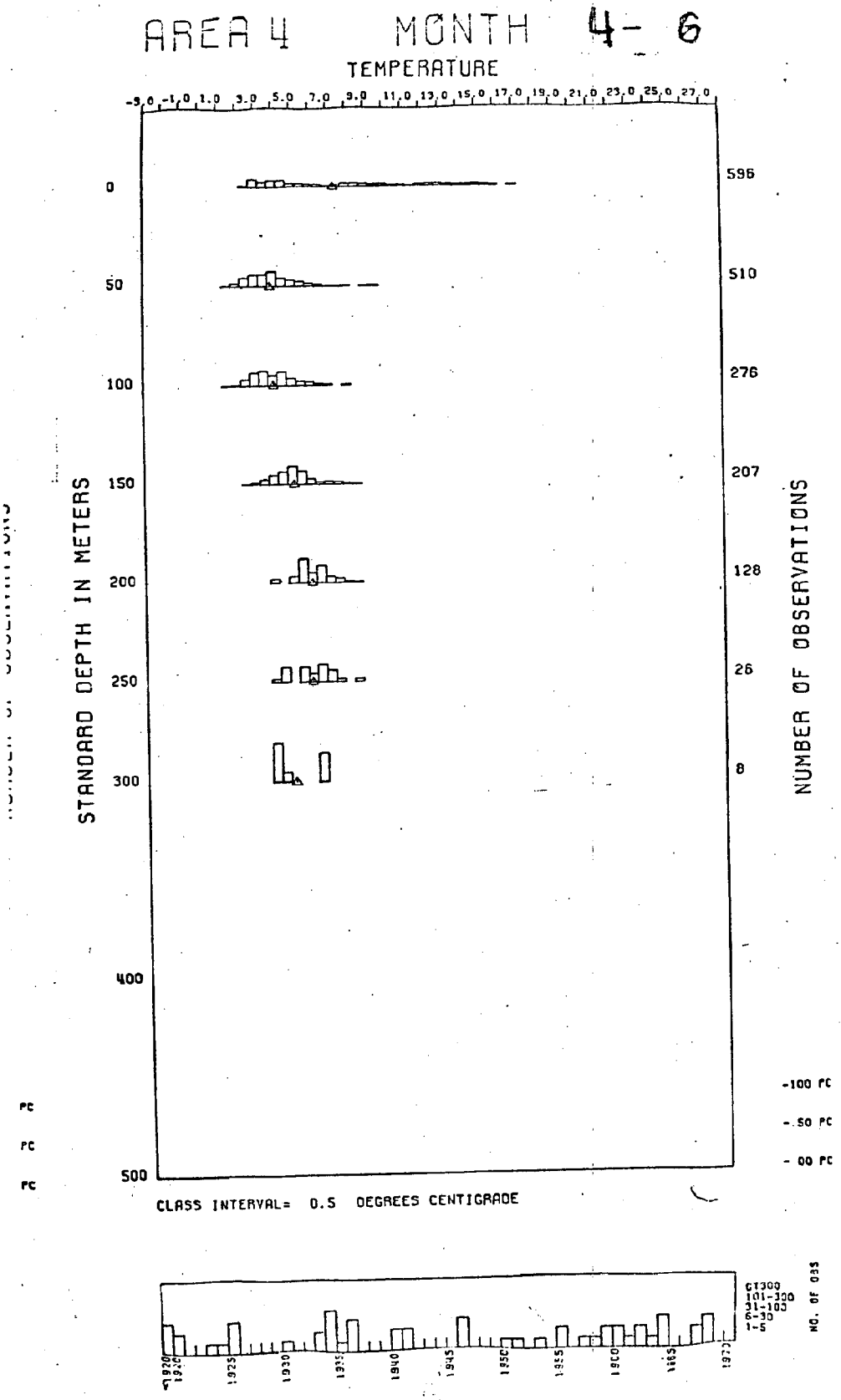
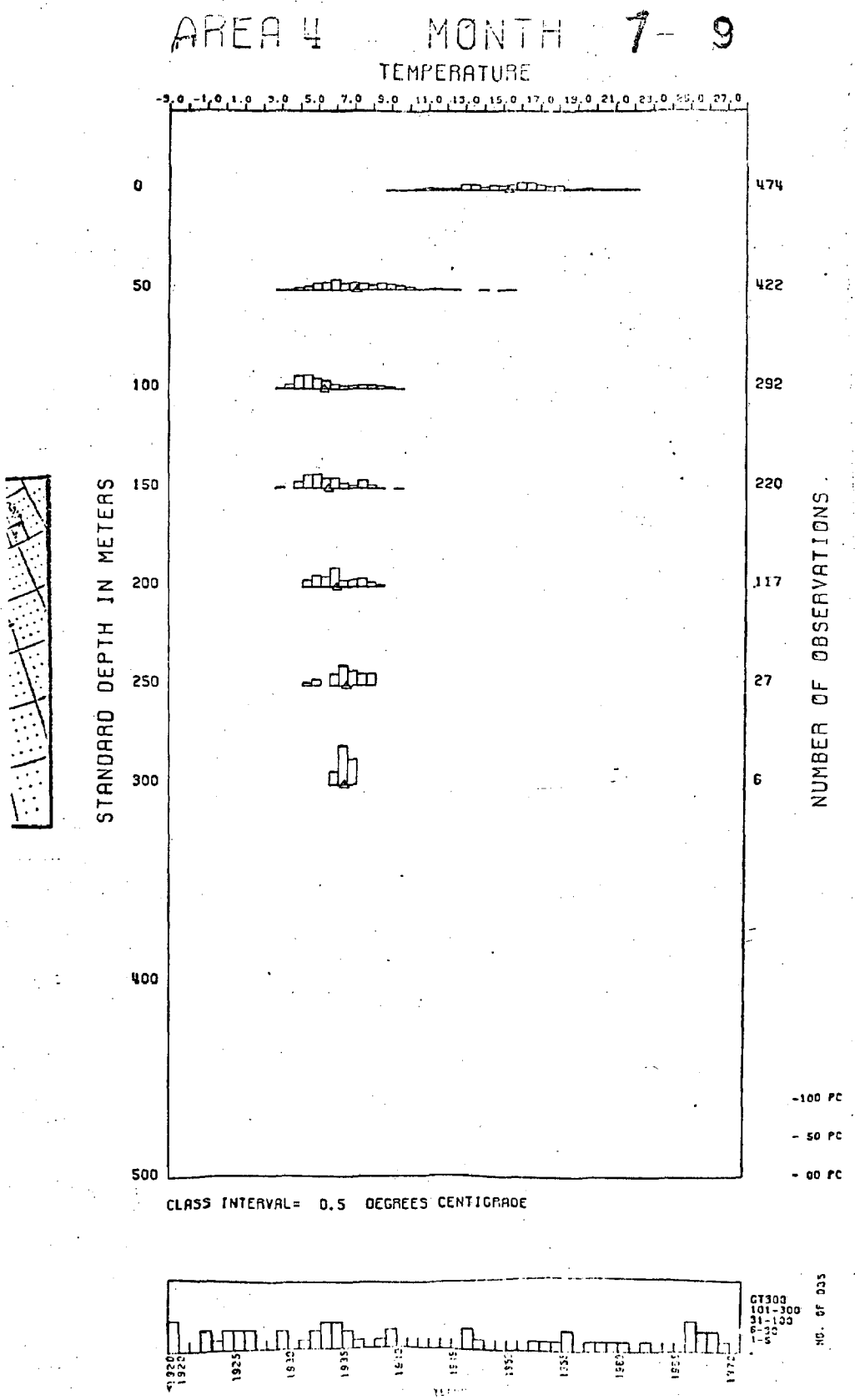


Table A-I Area 6


AREA 4 MONTH 1- 3
TEMPERATURE
-3.0 -1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
257
203
125
99
54
16
4
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1970
YEARS
NO. OF OBS
101-300
31-100
6-30
1-5


AREA 4 MONTH 4- 6
TEMPERATURE
-3.0 -1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
596
510
276
207
128
26
8
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1972


AREA 4 MONTH 7- 9
TEMPERATURE
-3.0 -1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
474
422
292
220
117
27
6
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
GT300
101-300
51-100
26-50
1-25
NO. OF OBS
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933

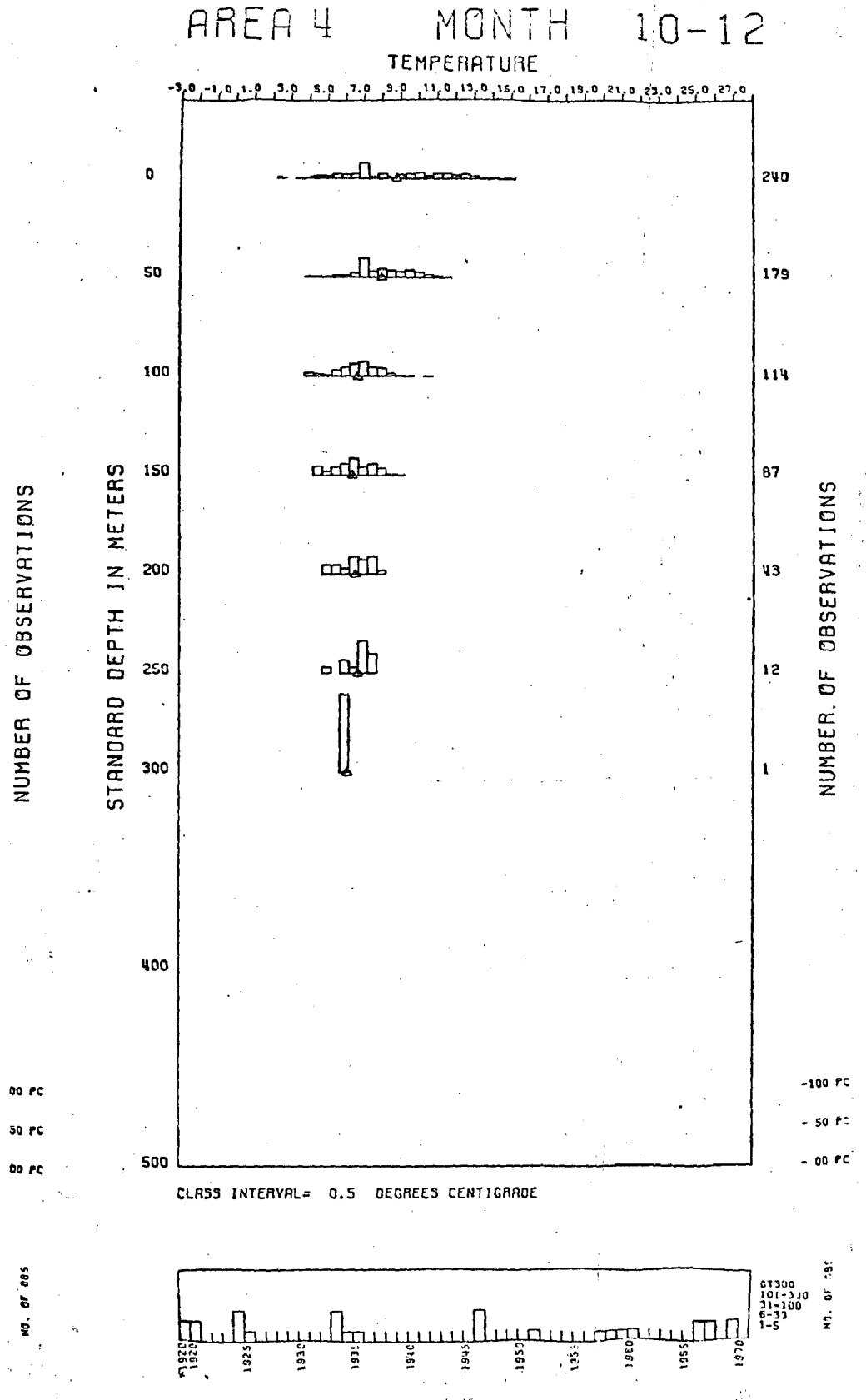
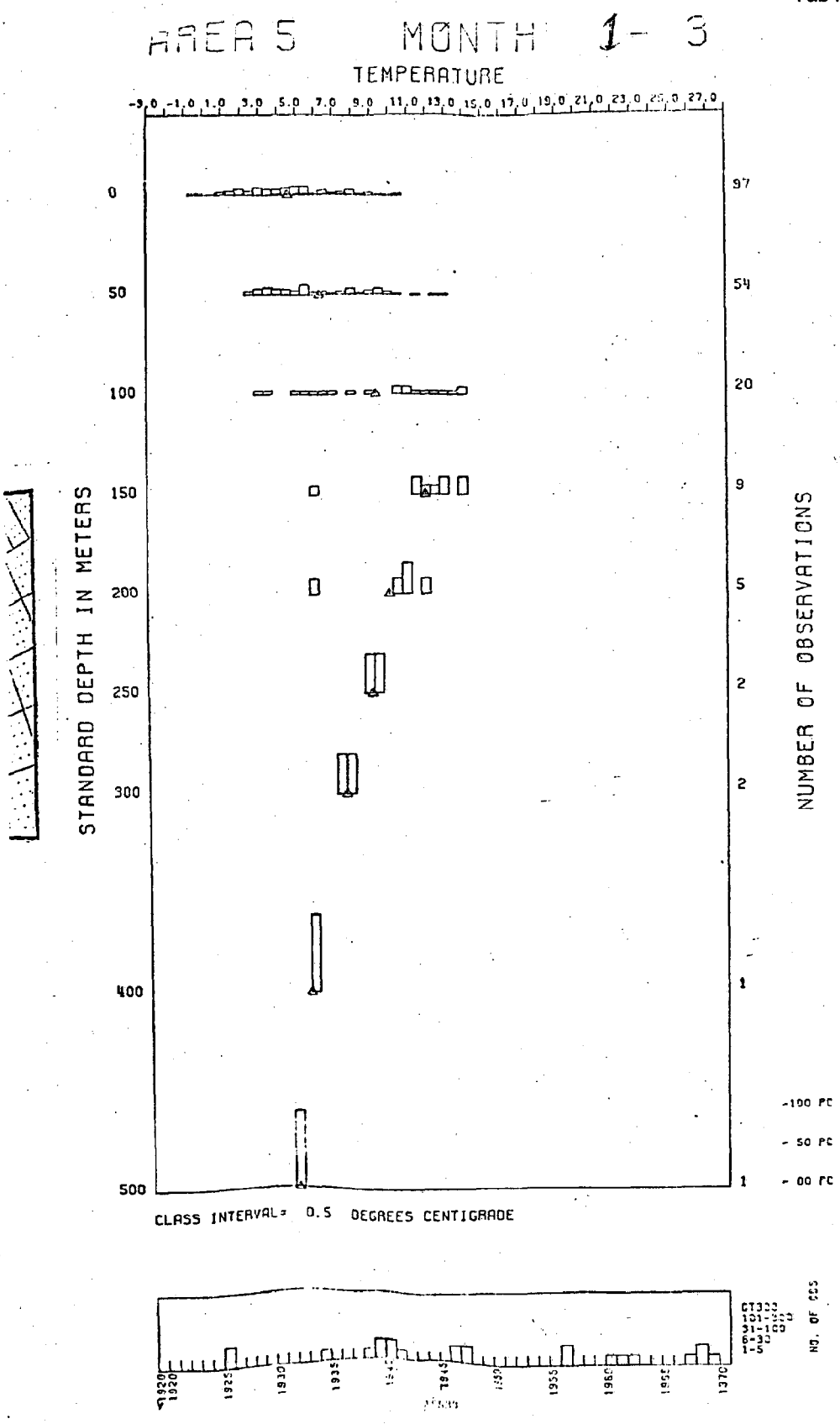

AREA 4 MONTH 10-12
TEMPERATURE
-3.0 -1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
240
179
114
87
43
12
1
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
GT300
101-300
31-100
6-30
1-5
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

Table A-2 Area 5



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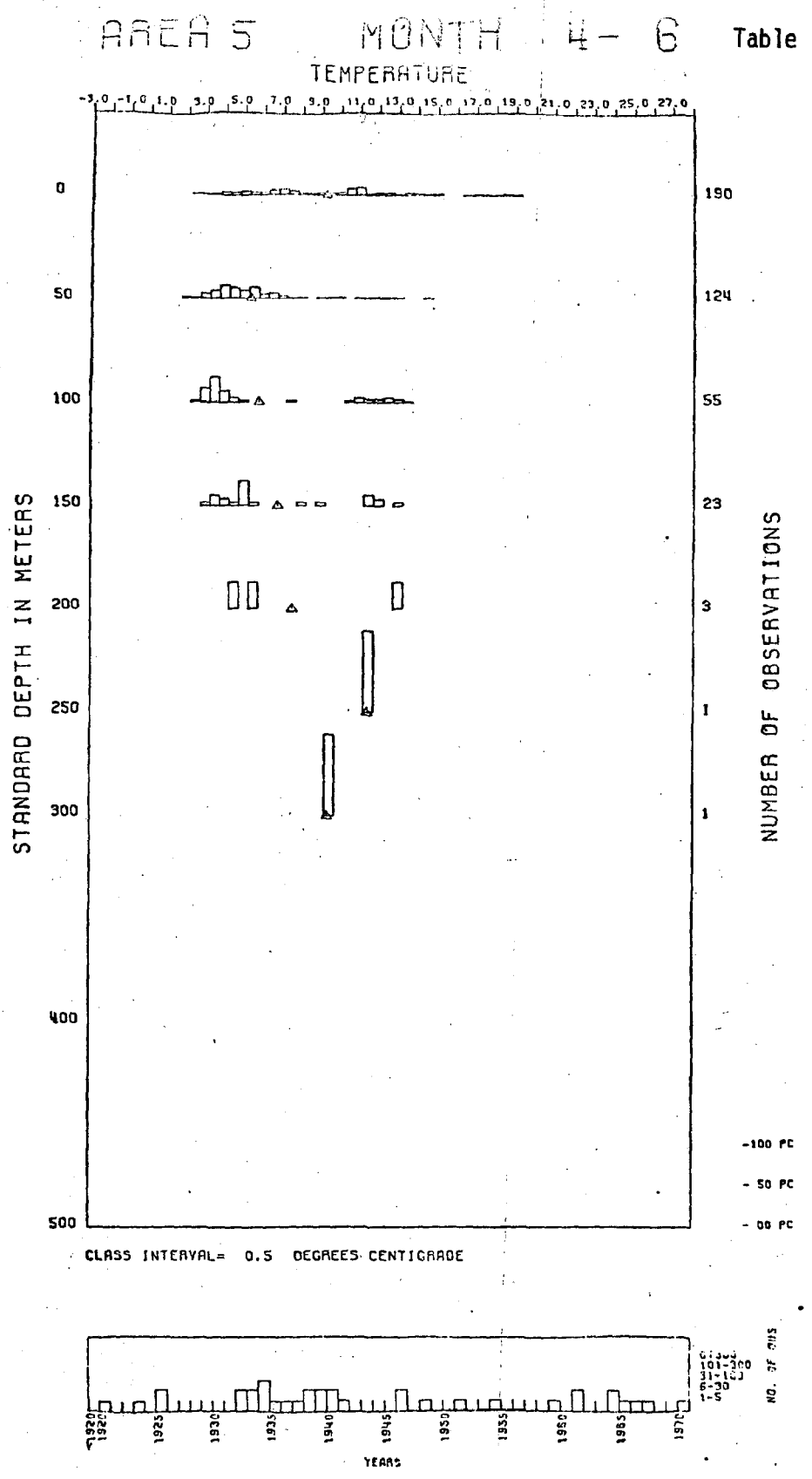

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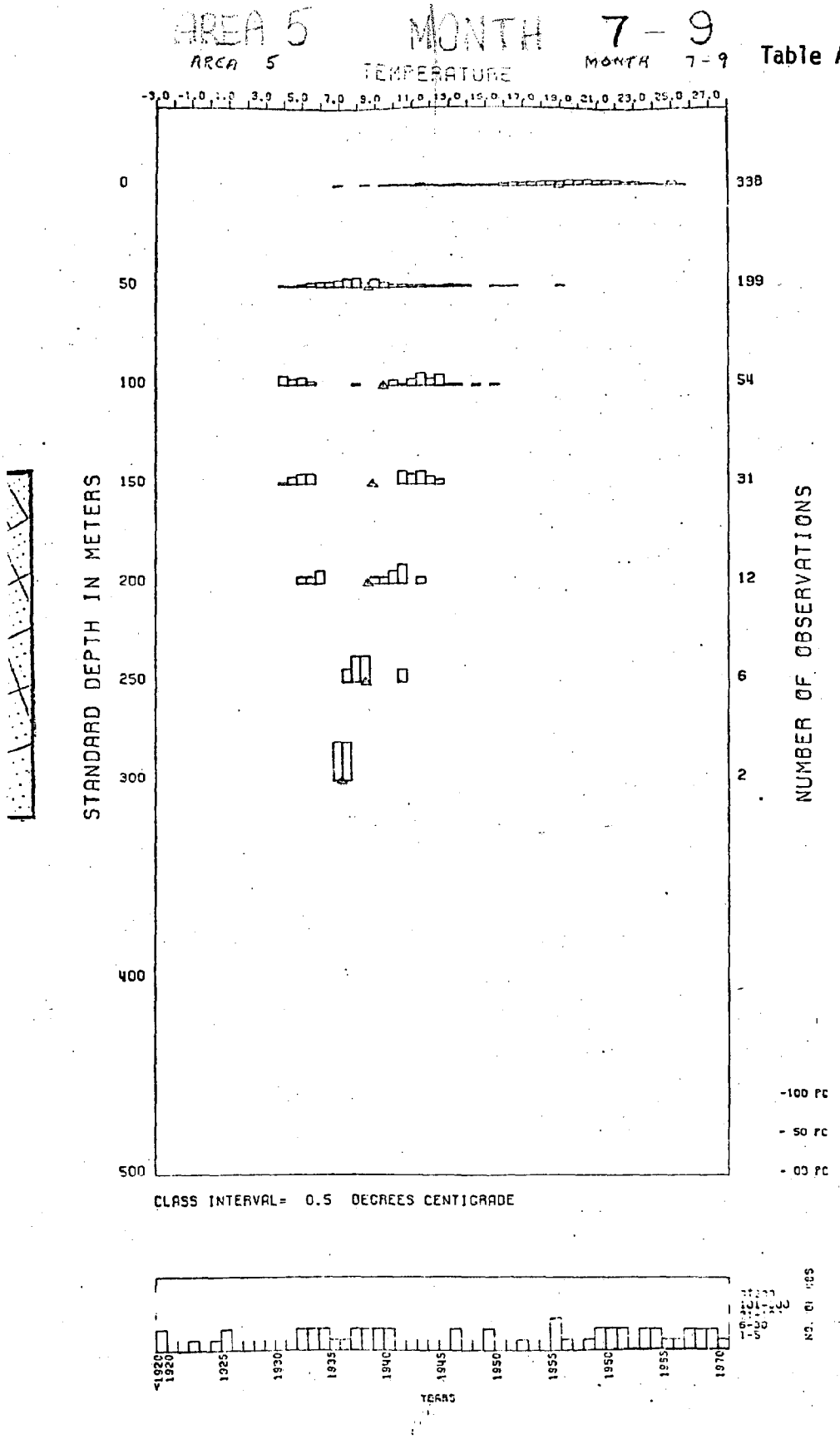


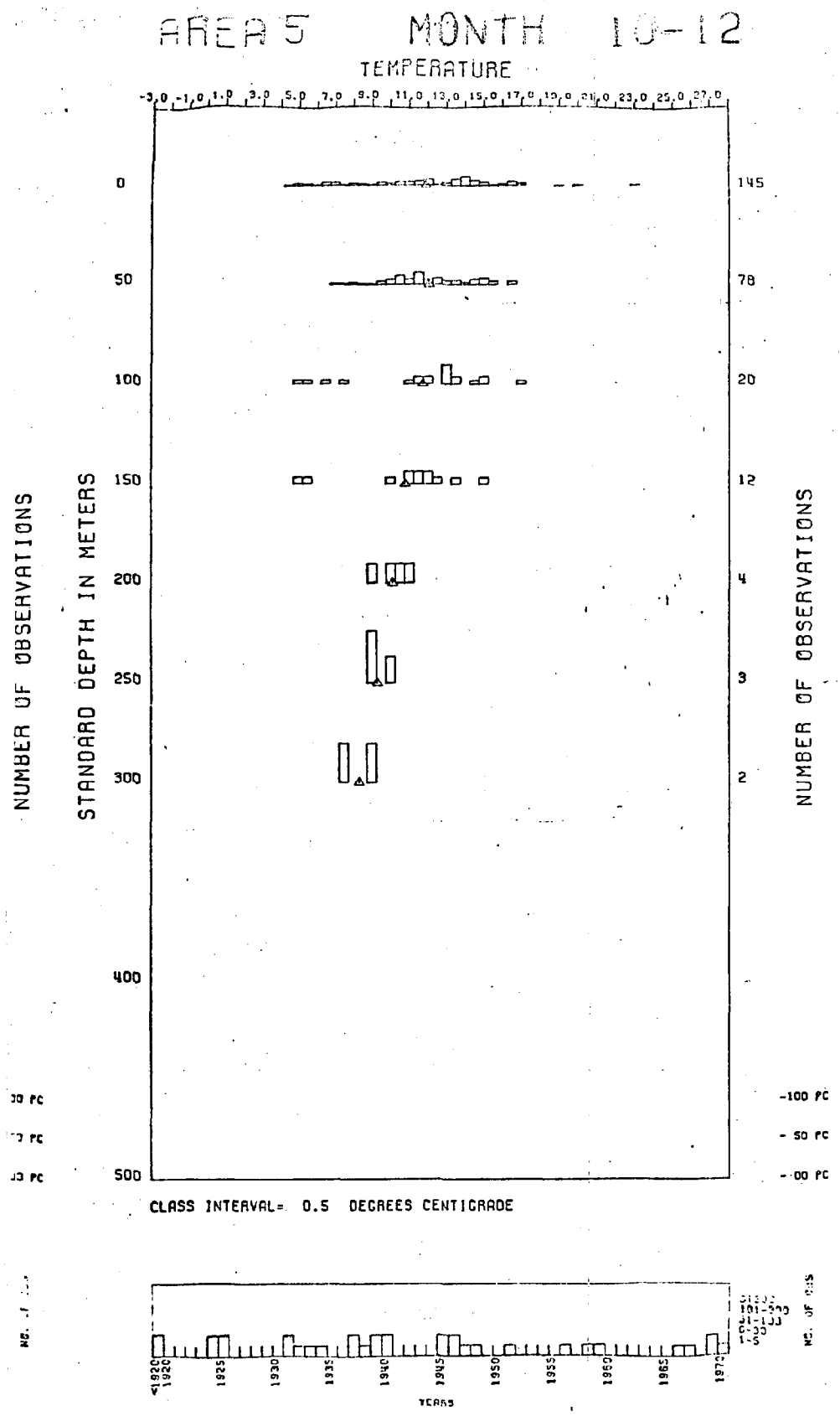
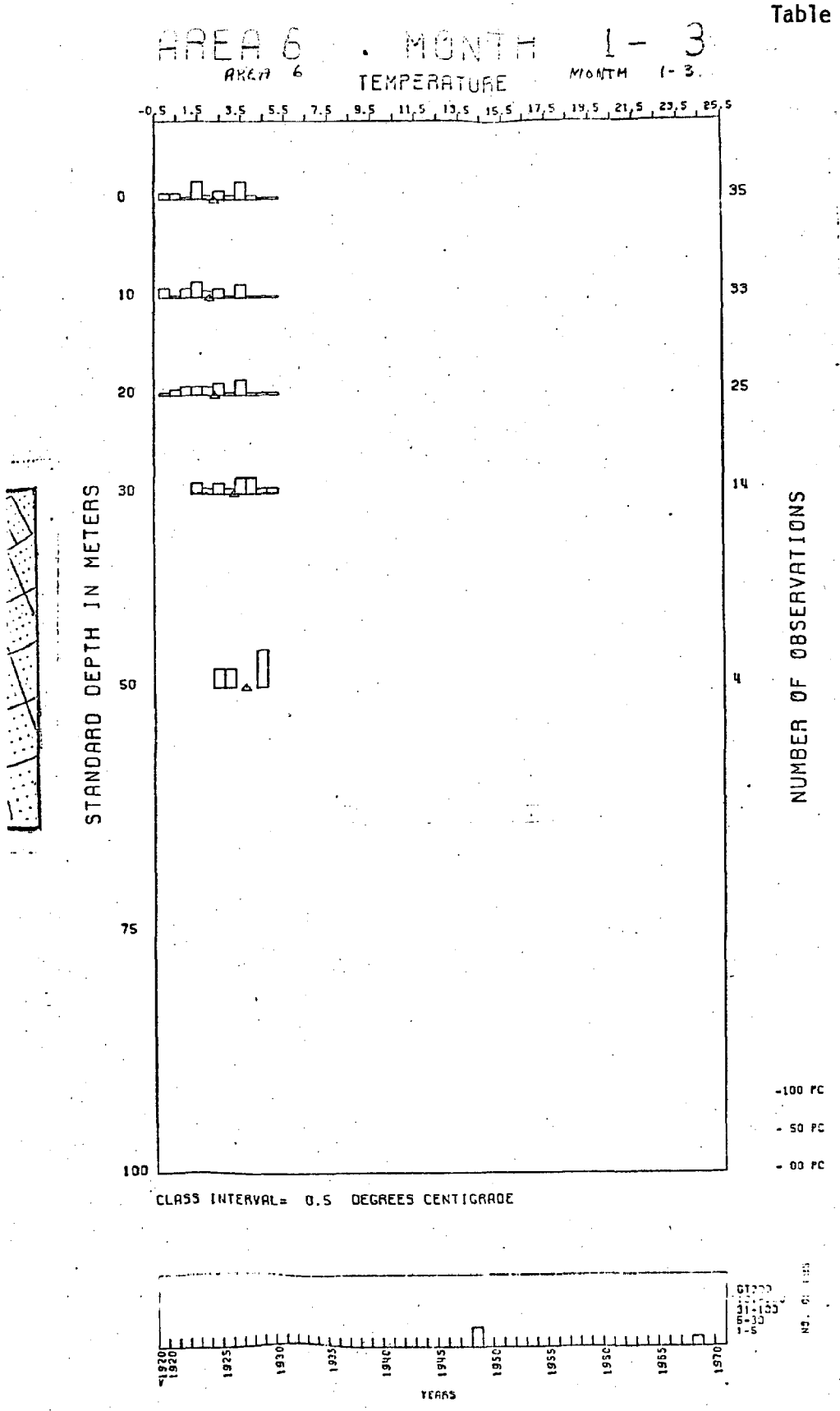

AREA 5 MONTH 10-12
TEMPERATURE
-3.0 -1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
0
50
100
150
200
250
300
400
500
145
78
20
12
4
3
2
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
<1920
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

Table A-2 Area 6



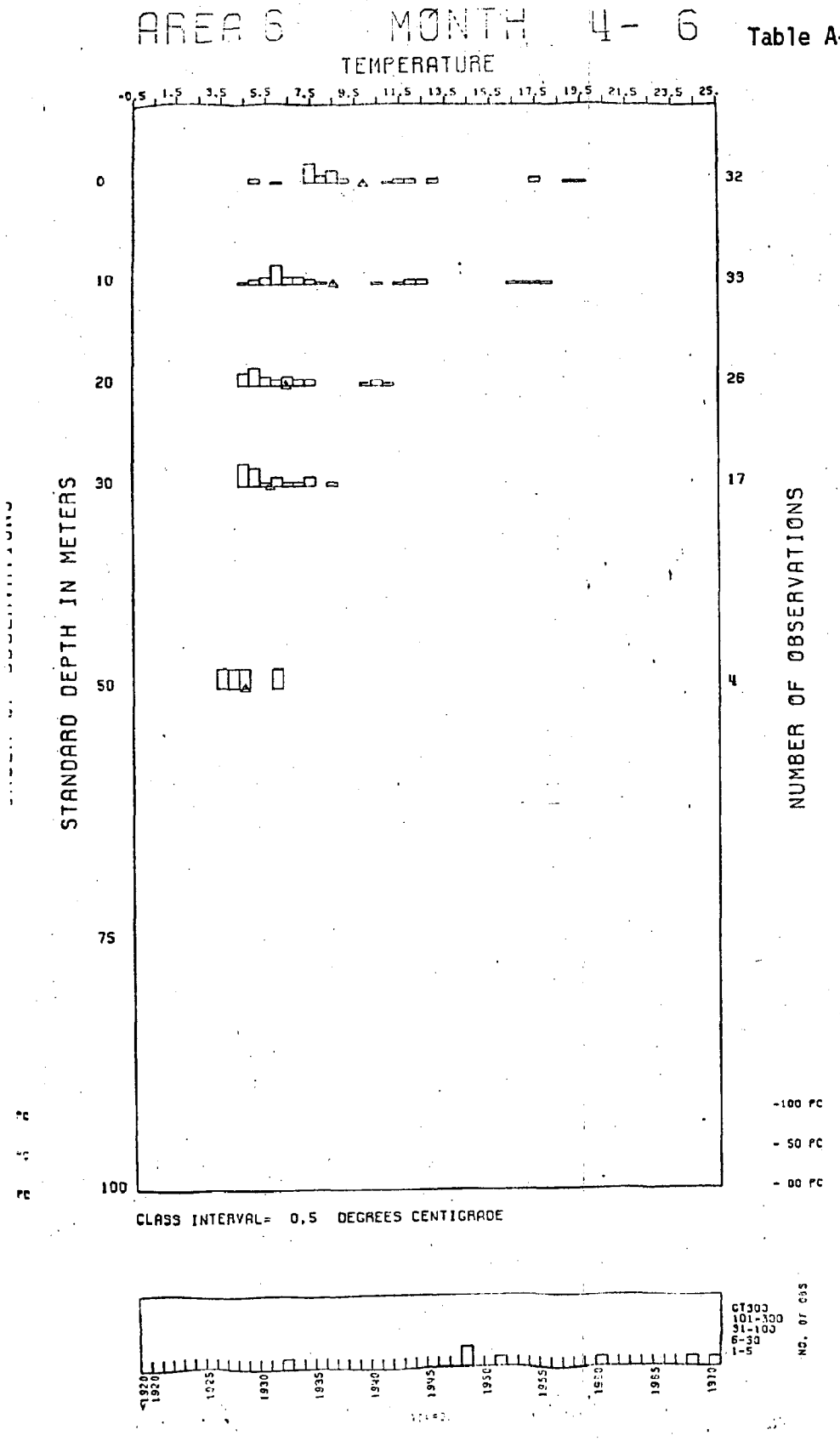
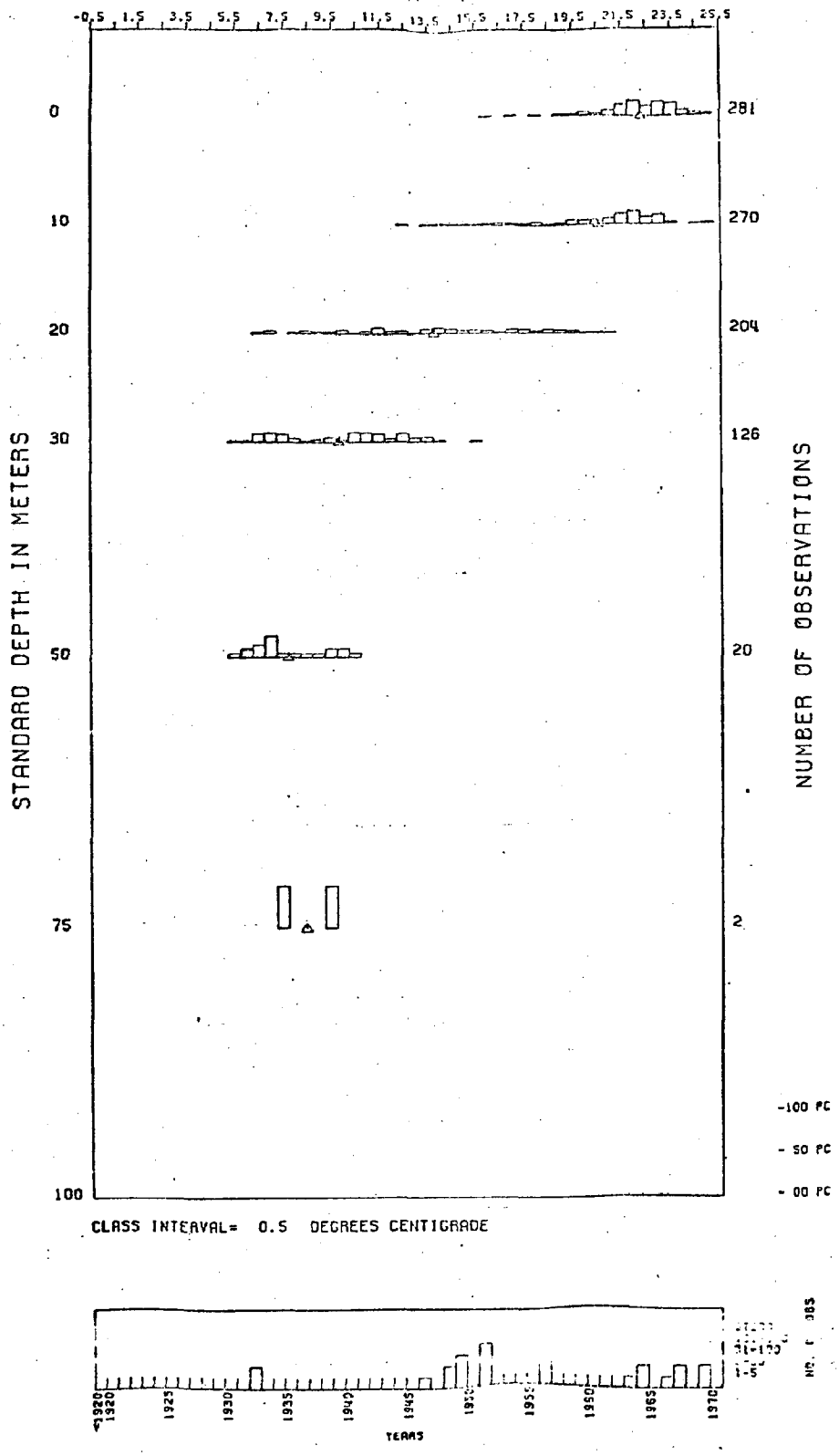
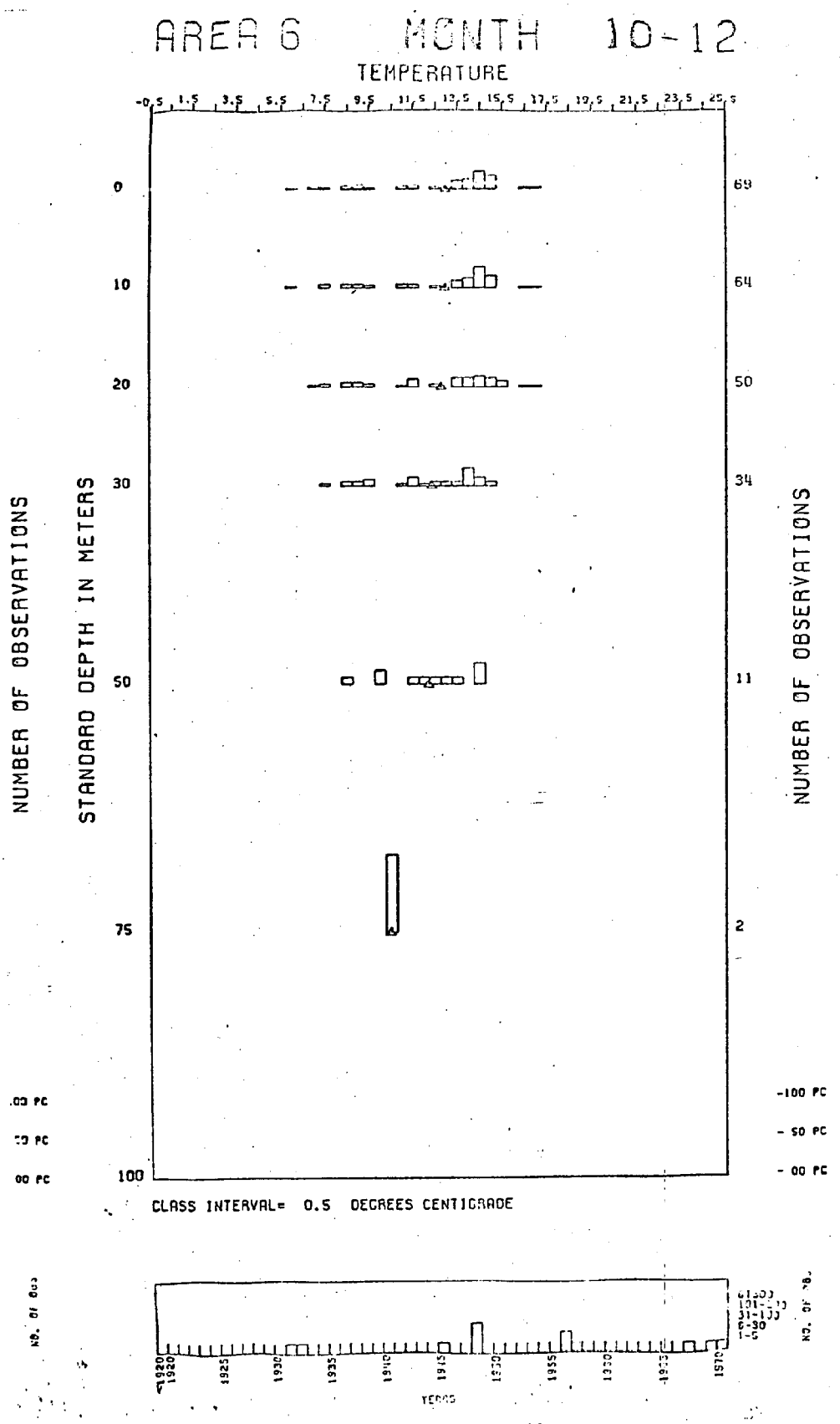
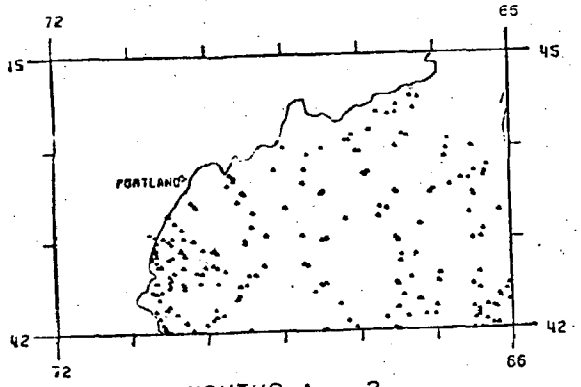

AREA 6 MONTH 4- 6
TEMPERATURE
-0.5 1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5 19.5 21.5 23.5 25.
0
10
20
30
50
75
100
32
33
26
17
4
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

Table A-2 Area 6 (cont.)




AREA 6 MONTH 10-12
TEMPERATURE
-0.5 1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5 19.5 21.5 23.5 25.5
0
10
20
30
50
75
100
69
64
50
34
11
2
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



MONTHS 1 - 3

AREA 4 BOSTON

42-45N 66-72W

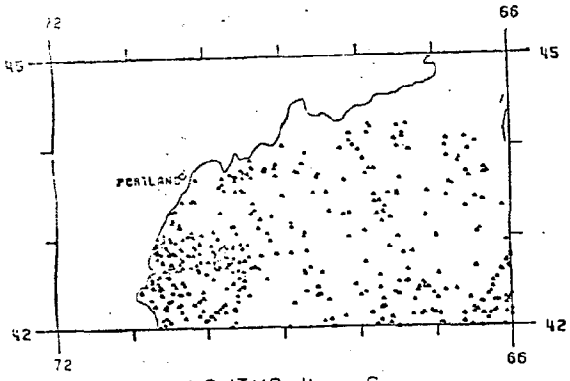
TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	5.83	2.82	-0.50	257	1.27
10	5.95	2.81	-0.42	259	1.29
20	6.28	2.83	-0.22	254	1.27
30	6.54	2.93	-0.17	241	1.27
50	6.71	3.19	0.0	203	1.33
75	7.23	3.70	0.0	160	1.33
100	7.94	4.47	1.77	125	1.49
125	8.08	5.21	2.00	107	1.40
150	8.15	5.79	3.23	99	1.24
200	7.83	6.33	4.32	54	0.86
250	7.27	6.26	4.27	16	0.78
300	6.48	5.78	4.14	4	1.11

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
17.05	7.37	2.36	596	3.83
15.43	6.45	1.92	596	3.17
12.54	5.33	1.79	589	2.23
10.79	4.54	1.71	563	1.62
9.34	3.87	1.52	510	1.20
8.16	3.78	1.35	373	1.09
8.15	4.03	1.67	276	1.11
9.11	4.50	1.95	239	1.16
8.68	5.09	2.42	207	1.13
8.31	5.99	3.96	128	0.90
8.56	5.97	3.93	26	1.10
6.43	5.01	4.08	9	1.13



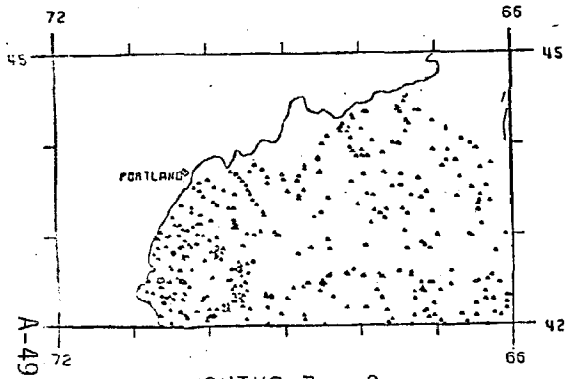
MONTHS 4 - 6

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

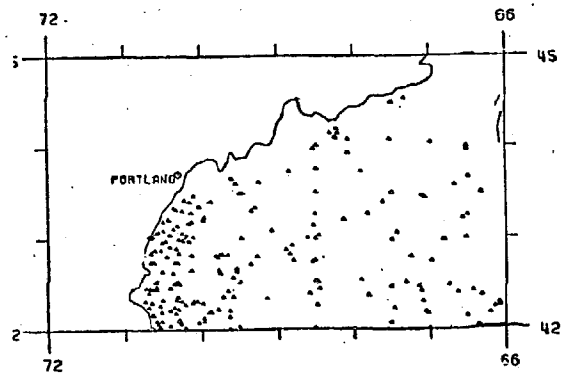
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	21.99	15.30	8.80	474	2.53
10	21.09	13.92	7.68	476	2.50
20	18.76	11.41	5.90	473	2.36
30	16.44	9.32	3.99	462	2.25
50	15.59	7.14	2.89	422	2.06
75	13.76	5.93	3.11	342	1.79
100	9.53	5.41	2.81	292	1.49
125	9.70	5.41	2.91	256	1.31
150	9.73	5.64	2.96	220	1.23
200	8.70	6.11	4.61	117	1.04
250	8.12	6.67	4.74	27	0.90
300	7.10	6.60	6.16	6	0.34

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
15.22	8.77	2.50	240	2.66
14.66	8.70	2.59	240	2.48
14.59	8.58	3.80	239	2.28
12.86	8.57	3.58	213	1.92
11.38	7.96	4.03	179	1.48
11.00	7.14	3.66	138	1.34
10.26	6.67	3.75	114	1.26
9.73	5.36	3.99	97	1.17
9.15	6.40	4.26	87	1.08
7.98	6.58	4.99	43	0.85
7.63	6.73	5.14	12	0.74
6.16	6.16	6.16	1	0.0



MONTHS 7 - 9

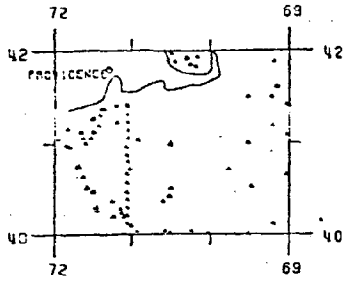


MONTHS 10-12

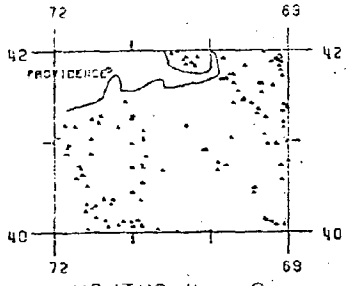
Distribution of stations reporting sea-surface temperature values.

Table A-3 Area 4

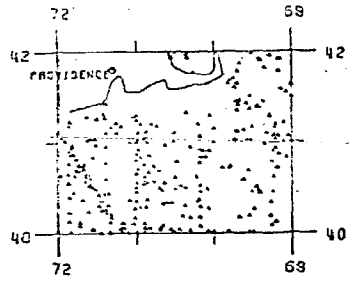
AREA



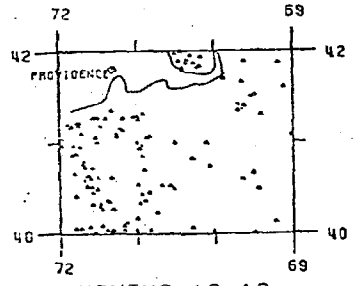
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

Distribution of stations reporting sea-surface temperature values.

AREA 5 QUONSET POINT

40-42N 69-72N

TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	10.34	4.59	-0.79	97	2.47
10	10.34	4.63	-1.41	98	2.55
20	10.59	4.95	-1.59	91	2.49
30	11.18	5.04	-0.86	83	2.51
50	12.81	6.30	2.54	54	2.69
75	14.37	7.79	2.79	30	3.45
100	14.10	9.33	2.76	20	3.57
125	14.48	10.14	3.51	15	3.63
150	14.03	11.96	6.05	9	2.41
200	11.97	10.05	6.31	5	2.32
250	9.36	9.15	8.94	2	0.29
300	7.94	7.77	7.60	2	0.24

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
18.81	9.23	2.72	190	3.71
18.05	8.72	2.41	194	3.39
17.16	7.32	2.13	184	2.66
15.43	6.14	2.02	164	2.27
14.69	5.32	2.02	124	2.23
14.16	5.40	2.31	83	3.03
13.33	5.73	2.38	55	3.74
13.10	6.64	2.92	36	3.88
13.00	6.74	3.04	23	3.40
12.80	7.53	4.29	3	4.59
11.47	11.47	11.47	1	0.0
9.40	9.40	9.40	1	0.0

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	25.50	18.94	7.22	338	3.58
10	25.81	17.62	6.32	340	3.96
20	25.17	14.37	5.40	323	3.94
30	23.53	11.23	4.10	292	3.07
50	18.93	8.67	3.99	199	2.50
75	16.62	8.72	3.72	100	2.78
100	15.49	9.46	3.35	54	3.50
125	13.14	8.93	3.39	40	3.52
150	12.31	8.90	4.06	31	3.19
200	11.30	9.64	5.13	12	2.31
250	10.34	8.53	7.57	6	0.96
300	7.37	7.20	7.04	2	0.23

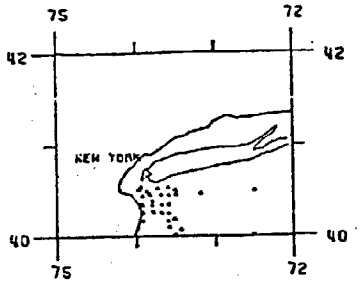
MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
23.18	11.87	4.25	145	3.57
23.17	11.78	4.43	147	3.53
21.57	11.92	4.58	141	3.37
19.93	12.07	4.58	129	3.15
16.63	12.05	6.91	78	2.18
16.71	12.26	5.89	28	2.86
16.91	11.74	4.95	20	3.23
15.84	11.20	4.83	16	3.15
14.91	10.80	4.90	12	2.99
10.99	10.11	9.17	4	0.79
10.11	9.30	8.76	3	0.71
9.03	8.34	7.65	2	0.97

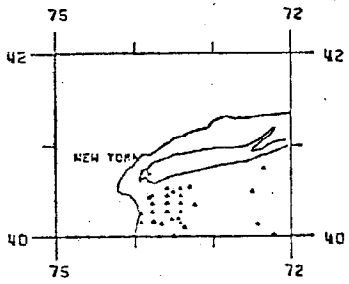
MONTHS 1 - 12 MONTHS PRESENT 1

DEPTH	MAX	AVG	MIN	OBS	SDEV
400	5.77	5.77	5.77	1	0.0
500	5.00	5.00	5.00	1	0.0

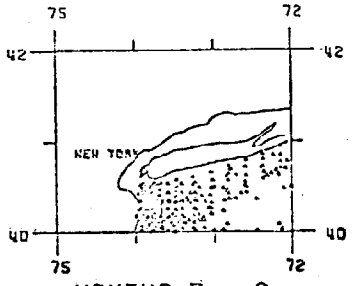
Table A-3 Area 5



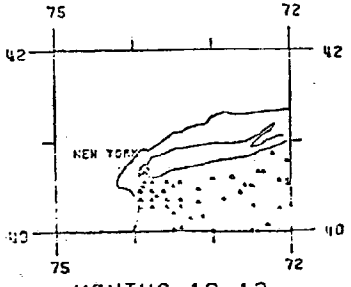
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 6 NEW YORK

40-42N 72-75W

TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	5.06	2.12	-0.44	37	1.47
10	5.08	2.01	-0.28	34	1.40
20	5.13	2.21	-0.39	26	1.44
30	5.06	3.23	1.66	14	1.08
50	4.61	3.74	2.64	4	1.01

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
19.37	9.91	5.02	32	3.82
17.92	8.56	4.71	33	3.93
10.96	6.44	4.59	26	1.93
8.63	5.71	4.34	17	1.26
5.98	4.52	3.54	4	1.03

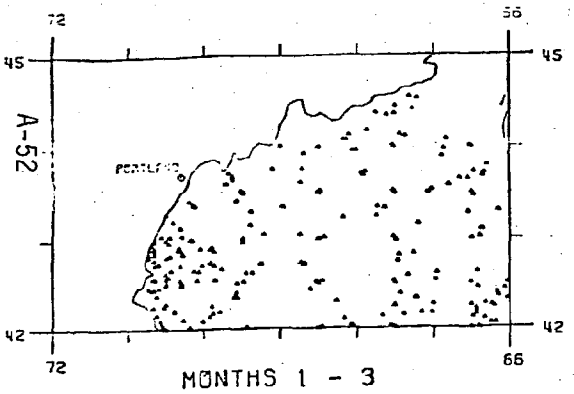
MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	25.13	22.29	16.03	281	1.42
10	25.17	20.56	12.71	270	2.45
20	21.24	13.78	6.28	204	3.70
30	15.38	9.86	5.61	126	2.35
50	10.80	7.75	5.42	20	1.56
75	9.36	8.47	7.58	2	1.25

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
16.85	12.97	6.20	69	2.52
16.94	12.93	5.20	64	2.54
16.77	12.74	6.75	50	2.64
14.83	12.33	7.54	34	2.22
14.56	12.19	8.58	11	2.02
10.66	10.47	10.28	2	0.26

Table A-3 Area 6



A-52

AREA 4 BOSTON

42-45N 66-72W

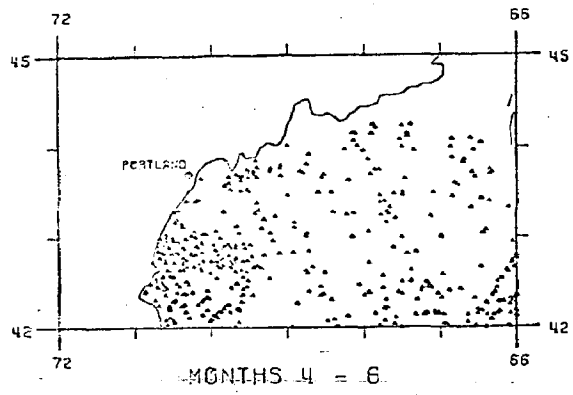
SALINITY

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.49	32.46	30.44	226	0.46
10	33.49	32.52	30.64	226	0.41
20	33.49	32.56	31.26	223	0.38
30	33.53	32.60	31.28	218	0.37
50	34.08	32.67	31.47	188	0.35
75	34.25	32.85	31.81	154	0.37
100	34.74	33.12	32.24	124	0.46
125	34.81	33.45	32.43	106	0.51
150	34.95	33.73	32.52	98	0.57
200	34.96	34.28	33.44	53	0.42
250	34.98	34.57	34.00	16	0.35
300	34.94	34.89	34.78	4	0.07

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
33.08	31.71	28.75	550	0.84
33.12	31.90	29.17	548	0.63
33.39	32.13	29.55	544	0.49
33.32	32.30	30.96	527	0.40
33.48	32.50	31.06	465	0.34
33.85	32.73	31.27	359	0.34
34.52	33.01	32.08	270	0.36
34.81	33.29	32.29	235	0.41
34.94	33.58	32.49	207	0.46
35.02	34.15	33.32	126	0.36
34.99	34.53	33.92	25	0.34
34.91	34.70	34.57	8	0.12

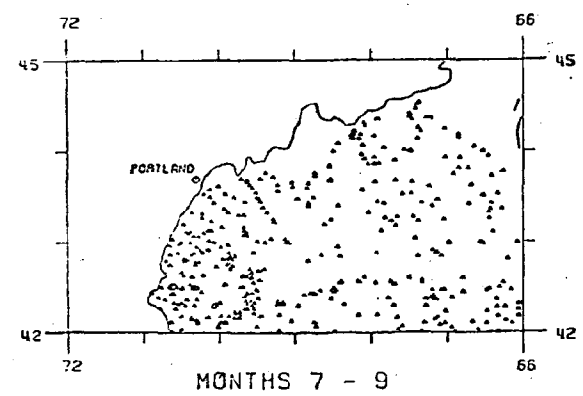


MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.06	31.95	30.48	401	0.52
10	33.14	32.04	30.75	402	0.45
20	33.72	32.23	30.82	402	0.38
30	33.29	32.39	30.96	394	0.35
50	33.55	32.65	31.23	369	0.33
75	34.20	32.90	32.13	310	0.37
100	34.69	33.15	32.16	267	0.44
125	34.91	33.41	32.10	235	0.51
150	35.05	33.74	32.05	200	0.52
200	35.08	34.13	33.50	112	0.45
250	35.08	34.57	33.79	25	0.42
300	34.97	34.87	34.77	6	0.06

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
33.15	32.39	31.15	197	0.43
33.12	32.42	31.47	196	0.39
33.24	32.47	31.56	199	0.35
33.16	32.55	31.85	190	0.32
33.40	32.72	32.06	170	0.27
34.05	32.96	32.18	137	0.33
34.49	33.25	32.34	114	0.45
34.78	33.52	32.42	100	0.54
34.97	33.80	32.66	89	0.55
35.04	34.37	33.53	42	0.44
35.01	34.64	33.85	12	0.43
34.94	34.94	34.94	1	0.0



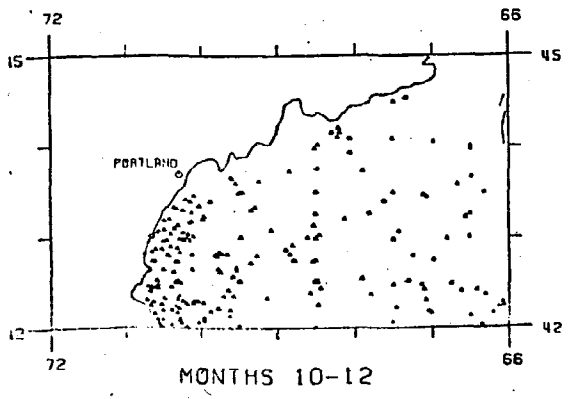
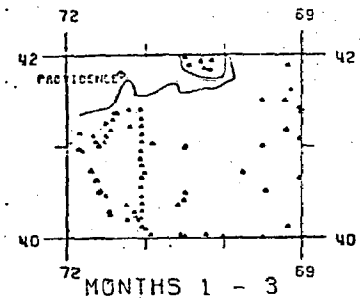
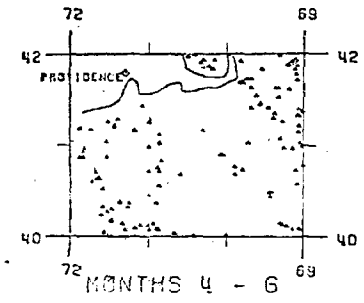


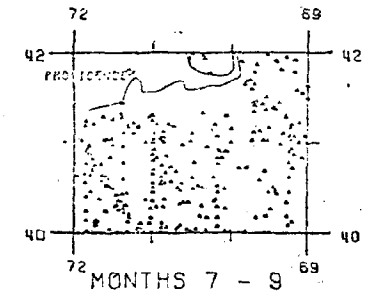
Table A-4 Area 4

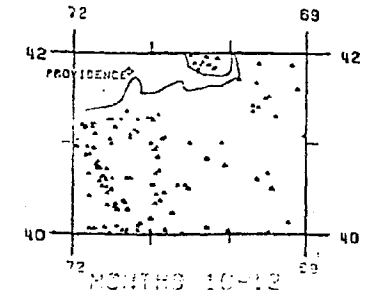
AREA 4

Distribution of stations reporting sea-surface salinity values.









Distribution of stations reporting sea-surface salinity values.

AREA 5 QUONSET POINT

40-42N 69-72W

SALINITY

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.80	32.50	30.93	83	0.55
10	33.78	32.52	30.92	85	0.54
20	33.77	32.58	30.88	79	0.51
30	34.00	32.70	31.62	73	0.43
50	34.57	32.99	32.24	49	0.48
75	35.38	33.46	32.38	27	0.75
100	35.48	34.04	32.85	18	0.88
125	35.35	34.29	32.99	13	1.01
150	35.55	35.10	33.42	8	0.69
200	35.42	34.88	33.64	4	0.83
250	34.95	34.95	34.95	1	0.0
300	34.86	34.86	34.86	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
35.23	32.20	30.30	147	0.81
35.10	32.25	30.47	149	0.80
35.14	32.48	30.60	144	0.72
35.22	32.68	30.69	132	0.65
35.32	33.05	32.23	93	0.62
35.65	33.41	32.35	59	0.69
35.55	33.78	32.54	40	1.10
35.51	33.88	32.63	37	1.10
35.46	34.04	32.98	24	0.95
35.43	34.15	33.38	3	1.11
35.32	35.32	35.32	1	0.0
35.13	35.13	35.13	1	0.0

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	34.97	32.30	30.23	292	0.87
10	34.97	32.42	30.39	290	0.85
20	35.28	32.62	30.44	276	0.80
30	35.16	32.75	31.48	259	0.65
50	35.29	33.08	31.96	178	0.66
75	35.61	33.77	31.96	88	0.90
100	35.79	34.44	32.66	53	1.02
125	35.68	34.52	32.79	38	1.09
150	35.57	34.67	32.86	29	0.97
200	35.41	34.76	32.68	12	0.71
250	35.31	35.12	34.97	6	0.12
300	35.03	35.02	35.02	2	0.0

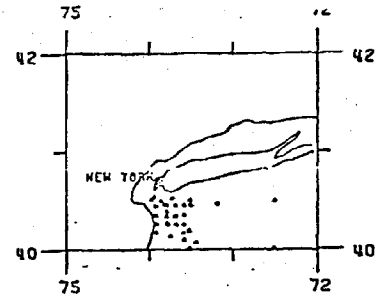
MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
35.38	32.69	30.83	116	0.87
35.34	32.70	30.91	116	0.85
35.30	32.76	30.90	114	0.85
35.33	32.90	30.90	109	0.82
35.46	33.42	32.09	69	0.82
35.54	34.25	32.58	26	0.96
35.76	34.79	32.76	19	0.96
35.95	34.95	32.97	15	0.97
35.98	35.01	33.06	11	0.94
35.39	35.29	35.19	4	0.08
35.28	35.20	35.15	3	0.07
35.17	35.13	35.09	2	0.05

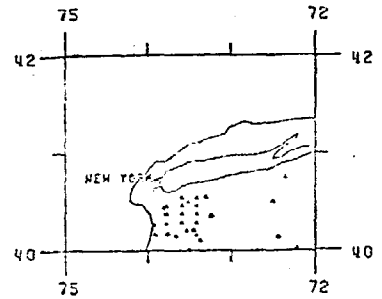
MONTHS 1 - 12 MONTHS PRESENT 1

DEPTH	MAX	AVG	MIN	OBS	SDEV
400	34.76	34.76	34.76	1	0.0
500	34.78	34.78	34.78	1	0.0

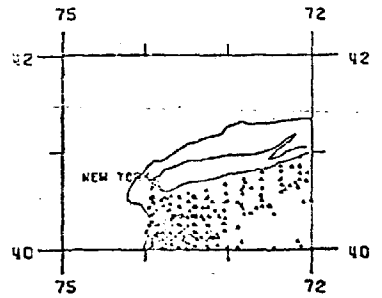
Table A-4 Area 5



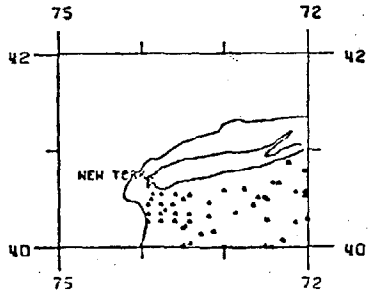
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 6 NEW YORK

40-42N 72-75W

SALINITY

MONTHS 1 - 3 MONTHS PRESENT 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.98	32.40	28.73	39	1.25
10	33.98	32.31	29.08	36	0.76
20	33.98	33.14	32.05	26	0.40
30	33.96	33.14	32.49	13	0.50
50	33.96	33.47	32.76	3	0.62

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
32.54	30.66	28.13	33	1.16
32.75	31.57	30.34	33	0.64
32.89	32.37	31.70	26	0.32
33.19	32.58	31.93	17	0.35
33.08	32.84	32.64	4	0.22

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

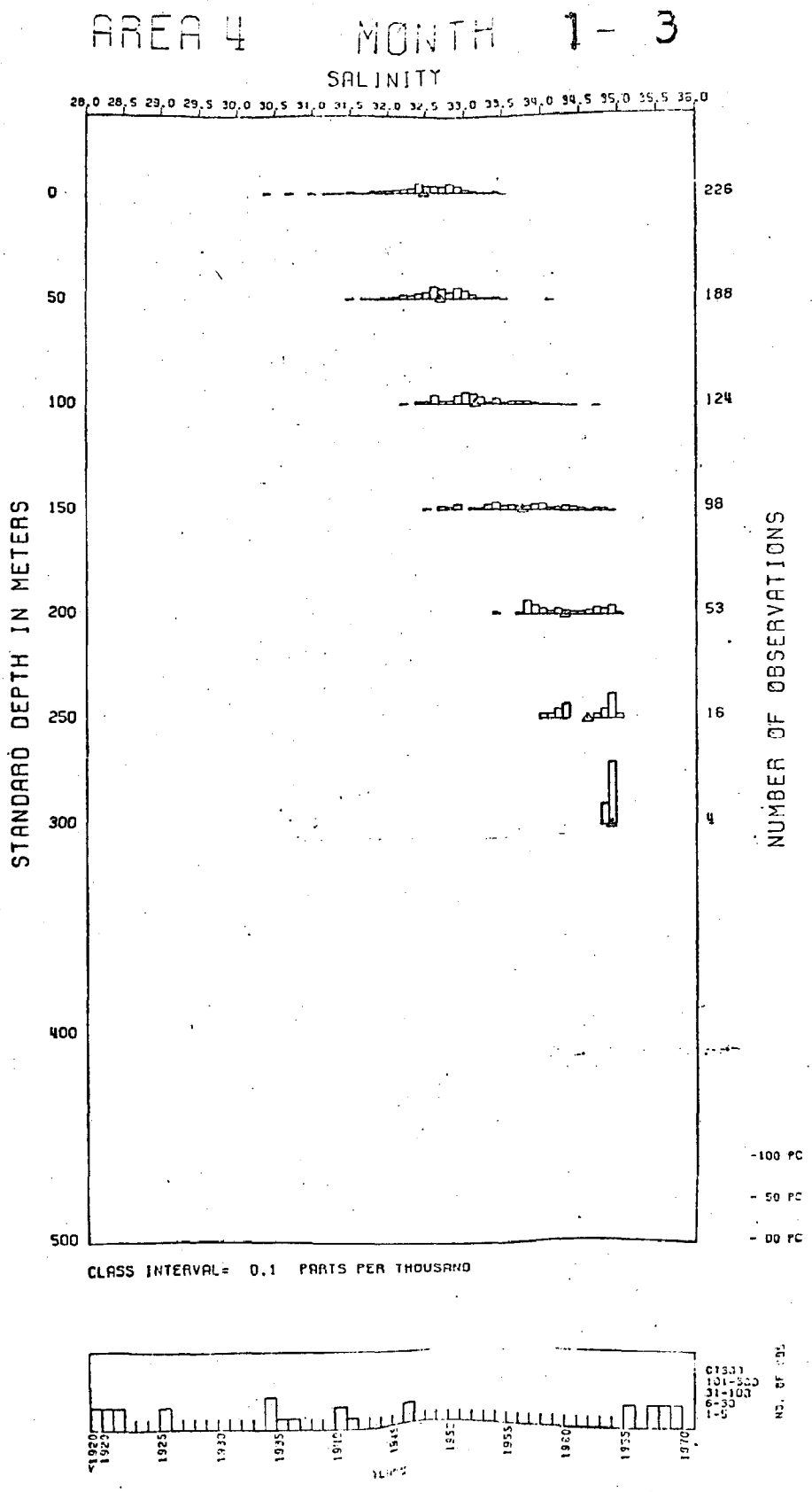
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.55	31.15	28.20	276	0.68
10	33.91	31.46	30.13	261	0.45
20	33.80	32.01	30.74	201	0.40
30	33.43	32.29	30.95	125	0.42
50	33.18	32.60	31.69	20	0.29
75	33.17	32.92	32.60	3	0.29

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
33.45	32.14	29.97	69	0.59
33.45	32.21	31.21	66	0.47
33.45	32.41	31.54	50	0.43
33.58	32.55	31.64	34	0.45
34.26	33.01	31.98	11	0.69
33.72	33.68	33.65	2	0.04

Table A-4 Area 6

Table A-5 Area 4



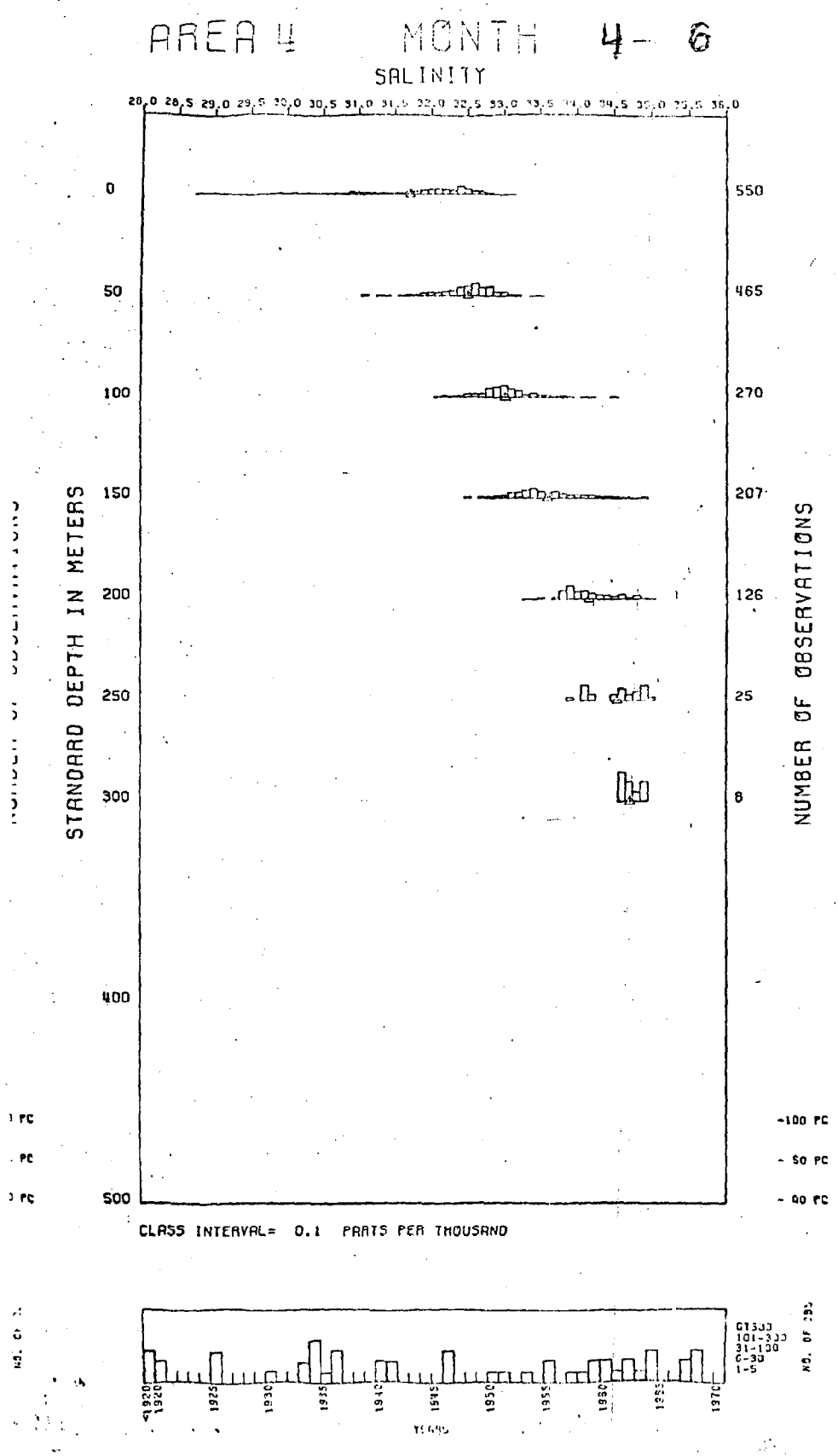

AREA 4 MONTH 4- 6
SALINITY
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.1 PARTS PER THOUSAND

Table A-5 Area 4 (cont.)

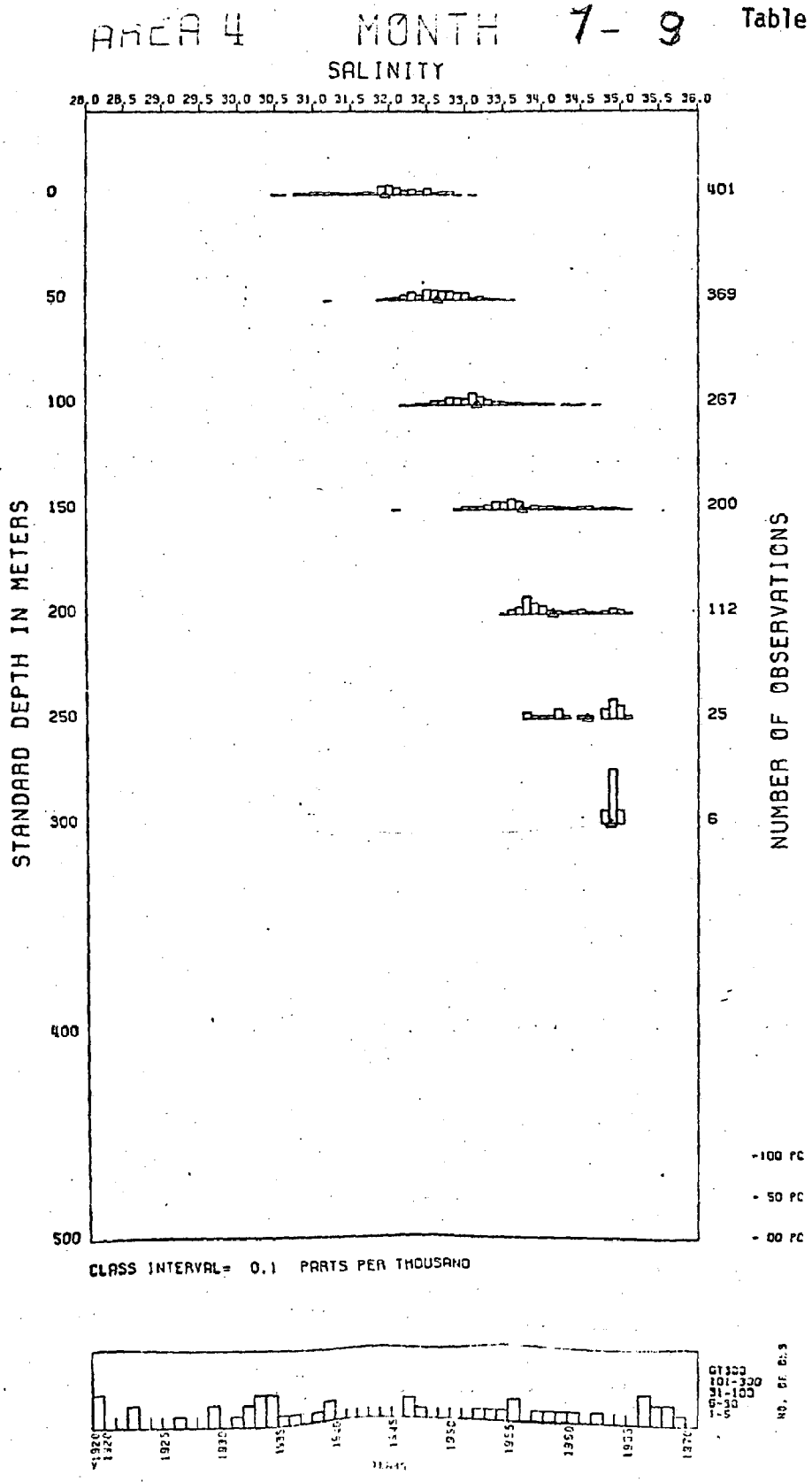
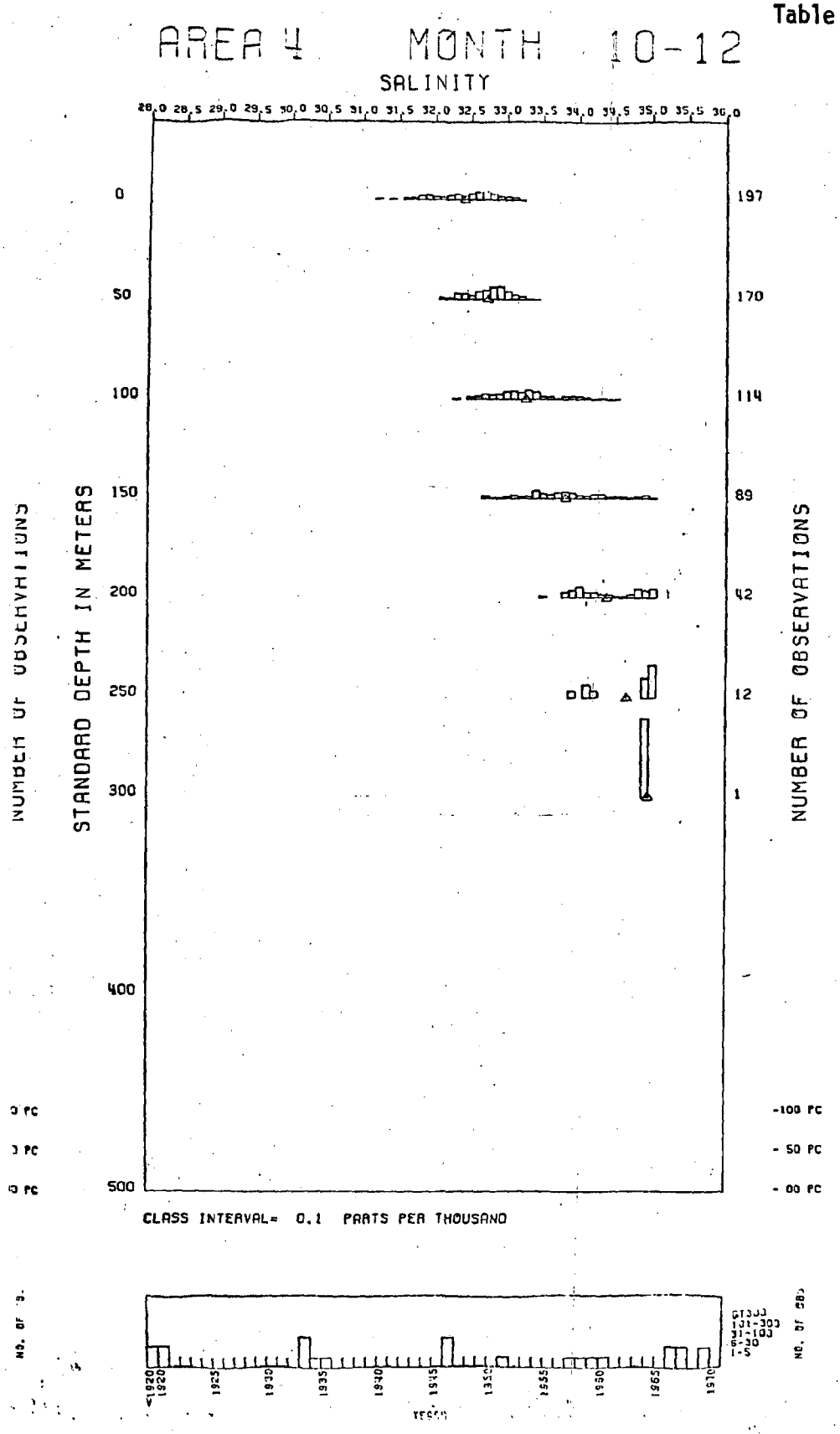
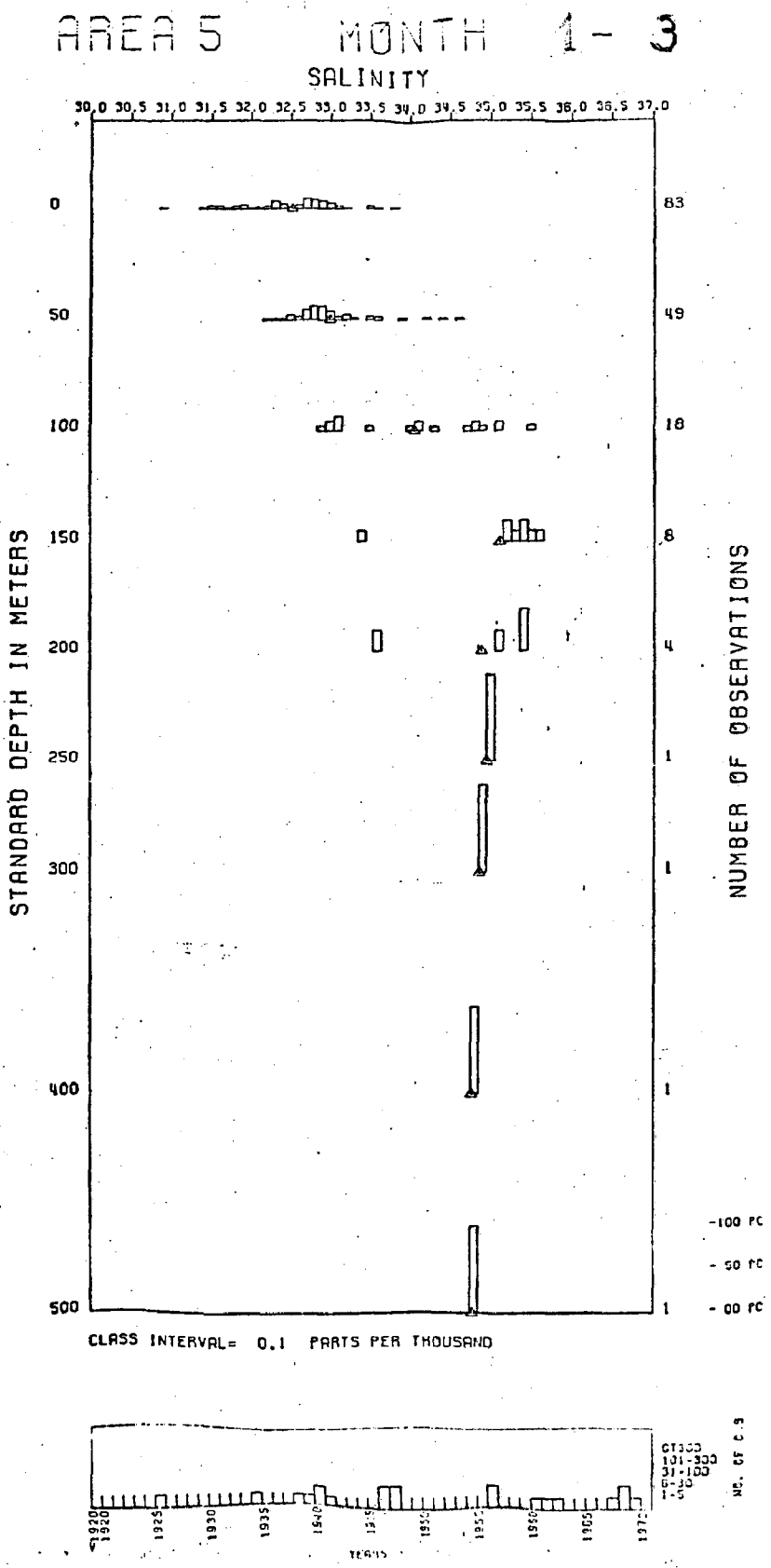
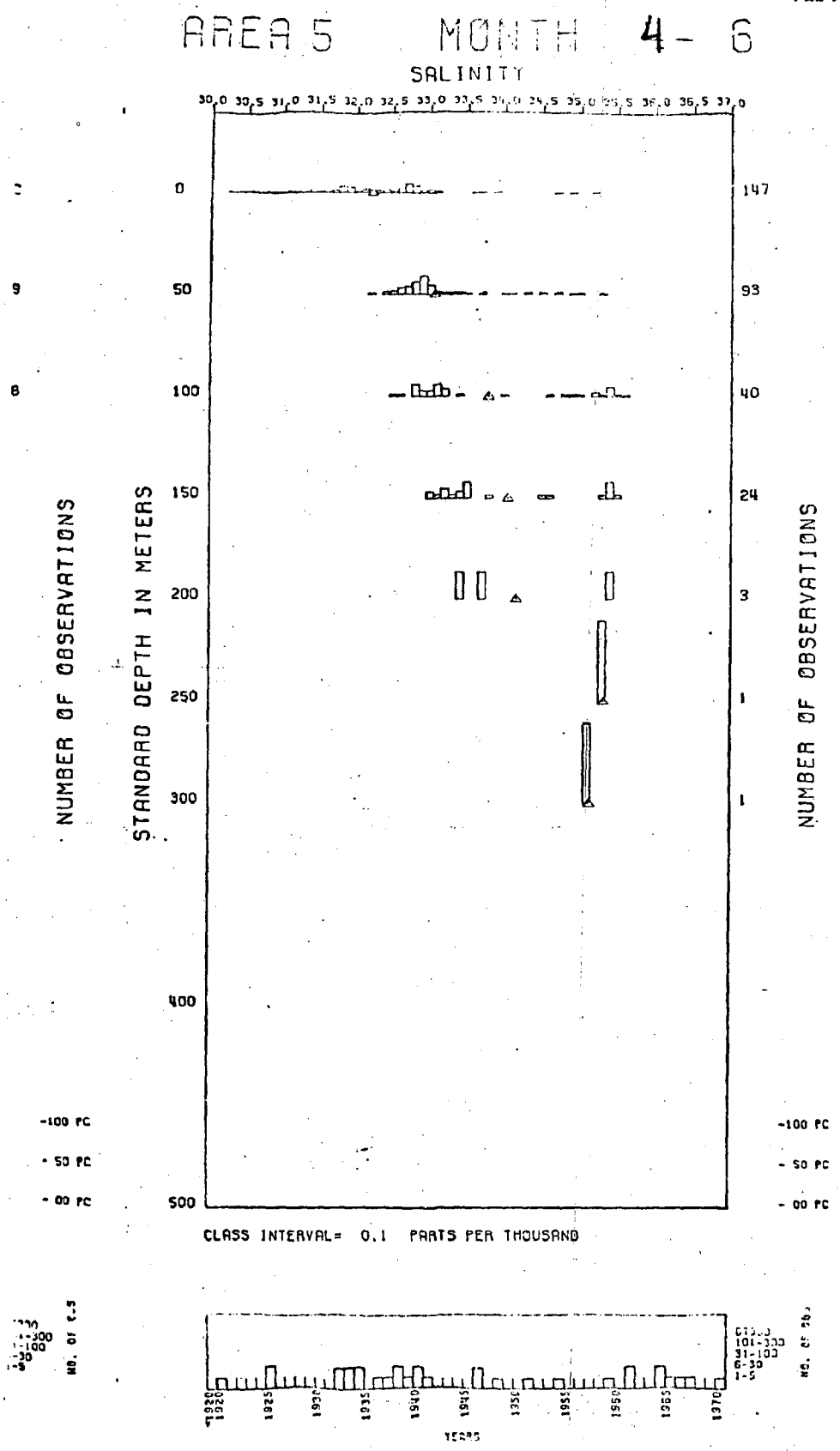


Table A-5 Area 4 (cont.)




AREA 5 MONTH 1 - 3
SALINITY
30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
83
49
18
8
4
1
1
1
1
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970


AREA 5 MONTH 4 - 6
SALINITY
30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0
0
50
100
150
200
250
300
400
500
147
93
40
24
3
1
1
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

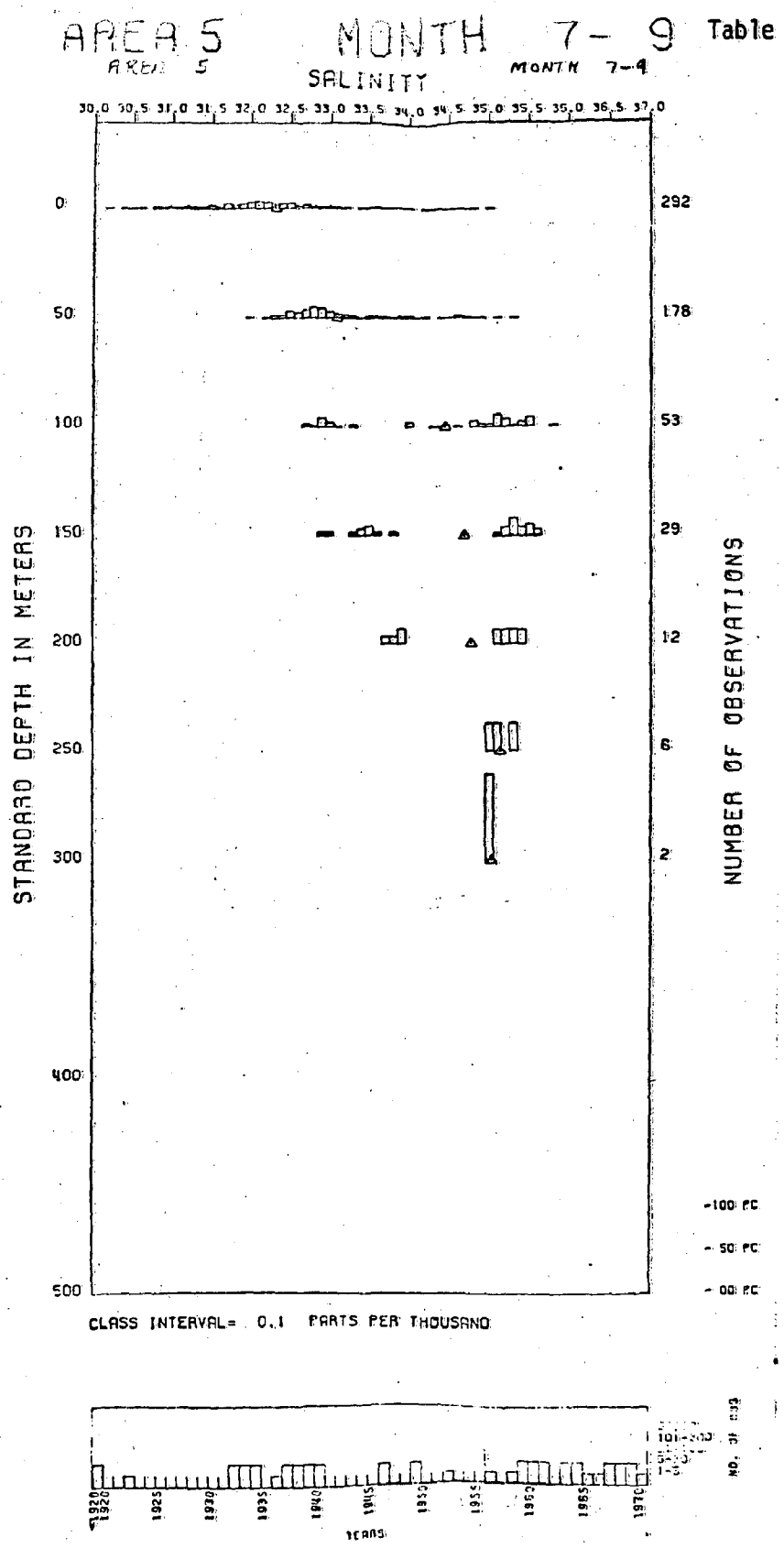

AREA 5 MONTH 7 - 9
AREA 5
SALINITY
MONTH 7-9
30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
292
178
53
29
12
6
2
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

Table A-5 Area 5 (cont.)

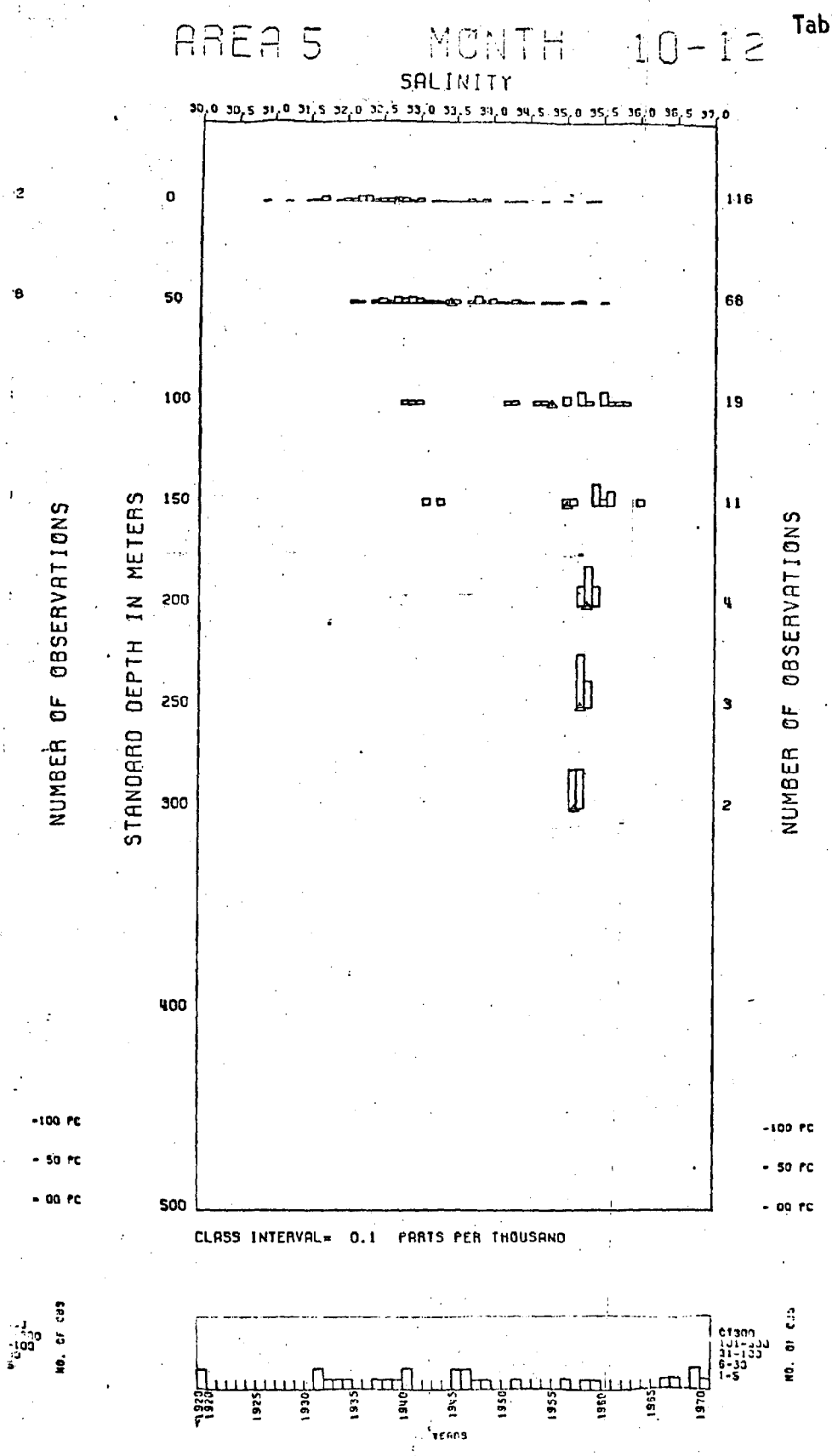


Table A-5 Area 6

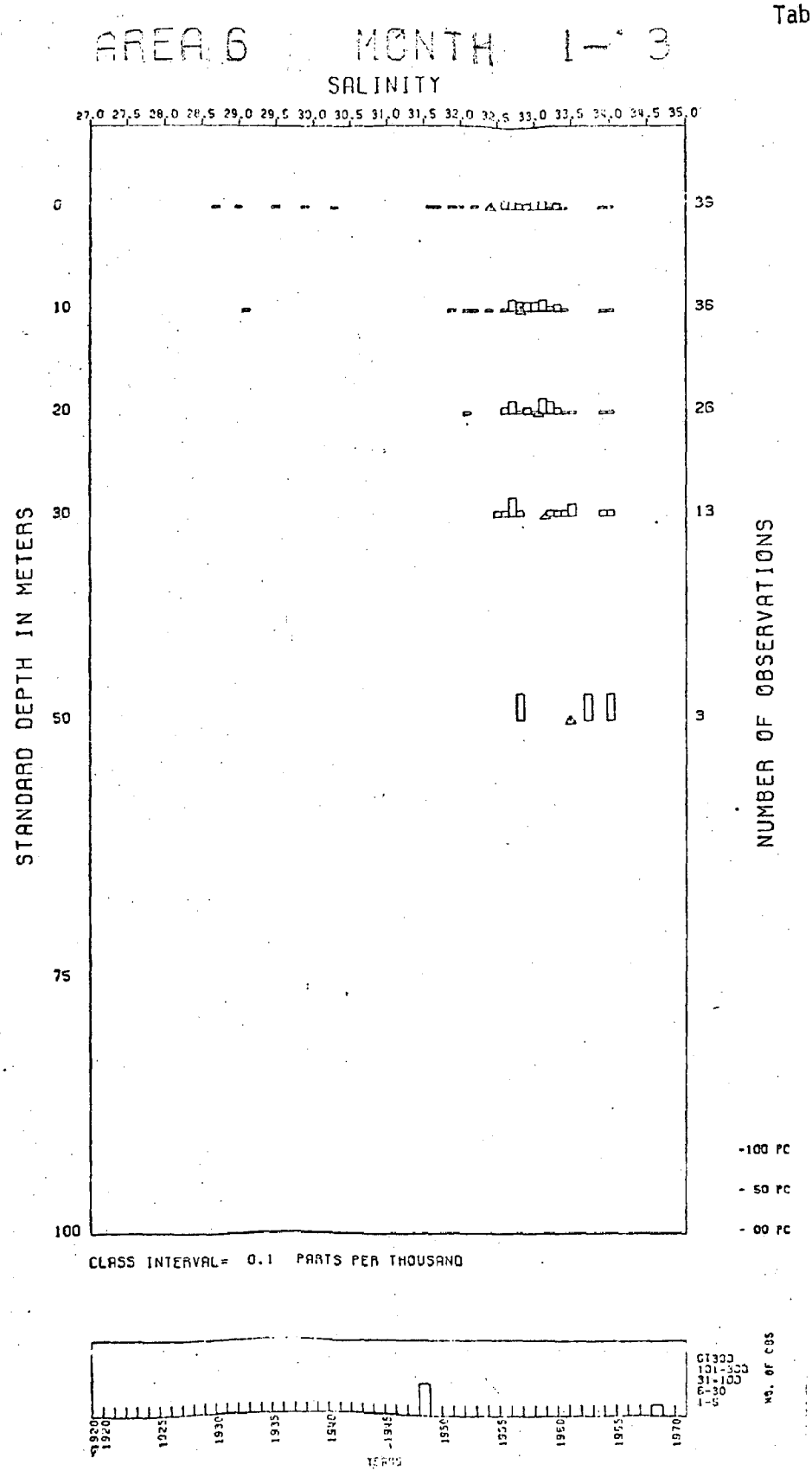


Table A-5 Area 6 (cont.)

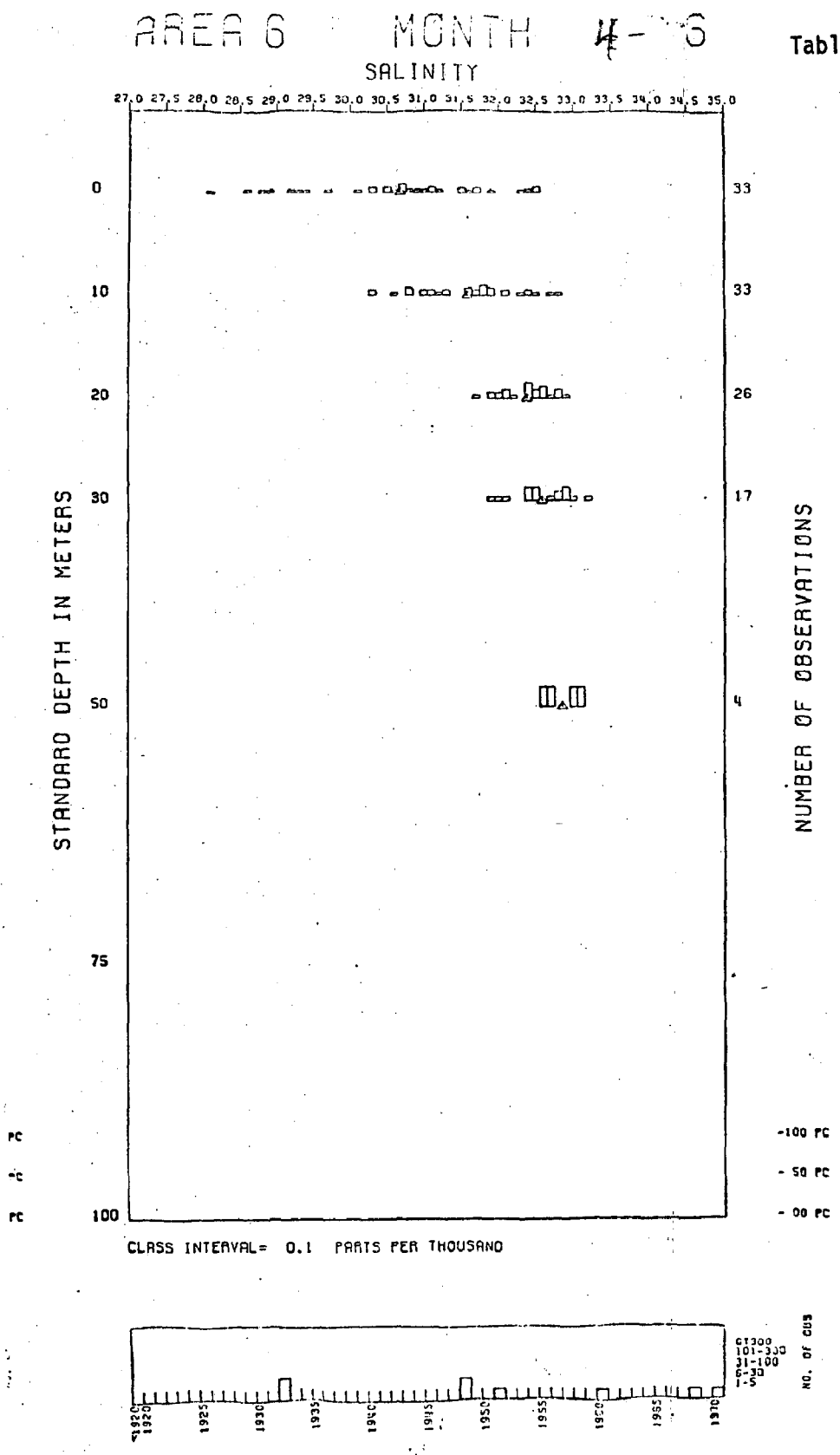


Table A-5 Area 6 (cont.)

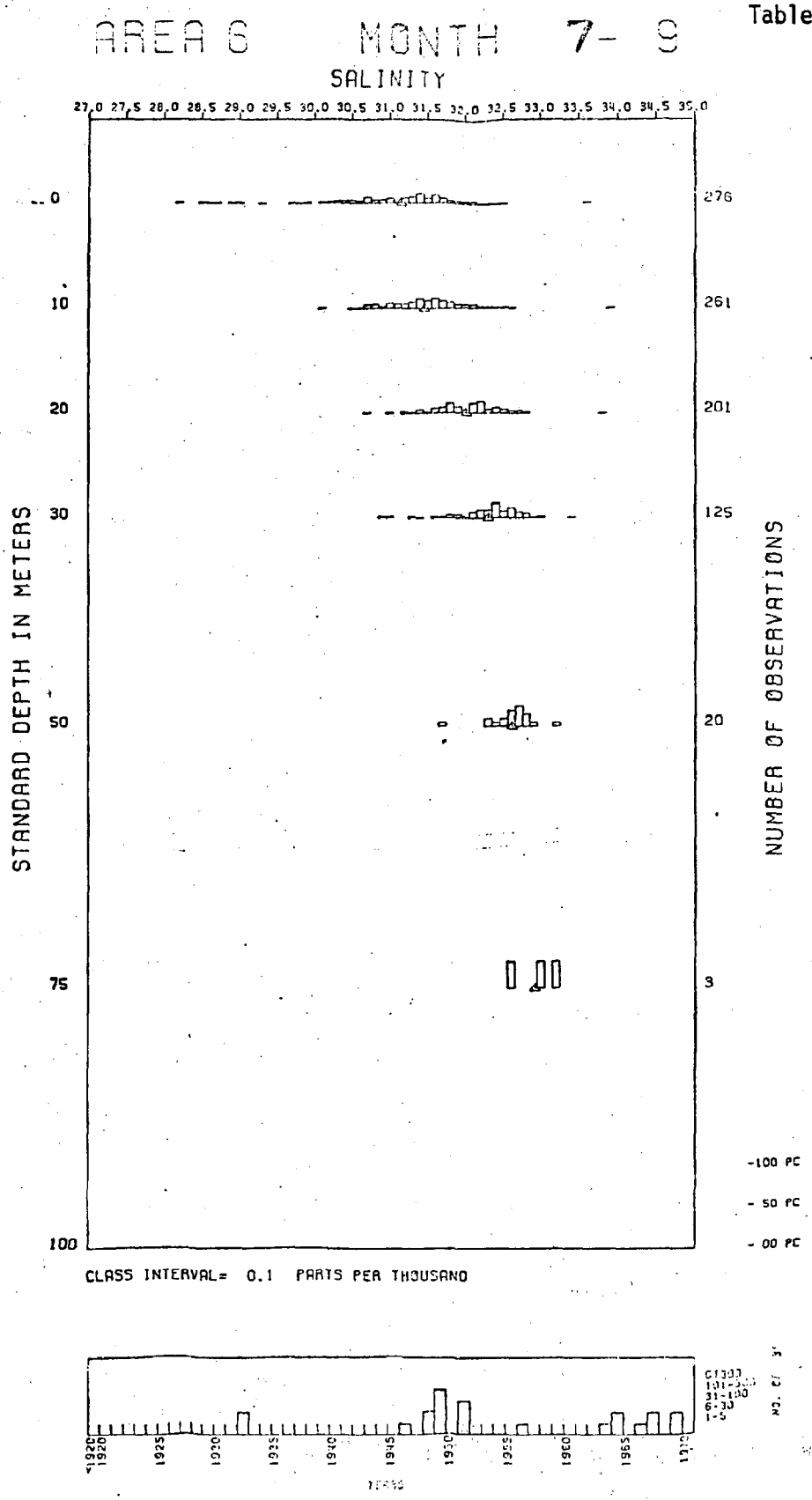
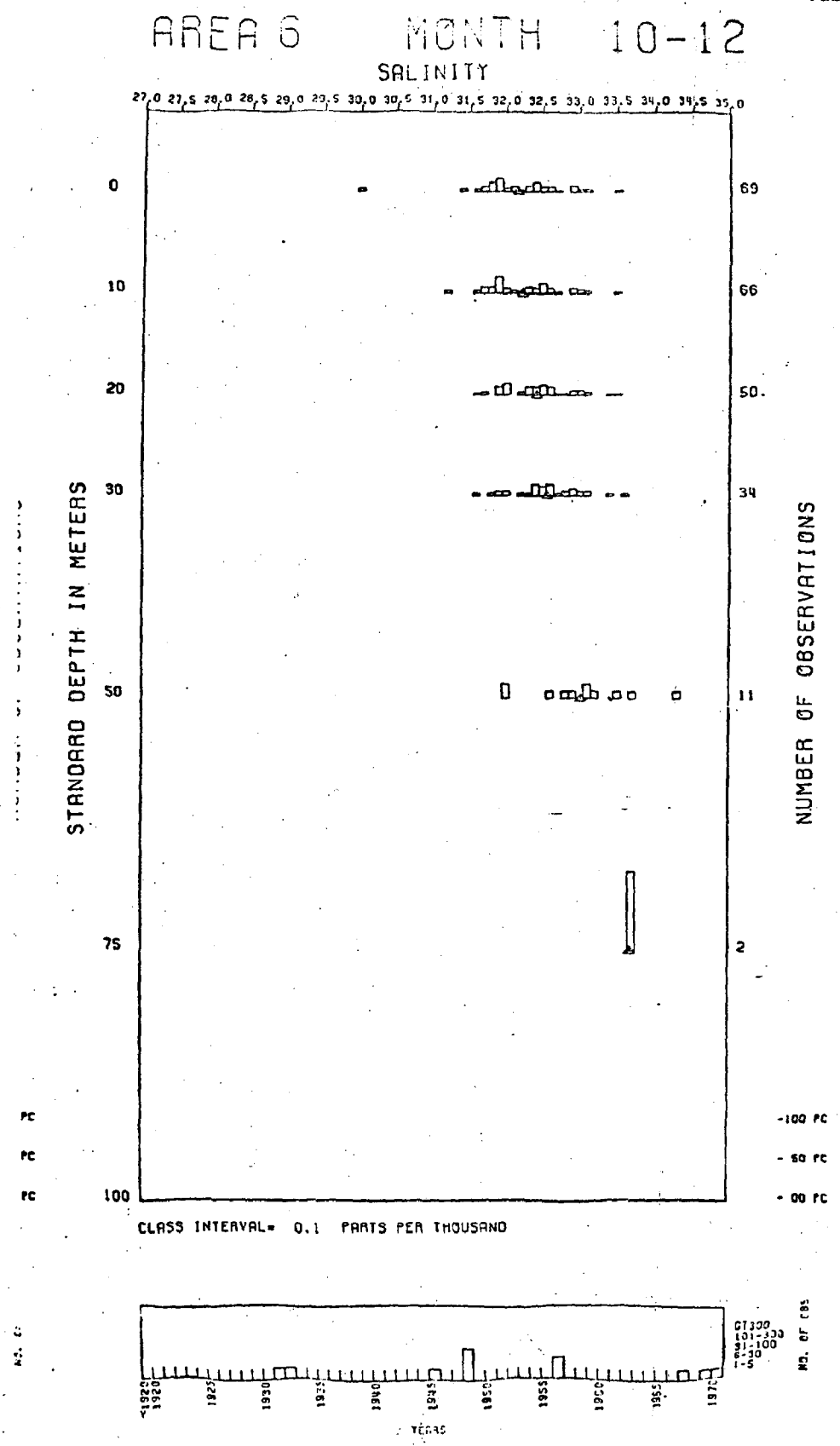
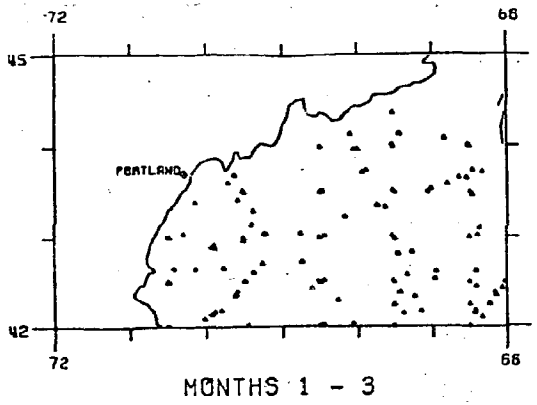


Table A-5 Area 6 (cont.)





MONTHS 1 - 3

AREA 4 BOSTON

42-45N 66-72W

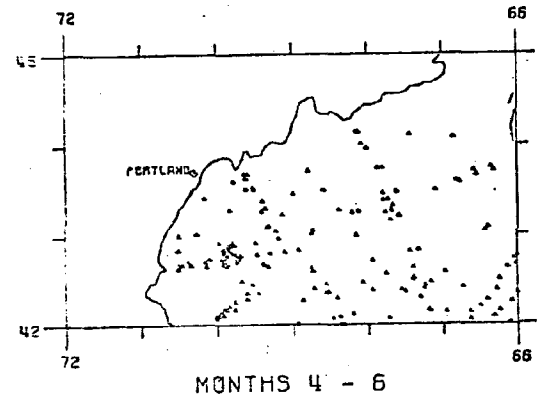
OXYGEN

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	8.61	7.43	5.78	112	0.40
10	8.60	7.47	5.85	113	0.40
20	8.70	7.46	6.07	113	0.40
30	8.59	7.43	6.56	113	0.39
50	8.13	7.28	5.96	107	0.43
75	7.95	7.00	5.04	102	0.55
100	7.55	6.52	4.69	86	0.69
125	7.31	6.01	4.56	73	0.77
150	4.99	5.48	4.25	67	0.71
200	5.33	4.66	4.17	38	0.28
250	4.97	4.60	4.20	12	0.23
300	4.86	4.75	4.61	3	0.12

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
9.96	7.85	6.22	196	0.72
9.70	7.88	6.28	203	0.67
9.23	7.83	6.86	203	0.48
9.18	7.67	6.64	205	0.45
9.01	7.40	6.47	201	0.43
8.46	7.08	5.90	185	0.42
7.83	6.73	5.30	167	0.55
7.71	6.28	4.97	152	0.62
7.10	5.75	4.69	141	0.59
6.17	4.76	3.77	89	0.49
5.99	4.88	3.62	19	0.55
5.97	5.36	4.60	8	0.60



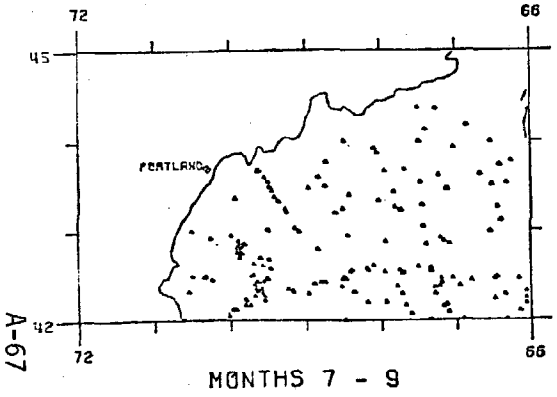
MONTHS 4 - 6

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

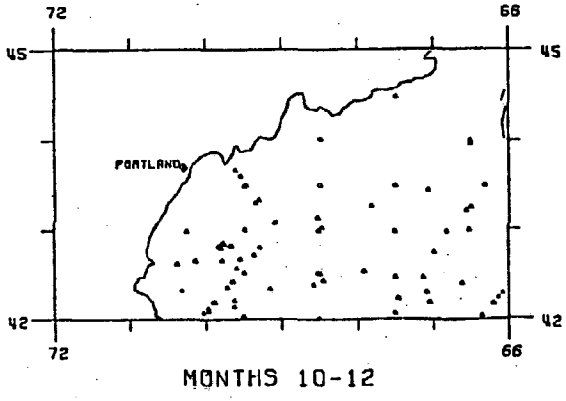
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.77	6.17	5.40	177	0.34
10	7.71	6.30	5.57	177	0.43
20	7.70	6.55	5.65	178	0.45
30	7.66	6.53	5.58	178	0.42
50	7.39	6.26	5.27	171	0.43
75	7.14	6.11	4.86	158	0.46
100	6.91	5.86	4.52	143	0.52
125	6.87	5.56	4.24	132	0.53
150	6.35	5.16	4.03	122	0.45
200	5.12	4.61	3.93	64	0.26
250	4.84	4.41	4.01	14	0.25
300	4.86	4.61	4.46	3	0.21

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
7.16	6.50	5.75	71	0.24
6.89	6.47	5.75	72	0.23
6.76	6.41	5.63	72	0.23
6.89	6.34	5.67	71	0.28
6.91	6.10	5.16	69	0.39
7.12	5.87	5.01	61	0.49
6.95	5.60	4.57	56	0.51
6.09	5.21	4.36	49	0.47
5.79	4.98	4.11	45	0.44
5.09	4.65	3.89	27	0.28
5.16	4.62	4.25	9	0.27



MONTHS 7 - 9



MONTHS 10-12

Distribution of stacbea-surface oxygen values.

Table A-6 Area 4

Table A-6 Area 4 (cont.)

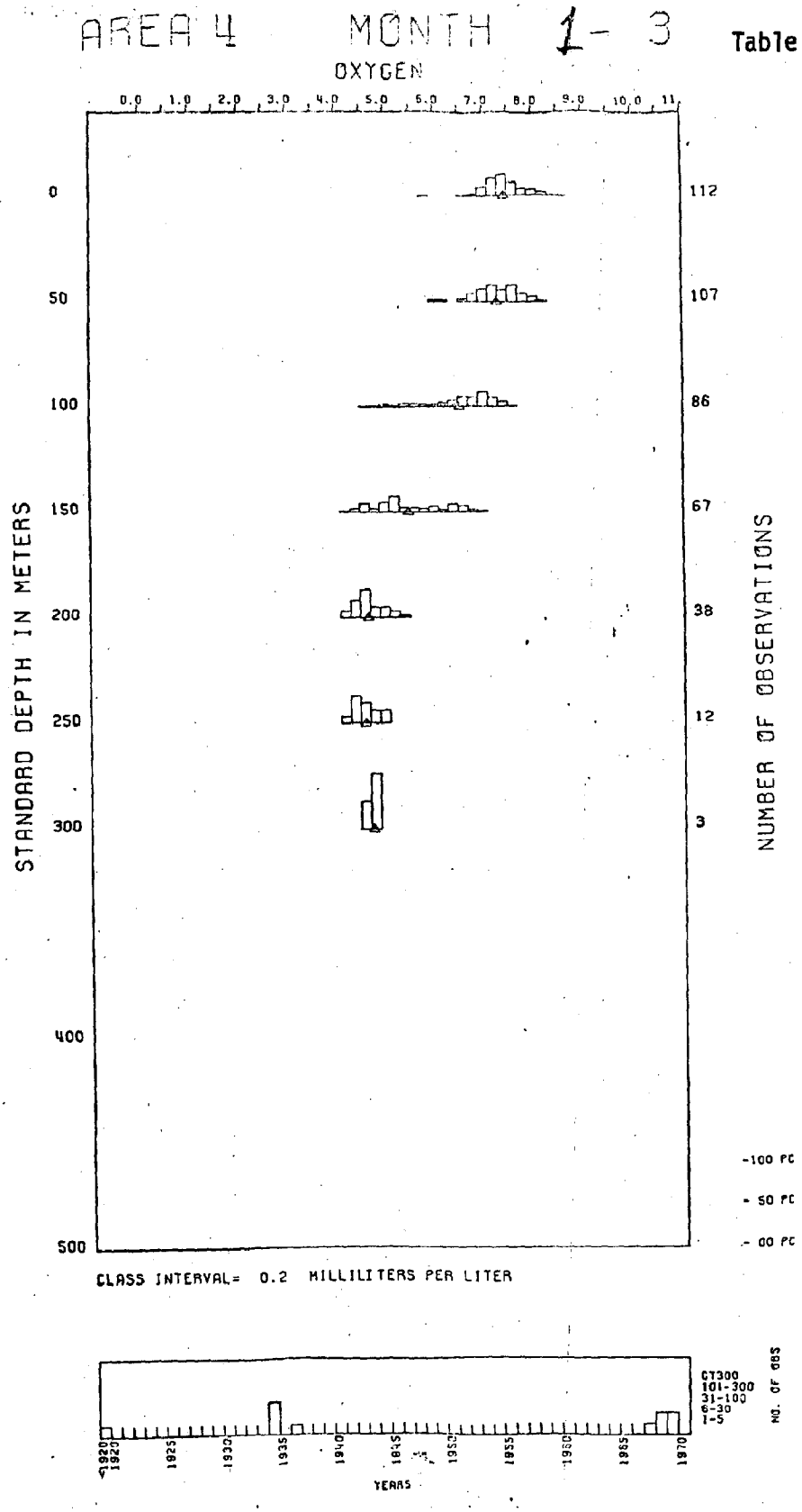


Table A-6 Area 4 (cont.)

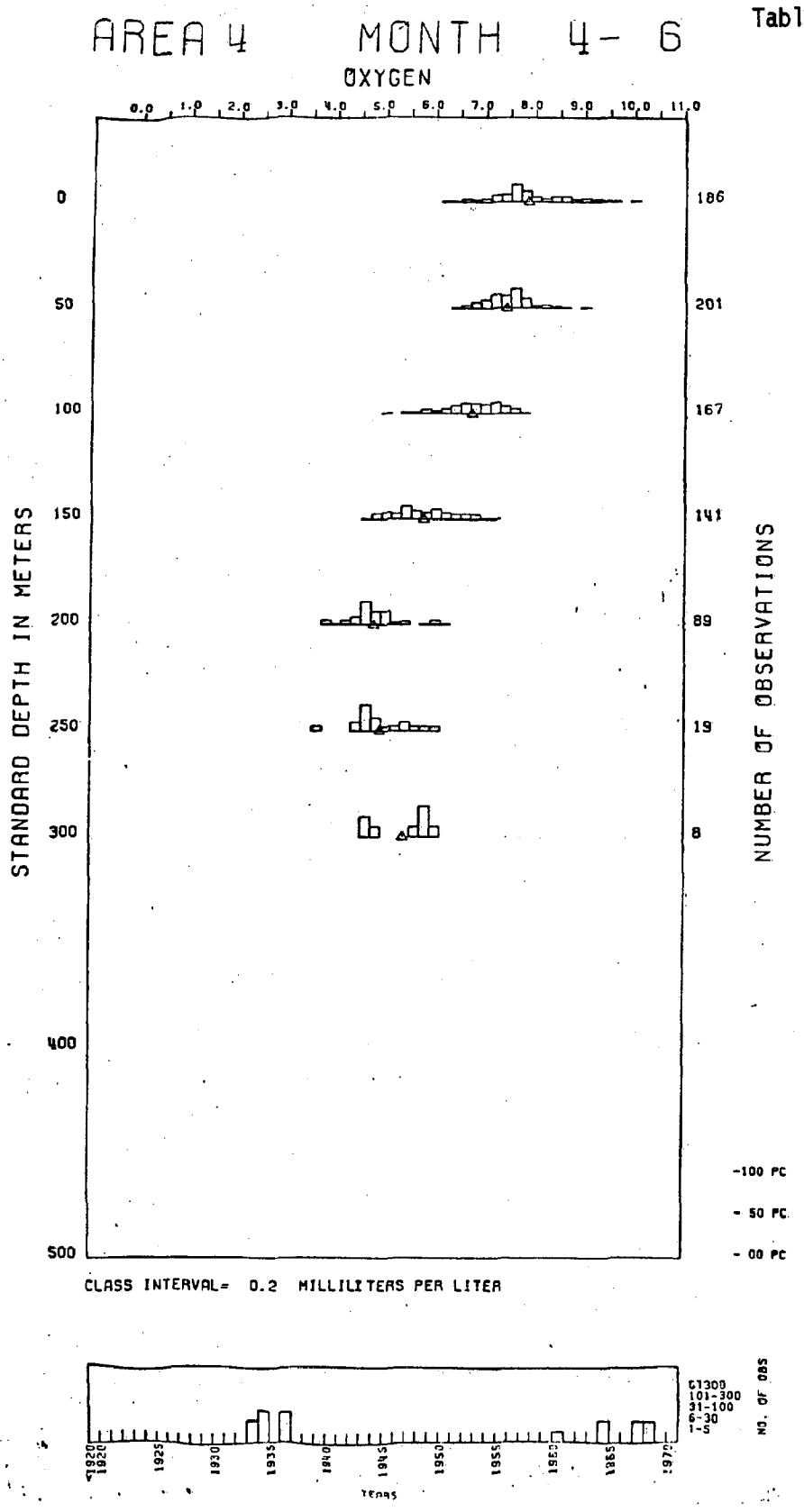
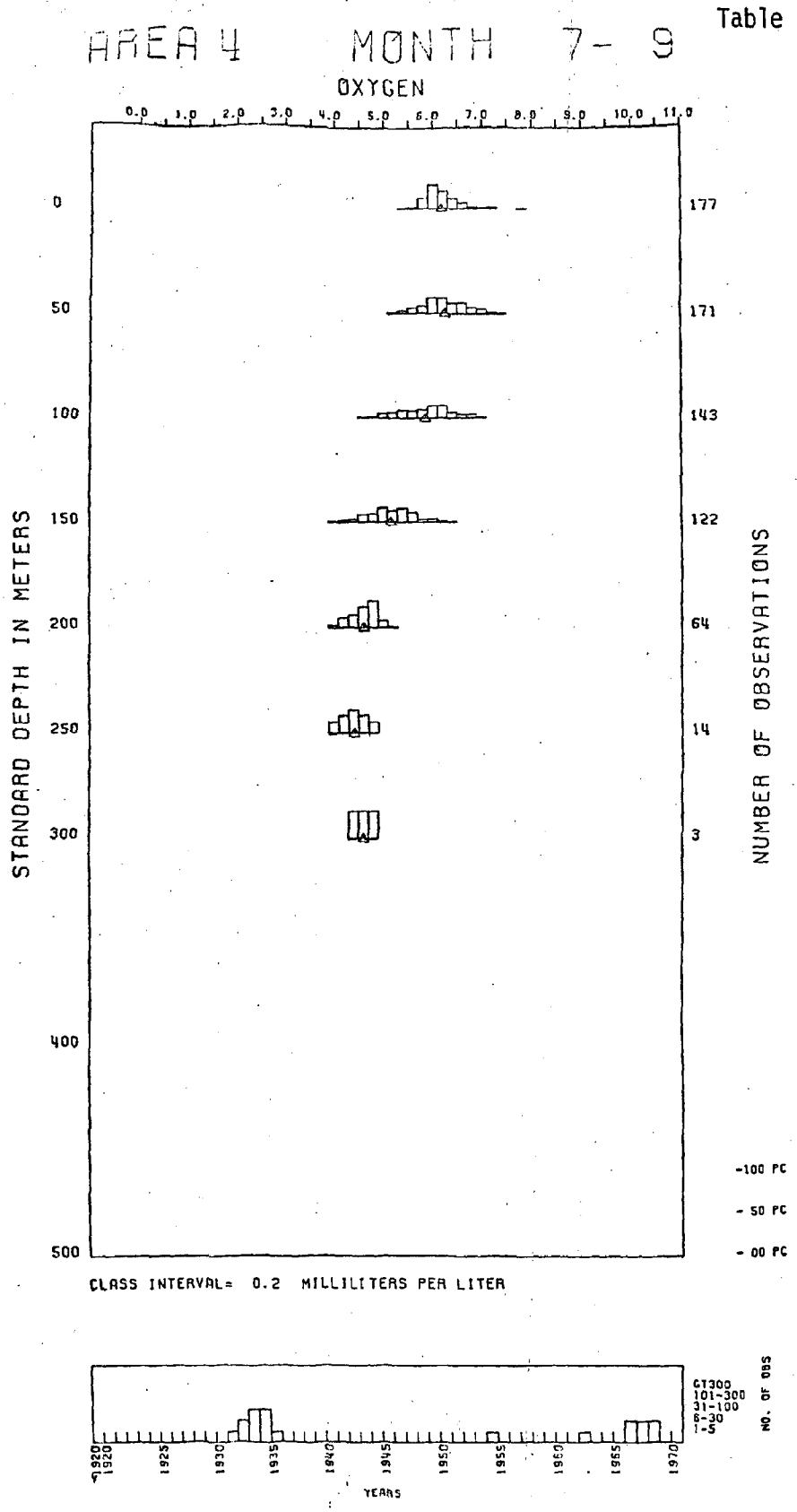
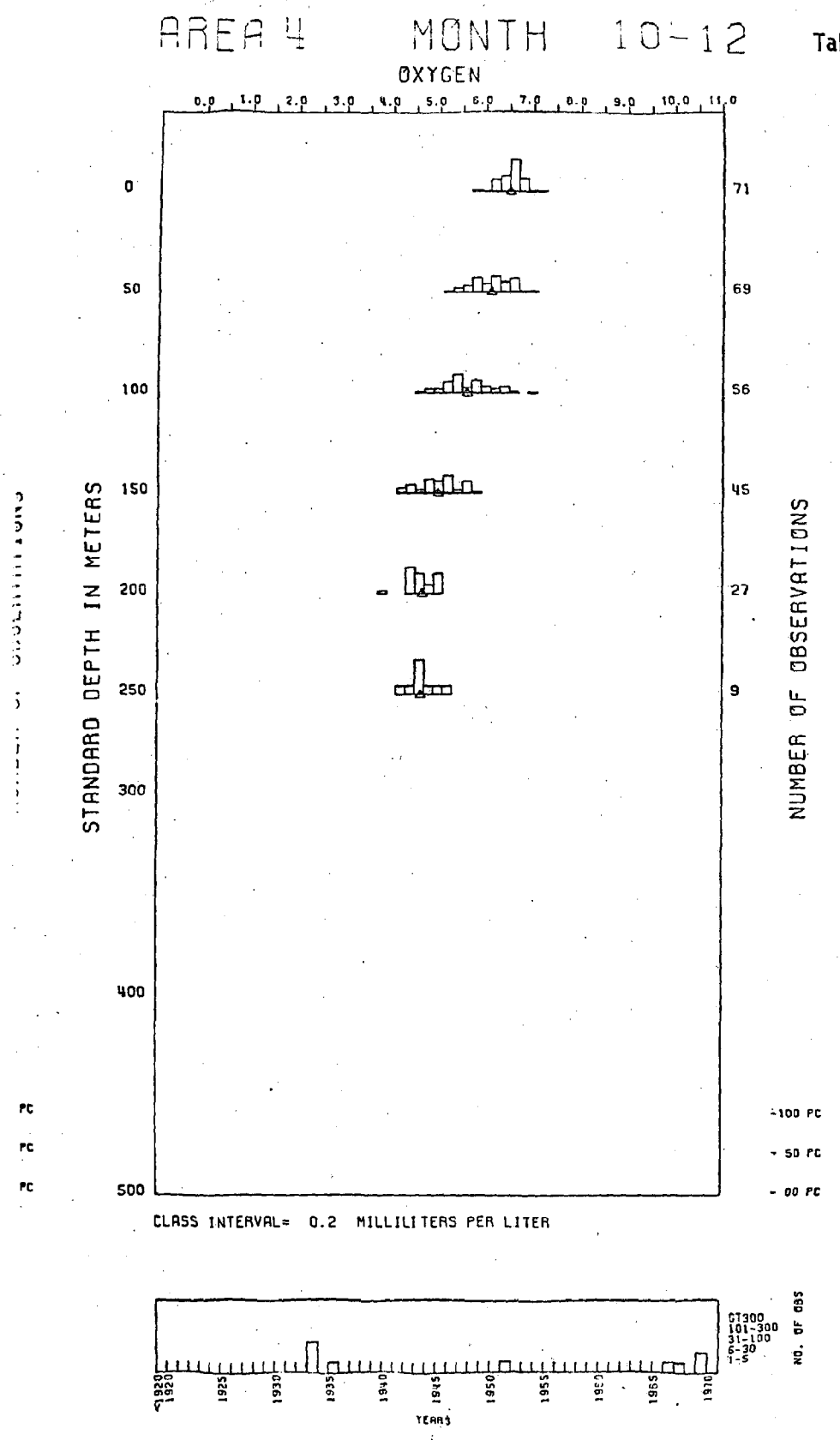
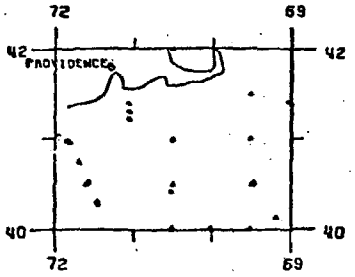


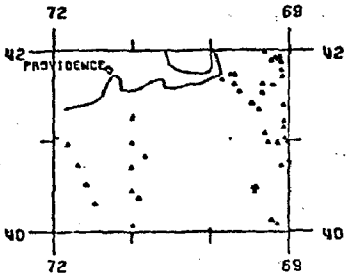
Table A-6 Area 4 (cont.)



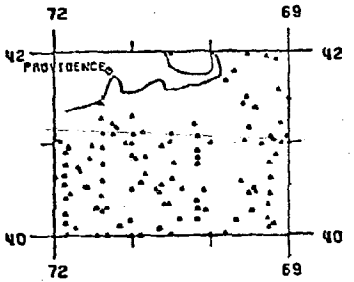

AREA 4 MONTH 10-12
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
71
69
56
45
27
9
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



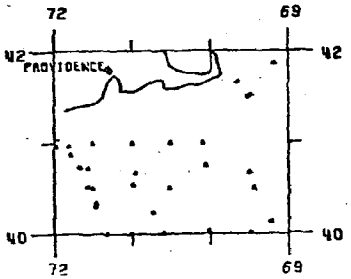
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 5 QUONSET POINT

40-42N 69-72W

OXYGEN

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	8.12	7.29	6.38	31	0.48
10	8.56	7.28	6.36	45	0.47
20	8.72	7.27	6.39	47	0.47
30	8.63	7.19	6.36	44	0.45
50	7.95	6.93	5.70	33	0.45
75	7.59	6.50	5.44	17	0.57
100	7.63	5.93	5.10	11	0.78
125	7.28	5.41	4.53	9	0.88
150	4.91	4.46	4.07	6	0.35
200	4.54	3.80	3.35	4	0.56
250	3.19	3.19	3.19	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
9.55	7.54	6.29	56	0.73
9.58	7.59	6.30	57	0.68
9.02	7.67	6.70	57	0.54
8.83	7.61	6.52	56	0.51
8.37	7.42	6.18	48	0.53
8.02	7.16	5.80	34	0.52
7.76	6.75	5.22	22	0.70
7.41	6.33	4.79	18	0.72
7.18	6.05	4.73	14	0.68
6.54	5.74	4.94	2	1.13

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.11	5.60	4.38	125	0.59
10	7.62	5.67	4.60	138	0.64
20	7.96	5.96	4.53	132	0.62
30	7.47	6.06	4.46	126	0.64
50	6.83	5.69	3.63	94	0.57
75	6.76	5.39	3.90	46	0.65
100	6.19	4.95	3.72	28	0.75
125	6.09	4.58	3.67	17	0.53
150	5.68	4.21	3.34	13	0.84
200	4.72	3.75	3.16	6	0.63
250	3.88	3.54	3.13	4	0.32
300	3.88	3.88	3.88	1	0.0

MONTHS 10 - 12 MONTHS PRESENT 10, 11, 12

MAX	AVG	MIN	OBS	SDEV
7.16	6.11	4.34	34	0.53
7.26	6.06	4.35	34	0.41
7.21	6.09	4.35	33	0.54
6.87	6.03	5.27	32	0.48
6.90	5.74	4.33	23	0.67
5.98	5.17	4.42	8	0.47
5.77	4.70	3.39	8	0.83
5.60	4.33	3.39	5	0.71
5.27	4.00	3.23	5	0.89
3.13	3.13	3.13	2	0.0
3.25	3.18	3.12	2	0.09
3.59	3.39	3.20	2	0.27

Table A-6 Area 5

...concerning nearsurface oxy values.

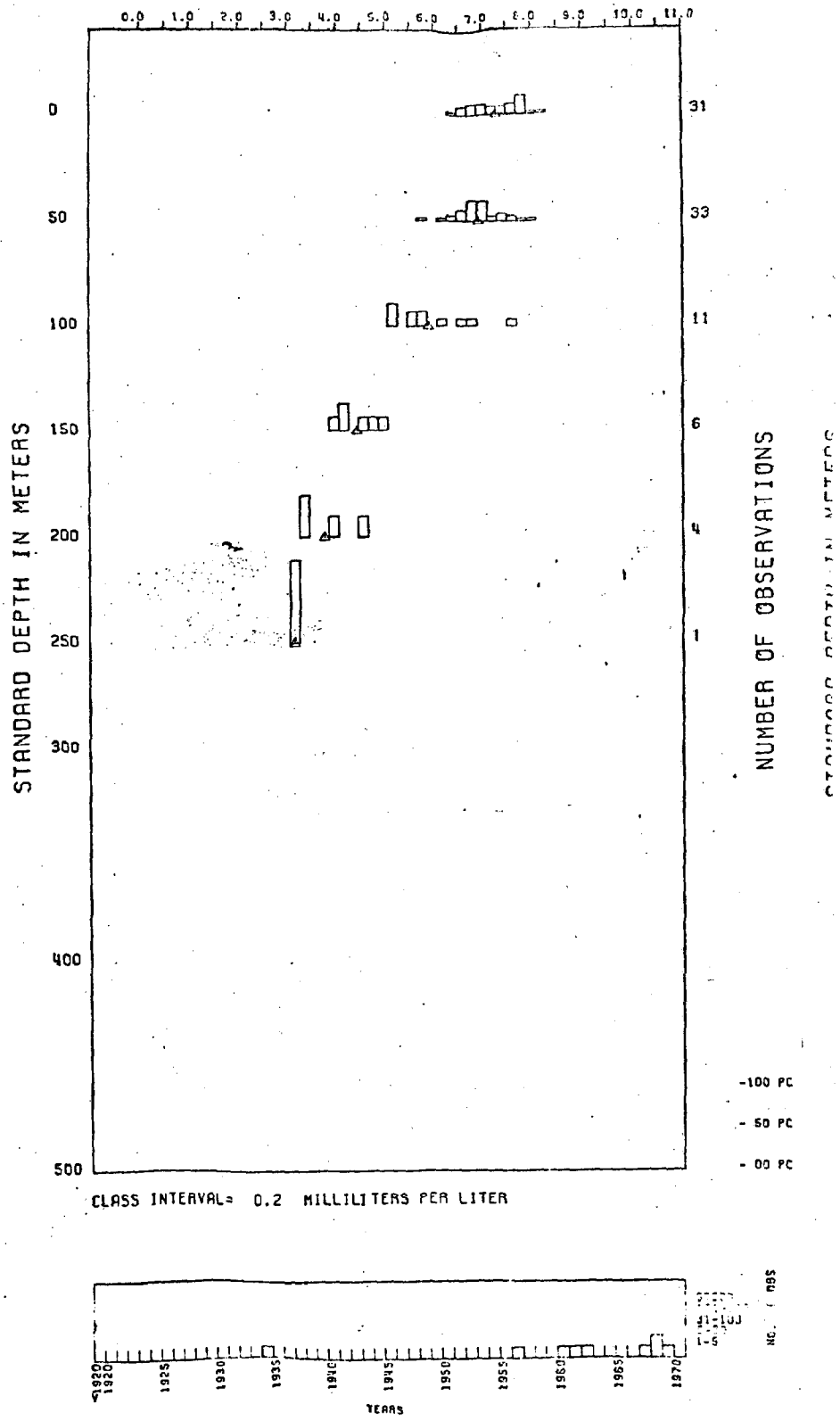
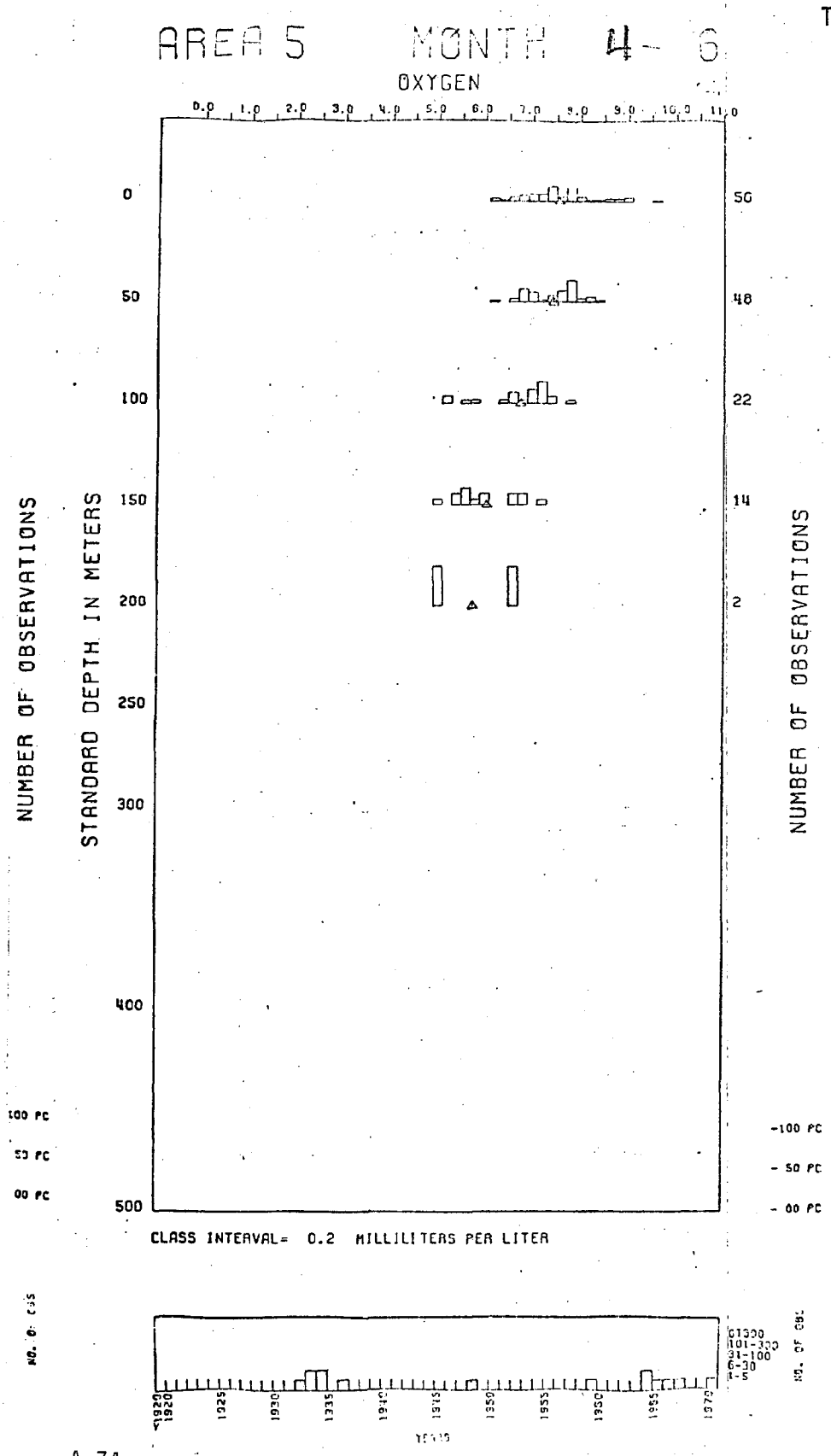
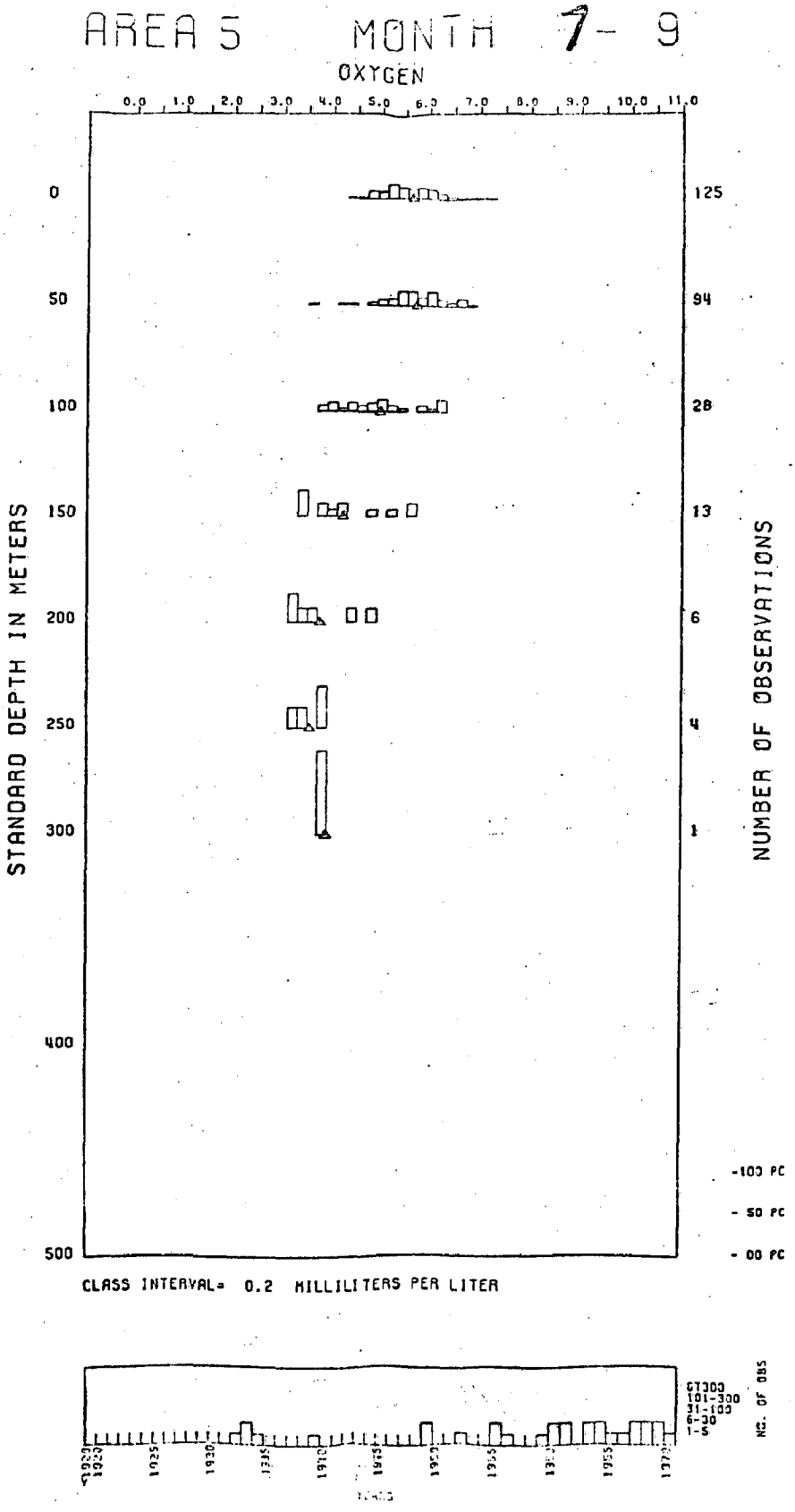
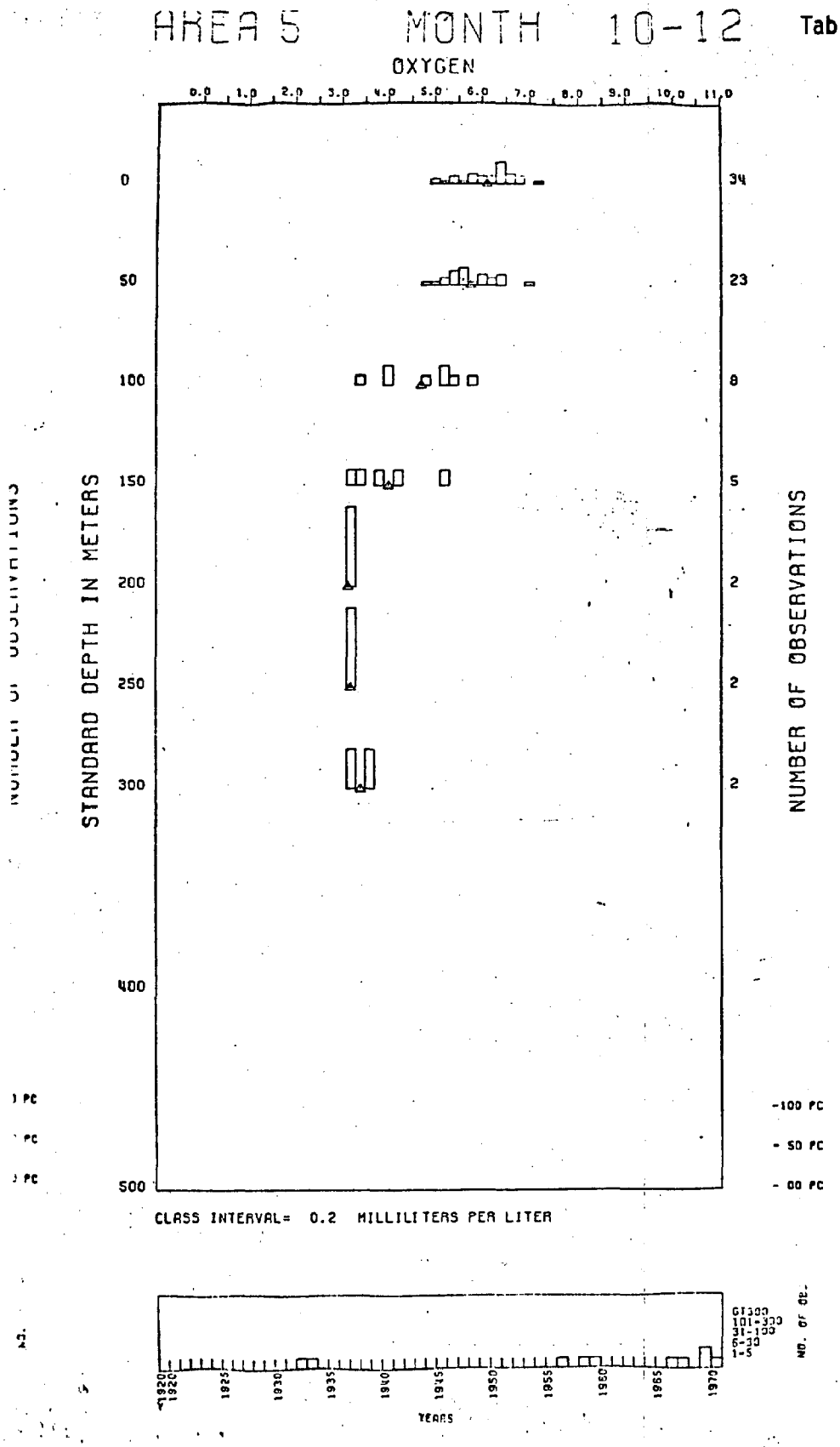
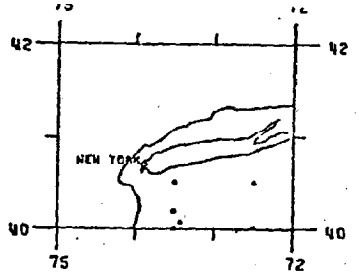

AREA 5 MONTH 1 - 3
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
31
33
11
6
4
1
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

Table A-6 Area 5 (cont.)

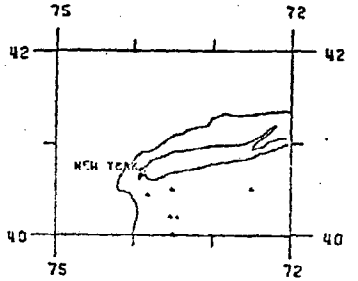



AREA 5 MONTH 7- 9
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
125
94
28
13
6
4
1
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS

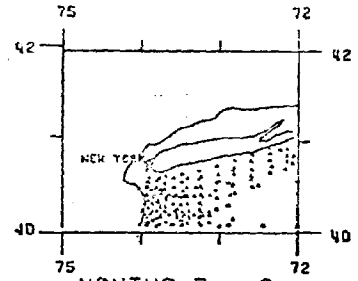

AREA 5 MONTH 10-12
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
34
23
8
5
2
2
2
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



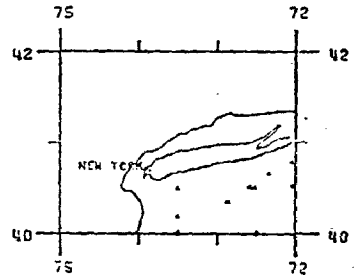
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

Distribution of stations reporting sea-surface oxygen values.

AREA 6 NEW YORK

40-42N 72-75W

OXYGEN

MONTHS 1 - 3 MONTHS PRESENT 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.89	7.45	6.69	6	0.47
10	7.84	7.45	7.18	6	0.29
20	7.71	7.52	7.41	5	0.14
30	7.62	7.36	7.11	5	0.18
50	6.85	6.85	6.85	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
8.07	7.33	6.60	6	0.62
7.97	7.30	6.72	6	0.52
7.58	6.91	6.21	5	0.60
7.01	6.16	5.07	4	0.80

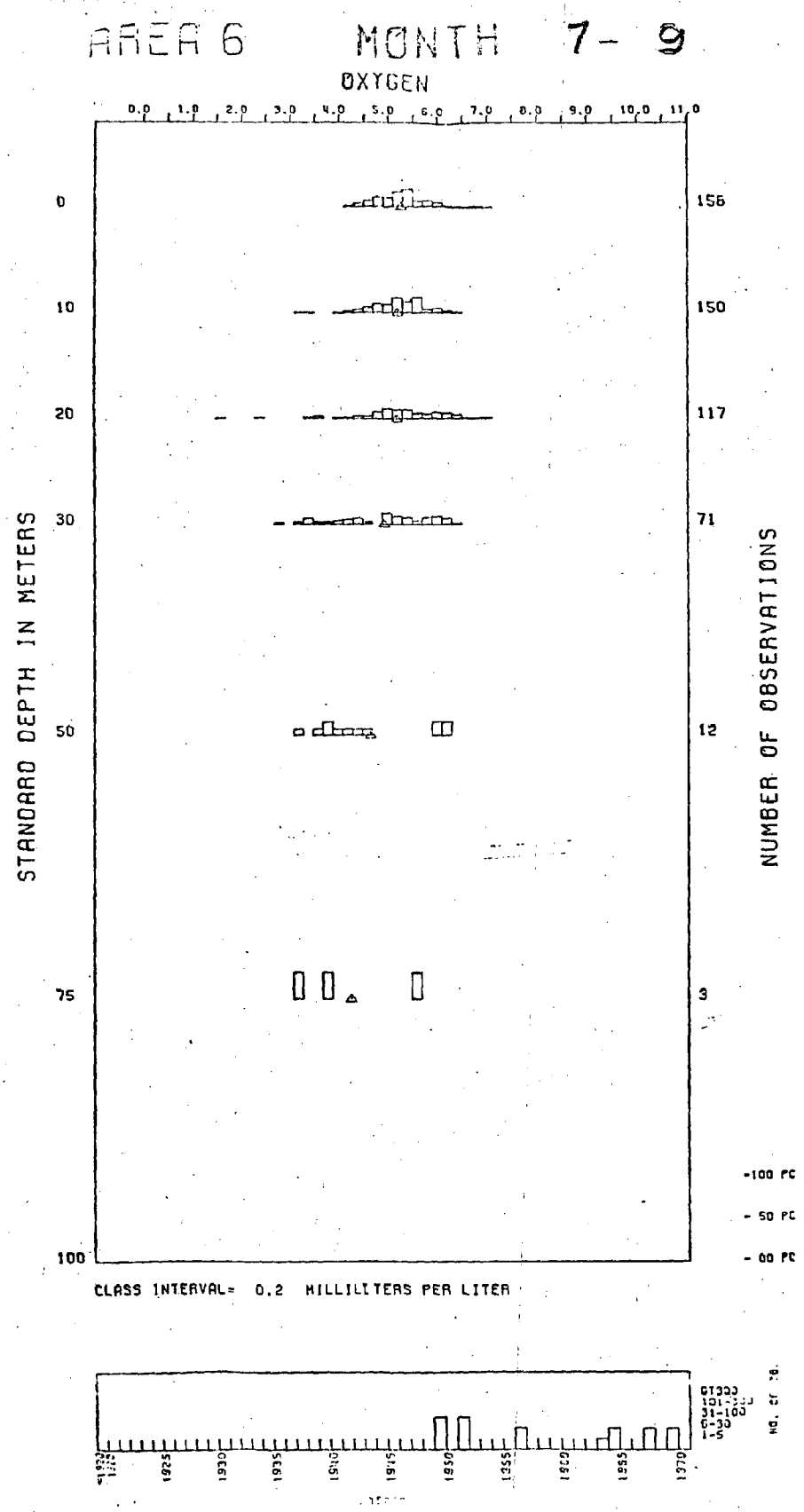
MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

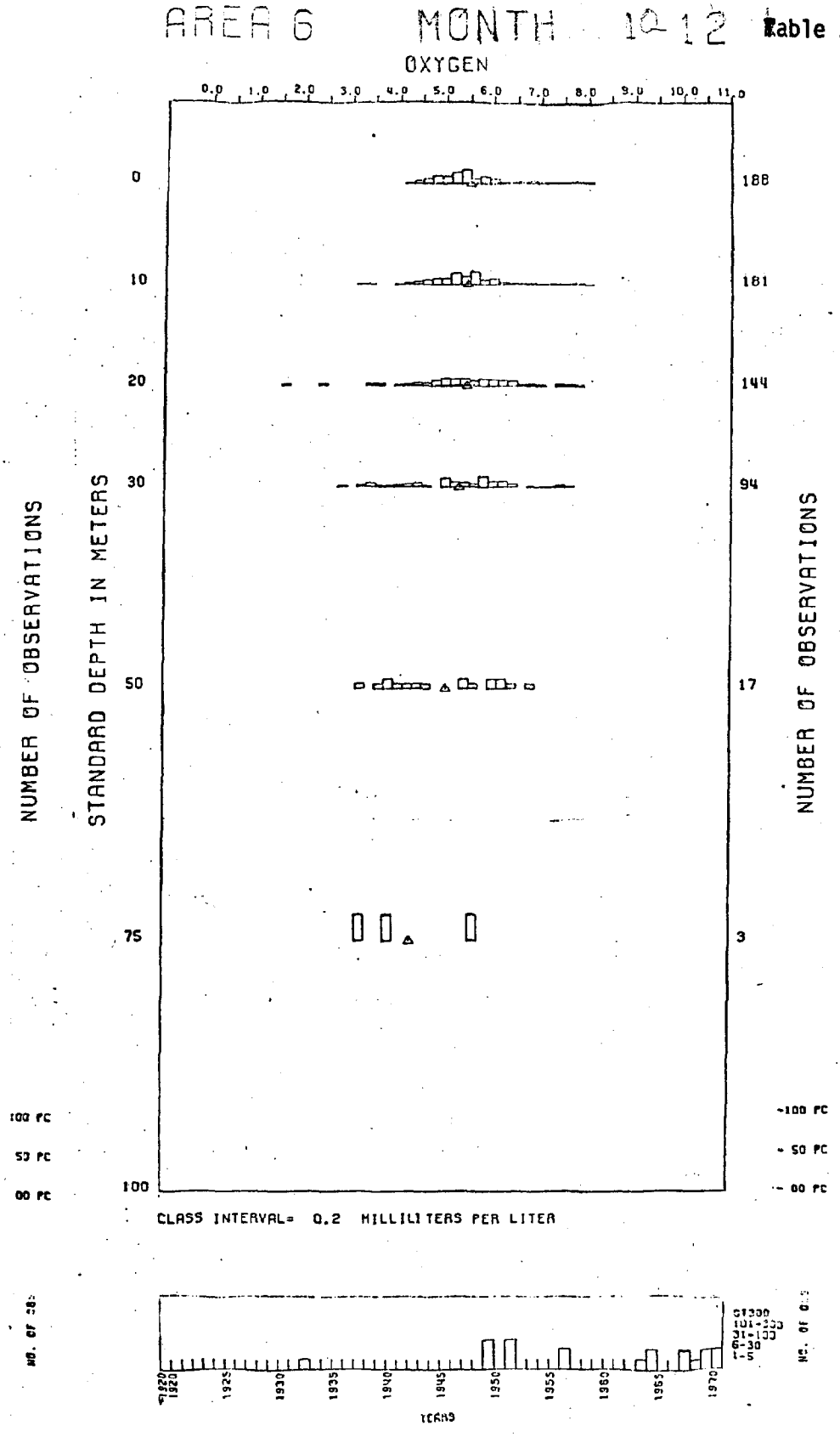
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.02	5.26	4.19	158	0.53
10	6.32	5.20	3.26	150	0.53
20	7.08	5.18	1.55	117	0.92
30	6.32	4.93	2.87	71	0.92
50	6.23	4.66	3.14	12	1.13
75	5.69	4.27	3.24	3	1.27

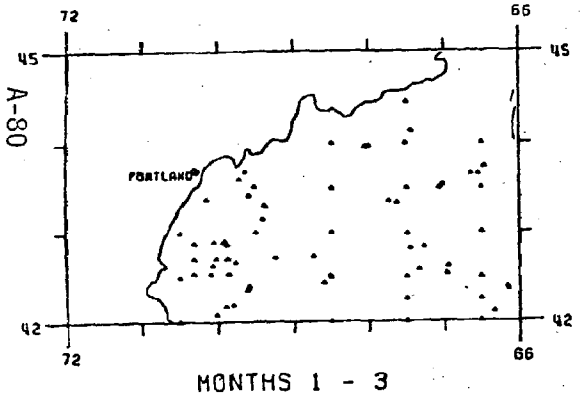
MONTHS 10 - 12 MONTHS PRESENT 11,12

MAX	AVG	MIN	OBS	SDEV
7.12	6.17	5.54	18	0.42
7.08	6.18	5.58	19	0.41
6.98	6.13	5.62	17	0.39
6.75	5.99	5.57	14	0.33
6.33	5.65	5.35	4	0.45

Table A-6 Area 6


AREA 6 MONTH 7- 9
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
10
20
30
50
75
100
NUMBER OF OBSERVATIONS
156
150
117
71
12
3
CLASS INTERVAL= 0.2 MILLILITERS PER LITER


AREA 6 MONTH 10 12
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
0
10
20
30
50
75
100
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
188
181
144
94
17
3
NUMBER OF OBSERVATIONS
100 PC
50 PC
00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



MONTHS 1 - 3

AREA 4 BOSTON

42-45N 66-72W

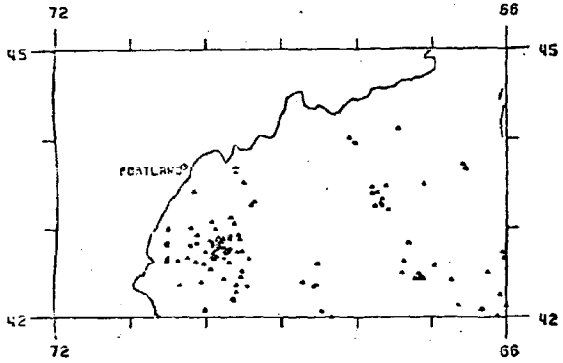
PHOSPHATE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.37	0.93	0.55	75	0.20
10	1.35	0.90	0.55	60	0.21
20	1.30	0.90	0.57	59	0.19
30	1.36	0.91	0.49	59	0.22
50	1.37	0.96	0.55	77	0.22
75	1.38	1.01	0.60	65	0.22
100	1.40	1.06	0.63	58	0.23
125	1.48	1.18	0.72	36	0.22
150	1.61	1.20	0.68	38	0.24
200	1.69	1.34	0.88	31	0.19
250	1.69	1.36	0.82	11	0.26
300	1.57	1.50	1.44	2	0.09

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

NTHS	X	AVG	MIN	OBS	SDEV
	91	0.48	0.11	139	0.21
	01	0.50	0.11	137	0.21
	11	0.59	0.15	136	0.19
	14	0.71	0.24	114	0.19
	27	0.82	0.30	135	0.17
	49	0.93	0.52	129	0.15
	49	0.99	0.55	109	0.16
	63	1.06	0.66	97	0.15
	63	1.15	0.62	92	0.18
	73	1.33	1.00	83	0.15
	18	1.38	1.12	31	0.22
	63	1.27	1.16	8	0.15



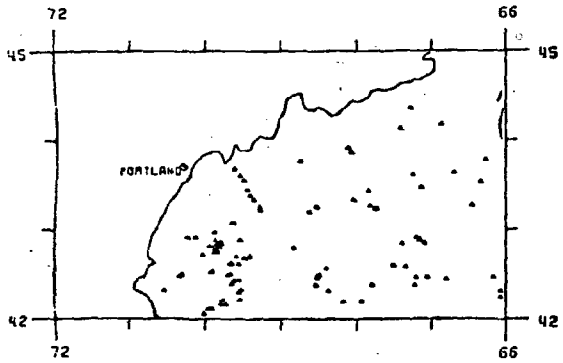
MONTHS 4 - 6

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

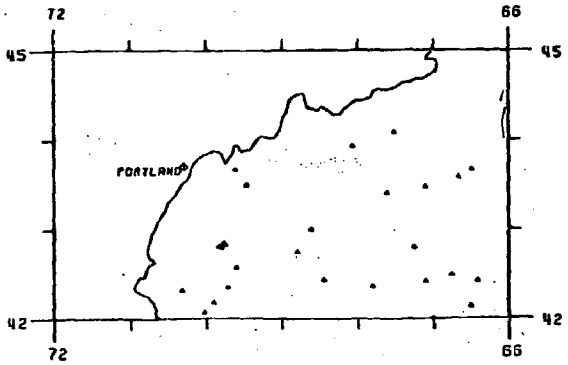
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	0.80	0.29	0.0	114	0.13
10	0.92	0.30	0.10	114	0.14
20	1.12	0.39	0.10	102	0.19
30	1.24	0.58	0.16	111	0.23
50	1.36	0.81	0.19	112	0.23
75	1.54	0.97	0.23	104	0.26
100	1.61	1.09	0.42	97	0.23
125	1.78	1.19	0.52	77	0.23
150	1.90	1.28	0.89	75	0.21
200	1.79	1.29	0.69	63	0.23
250	1.84	1.26	0.71	24	0.24
300	1.88	1.27	0.64	5	0.45

NTHS 10 - 12 MONTHS PRESENT 11,12

NTHS	X	AVG	MIN	OBS	SDEV
	19	0.85	0.36	29	0.24
	18	0.87	0.36	25	0.22
	22	0.95	0.36	23	0.23
	23	0.88	0.42	26	0.20
	28	0.97	0.77	27	0.10
	26	1.06	0.97	24	0.09
	45	1.17	0.96	22	0.13
	44	1.24	1.07	11	0.14
	50	1.31	1.08	13	0.11
	47	1.34	1.17	17	0.08
	51	1.33	1.12	8	0.13
	44	1.44	1.44	1	0.0



MONTHS 7 - 9

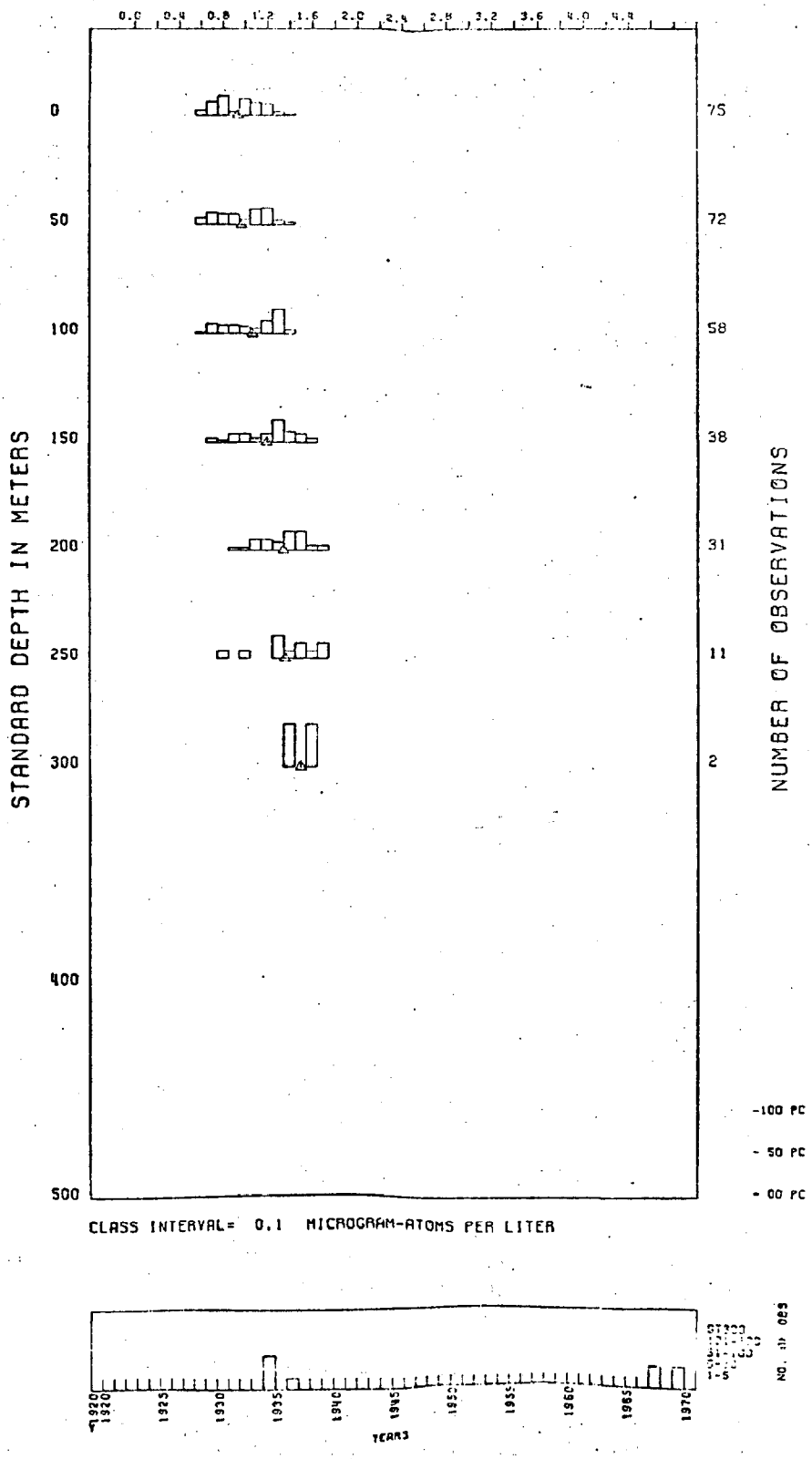


MONTHS 10-12

Distribution of stations reporting sea-surface phosphate values.

Table A-7 Area 4

Table A-7 Area 4 (cont.)



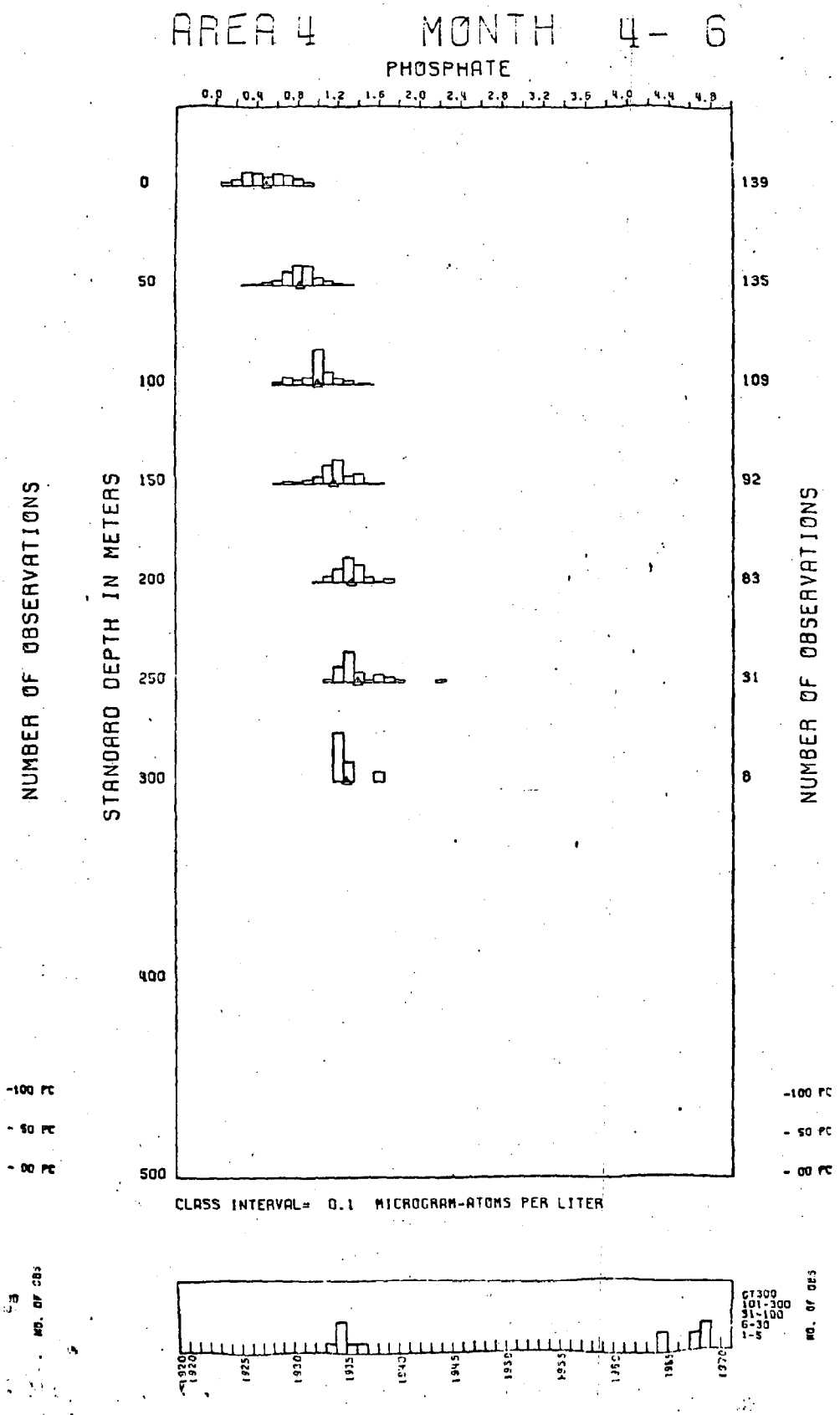

AREA 4 MONTH 4- 6
PHOSPHATE
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
139
135
109
92
83
31
8
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 MICROGRAM-ATOMS PER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
1920
1925
1930
1935
1940
1945
1950
1955
1960
1970

Table A-7 Area 4 (cont.)

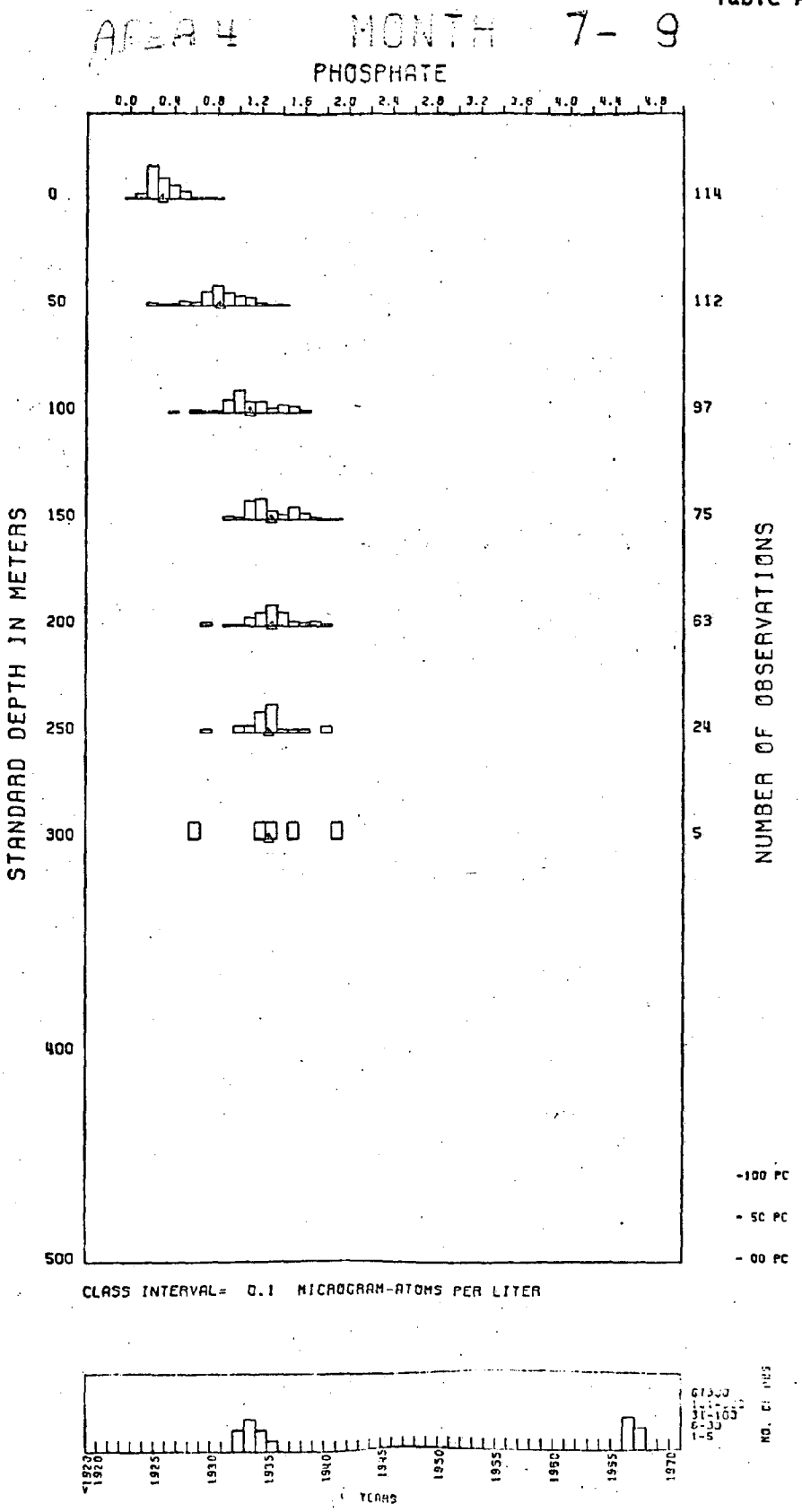
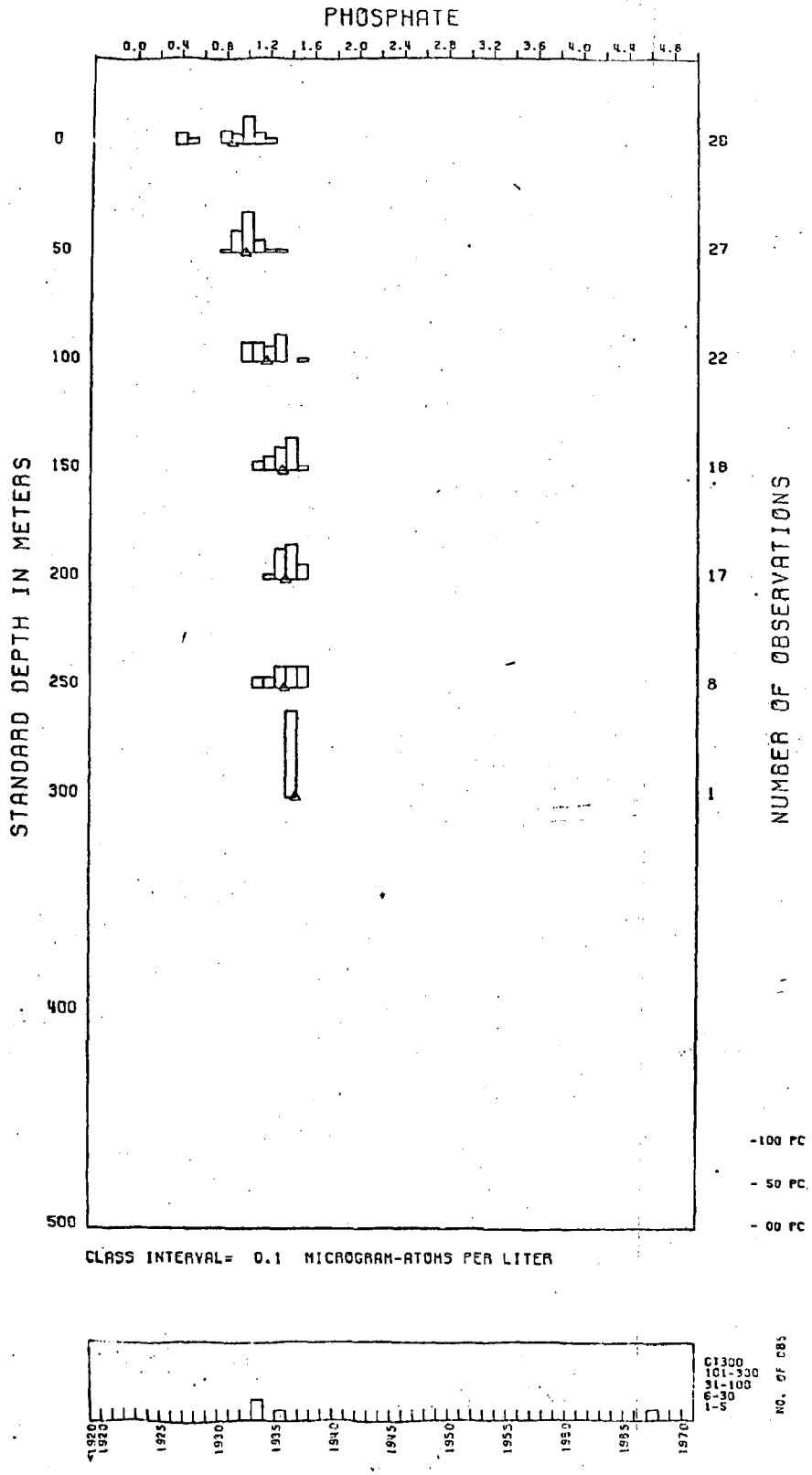
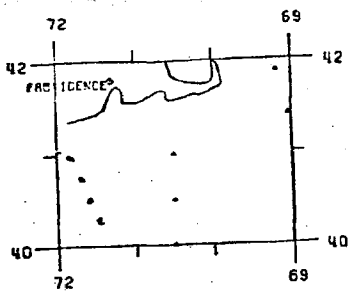
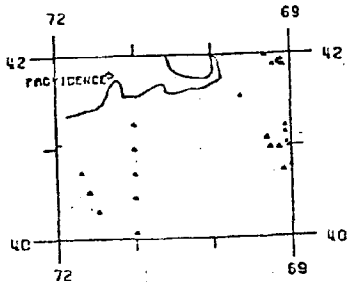


Table A-7 Area 4 (cont.)

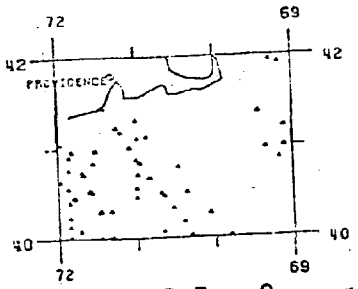




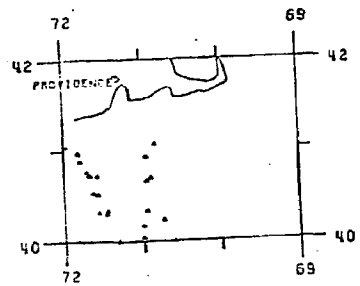
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

Distribution of stations reporting sea-surface phosphate val

AREA 5 QUONSET POINT

40-42N 69-72W

PHOSPHATE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.14	0.81	0.52	17	0.17
10	1.15	0.79	0.47	19	0.15
20	1.15	0.83	0.46	21	0.19
30	1.03	0.83	0.61	15	0.13
50	1.17	0.86	0.49	16	0.18
75	1.24	0.94	0.59	5	0.25
100	1.34	1.24	1.15	2	0.13
125	1.45	0.98	0.51	2	0.66
150	1.52	1.44	1.37	2	0.10
200	1.49	1.28	1.08	2	0.28

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
0.85	0.39	0.16	27	0.18
0.89	0.45	0.0	25	0.19
0.97	0.48	0.13	25	0.22
1.10	0.67	0.29	17	0.25
1.35	0.68	0.19	25	0.27
1.57	0.88	0.35	14	0.33
1.63	1.05	0.23	11	0.32
1.78	1.13	0.32	10	0.34
1.91	1.32	1.13	9	0.23
1.78	1.29	0.98	6	0.31

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.30	0.28	0.05	68	0.22
10	1.30	0.27	0.05	66	0.18
20	1.26	0.38	0.08	65	0.27
30	1.01	0.55	0.12	54	0.19
50	1.34	0.80	0.13	52	0.24
75	1.30	0.88	0.31	26	0.25
100	1.40	0.97	0.35	11	0.30
125	1.31	1.16	1.02	6	0.13
150	1.55	1.32	1.09	5	0.18
200	1.83	1.49	1.18	3	0.32
250	1.64	1.64	1.64	1	0.0
300	1.71	1.71	1.71	1	0.0

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
1.08	0.53	0.19	24	0.23
1.09	0.58	0.23	29	0.23
1.15	0.54	0.23	18	0.23
0.99	0.55	0.23	13	0.22
0.98	0.52	0.19	20	0.18
0.98	0.68	0.55	7	0.15
1.12	0.55	0.19	5	0.39
0.77	0.75	0.74	2	0.02
1.40	1.40	1.40	1	0.0
1.44	1.44	1.44	1	0.0
1.00	1.00	1.00	1	0.0
1.45	1.29	1.13	2	0.22

Table A-7 Area 5 (cont.)

Table A-7 Area 5 (cont.)

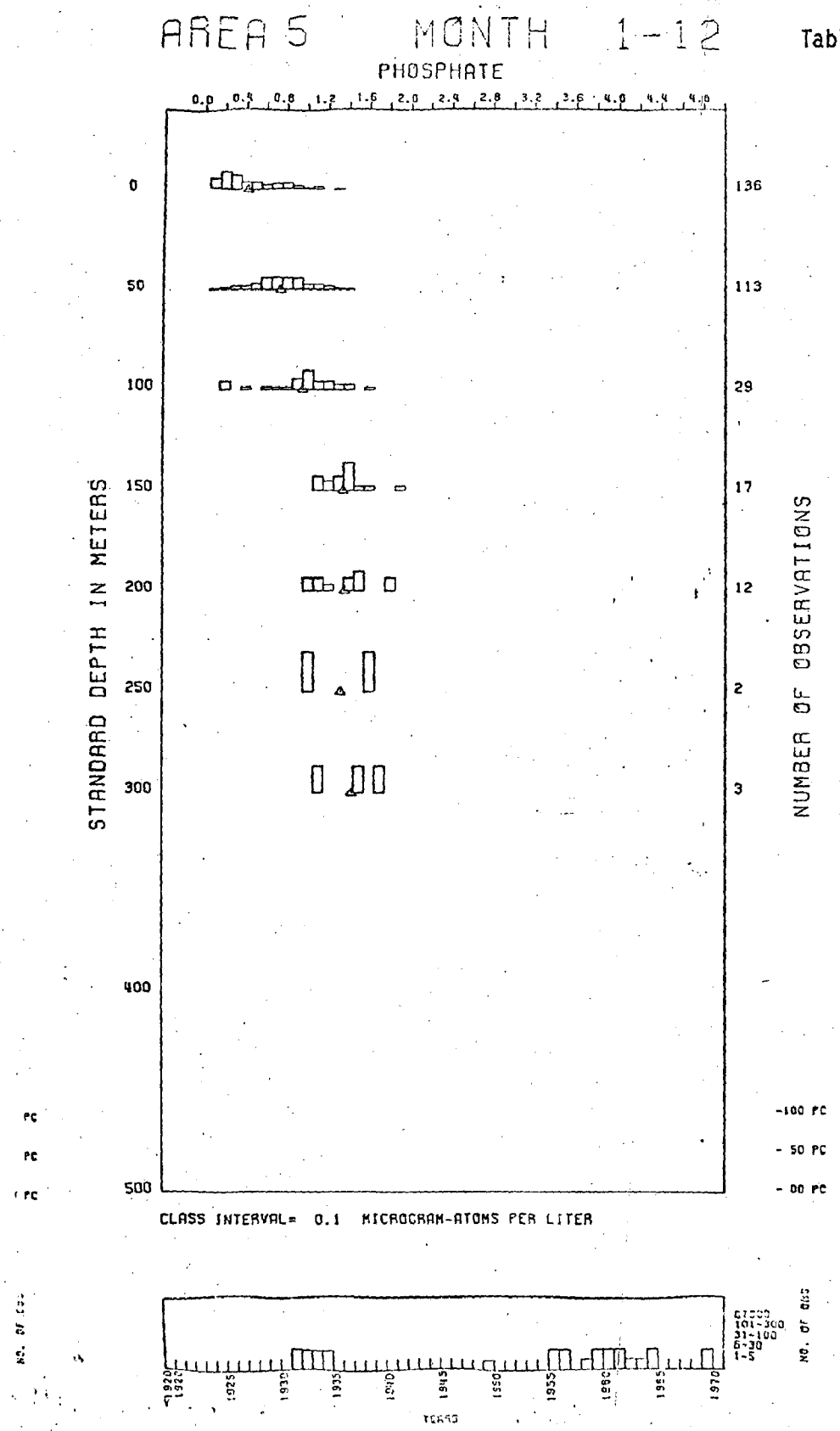


Table A-7 Area 5 (cont.)

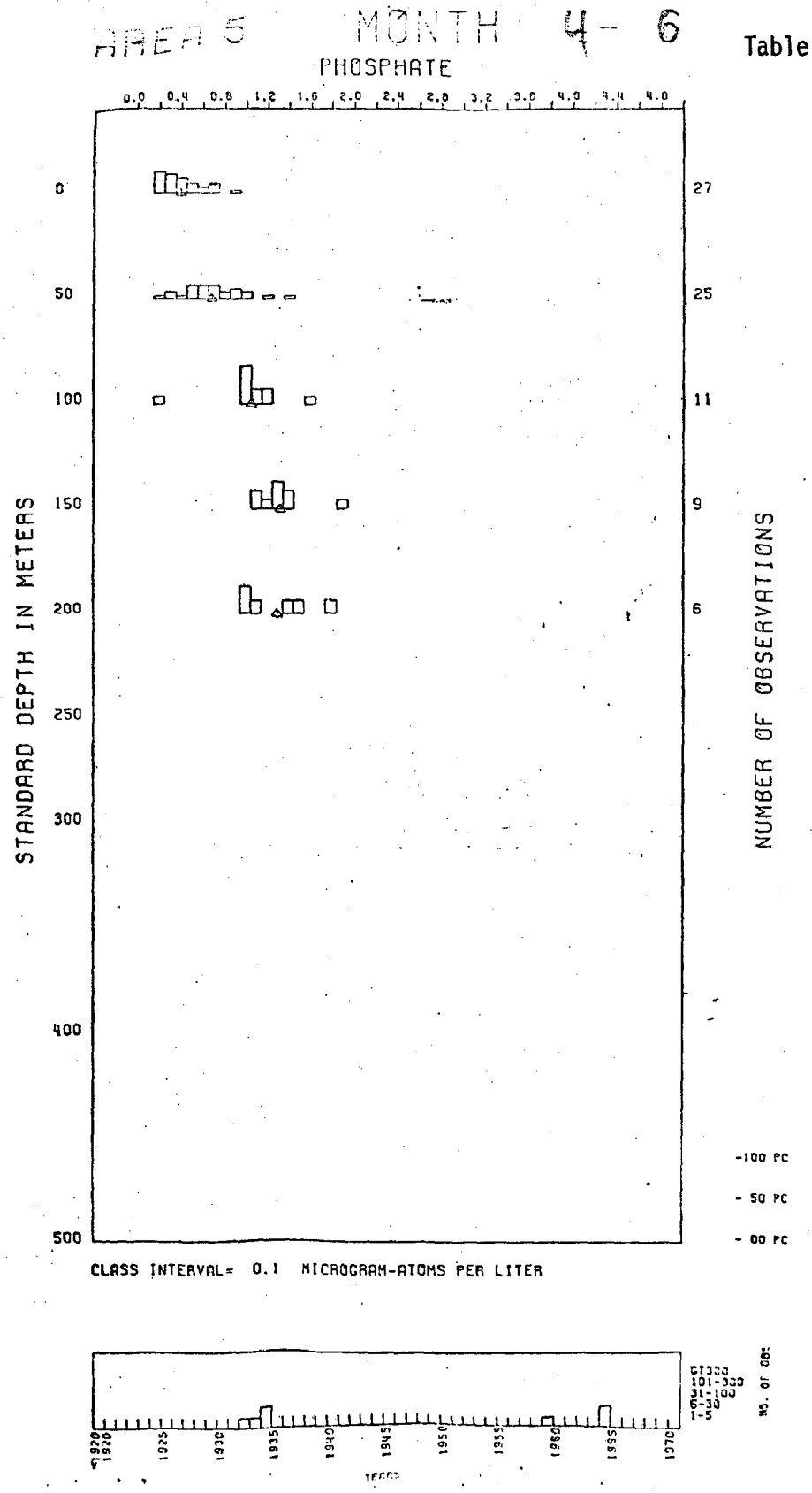
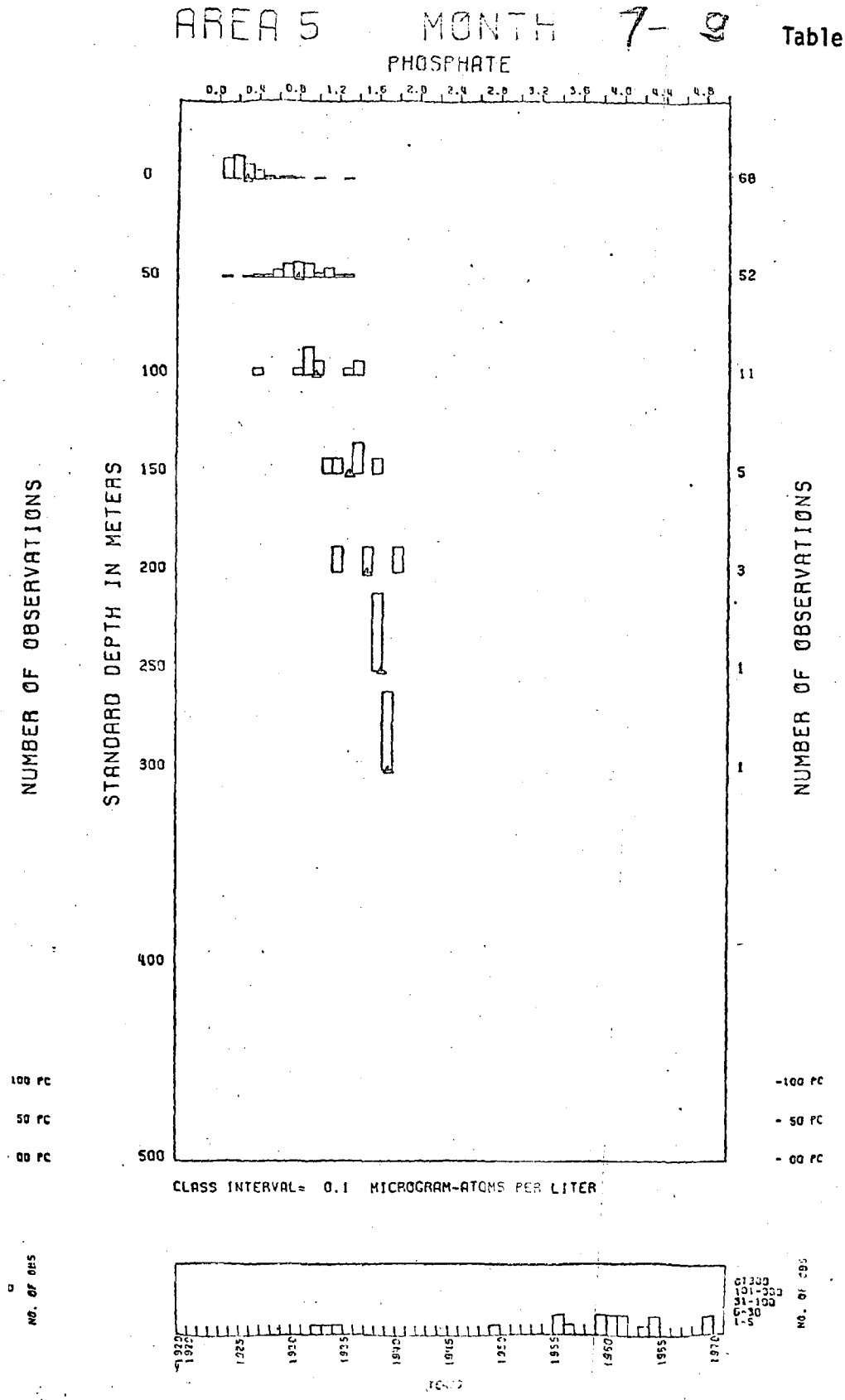
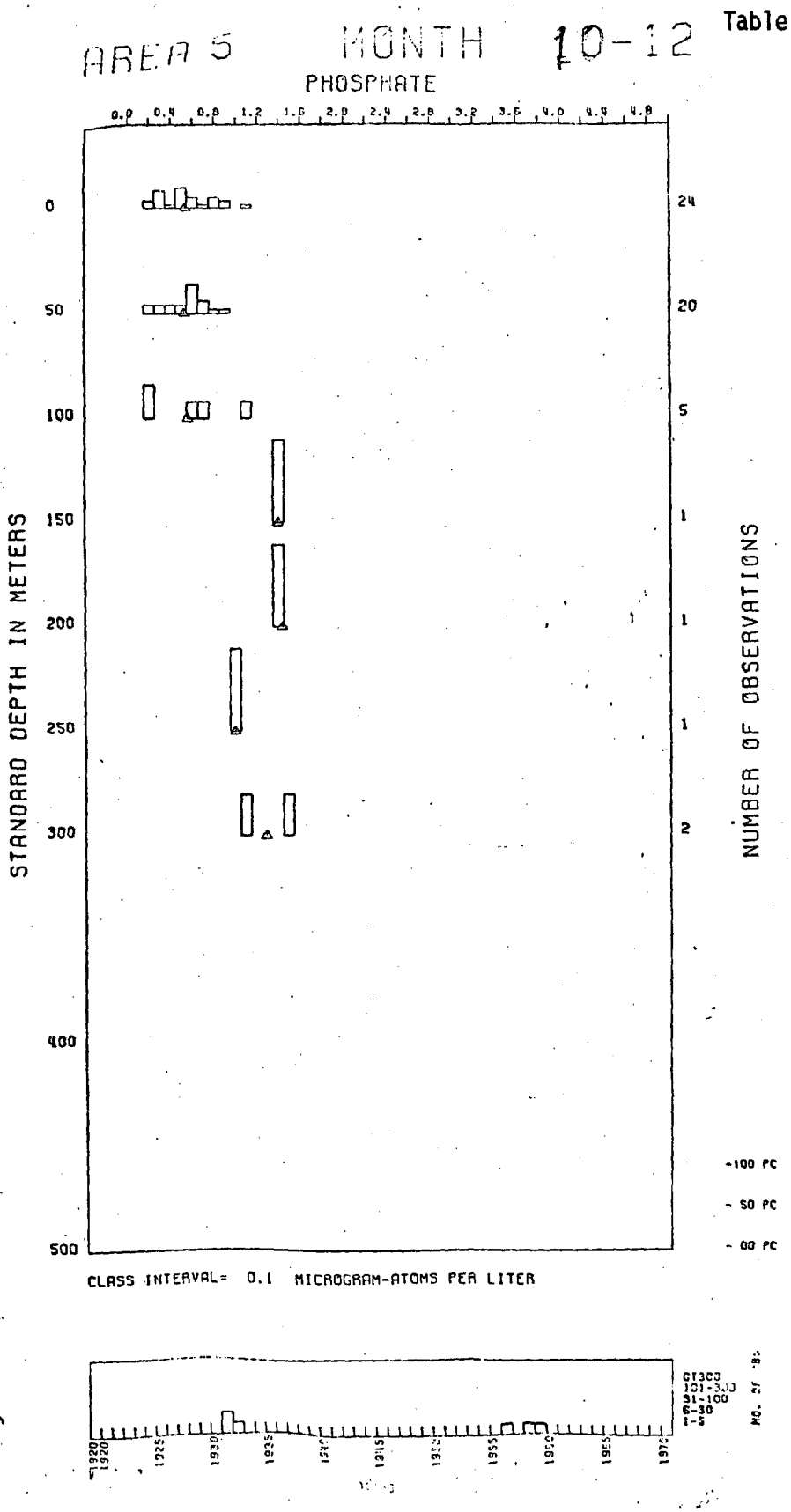
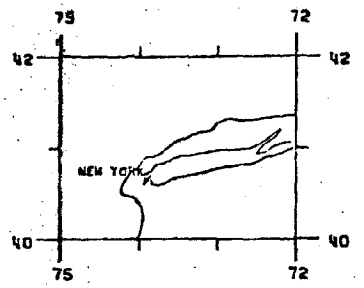


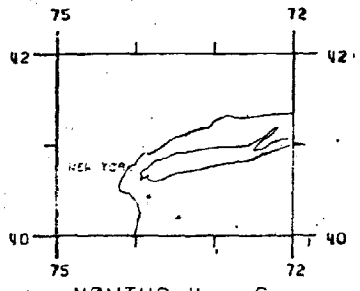
Table A-7 Area 5 (cont.)



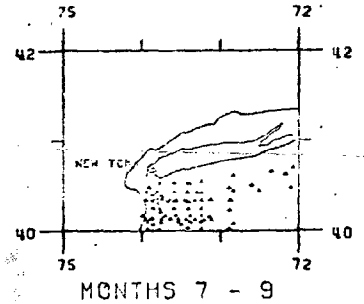

AREA 5 MONTH 10-12
PHOSPHATE
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
24
20
5
1
1
1
2
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 MICROGRAM-ATOMS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970



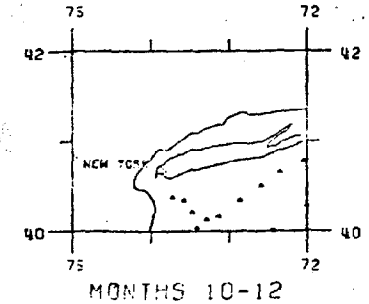
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

Distribution of stations reporting sea-surface phosphate values.

AREA 6 NEW YORK

40-42N 72-75W

PHOSPHATE

MONTHS 1 - 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	NO DATA AVAILABLE				
10					
20					
30					

MONTHS 4 - 6 MONTHS PRESENT 4

MAX	AVG	MIN	OBS	SDEV
0.19	0.14	0.10	2	0.06
0.19	0.19	0.19	2	0.0
0.26	0.22	0.19	2	0.04
0.35	0.35	0.35	1	0.0

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	2.57	0.43	0.10	79	0.35
10	1.24	0.43	0.13	79	0.20
20	1.91	0.67	0.19	64	0.32
30	1.67	0.85	0.24	41	0.31
50	1.47	0.87	0.22	21	0.32
75	1.67	1.19	0.69	5	0.42

MONTHS 10 - 12 MONTHS PRESENT 10,12

MAX	AVG	MIN	OBS	SDEV
0.90	0.42	0.13	12	0.24
0.79	0.45	0.10	9	0.28
0.81	0.43	0.10	12	0.28
0.80	0.50	0.19	9	0.23
0.66	0.50	0.26	3	0.21
0.64	0.56	0.48	2	0.11

Table A-7 Area 6

Table A-7 Area 6 (cont.)

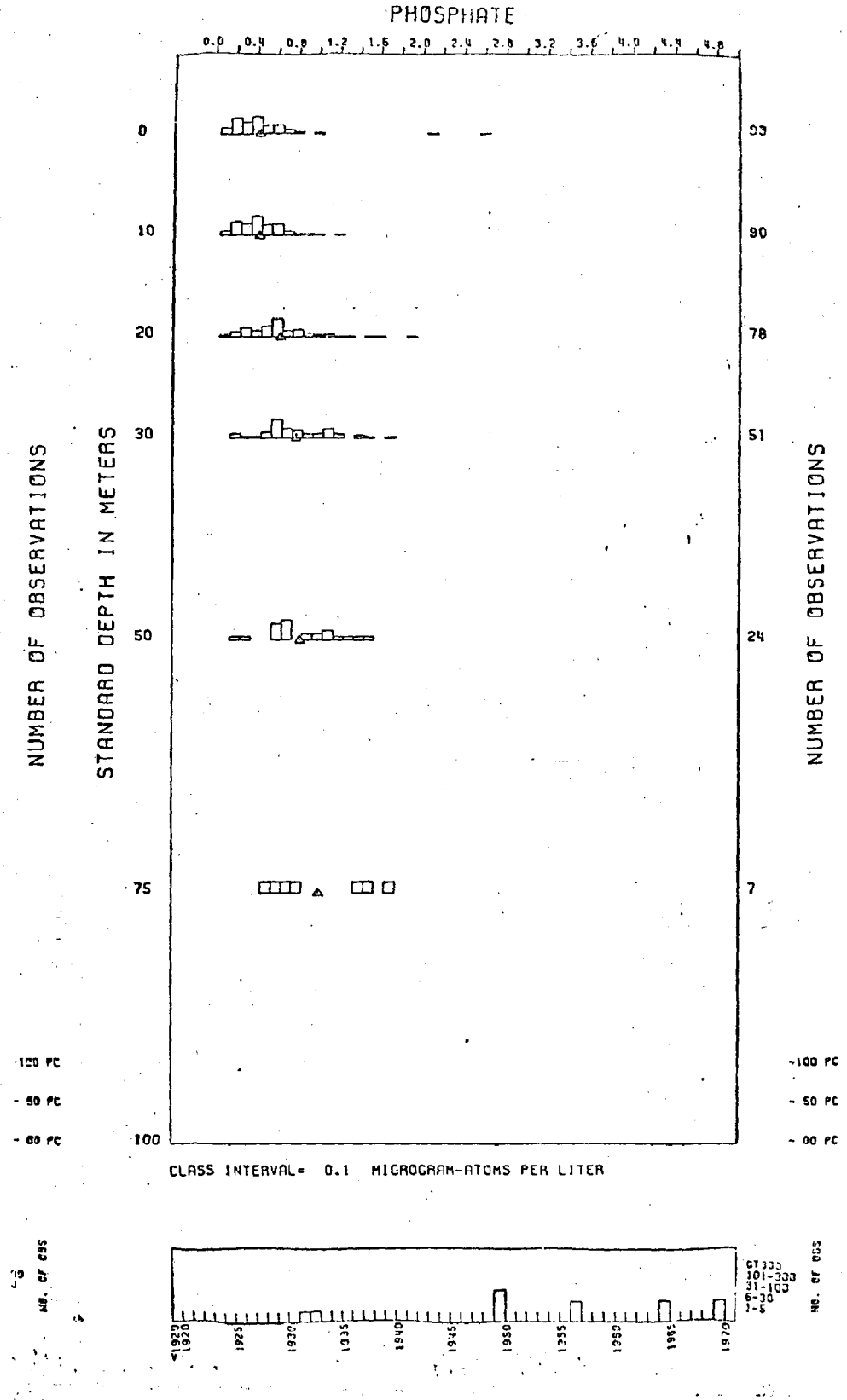


Table A-7 Area 6 (cont.)

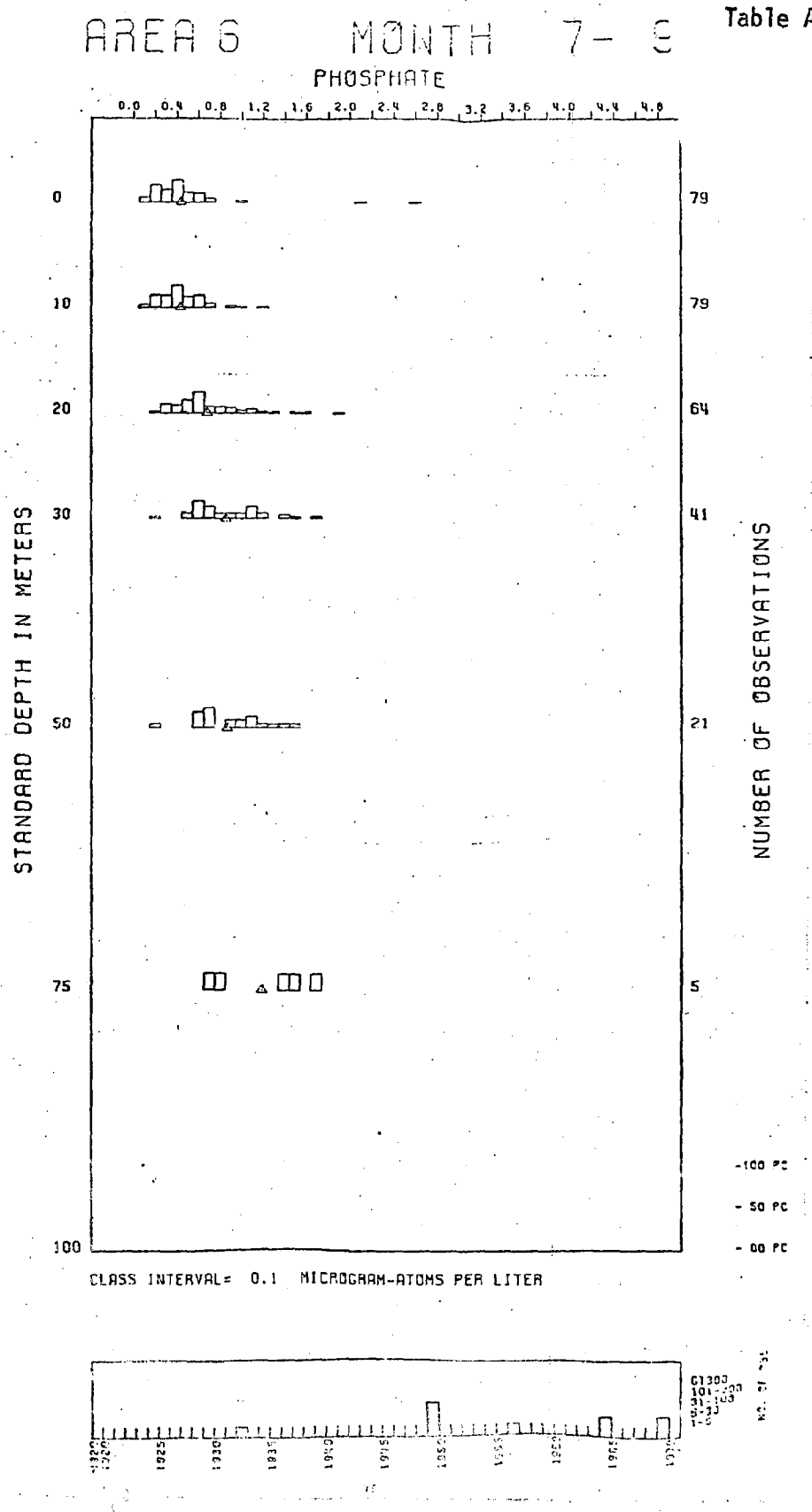


TABLE A - 8 BT TEMPERATURE DATA (NODC)

NEDC VERTICAL ARRAY SUMMARY - TEMPERATURE (FROM NODC MECHANICAL BT FILE)

MARSDEN SQ 151 ONE DEG SQ MONTH 2

DEPTH	MAX	AVG	MIN	NUM	SDEV
000	29.2	28.5	27.9	11	0.4
005	29.2	28.5	27.9	11	0.4
010	29.2	28.4	27.7	11	0.5
015	29.0	26.2	26.3	11	0.7
020	28.6	27.7	23.5	11	1.4
025	28.4	26.7	22.0	11	2.1
030	28.3	25.2	20.2	11	2.7
035	27.9	23.9	19.5	11	3.1
040	26.9	22.7	19.1	11	3.1
045	25.3	21.4	17.9	11	2.7
050	24.2	20.3	17.1	11	2.2
055	21.8	19.1	16.8	11	1.4
060	18.8	18.0	16.5	11	0.6
065	18.1	17.4	16.4	11	0.5
070	17.5	17.0	16.3	11	0.4
075	17.2	16.7	16.1	11	0.3
080	16.8	16.4	15.8	11	0.3
085	16.5	16.2	15.7	11	0.3
090	16.3	16.0	15.6	11	0.2
095	16.1	15.8	15.4	11	0.2
100	15.9	15.6	15.2	11	0.2
105	15.8	15.5	15.0	11	0.2
110	15.7	15.3	14.9	11	0.3
115	15.7	15.1	14.5	11	0.4
120	15.5	15.0	14.4	11	0.4
125	15.4	14.8	14.1	11	0.4
130	15.3	14.7	13.8	11	0.4
135	15.3	14.6	13.7	11	0.5
140	15.2	14.5	13.4	10	0.5
145	15.2	14.4	13.2	10	0.6
150	15.1	14.2	13.0	10	0.6
155	15.0	14.0	12.8	10	0.7
160	14.9	13.9	12.7	10	0.7
165	14.8	13.7	12.4	10	0.7
170	14.8	13.6	12.3	10	0.7
175	14.7	13.5	12.2	10	0.7
180	14.6	13.4	12.1	10	0.7
185	14.5	13.3	11.9	9	0.7
190	14.3	13.3	11.9	9	0.7
195	14.2	13.2	11.8	9	0.7
200	14.0	13.0	11.7	9	0.7
205	13.8	13.1	12.0	8	0.5
210	13.7	13.1	12.8	7	0.3
215	13.7	13.0	12.7	7	0.4
220	13.6	13.1	12.8	4	0.3
225	13.5	13.0	12.7	4	0.3
230	13.3	12.9	12.6	4	0.3
235	13.2	12.7	12.4	4	0.4
240	13.1	12.6	12.3	3	0.4
245	12.8	12.4	12.1	3	0.4
250	12.5	12.1	11.6	3	0.4
255	12.3	11.7	11.3	3	0.5
260	11.9	11.5	11.1	3	0.4
265	11.8	11.5	11.3	2	0.4
270	11.7	11.4	11.1	2	0.4
275	11.5	11.5	11.5	1	0.0

TABLE A - 9

SURFACE CURRENT SUMMARY LISTING

Frequency of speed and direction of surface currents computed from set and drift by one degree square and month.

EXPLANATION OF ENTRIES (FROM NODC, 1973)

Symbol

MSQ	Marsden square
DEG SQ	One degree square according to Marsden Square System. Position of a current observation is determined by the computed median position.
MO	Month
DIR	Direction octant to which the current flows. N=338° - 22° etc. Currents of less than 0.1 knots are classed under CALM.
Class Intervals	Current speed (knots) in 14 class intervals. Example: Class 0.1 contains all currents of 0.1 and 0.2 knots. Currents of 4.0 knots and greater are shown under 4.0. The numbers shown are the numbers of observations falling into the respective class of speed and direction.
SUM OBS	The total number of current observations for the one degree square and month is shown in the lower right hand corner under SUM OBS. The total number falling in each direction category (regardless of speed) are shown in the vertical column on the right. The total number of observations falling in each category of speed are shown in the horizontal row on the bottom.
PCT OBS	SUM OBS expressed as percent of total observations in the one degree square.
MEAN SP	The arthmetric mean speed of all observations in the respective direction class. This and all other averages are based on the actual values of the individual current observations rather than on class values.
MAX SP	Maximum individual current speed reported for the respective octant.
RC (DIR)	Resultant current direction in degrees. Direction of the average resultant current vector obtained by arctangent approximation of the eastern and northern average current component. RC(DIR)= Arctan [V(E)/V(N)].

TABLE A - 9 (cont'd)

RC (SPEED)	Speed of average resultant current in knots. RC (SPEED) = $\sqrt{V(N)^2 + V(E)^2}$
AVG SPEED	Arthmetric average of current speeds (regardless of direction) in knots.
V(N), V(E)	Average northern and eastern component of resultant current speed. V(N)= Σ(speed x cos. direction)/no. of observations.

TABLE A-9 SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
	SQ																			
151	37 01	SW						0001									00001	050.0	0.4	0.4
		NW			0001												00001	050.0	0.4	0.4
	SUM OBS	=			0001			0001									00002			
	PCT OBS	=			50.0			50.0										100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
151	37 02	NE		0001													00001	100.0	0.2	0.2
	SUM OBS	=		0001													00001			
	PCT OBS	=		100.0														100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
151	37 03	NE						0001									00001	012.5	1.0	1.0
		E			0001	0001	0001										00003	037.5	0.5	0.7
		SE		0001													00001	012.5	0.1	0.1
		S			0002												00002	025.0	0.4	0.4
		SW				0001											00001	012.5	0.6	0.6
	SUM OBS	=		0001	0003	0002	0001	0001									00008			
	PCT OBS	=		12.5	37.5	25.0	12.5	12.5										100		
	RESULTANT = 0.31 R(SPEED) = 0.24 AVG. SPEED = 0.50 V(N) = +0.20 V(E) = +0.12																			
151	37 04	N		0001													00001	050.0	0.1	0.1
		E					0001										00001	050.0	0.8	0.8
	SUM OBS	=		0001			0001										00002			
	PCT OBS	=		50.0			50.0											100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			

SMALL SUMMARY OF HI-1 SET AND DRIFT DATA THIS SUMMARY IS FROM DEC. 1971 MONTH AND RECORDS A PART OF YOUR HOA OF MAT

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ SQ	CFG	MO	DIR	C CALM	0.1	0.3	0.5	0.7	0.9	I 1.1	N 1.4	T 1.7	E 2.0	R 2.5	V 3.0	A 3.5	L 4.0	S	SUM OBS	PCT OBS	MEAN SP	MAX SP
151	37	05	CALM	0002															00002	025.0	0.0	0.0
			E			0001													00001	012.5	0.3	0.3
			S			0001													00001	012.5	0.3	0.3
			W				0002												00002	025.0	0.6	0.6
			NW		0001		0001												00002	025.0	0.4	0.6
			SUM OBS =	0002	0001	0002	0003												00008			
			PCT OBS =	25.0	12.5	25.0	37.5													100		
			RC(DIR) =	297		RC(SPEED) = 0.15		AVG. SPEED = 0.31				V(N) = +0.04			V(E) = -0.14							
151	37	06	E		0001	0003													00004	080.0	0.3	0.4
			S		0001														00001	020.0	0.1	0.1
			SUM OBS =		0002	0003													00005			
			PCT OBS =		40.0	60.0														100		
			RC(DIR) =	090		RC(SPEED) = 0.24		AVG. SPEED = 0.26				V(N) = -0.00			V(E) = +0.24							
151	37	07	SE				0001												00001	050.0	0.8	0.8
			SW			0001													00001	050.0	0.8	0.8
			SUM OBS =			0001	0001												00002			
			PCT OBS =			50.0	50.0													100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
151	37	10	CALM	0001															00001	020.0	0.0	0.0
			NE						0001										00001	020.0	1.0	1.0
			E				0001												00001	020.0	0.6	0.6
			S			0001													00001	020.0	0.3	0.3
			NW						0001										00001	020.0	1.0	1.0
			SUM OBS =	0001		0001	0001		0002										00005			
			PCT OBS =	20.0		20.0	20.0		40.0											100		
			RC(DIR) =	035		RC(SPEED) = 0.20		AVG. SPEED = 0.58				V(N) = +0.16			V(E) = +0.11							

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG SQ	MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
151	37	11	N		0001													00001	020.0	0.1	0.1
			E			0001				0001								00002	040.0	0.9	1.3
			SE			0001												00001	020.0	0.4	0.4
			S						0001									00001	020.0	0.9	0.9
	SUM OBS	=			0001	0002			0001	0001								00005			
	PCT OBS	=			20.0	40.0			20.0	20.0									100		
	RC(DIR) = 121 RC(SPEED) = 0.46 AVG. SPEED = 0.62 V(N) = -0.24 V(E) = +0.39																				
151	37	12	SW				0001											00001	100.0	0.0	0.0
	SUM OBS	=					0001											00001			
	PCT OBS	=					100.0												100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	38	01	SE			0001		0001										00002	066.7	0.6	0.8
			S			0001												00001	033.3	0.3	0.3
	SUM OBS	=				0002		0001										00003			
	PCT OBS	=				66.7		33.3											100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	38	03	NE		0001													00001	033.3	0.2	0.2
			N		0001		0001											00002	066.7	0.4	0.6
	SUM OBS	=			0002		0001											00003			
	PCT OBS	=			66.7		33.3												100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	38	04	N						0001									00001	100.0	0.9	0.9
	SUM OBS	=							0001									00001			
	PCT OBS	=							100.0										100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	LEG	MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
	SQ																				
151	38	05	SW		0001					0001								00002	066.7	0.0	0.0
			NW							0001								00001	033.3	1.2	1.2
			SUM OBS =		0001					0002								00003			
			PCT OBS =		33.3					66.7									100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	07	CALM 0001															00001	100.0	0.0	0.0
			SUM OBS = 0001															00001			
			PCT OBS = 100.0																100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	09	S		0001													00001	033.3	0.3	0.3
			W		0001	0001												00002	066.7	0.5	0.5
			SUM OBS =		0002	0001												00003			
			PCT OBS =		66.7	33.3													100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	09	N				0001											00001	033.3	0.5	0.5
			NE		0001													00001	033.3	0.3	0.3
			E		0001													00001	033.3	0.3	0.3
			SUM OBS =		0002	0001												00003			
			PCT OBS =		66.7	33.3													100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	11	NE		0001													00001	025.0	0.1	0.1
			S						0001									00001	025.0	0.7	0.7
			W		0001	0001												00002	050.0	0.3	0.3
			SUM OBS =		0002	0001			0001									00004			
			PCT OBS =		50.0	25.0			25.0										100		

RC(DIR) = 216 RC(SPEED) = 0.20 AVG. SPEED = 0.33 V(N) = -0.16 V(E) = -0.12

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	SQ	DEG	NO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
151	39	01	N		0001														00001	033.3	0.1	0.1
			NE			0001													00001	033.3	0.3	0.3
			SE			0001													00001	033.3	0.3	0.3
		SUM OBS =			0001	0002													00003			
		PCT OBS =			33.3	66.7														100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	39	02	N				0001												00001	100.0	0.7	0.7
		SUM OBS =					0001												00001			
		PCT OBS =					100.0													100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	39	03	NE				0001												00001	100.0	0.8	0.8
		SUM OBS =					0001												00001			
		PCT OBS =					100.0													100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151	39	05	N			0001													00001	025.0	0.5	0.5
			NE			0001													00001	025.0	0.5	0.5
			SE				0001												00001	025.0	1.0	1.0
			SW		0001														00001	025.0	0.5	0.5
		SUM OBS =			0003	0001													00004			
		PCT OBS =			75.0	25.0														100		
		RC(DIR) = 1.9 RC(SPEED) = 0.13 AVG. SPEED = 0.65 V(N) = -0.04 V(E) = +0.13																				
151	39	05	CALM	0001															00001	050.0	0.0	0.0
			W		0001														00001	050.0	0.1	0.1
		SUM OBS =		0001	0001														00002			
		PCT OBS =		50.0	50.0															100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG SQ	MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
151	36	00	N				0001											00001	050.0	0.5	0.5
			W						0001									00001	050.0	1.0	1.0
			SUM O-S	=			0001		0001									00002			
			PCT O-S	=			50.0		50.0										100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	36	02	E			0001												00001	100.0	0.4	0.4
			SUM O-S	=		0001												00001			
			PCT O-S	=		100.0													100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	36	11	E					0001										00001	100.0	1.0	1.0
			SUM O-S	=				0001										00001			
			PCT O-S	=				100.0											100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	46	01	NE							0001								00001	050.0	1.5	1.5
			S			0001												00001	050.0	0.3	0.3
			SUM O-S	=		0001				0001								00002			
			PCT O-S	=		50.0				50.0									100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	46	03	CALM	0001														00001	020.0	0.0	0.0
			N											0001	0001			00002	040.0	2.9	3.0
			E					0001										00001	020.0	1.0	1.0
			SE			0001												00001	020.0	0.4	0.4
			SUM O-S	=	0001	0001		0001						0001	0001			00005			
			PCT O-S	=	20.0	20.0		20.0						20.0	20.0				100		
			RC(DIR)	=	021	RC(SPEED) = 1.26		AVG. SPEED = 1.44				V(N) = +1.18			V(E) = +0.45						

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

SQ	DEG	NO	DIR	C	L	A	S	S	I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
				CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	OBS	OBS	SP	SP
51	[illegible]	04	[illegible]					0001										00001	050.0	0.9	0.9
			SW						0001									00001	050.0	0.9	0.9
		SUM OBS =						0001	0001									00002			
		PCT OBS =						50.0	50.0										100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
51	46	05	[illegible]				0001											00001	050.0	0.6	0.6
			SW						0001									00001	050.0	0.6	0.6
		SUM OBS =					0001		0001									00002			
		PCT OBS =					50.0		50.0										100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
51	46	09	[illegible]					0001										00001	033.3	0.8	0.8
			S					0001										00001	033.3	0.8	0.8
			SW						0001									00001	033.3	0.0	0.0
		SUM OBS =						0002	0001									00003			
		PCT OBS =						66.7	33.3										100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
51	46	14	N					0001				0001						00002	040.0	1.7	2.4
			NW				0001		0002									00003	060.0	3.2	4.8
		SUM OBS =					0001		0001 0002			0001						00005			
		PCT OBS =					20.0		20.0 40.0			20.0							100		
		RC(DIR) = 297 RC(SPEED) = 0.55 AVG. SPEED = 1.30 V(N) = +0.25 V(E) = -0.50																			
51	46	17	CALM 0.01															00001	100.0	0.0	0.0
		SUM OBS = 0001																00001			
		PCT OBS = 100.0																	100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

D	DEG SQ	MO	DIR	C CALM	I 0.1	A 0.3	S 0.5	S 0.7	0.9	I 1.1	N 1.4	T 1.7	E 2.0	R 2.5	V 3.0	A 3.5	L 4.0	S	SUM OBS	PCT OBS	MEAN SP	MAX SP
1	46	11	E								0001								00001	033.3	1.5	1.5
			W							0001									00001	033.3	1.1	1.1
			NW				0001												00001	033.3	0.6	0.6
	SUM OBS =						0001			0001	0001								00003			
	PCT OBS =						33.3			33.3	33.3									100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																					
1	47	08	NE				0001												00001	050.0	0.6	0.6
			W				0001												00001	050.0	0.5	0.5
	SUM OBS =						0002												00002			
	PCT OBS =						100.0													100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																					

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSD	DEG	MO	DIR	C	L	A	S	S		I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
	SC			CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0		OBS	OBS	SP	SP
152	03	01	CALM	0021															00021	011.4	0.0	0.0
			N		0006	0008	0007	0005	0004	0002	0001								00033	017.8	0.6	1.6
			NE		0001	0005	0002	0003											00011	005.9	0.5	0.8
			E		0002	0001	0002	0002	0001										00008	004.3	0.5	1.0
			SE		0001	0003	0005	0002	0004	0003									00018	009.7	0.7	1.3
			S		0006	0021	0015	0008	0007	0002	0002					0001			00062	033.5	0.6	3.6
			SW		0005	0004	0006		0001	0002									00018	009.7	2.0	9.7
			W		0002	0001		0001	0001		0002		0001						00008	004.3	1.0	2.4
			NW		0002					0002	0002								00006	003.2	0.9	1.5
	SUM OBS	=		0021	0035	0043	0037	0021	0018	0011	0007		0001			0001			00185			
	PCT OBS	=		11.4	13.5	23.2	20.0	11.4	09.7	05.9	03.8		00.5			00.5				100		
	RC(DIR)	=	180		RC(SPEED) = 0.15			AVG. SPEED = 0.55					V(N) = -0.15			V(E) = +0.00						
152	03	02	CALM	0020															00020	020.0	0.0	0.0
			N		0002	0004	0001	0003	0002	0002	0001								00015	015.0	0.7	1.5
			NE				0002												00002	002.0	0.5	0.5
			E			0002	0002	0001											00005	005.0	0.5	0.7
			SE		0001	0001	0001			0001									00004	004.0	0.6	1.2
			S		0004	0012	0008	0002	0007	0002	0001	0001	0001						00038	038.0	0.6	2.0
			SW		0002	0001	0002	0001							0001				00007	007.0	3.9	7.7
			W			0001		0001	0001										00003	003.0	0.7	1.0
			NW			0003	0001	0001	0001										00006	006.0	0.6	1.0
	SUM OBS	=		0020	0009	0024	0017	0009	0011	0005	0002	0001	0001		0001				00100			
	PCT OBS	=		20.0	09.0	24.0	17.0	09.0	11.0	05.0	02.0	01.0	01.0		01.0					100		
	RC(DIR)	=	140		RC(SPEED) = 0.16			AVG. SPEED = 0.52					V(N) = -0.16			V(E) = -0.03						
152	03	03	CALM	0033															00033	014.2	0.0	0.0
			N		0008	0016	0013	0001	0005	0001		0001							00045	019.4	0.5	1.8
			NE		0004	0002	0002	0001	0003	0001	0001								00014	006.0	0.6	1.5
			E			0003	0004	0002	0002										00011	004.7	0.6	1.0
			SE		0001	0003	0007	0003	0001	0001									00016	006.9	0.6	1.1
			S		0015	0022	0010	0008	0009	0005	0003	0002	0001						00075	032.3	0.6	2.0
			SW			0003	0005	0006	0002										00016	006.9	2.8	3.7
			W		0001	0003	0004	0001	0001										00010	004.3	0.5	0.9
			NW		0001	0004	0002	0003	0001	0001									00012	005.2	0.6	1.1
	SUM OBS	=		0033	0050	0056	0047	0025	0024	0009	0004	0003	0001						00232			
	PCT OBS	=		14.2	12.9	24.1	20.3	10.8	10.3	03.9	01.7	01.3	00.4							100		
	RC(DIR)	=	171		RC(SPEED) = 0.12			AVG. SPEED = 0.50					V(N) = -0.12			V(E) = +0.02						

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

59	DEG MO	DIR	C	L	A	S	S		I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
	SQ		CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0		OBS	OBS	SP	SP
52	03 04	CALM	0029															00029	025.4	0.0	0.0
		N		0003	0001	0005	0001	0001	0001	0001								00013	011.4	0.6	1.6
		NE			0004	0001	0002											00007	006.1	0.5	0.8
		E		0001	0003	0002		0002	0001									00009	007.9	0.6	1.3
		SE		0002	0003	0002												00007	006.1	0.3	0.5
		S		0004	0010	0006	0006	0004	0003			0001						00034	029.8	0.6	2.2
		SW		0003	0001		0002	0001										00007	006.1	1.7	5.1
		W		0001	0001	0002		0001										00005	004.4	0.5	1.0
		NW			0001	0001	0001											00003	002.6	0.5	0.7
	SUM OBS	=	0029	0014	0024	0019	0012	0009	0005	0001		0001						00114			
	PCT OBS	=	25.4	12.3	21.1	16.7	10.5	07.9	04.4	00.9		00.9							100		
	RC(DIR)	=	166	RC(SPEED) = 0.14			AVG. SPEED = 0.43				V(N) = -0.13			V(E) = +0.03							
52	03 05	CALM	0078															00078	028.3	0.0	0.0
		N		0005	0011	0012	0008	0003	0003		0002		0001					00045	016.3	0.7	2.5
		NE			0006	0002					0001							00009	003.3	0.5	1.7
		E		0004	0001	0006	0003	0002	0002									00018	006.5	0.6	1.3
		SE			0004	0002	0001	0002	0001									00010	003.6	0.6	1.2
		S		0014	0016	0015	0006	0006	0006	0003	0002							00068	024.6	0.6	1.9
		SW		0003	0004	0009	0004		0002		0001							00023	008.3	8.4	2.0
		W		0004	0004	0003			0001	0001								00013	004.7	0.5	1.6
		NW		0003	0002	0002	0001	0003		0001								00012	004.3	0.6	1.4
	SUM OBS	=	0078	0033	0048	0051	0023	0016	0015	0005	0006		0001					00276			
	PCT OBS	=	28.3	12.0	17.4	18.5	08.3	05.8	05.4	01.8	02.2		00.4						100		
	RC(DIR)	=	194	RC(SPEED) = 0.07			AVG. SPEED = 0.44				V(N) = -0.06			V(E) = -0.02							
52	03 06	CALM	0027															00027	027.3	0.0	0.0
		N		0003	0004	0001	0001	0004	0001		0001							00015	015.2	0.7	1.7
		NE		0002	0001	0003		0002	0001									00009	009.1	0.6	1.1
		E			0001													00001	001.0	0.4	0.4
		SE			0002		0003											00005	005.1	0.6	0.8
		S		0004	0006	0009	0003	0003					0001					00026	026.3	0.6	2.7
		SW			0003	0002		0001	0002									00008	008.1	7.5	2.4
		W		0001			0001	0001	0001									00004	004.0	0.8	1.2
		NW		0001	0001	0001			0001									00004	004.0	0.6	1.2
	SUM OBS	=	0027	0011	0018	0016	0008	0011	0006		0001		0001					00099			
	PCT OBS	=	27.3	11.1	18.2	16.2	08.1	11.1	06.1		01.0		01.0						100		
	RC(DIR)	=	206	RC(SPEED) = 0.07			AVG. SPEED = 0.45				V(N) = -0.06			V(E) = -0.03							

TABLE A.—9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

0	DEG MO	DIR	C	L	A	S	S	I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
	SQ		CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	OBS	OBS	SP	SP
2	03	07	CALM 0024														00024	022.4	0.0	0.0
		N		0004	0008	0006	0001	0002	0003								00026	024.3	0.5	1.3
		NE			0002		0001		0001								00004	003.7	0.7	1.3
		E			0001	0002			0001								00004	003.7	0.7	1.2
		SE		0002	0001		0001										00004	003.7	0.3	0.7
		S		0005	0010	0005	0004	0005	0002		0002	0001					00034	031.8	0.7	2.0
		SW		0001		0003	0002										00006	005.6	5.8	6.1
		W					0001										00001	000.9	0.8	0.8
		NW				0002	0002										00004	003.7	0.7	0.8
	SUM OBS	=	0024	0012	0022	0020	0012	0007	0007		0002	0001					00107			
	PCT OBS	=	22.4	11.2	20.6	18.7	11.2	06.5	06.5		01.9	00.9						100		
	RC(DIR)	=	170	RC(SPEED) = 0.08		AVG. SPEED = 0.47						V(N) = -0.08					V(E) = +0.01			
2	03	08	CALM 0023														00023	009.6	0.0	0.0
		N		0003	0015	0016	0005	0004	0003	0001				0001			00048	020.0	0.6	3.0
		NE		0002	0002	0007	0001	0003	0003								00018	007.5	0.7	1.3
		E		0007	0005	0002											00014	005.8	0.3	0.6
		SE			0004	0003	0001	0004									00012	005.0	0.7	1.0
		S		0008	0023	0029	0010	0005	0004	0002	0001						00082	034.2	0.6	1.8
		SW		0004	0003	0005	0001	0002	0001	0002							00023	009.6	5.3	6.0
		W		0004	0002	0002	0003	0002									00013	005.4	0.5	1.0
		NW			0002	0002	0002		0001								00007	002.9	0.6	1.1
	SUM OBS	=	0023	0078	0061	0066	0023	0020	0012	0005	0001			0001			00240			
	PCT OBS	=	09.6	11.7	25.4	27.5	09.6	08.3	05.0	02.1	00.4			00.4				100		
	RC(DIR)	=	175	RC(SPEED) = 0.09		AVG. SPEED = 0.52						V(N) = -0.09					V(E) = +0.01			
52	03	09	CALM 0023														00023	020.7	0.0	0.0
		N		0001	0004	0007	0003	0002	0002								00019	017.1	0.6	1.2
		NE			0001	0001		0002									00004	003.6	0.7	1.0
		E		0001	0002	0001	0001										00005	004.5	0.4	0.8
		SE				0001	0003	0002									00006	005.4	0.8	1.0
		S		0006	0012	0010	0002	0002	0003					0001			00036	032.4	0.6	3.8
		SW		0001	0001	0002	0003	0001	0001								00009	008.1	5.5	6.0
		W			0005	0001											00006	005.4	0.4	0.6
		NW			0001				0001	0001							00003	002.7	1.0	1.5
	SUM OBS	=	0023	0009	0026	0023	0012	0009	0007	0001				0001			00111			
	PCT OBS	=	20.7	08.1	23.4	20.7	10.8	08.1	06.3	00.9				00.9				100		
	RC(DIR)	=	187	RC(SPEED) = 0.12		AVG. SPEED = 0.48						V(N) = -0.12					V(E) = -0.02			

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ SQ	DEG	MO	DIR	C CALM	L 0.1	A 0.3	S 0.5	S 0.7	I 0.9	N 1.1	T 1.4	E 1.7	R 2.0	V 2.5	A 3.0	L 3.5	S 4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
152	03	10	CALM	0021														00021	022.8	0.0	0.0
			N		0003	0005	0003	0005		0002								00016	017.4	0.6	1.2
			NE		0001	0002	0002	0002	0001									00008	008.7	0.6	1.0
			E			0001		0001										00002	002.2	0.5	0.7
			SE			0002	0001	0001										00004	004.3	0.5	0.8
			S		0006	0003	0009	0006	0004		0002	0001						00031	033.7	0.6	1.7
			SW				0001	0002	0001									00004	004.3	3.0	8.5
			W			0002	0003											00005	005.4	0.5	0.6
			NW			0001												00001	001.1	0.3	0.3
	SUM OBS	=		0021	0010	0014	0019	0017	0006	0002	0002	0001						00092			
	PCT OBS	=		22.8	10.9	15.2	20.7	18.5	06.5	02.2	02.2	01.1							100		
	RC(DIR)	=	179	RC(SPEED) = 0.12			AVG. SPEED = 0.45			V(N) = -0.12			V(E) = +0.00								
152	03	11	CALM	0075														00075	029.1	0.0	0.0
			N		0005	0010	0009	0003	0002	0005	0002	0001						00037	014.3	0.6	1.8
			NE		0001	0002	0004	0002	0001	0001								00011	004.3	0.6	1.1
			E		0003	0001	0004	0004	0002	0002	0001							00017	006.6	0.7	1.4
			SE		0001	0004	0004	0002	0003									00014	005.4	0.6	1.0
			S		0015	0023	0017	0006	0006	0002		0001						00070	027.1	0.5	1.9
			SW		0001	0007	0002	0001		0003								00014	005.4	9.6	2.2
			W		0002	0003	0003		0001			0002						00011	004.3	0.7	1.8
			NW		0002		0003	0002		0001		0001						00009	003.5	0.7	1.8
	SUM OBS	=		0075	0030	0050	0046	0020	0015	0014	0003	0005						00258			
	PCT OBS	=		29.1	11.6	19.4	17.8	07.8	05.8	05.4	01.2	01.9							100		
	RC(DIR)	=	157	RC(SPEED) = 0.06			AVG. SPEED = 0.42			V(N) = -0.05			V(E) = +0.02								
152	03	12	CALM	0022														00022	026.2	0.0	0.0
			N		0002	0003		0002		0001			0001					00009	010.7	0.7	2.3
			NE		0001	0004	0002	0001	0001	0001			0001					00011	013.1	0.7	2.0
			E		0001	0001												00002	002.4	0.3	0.4
			SE				0001	0001										00002	002.4	0.7	0.8
			S		0003	0006	0005	0003	0005									00022	026.2	0.6	1.0
			SW		0001	0002	0001			0002								00006	007.1	2.7	7.5
			W		0003	0001		0001	0001									00006	007.1	0.4	0.9
			NW		0001			0001		0001		0001						00004	004.8	1.0	1.8
	SUM OBS	=		0022	0012	0017	0009	0009	0007	0005		0001	0002					00084			
	PCT OBS	=		26.2	14.3	20.2	10.7	10.7	08.3	06.0		01.2	02.4						100		
	RC(DIR)	=	144	RC(SPEED) = 0.02			AVG. SPEED = 0.46			V(N) = -0.02			V(E) = +0.01								

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

SQ	DIR	C A S S I N T E R V A L S	SUM OBS	PCT OBS	MEAN SP	MAX SP
		CALM 0.1 0.3 0.5 0.7 0.9 1.1 1.4 1.7 2.0 2.5 3.0 3.5 4.0				
152 30 01	N	0001 0002	00003	100.0	1.0	1.5
	SUM OBS =	0001 0002	00003			
	PCT OBS =	33.3 66.7		100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
152 30 03	S	0002 0001	00003	060.0	0.2	0.3
	SW	0001	00001	020.0	0.0	0.0
	W	0001	00001	020.0	0.4	0.4
	SUM OBS =	0002 0002 0001	00005			
	PCT OBS =	40.0 40.0 20.0		100		
	RC(DIR) = 224 RC(SPEED) = 0.56 AVG. SPEED = 0.62 V(N) = -0.40 V(E) = -0.39					
152 30 05	N	0001	00001	050.0	1.0	1.0
	E	0001	00001	050.0	0.8	0.8
	SUM OBS =	0001 0001	00002			
	PCT OBS =	50.0 50.0		100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
152 30 06	N	0001	00001	025.0	1.2	1.2
	S	0001 0001	00002	050.0	0.4	0.5
	W	0001	00001	025.0	0.3	0.3
	SUM OBS =	0001 0001 0001 0001	00004			
	PCT OBS =	25.0 25.0 25.0 25.0		100		
	RC(DIR) = 332 RC(SPEED) = 0.15 AVG. SPEED = 0.55 V(N) = +0.13 V(E) = -0.07					
152 30 09	N	0001	00001	100.0	0.6	0.6
	SUM OBS =	0001	00001			
	PCT OBS =	100.0		100		
	LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG SQ	MO	DIR	C CALM	L 0.1	A 0.3	S 0.5	S 0.7	0.9	I 1.1	N 1.4	T 1.7	E 2.0	R 2.5	V 3.0	A 3.5	L 4.0	S	SUM OBS	PCT OBS	MEAN SP	MAX SP
1[illegible]	30	11	CALM	0003															00003	075.0	0.0	0.0
			N		0001														00001	025.0	0.2	0.2
	SUM OBS =			0003	0001														00004			
	PCT OBS =			75.0	25.0															100		

RC(DIR) = 000 RC(SPEED) = 0.05 AVG. SPEED = 0.05 V(N) = +0.05 V(E) = +0.00

Table A - 10 Measurements of currents south of Georges Bank, inshore of Jeffrey's Ledge, and Woods Hole, Massachusetts

2392A	GMT/ 67- VI -17	05.24.00	DT/	5.000	SECONDS	DURATION/	8.70	DAYS	INST.	I.D./	M-142	
	LOCATION/ 40 10.60 N	70 00.00 W			DEPTH/ 49.00	M		VARIABLES/	CVDST			
2392A960	GMT/ 67- VI -17	06.41.00	DT/	960.000	SECONDS	DURATION/	6.50	DAYS	INST.	I.D./	M-142	
	LOCATION/ 40 10.60 N	70 00.00 W			DEPTH/ 49.00	M		VARIABLES/	ENDST			
2393	GMT/ 67- VI -17	05.40.00	DT/	5.000	SECONDS	DURATION/	8.90	DAYS	INST.	I.D./	M-135	
	LOCATION/ 40 10.60 N	70 00.70 W			DEPTH/ 67.00	M		VARIABLES/	CVDST			
2393A960	GMT/ 67- VI -20	12.17.00	DT/	960.000	SECONDS	DURATION/	5.61	DAYS	INST.	I.D./	M-135	
	LOCATION/ 40 10.60 N	70 00.70 W			DEPTH/ 67.00	M		VARIABLES/	ENDST			
2571WA	GMT/ 67- VII-28	13.10.00	DT/	0.500	SECONDS	DURATION/	.85	DAYS	INST.	I.D./	W-173	
	LOCATION/ 42 59.60 N	70 25.90 W			DEPTH/ .00	M		VARIABLES/	CVDST			
2572A	GMT/ 67- VII-28	14.30.00	DT/	0.500	SECONDS	DURATION/	.25	DAYS	INST.	I.D./	H-137	
	LOCATION/ 42 59.60 N	70 25.90 W			DEPTH/ 12.00	M		VARIABLES/	CVDST			
3211	GMT/ 69- XI -26	14.15.00	DT/	5.270	SECONDS	DURATION/	14.24	DAYS	INST.	I.D./	M-220	
	LOCATION/ 41 30.43 N	70 39.05 W			DEPTH/ 10.00	M		VARIABLES/	CVDST			
3211A225	GMT/ 69- XI -26	16.31.52	DT/	225.000	SECONDS	DURATION/	14.08	DAYS	INST.	I.D./	M-220	
	LOCATION/ 41 30.43 N	70 39.05 W			DEPTH/ 10.00	M		VARIABLES/	DST			

Source: Woods Hole Oceanographic Institution (unpub.)

TABLE A.2-12

INSTITUTION/DEPT				
LAMONT				
PLATFORM/CRUISE NO	SHIP STA NO	CAM STA NO		
VEMA 27	1	1	ACCESS NO	06716
MARSDEN SQUARE	BEGIN DATE	END DATE		
151228	690531			
BEGIN LAT	MID LAT	END LAT		
420300N				
BEGIN LONG	MID LONG	END LONG		
0684200W				
LOC ORIG NEGATIVE	LAMONT			
ANAL AVAIL	PHOTO QUAL	B+W/COLOR	COMPASS	CAMERA TYPE
YES	GOOD	B+W	YES	SINGLE LENS
NO BOTTOM PHOTOS	BEGIN DEPTH	END DEPTH	DEPTH RANGE	
0069	2355M			
PHOTO FEATURES				
BIO DEBRIS (TRACKS, MOUNDS, SHELLS)				
COMMENTS CORE NO. =	001	CUR MET NO. =	001	

INSTITUTION/DEPT				
LAMONT				
PLATFORM/CRUISE NO	SHIP STA NO	CAM STA NO		
VEMA 02		3	ACCESS NO	04968
MARSDEN SQUARE	BEGIN DATE	END DATE		
152100	530721			
BEGIN LAT	MID LAT	END LAT		
400700N				
BEGIN LONG	MID LONG	END LONG		
0704500W				
LOC ORIG NEGATIVE	LAMONT			
ANAL AVAIL	PHOTO QUAL	B+W/COLOR	COMPASS	CAMERA TYPE
YES	GOOD	B+W	NO	SINGLE LENS
NO BOTTOM PHOTOS	BEGIN DEPTH	END DEPTH	DEPTH RANGE	
0001	132M			
PHOTO FEATURES				
BIO DEBRIS (TRACKS, MOUNDS, SHELLS)				

FROM NODC - J. Churgin

TABLE A - 13 (From Hathaway, 1971)

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TABLE A-14

ALVIN DIVES

SOURCE: WHOI CORE LAB.

LULU CRUISE/ ALVIN DIVE	DATE	LOCATION	LAT	LONG	DEPTH CORR M
43 / 338	/ /71	Cashes Ledge Cent.	42° 51.0' N	58° 52.0' W	108 M
43 / 340	/ /71	Sigsbee Knoll	43° 01.0' N	69° 06.0' W	740 M
43 / 342	/ /71	Harry Black Knoll	43° 04.0' N	69° 15.0' W	135 M
47 / 348	/ /71	Parkers Ridge N.	42° 43.5' N	68° 50.6' W	111 M
47 / 349	/ /71	Parkers Ridge S.	42° 39.3' N	68° 50.5' W	75 M
53 / 410	25/ 6/72	Hudson Canyon	39° 31.0' N	72° 21.0' W	686 M
53 / 415	29/ 6/72	Hudson Canyon	39° 25.0' N	72° 09.5' W	1438 M
54 / 419	/ /72	3 Dory Ridge South Peak	43° 09.5' N	69° 22.5' W	130 M
54 / 421	/ /72	3 Dory Ridge Central Peak	43° 11.0' N	69° 21.0' W	145 M
54 / 423	/ /72	3 Dory Ridge North Peak	43° 13.0' N	69° 20.0' W	136 M
55 / 427	/ /72	Fundy Fault #1	43° 23.0' N	69° 10.0' W	93 YDS
55 / 429	/ /72	Cashes Ledge E.	43° 02.0' N	68° 54.0' W	137 YDS
55 / 430	/ /72	Cashes Ledge N.	43° 01.0' N	68° 59.0' W	107 YDS
55 / 431	/ /72	Cashes Ledge S.	42° 46.0' N	68° 54.0' W	84 YDS
57 / 445	8/27/72	Cashes Ledge	42° 50.0' N	68° 55.0' W	400 FT
57 / 447	8/30/72	Cashes Ledge	42° 50.0' N	68° 55.0' W	453 FT

Source: WHOI, unpub. data

TABLE A - 15

U. S. NAVAL WEATHER SERVICE COMMAND

SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS

SAMPLE TABLES

The formatting, programming and data processing for this summary was sponsored by the Naval Weather Service Command under the direction of NWSED, Asheville and was prepared by personnel of the National Climatic Center.

Please disregard data content; this sample is intended only to illustrate format

TABLE A.2-15 (cont'd)

SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS (MONTHLY AND ANNUAL)

The data contained in these tables were obtained from tape data Family 11 (TDF-11), Marine Surface observations. TDF-11 was primarily funded by the Naval Weather Service Command and selected by NWSED Asheville as the most comprehensive collection of marine surface observations from which to develop a series of coastal marine summaries. The source was punched cards of weather observations taken aboard vessels of varying registry. They were recorded on magnetic tape in a common format. Elements not in WMO code were converted to this code where possible. Where this was not possible, the original data were retained within the tape record as supplemental data. A very limited quality control was attempted as the punched cards were converted to taped records and, where possible, missing psychrometric data were computed.

Before the tables are prepared, extreme values of selected parameters are scrutinized so that obvious errors can be excluded. This method is necessarily subjective since the only available record of many observations is the punched card from which the tape records were prepared. Frequently there is no concrete evidence to prove or disprove the validity of questionable data.

Also, it should be noted that these data are based upon observations made by ships in passage. Such ships tend to avoid bad weather when possible, thus biasing our data toward good weather samples.

Because the number of observations may vary from one table to the other, no absolute relationship exists between the tables. As an example, air temperature counts for Tables 13 and 17 may not be identical since only observations containing both air temperature and relative humidity were counted in Table 13 and only those with both temperature and air-sea temperature difference were counted in Table 17. No requirement for simultaneous recording of all elements was made.

The primary period of record is that period (extending back in time from the most recent data) during which eighty percent of the total number of observations were recorded. The overall period is the earliest to the latest observed data used in compiling the tables. Tables 18 and 19 were tabulated from source deck 128 only and the overall period indicates the period of record of this data source. The primary period for these tables is not shown.

THE TABLES

Percentage frequencies are computed to hundredths and rounded to tenths. An asterisk (*) indicates percentage frequency > 0 and $< .05$. A value followed by a plus sign indicates greater than or equal to that value (8+ means 8 or greater). NH = low cloud amount (or middle cloud amount when low clouds are not present). The hours given in this publication are GMT.

Tables 1 through 19 appear in numerical order for each month, with the annual tables appearing after the tables for December. Tables 20 and 21 appear at the end of the entire series, after the annual summary for Table 19. The series of summaries appear in numerical order by area number.

TABLE A.2-15 (cont'd)

Table 19 - Percentage Frequency of Wave Height (feet) vs. Wave Period (seconds). In this table when both sea and swell waves are present in an observation, the higher of the two is used. If both are the same height, the longer period is chosen. When only one of the wave groups is observed, either sea or swell, it is used in the summary. Swell waves are those generated by winds distant from the local area where the observation is taken.

Tables 1-19 appear together for each month and in the annual summary. The following two tables appear at the end of the entire series for each area.

Table 20 - Monthly and Annual Percentage Frequencies and Means of Sea Surface Temperature (° F.).

Table 21 - Monthly and Annual Sea Level Pressures (millibars). This table includes means by hour and for all hours, extreme values with the corresponding dates of occurrence and percentile values.

Note: In this volume, percentage frequencies at specified hours of the day refer to percentages of observations taken at those hours, rather than percentages of observations taken at all hours. Data at adjacent hours are summarized with data at synoptic hours, i.e., data from 02 and 04 GMT are combined with data from 03 GMT.

SSMO's can be prepared for individual 1° x 1° squares or for any desired marine area as long as the boundaries are specified. The approximate number of observations available within an area of interest will be furnished when desired. Requesters can then decide whether the area contains an adequate number of observations. Inquiries and requests for cost-time estimates should be sent to: Director, NCC, Federal Building, Asheville, N. C. 28801; telephone: AC 704-254-0961.

The Naval Weather Service Command in 1969 began funding a continuing program at the National Climatic Center to publish complete SSMO's for selected ocean areas. Copies of these publications are available from the National Technical Information Service (NTIS), Springfield, Virginia 22151. Each volume contains a complete set of tables for two or more ocean areas. Information concerning the geographical boundaries for which summaries have been prepared and/or published may be secured from the Director, NCC.

TABLE A - 15 (cont'd)

Financing Work for Non-Federal Agencies,
Private Firms or Individuals
(Including Foreign Countries)

The National Climatic Center, an office of the National Oceanic and Atmospheric Administration in the Department of Commerce, is authorized to perform work for non-federal agencies, when the work load permits, and the customer service involves climatological data. Briefly, the applicable regulations are as follows:

a. All work performed shall be on a reimbursable basis.

b. An obligating document, e.g., Purchase Order, Purchase Requisition or letter, authorizing expenditures for work requested, should be forwarded to the Department of Commerce, National Oceanic and Atmospheric Administration, National Climatic Center, Federal Building, Asheville, North Carolina 28801.

c. For single work requests, the cost of which is estimated at $500.00 or less, the estimated cost will be accepted as a firm cost and the requester will be billed the quoted price by the National Climatic Center. In exceptional cases where there is an immediate need for the desired data a telephonic commitment by the requester to accept billing will be accepted by the National Climatic Center in lieu of an obligating document.

d. For single work requests, the cost of which is estimated to be in excess of $500.00, the requester is required to furnish an obligating document before any work can begin. The customer will be billed for the actual costs of the job by the National Oceanic and Atmospheric Administration Finance Division, Rockville, Maryland. If it becomes evident that additional funds will be required to complete the project, the requester will be advised. The requester will also be advised, as soon as possible, if there is a significant balance remaining, which may be used to finance additional work, if requested.

e. Open accounts may be established to cover a combination of single work requests, the total cost of which is estimated to be in excess of $500.00 each year. This is accomplished by preparing a blanket Purchase Order in an amount covering the cost of anticipated needs for Meteorological and/or Climatological Data for each Fiscal Year (July 1 - June 30). When the account is established, the National Climatic Center will provide the customer a monthly status report showing the approximate costs for data furnished during the month and the approximate balance remaining in the amount contracted. Invoices (Standard Form 1114) covering actual charges for data furnished will be issued by our Finance Division, Rockville, Maryland, as soon as possible after the end of each quarter. There may be minor difference between the costs shown in the status reports prepared by the National Climatic Center and the actual costs billed by the National Oceanic and Atmospheric Administration Finance Division.

National Climatic Center
11/17/72

NOAA Fm 34-310
(11/72)

TABLE A - 16

Machine Produced Index of

MAINE

Hourly
Synoptic
Autographic

ORIGINAL WEATHER RECORDS

This is an ENDEX byproduct

NATIONAL WEATHER RECORDS CENTER
Climatic Information Section

Hourly, Synoptic, and Autographic Original Records

for

MAINE

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1. Introduction

This index has been prepared as a part of ENDEX, the Environmental Data Index Experiment. Its purpose is to automate the indexes of environmental and geophysical data to efficiently serve the needs of atmospheric and earth scientists.

All of the hourly aviation, synoptic, supplementary airways, and similar observations available in manuscript form at the National Weather Records Center are listed in this state index. In deciding about the inclusion of unusual records, those which would help in plotting detailed synoptic weather maps were included; those similar to cooperative climatological daily observations were not. Indexes of the latter will be digitized as another project.

Autographic charts and traces have been included in this index, since values of temperature, pressure, wind, humidity and so forth, could be extracted for the kinds of studies this index has been designed to aid.

One of the most valuable parts of this index is the station history information contained in the latitude-longitude and station elevation columns. Many of the earlier station indexes are incomplete in this regard. Extensive research went into the effort to pinpoint the locations of the stations. The assistance of the Weather Bureau Regional Offices in this regard is gratefully acknowledged. Users who find inconsistencies in the station history information are asked to call them to the attention of the Chief, Climatic Information Section, NWRC.

The records covered by this series of indexes form the major file of meteorological data within the United States. Begun by the Army Signal Corps in the late 19th century, some of the records have been preserved and passed on by the government agencies that have followed. The records that are filed by the National Archives are not indexed here. Nearly all of those are for the years before 1900.

Copies of the records can be provided at the requester's expense in a number of forms including paper copy, microfilm, microfiche, punched cards and magnetic tape. For costs or information, write

Director,
National Weather Records Center
Federal Building
Asheville, North Carolina 28801

2. Description of Indexes

Alphabetic

The alphabetic listing utilizes the names of the weather station preparing the observations. This is often the name of the city or community; occasionally, it is the name of a military installation, an airport, or a geographical feature. Cross-referencing has been inserted to help the user. For a given station, the records are listed in time order. When one becomes familiar with the index, this arrangement gives a quick, and almost pictorial, presentation of the weather station activity at each location. Station moves stand out.

By Year
The records are listed from the oldest to the newest to readily show which are available for studies based on many years of data. This arrangement also expedites the selection of records when studying particular storms of the past. By referring to a specific year, all available records can be seen. An interesting feature of this index is the way in which it shows the expansion of the national meteorological network. From few entries per year in the early times, there is a marked increase with the advent of commercial aviation in the 1930's. The many stations shown during World War II and the post-War era are followed in most states by a shrinkage due to retrenchment in the more recent times.

By Latitude
This index is abbreviated to give names and station history data for locating weather observing points on a geographical basis. This supplements the map.

By Elevation
This index will aid those looking for observations characteristic of certain altitudes above sea level.

3. Explanation of Entries

Station Name
Long names were abbreviated. Commonly used abbreviations are:

AP, APT	- Airport	Lk	- Lake
Cty	- City	LS	- Light Ship/Station
Fld	- Field	Mt	- Mount, Mountain
Ft	- Fort	Nk	- Neck
Hb	- Harbor	Rck	- Rock
Is	- Island	Rvr	- River
LB Sta	- Light Boat Station		

Type
The type of weather station. This is sometimes best described by naming the service which operated the station. Codes used are:

Code	Type of Station	Code	Type of Station
Weather Bureau		Military	
A	Aviation Reports & Coop-A Stations	AAB	Army Air Base
AC	Cooperative Aviation Reports	AAF	Army Air Field
S	Synoptic Reports	AAFB	Auxiliary Air Force Base
SA	Synoptic and Aviation Reports	AB	Air Base (Air Force)
SAC	Cooperative Synoptic and Aviation Reports	AF	Air Force
SC	Cooperative Synoptic Reports	AFB	Air Force Base
WBAS	Weather Bureau Airport Station	AFS	Air Force Station
WBFO	Weather Bureau Forecast Office	ANG	Air National Guard
WBMO	Weather Bureau Meteorological Observatory	ASC	Army
WBO	Weather Bureau Office	MCAF	Marine Corps Air Facility
WBUA	Weather Bureau Upper Air Unit	MCAS	Marine Corps Air Station
		NAAF	Naval Auxiliary Air Facility
Others		NAAS	Naval Auxiliary Air Station
AMOS	Automatic Weather Station	NAF	Naval Air Facility
CAA	Civil Aeronautics Adm. Facility	NAS	Naval Air Station
CG	Coast Guard	NF	Naval Facility
COOP	Cooperative	NS	Naval Station
FAA	Federal Aviation Agency		
FSS	Flight Service Station		
LAWR	Limited Airport Weather Reporting Station (Tower)		
SAWR	Supplementary Airways Weather Reporting Station		
SPL	Special Purpose Office (Fire weather, temporary observing sites)		

Latitude, Longitude
The coordinates given for the station in the most authoritative documents available to the workers. Given in degrees and minutes.

Elevation
In feet. The height above sea level of the barometer was used if known. The reported station elevations and ground heights at the stations were used as first- and second-alternatives when necessary.

"Hourly" Records by Month
These are the records usually made for aviation purposes and are the most detailed observations made. Because of their importance, they have been indexed in greater detail than the other records. A number entry means that records are on file for that month. The value of the number is a code which tells the number of records observations taken per day.

Code for Observations per Day used in the "Hourly" Records Columns

Blank - No Records
1 - 24 per day
2 - (Not used)
3 - 3 or less obs per day
4 - 4
5 - 5 to 11
6 - 12 to 18
7 - 19 to 23
0 - Records on microfilm only. See the film for number of obs per day.

A valuable source of information about data appearing on these forms through the years is:
History of Weather Bureau Climatological Record Forms for Surface Synoptic and Airway Observations. (Key to Meteorological Records Documentation No. 2.211) Washington DC, 1964. For sale by the Superintendent of Documents, Washington DC, 20402. Price 40 cents.

Number of Months in Year with:
The records in these categories are so voluminous that it was felt an abbreviated index would suffice for nearly all purposes. In these columns, a 12 means that records are on file for every month. A blank means that no records are on file. 08 followed by a group of 12's will nearly always mean that records began in May of the first year and were continuous thereafter. Numbers higher than 50 mean that the records exist only on microfilm. In such cases, 50 has been added to the number of months available for that year.

Synoptic Form
Form 1083. This usually gives 4 observations per day in the special code used for reporting weather internationally. Examples of the forms are given in the publication listed previously under the explanation for "Hourly" records. Intermediate 3-hourly observations are sometimes included on the form; from July 1939 to December 1948 the 3-hourly observations may appear on a companion form (Form 1082). Some stations omitted the nighttime observations. Laymen find these forms difficult to use because of its special coding and the fact that times are often in GMT. "Hourly" records, if available, are usually preferable.

Meteorological Summary
Form 1001, and/or 1002, and/or 1014. These are the comprehensive station records kept by first-order Weather Bureau stations from 1892 to 1948. A few stations have continued a modified form. Examples of the forms are given in the publication listed previously under the explanation for "Hourly" records. A similar military record, Form 1, is also indexed under this category.

Barograms
A continuous record of pressure in which the oscillations have been traced by a pen on a moving sheet of paper. In the older records, a 1-inch change of pressure was shown as a 1-inch change on the chart. Beginning in 1936, the older instruments were replaced by microbarographs which magnified the change 2 1/2 times. At Weather Bureau stations, each chart formerly contained 4 days record. The exact times of pressure changes with squall lines, thunderstorms and other phenomena were hard to read, so the chart commonly in use today is accelerated to rotate once each 12-hours. Two traces appear on each chart since they are changed daily.

Thermograms
A continuous record of temperature. A variety of charts has been used through the years. First-order stations are no longer required to operate thermographs. During the years in which thermograms were considered an official record, they were carefully annotated and the periods are nearly complete. In recent years, some instruments appear to be out of calibration and there are gaps in the series of forms. Most being received now are from cooperative stations that have volunteered their records.

Triple Register
Most of the records indexed under this column are the daily sheets from the station meteorographs, sometimes known also as a quadruple register since they recorded wind direction, wind speed, sunshine and rainfall. The oldest records are from single registers which recorded speed only; from two-magnet registers which recorded wind speed, rainfall and sunshine; and from double registers (anemographs) which recorded wind direction and speed. The most recent records of this type are in the form of long strips torn from continuous rolls in daily increments.

Wind Recorder
These show a continuous trace of wind speed as opposed to the triple register type of equipment which is based on an electrical contact opening and closing with the passage of each mile of wind. These records have not been quality controlled and there have been problems of calibration, lack of annotation and improper time registration. Many of the records do not contain direction traces. For some stations, direction and speed are on different rolls.

Humidity Recorder
These are instrument charts which give a measurement of relative humidity or dew point. Those of the hygrothermograph type usually contain an adjoining record of temperature.

TABLE A – 16 (cont'd)

Radar Logs

These records give the radar operator's interpretation of the echoes seen on his scope. Location, size, shape, movement, intensity and change of intensity are given in code.

4. Acknowledgement

Mr. Howard Edwards was in charge of the conversion of the manual indexes to digital form and the station history research. He contributed a number of ideas that improved the indexes. Mrs. Carolyn Bradford assisted with the coding and preparation of the station history information. Mr. Frank Norton worked out the techniques of listing the data. The efforts of each of these is appreciated.

William T. Hodge
Project Leader

Table A - 17

DATA BANK NAME: National Oceanic and Atmospheric Administration DB-3

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
Bldg. No. 5, Room 1018, MR-2
Rockville, MD 20852
Chief, Living Marine Resources Div.

PERSON CONTACTED: Dr. Roland F. Smith (301)496-8471
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Coastal Zone Marine Resources (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X
Correspondence request for search only
On-Line systems Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Dr. Smith is a ICMAREP member, Dept. of Commerce, Sub-committee Marine Baseline Monitoring (SC/MBM)

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-123

Table A - 17 (cont'd)

DATA BANK NAME: Environmental Data Service DB-4

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
Environmental Data Service
8060 13th Street
Silver Spring, MD 20910
Director

PERSON CONTACTED: Dr. Tom Austin (310)495-2410
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Environmental Data
(2) Long Range Planning
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☐ state ☐ other International

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Conducting International and National Water Data Retrieval System Network Planning.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: Environmental Index (ENDEX) DB-5

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
Environmental Data Service
Silver Spring, MD 20910
Staff Consultant

PERSON CONTACTED: Mr. Richard Morris (301)495-2415
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Environmental Index (ENDEX)
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting__	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: ENDEX is being developed as a referral retrieval system for all NOAA literature.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: National Climatic Center DB-6

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
Environmental Data Service
Asheville, NC 28801
Director, National Climatic Center

PERSON CONTACTED: Mr. William H. Haggard
(Name) (Telephone)
704-254-0961

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other Weather records
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Climatic publications	(4)
(2) Major climatic studies	(5)
(3)	(6)

SCOPE OF DATA: National ☐ regional ☐ state ☐ other International

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only	X
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: National Marine Fisheries Service DB-9

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
Sandy Hook Sport Fisheries Marine Laboratory
Highlands, N.J. 07732
Director, Sandy Hook Marine Laboratory

PERSON CONTACTED: Dr. Jack B. Pearce (201)872-0200
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Sewage Sludge Dumping
(2) Shellfish pollution
(3) New York Bight monitoring
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-127

Table A - 17 (cont'd)

DATA BANK NAME: National Ocean Survey DB-11

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
6001 Executive Blvd.
Rockville, MD 20852
Chief, Oceanographic Division, National Ocean Survey

PERSON CONTACTED: Cdr. R. L. Swanson (301)496-3274
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Thermal mapping
(2) Tide data
(3) Current data
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☒ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS:

(Files being developed; availability schedule.)

Table A - 17 (cont'd)

DATA BANK NAME: National Oceanographic Data Center (NODC) DB-13

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
National Oceanographic Data Center (NODC)
Rockville, MD 20852
Acting Director

PERSON CONTACTED: Mr. Robert V. Ochinero (202)433-2249
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Sea water properties
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out	X	CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	X	Software programs	
Operators handbook		Demonstration retrievals	X
System configuration		Others	
Retrieval routines			

REMARKS: Collection, processing, and dissemination of near store data; such as, geological, biological

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: National Oceanographic Data Center - Archive Data Bank DB-14

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
National Oceanographic Data Center
Rockville, MD 20852
Staff, Data Service

PERSON CONTACTED: Mr. George Heimerdinger (202)426-9044
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:

(File titles)

(1) Archive Data Bank
(2) Sea water characteristics
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X Water quality factors: nitrates, silicates, salinity DO, total phosphates, pH, temperature	Narrative Abstract/Textual Descriptors Thesaurus Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval		
Correspondence request for search only	X	
On-Line systems		Accessibility
Others		

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	X
System configuration		Others	
Retrieval routines			

REMARKS: Geographic location retrieval by one degree or ten degree marsden squares.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: World Data Center A, Oceanography DB- 19

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
National Oceanographic Data Center
Rockville, MD 20852
Director, Oceanography Services Division

PERSON CONTACTED: Mr. W. L. Molo (202)426-9052
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Observations of Internat'l Research (4)
(2) Vessels (5)
(3) (6)

SCOPE OF DATA: National ☐ regional ☐ state ☐ other Internat'l

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative		Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	Internat'l data exchange

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS:

(Files being developed; availability schedule.)

from: Interstate Electronics Corporation, 1973

Table A - 17 (cont'd)

DATA BANK NAME: Coastal Engineering Research Center (CERC) DB-28

SPONSOR: Dept. of the Army, Corps of Engineers
Coastal Engineering Research Center
5201 Little Falls Road, NW
Washington, DC 20314
Data Base, Supervisor

PERSON CONTACTED: Mr. Ronald Walten (202)282-2558
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Water quality (4)
(2) Maintains WQ data from (372) stations (5)
(3) Special Chesapeake Bay data (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Provides water quality monitoring data to EPA STORET file.

(Files being developed; availability schedule.)

Table A - 17 (cont'd)

DATA BANK NAME: New England Automatic Hydrologic Network DB-29

SPONSOR: Dept. of the Army, Corps of Engineers
Reservoir Control Center
Waltham, MA 02154
Manager

PERSON CONTACTED: Mr. Sol Cooper (617)894-2400 Ex. 627
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Water quality
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☒ state ☐ other Several New England states share 5 common drainage basins.

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Developing an automatic hydrologic remote radio monitoring network. The network has 41 remote reporting stations, 5 remote recording stations and a central control station at Div. HQS
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: U.S. Navy - Naval Operations DB-31

SPONSOR: U.S. Navy
Office of the Oceanographer of the Navy
732 N. Washington Street
Alexandria, VA 22314
Capt., U.S. Navy

PERSON CONTACTED: CAPT W. F. Reed (202)695-6002
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1)	Water Quality	(4)	
(2)		(5)	
(3)		(6)	

SCOPE OF DATA: National ☐ regional ☐ state ☐ other International

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: CAPT Reed is on the ICMAREP, Sub-committee Marine Baseline Monitoring (SC/MBM)

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: U.S. Navy - Environmental Protection Data Base DB-32

SPONSOR: U.S. Navy
Navy Environmental Protection Group, OP-45
Pentagon
Washington, DC 20350
CDR CEC USN

PERSON CONTACTED: CDR. J. A. D'Emidio (202)OX7-3639
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data	X	Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Water Quality Data
(2) Air Quality Data
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Developing an environmental data center.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (contd)

DATA BANK NAME: U.S. Navy - Environmental Quality Requirements DB-33

SPONSOR: U.S. Navy
Environmental Quality
732 N. Washington Street
Alexandria, VA 22314
LCDR. USN

PERSON CONTACTED LCDR Lawrence Riley (503)378-3732
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Water Quality Data
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Member of the ICNAREP, Sub-Committee on Marine Baseline Monitoring (SC/MBM); developing interface U.S. Navy monitoring requirements.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: Naval Weather Service DB-34

SPONSOR: U.S. Navy
Naval Weather Service Command, HQS
Washington Navy Yard, Bldg. 200
Washington, DC 20242
LCDR, Asst. CDR, Command Operations, USN

PERSON CONTACTED: LCDR R. G. Kirk (Name) (202)433-3950 (Telephone)

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other Weather
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Weather data	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National [X] regional [ ] state [ ] other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-127

Table A – 17 (cont'd)

DATA BANK NAME: Geological Survey - Water Resources, National Computer Network

SPONSOR: Dept. of the Interior, Water Resources Div.
U.S. Geological Survey, Rm. 2227, GSA Bldg.
18th and E NW
Washington, DC 20240
Assistant Chief Hydrologist

PERSON CONTACTED: Mr. George W. Whetstone (202)343-3792
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Water Quality Data
(2) Administrative applications
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X Wide range of parameters

Narrative X Water Quality Data Coordination
Abstract/Textual
Descriptors
Thesaurus
Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X Approximately (50) terminals
Correspondence request for search only X
On-Line systems X Accessibility
Others Complete system supports 4 regional offices and 50 district offices.

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	X	Software programs	
Operators handbook	X	Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Mr. Whetstone is an ICMAREP member, and the Sub-committee on Marine Baseline Monitoring (SC/MBM). Chairman of the Data Handling Work Group of the USGS office of Water Data Coordination.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: Catalog of Information on Water Data DB-45.1

SPONSOR: Dept. of Interior
Geological Survey
Office of Water Data Coordination, Room 102
2100 M Street, NW
Washington, DC 20242
Chief, Office of Water Data Coordination

PERSON CONTACTED: Mr. R. H. Langford (202)343-8565
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:

(File titles)

(1) Catalog of information about water (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval
Correspondence request for search only
On-Line systems Accessibility
Others Selected magnetic tape and retrievals provided upon request to users.

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting		Others	Four catalogs

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	Four catalogs
Retrieval routines			

REMARKS: There are (4) catalogs "Water Quality", "Surface Water", "Ground Water", "Aerial Investigations". There are matching maps with monitoring station locations.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: National Park Service DB-49

SPONSOR: Dept. of the Interior
National Park Service
Washington, DC 20240
Chief, Water Resources Division

PERSON CONTACTED: Mr. Manual Morris (202)343-3951
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:

(File titles)

(1) Park Conservation
(2) Thermal discharge impact studies
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒X regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: A special thermal dispersal study entitled "Hydro Study of Biscayne Bay, Miami" has been completed.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A – 17 (cont'd)

DATA BANK NAME: EPA - Solid Waste Management Program (SWIRS) DB-59

SPONSOR: Environmental Protection Agency
Technical Information Office
5600 Fishers Lane
Rockville, MD 20852
Director, Office of Solid Waste Management Program

PERSON CONTACTED: Mr. John A. Connolly (301)443-1824
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes X	

DATA BASE CONTENT:
(File titles)

(1) Solid Waste Information	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	Narrative X
	Abstract/Textual X
	Descripters
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others Literature searches	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

DATA BANK NAME: EPA - Office of Water Programs, Marine Baseline Planning

SPONSOR: Environmental Protection Agency
Office of Water Programs
Division of Applied Technology
Crystal Mall, Bldg. 2, Room 906
Arlington, VA 20460
Chief, Water Quality Protection Branch

PERSON CONTACTED: T. Allen Wastler (703)557-7634
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:

(File titles)

(1) Municipal Sewage Treatment Waste Discharge
(2) Water Quality- STORET
(3) Industrial Discharge Points
(4) Construction Contract Grants
(5) Fish Kill
(6) Beach Closure

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	X
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X TSO System (Time Sharing Option)
Correspondence request for search only
On-Line systems X Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting__	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Mr. Wastler is chairman of the Interagency committee for Marine Environmental Prediction (ICMAREP) Sub-Committee Marine Baselines and Monitoring (SC/MBM).
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A --17 (cont'd)

DATA BANK NAME: EPA - Water Quality Protection - Data Processing DB-61

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Bldg. 2, Room 906
Arlington, VA 20242
Supervisor, Water Quality Data Processing

PERSON CONTACTED: Mr. Paul Thorpe (703)557-6024
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation	X	Other	
Solid Wastes	X		

DATA BASE CONTENT:

(File titles)

(1) National Estuarine Inventory (NEI) (4)
(2) Dun and Bradstreet file (5)
(3) Office of Water Data Coordination - Dept. of Interior (OWDC) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	Provides data resources: USGS, Bureau of Census, and others.

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	X		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	X
High speed print-out		CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting __	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Provides the data processing support of the EPA computer systems.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A – 17 (cont'd)

DB-62

DATA BANK NAME: EPA - Technical Data and Information Branch, National Water File

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Bldg. 2, Room 923
Arlington, VA 20460
Chief, Technical Data and Information Branch

PERSON CONTACTED: Mr. George F. Wirth (703)557-7446
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation	X	Other	
Solid Wastes	X		

DATA BASE CONTENT:
(File titles)

(1) Water Quality properties (STORET)
(2) Municipal Waste Discharge
(3) Industrial Discharge Points
(4) Construction Contract Grants
(5) Fish Kill
(6) State, County boundaries with overlay of sewage treatment.

SCOPE OF DATA: National ☒ regional ☐ state ☐ other
There are over 130 terminals in the EPA system from coast to coast.

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	X	TSO System (Time Sharing Option)	
Correspondence request for search only		option of the requestor.	
On-Line systems	X	Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	being evaluated
Magnetic tape	X	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	X	Software programs	
Operators handbook	X	Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Under development: River Mapping Index (RMI)-AUTOMAP; Refuse Act Permit Plan (RAPP); Thermal discharge points; Water quality standards and specifications.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: EPA Water Quality File - STORET DB-64

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Building 2, Room 211
Arlington, VA 20460
Chief, STORET Assistance Section

PERSON CONTACTED: Mr. C. Sam Conger (703)557-1580
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X Water Quality	Pesticides
Air Data		Noise
Radiation		Other
Solid Wastes		

DATA BASE CONTENT:
(File titles)

(1) Water Quality file - STORET (4)
(2) Water Quality Training Handbook (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☒ state ☒ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative Inland and coastal water quality properties - physical, chemical and biological.

Narrative
Abstract/Textual
Descriptors
Thesaurus
Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X TSO System (Time Sharing Option)
Correspondence request for search only Option of the requestor.
On-Line systems X Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting	X at the EPA central computer	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	X	Software programs	
Operators handbook	X	Demonstration retrievals	X
System configuration		Others	Recent software changes have resulted in plans to revise the existing operators handbook.
Retrieval routines	X		

REMARKS: Existing heavy STORET user retrieval demands and the resultant backlogs have reduced quick response terminal retrievals. Many STORET users request remote batch entry retrievals, and receive subsequent high speed print out at the system center.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: EPA - Refuse Act Permit File (RAPP) DB-65

SPONSOR: Environmental Protection Agency
Office of Water Programs, Applied Technology Div.
Crystal Mall. Bldg. 2, Room 291
Arlington, VA 20460
Chief, Data and Information Services

PERSON CONTACTED: Mr. Jesse L . Lewis (703)557-7637
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation	X	Other	Thermal levels
Solid Wastes			

DATA BASE CONTENT:
(File titles)
(1) Refuse Act Permit file (RAPP)
(2) Thermal discharge file
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	X	TSO System (Time Sharing Option)	
Correspondence request for search		X	
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Thermal discharge data and Refuse Permit Data is being prepared for TSO system file creation

(Files being developed; availability schedule.)

Table A – 17 (cont'd)

DATA BANK NAME: EPA Municipal and Industrial Discharge Data Div. DB-66

SPONSOR: Environmental Protection Agency
Office of Water Programs, Applied Technology
Crystal Mall, Bldg. 2
Arlington, VA 20460
Chief, Data Operations and Service

PERSON CONTACTED: Mr. Phillip L. Taylor (703)557-3490
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)

(1) Municipal Sewage Treatment Data
(2) Industrial discharge data
(3) AUTO MAP
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	X	Uses TSO system	
Correspondence request for search only			
On-Line systems	X	Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: AUTOMAP is under development to provide digitized river bank locations per River Mileage Index and geographically plot state, county and river basin lines with overlay of discharge data.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: Smithsonian Center for Short-Lived Phenomena DB-69

SPONSOR: Office of Environmental Sciences
Smithsonian Institution
60 Garden Street
Cambridge, MA 02138
Director, Center for Short-Lived Phenomena

PERSON CONTACTED: Mr. Robert Citron (617)864-7911
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other A wide range of environmental data.
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Complete descriptions of natural disasters	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	Narrative X
	Abstract/Textual X
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

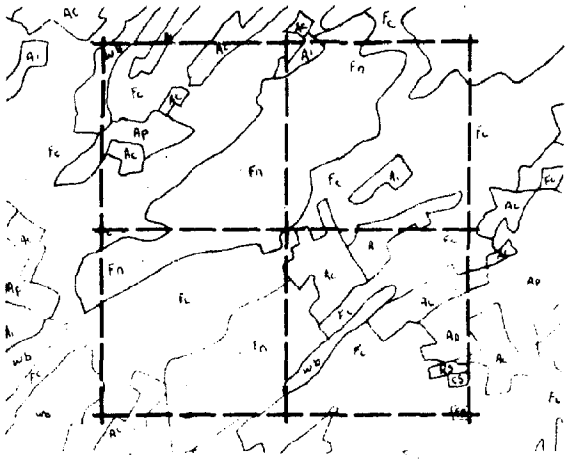
TABLE A - 18

LUNR

Land Use and Natural Resource Inventory of New York State

what it is and how it is used

This paper has been prepared to assist planners, governmental officials and interested citizens to make use of a valuable information source developed and made available by New York State.



STATE OF NEW YORK
NELSON A. ROCKEFELLER, GOVERNOR
OFFICE OF PLANNING SERVICES
RICHARD A. WIEBE, DIRECTOR
488 BROADWAY
ALBANY, NEW YORK 12207
MAY 1972

WHAT IT IS: The Land Use and Natural Resource Inventory is an information system showing detailed land uses, plotted on maps and coded for computer data handling, for all of New York State.

WHY IT WAS DONE: Late in 1966, Governor Rockefeller requested the Office of Planning Coordination, with the cooperation and coordination of other interested agencies, to develop a natural resource inventory of the state. The need for such an inventory had become evident. Earlier research by OPC turned up only spotty information of this type on a statewide basis. What had been gathered varied widely as to dates and could often not be compared because classification systems were incompatible.

SOURCE OF INFORMATION: Aerial photography, supplemented by existing maps, field checks and current reports. Initial upstate area flights were made in the spring of 1967, but most of the photos were taken in the spring of 1968. Long Island and New York City were photographed in 1969 and 1970.

MAPS: Two types of transparent overlays at a scale of 1:24,000 (1 inch = 2000 feet), outlining 51 categories of land use by area and 79 categories of special information by point location, are used over standard U. S. Geological Survey 7.5-minute quadrangle maps.

COMPUTER PRODUCTS: Two types – tabular lists and summaries of data, and computer graphic maps based on a one-square-kilometer grid system. The lists identify desired data to specific grid cells, and provide totals such as acreages or counts of point data items. Computer maps print out data as distributions (by kilometer units) and can select cells by type. Supplementary data is available either in list or map form.

SOME TYPICAL USES: This type of information is already proving useful in locating parks, recreation, and sanitary land fill sites; routing utility lines; selecting alternate highway corridors; choosing subdivision sites; studying wildlife habitat; preparing zoning maps; conducting watershed studies; and in many other public and private applications.

OBTAINING LUNR MAPS AND DATA: Write to:

New York State Office of Planning Services
Division of Plans and Analysis
488 Broadway
Albany, New York 12207
Telephone: 518-474-1647

Contents

Introduction

Map Overlays
- Description 3
- Applications 4

LUNR Inventory Computer Products
- The Status of the Various Computer Programs 6
- How Data is Stored in the Computer 6

Computer Programs: DATALIST I
- Description 8
- Applications 8

Computer Programs: PLANMAP II
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Computer Programs: PLANMAP III 15

Aerial Photography 16

This paper was compiled by Robert Crowder, planner, Division of Plans and Analysis, New York State Office of Planning Services. Preparation was financed through a comprehensive planning grant from the U. S. Department of Housing and Urban Development.

APPENDIX A.3 ENVIRONMENTAL IMPACT STATEMENTS

A.3.1 INTRODUCTION

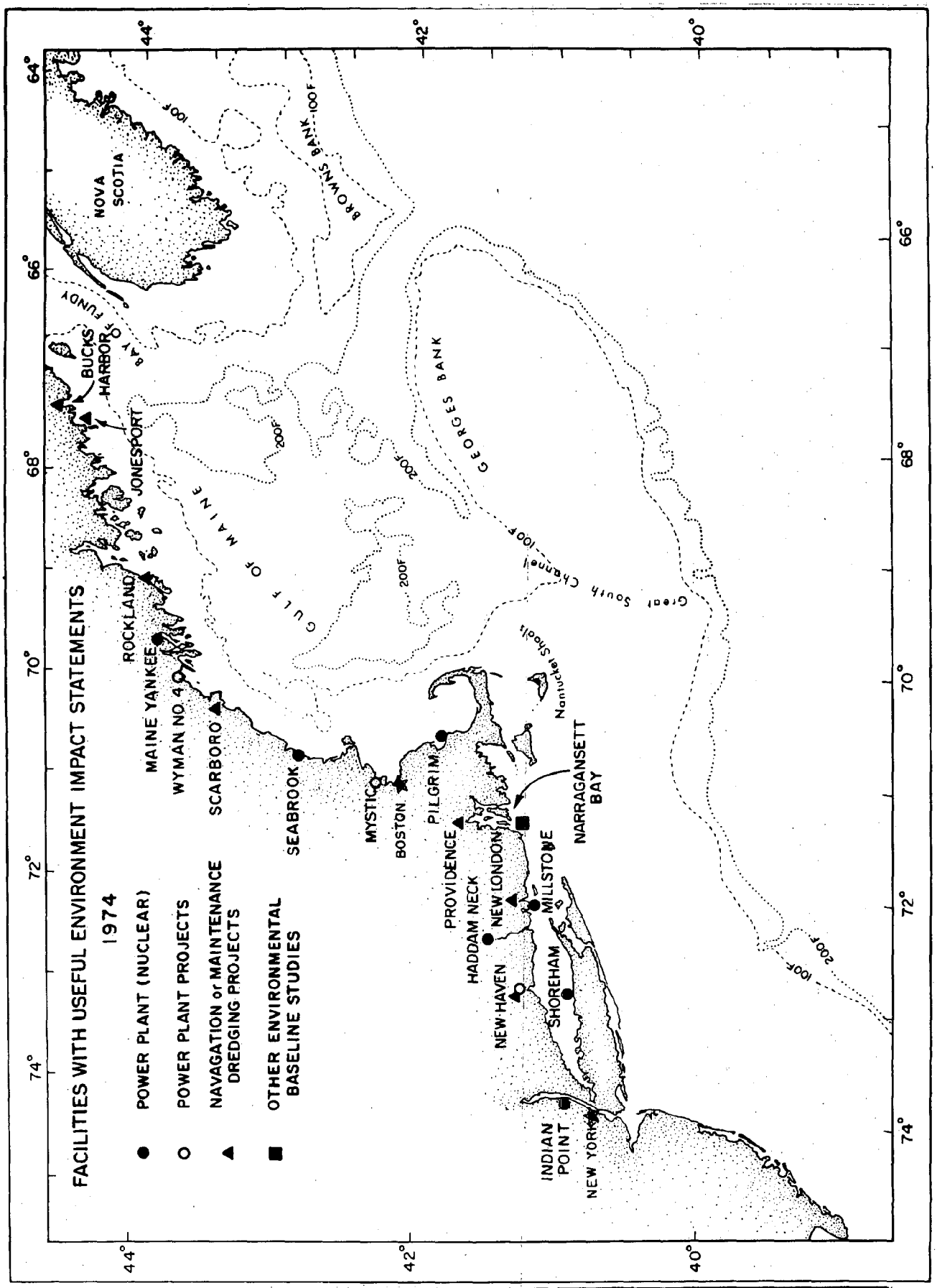
During the course of the study we were able to obtain a sampling of Environmental Impact Statements (EIS) and Environmental Reports (ER) from many of the major projects in New England. These documents, especially in the case of nuclear power plant ER's, provide a wealth of compiled data from a wide range of sources, as well as some original survey data not otherwise published. Following is a discussion of the sorts of data that are available and the site localities where a specific baseline of environmental data now exist.

A.3.2 TYPES OF REPORTS AND KINDS OF DATA

The list of these reports received and reviewed is presented on Table A-19. The locations of these proposed developments and facilities can be seen on Figure A-7. The type of data presented varies widely from one state to another, presumably based on differing state requirements and to some degree on how recent the ER is; more detail appears, generally, in the most recent reports. Many of the major applications such as power plants and refineries also have extensive hearing records and documents introduced subsequent to the original application that do not show up in these ER's. In cases where thorough coverage was provided, such as SEABROOK ER in New Hampshire, we passed all these relevant data from the report to our various chapter authors. However, the more broad comprehensive treatments of large geographic areas were not always the best place to include detailed nearshore or terrestial site-specific data.

The two principal types of reports received are the ER for nuclear and conventional power plants and the EIS for dredging spoil disposal. The more extensive of these have reviewed most of the current and previous literature in the general vicinity both for marine and terrestial topics. They are therefore excellent sources of local site-specific data.

In the following selected tables extracted from the Seabrook Power Plant Environmental Report prepared for Public Service Company of New Hampshire, we cite sections of the Tables of Contents with topics relevant to our inventory as a sample of valuable source data. These appear in Table A-20.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIGURE A-7 | Facilities with Useful Environmental Impact Statements

TABLE A-19 List of Environment Reports and Impact Statements Reviewed by TRIGOM

Maine

Wiscasset - Maine Yankee Station Power Plant
1st and 2nd year Annual Vol. I - IV
3rd and 4th year Annual Vol.

Maintenance Dredging - Rockland - Draft by U.S. Army Corps of Engineers

Dredging - Bucks Harbor - Machias - Final EIS - U.S. Army Corps of Engineers

Maintenance Dredging - Scarboro River - Final EIS - U.S. Army Corps of Engineers

Navigation - Jonesport - Final EIS - U.S. Army Corps of Engineers

Long Beach, Saco River - Draft - U.S. Army Corps of Engineers

William Wyman Power Plant, Unit #4 Addition, Yarmouth, Me. Central Maine Power Co. Vol. I

Eastport - Application to Maine DEP for Pittston Co. - Marine Terminal and Refinery (1973)

New Hampshire

Seabrook Station ER - Public Service Company of New Hampshire. Vol. I and II

Newington Generating Plant - Final, EIS, U.S. Army Corps of Engineers.

Massachusetts

Pilgrim Station - Semi-Annual Report 2
Final EIS

Mystic Electric - Addition No. 7 - Draft. U.S. Army Corps of Engineers.

Cape Cod Canal Plant Addition No. 2 - Draft. U.S. Army Corps of Engineers.

Connecticut

Coke Works Electric - New Haven - Draft. U.S. Army Corps of Engineers.

Maintenance Dredging - New Haven - Final EIS. U.S. Army Corps of Engineers.

Haddem Neck - Connecticut Yankee Power Plant - Final Statement (& Conn. R., 1964-73).

Millstone Units 1,2 - Power Plant - Final (& early studies)

New London - Thames River Dredging - Draft - U.S. Army Corps of Engineers.

Rhode Island

Providence River and Harbor Dredging - Final - U.S. Army Corps of Engineers.

TABLE A-20

(FROM: SEABROOK STATION PSNH) June, 1973

ENVIRONMENTAL REPORT

TABLE OF CONTENTS

1. OBJECTIVES OF THE PROPOSED FACILITY

- 1.1 Requirement for Power
  - 1.1.1 Demand Characteristics
  - 1.1.2 Capacity Resources
  - 1.1.3 System Demand and Resource Capability Comparison
  - 1.1.4 Input and Output Diagram
  - 1.1.5 Report from the Regional Reliability Council
- 1.2 Other Primary Objectives
- 1.3 Consequences of Delay
  - 1.3.1 Effect on Ability to Meet Demands
  - 1.3.2 Effect on Adequacy and Reliability of Regional Power Supply
  - 1.3.3 Economic Effects
  - 1.3.4 Environmental Effects

*2. THE SITE

- 2.1 Site Location and Layout
- 2.2 Regional Demography, Land and Water Use
- 2.3 Regional Historic and Natural Landmarks
- 2.4 Geology
- 2.5 Hydrology
  - 2.5.1 Above-Ground Adjacent Bodies of Water
  - 2.5.2 Groundwater
- 2.6 Meteorology
  - 2.6.1 General Climate
  - 2.6.2 Temperature, Moisture Deficit, and Fog
  - 2.6.3 Winds and Stability
  - 2.6.4 Precipitation
  - 2.6.5 Severe Weather
  - 2.6.6 Atmospheric Dispersion Estimates
- 2.7 Ecology
  - 2.7.1 Terrestrial Ecology
  - 2.7.2 Aquatic Ecology
- 2.8 Background Radiological Characteristics
- 2.9 Other Environmental Features

3. THE PLANT

- 3.1 External Appearance
- 3.2 Reactor and Steam-Electric System

TABLE A-20 (Cont'd)

3.3 Plant Water Use
3.4 Heat Dissipation System
    3.4.1 System Concept and Reasons for Selection
    3.4.2 Description of Heat Dissipation System
    3.4.3 Hydrographic Survey and Hydro-Thermal Model Studies

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9.2-2	Description of Areas Identified in Figure 9.2-5

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Ecological Study: Phase I, 1969-70 (Normandeau Associates, Inc., 1971) consisted of the following:

1) A survey of temperature and salinity of the Hampton-Seabrook estuary, 1969.

2) Physical and biological survey of the proposed discharge location in the offshore waters.

3) Studies of the soft-shelled clam, Mya arenaria, including density and distribution, sediment relationships, reproductive biology and larval ecology.

4) A survey of the benthos in the Hampton-Seabrook estuary.

5) A survey of the epibenthos in the Hampton-Seabrook estuary.

6) A survey of the finfish in the Hampton-Seabrook estuary.

7) A botanical survey of the Hampton-Seabrook estuary, salt marsh, and nearby offshore waters.

Studies conducted during 1970, reported in Seabrook Ecological Study: Phase II, 1970-71 (Normandeau Associates, Inc., 1971) emphasized environmental factors thought to impinge significantly upon stability and maintenance of the soft-shelled clam, Mya arenaria, population and recreational fishery.

Phase III studies conducted in 1971 and early 1972 reported on in a series of technical reports (Seabrook Ecological Study - 1971, Technical Reports III-1 through III-8) dealt with several aspects of the ecology of the marsh, estuary, and offshore waters. Specifically, they reported on:

Technical Report III-1 -- Soft-shelled Clam Spat Density

Technical Report III-2 -- An Assessment of Zooplankton Abundance and Exchange (between) Hampton-Seabrook Estuary and Nearby Offshore Waters

Technical Report III-3 -- Soft-shelled Clam Density

Technical Report III-4 -- Marsh Disturbance Study

Technical Report III-5 -- Primary Productivity in Hampton-Seabrook Estuary

TABLE A-20 (Cont'd)

Technical Report III-6 -- Day/Night Zooplankton Study

Technical Report III-7 -- Fish Larvae and Eggs of the Hampton-Seabrook Estuary - 1971

Technical Report III-8 -- Soft-shelled Clam (Mya arenaria) Larval Studies

In addition, the Phase III document included a Progress Report on the preliminary bioassay of marsh peat extract.

Studies currently being conducted are discussed in "Environmental Study Program, Hampton-Seabrook Estuary and Near Offshore Waters, 1972" (Normandeau Associates, Inc., 1972) and consisted of:

1) Ecological Survey of the Benthos Offshore of the Hampton-Seabrook Estuary in the Area of the Proposed Intake and Discharge.

2) Studies of the Soft-shelled Clam in the Hampton-Seabrook Estuary including Density and Distribution, Age-Growth, Recruitment, and Larval Ecology.

3) Studies of the Effects of Marsh Peat Extract on Estuarine Animals.

4) A Census of Finfish Offshore of the Hampton-Seabrook Estuary in the Area of the Proposed Intake and Discharge.

5) A Study of the Lobster Fishery in the Area of the Proposed Intake and Discharge Lines.

6) A Study of Estuarine and Nearby Offshore Plankton in the Hampton-Seabrook Area.

7) A Hydrographic Survey and a Survey of Plankton in the Neritic Zone Along the Coast of New Hampshire with Emphasis on the Area of the Proposed Intake and Discharge Pipelines.

Appendix B Directory of Contacts

Directory of North Atlantic Inventory Study Contacts

California
Colorado
Connecticut
Florida
Illinois
Maine
Maryland
Massachusetts
Mississippi
New Brunswick
New Hampshire
New Jersey
New York
North Carolina
Nova Scotia
Oklahoma
Ontario
Oregon
Pennsylvania
Rhode Island
Texas
Vermont
Virginia
Washington, D. C.

STATE OF CALIFORNIA

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OCEAN DUMP STUDY
INTERSTATE ELECTRONICS COMPANY
707 EAST VERMONT AVENUE
ANAHEIM CA 92803
2147722811

STATE OF COLORADO

CAMPBELL, ROBERT

EPA OFFICE OF ENFORCEMENT
DEN FED. CTR. BLDG 22
DENVER CO 80225
3032342481

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139 BOSWELL AVE
NORWICH CT 06360
2038892324

CT RIVER ESTUARY REG PLAN AGCY
ESSEX SQ THEATER BLDG
ESSEX CT 06426
2037670494

S CENTRAL CT REG PLAN AGCY
96 GROVE STREET
NEW HAVEN CT 06510
2037774795

VALLEY REGIONAL PLAN AGCY
366 MAIN STREET
ANSONIA CT 06401
2037358689

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137 ROWAYTON AVENUE
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BEALS, WHITNEY

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2036666911

HIBBARD, JOHN E
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1010 MAIN STREET
EAST HARTFORD CT 06108
2032893637

HILL, DAVID E
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2037877421

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CONN DEPT ENVIRON PROTECTION

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2034430166

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KURKER, CHARLES
PRIN SANITARY ENGINEER
CONN DEPT OF ECONOMIC DEVELOPMT

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2035665847

MARIANI, TERRENCE
PRESS SECRETARY
GOVERNORS OFFICE
CAPTIOL BLDG
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2035664840

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MEEHAN JR, EDMUND J
REGIONAL PLANNER
CT RIVER ESTUARY REG PLAN AGENCY
ESSEX SQUARE
ESSEX CT 06426

NELSON, RUN

LONG IS SD STUDY-NERBC
270 ORANGE STREET
NEW HAVEN CT 06510
2037720800

OLSON, WINIFRED T
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CT RIVER ESTUARY REG PLAN AGENCY
ESSEX SQUARE
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RYDER, ROBERT

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235 PO BLDG
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APPENDIX C ON-GOING RESEARCH

C.1 INTRODUCTION

As described in the Introduction of Chapter 1.0 one of the methods in conducting this study has been to obtain a listing of on-going research programs. We chose several courses of attack to see which could produce the most useful results. By identifying programs just beginning or underway only one or two years, we believed we could show areas where future data should be generated. Since many of the results will not be in the published, scientific literature for one or two years, knowledge of on-going programs enabled us to correspond with principal investigators and receive technical reports, drafts, and open file reports. Following is a listing and description of the programs and services we used.

C.2 SMITHSONIAN SCIENTIFIC INFORMATION EXCHANGE (SSIE)

This organization, a part of the Smithsonian Institution in Washington, is chartered to receive periodic notices of research contracts primarily governmentally funded but including a few private companies. These notices state project title, funding agency, group and principal investigator conducting the research, and a one-page abstract or description of the project objectives, techniques, and methods. If available, the dollar value of the contract for the present fiscal year is given. The SIE notice does not contain results of the research project but only a description of the on-going activity. We found no way to determine how thorough or complete the coverage of the SSIE service is. Nearly all federal agencies are required to cooperate by supplying notices, yet we doubt that the coverage is thorough. To our knowledge, no SIE notice of this present BLM study appeared in either our November or April search. No definite conclusions have been attempted nor did time permit a thorough analysis of the coverage or comparison with known contracts. We did use the notices as sources for query of research reports, papers or technical memos. The notices are arranged by state in Attachment 1. There were a total of 335 notices in the study area. Our most recent search was performed in April 1974.

C.3 MESA/NEW YORK BIGHT

The multi-disciplinary, five-year intensive study of the New York Bight has been underway approximately one year by NOAA and other related federally funded agencies. Relatively little in the way of research results have been produced so far. Attempts to obtain planning documents, task statements, and detailed survey plans met with little success or aid from the MESA/NYB office at SUNY. The best summary of related on-going research of the New York Bight is to be found in NOAA's Directory of Current Research (1973). This preliminary document is simply a

listing of SSIE notices (see C.2). This document is arranged by discipline and contains 98 notices for the New York Bight. We did not attempt to compare these with those notices produced for our larger study area. A recent booklet (NOAA 1974) issued by the MESA office covers the services, programs and data available from NOAA on the New York Bight. It contains a brief description of each program element.

C.4 NEW ENGLAND COOPERATIVE COASTAL RESEARCH FACILITY (NECCRF)

This is a group of 20 institutions in New England which has been formed as a regional consortium to operate a coastal research vessel under the University National Ocean Laboratories (UNOLS) program of NSF. In preparing the proposal for a jointly operated ship, NECCRF member institution (12 major participants) listed the on-going or proposed research programs for all of New England. Some of these may overlap slightly with the SIE notices. The NECCRF list is presented as Attachment 2 of this Appendix.

APPENDIX C.5

MAINE RIVERS BIBLIOGRAPHY - A PILOT SURVEY

C.5.1 INTRODUCTION

A noted resource economist has observed that over a period of years the amount of oil actually used as a percentage of total oil reserves has remained fairly constant. He also explained the reason, one which only becomes a part of visceral knowledge when one is engaged in a similar search: as one finds more of a given resource he also discovers that there is so much more yet to find (up to a certain point, of course). So it is with information on Maine rivers. This bibliographic search has so far unearthed 36.7 percent of all the information sources presently available; further effort would undoubtedly exceed the 36.7 percent level.

From the search, it appears there is an endless array of projects and documents. The topographic diversity of Maine rivers, from fiords to flat forested valleys, political diversity such as intr-state, interstate, and international rivers, and demographic diversity from relatively pristine headwaters to metropolitan regions provide a rich fabric of geophysical, bio-ecological, and social-political relationships. However, there is another area of diversity less attended: the river as a problem. We either have too much water or not enough; we have water which is polluted and waterways which are no longer suitable for fish or recreation; we have flooding and we have flood control projects which do more damage than the floods; we have large undeveloped hydro-power capacity and old hydro-power dams which are being left to decay in the rivers. Since nearly all these problems, such as building on flood plains, stream channelization, and pollution are man-created we might conclude that they can be man-solved. The following text and bibliography is intended as an approachto solving the problems of our rivers.

C.5.2 INTEREST GROUPS INVOLVED IN MAINE RIVERS

A summary of various interest groups and their activities is shown in Table C.5-1. The table identifies research/policy making sectors and river uses (problems) and presents their interrelationships in matrix form.

C.5.3 ACCESSIBILITY OF INFORMATION

Perhaps the most readily accessible information is on groundwater and geology simply because the United States Geological Survey and the Maine Geological Survey have put the published and unpublished data in such good order. In spite of the relatively large number

Table C.5-1 Maine rivers: who is doing what.

Uses / Problems	Sector			
	federal agency	state agency	regional agency	private organizations
groundwater quality and supply	Geological Survey; Environmental Protection Agency	State Planning Office: Water Resources Planning; Maine Geological Survey		well drillers
surface water supply	Geological Survey; U.S. Army Corps of Engineers	Health and Welfare	Regional Planning Commissions	water companies; hydro-electric companies; paper companies
floods	Geological Survey; Housing and Urban Development; U.S. Army Corps of Engrs. Soil Conservation Service	Soil and Water Conservation Commission	Resource Conservation and Development Projects	
surface water quality	Environmental Protection Agency	Department of Environmental Protection; Maine Port Authority	Regional Planning Commissions	paper industry; University of Maine oil spill clean up cooperatives
river corridor land use and soils	Soil Conservation Service	Department of Environmental Protection; Land Use Regulation Commission	Regional Planning Commissions	University of Maine environmental studies center
navigation	U.S. Army Corps of Engineers			

Table C.5-1 (Continued)
Maine rivers: who is doing what.

Uses / Problems	Sector			
	federal agency	state agency	regional agency	private organizations
biology/ ecology	Bureau of Sport Fisheries and Wildlife	Inland Fisheries and Game; Marine Resources Atlantic Sea Run Salmon Commission		University of Maine: cooperative fishery unit, biological sciences departments; paper industry
hydro power	U.S. Army Corps of Engineers; Federal Power Commission			hydro-electric companies
recreation	Bureau of Outdoor Recreation	Department of Parks and Recreation	Regional Planning Commissions	Natural Resources Council of Maine
planning	U.S. Army Corps of Engineers			

of reports bearing on Maine groundwater resources the researchers most involved in this area seem to agree that only a beginning has been made and much more in-depth work needs to be done. Also, equally responsive to public informational needs are the state wildlife agencies including the Departments of Inland Fisheries and Game and Marine Resources. Not only are their published reports and informal reports made readily available but these agencies go out of their way to answer all inquiries.

On the other hand in two pressing problem areas, flooding and pollution, the data gathering task is more difficult. The United States Soil Conservation Service with its stream channelization program and the United States Army Corps of Engineers with their various dam building projects have exemplified man's attempts to control nature. Water resources planners, attempting to keep up with the latest information and techniques are devoting major efforts to flood plain delineation. This involves a radical departure. Instead of striving to reduce the size of flood plains through physical stream control measures the accent has been on reducing the amount of unnecessary and poorly designed building on flood plains. Such a new perspective cannot be formulated immediately. Flood plain delineation programs are so poorly formed that none of the agencies principally responsible know exactly what is going on.

Information on pollution is quite another matter. The problem with retrieval of information on pollution is that it is largely located in regulatory rather than public service agencies. The primary responsibility of regulatory agencies is to control polluters rather than satisfy the informational needs of special constituencies. However, the United States Environmental Protection Agency at the Region I headquarters in Boston does have some information about EPA programs in the State of Maine. In discussing retrieval of pollution data we found that programs as large as three million dollars may be overlooked. (Personal communication, March, 1974). Unfortunately, the Maine Department of Environmental Protection is even less able to disseminate information. A vast quantity of reports and studies are generated by its activities through this agency. Surprisingly, one must search the large repository for most of the reports himself.

C.5.4 TOPICAL SUMMARY OF MAJOR WORKS

This section briefly describes some of the major works completed or in process which pertain to Maine Rivers. The discussion is arranged by topic.

GROUND WATER

Work by Glenn Prescott for the United States Geological Survey gives the most extensive picture of Maine groundwater quality and quantity. Caswell of Maine Geological Survey is continuing with in-depth work for the State Planning Office begun in Knox County; eventually he may be able to provide a more detailed groundwater picture for Maine coastal counties. Two U.S. Environmental Protection Agency studies on groundwater quality are still in progress.

SURFACE WATER SUPPLY

Maine is water rich - at least for the time being. The last major drought in the Northeast prompted the NEWS study by the U.S. Army Corps of Engineers (see references in C.8). Further creative thinking on this sort of question has led to a conference on water diversions (NECUCD), while at the same time water supply problems raised in connection with new industrial siting, i.e., soup manufacturing and oil refining, have caused some people to ask if Maine actually has enough clean water left to be diverted elsewhere. Most of the information on this matter resides in the files of the Maine Department of Health and Welfare who are concerned with the quality of municipal water supplies, Maine regional planning commissions who have ongoing water studies, and various private interests. Some of the latter are: local water companies, hydro-electric companies, and those paper companies who control large volumes of river flow. Also important sources are the published and file records of the U.S. Geological Survey.

FLOODPLAIN MANAGEMENT

The other side of the water supply problem is one of too much in the wrong place. Floodplain problems are of greatest concern to the federal agencies. The U.S. Geological Survey has a series of reports on historical floods and is involved in a current program of mapping flood-prone areas. The U.S. Department of Housing and Urban Development has contracted similar mapping work as a first step in its flood insurance program. The U.S. Army Corps of Engineers in addition to its flood control projects in the past, has already conducted at least two flood plain delineation studies, has contracted for several others, and probably has sufficient information to do more work particularly on the Androscoggin River. The U.S. Soil Conservation Service through its regional Resource Conservation and Development Programs has a large amount of flood plain mapping work planned in addition to its Small Watershed Program which includes stream alteration devices for controlling floods on smaller tributary streams.

SURFACE WATER QUALITY

Although the municipal wastewater treatment plant construction grant program is tangled up in a maze of federal agencies, the basic responsibility is fairly straightforward at all levels of government. At the national level the U.S. Environmental Protection Agency (EPA) provides the following:

(1) a stored data bank on municipal and industrial wastewater dischargers (together with information from various in-stream sampling programs)

(2) a series of ongoing water quality modelling projects

(3) permit applications under the National Pollutant Discharge Elimination System (NPDES)

(4) hearing records, most of them unpublished, on enforcement conferences and on the issuance of permits under NPDES

(5) effluent monitoring data required for NPDES permits will eventually become available through EPA

(6) miscellaneous special research reports

(7) several newsletters on their activities

(8) various reports on the setting of discharge standards for polluting industries

At the state level, the Maine Department of Environmental Protection (DEP) can provide the following information:

(1) all the original and revised classification reports on Maine rivers and coastal areas

(2) interim river basin plans (commissioned by EPA)

(3) river basin implementation plans (essentially an arranged compilation of the agency's historical materials on each basin)

(4) a series of annual reports ending in 1969

(5) a file of license applications and licenses issued under various environmental regulatory laws: site selection, wetlands, wastewater discharge, minimum lot size, mine rehabilitation, oil terminal operation

(6) a file of monthly operation reports for Maine's municipal wastewater treatment plants

(7) data on oil spills

(8) data and sometimes reports on the agency's water quality sampling program (where special intensive efforts have been made)

(9) a file of engineering reports on all Maine municipal wastewater treatment plants.

(10) a file of various reports bearing on industrial wastewater discharge and treatment in Maine

(11) an annual report to EPA on the Department's water quality planning program

Regional planning commissions all have some committment to regional sewer and water planning; while the private sector, the University of Maine at Orono, and the Maine Pulp and Paper Industry have done much of the water quality research. Two other items are worthy of special note. Oil spill information is available from the Maine Port authority, the organizations of Maine oil terminal operators, and Sea Coast Ocean Services, (an oil spill clean up company), as well as from the DEP. Hunter and Goodnow's Maine Water Resources Plan (1969) is also recommended (see extensive references in Chapter 17.1).

RIVER CORRIDOR LAND USE AND SOILS:

The U.S. Soil Conservation Service is conducting soils mapping. The Maine DEP and Land Use Regulation Commission which is concerned with unorganized territories, have acquired even greater powers of control over new uses of Maine land and thus are in the process of collecting land use information, building files on land use applicants, and refining land use guidelines. One of the most recent statutes having most relevance to rivers is the Shoreland Zoning Act. Since this is meant to be administered on the municipal level, various state agencies and the University of Maine at Orono (Environmental Studies Center) have teamed up to provide towns with information and funds through regional planning commissions.

Reviews of the information and expertise available are being prepared for rivers, lakes, and the coastal zone, and soils. With the end of the federal "701" program funding for town planning commissions. Their work and that of local conservation commissions at the town level in open space planning has great potential for Maine rivers and streams particularly where it can integrate with shoreland

zoning and flood plain delineation work.

BIOLOGY/ECOLOGY

The State has assumed leadership in wildlife management with two agencies dividing up the responsibility geographically. The Maine Department of Inland Fisheries and Game has completed a series of freshwater fish and waterfowl management studies, while the Maine Department of Marine Resources (formerly the Department of Sea and Shore Fisheries) is responsible for marine species and commercial fisheries. The offices of Maine Atlantic Sea-Run Salmon Commission, and the U.S. Bureau of Sport Fisheries and Wildlife are located either on or adjacent to the University of Maine campus; the University's Department of Wildlife Management interpenetrates state agencies; and one organization, the Maine Cooperative Fishery Unit, is a complete integration of all three. The University through its various biological sciences departments has also been cooperating with other state agencies and with private industry to look at a range of problems and organisms from the development of macro-invertebrate sampling techniques (for the DEP) to the development of biological baseline data (for the mining and nuclear power industries). The paper industry's role in this sort of research is presently undefined.

NAVIGATION

The U.S. Army Corps of Engineers is the most prominent agency in Navigational studies. Relatively few projects have been conducted on erosional beach studies. The Corps is chiefly responsible for harbor maintenance dredging project. A list of these latter appears in Appendix A.3

HYDRO-ELECTRIC POWER

When the Dickey-Lincoln hydro-electric project was recently revived everyone soon discovered that the only place to get adequate information was from the U.S. Army Corps of Engineers. The two other sources on hydro-storage capacity are the U.S. Federal Power Commission Bureau of Power, with its series of booklets covering all the major basins, and the major electric companies, Central Maine Power and Bangor Hydro-Electric Company, with most of their data residing in private company files. A few other reports on electric power in general are of interest.

RECREATION

The main branches of all major Maine rivers have been considered fit for neither canoe nor camper. Recreational considerations have moved upstream to the Allagash and the upper Penobscot. With increasing

pressures to clean up pollution and reclaim open pit mining operations perhaps the U.S. Bureau of Outdoor Recreation, the Maine Department of Parks and Recreation, the Regional Planning Commissions, and the Natural Resources Council of Maine may reorder their priorities and do some to river studies.

PLANNING

Multi-Agency, multi-purposes comprehensive studies seem to come in twenty year intervals. The "308" studies of the U.S. Army Corps of Engineers in the early 1930's, the New England-New York Interagency Committee report in the early 1950's, and the North Atlantic Regional study in the early 1970's, are examples. These programs appear to be largely motivated by the U.S. Army Corps of Engineers.

C.5.5 SUMMARY OF MAJOR WORKS ARRANGED BY BASIN

For the purposes of organizing this bibliography on Maine rivers we have divided the State into eleven basins. Four of them are large basins, four small basins, and three collections of minor coastal basins as shown in Figure C.5-1. The major point of difference between this geographic division and other systems is where to fit Penobscot Bay and whether to deal separately with certain sub-basins, most notably the Little Androscoggin, the Sebasticook, the Aroostook, and the Allagash. Each basin presents its own special research significance in terms of the individual problems.

ANDROSCOGGIN RIVER BASIN

Gone are the days when people had to evacuate sections of Lewiston and Auburn during critical summer periods due to the pollution of the Androscoggin River. Dr. Walter A. Lawrance, recently appointed river master handling such problems, points out the reason for the improvement has been the conversion of the major pulp mills from the sulfite to the Kraft process, not court ordered controls, federal intervention, or enlightened industrial management. In spite of the change, the dirty river tradition continues. It is likely this attitude prompted the first Maine Rivers Guide Plan to be done on the Androscoggin. Certainly, it led to the formation of the Maine Sanitary Water Board, a precursor to the Maine DEP, as well as a federally sponsored water quality enforcement conference, and Dr. Lawrance's research. Today the Androscoggin Valley Regional Planning Commission continues with its research and programs on waste disposal, water and sewer planning, storm water runoff, corridor land use and shoreland zoning aid to municipalities.

KENNEBEC RIVER BASIN

The Kennebec runs through the capitol city of Augusta. Though the proximity of the Kennebec has sparked many proposals, few have received legislative approval. The list of submitted proposals includes proposals for corridor planning by the Natural Resources Council (NRC); proposals for regional wastewater handling by DEP; proposals for flood control, proposals for use of principal storage capacity by New England Regional Basins Commission (NERBC); and general proposals to do something positive with the Kennebec.

So far the Natural Resources Council of Maine and the Maine DEP have not met with much success on their ideas nor have the proponents of pumped storage. Howard Trotzky of NRC tried to change this with his campaign to get the logs off and out of the River, and perhaps the North Kennebec Valley Regional Planning Commission will have some success with its investigation of corridor control measures for non-point sources of water pollution.

PENOBSCOT RIVER BASIN

The University scientists at Orono are not faced with the same predicament as the Augusta policy makers and instead the Penobscot River has become Maine's river laboratory. The attractions of the Penobscot Bay have proven particularly powerful with studies conducted by the Maine State Planning Office, Maine Geological Survey, and the U.S. National Oceanic and Atmospheric Administration. The lower river and estuary has seen two major University studies, one designed to maximize the rivers waste assimilation capability, the other to minimize the cost of wastewater treatment and handling. Three ongoing biological studies are concentrating on the upper river. In additon there is the continuing work of the fishery biologists of the two State agencies to monitor water quality and restore Atlantic Salmon. The EPA sponsored one enforcement conference on the estuary and in so doing gathered information on bacterial and organic pollution loading and effects.

SACO RIVER BASIN

Maine's model river, the Saco, had become so prior to any legislative action. Part of the answer may lie in Toynbee's theory of history. Here one sees on a small scale what happens when enough of a threat is offered so that people feel challenged, yet the threat is not so great that they feel overcome by it. The minimal threat rivers such as the Penobscot and Kennebec and maximum threat rivers of the Presumpscot and St. Croix offer the contrast. The challenge on the Saco has been one of the increasing land development pressures felt both because of the expanding megalopolis of the old exurbanites to the

south and changing life styles of the new counterculture. The response has been the organization of the Saco River Corridor Association and its planning efforts which was foreshadowed by Haskell (1969). This means that a whole series of river-related problems arising from land development can be handled in a comprehensive way which includes water pollution, flooding, erosion, and recreation.

PRESUMPSCOT RIVER BASIN

On a small river the discharge of a single pulp mill can make a great deal of difference. Such is the case with the Presumpscot River. The S.D. Warren Paper Company at Westbrook probably has collected the most information on the river and its varying environmental conditions. These include flow rates from its dam operation, biological studies and monitoring of physical and chemical water quality parameters. Perhaps a DEP-S.D. Warren cooperative study during the summer of 1974 may give some insight into what is actually happening on this river, particularly during the critical summer period when the dam is shut down, as well as highlighting where real information gaps still exist.

ST. CROIX RIVER BASIN

Most of the information so far developed on the St. Croix, another mill dominated river, is publically available. Asborn (1972) made good use of the work of the International Joint Commission's Advisory Board on Pollution Control, while the EPA has conducted an extensive sampling program on the river.

PISCATAQUA - SALMON FALLS RIVER BASINS

Approximately three quarters of the Piscataqua River Basin is in New Hampshire, thus one must turn to the New Hampshire Water Supply and Pollution Control Commission for information from its special reports on the River, files, and monitoring reports by private industry.

SOUTHERN COASTAL RIVER BASINS

The rivers between the Piscataqua and the Androscoggin Basins, exclusive of the Saco and the Presumpscot, comprise the Southern Coastal Basins. This is a rather arbitrary category, these rivers being neither geographically unified nor sharing a common problem. There has been geological work on the Harraseeket and the Scarborough (Farmsworth n.d.; Farrell, 1970), a recreational study on the Royal River (GPCOG), and water quality monitoring on the Mousam, Nonesuch, and Scarborough Rivers (Cullo; DEP). Also, the Threshold to Maine Resource Conservation and Development Project (SCS) has been very

active throughout the whole of southern Maine in a number of major and minor basins on programs ranging from flood plain delineation to upgrading water quality standards.

MID-COASTAL RIVER BASINS

There are some areas that are better left to make their own statement. So it is with the mid-coast region from Merrymeeting Bay to Penobscot Bay. To gain some appreciation of this, one need only look at a map. The laboratories in the area have quite naturally concentrated on biological and geological studies, much of it oceanographic rather than riverine. This includes the National Marine Fisheries Service at Boothbay Harbor (this laboratory was transferred to the State of Maine in 1973) with work on the Sheepscot River; Maine Sea and Shore Fisheries, now the Department of Marine Resources at Boothbay Harbor, with work on shellfish and mercury monitoring; and the Ira C. Darling Center of University of Maine at Walpole with work on various estuaries and intensive studies for the Maine Yankee Atomic Power Plant on Montsweag Bay, Wiscasset.

NORTHERN COASTAL RIVER BASINS

Lying between the Penobscot and St. Croix basins are a number of relatively untouched, unpolluted, and unstudied coastal rivers. Aside from the Narraguagus River where there is ongoing water quality work (Diamond, see ongoing research), fisheries restoration (ASRSC), and a study on macroinvertebrate fauna (Gibbs, see ongoing research), the bulk of other recent research has been Maine Department of Inland Fisheries and Game work on fisheries management.

SUMMARY

This brief review of river projects and research is both superficial and selective. It is superficial since many relevant major reports have not been included; it is selective because a complete literature review would be both endless and pointless. Some of the areas purposely avoided have been lakes studies (Wallace and Strunk have the definitive work here), meteorology and climatology, geology other than that specifically related to water resources, historical works, and political economic information in general.

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ONGOING RESEARCH: DETAILED DESCRIPTIONS ATTACHED

(1) Thomas Embich: sand shrimp in Penobscot estuary

(2) Maine Department of Environmental Protection: water quality sampling program for summer of '74

(3) Maine Department of Environmental Protection: correction of Maine stream classification system

(4) Maine Atlantic Sea-Run Salmon Commission: immigration of salmon from stream side rearing pond

(5) Maine Atlantic Sea-Run Salmon Commission: evaluation of fish passage facilities

(6) Katherine Gibbs: macroinvertebrate fauna of upper Penobscot River

(7) Maine Department of Environmental Protection, Matt Scott: baseline biological data on Maine rivers

(8) Maine State Planning Office, Brad Caswell: ground water resources of coastal Maine counties

(9) United States Geological Survey, Glenn C. Prescott, Jr.: survey of groundwater resources of Cumberland County

(10) George Cooper: application of ERTS-1 imagery and low level photography to coastal problems in Maine

(11) Michael Mazurkiewicz: effects of thermal addition on sandworms and bloodworms

(12) L. Kenneth Fink, Jr.: heavy metals in estuarine environments

(13) Franklin E. Woodard: water quality monitoring and control in Penobscot River

(14) Geraghty and Miller, Inc. (for U.S. Environmental Protection Agency): groundwater contamination in Northeast

(15) United States Geological Survey, Gordon S. Hayes: mapping of flood prone areas in flood prone Maine towns

(16) De Leuw, Cather & Company (for U.S. Department of Housing and Urban Development): flood hazard boundary mapping for flood prone towns in Maine

(17) Greater Portland Council of Governments: "208" planning for municipal and industrial regional wastewater treatment

(18) Maine Department of Environmental Protection and S.D. Warren Paper Company: study of summer flow rates on Presumpscot River

(19) Richard Hatch, Maine Cooperative Fisheries Unit: ongoing monitoring program: Penobscot estuary

(20) Robert E. Lennon: salmon restoration in St. Croix River

(21) Reed and D'Andrea coastal areas study for Smithsonian

(22) Wright, Pierce Engineers (Topsham, Maine): study of dams in Maine for U.S. Army Corps of Engineers

(23) Maine Department of Marine Resources: heavy metals in Muscongus Bay, St. George River estuary, Cape Rosier

(24) D. Pratt: bacterial populations in Maine aquatic and estuarine environments

(25) P. Carpenter: heavy metal accumulation in clams, mussels, seaweed and baitworms from St. George estuary

ONGOING RESEARCH: DETAILED DESCRIPTIONS NOT AVAILABLE AT PRESENT

(26) Roy Farnsworth: sediments in Haraseeket River

(27) Thomas Easton: hydrology, ecology, and water quality in Messalonskee drainage

(28) Brunswick Conservation Commission (by Wright Pierce): study of New Meadows River

(29) Sheepscot River Citizen's Conservation Group: study of Sheepscot Basin

(30) MIT-Maine Maritime Academy: current studies in Penobscot Bay

(31) Salmon Falls Citizen's Conservation Group: study of Salmon Falls River

(32) Emmons & Martel, SMVTI: water quality in Goosefare Brook

(33) John Dimond: follow-up study of effect of pesticides on invertebrates (Narraguagus River)

(34) Barry Timson, Maine Geological Survey: classification, description, and evaluation of all Maine estuaries; hydrographic surveys of Union and Narraguagus Rivers

(35) U.S. Bureau of Outdoor Recreation: wild river study of upper Penobscot

(36) Androscoggin Valley Regional Planning Commission: storm water runoff study

(37) Androscoggin Valley Regional Planning Commission: Lewiston-Auburn to Runford corridor study

(38) R.W. Crippen (UMO): Effects of Elevated Temperature on some Meroplanktonic Larvae in the Montsweag Bay-Back River Area (for Maine Yankee Atomic Power Company, Augusta)

(39) Natural Resources Council of Maine, Maine Rivers Committee: canoeable rivers study

(40) Maine Department of Environmental Protection: time of travel study on Kennebec River (late summer, 1974)

(41) U.S. Environmental Protection Agency: Time of Travel Study on Kennebec River (early summer, 1974)

(42) Edward C. Jordan, Co.: data gathering on Kennebec River

(43) James W. Sewall, Co.,: flood plain delineation on Presumpscot River

(44) Meta Systems (for Northern Maine Regional Planning Commission): modelling for water quality on St. John

(45) Raytheon (for U.S. Environmental Protection Agency): modelling water quality in Salmon Falls-Piscataqua

(46) Greater Portland Council of Governments: flood insurance programs

(47) Greater Portland Council of Governments: storm drainage plan for three core cities

(48) Maine Regional Planning Commissions: ongoing water and sewer planning studies

(49) Maine State Planning Office, Coastal Planning Unit: Maine Coastal Plan

(50) New England River Basins Commission: Maine Guide Plans for Maine Rivers

(51) Maine State Planning Office, Water Resources Planning: stream descents in Knox County

SCIENCE INFORMATION EXCHANGE (SIE) LISTINGS: SEE APPENDIX C.2

(52) Halcon (for U.S. Environmental Protection Agency): modelling for water quality on Kennebec River

(53) Schnitker and Clark: bedrock topography and sediments off the Kennebec, Sheepscot, and Damariscotta estuaries

(54) Katherine Gibbs: macroinvertebrate fauna of a Maine salmon river subjected to long term multiple pesticide contamination (Narraguagus)

(55) Ellery Keene, North Kennebec Regional Planning Commission: data and management needs for water related land areas

(56) E. Green: dissolved pollution product gases in natural waters (possibly Kennebec or Penobscot estuary)

List of On-Going Research Projects in Maine

1. ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Cooperative Fishery Unit, University of Maine at Orono

TITLE OF PROJECT:

Ecology of the Sand Shrimp, Crangon septemspinosa, Say, 1818, in the Penobscot River Estuary, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Thomas R. Embich

RECIPIENT INSTITUTION:

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Population composition and length distribution of sand shrimp studied in relation to water temperature, salinity, dissolved oxygen, and hours of daylight.

Geographic Coverage: Penobscot River estuary

Index Terms: ECOLOGY: life histories, habitat distribution, population density,

Status to date:

CONTACT FOR INFORMATION:

Dr. Richard Hatch
Maine Cooperative Fishery Unit
Murray Hall
University of Maine at Orono
Orono, Maine 04473

2.

ONGOING RESEARCH

SUPPORTING AGENCY: Maine Department of Environmental Protection

TITLE OF PROJECT: Water Quality Sampling Program

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
Charles King

RECIPIENT INSTITUTION:
Maine Department of Environmental Protection

PERIOD FOR RESEARCH:

From: Summer 1974

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Intensive water quality survey of selected streams

Geographic Coverage:

Index Terms: POLLUTION: Water Quality; BOD; COD; Bacterial

Status to date:

CONTACT FOR INFORMATION:
Charles King
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

3.

ONGOING RESEARCH

SUPPORTING AGENCY: Maine Department of Environmental Protection

TITLE OF PROJECT: Correcting Maine stream classification system

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
William Hinckley and Raeburn MacDonald

RECIPIENT INSTITUTION:
Maine Department of Environmental Protection

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To correct Maine stream classifications so they are readable and consistent

Geographic Coverage: State of Maine

Index Terms: POLLUTION: Standards

Status to date:

CONTACT FOR INFORMATION:
William Hinckley

BLM Form 5

4.

ONGOING RESEARCH

SUPPORTING AGENCY: United States Department of the Interior, Bureau of Sport Fisheries and Wildlife

TITLE OF PROJECT: Study of Immigration of Salmon from Stream Side Rearing Pond to the Penobscot River

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Alfred Meister

RECIPIENT INSTITUTION:

Maine Atlantic Sea-Run Salmon Commission

PERIOD FOR RESEARCH:

From: Spring 1974 and Spring 1975

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To examine immigration of salmon from stream side rearing pond into Penobscot River

Geographic Coverage: Penobscot River at Brewer, Maine.

Index Terms: BIOLOGY/ECOLOGY: Fishes

Status to date:

CONTACT FOR INFORMATION:

Alfred Meister

5.

ONGOING RESEARCH

SUPPORTING AGENCY: Anadromous Fish Act 1965 and 1970

TITLE OF PROJECT: Evaluation of Fish Passage Facilities on Maine Salmon Rivers

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Alfred Meister (Fishery Biologist)

RECIPIENT INSTITUTION:

Maine Atlantic Sea-Run Salmon Commission

PERIOD FOR RESEARCH:

From: ongoing

To: June 30, 1974

FUNDING:

SUMMARY OF PROJECT:

Objectives: To evaluate fish passage facilities on Maine salmon rivers.

Geographic Coverage:

Index Terms: BIOLOGY/ECOLOGY

Status to date:

CONTACT FOR INFORMATION:

Alfred Meister

6.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection

TITLE OF PROJECT:

A Study of Macro Invertebrate Fauna of the Upper Penobscot River in Relation to Water Quality

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Katherine Gibbs
Charles Rabeni, Graduate Assistant

RECIPIENT INSTITUTION:

University of Maine at Orono

PERIOD FOR RESEARCH:

From: Preliminary work summer of 1973;
To: end of 1975 (with field work in summers)

FUNDING:

SUMMARY OF PROJECT:

Objectives: To establish baseline data on macro invertebrate fauna of upper Penobscot River; to develop sampling techniques

Geographic Coverage: Penobscot River: Costigan to Medway; sampling in both East and West Branches.

Index Terms: BIOLOGY/ZOOLOGY: Benthic Invertebrates

POLLUTION:

Status to date:

CONTACT FOR INFORMATION:

Katherine Gibbs

7,

ONGOING RESEARCH

SUPPORTING AGENCY:
Maine Department of Environmental Protection

TITLE OF PROJECT:
Establishment of Baseline Biological Data on Maine Rivers

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
Matt Scott

RECIPIENT INSTITUTION:
Maine Department of Environmental Protection

PERIOD FOR RESEARCH:
From:
To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To establish baseline data on stream benthos (macroinvertebrate samples; artificial substrate samples; periphyton); use of species diversity indices.

Geographic Coverage: Prestile Stream; Sebasticook; Goosefare Brook; Presumpscot; Little Androscoggin; Androscoggin; Kennebec; Aroostook; Kennebunk; (sampling at all DEP Physical-Chemical monitoring stations)

Index Terms:
BIOLOGY/ECOLOGY: Benthic Invertebrates

POLLUTION:

Status to date:

CONTACT FOR INFORMATION:
Matt Scott

8.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine State Planning Office, Water Resources Planning Office

TITLE OF PROJECT: Ground Water Resources of Knox County, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Brad Caswell

RECIPIENT INSTITUTION:

Maine State Planning Office, Water Resources Planning Office

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives:

Geographic Coverage: Knox County, Maine; will then move on to other coastal Maine counties, first Hancock and Cumberland Counties

Index Terms: HYDROLOGY: Groundwater

WATER SUPPLY: Groundwater Studies

Status to date:

CONTACT FOR INFORMATION:

Brad Caswell

9.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of the Interior, Geological Survey

TITLE OF PROJECT:

Survey of the Ground Water Resources of Cumberland County, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Glenn C. Prescott, Jr.

RECIPIENT INSTITUTION:

United States Geological Survey
Augusta, Maine 04330

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives:

Geographic Coverage: Cumberland County, Maine

Index Terms: HYDROLOGY: Groundwater

WATER SUPPLY: Groundwater Studies

Status to date:

CONTACT FOR INFORMATION:

Glenn C. Prescott, Jr.
United States Geological Survey
Augusta, Maine 04330

BLM Form 5
1/22/74

10.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program

TITLE OF PROJECT: Application of ERTS-1 Imagery and Low Level Photography to Coastal Problems in Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

George Cooper (Botany and Plant Pathology)

RECIPIENT INSTITUTION:

Ira C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: Jan 1973

To: March 1974

FUNDING: $9,517 sea grant
$7,638 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms:

Status to date:

CONTACT FOR INFORMATION:

George Cooper

10 (Cont.)

NOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
OMB NO. 41 – R2600

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

JECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/CZ-1	Application of ERTS-1 Imagery and Low Level Photography to Coastal Problems in Maine	
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM: Jan. 1973
INSTITUTION: U. Me.		ESTIMATED COMPLETION DATE: March 1, 1974

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
George Cooper Botany and Plant Pathology	31		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.–SEA GRANT	MATCHING	FED.–SEA GRANT	MATCHING	FED.–SEA GRANT	MATCHING	A/EP-1
$ 0	$ 0	$ 0	$ 0	$9,517	$7,638	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION (39)
Marine Environmental Research	Coastal Zone Mgmt./Nat. Sci. & Engr.

OBJECTIVES:

The objective of this project is:

To develop and define methods for the use of high altitude ERTS-1 satellite photographs for applied purposes such as coastal zone management.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

Coastal Zone Management

1. Inventory of coastal resources (marshes, tidal flats, lakes, beaches, rocky shores, etc.).
2. Monitoring man-induced environmental changes.

Identifying Marine Environments for:

1. Possible sites for intensive aquaculture.
2. Conditions favorable for growth and development of commercially important marine species.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

(Do not use more space.)

11. ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Atmospheric and Oceanic Administration, Sea Grant Program

TITLE OF PROJECT: Effects of Thermal Addition on Sandworms and Bloodworms

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
Michael Mazurkiewicz (Oceanography)

RECIPIENT INSTITUTION:
Ira. C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: Jan 1973

To: Dec 1975

FUNDING: $32,394 sea grant
$114,032 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms: POLLUTION: Thermal

BIOLOGY/ECOLOGY: Worms

Status to date:

CONTACT FOR INFORMATION:
Michael Mazurkiewicz

11 (cont.)

NOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

FORM APPROVED. DECEMBER 31, 1972 OMB NO. 41 – R2600

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/P-2	Effects of Thermal Addition on Sandworms and Bloodworms	
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM: Jan., 1973
INSTITUTION: U. Me.		ESTIMATED COMPLETION DATE: Dec., 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Michael Mazurkiewicz, Oceanography	30		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
$0.00	$ 0.00	$0.00	$ 0.00	$ 32,394	$ 114,032	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Environmental Research	Pollution/Thermal (43)

OBJECTIVES:

Abstract:

This project will determine the impact of coolant waters from the Maine Yankee Atomic Power Plant on the principle commercial fishery near the plant, the harvesting of sandworms and bloodworms. A detailed field program will relate temperature profiles in the water column and intertidal sediments to worm distribution, behavior, gametogenesis and reproduction. In a comprehensive laboratory study worms will be subjected to physical conditions simulating those near the plant. Worms will be studied under both constant and fluctuating temperature regimes. Investigations include acclimation, modifications of metabolic rates, behavior, growth rates, gametogenesis, reproduction and development, and determination of critical thermal maxima on various life history stages.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

The field studies will determine whether the warm water discharge from the nuclear plant has altered nearby populations of sandworms and bloodworms. This information will assist state and federal regulatory agencies in determining whether Maine Yankee has complied with its licensing requirements.

Both field and laboratory studies will provide new information about these species that will assist many state and federal agencies in the planning, siteing, licensing, and regulating of future power plants.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

New project.

12.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program

TITLE OF PROJECT: Relative Contributions by Mining, Industrial, Agriculture, and Untreated Sewage Wastes to the Distribution of the Heavy Metal Levels in Estuarine Environments in Maine.

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

L. Kenneth Fink, Jr. (Oceanography)

RECIPIENT INSTITUTION:

Ira C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: 8/1/73

To: 12/31/74

FUNDING: $56,774 Sea Grant
$39,101 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms: POLLUTION: Water Quality, Heavy Metals, Effects of, Standards, Regulations,

TECHNOLOGY/BIOLOGY:

Status to date:

CONTACT FOR INFORMATION:

L. Kenneth Fink, Jr.

12 (cont.)

NOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

FORM APPROVED. DECEMBER 31, 1972 OMB NO. 41 - R2600

PROJECT NO.	PROJECT TITLE	DATE INITIATED, IF CONTINUING
R/P-1	X NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT Relative contributions by mining, industrial, agriculture, and untreated sewage wastes to the distribution of the heavy metal levels in estuarine environments in Maine.	
GRANT NO. (Office)	OLD TITLE (If different)	DATE OF THIS FORM: Jan., 1973
INSTITUTION: UMe.		ESTIMATED COMPLETION DATE: Dec. 31, 1974

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
L. Kenneth Fink, Jr., Oceanography	40		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R/A-1,3,4, &5 A/EP-1
$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 56,774	$39,101	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Environmental Research	Pollution/Metals (44)

OBJECTIVES:

The objectives of this proposal are:

1. to determine the distribution patterns of heavy metals in the waters, suspended particulates, sediments, and biota of selected Maine estuaries which can be characterized by the following specific pollution sources: Mining Activity - Goose Cove on the Penobscot River; Untreated Town Sewage - Union River; Agricultural Activity - Narraguagus River; Untreated Paper Mill Effluent - St. Croix River.
2. to determine the relative impact on the selected estuaries by the different pollution sources as compared to one another and the Class A Damariscotta River.
3. to provide facts on heavy metals in Maine's estuaries as a) a basis for pollution control and prevention legislation, and b) an additional consideration for coastal resource evaluation, planning, and management currently in progress by the State Planning Office.
4. to aid in the assessment of the suitability of the coast of Maine for aquaculture.

HOW INFORMATION WILL BE APPLIED *(Be specific)*:

The data derived from this project will: 1) provide a direct evaluation of the absolute and relative effects of various pollution activities on the different environmental compartments of an estuary; 3) provide a realistic basis by which guidelines and limits can be established for industry licensing and control by the Department of Environmental Protection; 3) provide needed baseline information for use in coastal resources evaluation, planning, zoning, and management; 4) provide a factual basis for new criteria to determine water quality and classification in Maine; 5) help to establish criteria other than coliform bacteria counts for identification of potential health hazards in shellfishing areas; 6) increase the understanding of the pathways of man-introduced pollutants in the marine environment.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment)*:

New Project to begin 8/1/73.

(Do not use more spa...

NOAA FORM 90-2

13.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection

TITLE OF PROJECT:

Development and Implementation of Water Quality Monitoring and Contol in Maine: Phase II

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Franklin E. Woodard
Department of Civil Engineering
Aubert Hall
University of Maine at Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

Environmental Studies Center
Coburn Hall
University of Maine at Orono
Orono, Maine 04473

PERIOD FOR RESEARCH:

From: Phase I- 12 months
Phase II- 12 months
To: Phase III- 12 months

FUNDING: $128,736 (3 year budget

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage: Penobscot River, Old Town to Bucksport

Index Terms: POLLUTION: Water Quality; BOD

Status to date: Phase I completed; embarking on Phase II (April 3, 1974)

CONTACT FOR INFORMATION:

Franklin E. Woodard
(address above)

I. Statement of Goals and Objectives

A. General Goals

1. To develop a comprehensive plan for water quality monitoring, data processing, and ultimate water quality control for the Penobscot River Estuary.

2. To provide the Department of Environmental Protection the capability of monitoring the quality of water in Maine rivers and estuaries and the capability of predicting water quality in light of hypothetical or expected events.

3. To enhance the state of the art with respect to the application of systems engineering to water quality monitoring and control.

B. Central Operational Objectives

1. To validate a predictive mathematical water quality model for the Penobscot River Estuary

2. To select necessary in-stream sampling, telemetering, data processing, and computing equipment for a functional river basin management program.

3. To develop the details of a program for monitoring and control of the water quality in Maine rivers and estuaries.

4. To implement the program by transferring all acquired equipment, skills and capabilities to the Department of Environmental Protection.

C. Specific Objectives

(These objectives are itemized to illustrate the steps required to attain the central operational objectives.)

1. Refine the computer programs used in the execution of the mathematical simulation and optimization models making them more easily useable by the State of Maine Department of Environmental Protection to manage the water resources of Maine

2. To determine, through laboratory studies, oxygen uptake rates (K1) for Penobscot River water at different points and at different times of the year.

3. To determine, using laboratory and field studies, accurate reoxygenation rates (K2) for Penobscot River water at different locations and at different times of the year.

4. To determine, using laboratory and field studies, accurate data on lxygen production from algal activity in Penobscot River water in different locations and at different times of the year.

5. To determine, using laboratory and field studies, accurate diffusion coefficients for Penobscot River water at different locations and at different times of the year.

6. To determine, using laboratory and field studies, accurate eddy diffusion coefficient data for Penobscot River water at different locations and at different times of the year.

7. To conduct a series of dye studies to determine the wastewater plume dispersion characteristics in the Lower Penobscot River and Estuary.

8. To develop a model which is capable of simulating wastewater plume dispersions and which will become, an integral part of the water quality simulation model.

9. To conduct a series of computer runs to determine oxygen levels in the Penobscot River and to compare these results to actual data obtained in the field.

10. To select two points in the Penobscot River Estuary where water quality monitoring apparatus should be located.

11. To evaluate water quality monitoring equipment which are considered to be accurate and reliable which could provide necessary information for real time input to the mathematical models.

12. To select items of equipment based on the above evaluation providing that the results of the evaluation show that a full-scale monitoring system would be reliable and worthwhile.

D. Specific objectives to be addressed during Phase II.

1. Evaluation and updating of water quality simulation model will continue as carried out in Phase I.

2. The river water quality sampling work will continue as in Phase I with the following exceptions:

   a. Sixteen points will be sampled rather than eight.

b. More emphasis will be placed on gathering DO and BOD data while less emphasis will be placed on gathering K_1 data.

3. General sets of data input will be prepared based on conditions which exist at certain times of the year.

4. The following studies will be carried out during the months of July, August, September and October:

   a. Aeration (K_2) studies will be carried out at the sites of the Veazie and Bangor overflow dams. Results showing the influence of the tidal cycle on reaeration at the Bangor dam should be interesting and valuable.

   b. Extensive work will be carried out to determine differences in DO concentration and temperature at different locations in the cross-section at selected locations in this study area.

5. Continued use of dye studies will be employed to study the wastewater plume dispersion characteristics in the study area.

6. The water quality simulation model will be rewritten to include the simulation of wastewater plume dispersion, both from point discharges and from outfall diffusers.

7. Water quality monitoring equipment which are considered to be accurate and reliable will be evaluated by onsite observation and by communication with present users.

8. Water quality monitoring equipment will be selected for use in a full-scale monitoring system based on the above evaluation, providing that the evaluation shows that the purchase of such equipment would be worthwhile.

14.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Environmental Protection Agency, Environmental Research Laboratory (Ada, Oklahoma)

TITLE OF PROJECT:

Ground Water Survey of the Northeastern United States

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Geraghty and Miller, Inc.
Water Research Building
Manhasset Isle
Port Washington
New York

RECIPIENT INSTITUTION:

Same as above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: inventory of ground water contamination problems and recommendations for future research and control

Geographic Coverage: northeastern United States

Index Terms: POLLUTION: water quality
WATER SUPPLY: ground water studies
HYDROLOGY: groundwater

Status to date:

CONTACT FOR INFORMATION:

Mr. Miller 516-883-6760
Geraghty and Miller, Inc
(address above)

15.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of the Interior, Geological Survey

TITLE OF PROJECT:

Flood Hazard Mapping in Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Gordon Hayes

RECIPIENT INSTITUTION:

United States Geological Survey

PERIOD FOR RESEARCH:

From: early 1970's

To: ongoing

FUNDING:

SUMMARY OF PROJECT:

Objectives: approximate boundaries of the "regional flood" are delineated on U.S.G.S. quadrangle sheets (may or may not coincide with 100 year flood plain).

Geographic Coverage: (list of towns attached)

Index Terms: HYDROLOGY: flooding; floodplains

Status to date:

CONTACT FOR INFORMATION:

Gordon Hayes
United States Geological Survey
Augusta, Maine 04330

BLM Form 5

15. (cont) Summary of Quadrangle sheets for which "quick and dirty" flood hazard maps have been prepared by the U.S.G.S., and which are, or shortly will be, in the U.S.G.S. Augusta Office

Anson
Augusta
Bangor
Bar Harbor
Bath
Belfast
Biddeford
Bucksport
Calais
Camden
Cape Elizabeth
Caribou
Cumberland Center
Dover-Foxcroft
Eagle Lake
Eastport
Ellsworth
Farmington
Fort Fairfield
Fort Kent
Freeport 7½ "
Freeport 15"
Frenchville
Gardiner
Gorham
Gray
Guilford
Houlton
Kennebunk
Kittery
Lewiston
Lincoln
Livermore Falls
Millinocket
North Windham
Norway
Old Orchard Beach
Orono
Pittsfield
Poland
Portland East
Portland West
Presque Isle
Prouts Neck
Rockland
Rumford
Skowhegan
South Harpswell
Van Buren
Waterville
Yarmouth

16,

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Housing and Urban Development, Federal Insurance Administration

TITLE OF PROJECT:

Flood Hazard Mapping

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

De Leuw, Cather & Co.
Washington, D.C.

RECIPIENT INSTITUTION:

De Leuw, Cather & Co.
Washington, D.C.

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To provide community base maps and flood hazard boundary maps for some of the Maine towns on the Federal Insurance Administration's list of flood prone communities (to thus fill gaps in the flood hazard mapping work of U.S. Geological Survey).

Geographic Coverage: (list of towns attached)

Index Terms: HYDROLOGY: flooding; floodplains

Status to date:

CONTACT FOR INFORMATION:

W.E. Moore, Boston office of De Leuw, Cather & Co.
24 School Street
Boston, Massachusetts 02108
(617-523-4001)

BLM Form 5

16 (cont.)

Communities for which the firm of De Leuw, Cather & Co. is preparing Flood Hazard Boundary Maps

Livermore Falls	Bar Harbor	Kenduskeag
Ashland	Bucksport	Millinocket
Blaine	Ellsworth	Passadumkeag
Eagle Lake	Appleton	Patten
Fort Fairfield	Camden	Bath
Fort Kent	Owls Head	Richmond
Houlton	Rockland	Anson
Island Falls	Rockport	Bingham
Limestone	South Thomaston	Fairfield
Madawaska	Thomaston	Madison
Mars Hill	Union	Pittsfield
Oakfield	Warren	Skowhegan
Sherman	Washington	Burnham
Van Buren	Dresden	Addison
Washburn	Jefferson	Beals
Westfield	Waldoboro	Calais
Woodland	Whitefield	Cherryfield
Bridgton	Bethel	Danforth
Freeport	Buckfield	Machiasport
Gray	Canton	Pembroke
Harrison	Dixfield	Berwick
Farmington	Fryeburg	Cornish
Kingfield	Hiram	Dayton
New Sharon	Peru	Hollis
Phillips	West Paris	Wells
Strong	Alton	York
Wilton	Greenbush	

17,

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Environmental Protection Agency

TITLE OF PROJECT:

"208" planning: areawide waste treatment planning and management

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Greater Portland Council of Governments, Richard Hubble

RECIPIENT INSTITUTION:

Greater Portland Council of Governments working in cooperation with the Portland Water District

PERIOD FOR RESEARCH:

From: grant not yet made

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: areawide planning and management for waste water in metropolitan regions: in this case the region encompassed by the Greater Portland Council of Governments

Geographic Coverage: Greater Portland Council of Governments region

Index Terms: POLLUTION: Water Quality; Standards, Regulations

Status to date: EPA grant has yet to materialize (April 1974) but undoubtedly will

CONTACT FOR INFORMATION:

Richard Hubbel
Greater Portland Council of Governments
169 A Ocean Street
South Portland, Maine 04106
(799-8523)

18.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection and S.D. Warren Paper Company

TITLE OF PROJECT: Study of summer flow rates on the lower Presumpscot River, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

RECIPIENT INSTITUTION:

Maine Department of Environmental Protection, Augusta, Maine 04330

S.D. Warren Paper Company
Westbrook, Maine

PERIOD FOR RESEARCH:

From: Summer 1973

To: Summer 1974

FUNDING:

SUMMARY OF PROJECT:

Objectives: To measure rates of flow in lower Presumpscot River during critical summer period when S.D. Warren Company dam is closed for maintenence work; will also look at River biota.

Geographic Coverage: Lower Presumpscot River especially in area of S.D. Wareen Company dam.

Index Terms: HYDROLOGY: discharge rates
BIOLOGY

Status to date:

CONTACT FOR INFORMATION:

Charles King
Maine Department of Environmental Protection
Augusta, Maine 04330

19. ONGOING RESEARCH

SUPPORTING AGENCY:

TITLE OF PROJECT: Hydrography of the Penobscot River estuary

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Richard Hatch

RECIPIENT INSTITUTION:

Maine Cooperative Fishery Unit
Murray Hall
University of Maine at Orono
Orono, Maine 04473

PERIOD FOR RESEARCH:

From: continuation of Haefner's work done in 1963-1965
To: ongoing

FUNDING:

SUMMARY OF PROJECT:

Objectives: To perform basic monitoring of water quality on a polluted river: temperature, dissolved oxygen, salinity

Geographic Coverage: five monitoring stations: head of Penobscot estuary to Bucksport, Maine

Index Terms: PHYSICAL OCEANOGRAPHY: Salinity, Temperature
CHEMICAL OCEANOGRAPHY: Oxygen
POLLUTION: Water Quality

Status to date:

CONTACT FOR INFORMATION:

Richard Hatch
(address above)

BLM Form 5

"TEMPERATURE, DISSOLVED OXYGEN AND SALINITY DATA FOR THE PENOBSCOT RIVER ESTUARY, 1966-1970" Water Resources Center 1971; 17 pages.

A presentation of isopleth diagrams showing temperature, dissolved oxygen, and salinity at stations from Bangor to Bucksport on the Penobscot River during summers (June-September) 1966 - 1970. Also a diagram of total monthly discharge 1966-1970 for the Penobscot River at West Enfield.

To perform basic monitoring of water quality on a polluted river; a continuation of work done by Haefner - thus making subsequent data available to other workers.

Fisheries biologists; state and federal environmental agencies

Published report.

Penobscot Estuary: five monitoring stations, head of estuary to Bucksport: (1) Bangor Harbor, (2) Hampden, (3) Bald Hill Cove, (4) downstream from Marsh River, (5) Bucksport Harbor.

A continuation of Haefner's work done 1963-1965 (Paul A. Haefner, "Hydrography the Penobscot River (Maine) Estuary", J. Fish. Res. Bd. Canada 24(7): 155: 71; 1967). Hatch continues to moniter during the summer.

Temperature and salinity measured with an Industrial Instrument salinometer; dissolved oxygen, with sodium azide modification of the Winkler method. E station ordinarily sampled three times between low slack and high slack t during daylight hours of a given day. Three days were used to sample the f stations. The estuary south of Bucksport was not regularly sampled.

report

20.

ONGOING RESEARCH

SUPPORTING AGENCY:
United States Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Atlantic Salmon Investigations

TITLE OF PROJECT:

Biological survey of St. Croix River

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Robert E. Lennon

RECIPIENT INSTITUTION:
(same as above)

PERIOD FOR RESEARCH:

From: field work: June-August 1974
To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Basic biological survey of the St. Croix River, fish populations, and aquatic invertebrates; some creel census on the chain pickerel-smallmouth bass-and-land-locked salmon sport fisheries may be accomplished

Geographic Coverage: Mainstem of St. Croix between Calais and Vanceboro, Maine

Index Terms: BIOLOGY/ECOLOGY: Fishes; Benthic Invertebrates

Status to date: planning stages (as of April 1974).

CONTACT FOR INFORMATION:

Robert E. Lennon, Director
Atlantic Salmon Investigations
319 Murray Hall
University of Maine at Orono
Orono, Maine 04473

BLM Form 5
1/22/74

ONGOING RESEARCH

SUPPORTING AGENCY:

Smithsonian
New England Regional Commission

TITLE OF PROJECT:

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Bill Reed, Anne LaBastille, Malcolm Hunter, Tom Reeves

RECIPIENT INSTITUTION:

Reed and D'Andrea
South Gardiner, Maine

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Volumes: (1) Coastal Overview - Staff (in draft form); (2) An Approach to Coastal Conservation - Bill Reed (not yet in draft form); (3) Coastal Ecosystems - Malcolm Hunter (in draft form); (4) Rare, Endangered, Threatened, and Peripheral Species of Wildlife and Fish of the Maine Coast - Anne LaBastille (in draft form); (5) Tidal Wetland Dilemma - Tom Reeves; (6) a separate report to be issued for each of thirty coastal zones, e.g. Merrymeeting Bay report by Staff is now being prepared; more will be done as funds become available (e.g. Damariscotta, Upper Sheepscot region); in short this is a resource study for selected regions of the Maine coastal zone. (form completed April 1974).

Geographic Coverage:

Index Terms:

Status to date: see above

CONTACT FOR INFORMATION:

Bill Reed
Reed and D'Andrea
South Gardiner, Maine

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Army Corps of Engineers

TITLE OF PROJECT:

Inventory of Maine Dams

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Mr. Sullivan
Wright, Pierce Engineers
Topsham, Maine

RECIPIENT INSTITUTION:

Wright, Pierce Engineers
Topsham, Maine

PERIOD FOR RESEARCH:

From: first phase completed

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Inventory of dams (over six feet or holding over 50 acre feet); part of nationwide survey to examine dams from safety point of view; will become part of a national data bank

Geographic Coverage: State of Maine

Index Terms: HYDROLOGY: modifications

Status to date: first phase completed by Wright, Pierce Engineers: location of dams; second phase will be an actual investigation of the dams to look at conditions

CONTACT FOR INFORMATION:

Mr. Sullivan
Wright, Pierce Engineers
Topsham, Maine

23.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Marine Resources

TITLE OF PROJECT:

Heavy Metals in Marine Environments

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Don Nelson
Maine Department of Marine Resources
West Boothbay Harbor Laboratory

RECIPIENT INSTITUTION:

Maine Department of Marine Resources

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to monitor heavy metals: initially copper, cobalt, cadmium, nickel, zinc, iron, lead, silver; eventually may add mercury, chromium, vanadium; first year: Muscongus Bay at Blue (Kerr American Mine); second year: St. George River estuary (Knox Mine); and Cape Rosier (deactivated Callahan Mine)

Geographic Coverage:

Index Terms: POLLUTION: Water Quality

Status to date: planning stages (April 1974)

CONTACT FOR INFORMATION:

Don Nelson

24.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Agricultural Experiment Station, Cooperative Research Service

TITLE OF PROJECT:

Bacterial Populations in Maine Aquatic and Estuarine Environments

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Darrell B. Pratt with Robert Thorup (Ph.D. Candidate)
Professor and Chairman, Department of Microbiology; Professor of Zoology
Hitchner Hall
University of Maine at Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

see above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to discover the natural population of bacteria in unpolluted waters (not dealing with coliform)

Geographic Coverage: now working on headwaters of Penobscot River: ponds and Pushaw Pond; plan to move to Penobscot estuary later

Index Terms: ECOLOGY: Aquatic Bacteria

Status to date: see above; problems have arisen over methodologies

CONTACT FOR INFORMATION:

see above

BLM Form 5
1/22/74

ONGOING RESEARCH

SUPPORTING AGENCY:

Knox Mining Company

TITLE OF PROJECT:

A Survey of the Heavy Metal Accumulation in Marine Clams, Mussels, Seaweed and Baitworms from the St. George River Estuary

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Paul Carpenter
Associate Professor of Agronomy
Deering Hall
University of Maine at Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

see above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to develop baseline data on heavy metals in the St. George estuary prior to the opening of a mining operation in the area; samples taken every month for past five years; water from various sources: streams, sediments, clams, mussels, seaweed; problem is that analytical techniques keep getting more and more refined: e.g. can now measure down into the quadrillions on lead

Geographic Coverage:

Index Terms: POLLUTION: water quality

Status to date: Started in 1969; project still ongoing.

CONTACT FOR INFORMATION:

see above

State Data Files

*1. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under Maine Site Selection Law.

*2. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under the Maine Wetlands Law.

*3. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under the Maine Minimum Lot Size Law.

*4. Maine Department of Environmental Protection, Bureau of Land Quality Contro, Division of Review and Planning: file of applications under the Maine Mining and Rehabilitation of Land Law.

*5. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Oil Conveyance Services: file of licenses for oil terminal facilities.

*6. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Water Quality Services: river monitoring

*7. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Municipal Services: file containing all pertinent data on municipal wastewater treatment plant construction program.

*8. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Municipal Services: monthly report on operation of municipal wastewater treatment plants.

*9. Maine Land Use Regulation Commission: file of applications for building permits, subdivision permits, and development permits in Maine's unorganized territories.

*10. Maine Department of Health and Welfare: water supply data file.

11. Maine Public Utilities Commission-United States Geological Survey: monitoring for flow and quality on Maine rivers, ground water data.

*12. Maine Department of Marine Resources: shellfish monitoring program.

13. Maine Department of Marine Resources: mercury monitoring program.

14. Maine State Planning Office: National Environmental Policy Act, environmental impact statements issued for Maine

15. Maine Departments of Inland Fisheries and Game and Marine Resources: Maine Information Display Analysis System (MIDAS).

16. Maine Department of Inland Fisheries and Game: wetlands inventory.

17. North Kennebec Regional Planning Commission: aerial photographs of 1973 flooding on Kennebec River: Augusta to Madison; Sebasticook River: to Newport.

Private Sector Data

*18. Bangor Hydro-Electric Company: gaging of flow on Penobscot River.

19. Central Maine Power Company: gaging of flow.

*20. Portland Water District: chemical analysis of water supplies in the Portland Water District.

21. Public Service Company of New Hampshire: monitoring of Piscataqua River.

*22. Diamond International Corporation (Old Town, Maine): air and water monitoring of Diamond International Corportation (Old Town, Maine) effluents.

*23. Georgia Pacific: St. Croix River water quality monitoring.

*24. International Paper Company: Androscoggin River water quality monitoring in area of Jay-Chisholm, Maine

*25. Scott Paper Company: Kennebec River water quality monitoring in area of Winslow, Maine.

26. Fraser Paper Company: St. John River water quality monitoring in area of Madawaska, Maine.

27. S.D. Warren Paper Company: gaging of flow on Presumpscot River.

28. Natural Resources Council of Maine: Natural Areas Inventory.

*29. Oxford Paper Company: Androscoggin River water quality monitoring in area of Rumford, Maine

* Detailed descriptions attached.

Federal Data Files: see Appendix A.

1. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under Maine Site Selection Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Wetlands; uplands

Disciplinary Field: Land Use; pedology; pollution; economy

Index Terms: PEDOLOGY; POLLUTION: Solid Waste Disposal; Water Quality; LAND USE; ECONOMY
(for complete listing of data required see attachments)

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Unit of land considered for development

Period of Data Coverage:

From: 1970

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those who wish to develop an area over a certain size (generally over 20 acres or structures over 60,000 square feet
Frequency: required to file for approval with DEP.

AVAILABLITY:

Contact: Henary E. Warren, Director, Bureau of Land Quality Control

Procedures:

Costs:

COMMENTS:

2. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under the Maine Wetlands Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Wetlands

Disciplinary Field: Land Use;

Index Terms: LAND USE (see attached form for types of data requested)

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Coastal Wetlands to be dredged, filled, or otherwise developed.

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All those wishing to dredge, fill, or otherwise develop coastal wetlands must file for a permit with the DEP

Frequency:

AVAILABLITY:

Contact: Henry Warren, Director, Bureau of Land Quality Control

Procedures:

Costs:

COMMENTS:

3. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under the Maine Minimum Lot Size Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Uplandse

Disciplinary Field: Pedology; Land Use;

Index Terms: PEDOLOGY; LAND USE (for specific data required see attached file form)

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Land units for which forms are filed

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All not served by a public or private community sewer developing a lot of land containing less than 20,000 square feet or if on a public road or a water body less than 100 feet frontage shall file for approval with DEP and Maine Department of Health and Welfare

Frequency:

AVAILABLITY:

Contact: Henry Warren, Director, Bureau of Land Quality Control

Procedures:

Costs:

COMMENTS:

BLM #4
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4. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under the Maine Mining and Rehabilitation of Land Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Upland; wetlands;

Disciplinary Field: Land Use; Geology; Pedology;

Index Terms: GEOLOGY: See attached form for types of data requested; PEDOLOGY; LAND USE

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Land Area to be Rehabilitated after Mining

Period of Data Coverage:

From:

To: Ongoing file

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those wishing to operate mines must file with DEP

Frequency:

AVAILABLITY:

Contact: John A. Bader, Chief, Division of Review and Planning (of the Bureau of Land Quality Control)

Procedures:

Costs:

COMMENTS:

5. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Licenses for Oil Terminal Facilities

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Estuaries; Coastal; Uplands

Disciplinary Field: Land Use; Pollution;

Index Terms: POLLUTION; LAND USE

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Site of Oil Terminal Facilities

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All oil terminal operators required to file for a license each year with DEP.

Frequency:

AVAILABLITY:

Contact: Paul Sova, Chief, Division of Oil Conveyance Services

Procedures: All data is public information

Costs: Photocopying costs

COMMENTS:

BLM #4
1/22/74

6. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: River Monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Estuarine

Disciplinary Field: Pollution

Index Terms: [illegible]: Water Quality, COD, Ambient Levels.

Geographic Location or Extent

Present: see attached list

Proposed:

Study Unit: see attached list

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantative

COLLECTION OF DATA:

Method:

Frequency: see attached list

AVAILABLITY:

Contact: Henry Lamm, DEP, Augusta, Maine 04330

Procedures: All Data is public information

Costs:

COMMENTS:

6. Data Files (cont.)

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION MONITORING [illegible]

(1) Little Androscoggin River at Welchville Rte. 26 Bridge (river mile 182) Critical Water Quality Problem; monthly sampling for chromium; (low DO point)

(2) Aroostook River at Caribou Dam (river mile 14.9) Critical Water Quality Problem; (low DO point near Municipal water intake)

(3) Presumpscot River at Presumpscot Falls, Falmouth (river mile 0.0) Critical Water Quality Problem; annual sampling for mercury, monthy for zinc (low DO point)

(4) Kennebunk River at Shamut Dam Head Pool (river mile 24.7) Baseline Station Below ____ Scott Mill; monthly sampling for zinc and mercury; (develop base line before mill is built; use as paired station later)

(5) Prestile Stream at Rte 10 Bridge, Easton (river mile 17.4) Baseline station.

(6) Sebasticook River at Rte 2 Bridge, Palmyra (river mile 30.0) Critical Water Quality Problem (low DO point)

(7) Kennebec River at South Gardiner (river mile 11.4) Critical Water Quality Problem (low DO point)

(8) Androscoggin River at Riley Dam, Jay (river mile 58.6) (low DO point) PAIRED STATION WITH #9

(9) Androscoggin River at Virginia Bridge, Rumford (river mile 80.0 (low DO point) PAIRED STATION WITH #8

In FY 75 another set of paired stations will be located on St Croix River.

PARAMETERS

D.O., Temperature, and pH	monthly (in FY74 and bi-weekly lat
Total Phosphorus, Total Kjeldehl Nitrogen, NO_2, NO_3, Total Organic Carbon, Chemical Oxygen Demand	quarterly in FY 74 and monthly to begin in FY 76
Stream Flow at time of Sampling	

7. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File Containing all Pertinent Data on Municipal Wastewater Treatment Plant Construction Program

MEDIUM OF FILE: Reports

DESCRIPTION OF DATA BASE:

Physiographic Category: Estuaries; Riverine; Coastal; Uplands

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; COD; Bacterial; Point Sources

Geographic Location or Extent

Present: State of Maine

Study Unit: Site of Facilities

Proposed:

Period of Data Coverage:

From:

To: Ongoing (see Attached list)

CHARACTERISTICS OF DATA: Narrative/Textual (Engineering Studies)

COLLECTION OF DATA:

Method: All municipalities, sanitary districts, regional planning commissions, and others wishing to build wastewater treatment
Frequency: facilities with government aid file preliminary and final plans with DEP for approval.

AVAILABLITY:

Contact: Dennis A. Purington, Bureau of Water Quality Control, Division of Municipal Services
Procedures: All data is public information

Costs: Photocopying costs

COMMENTS:

7. Data Files (Cont.)

MAINE MUNICIPAL WASTEWATER
TREATMENT PLANTS (April 1974)

Operational

Ashland: facultative lagoon
Augusta: separate sludge (primary with digester)
Bangor: (1) Bangor: vacuum filter; (2) Capehart
Bath: extended aeration
Belfast: extended aerarion
Bethel: extended aeration
Biddeford: modified aeration
Bingham: contact stabilization
Boothbay Harbor: separate sludge (primary with digester)
Brunswick: vacuum filter
Calais: contact stabilization
Camden: modified aeration
Cape Elizabeth: (1) Main Plant: oxidation ditch;
(2) Broad Cove 10,000 gal.
Caribou: separate sludge (primary with digester)
Corinna: modified aeration
Falmouth: contact stabilization
Farmington: oxidation ditch
Fort Kent: oxidation ditch
Freeport: imhoff tank
Kennebunk: separate sludge (primary with digester);
(1) Boothbay Road primary; (2) Water Street primary
Kennebunkport: extended aeration
Kittery: (1) Admiralty Village imhoff tank; (2) Main
Lewiston-Auburn Water Pollution Control Authority: extended aeration
Lewiston: Thorns Corner: facultative lagoon
Limestone: extended aeration
Mapleton: extended aeration
Mars Hill: separate sludge (primary with digester)
Mount Desert: conventional activated sludge: (1) Northeast
Harbor; (2) Otter Creek; (3) Seal Harbor; (4) Somesville
Norway: aeration lagoon
Oakland: extended aeration
Ogunquit: extended aeration
Old Orchard: separate sludge (primary with digester)
Orono: extended aeration
Portland: extended aeration; package plant: Stroudwater
Presque Isle: separate sludge (primary with digester)
Rangeley: oxidation ditch
Richmond: imhoff tank
Saco: extended aeration; (1) Industrial Park; (2) Main
Facility; (3) Factory Island
Saint Agatha: extended aeration

7. Data Files (cont.)

Sanford: facultative lagoon
Scarborough: extended aeration
South Berwick: separate sludge (primary with digester)
Thomaston: extended aeration
Unity: facultative lagoon
Van Buren: extended aeration
Waldoboro: modified aeration
Wiscasset: extended aeration
Yarmouth: oxidation ditch
North Jay: extended aeration
Castine: extended aeration

Under Construction

Anson-Madison: aeration lagoon
Bar Harbor: extended aeration; (3 separate contracts: main facility and two small compact plants)
Berwick: joint facility with tannery; secondary
Brewer: joint facility with paper mill; secondary
Castine: contract stabilization?
(already have extended aeration operational)
Greenville: tertiary
Lisbon: secondary
Livermore Falls-Jay: activated sludge with pretreatment
Machias: extended aeration
Paris Utilities District: activated sludge with pre-treatment (joint facility with tannery)
York: extended aeration (interceptor to York Harbor proposed)

Construction Delayed

Hartland: joint facility with tannery stalled by a marginal industry; secondary
Waterville: activated sludge; a regional facility for towns in area and Keyes Fiber; held up by wage rates

Proposed Funded

Blue Hill: secondary
Mexico: secondary
Southwest Harbor: secondary
Mechanic Falls: secondary (funded?)
Rockland: secondary; fish processing plants thinking of pretreating considerably; (funded?)

7. Data Files (cont.)

Proposed: One Year List

Winslow:
Manchester Sanitary District:
Monmouth Sanitary District:
Jackman Sanitary District: tertiary or land application
Old Orchard Beach: (have primary operational)
Scarborough: (have extended aeration operational); plan new interceptors and a larger treatment plant to replace one now operating
Freeport Sanitary District:
South Portland: activated sludge (approved)
Wells Sanitary District: secondary
Winter Harbor: activated sludge (not yet approved)

Proposed: Two Year List

Cape Elizabeth (North):
Westbrook: secondary; (final plans but not yet approved)
Millinocket: lagoon?
(final plans but not yet approved)
Ellsworth:
Northport (Bayside): activated sludge - seasonal
Madawaska: secondary
York Sanitary District: (extended aeration under construction; interceptor to York Harbor proposed)
Wilton: no final plans done yet

Proposed: Other

Rangeley: tertiary (oxidation ditch operational)

7. Data Files (cont.)

STATE AND FEDERAL INSTALLATIONS IN MAINE: WASTEWATER TREATMENT PLANTS (April 1974)

Indian Reservations

Peter Dana Point: oxidation ditch
Pleasant Point: oxidation ditch
Princeton Strip: oxidation ditch
Penobscot Tribal Reservation Housing Authority, Old Town: proposed

Military Installations

Bucks Harbor Air Force Station: diffused air
Cutler Naval Station: extended aeration
Winter Harbor Naval Base - Corea Site: package unit, extended aeration mode
Limestone Air Force Base: secondary with trickling filters
Topsham Naval Station: primary with separate sludge handling
Charleston Air Force Station: package unit, extended aeration mode
Casewell Air Force Station: package unit, extended aeration mode

State and Federal Facilities

Togus Hospital V.A.: secondary with trickling filters
Pineland: trickling filter
Women's Correctional Institute - Skowhegan: package unit
State Men's Prison Farm - Warren: oxidation ditch
Seare School - Rangeley: package unit, extended aeration mode

8. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: Monthly Report on Operation of Municipal Wastewater Treatment Plants

MEDIUM OF FILE: Data forms.

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine, Estuarine, Coastal

Disciplinary Field: Pollution (water)

Index Terms: POLLUTION: Water Quality; BOD; Bacterial; Point Sources;

Geographic Location or Extent

Present: State of Maine

Study Unit: Site of facilities

Proposed: Same

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method: Monthly report filed with DEP by each Maine municipal wastewater treatment plant.

Frequency: Monthly

AVAILABLITY:

Contact: George Gormley, Director of Bureau of Water Quality Control or Dennis Purington, Chief, Division of Municipal Services

Procedures: All data is public information

Costs: Photocopying costs

COMMENTS:

9. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Land Use Regulation Commission
State House
Augusta, Maine 04330

FILE NAME: File of Applications for Building Permits, Subdivision Permits, and Development Permits in Maine's Unorganized Territories

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Upland; Lakes and Ponds; Freshwater Wetlands; Riverine; Coastal; Estuarine;

Disciplinary Field: Pedology; Pollution; Land Use; Water Supply;

Index Terms: PEDOLOGY; POLLUTION; LAND USE; WATER SUPPLY (for complete list of data required see attached forms)

Geographic Location or Extent

Present: Unorganized territories in State of Maine

Proposed:

Study Unit: parts of unorganized territories undergoing development

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those wishing to develop land in Maine's unorganized territory must file for a permit from LURC

Frequency:

AVAILABLITY:

Contact: James Haskell, Director of LURC

Procedures:

Costs:

COMMENTS:

4. Data Files (cont.)

Same as above)

TATE AGENCY

tate House, Augusta, Maine 04330

AND USE; POLLUTION; SOILS; WATER USE; PLANNING

LE OF APPLICATIONS FOR BUILDING PERMITS, SUBDIVISION PERMITS, AND DEVELOPMENT PERMITS IN MAINE'S UNORGANIZED TERRITORIES.

) Building permits application includes information on water on property, distance of building from it, source of water, disposal of human waste, was water, and rubbish, a before and after plan, a location map, and a soil investigation of the site; (2) subdivision permit application includes information on water on property, source of water supply, methods of sewage disposal, rubbish disposal, location map, site plan, preliminary subdivisio plan, legal restrictions on buyers, soils map and on-site soils investigatic on lots where on-site sewage disposal planned, plans for central sewage system if so proposed, structures plan; (3) development permit application includes information on water on property, source of water supply, methods waste water disposal, solid waste and airborne waste problems, location map site plan, development plan, soils map, plans for waste disposal system if planned, on-site soil investigation if underground sewage disposal planned, and structures plan.

gather necessary data on which to make a judgment for suitability of development plans in Maine's unorganized territories.

mmission's use.

mmission's files.

ine's unorganized territories.

going file.

10. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Health and Welfare

FILE NAME:

records kept by Public Health Laboratory on samples sent to them by Maine citizens who wish to test the quality of their water supply

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Lakes and Ponds; Groundwater Estuaries; Coastal

Disciplinary Field: Pollution

Index Terms: Pollution: Water Quality; bacterial

Geographic Location or Extent

Present: State of Maine

Study Unit:

Proposed:

Period of Data Coverage:

From:

To: Ongoing service

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: water samples sent to Laboratory by Maine citizens

Frequency: n/a

AVAILABLITY:

Contact:

Procedures:

Costs:

COMMENTS:

10. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Health and Welfare

FILE NAME:

Quality of Maine's Public Water Supplies

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Lakes and Ponds; Groundwater

Disciplinary Field: Water Supply and Quality

Index Terms: Water Supply: surface water; groundwater

Geographic Location or Extent State of Maine

Present: Study Unit:

Proposed:

Period of Data Coverage:

From: 1963

To: ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: water companies send in water samples to Department's Laboratory where they are checked for various qualities

Frequency: twice a year

AVAILABLITY:

Contact: Mr. Howard, Health Engineering, Maine Department of Health and Welfare

Procedures: information is available to public

Costs:

COMMENTS:

12. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Marine Resources

FILE NAME:
Bacteriological monitoring of shellfish on Maine Coast

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Coastal

Disciplinary Field: Biology; Pollution

Index Terms: Biology: Marine terrestrial
Pollution: Bacterial

Geographic Location or Extent

Present: State of Maine Coast: all shellfish areas **Study Unit:**

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method:

Frequency:

AVAILABLITY:

Contact: John Hurst
Department of Marine Resources
Procedures: West Boothbay Laboratory

Costs:

COMMENTS:

18. Data Files

INSTITUTION/ORGANIZATION (location):

Bangor Hydro-Electric Company
Bangor, Maine

FILE NAME: Flow Rates on Penobscot River

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Hydrology

Index Terms: HYDROLOGY: Discharge Rates

Geographic Location or Extent

Present: see attached list

Study Unit: see attached list

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency: see attached list

AVAILABLITY:

Contact:

Procedures:

Costs:

COMMENTS:

19. Data Files (cont.)

(Same as above)

INDUSTRY

Bangor, Maine

HYDROLOGY: WATER CHARACTER

Flow rates on Penobscot River

Location	Activity
Medway Plant	Hourly head-and tailwater gaging
West Enfield Plant	Daily head-and tailwater gaging
West Enfield below Piscataquis	Continuous surface elevations
Milford below Sunkhaze	Continuous surface elevations
Milford Plant	Hourly head-and tailwater gaging
Stillwater Plant	Daily head-and tailwater gaging
Orono Plant	Daily head and tailwater gaging
Veazie	Hourly head-and tailwater gaging

(perform frequency distribution analyses of head and discharge)

Flow measurement for purposes of running hydro-electric installations.

Bangor Hydro-Electric Company

(See above)

(See above)

20. Data Files

INSTITUTION/ORGANIZATION (location):

Portland Water District
16 Casco Street
Portland, Maine 04104

FILE NAME: Chemical Analysis of Water Supplies

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Lakes and Ponds; Other (Groundwater)

Disciplinary Field: Water Supply

Index Terms: WATER SUPPLY: Surface Water Studies; Groundwater Studies; Regional
(Parameters measured: Color; Turbidity; pH; Alkalinity; Total Hardness; Chloride; Iron; Manganese; Sodium; Silica; Sulfate; Nitrate; Nitrite; Ammonia; Phosphate; Fluoride.

Geographic Location or Extent

Present: Sebago Lake; Cumberland; Steep Falls; North Windham

Study Unit:

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency: Sanitary survey of Sebago Lake (in its entirety) is conducted every summer.

AVAILABLITY:

Contact: Mr. Mayberry, Portland Water District

Procedures:

Costs:

COMMENTS:

22. Data Files

INSTITUTION/ORGANIZATION (location):

Diamond International (Old Town, Maine): The Penobscot Company
Old Town, Maine

FILE NAME: Air and Water Monitoring of Diamond Internation Corporation (Old Town) Effluents

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Atmospheric

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; air quality (water monitoring instream measures: pH; BOD; Dissolved Oxygen; lignin; also monitoring of intake water)

Geographic Location or Extent

Present: Air Monitoring: company air shed Study Unit:
Water: 4 points Old Town Dam to Veazie Dam; intake water at Mill

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency:

AVAILABLITY:

Contact: Augustus Moody, Diamond International Corporation, Old Town

Procedures: Data unavailable for public scrutiny

Costs:

COMMENTS:

23. Data Files

INSTITUTION/ORGANIZATION (location):
Georgia Pacific
Woodland, Maine

FILE NAME: St. Croix Water Quality Monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine, Estuary

Disciplinary Field: Pollution (water)

Index Terms: POLLUTION: Water Quality; BOD; Point Sources

Geographic Location or Extent

Present: 4 stations: above and below Georgia Pacific outfall and two stations further downstream

Study Unit:

Proposed:

Period of Data Coverage:

From: 1963

To: Ongoing Program

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency:

AVAILABLITY:

Contact: Clinton VanCleve 427-3311 (Georgia Pacific)

Procedures: Data unavailable for public scrutiny

Costs:

COMMENTS:

24. Data Files

INSTITUTION/ORGANIZATION (location):

International Paper Company
Chisholm, Maine

FILE NAME:

Androscoggin River water quality monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Pollution (water)

Index Terms: POLLUTION: Water Quality; BOD; point sources

Geographic Location or Extent

Present: At, above, and below Jay, Maine Study Unit:

Proposed: mill site

Period of Data Coverage:

From: ongoing

To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: parameters: pH, BOD, dissolved oxygen, temperature, solids

Frequency: daily

AVAILABLITY:

Contact: T.E. Linder
Air and Water Improvement Manager

Procedures:

Costs:

COMMENTS:

25, Data Files

INSTITUTION/ORGANIZATION (location):

Scott Paper Company
Winslow, Maine

FILE NAME:

Kennebec River water quality monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; point sources

Geographic Location or Extent

Present: Kennebec River: just north of Winslow Mill to Dresden

Proposed:

Study Unit:

Period of Data Coverage:

From: in summer make a sampling run every week; in winter: once a month

To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: parameters: BOD, dissolved oxygen, temperature, pH, nutrients, turbidity, Pearl-Benson Index, nitrates, phosphates (nitrites close to zero so no longer sample for this)

Frequency:

AVAILABLITY:

Contact:

Procedures:

Costs:

COMMENTS:

29. Data Files

INSTITUTION/ORGANIZATION (location):

Oxford Paper Company
Rumford, Maine 04276

FILE NAME:

Androscoggin River water quality monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; point sources

Geographic Location or Extent

Present: 16 locations on the Androscoggin River between Berlin, New Hampshire and Lewiston, Maine

Proposed:

Study Unit:

Period of Data Coverage:

From: each summer (May to October) once a week each Thursday

To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method:

Frequency:

AVAILABLITY:

Contact: Stuart R. Cooper
Director of Pollution Abatement

Procedures:

Costs:

COMMENTS:

C.6 DIRECTORY OF THE NEW ENGLAND CONSORTIUM ON ENVIRONMENTAL PROTECTION.

The New England Consortium on Environmental Protection (NECEP) is an unincorporated body formed by fourteen member colleges and universities in New England: Boston College, Boston University, Brown University, Dartmouth College, Harvard University, Lowell Technological Institute, Massachusetts Institute of Technology, Northeastern University, Tufts University, University of Maine, University of Massachusetts, University of New Hampshire, University of Vermont, and Worcester Polytechnical Institute. Its purpose is to stimulate educational programs and to provide information and assistance to the public, in the field of environmental protection. Organized in 1970, in response to encouragement from the National Air Pollution Control Administration, the Consortium has now expanded its concern from air quality programs to all environmentally-oriented efforts.

In 1973 the Consortium published the Directory of Investigators and Environmental Activities (Meadows, 1973). This 119 page report lists on-going environmental research at each of the member institutions including the department, the investigator, and the project. The listing is arranged by school in the first section and by project topic in the second, to facilitate cross-reference. Constant efforts will be made to keep the information current. Theodore H. Rider, Lowell Technological Research Institute Research Foundation, Lowell, Massachusetts is the managing director. A description of the resources file questionnaire is given on Table C.6-1.

C.7 U. S. ARMY CORPS OF ENGINEERS INVENTORY

The Center for Natural Areas formerly a part of the Smithsonian Institution recently completed for the U. S. Army Corps of Engineers an 800-page listing of agencies and organizations in the United States involved in conducting environmental impact inventories. Each entry provides the name of the person or organization responsible for the inventory, the address of the organization, and a brief description of the nature and extent of the inventory. A listing of relevant literature, and a computer printout are also included in the report.

In May, 1974 this report was submitted by the Center to the Army Corps of Engineers for duplication and distribution. Further specific information may be obtained from C. Grant Ash, Chief Environmental Resource Branch, Planning Division, DAEN-CWP-V, 1000 Independence Avenue, Washington, D. C., 20314. A table of contents of the report is reproduced on the following pages.

Table 6.6-1 RESPONSE AND UPDATE INFORMATION

Name_____ Institution_____

Department_____ Phone No._____

____The following corrections should be made in the Directory (indicate page number)

_____

____Please add the following information to the Directory_____

_____

_____

_____

____Please note the following address change_____

_____

____New information regarding the nature of my research work_____

_____

_____

_____

____Send ( ) additional copies of the Directory to_____

_____

____Send ( ) Directory questionnaires to_____

_____

General Comments:

Table C.6-1 (cont.) NECEP RESOURCES FILE QUESTIONNAIRE

1. Name: _____ Position: _____

   Department: _____ Telephone: _____

   Address: _____

2. Courses taught (Please give course title and number)

   _____

   _____

   _____

3. Following is a typical categorical breakdown in the fields of air and water quality and solid waste management. Place a ( ) mark in spaces appropriate to your current research activity. We are interested in expanding capabilities beyond these areas. If your work encompasses areas other than those delineated, please use part "D" to so indicate.

   A. Air Pollution:
      monitoring technology____
      source emissions control____
      atmospheric dispersion____
      health effects____
      vegetation effects____
      economic aspects____
      land use planning aspects____
      policy planning____
      other_____
      _____

   B. Solid Waste:
      disposal technology____
      recycling technology____
      economic aspects____
      land use planning aspects____
      policy planning____
      other_____

   C. Water Pollution:
      monitoring technology____
      treatment technology____
      diffusion and mixing____
      vegetation and wildlife aspects____
      economic aspects____
      water resource management____
      land use planning aspects____
      policy planning____
      other_____
      _____

Table C.6-1 (cont.) NECP RESOURCES FILE QUESTIONNAIRE (Continued)

D. Other (i.e., forestry, recreation, transport planning, legal aspects, energy resource management):

_____

_____

_____

4. The Consortium is interested in fostering student training and interdisciplinary research programs. As its scope of activity widens, funds may become available to provide support to on-going projects. Please indicate in which of the above fields you might like project support and/or student research assistance. (Information concerning activities relating to NECEP's 1973-74 projects can be supplied as it becomes available). _____

_____

_____

5. Give a brief description of current or potential projects and research interests related to environmental protection.

_____

_____

_____

_____

6. Would you be willing to supervise student research assistant(s) in connection with a project of yours?
Graduate students?_____ Undergraduate students?_____

7. Would you be willing to modify a current or potential project so that it would apply to a set of conditions specific to New England?_____

8. Do you desire more information on the New England Consortium on Environmental Protection? Specify, if possible_____

_____

_____

_____

9. If you are involved with any special project, please supply a brief description of that project. If possible, attach a statement of capability for any Laboratories, Institutes, or Centers.

10. Please list names of additional faculty who might be interested in being contacted.

_____

_____

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH

These definitions, developed cooperatively by the Smithsonian Science Information Exchange and the Environmental Protection Agency, were used in the preparation of the Environmental Protection Research Catalog.

1. Air Quality

   A. Emission Sources

      Research concerned principally with sources of air pollution including types, industries, materials, and processes.

   B. Effects - Human

      Medical and epidemiological studies; laboratory animal studies and other biological effects research relating to effects of air pollution on man.

   C. Effects - Animal, Plant, and General Environment

      Studies of air pollution effects on livestock, vegetation, crops, materials, and structures. Includes deterioration, corrosion, and other deleterious effects.

   D. Economic Aspects

      Includes losses from pollution damage and costs of control programs.

   E. Legal, Administrative, and Social Aspects

      Air quality research concerned with standards, management, social attitudes, legislation, and related subject areas.

   F. Control Methods

      Equipment, abatement, and operations relating to air quality control.

   G. Measurements

      Instrumentation, air pollution monitoring, and identification of pollution sources.

   H. Basic Research

      Basic chemical and physical properties of pollutants. Theoretical and laboratory studies concerned with air pollutant formation, identify, and effects.

Table C.6-1 (cont.)

DEFINITION OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

2. Water Quality

A. Sources of Pollution

Projects concerned primarily with the origin of a water pollutant (e.g., eutrophication, environmental cycling, runoff-erosion-sedimentation). Includes unusual pollutant sources or special interest sources (e.g., oil spills, trace element pollution, rain-atmospheric washout, radioactive fallout, dredging).

B. Pollution Identification

Measurement, monitoring, bioassay, bioindicators, and instrumentation. Includes ecological baseline studies, prediction and forecasting of water pollution potential.

C. Water Treatment

Physical management or treatment applied to poor quality water before utilization. Includes chlorination for potable water and related sanitation measures.

D. Water Management and Pollutant Dispersal

Dispersal of effluents, hydrologic mixing, disposal on soil waste fields, dilution of pollutants, assimilative capacity, ocean dispersion, self-purification. Includes management of polluted natural waters to improve quality.

E. Waste Treatment

Includes sewage, sludge, or wastewater treatment techniques or processes, waste reuse, recycling, or related commodity development.

F. Pollution Effects

Ecological, physiological, and physical effects of water pollution. Includes environmental degradation.

G. Societal Implications, Management, and Other Aspects of Water Pollution

Legislation, administration, standards, socio-economic studies, government relations, planning, protection and miscellaneous environmental pollution studies.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

3. Solid Waste Management

A. Agricultural Sources

Animal feedlot residues, plant waste, farm domestic wastes, manure disposal.

B. Industrial Sources

Includes processing slurries, spoil banks, ash, mine refuse.

C. Municipal Sources

Garbage, litter, junk, and trash.

D. Collection, Transportation, Processing and Disposal Methods

Includes incineration, ocean dumping, sewage treatment and processing, sanitary landfill management, sludge application to croplands.

E. Recycling and Utilization

Byproduct development, reprocessing, conservation of raw materials, and other related studies.

4. Pesticides

Undesired residues and effects

A. Air or Water Environments

Aerial drift, atmospheric contamination, or aquatic environmental cycling of pesticides.

B. Soil Environment

Unwanted pesticide residues and persistence in soils.

C. Adverse Effects on Plants

Includes nontarget phytotoxicity, degenerate morphological effects, and crop yield reduction.

D. Adverse Effects on Animals and Man

Includes toxicity, reduction in reproduction rates, survival of nontarget wildlife, and food chain cycling.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

E. Adverse Effects on the General Environment

Nonspecific studies on the animal and plant community and habitat. General ecological effects, material effects.

F. Analysis, Monitoring, and Instrumentation

Residue analysis, long-term monitoring, or pesticide detection techniques and instrumentation.

5. Radiation

Nondesired radiation and effects.

A. Sources

Primary sources of radiation detrimental to human health, animal or plant communities, materials, or the general environment. Includes ultraviolet, radioactive isotopes, electromagnetic, and radiation sources in general.

B. Effects

Physical, chemical, and biological injury. Medical studies utilizing radiation are excluded.

C. Measurement

Instrumentation, dosimetry, monitoring, equipment. Includes bioindicators.

6. Noise

A. Air Transportation

Sources such as airports, airplanes, and related equipment.

B. Surface Transportation

Trains, automobiles, tractors, buses, trucks, and highway noise in general.

C. Urban and Industrial Sources

Includes construction, factory noise, home environment, and office noise.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

D. Aquatic Environment

Ambient underwater noise such as underwater construction and vehicular (submarine) sounds.

E. Effects, Measurement, and Equipment

Effects of noise on behavior, physiology (deafness), and ecology; instrumentation and techniques; monitoring.

Table C.6-1 (cont.)

BOARD OF DIRECTORS

UNIVERSITY	BOARD MEMBERS	PHONE NO.
Boston College	Dr. George Goldsmith	617 969-0100 X2237
Boston University	Prof. Guy C. McLeod	617 742-8830 X70
Brown University	Dr. Harold R. Ward	401 863-2321
Dartmouth College	Prof. Edward S. Brown	603 646-2227, 2236
Harvard University	Dr. Dade W. Moeller	617 734-3300 X540
Lowell Technological Institute	Dr. Pasquale Marino	617 454-7811 X363
Massachusetts Institute of Technology	Prof. William H. Matthews	617 253-1997
Northeastern University	Dr. Constantine J. Gregory	617 437-2444
Tufts University	Dr. N. Bruce Hanes	617 628-5000 X442
University of Maine	Dr. Millard W. Hall	207 581-7092
University of Massachusetts	Dr. Lawrence Ambs	413 545-0948
University of New Hampshire	Dr. Alexander R. Amell	603 862-1550
University of Vermont	Dr. Carl Reidel	802 656-2685
Worcester Polytechnic Institute	Dr. Imre Zwiebel	617 253-1411 X372
Managing Director	Mr. Theodore H. Rider	617 458-2501 X35

Reference Cited

Meadows, C. Edwin, Jr. 1973. Directory of investigators and environmental activities. Under auspices of New England Consortium on Environmental Protection on EPA Grant T-900258.

COPY

STATE ENVIRONMENTAL INVENTORY ACTIVITIES: A GUIDE TO INDIVIDUALS, INFORMATION SOURCES, AND SELECTED LITERATURE IN FORTY-FOUR STATES

Sponsored By:

Office of the Chief of Engineers
Department of the Army
Washington, D.C.

Contract No. DACW73-73-C-0073
Dated 22 February 1973

SMITHSONIAN INSTITUTION

OFFICE OF INTERNATIONAL AND ENVIRONMENTAL PROGRAMS

Center for Natural Areas

Washington, D.C.

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C.8 NEWS STUDY (NORTHEASTERN U. S. WATER SUPPLY STUDY) U. S. ARMY CORPS OF ENGINEERS

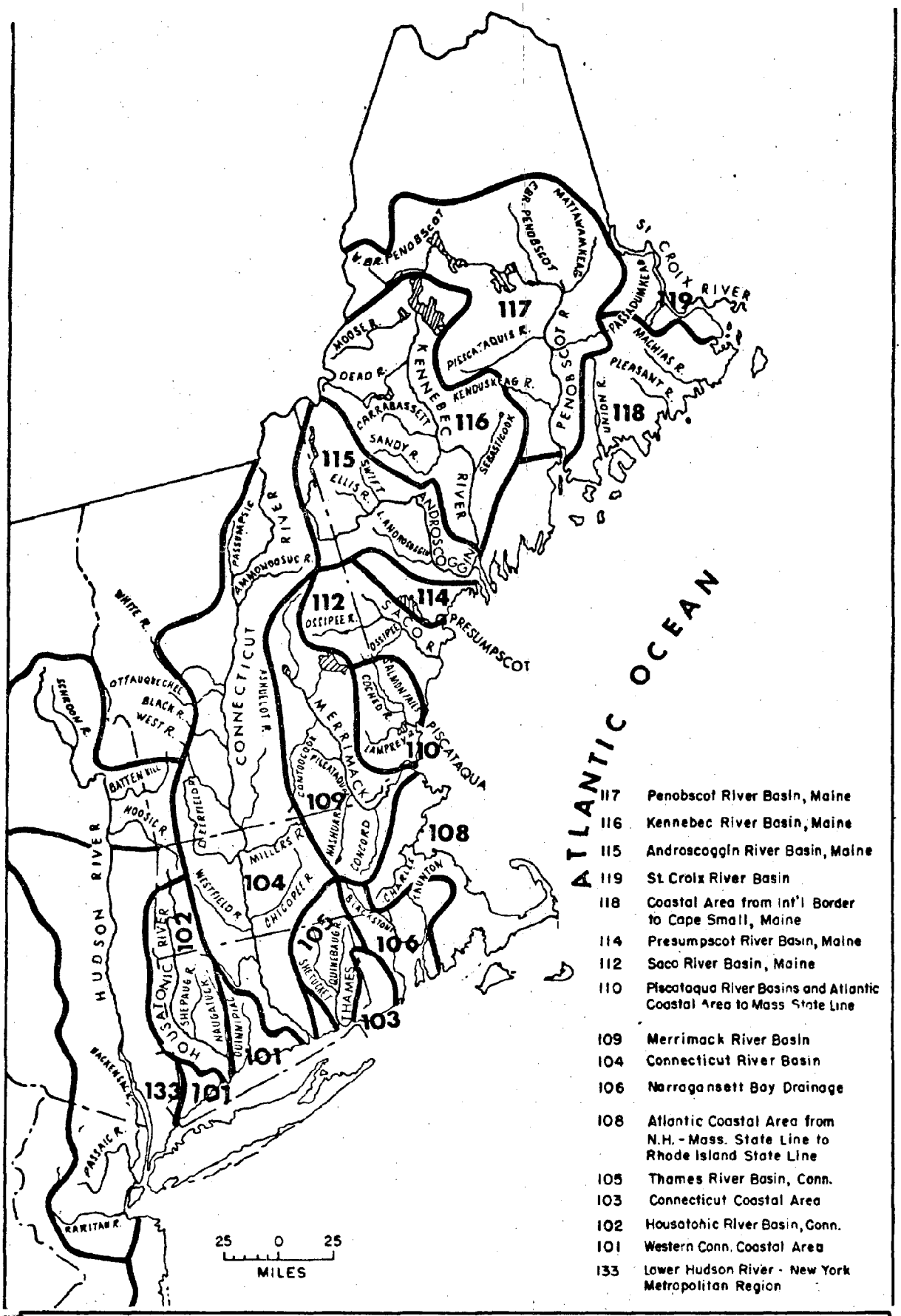
In response to the New England drought of the 1960's, the 89th Congress authorized the Northeastern United States Water Supply (NEWS) Study on October 27, 1954, under Title I of Public Law 89-298. The study is yet ongoing, and is intended to assure adequate supplies of water for the metropolitan centers which had experienced problems during the drought. It includes those river basins in the U. S. which drain into Chesapeake Bay, the Atlantic Ocean north of Chesapeake, the St. Lawrence River, and Lake Ontario (see Figure C.8-1 and C.8-2).

Priorities for problem areas have been established on the premise that work will be done first in areas in which projected demands for water in 1980 will probably exceed supply capabilities. Areas in this category are:

Eastern Massachusetts - Rhode Island
Northern New Jersey - New York City - Western Connecticut
South Central Pennsylvania
Metropolitan Washington, D. C.

Studies completed and ongoing are listed in Table C.8-1.

A second priority effort, called the "Long-Range Study", has been undertaken involving an evaluation of areas not seriously affected by the 1960's drought, but which could be potential problem areas by 2020. The study was conducted by Anderson-Nichols and Company, Inc., and a series of draft reports issued, dated November, 1971. Table C.8-2 lists the areas considered in these reports, within the BLM study region. More detailed information on the project may be obtained by contacting the North Atlantic Division, Corps of Engineers, 90 Church Street, New York, New York 10007 (Telephone 212-264-7508).



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIGURE C.8-1 | Major Watersheds

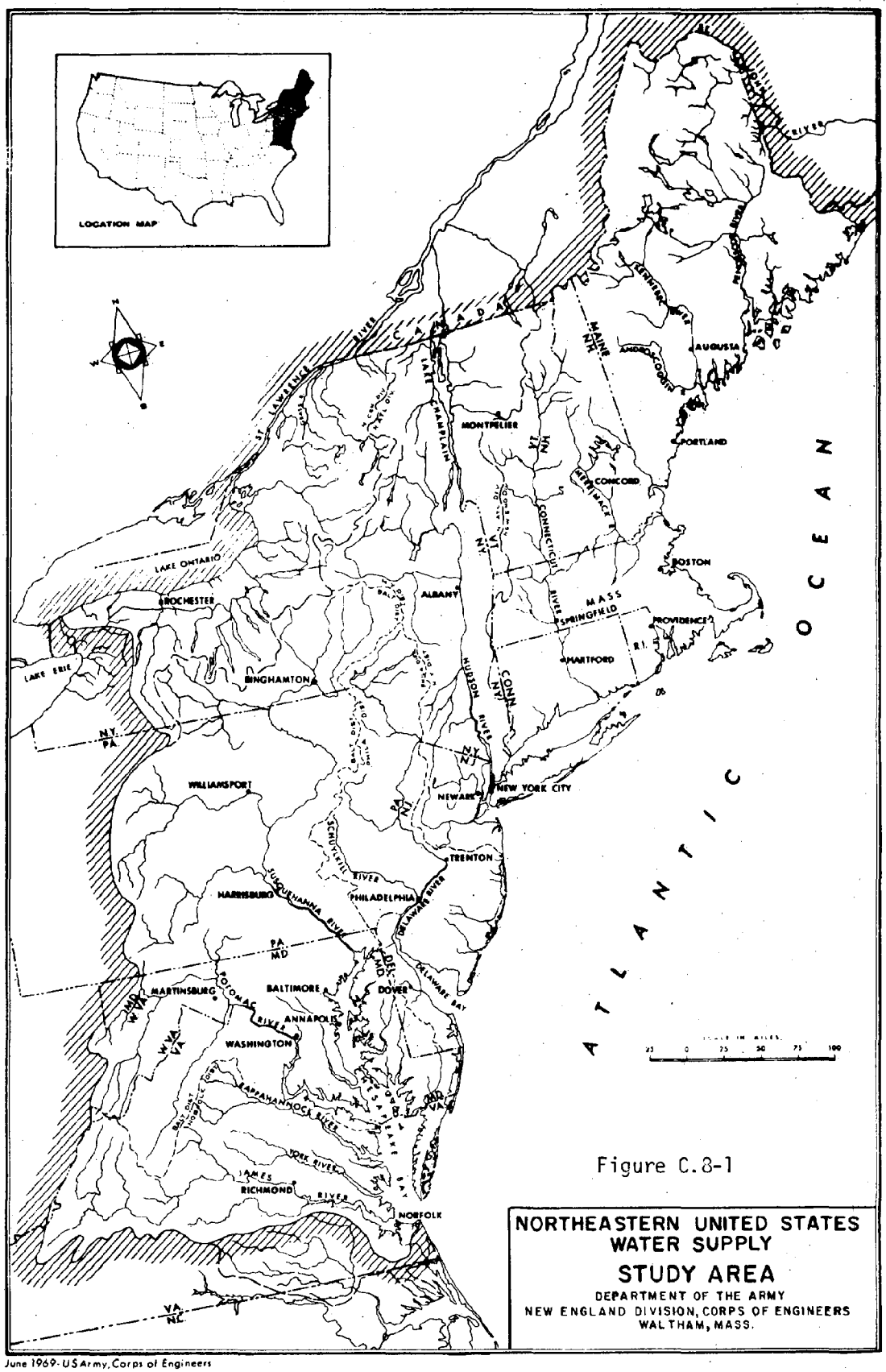


Figure C.8-1

June 1969-US Army, Corps of Engineers

A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRICOM PARC	FIGURE C.8-2	Northeastern U.S. Water Supply

Table C.8-1
NORTHEASTERN U.S. WATER SUPPLY STUDY

NEW YORK METROPOLITAN AREA:

1. Surface Water Supply Capabilities of Northern New Jersey River Basins, December 1968. The objective of this study was to obtain firm yields, for various drought occurrences, of the surface water supply systems within the Hackensack, Raritan, Passic, Navesink, and Shark River basins. Considerations included firm yields of these systems, employing current operating rules and procedures; improvements in yield obtainable by relaxation or modification of various operating constraints; and yield improvement associated with construction of new facilities. (copies unavailable)

2. Engineering Feasibility Report on Alternative Regional Water Supply Plans for the Northeastern New Jersey-New York City-Western Connecticut Metropolitan Area (Joint Venture) (Metcalf & Eddy-Hazen & Sawyer) November 1971 Reprinted May 1973. This investigation was performed to develop feasible engineering alternatives for water supply systems to meet the domestic and industrial water needs of the study area to the year 2020. It was specifically stipulated that the selection of alternatives be based solely on engineering considerations, without regard to restrictions of law, jurisdictional authority, boundary limits, or details of project financing. Nearly 50 water supply projects were described, of which fourteen were examined in detail; from the latter, seven illustrative regional water supply programs were composed and displayed. ($9.75).

3. Organizational, Legal, and Public Finance Aspects of Regional Water Supply (Institute of Public Administration) July 1972. This report investigated the legal, institutional and economic issues involved in regionalization of public water supply in the New York and southwest New England NEWS Study Areas, and presentated alternative general institutional frameworks for regional water supply management. ($5.00).

4. Effect on the Environment of Regional Water Supply Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (The Center for the Environment and Man, Inc.) November 1972. This report contains an overview and preliminary analysis of probable environmental impacts for the fourteen projects used to develop the seven regional programs described in the Joint Venture report, assuming maximum development of facilities for water supply (which would not necessarily be the case). The report describes qualitative rather than quantitative impacts and does not attempt to rank projects by their impacts. ($3.75).

Table C.8-1 (cont.)

5. Water Supply: Wastewater Management Aspects for Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Nebolsine, Toth, McPhee Associates) June 1973
The objective of this study was to perform a survey of the existing legislation, programs, water quality and future quality conditions of water sources of the study area and the Delaware, Hudson and Housatonic River Basins, and to examine programs to protect or enhance quality of alternative water supply sources which may be utilized to meet the projected needs of the New York Metropolitan Study Area. This work was developed at a low level of detail, utilizing existing data. ($4.25).

6. Further Development of Regional Water Supply Development Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Parsons, Brinckerhoff, Quade, Douglas, Inc.) June 1973
The objective of this contract is to develop additional project alternatives and illustrative regional programs for water supply in the New York Metropolitan Study Area, supplementary to the work in the Joint Venture study, and to prepare a computer programming algorithm to serve as a tool for analysis of additional regional programs by the contracting agency. ($1.50)

7. Legal, Institutional and Cost Sharing Requirement for Implementing Water Supply Projects in the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Booz, Allen Public Administration Services, Inc.) June 1973
The purpose of this study was to further examine the legal, institutional cost-sharing requirements for the implementation of both individual projects and regional programs of projects for water supply in the New York Study Area. ($2.00)

8. Development of a Regional Multiple-Objective Evaluation Framework and Program for Public Information and Involvement in Planning for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area. The purpose of this study is to develop a general regional multi-objective evaluation framework with the attendant plan formulation process, and to apply this framework to the seven illustrative regional programs for the New York Study Area developed in the Joint Venture report. Pursuant to the plan formulation process, a program for public information and involvement is being developed for the New York Study Area. (To be published)

Table C.8-1 (cont.)

9. Hydrologic and Hydraulic Studies for Regional Water Supply Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area. The objective of this study is to develop hydrologic and hydraulic information to be utilized in refining and detailing regional water supply alternatives, including a hydrologic analysis of the upper Hudson River Basin, a hydraulic analysis of the New York Water Supply System and an analysis of the interconnections between water systems. These studies are three separate analyses which are to be treated independently of one another. (To be published)

10. Wastewater-Total Resource Management Program for Long Island. The objective of this study is to evaluate the feasibility of implementing a wastewater-total resource management program for Long Island, N.Y., which would eventually combine a nuclear power plant, a waste treatment facility and a land application system and/or other methods of waste heat utilization for the overall purpose of system efficiency and improvement of water supply management on Long Island. (To be published)

SOUTHEASTERN MASSACHUSETTS - RHODE ISLAND

1. Millers River Basin Water Supply Project, March 1973. New England Division, Corps of Engineers. A study of southeastern Massachusetts and Rhode Island which concludes with a recommended water supply project. 4 volumes

Source: U.S. Army Corps of Engineers, written communication, 1973.

Table C.8-2
Long - Range Study Areas

Maine
- Bangor
- Lewiston-Auburn
- Portland

New Hampshire
- Manchester
- Nashua

Massachusetts
- Pittsfield

Connecticut
- New London-Groton-Norwich
- New Britain
- Bristol
- Hartford

New York
- Albany-Schenectady-Troy
- Utica-Rome
- Syracuse
- Rochester
- Binghamton
- Elmira

New Jersey
- Trenton
- Atlantic City
- Vineland

Source: U.S. Army Corps of Engineers, 1971.

C.9 NEW ENGLAND RIVER BASINS COMMISSION COMPREHENSIVE STUDIES

C.9.1 SOUTHEASTERN NEW ENGLAND STUDY (SENE)

The Southeastern New England Water and Related Land Resources Study is a comprehensive federal-state planning effort for the most densely populated area of New England (see Figure C.9-1). The study covers nearly all of Rhode Island, about forty percent of Massachusetts, and a small part of Connecticut. The New England River Basins Commission, under the authority of the Water Resources Planning Act of 1965, is the coordinator. The objective of the study is the formulation of a plan for managing the water and related lands of the region, developed through the optimization of two alternatives: one emphasizing economic and one emphasizing environmental concerns. The plan is being developed through a series of phases, listed below:

(1) Develop environmental and socio-economic framework;

(2) Develop resource inventory and analysis;

(3) Formulate preliminary single-purpose alternative plans;

(4) Formulate preliminary multi-purpose alternative plans;

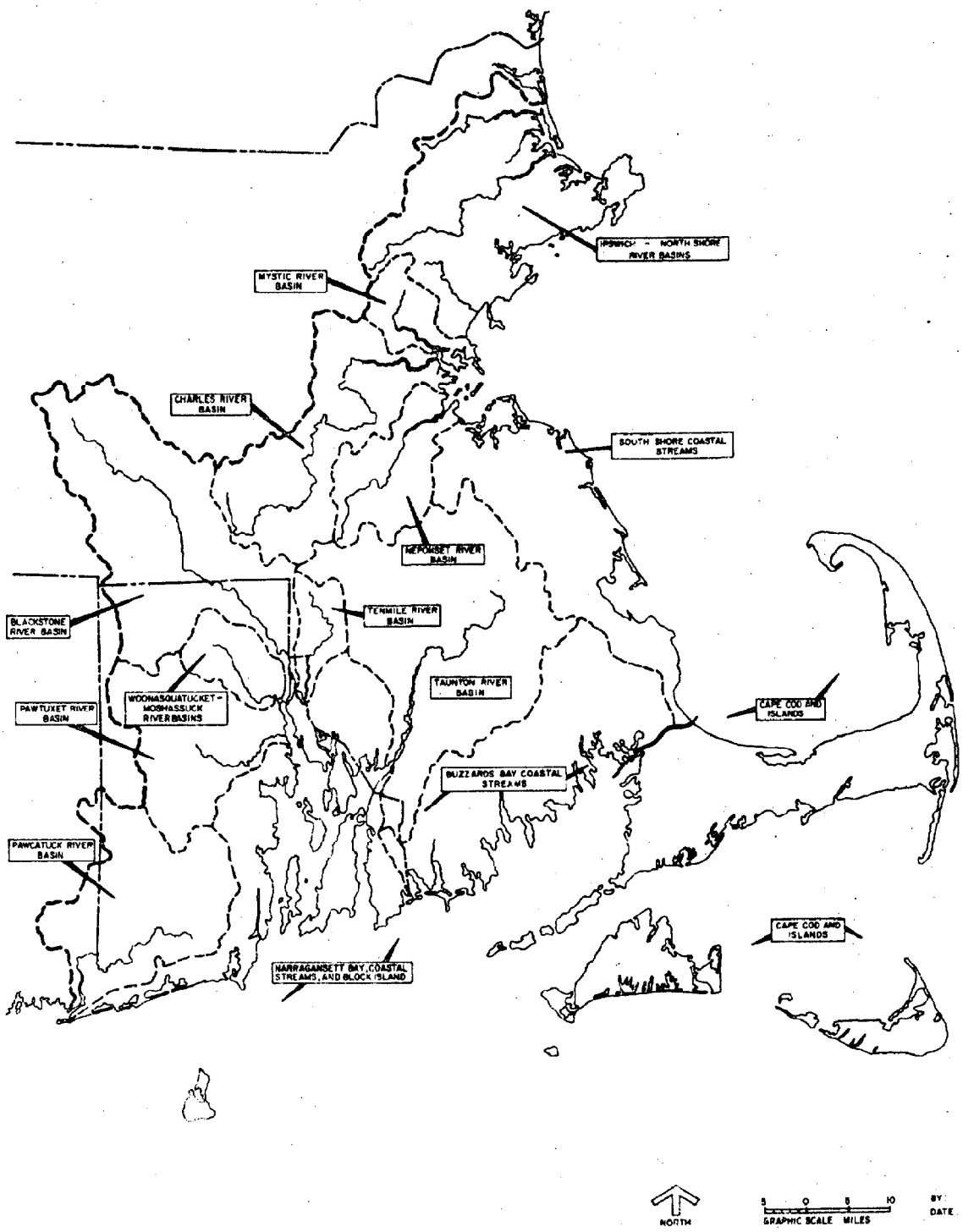
(5) Review and refine preliminary multi-purpose alternatives;

(6) Produce a best economic and a best environmental plan and formulate a recommended plan; and

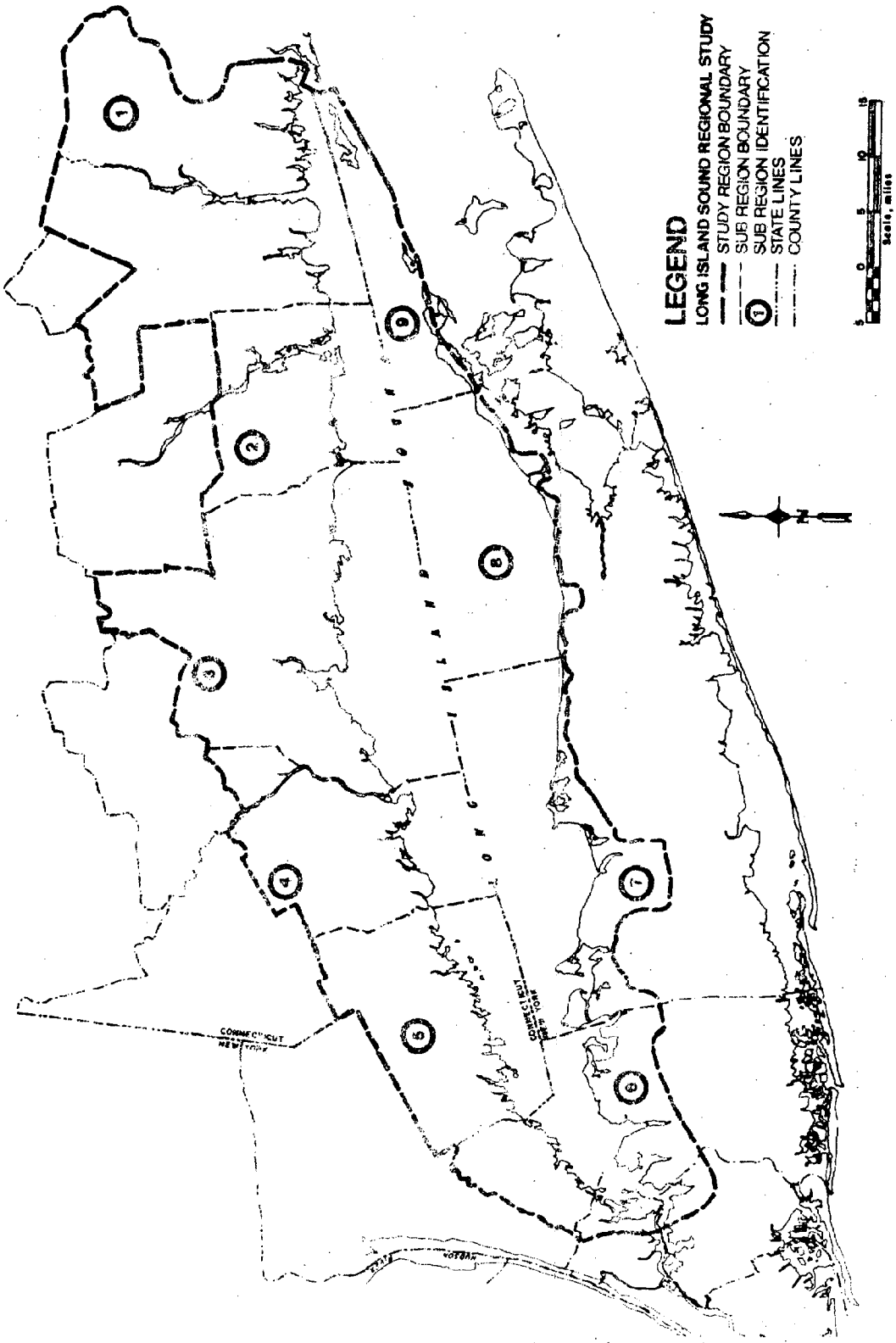
(7) Review and transmit recommended plan with major economic and environmental plans detailed to provide a basis for choice.

Progress on the study is reported by NERBC in their 1973 Annual Report:

> During the past year, SENE study participants pursuing this comprehensive approach, have been collecting information and analyzing resource issues for each of ten major basin planning areas in the region. For each basin, a team of state and federal resource agency professionals and SENE staff planners prepared reports on fifteen individual resource issues. Some of the issues covered included flood plain and groundwater management, coastal and wetlands resources, recreation, water supply, water quality power, navigation, transportation, fish and wildlife, minerals and others. Information on each of these issues has been placed on maps large enough to permit identification and comparison of resources between towns and thus allows problems and conflicts to be seen from a regional point of view.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE C.9-1	Major Drainage Areas Mass. and R.I.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIGURE C.9-2 | Long Island Sound Study Regions

A full listing of single purpose reports on file is included in Table C.9-1. Descriptions of the information supplied by these reports are contained in Table C.9-2.

To date, published materials for the study include a two volume "Plan of Study" (1972), by NERBC staff; a "Survey of State and Regional Planning Studies" by Rhode Island Statewide Planning (1972); an annotated bibliography (NERBC, 1971a) and a series of interim reports, including "An Initial Assessment of the Deepwater Coastal Zone" (NERBC, 1971b), an "Environmental Base Study" by the University of Massachusetts Department of Landscape Architecture and Regional Planning (1972), and a two volume "Socio-Economic and Environmental Framework" report (NERBC, 1973a).

C.9.2 LONG ISLAND SOUND STUDY (LISS)

The Long Island Sound Regional Study is a comprehensive planning effort by federal government, and New York and Connecticut, led by the New England River Basins Commission. The study area is shown on Figure C.9-2. The goal of the study is "to produce a plan of action by January, 1975, which balances the needs to protect, conserve and wisely develop the Sound and its related shorelands as a major economic and life-enriching resource for the 12 million people who live near it." The study, similar in nature to the SENE Study, has completed its inventory stage and has published a "Bibliography for Planning" (NERBC, 1973b) and a series of interim reports including the following:

Soils (NERBC, 1973c)
Sources and Movements of Water (NERBC, 1973d)
Erosion and Sedimentation (NERBC, 1973e)
Recreation (NERBC, 1973f)
Mineral Resources and Mining (NERBC, 1973g)
Electric Power Generation (NERBC, 1973h)
Flood Plains (NERBC, 1973i)
Scenic and Cultural Resources (NERBC, 1974b)
Water Supply (NERBC, 1973c)
Water Quality (NERBC, 1974d)
Transportation (NERBC, ?)
Land Use (NERBC, ?)

These reports are summaries of more extensive reports prepared by a variety of federal and state agencies, on file at the New Haven NERBC offices in Connecticut.

Table C.9-1 Single Purpose Reports of the SENE Study

STUDY ELEMENT

1.00 Environmental and Socio-Economic Framework

2.00 Water & Related Land Supply & Availability Rels.
- 2.01 Climate, Meteorology, Hydrology, Water Quality, Geology & Groundwater Availability
- 2.02 Related Land

3.00 Water & Related Land Needs & Action Programs
- 3.01 Flood Plain & Streamflow Mgmt.
- 3.02 Water Quality Control
- 3.03 Groundwater Management
- 3.04 Water Supply
- 3.05 Land Use Patterns, Allocations & Mgmt.
- 3.06 Special Environmental Factors
- 3.07 Fish & Wildlife
- 3.08 Outdoor Recreation
- 3.09 Inland Wetlands Management
- 3.10 Navigation
- 3.11 Coastal Resources
- 3.12 Power
- 3.13 Minerals
- 3.14 Irrigation and Drainage
- 3.15 Sediment and Erosion
- 3.16 Health Aspects

4.00 Legal and Institutional Framework

5.00 Special Studies
- 5.01 Urban Waters
- 5.02 Coastal Zone

6.00 Water Resource Program Elements & Alternatives

Public Participation

Early Management Recommendations Task Force

Overall Management and Coordination

Source: NERBC, 1972. Southeastern New England Water and Related Land Resources Study, Plan of Study. NERBC, Boston

Table C.9-2 Description of Study Elements

1.00 ENVIRONMENTAL AND SOCIO-ECONOMIC FRAMEWORK
Information will be provided on the environmental and socio-economic characteristics of the SENE area to all study participants for orientation and use in the development of their particular study elements. These characteristics will be projected under specific assumptions in order to develop alternative futures as they may occur under the two proposed resource analyses.

2.01 CLIMATE, METEOROLOGY, HYDROLOGY, WATER QUALITY, GEOLOGY AND GROUNDWATER AVAILABILITY
This background material will provide a quantitative-qualitative description of existing opportunities and constraints useful to all study participants for evaluating and planning water resources in the SENE region.

2.02 RELATED LANDS
General identification, classification and assessment of the relationships existing between flood plains, shoreline, wetlands, ground water recharge areas, etc., and existing and presently proposed land use patterns and general soils and soils limitations data and maps (+) in the study area.

3.01 FLOOD PLAIN AND STREAMFLOW MANAGEMENT
Hydrologic analysis
High and low steramflow pattern evaluation
Flood plain identification
Identification of flood plain land use patterns
Identification of potential water storage impoundments
Natural valley storage area, identification estimates of surface water discharges necessary for wetlands maintenance
Evaluation of loss of natural valley storage areas resulting from increased urbanization
Flood plain and streamflow management programs including flood plain regulation and flood flow, low flow regulation and augmentation

3.02 WATER QUALITY CONTROL
Present water quality identification
Pollution point/non point source information
Combined sewer identification
Identification of water pollution control (plants and other abatement practices)
Analysis of preservation of existing high quality areas (land use and subsurface disposal)
Estimates of streamflow requirements for environmental enhancement
Factors effecting water quality and forecasts of anticipated change
Assessment of proposed water quality
Proposals for water quality programs and alternatives

Table C.9-2 (cont.)

3.03 GROUNDWATER MANAGEMENT
- Study of surficial geology
- Aquifer and recharge area identification
- Identification of groundwater occurrence availability and quality
- Identification of quantity and quality controlling relationships between groundwater and surface water
- Estimates of groundwater use and land use conflicts (subsurface disposal constraints)
- Proposals for groundwater programs and alternatives for achieving sound management of quality and quantity

3.04 WATER SUPPLY
- Identification of surface and groundwater potential-quantity, quality
- Identification of municipal and industrial sources and use
- Analysis of existing plans
- Identification of water quality aspects important to supply
- Identification of existing interbasin transfer - quantity and quality
- Forecasts of future needs
- Forecasts of interbasin transfer requirements
- Proposals for water supply programs and alternatives - individual, regional major regional

3.05 LAND USE PATTERNS, ALLOCATIONS AND MANAGEMENT
- Identification of present land use patterns
- Analysis of land use relationship to water resources management
- Projection of future land uses
- Development of alternative land use management plans providing linkage to water related land system

3.06 SPECIAL ENVIRONMENTAL FACTORS
- Identification of unique ecological, aesthetic, cultural, natural and environmental values
- Identification, classification and evaluation of the visual and cultural environment in quantitative terms
- Projected environmental holding capacity
- Projected impact of growth on the visual and cultural environment, locationally and quantitatively
- Proposals for enhancement and protection of environmental factors

3.07 FISH AND WILDLIFE
- Fresh and salt water fishery inventory
- Identification, recreation and commercial fishery values
- Wildlife inventory and habitat identification
- Identification of land acquisition and management requirements for habitat and access
- Estimates of streamflow requirements
- Estimates of water quality requirements
- Management recommendations

Table C.9-2 (cont.)

3.08 RECREATION
- Identification of federal, state, and private recreation facilities
- Analysis of recreation supply-demand relationships
- Water quality-recreation conflict identification
- Identification of streamflow, and water quality and land requirements
- Estimates of current and future outdoor recreation needs
- Development of recreation programs and alternatives

3.09 INLAND WETLANDS MANAGEMENT
- Location of wetlands by towns
- Identification of wetlands for flood control, groundwater, fish and wildlife, recreation, water quality, and unique ecological values
- Estimates of wetland water level requirements for waterfowl management
- Evaluation of wetlands as natural valley storage areas
- Evaluation of wetlands as groundwater recharge areas
- Proposals for wetland programs and alternatives

3.10 NAVIGATION
- Identification of navigation activity
- Identification of port, harbor, and waterway capabilities
- Analysis of impact of navigation on SENE area and coastal zone
- Projected navigational demands
- Possible alternative navigational improvements and impacts
- Proposals for navigation programs and alternatives

3.11 COASTAL RESOURCES
- Inventory of coastal wetlands, coastal shorelines, estuarine, and near shore areas, and special coastal resource values
- Determination of unique ecological, recreational, aesthetic, industrial and commerical values
- Future needs based upon population densities and distribution
- Recommendations for alternative coastal management, improvement, and protection programs

3.12 POWER
- Presentations and selection of types of prime movers
- Identification of condenser water requirements
- Suggested transmission routing and power siting
- Identification of power plant siting criteria and evaluations
- Alternative forecasts of power supply
- Development of alternative power management programs

3.13 MINERALS
- Identification of existing mineral production areas
- Identification of potential mineral production areas including submarine
- Indicate effect of urbanization on mineral resources
- Indicate water requirements
- Indicate economic and environmental implications of land use conflicts
- Development of suggested mineral resource management alternatives recognizing economic and environmental considerations

Table C.9-2 (cont.)

3.14 IRRIGATION AND DRAINAGE
Existing agricultural irrigation and drainage activity inventory
Identification of potential agricultural and non-agricultural irrigation and drainage activity
Drainage problem area identification
Estimates of supply, demand, and future irrigation and drainage needs
Proposals for irrigation and drainage programs and alternatives

3.15 SEDIMENT AND EROSION
Identification of sediment sources
Analysis of sediment transport and disposition
Identification and erosion activity
Future problems caused by factors contribution to excessive rates of erosion and sedimentation
Development of sediment and erosion programs and alternatives

3.16 HEALTH ASPECTS
Identification of vector control measures
Analysis of water supply aspects including water borne disease
Identification of present and potential health
Need for contemplated health aspect programs
Development of health programs and alternatives

4.00 LEGAL AND INSTITUTIONAL FRAMEWORK
(not all of the following are identifiable on maps)
Analysis of contraints and opportunities identified by study elements (3.01 through 3.16)
Identification of federal constitutional and state constitutional statutory framework
Local ordinance identification
Analysis of administrative framework
Definition of key policy instruments
Indicate significance of regional inter-governmental relationships
Analysis of impact of legislative developments and enforcement experience
Potential need for legal and institutional innovation
Proposals for legal and institutional alternatives

5.00 SPECIAL STUDIES: Urban Waters; Coastal Zone
The agencies responsible will report on the special problems, values and public concerns relevant to the specific subjects above.

6.00 WATER RESOURCE PROGRAM ELEMENTS AND ALTERNATIVES
All members of the plan formulation team would carry out and elaborate, as necessary, the various tasks described under each of the phases of activity described in Section 5 of this Plan of Study.

Source: NERBC, 1972, SENE Study, Plan of Study. NERBC, Boston.

C.9 REFERENCES

New England River Basins Commission. 1971a. An annotated bibliography of major water and related land resources studies in southeastern New England. NERBC, Boston. 181 pp.

_____. 1971b. An initial assessment of the deepwater coastal zone. Interim report to the Southeastern New England Study. NERBC, Boston. 69 pp.

_____. 1972. Plan of study, Southeastern New England Study. NERBC, Boston. 2 vol.

_____. 1973a. Socio-economic and environmental framework. Interim report to the SENE Study. NERBC, Boston. 2 vol.

_____. 1973b. Bibliography for planning, Long Island Sound Regional Study. NERBC, New Haven, Connecticut.

_____. 1973c. Soils, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Connecticut. 20 pp. & App.

_____. 1973d. Sources and movements of water, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 45 pp. & App.

_____. 1973e. Erosion and sedimentation, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 27 pp. & App.

_____. 1973 f. Recreation, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 14 pp. & App.

_____. 1973g. Mineral Resources and mining, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn.

_____. 1973h. Electric power generation, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn.

_____. 1973i. Flood plains, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 23 pp. & App.

_____. 1974a. Scenic and cultural resources, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 30 pp. & App.

_____. 1974b. Ecological studies, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 36 pp. & App.

_____. 1974c. Water supply, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 30 pp. & App.

_____. 1974d. Water quality, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 47 pp. & App.

Rhode Island Statewide Planning. 1972. A survey of state and regional planning studies. For New England River Basins Commission, SENE Study. Rhode Island Statewide Planning, Providence, Rhode Island.

University of Massachusetts Department of Landscape Architecture and Regional Planning. 1972. Environmental base study. Interim report for NERBC, SENE Study. NERBC, Boston. 156 pp.

C.10 MAINE COASTAL PLAN

Under funding received from NOAA, Coastal Zone Management Office (CZMO) as part of Public Law 92-583, Title II, Sec. 305, Maine has developed a coastal plan which may be completed as early as the end of 1975. The designated recipient state agency to receive these federal funds is the State Planning Office, Coastal Planning Group. The award of this contract in the amount of $230,000 was the third made to the states after the creation of CZMO. Preparation of this coastal plan is the result of previous work by this group beginning in 1970 with Phase I Report, and including the Penobscot Bay Resource Plan (1972), and Maine Coastal Resources Renewal (1971). The Maine Coastal Plan (1974), the proposal for the subsequent work, is divided into three sections:

(1) Overall Program Perspective, Current Program

(2) Elements

(3) Analysis of CZM Act in relation to Maine

Various parts of the current elements are already underway in the form of inventories. Most of these activities are being conducted by other State agencies with the CZMO funds. These elements are:

(1) Land and Water Capability Analysis...
- Bedrock Geology
- Surficial Geology
- Soils
- Slopes
- Watersheds and Water Classification
- Forest Types and Land Use
- Facilities and Activities
- Wildlife and Marine Resources

(2) Applied Research for the Coastal Zone...
- Marine Environments
- Aquaculture Suitabilities
- Biological Tolerances
- Coastal Lakes and Great Ponds
- Coastal Hydrology
- Marine Water Classification
- Scenic and Historic Inventory
- Recreation and State Critical Areas
- Socio-Economic Research

(3) Local and Regional Citizen Participation

The following is taken from the Maine Coastal Plan (1974):

> "The Maine Coastal Plan is an evolving strategy for reconciling the many conflicting uses of Maine's coastal resources. It is a two-pronged effort aimed at generating and compiling environmental data and using this information as a stimulus to public

policy formation. These activities constitute the formative elements of the Coastal Plan and are in various stages of progress as described in the previous sections of this application.

Resource Limitations and Opportunities

"A final element of the Coastal Plan will synthesize the results of the Land and Water Capability Analysis, Applied Research for Coastal Zone Management, and Local and Regional Public Participation Programs.

"Preliminary syntheses will identify conflicting activities in the coastal zone. The method used will be a combination of data overlays and possibly resource-use matrixes.

"Opportunities and limitations will be identified on separate maps and published in the various resource Plans for each coastal planning area. Cross reference between the resource opportunity and limitation maps and the basic data maps in the Resource Atlas will indicate the specific nature and extent of the opportunity or limitation. This interpretation will be aided by suggestions for various groupings of suitable activities geared to specific resource situations.

Environmental Zones

"Final synthesis will result in the division of the coastal zone into four resource management categories. These categories will be designated by the Coastal Planning Group.

"This program would bear an obvious evolutionary relationship to the Mandatory Shoreland Zoning Law which requires the towns to zone their shorelines (salt and fresh) in conformance with minimum State guidelines. Under existing law, any land use zones and accompanying performance standards established by the Coastal Planning Group would be simply advisory in nature, giving both the state and the towns some guidance in granting variances under existing laws. This is especially necessary as it is the pattern of variances granted at both state and local levels that will determine the ultimate effectiveness of laws such as the Mandatory Shoreline Zoning Act. Furthermore, using this information, the state will have a basis for measuring the adequacy of local ordinances in protecting key natural resources."

References Cited

Maine State Planning Office 1970. Maine coastal development plan, Phase I Report, June 1970.

Maine State Planning Office 1971. Maine coastal resources renewal; A summary, August 1971

Maine State Planning Office, Coastal Planning Group, 1972. Penobscot Bay Resources Plan September 1972.

Maine State Planning Office, Coastal Planning Group 1974. Maine Coastal Plan; application for financial assistance from federal Coastal Zone Management Act of 1972, January 1974.

C.11 TRIGOM DIRECTORY OF MARINE RESEARCH FACILITIES AND PERSONNEL IN MAINE

TRIGOM initially assembled and published a directory on this subject in 1970. A second edition which updated research and included additional persons engaged in some form of marine science or research was published in 1972. This directory was divided into six parts:

Part I: Marine Science Personnel

Part II: Marine Research and Educational Facilities

- Section A: Academic
- Section B: Independent
- Section C: Municipal
- Section D: State
- Section E: Federal
- Section F: Industrial

Part III: Current Research Projects by Agency

Part IV: Personnel by Keyword Interests

Part V: Personnel by Agency Affiliation

Part VI: Selected Computer Facilities

The section on current research, listed projects with which each scientist was involved and was, as such, a catalogue of on-going research.

During 1974 TRIGOM has polled all the personnel in the 1971 edition for an update of current research or change of position. This revision has been completed and contains about 265 scientists within the State of Maine or working in Maine. The directory was published September 1974 and can be obtained by writing to TRIGOM, Box 2320, South Portland, Maine, 04106 (207) 773-2981 Ext. 306.

ATTACHMENT 1

APPENDIX C-2

SMITHSONIAN SCIENCE INFORMATION

EXCHANGE NOTICES

Maine

SMITHSONIAN
SCIENCE INFORMATION EXCHANGE, INC.
1730 M STREET, N.W. PHONE 202-381-5511
WASHINGTON, D.C. 20036

SIE NO.
GSV-3720

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-32454

TITLE OF PROJECT:
CARBONIFEROUS AND MESOZOIC RIFT STRUCTURES OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E UCHUPI

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
2/72 TO 2/73
FY72 FUNDS $21,500

SUMMARY OF PROJECT:

The primary goal of this research is to determine the geologic and tectonic framework of the Gulf of Maine. Preliminary investigations of the Gulf and surrounding land areas reveal the possible presence of a major rift system landward of the continental slope. This rift system and associated sedimentary basins apparently are part of a linear fracture belt which developed along the eastern margin of the North American continent in the Late Paleozoic-Early Mesozoic. It is believed that the tectonic forces which folded and faulted the sedimentary strata in these structural basins also are responsible for the rifting of the crust that lead to the opening of the North Atlantic Ocean. These Triassic and Carboniferous rift basins within the Gulf of Maine will be investigated using seismic reflection and oblique-reflection profiling, magnetic, and sampling techniques. These data subsequently will be used to construct geologic and tectonic maps of the onshore and offshore regions of the northeastern United States and Canada in an attempt to better understand the early history of the continental margin.

SMITHSONIAN
SCIENCE INFORMATION EXCHANGE, INC.
1730 M STREET, N.W. PHONE 202-381-5511
WASHINGTON, D.C. 20036

SIE NO.
GBP-1088

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-2-72

TITLE OF PROJECT:
GEOTECHNICAL PROPERTIES IN TWO SEA FLOOR GEOTECHNICAL DEVELOPMENT & DEMONSTRATION AREAS - A PRECURSOR TO APPLIED TECHNOLOGIES (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AF RICHARDS
JM PARKS
TJ HIRST
TA TERRY

RECIPIENT INSTITUTION:
LEHIGH UNIVERSITY
CTR. FOR MARINE & ENV. STUDIES
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1. To develop and test new equipment to measure geotechnical properties of deep sea sediments in situ from research submersibles (vane shear, cone penetrometer, transmission gamma-ray densitometer, etc., to depths of 3.4 meters). 2. To establish two specific relocatable areas on the sea floor and to determine the geotechnical properties and their variabilities, for the purpose of systems testing of instruments and equipment whose successful operation depends at least in part on the bearing strength and/or settlement characteristics of sea floor soils. 3. To make this information available to potential users (industries, government agencies and universities) through publications, demonstrations. 4. To establish a computerized data bank for world-wide geotechnical properties of sea floor soils.

How information will be applied: Industries and others developing bottom-resting devices, new anchoring systems, etc., will be able to test the operation of these devices in known geotechnical environments in easily accessible locations before deploying them at their ultimate sites. It is very difficult to simulate soils with realistic geotechnical properties in pressure-testing tanks.

Accomplishments during the past twelve months: 1. Two in situ probe systems have been designed, developed, constructed, tested and successfully operated to specifications on DEEP QUEST off San Diego and on ALVIN in Gulf of Maine. 2. The Vane Shear Probe has worked to design penetrations of 3.4 m, and the combination Cone Penetrometer and Transmission Gamma-Ray Densitometer has worked to design penetrations of 1.2 m. 3. 5 dives with DEEP QUEST were made in October 1971 and 4 dives in June 1972 with a total of 28 stations occupied. 6 dives were made with ALVIN in July 1972 with a total of 18 stations occupied. 4. Sufficient data have now been obtained for the initial characterization of the proposed two Sea Floor Geotechnical Development and Demonstration Areas.

SMITHSONIAN
SCIENCE INFORMATION EXCHANGE, INC.
1730 M STREET, N.W. PHONE 202-381-5511
WASHINGTON, D.C. 20036

SIE NO
GBP-553

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
720084
0241340

TITLE OF PROJECT:
OCEAN ENGINEERING AND HABITATS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR G SAVAGE MECHANICAL ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
SCHOOL OF ENGINEERING
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To determine alternate methods of solid waste disposal in the oceans and the impact of those methods on the marine environment; to continue development of ocean engineering experience education programs; to develop a methodology for reclaiming coastal real estate and making optimum use of the coastal zone; to initiate mariculture activities in New Hampshire waters.

Approach: Baled wastes will be placed in the marine environment under controlled conditions so that the physical and biological responses of the bales can be determined over a period of time; at the same time, investigations will be conducted to determine optimum locations for waste disposal in the Gulf of Maine in the event an environmentally compatible methodology is developed. The ocean engineering undergraduate program will establish practical problems for solution by engineering students, duplicating "real world" situations. The project to reclaim coastal real estate will examine the maximum impact expected from waves and storms for the purpose of developing parameters for the placement of storage, power production, and similar facilities offshore with the coastal zone ultimately reclaimed for recreational and human housing use. The mariculture program will begin by determining appropriate marine organisms for culture in New Hampshire waters. The project FLARE program will utilize the university's minimal habitat in support of a NOAA project to be conducted in Florida waters early in 1972.

Progress: This is a new coherent area proposal and there is no progress to report.

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SIE NO.
GUN-9040-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-30-R-3-4

TITLE OF PROJECT:
ANDROSCOGGIN AND SACO RIVER WATERSHEDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: To acquire title or easement to lands beside and under the Androscoggin and Saco Rivers and their tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are critical spawning, resting or fishing areas for anadromous fish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the watershed.

After the number and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. A personal inspection will be made of the region to study its geography, regional and local growth and the attitude of the population toward the installation of state facilities.

In determining the market value of lands a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels. ISG

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SIE NO.
ZTK-40

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
CONTINUATION OF PERMANENT EXPOSURE STATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HT THORNTON

RECIPIENT INSTITUTION:
U.S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To maintain a field exposure station at Treat Island, Cobscook Bay, Maine, to continue the development of data on the resistance of concrete and concrete materials to the effects of natural weathering.

Approach or Plan: A permanent exposure installation at Treat Island, Cobscook Bay, Maine, provides for the exposure of specimens containing various test components to longtime freezing in air and thawing in sea water.

Progress to Date: The specimens at the Treat Island exposure station are inspected and tested by appropriate nondestructive procedures each year and the results are distributed as supplements to the two-volume loose-leaf summary reports, Tr 6-553, "Performance of Concrete and Concreting Materials Exposed to Natural Weathering".

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SIE NO.
ZTK-39

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

TENSILE CRACK EXPOSURE TESTS ON REINFORCED CONCRETE BEAMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

HT THORNTON

RECIPIENT INSTITUTION:

U.S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To obtain information on the influence of variation in class of reinforcing steel, depth of concrete coverage over steel, quality of concrete cover, and magnitude of tensile stress in steel on the performance of reinforced concrete beams subjected to severe natural weathering.

Approach or Plan: The weathering resistance of reinforced concrete beams exposed at Treat Island, Maine, using new- and old-type deformed rail and billet steel bars with shallow and thick coverage of concrete in top- and bottom-poured positions, stressed to varying degrees from 20,000 to 50,000 psi, is being determined.

Progress to Date: Specimens consist of 7-ft-9-in.-long beams of varying cross sections loaded in pairs in third-point loading to the desired stress through calibrated springs, with observation of cracking due to loading, and cracking and other deterioration due to weathering caused by freezing-and-thawing and cyclic tidal action on the exposure rack at Treat Island, Maine. The investigation consists of two phases. Phase I included 82 beams, most of which were of nonair-entrained concrete, which deteriorated rapidly under the severe weathering conditions encountered. Phase II consists of 76 beams, all of which are of air-entrained concrete. Exposure of the specimens of both phases is being continued.

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SIE NO.
GBP-608

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
720497
0241301000

TITLE OF PROJECT:
INVESTIGATION OF GEOTECHNICAL PROPERTIES IN TWO SEA FLOOR GEOTECHNICAL DEVELOPMENT & DEMONSTRATION AREAS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JM PARKS

RECIPIENT INSTITUTION:
LEHIGH UNIVERSITY
CTR. FOR MARINE & ENV. STUDIES
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $182,200

SUMMARY OF PROJECT:

Technical Objective: The objectives of this project are to develop improved techniques and devices for measuring the characteristics of sea floor sediments. This grant provides support for the terminal year of a 3 year program. During this third year in situ measurements, data analysis and reduction for both the San Diego trough and the Wilkinson Basin, Gulf of Maine. In addition, supplementary environmental analysis related to improved understanding of geotechnical properties will be made.

Approach: Two new probe systems which were constructed during the second year of the project are being modified to increase reliability and ease of operation. These probes are a vane shear-strength probe and gamma-ray transmission densitometer probe. The latter probe includes a cone penetrometer attachment. A cone penetrometer will also be added to the vane penetrometer drive. The probes have been developed for operation abroad deep submersibles.

Progress: The two probes have been constructed and tested successfully from the submersible DEEP QUEST, at 1,200 meters depth. Thirteen stations in the San Diego troughs were occupied for in situ measurements of geotechnical properties. Also 10 stations were made during three dives with the WHOI submersible ALVIN, during which a modified penetrometer-densitometer probe was successfully used. These dives were made at the Gulf of Maine.

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SIE NO.
ZTK-38

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DURABILITY AND BEHAVIOR OF PRESTRESSED CONCRETE BEAMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HT THORNTON

RECIPIENT INSTITUTION:
U.S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To develop information on the factors affecting the performance of prestressed concrete members subjected to severe natural weathering as this performance is affected by the nature of the prestressing system employed, the state of stress of the member during exposure, and the quality and properties of the concrete.

Approach or Plan: Pretensioned and post-tensioned concrete beams have been placed under various loads and have been exposed at mean tide elevation at Treat Island, Maine, and St. Augustine, Florida.

Progress to Date: The testing of the 24 4-1/2-by 9- by 81-in. pretensioned beams with tendons stressed to 0.7 ultimate has been discontinued. The second phase of the project consisting of the exposure of a limited number of post-tensioned beams using several prominent systems of post-tensioning, and various means of protecting the end anchorages against corrosion is being continued.

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SIE NO.
GPH-25

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
REACTOR DEVEL. & TECH. DIV.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
GULF OF MAINE STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PF SMITH ENVIRONMENTAL EQUIPMENT DIV

RECIPIENT INSTITUTION:
E G & G INCORPORATED
WALTHAM, MASSACHUSETTS 02154

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The objective of this study was the development of methods for forecasting the environmental effects of the operation of nuclear power plants using nearshore waters for cooling. The program was based upon an engineering application of modern oceanographic techniques. Work included the collection of relevant environmental data on the Gulf of Maine Coastal Zone from all available sources, as well as the collection of new data from the portion of the coastal zone under immediate study. Field data-gathering techniques used include moored instrument installations, droque current studies, dye studies, shore-mounted meteorological stations and tide gauges. Four one-month moorings were made. Current meter data was processed and analyzed and correlations between simultaneous measurements were developed.

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SIE NO.
AO-20606

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
68-01-0795
CONTRACT
72P20606

TITLE OF PROJECT:
MODIFICATION AND APPLICATION OF MATHEMATICAL MODELS TO THE KENNEBEC RIVER BASIN OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
IH RINARD

RECIPIENT INSTITUTION:
HALCON COMPUTER TECH. INC.
NEW YORK, NEW YORK 10016

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $28,742

SUMMARY OF PROJECT:

(1) Objectives. The major objective of this work is to develop water quality simulation models for the fresh-water and estuarine portions of the Kennebec River Basin of Maine. These models are intended for use as water quality management analysis tools by local and regional personnel. (2) Approach. Historical water quality and hydrological data will be assembled from all available sources for use in the calibration and verification of the models. A data report will be prepared in which the adequacy of the data for the purpose of model development is assessed. Two existing general purpose programs (DOSAG for the fresh-water region and DEM for the estuarine region) will be adapted to meet the specific needs of this project. An expanded water quality model will be incorporated which tracks, in addition to BOD and dissolved oxygen, phosphorus, coliforms, ammonia, nitrite, nitrate, chlorophyll alpha, algal production and respiration, benthic uptake, and chromium. A sensitivity analysis is part of the project. A seminar will be held for the local personnel. (3) Current Plans. The project is in its early stages. It is to be completed within eight months.

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SIE NO.
ZUA-2215-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9710-00297

TITLE OF PROJECT:
ORLAND QUADRANGLE, LUCERNE PLUTON, MAINE.

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WONES

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Maine.

Establish geologic setting, chemistry, and crystallization history of Lucerne Pluton, Maine, and other granitic plutons in the New England states. Establish stratigraphy, structure and metamorphic rocks northeast of Penobscot Bay. Determine extent of mineralized area and relationship of those areas to bedrock geology. Cooperation with surficial geologists and geophysicists in order to contribute to environmental studies of Maine coastal areas, and structures underlying Gulf of Maine.

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SIE NO.
GPE-1884-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(11-1)3024

TITLE OF PROJECT:
INTERRELATIONSHIP BETWEEN CERTAIN HYDROGRAPHIC FEATURES ASSOCIATED WITH CURRENTS AND PRIMARY PRODUCTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CS YENTSCH
ES GILFILLAN
CS YENTSCH UNIV. OF LONDON

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
MARINE STATION
GLOUCESTER, MASSACHUSETTS 01930

PERIOD FOR THIS NRP
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

In essence, this study is a seasonal study of the distribution of plankton at a specific station in the Gulf of Maine. This entails occupying the station from a research vessel, water sampling, and measuring the environmental parameters. The physical, chemical and biological factors associated with plankton growth in the temperate waters of the Gulf of Maine are being explored with special reference to the understanding of biochemical mechanisms involved. This study entails measurement of photosynthetic rate, the distribution of biochemically active nutrients, and rate-limiting activities within the system. Associated with the biological studies are measurements of temperature, salinity and assessment of the vertical transport within the water mass. Of particular interest is the environmental factors which stimulate spring and fall blooms, as well as those associated with the decline of the bloom. Timing and duration of the blooms are of interest and the resulting data is of use on a comparative basis with other areas.

Results: The observational program has been going on for a period of 18 months. In both years (1971, 1972) sizeable spring outbursts occurred in April. The difference in timing between the two years was within a few days. The spring outburst is accompanied by a mammouth decrease in the amount of nitrate in the waters which has suggested that the declining populations are nitrogen deficient. In 1971, the nitrogen deficiency (ammonium enhancement, measurements showed no or little adverse effect after the decline of the spring bloom. However, 1972 showed a marked ammonium enhancement. The difference between the two years appears to be due to the fact that a greater amount of the fixed form of nitrogen was removed in the second year than in the first.

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SIE NO
GY-62233-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
MAINE ORONO

AGENCY'S NUMBER(S):
0062233
ME00278
SUBGROUP H
CSRSME. 0000000000

TITLE OF PROJECT
BACTERIAL POPULATIONS IN MAINE AQUATIC AND ESTUARINE ENVIRONMENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PRATT D B
THORUP R

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
UNIV OF MAINE
MICROBIOLOGY Dept.
AGRICULTURAL EXPER. STATION
ORONO MAINE 04473

PERIOD FOR THIS NRP
BEG 720701 END 770630
FY 74 FUNDS 00000000
50512053 Sub

SUMMARY OF PROJECT

OBJECTIVE: Survey bacterial populations of Maine aquatic and estuarine environments; develop methodology for analysis of aquatic and estuarine bacterial populations; correlate water quality with bacterial populations.

APPROACH: Characteristic bacterial species will be isolated from aquatic and estuarine environments. These will be characterized and suitable selective and differential media will be adapted or developed for a quantitative analysis of the bacterial populations. Samples from selected environments will be analysed for size and composition of the population. Results will be analysed with respect to environmental parameters with particular attention paid to pollution.

PROGRESS: Plate counts, using the spread plate technique, were obtained from water samples taken from lakes of different trophic states. Standard agar media for freshwater plate counts were compared with gelatin agar, with and without supplementation. Maximum counts were obtained, with few exceptions, on unsupplemented gelatin agar. Pigmentation was poorest on this medium. Incubation at 23 C for 14-21 days or 15 C for 21-28 days produced maximum counts. Preliminary screening showed that randomly selected isolates were predominantly non fermenting, gram negative rods. Further characterization is in progress, together with a comparison of the effect of plating procedures upon individual organisms and the entire aquatic population. Polymyxin has been employed as a selective agent in the study of populations of intertidal zone bacteria. A slowly growing polymyxin resistant population has been observed; these bacteria do not appear on non-polymyxin containing media and are inhibited by rapidly growing polymyxin sensitive bacteria.

0160 10
WATER-QUALITY POLLUTION ESTUARIES MICROORGANISMS WATER AQUATIC-BACTERIA
0160 10
MARINE-BACTERIA SELECTIVE-MEDIA DIFFERENTIAL-MEDIA BACTERIA AUTOCHTHONOU
0160 10
S-BACTERIA WATER-POLLUTION POPULATION-DENSITY COUNTING POPULATION AQUATI
0160 10 C-ENVIRONMENT QUANTITATIVE-ANALYSIS

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SIE NO.
GBP-1202

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35209

TITLE OF PROJECT:
LARGE-SCALE CIRCULATION OF THE GREEN BAY-LAKE MICHIGAN SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CH MORTIMER

RECIPIENT INSTITUTION:
UNIV. OF WISCONSIN
CENTER FOR GREAT LAKE STUDIES
PEARSE HALL, ROOM 107
MILWAUKEE, WISCONSIN 53201

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $0

SUMMARY OF PROJECT

Objectives: The objectives of this project have been: 1. Determination of large-scale circulation patterns in Green Bay and the northern half of Lake Michigan under actual (or model) wind stresses of differing force and direction, and (when desired) in combination with forcing action of observed water level changes at the mouth of the Bay. 2. Verification of the model by comparison of its output with recorded motions (level fluctuations and currents) at selected points. 3. Provisions of physical data needed by other investigators. Termination of project is expected in 1972.

How information will be applied: The recently renewed interest in using the Bay of Fundy for the generation of tidal power has raised the question of modal behavior of the Bay oscillation near its mouth. A solution of this problem will be of great practical importance in determining the effect of engineering structures on the tidal amplitudes and on the amount of power which can be generated from them. The Green Bay study is the first, to the investigator's knowledge, which has considered these "bay mouth" conditions. We find that in Green Bay an expected mode does not in fact exist. The striking resonant oscillation of Green Bay, therefore, turns out to be a co-oscillation involving the whole of Lake Michigan. It may turn out, therefore, that the Bay of Fundy oscillation also involves the Gulf of Maine and perhaps a large portion of the Continental Shelf, and that the Green Bay study, which was terminated by the Sea Grant Office on the grounds that it seemed to be an enterprise in basic science, may have practical applications in coastal engineering.

Accomplishments: This study, for which funding terminated in August 1972, is now being prepared for publication, first in the form of a report and later in a scientific journal.

For additional information pertaining to this project contact Dr. Robert A. Ragotzkie, Sea Grant Program Coordinator, University of Wisconsin, Madison, Wisconsin 53706.

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SIE NO.
YME-44-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
AREAL DISTRIBUTION AND PROVENANCE OF SEDIMENTS IN ST. GEORGE RIVER, KNOX COUNTY, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR LK FINK

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Sediment cores are being collected from the St, George Estuary. Grain size analyses and heavy mineral suites will be determined. This information will be used to determine areal distribution of the various heavy mineral suites and the provenance of the sediments in the St. George River. The possible contamination by pollutants of the estuary's sediments will be considered. The parameters which will define a signature of a specific estuary will be determined and will form the basis for further studies in other estuaries of the Maine coast. ISG

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SIE NO.
GY-58059-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
MAINE ORONO

AGENCY'S NUMBER(S):
0058059
ME03500
SUBGROUP S
SAESME. 0000000000

TITLE OF PROJECT
CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
DUNHAM W C
RCWE R J
HOGAN J M

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
UNIV OF MAINE
AGRI ENGINEERING Dept
AGRICULTURAL EXPER. STATION
ORONO MAINE 04473

PERIOD FOR THIS NRP:
BEG 710201 END 760131
FY 74 FUNDS 00000000
50512053

SUMMARY OF PROJECT

OBJECTIVE: Assist in the development of a system of mariculture for selected species of shellfish that have potential for commercial production on the Maine coast. Develop new food products, by-products and processing methods for utilization of shellfish. Determine market potential and consumer acceptance of shellfish products.

APPROACH: As a contributing effort to an overall sea grant project on the development of a commercial system of mariculture for selected species of shellfish, the departments of Agricultural Engineering, Agr. and Resource Economics, Animal Science and Food Science will participate in the engineering, food technology, and marketing aspects of developing a total mariculture and marketing system. Work will include hatching mechanization, development of submersible rafts, harvesting techniques, new product development, processing techniques, consumer acceptance, and analysis of marketing system. Selected species will include European oysters, Cancer crabs, Blue mussels and scallops.

PROGRESS: Growing oysters in trays successful on a trial basis and seems more practical than reattaching oysters to a board. Mobile service raft developed and tested for mechanizing submerged tray culture system. Collected data on market conditions and potential for half-shell oysters in U.S. markets, Montreal, and exploring prospects of export to France. Made analysis of variables affecting oyster consumption and developed predictive equation for use in estimating consumption. Raw scallop viscera ground, dried. Chemical analyses shows value as protein supplement feed but preliminary feed trials resulted in paralysis of chicks and high mortality. Later tests with autoclaved viscera were excellent. Suspect enzyme thiaminase in raw material caused thiamin deficiency in preliminary tests. Mussels tested for keeping quality in ice, vs. sea water at 32 and at 50 F. Mussels acceptable after 13 days on ice but not at 17 days; acceptable after 10 days in 32 sea water but not at 13 days; acceptable after 3 days in 50 sea water but not at 6 days. Further work will evaluate methods for detecting incipient spoilage.

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SIE NO.
GUW-3843

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-028-ME

TITLE OF PROJECT:
THE MACROINVERTEBRETE FAUNA OF A MAINE SALMON RIVER SUBJECTED TO LONG-TERM MULTIPLE PESTICIDE CONTAMINATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
KE GIBBS ENTOMOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF LIFE SCIENCES
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT,SUPPORT
FY74 FUNDS $2,420

SUMMARY OF PROJECT:

The proposed research plan involves an investigation of the macroinvertabrate fauna of the Narraguagus River, a Maines salmon river subjected to long-term multiple pesticide contamination from blueberry production. The history of pesticide usage includes Guthion, DDT, Dieldrin, calcium arsenate, 2,4-D and 2,4,5-T.

Field investigations will include qualitative and quantitative analyses of macroinvertebrate populations in riffle areas of eight sample stations, four of which are subject to pesticide contamination and four of which are not. Information on the specific identity, biology and distribution of as many species as possible will be accumulated. Sampling of macroinvertebrate populations will be by means of benthic and drift samplers and emergence traps.

Laboratory investigations will consist of periodic analyses of pesticide residues within riffle ecosystem.

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SIE NO.
YME-46-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BEDROCK TOPOGRAPHY AND SEDIMENTS OFF THE KENNEBEC, SHEEPSCOT AND DAMARISCOTTA RIVER ESTUARIES, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D SCHNITKER
P CLARK

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The surficial deposits that now exist in the Central Maine coastal area are the result of processes that have been active here for not much more than the past 11,000 to 10,000 years, offering a unique opportunity to study a rather uncomplicated geologic model. A combination of seismic profile studies with sediment core and grab samples will allow us to determine the bedrock topography of the area and the amount and nature of the sediments present. The relationship of the existing sediment accumulations to the bedrock configuration will provide information about the sediment dispersal patterns and thus the hydraulic conditions within the area. ISG

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SIE NO.
GUW-3023-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES,

AGENCY'S NUMBER(S):
A-025-ME

TITLE OF PROJECT:
ATTITUDES OF VOTERS AND OFFICIALS RELATIVE TO ALTERNATIVES OF WATER QUALITY AND MANAGEMENT SYSTEMS FOR THE PENOBSCOT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
J HENDERSON POLITICAL SCIENCE

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,288

SUMMARY OF PROJECT:

The proposed research plan involves the application of survey research techniques to determine politically relevant environmental attitudes in several target groups: registered voters and municipal officials in communities bordering the lower Penobscot River, all State Legislators, and selected State agency personnel who deal with environmental quality.

Objectives include determining target group attitudes on 1) environmentalism (committment to improvement), 2) environmental awareness (of problems and proposed solutions), 3) government role in environmental protection, 4) liberalism-conservatism (government intervention in solving social problems, 5) political awareness.

Each of the five dimensions will be scaled (Likert type), and "environmentalism" will be treated as an dependent variable in a multiple regression analysis which will include the other attitude scales and personal characteristics as independent variables.

The overall purpose of the study is to determine the factors influencing "environmental" attitudes at several levels of public policy making in a river basin.

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SIE NO.
GUW-3725

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-4297

TITLE OF PROJECT:
DATA AND MANAGEMENT NEEDS FOR WATER RELATED LAND AREAS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E KEENE
J ROBERTS

RECIPIENT INSTITUTION:
NORTH KENNEBEC REG. PLN. COMM.
173 MAIN ST.
WATERVILLE, MAINE 04901

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project will investigate the data needs necessary to enable rational decision-making with respect to flood plain zoning and proper utilization of riparian lands along the main stem of the Kennebec River in Maine. Recommendations will be made for involving local governments in the decision making and incorporate long term planning for community development as well as non-structural alternatives such as local zoning and the new State level zoning authority.

Certain kinds of data are available, but no comprehensive analysis of availability and need has ever been done. The regional planning commission provides a regional organization for planning, but their authority is advisory only. Better involvement of State and local decision makers may be needed for effective management of land use controls for riparian land.

The project includes: (1) analysis of criteria for corridor definition; (2) review of related literature including State and local ordinances; (3) preparation of a corridor plan against which to measure proposals; and (4) drafting of aproposed management scheme.

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SIE NO
GU0-334-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

MAINE 3-16-R-4

TITLE OF PROJECT:

ECOLOGICAL FACTORS THAT INFLUENCE MARINE WORM ABUNDANCE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

EP CREASER
RL DOW

RECIPIENT INSTITUTION:

STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: To determine the ecological factors that influence the abundance of worms in the intertidal flats.

Procedure: Routine hydrographic surveys will continue in the area of Wiscasset, Maine, until the termination of the monthly sampling for bloodworms in July, 1969. The collection of vertical and horizontal data on salinity, pH and the H2S content of marine muds will continue using an interstitial mud water sampler designed especially for this purpose. Compaction will be measured with a modified penetrometer, mud moisture content continued by wet-dry weight ratio, and percolation rate with a percolation apparatus. No satisfactory method has yet been designed for the determination of sediment sizes in the silt and clay range. Preliminary sediment size preference studies indicate the need for various modifications including the need of running the experiment in triplicate. A seven day temperature recorder will be mounted near the sandworm and bloodworm areas at Wiscasset to determine the mud, water and air temperature at the time of spawning for both species. ISG

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SIE NO.
GUW-3022-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-024-ME

TITLE OF PROJECT:
DISSOLVED POLLUTION PRODUCT GASES IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E GREEN OCEANOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $73,246

SUMMARY OF PROJECT:

The project involves the development of a method of analysis for certain dissolved gases in natural waters. The gases of interest are methane, carbon monoxide, hydrogen sulfide, sulfur dioxide, mercaptans, and alkyl sulfides. These gases promise to play an important role in future studies of natural water quality. Methane anomalies appear to be associated with raw sewage outfalls, carbon monoxide with primary productivity, while the sulfur-containing species are products of kraft pulp mill discharge. Preliminary investigations suggest the possibility of a practical field analyzer for use in environmental and pollution studies of rivers, lakes and streams. The principal experimental work for the first year of this proposed research will consist of adapting existing gas chromatographic techniques to field operations and to improving standardization methods and accuracy. The continuing and final phase of the work will involve a survey of dissolved trace pollution product gases in the estuarine environment, probably the Kennebec and Penobscot estuaries of Maine. There an attempt will be made to correlate the water chemistry with observed anthropogenous effects on the ecosystem.

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SIE NO
GUN-8847-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-5-3

TITLE OF PROJECT:
ANALYSIS OF STRIPED BASS SPORT CATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LN FLAGG

RECIPIENT INSTITUTION:
STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $4,500

SUMMARY OF PROJECT:

Objectives: To determine the seasonal and annual variation in the composition of the striped bass sport catch.

Procedures: A creel census of striped bass fishermen will be conducted to obtain specimens for analysis of size, age, and sex to determine the seasonal and annual variation in the sport catch composition. A census will be conducted on a weekly basis from May through October in areas frequented by saltwater anglers in mid-coastal Maine, to include the areas listed under Job #1.

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SIE NO.
GUO-335-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
MAINE 3-16-R-4

TITLE OF PROJECT:
BIOLOGICAL CHARACTERISTICS OF WORM POPULATIONS IN GROWING AREAS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EP CREASER
RL DOW

RECIPIENT INSTITUTION:
STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: To determine certain biological characteristics of worm populations in different types of growing areas.

Procedure: The growth rates of bloodworms will be determined from monthly length-frequency data. The age composition of sandworms and bloodworms will be established by both length and weight distribution for various areas in the Sheepscot River. A continued investigation of the sexual maturity characteristics, spawning behavior, migration and mortalities will be conducted during the spring and early summer. Evidence of a prespawning mortality of mature bloodworms will be checked out. The male - female, nonspawner ratio for all lengths of sandworms will be checked. Diving techniques will be employed in the study of spawning behavior and the estimations of subtidal worm populations. Studies of sandworm and bloodworm eggs and sperm will continue for the Sheepscot River, and include the Sasonoa River where it is thought that the addition of warm water from a nuclear power plant under construction may affect egg development or spawning. ISG

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SIE NO.
GSE-3137-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENGINEERING

AGENCY'S NUMBER(S):
GK-27879

TITLE OF PROJECT:
RESTORATION DYNAMICS FOR ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
KI MUMME CHEMICAL ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF TECHNOLOGY
251 AUBERT HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Chemical reactor theory has been applied to the problem of maintaining water quality control of the Penobscot Estuary in Maine. This research will investigate the possibility of operating the "reactor" (the river) such that the reaction becomes "runaway" (dissolved oxygen content of the water increases in a runaway manner). It is intended to develop a means of assisting restoration of the river rather than simply controlling or stopping deterioration of the river.

If the research is successful the river can be considered in either of two ways; active restoration would allow the river to handle even more waste without violating the stream classification; or, the same amount of waste could be discharged into the river but the water could maintain a higher classification than is now possible. This new study will be extended to the entire tidal estuary and the dynamic interaction between the ocean and the river. ISG

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SIE NO.
GUH-152-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FISHERY SERVICES DIVISION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

HYDROGRAPHY OF THE PENOBSCOT RIVER ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR RW HATCH ZOOLOGY

RECIPIENT INSTITUTION:

UNIV. OF MAINE
GRADUATE SCHOOL
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A long range program of studies on the ecology of the Penobscot estuary has been established by the Maine Cooperative Fishery Unit. Part I involves a detailed study of the hydrography of 30 miles of estuary from Bangor Dam to Belfast. Salinity, temperature, density and dissolved oxygen have been and will continue to be monitored with the view toward detecting changes in the estuarine environment from anticipated pollution abatement in Penobscot River. This project was initiated July, 1963.

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SIE NO
GMA-1646

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
801006

TITLE OF PROJECT:
THE FEASIBILITY OF IDENTIFYING MYSTERY OIL SPILLS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GS HUNT

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
AUGUSTA, MAINE

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $39,303

SUMMARY OF PROJECT:

This project will determine the feasibility of identifying oil spilled in coastal and inland waters, in conjunction with the state of Maine's Oil Conveyance law, by chemically and physically matching spilled oil to reference oil samples using readily available laboratory techniques. Oil samples will be taken from ships as required by this state law. Each sample will be divided into three parts; one for storage as a reference sample, one for field weathering, and one for weathering under laboratory conditions. The reference samples, as per the Oil Conveyance Law, will be stored for a 15-day period at a cool temperature, in a dark room, under custody of project personnel. The sample for field weathering will be spilled under controlled conditions in the waters of Casco Bay, Maine. Weathering will take place for periods up to two weeks. The laboratory weathered third sample will provide a backup for the "field" sample. This simulated weathering will take place in 500 gallon, continuously flushed, salt water tanks located with the Trigon Laboratory in South Portland, Maine. In addition to providing backup spill samples, these laboratory tests will also develop some important information on physical and chemical changes due to exposures of the oil to the environment.

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SIE NO.
GMA-1664

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
72PG0607

TITLE OF PROJECT:
THE FEASIBILITY OF IDENTIFYING MYSTERY OIL SPILLS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GS HUNT
SJ DORRLER

RECIPIENT INSTITUTION:
STATE ENVIRON. IMPROVE. COMM.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The research grant project will determine the feasibility of identifying oil spilled in coastal and inland waters, in conjunction with the state of Maine's Oil Conveyance Law, by chemically and physically matching spilled oil to reference oil samples using readily available laboratory techniques. Oil samples will be taken from ships as required by this state law. Each sample will be divided into three parts; one for storage as a reference sample, one for field weathering, and one for weathering under laboratory conditions. The reference samples, as per the Oil Conveyance Law, will be stored for a 15 day period at a cool temperature, in a dark room under custody of project personnel. The sample for field weathering will be spilled under controlled conditions in the waters of Casco Bay, Maine. Weathering will take place for periods up to two weeks. The laboratory-weathered third sample will provide a backup for the field sample. This simulated weathering will take place in 500 gallon, continuously flushed, salt water tanks located within the Trigon Laboratory in South Portland, Maine. In addition to providing backup spill samples, these laboratory tests will also develop some important information on physical and chemical changes due to exposures of the oil to the environment.

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SIE NO.
GBP-989

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-40-70

TITLE OF PROJECT:
CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR H HIDU ZOOLOGY
D DEAN

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are: (1) to adapt and develop techniques for intensive off-bottom culture of shellfish (3 spp. oysters, mussels, quahogs, 2 spp. scallops) in Maine waters. (2) To evaluate the potential of coastal waters of Maine for intensive shellfish culture. (3) To adapt hatchery procedures for development of commercial shellfish seed stocks in the Maine environment. (4) To assist private citizens and corporations in developing commercial-level intensive shellfish culture.

How information will be applied: All information is being applied to bring on new marine industry in Maine. Several prototype systems are being evaluated for their commercial application. Sea Grant research developments are being applied through cooperative research efforts with potential users and publication of research results.

Accomplishments during the past twelve months: A 5000 sq. ft. marine hatchery facility has been constructed and is now operative. Environmental evaluation indicates that Maine waters may produce a marketable American, European or Japanese hatchery oyster in 2 years by rafting technique. Approximately 20 private citizens and 3 corporations on the Maine coast have begun pilot commercial oyster culture operations in conjunction with the Sea Grant program. Rafted Maine mussels exhibit superior growth rate and lower pearl incidence than shorebound populations indicating a potential for intensive culture. Hatchery techniques have been adapted for several species of shellfish; progeny of 3 species of oysters, bay scallops and quahogs are available for genetic studies, environmental evaluation and development of rafting technique. Field cultch experiments are in progress to enhance the natural reproductive potential of introduced stocks of European oysters in the Boothbay region, thus helping to preserve our Maine adapted brood stock.

For additional information pertaining to this project contact Dr. David Dean, Coherent Project Director, The Ira C. Darling Center for Research, Teaching & Service, Univ. of Maine at Orono, Walpole, Me. 04573.

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SIE NO.
GMA-788

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
16110 DPT

TITLE OF PROJECT:
THE NORTHERN MAINE REGIONAL TREATMENT SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RE HUNTER

RECIPIENT INSTITUTION:
NORTHERN MAINE REG. PLAN. COM.
PRESQUE ISLE, MAINE 04769

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $121,360

SUMMARY OF PROJECT:

Development of an optimum water quality protection plan for the Northern Maine Region, including analysis of a transport-treatment system.

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SIE NO.
GBP-760

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
18121000

TITLE OF PROJECT:
NUTRIENT SAMPLING IN THE COASTAL WATERS OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
H APPLIN FISHERY RESEARCH LAB
JJ GRAHAM

RECIPIENT INSTITUTION:
STATE DEPT. OF SEA & SH. FISH.
WEST BOOTHBAY HARBOR, MAINE 04575

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,000

SUMMARY OF PROJECT:

Technical Objective: To continue the coastwise sampling of nutrients between Grand Manan and Cape Newagen through and after September 1972, thereby completing a full year of coverage of concentrations and distributions at approximately two-month intervals. Analyze the nutrient distribution data in terms of the physical and biological forces acting on the nutrients. Conduct sampling within the inner coastal waters to determine patterns of nutrient utilization in conjunction with direct measurements of primary productivity.

Approach: Continuation of sampling coastwise stations on a quarterly basis with the addition of dissolved oxygen and iron analysis which may be useful in tracing the origin and seasonal formation of high-nutrient, high salinity water that is found at 125-150m at 20-mile stations off Moose Peak and Schoodic. A substantial amount of time will be spent in analyzing the results of nutrient variations and distributions obtained from September 1971 through September 1972 which are the result of a varying combination of biological and physical factors. The physical data will be used to compute dynamic heights, horizontal currents, and vertical eddy coefficients.

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SIE NO.
GBP-988

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-40-72

TITLE OF PROJECT:
OPTIMIZATION OF FIELD REARING TECHNIQUES FOR HATCHERY CULTURED SHELLFISH IN MAINE WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RJ ROWE AGRICULTURAL ENGINEERING
J RILEY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF TECHNOLOGY
251 AUBERT HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are: 1. To design and develop systems, equipment and procedures for the planting, servicing and harvesting of cultured shellfish. 2. To evaluate and compare reattachment and traying as potentially mechanizable oyster rearing systems.

How information will be applied: Demonstration equipment will be installed in Maine waters. Project personnel will work in cooperation with other research and extension personnel to conduct educational programs and demonstrations to acquaint fishery-minded individuals with project results as soon as they are available. Reports and publications will make information available to other researchers.

Accomplishments during the past twelve months: (1) Pilot studies on biological response of oysters to reattachment identified suitable adhesives, materials and techniques. (2) Several different panel and tray rearing systems have been designed, together with an inexpensive mobile winching raft for the deployment and servicing of these units. (3) Small scale models of their components have been constructed for initial concept evaluation.

For additional information pertaining to this project contact Dr. David Dean, Coherent Project Director, The Ira C. Darling Center for Research, Teaching & Service, Univ. of Maine at Orono, Walpole, Me. 04573.

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SIE NO.
GBP-374

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
710150
294329000

TITLE OF PROJECT:
DEVELOPING OF TECHNIQUES TO CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
D DEAN ZOOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $100,300

SUMMARY OF PROJECT:

Technical Objective: Efforts under this grant will be devoted to the developing of techniques for the culture of several species of marine organisms in Maine waters. Where techniques for these organisms have been developed elsewhere, tests will be undertaken to determine whether these same procedures will work in Maine's colder waters. Where such techniques have not been developed, they will be worked on by the University of Maine group. Some modification of techniques developed elsewhere are to be expected. However, in most instances they will not have to duplicate earlier work. Species to be cultured are the deep sea scallop and the European oyster. Other studies will include an assessment of the cancer crab fishery of Maine and an exploration of possible ways to increase the demand for blue mussel.

Approach: Initial efforts on the deep sea scallop will include the spawning and rearing of the scallop and an investigation to determine the feasibility of using a large natural bottom area in the Damariscotta River as an experimental scallop bed. The work on the European oyster will begin with an assessment of the population levels in several areas along the Maine coast where the oyster was introduced in past years. This will be followed by adaptation of known cultural techniques for Ostrea edulis to the Maine environment. Later work will include the construction and testing of submersible rafts and a study of the potential market outlets and consumer acceptance. In addition to the assessment of the cancer crab fishery, efforts will also be undertaken to explore the adapting of the crab meat picking machine devised for blue crabs to the picking of meat from rock crabs and an evaluation of consumer demand for the rock crabs.

Several approaches will be used to explore the ways of increasing the demand for mussels such as their use as an additive in animals feeds, the potential of mussel protein concentrate, improving of mussel dishes for human consumption and the promotion of the fresh product.

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SIE NO.
GBP-754

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
78121000

TITLE OF PROJECT:
CONTINUATION OF STUDY INTO DISTRIBUTION, ABUNDANCE, AND DEVELOPMENT OF SELECTED ICHTHYOPLANKTON OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HH DEWITT ZOOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,400

SUMMARY OF PROJECT:

Technical Objective: The abundance of resource species in the ocean is, to a large extent, dependent on events which occur during the early phase of the life cycle. Mortality is very high and slight modification in mortality rate can have a considerable influence on the numbers of new recruits. An understanding of the mechanisms involved in determining the survival of the early stages of exploited stocks including the effects of environmental variation is needed to interpret stock-recruitment relationships. Also the position of fish larvae in the tropho-dynamics of the sea is different from that of the adults. The availability of the right kind of food at a given time is more critical for the larvae than for the adults and could be an important factor in determining the size of the year class. The MARMAP ichthyoplankton survey is designed to provide a balanced system of broad-area low intensity sampling supplemented by high intensity "zoom" studies relating to specific hypotheses. This approach will lead to an understanding of the factors controlling the abundance levels of resource populations, and allow for more rapid predictions of the status of living marine resources. A part of the study will provide information on the spawning abundances, times and places of the more abundant fish species in the Northwest Atlantic Ocean.

Approach: The initial step towards reaching this goal has been taken by the National Marine Fisheries Service under the MARMAP Program. The University of Maine Ira C. Darling Center, will sort, enumerate and identify to family taxon (and where possible to species), fish eggs and larvae collected on MARMAP cruises in the Gulf of Maine. Dr. Hugh H. DeWitt of the University of Maine will be responsible for supervising the sorting and processing the samples by graduate students.

Progress: Progress reports will be submitted quarterly and a final report including a description of the seasons and areal abundance of the dominant species found in the collections will be submitted at the end of the contract period.

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SIE NO.
AH-652

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
THE HOLOCENE SEDIMENTATION IN MONTSWEAG BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D SCHNITKER
K LEBLANC

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The history of the sedimentary filling of Montsweag Bay is to be studied by a variety of techniques. A series of seismic profiles will permit estimates of the sediment volume present within the bay and provide information about internal sedimentary structures. Sediment cores, taken by vibracorer, will be analyzed for microfossils (pollen, spores, ostracods, foraminifera) sediment granulometry, organic matter content. Radiocarbon dates will provide an absolute time reference frame.

Actual sedimentation processes and rates are studied throughout the bay to permit prediction of shoaling events in certain sections of the bay.

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SIE NO.
AK-566-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
EFFECTS OF TEMPERATURE AND MECHANICAL STRESS ON PLANKTON ENTRAINED BY THE MAINE YANKEE ATOMIC POWER PLANT, MONTSWEAG BAY, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
R CRIPPEN
P LINDSAY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $43,380

SUMMARY OF PROJECT:

Plankton samples are collected at the intake and discharge of the Maine Yankee Atomic Power Plant (MYAPCo), and in the discharge channel at the northern end of Long Ledge, Montsweag Bay, Maine. The ichthyoplankton samples are left in tact, and the flagellate, diatom, and zooplankton samples are divided into several homogeneous subsamples. All samples are returned to the laboratory and maintained at the intake or ambient temperature. The survival of the ichthyoplankters and the estimate of the flagellate population is determined by direct obsevation after returning to the laboratory. Stains are used to determine the survival of diatoms 24 hours after collection, and zooplankton one and 24 hours after collection.

The independent effects of mechanical and thermal stress are evaluated separately. "Cold" samples (mechanical stress only) were taken when the plant was pumping but not imparting a T, and treated as above. Thermal stress is evaluated in the laboratory by subjecting one of the "intake" subsamples to the same temperature rise and cooling experienced in the plant and discharge channel at the time of sampling. The experimental "intake" sample and its control are treated as above. The results of the above samples (field samples, "cold" samples, and experimental samples) will assist not only in the evaluation of possible effects of thermal and mechanical stress, but also on possible synergistic effect between these two stresses.

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SIE NO
AP-877

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HYDROGRAPHY, SEDIMENTS, PLANKTON, BENTHOS & COMMERCIALLY IMPORTANT PLANTS & ANIMALS INCLUDING FINFISH, IN MONTSWEAG BAY-BACK RIVER AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

D DEAN
RJ MCALICE
JM MCCLEAVE
RL VADAS
GT REED

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The project is designed to establish ecological baselines for the unaltered environment, and to assess the effects of subsequent thermal alteration. Monitored at frequent intervals throughout the year are: temperature, salinity, nutrient levels, phytoplankton, zooplankton, benthic communities, attached algae, and fishes. Stocks of commercially important shellfish and sea worms are assessed quarterly. Sediment distribution, current patterns, and rates of sedimentation are also being studied.

INVESTIGATORS (CONT)
W LEE

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SIE NO.
AA-773-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HYDROGRAPHIC AND BIOLOGICAL SURVEY OF MONTSWEAG BAY AND VICINITY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF BJ MCALICE
D DEAN
HH DEWITT
JM MCCLEAVE
RL VADAS

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $106,420

SUMMARY OF PROJECT:

An 850,000 KW nuclear-powered electric generating facility began operation in late 1972 at Bailey Point, Montsweag Bay, Lincoln County, Maine. Ecological baselines have been established in the unaltered environment prior to plant operation. The project is now attempting to evaluate the effects of thermal alteration.

Monitored at frequent intervals throughout the year are: temperature, salinity, nutrient levels, phytoplankton, zooplankton, benthic communities, attached algae, and fishes. Stocks of commercially important shellfish and sea worms are assessed quarterly.

INVESTIGATORS (CONT)
GA JEAGER
B PORTER
RD CLIME
SA MACKO
WP REYNOLDS
M KESER

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SIE NO.
PW-2247

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SOCIETY OF THE SIGMA XI

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ANALYSIS OF ESTUARINE DEPOSITIONAL ENVIRONMENTS ON AN INTERMEDIATE WAVE AND TIDAL ENERGY COAST, WELLS BEACH AREA, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BS TIMSON

RECIPIENT INSTITUTION:
UNIV. OF TEXAS
GRADUATE SCHOOL
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $250

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.

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SIE NO.
AP-33

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ADDITIONAL STUDIES IN RELATION TO MAINE YANKEE PLANT OPERATION

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF M MAZURKIEWICZ
BJ MCALICE
D SCHNITKER
D DEAN
H HIDU

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $130,803

SUMMARY OF PROJECT:

This is a group of projects designed to supplement other longer term investigations on the before and after analysis of the Montsweag Bay in relation to the Maine Yankee nuclear plant using the bay's waters as a coolant. Specifically, these additional studies include: 1) an analysis of recently deposited flocculent sediments (seismic profiling, mechanical analysis, piston coring, H2S content, sediment stability); 2) intensive field studies of sandworms, bloodworms, clams, and infaunal benthos near the outfall; 3) laboratory studies on the physiology of sandworms and bloodworms; 4) the effect of the heated effluent on growth, glycogen content, and radioactive uptake of oysters; and 5) a further analysis of the plankton, viz. macrozooplankton caught at night and primary productivity studies.

New Hampshire

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SIE NO
YME-46-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BEDROCK TOPOGRAPHY AND SEDIMENTS OFF THE KENNEBEC, SHEEPSCOT AND DAMARISCOTTA RIVER ESTUARIES, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D SCHNITKER
P CLARK

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The surficial deposits that now exist in the Central Maine coastal area are the result of processes that have been active here for not much more than the past 11,000 to 10,000 years, offering a unique opportunity to study a rather uncomplicated geologic model. A combination of seismic profile studies with sediment core and grab samples will allow us to determine the bedrock topography of the area and the amount and nature of the sediments present. The relationship of the existing sediment accumulations to the bedrock configuration will provide information about the sediment dispersal patterns and thus the hydraulic conditions within the area. ISG

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SIE NO.
GUX-896-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
18050 FBW

TITLE OF PROJECT:
ENVIRONMENTAL REQUIREMENTS OF SELECTED ESTUARINE CILIATED PROTOZOA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AC BORROR ZOOLOGY
H GODINO

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
GRADUATE SCHOOL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $26,760

SUMMARY OF PROJECT:

As a continuation of project 18050 FBW, this study is designed to determine the possible role of ciliated microorganisms (Phylum Protozoa, Class Ciliophora) as water pollution indicators. It will involve investigation of factors affecting species composition and microdistribution of populations of intertidal ciliates of the tidal marshes of the Great Bay - Little Bay Estuary, New Hampshire, where they reach particularly high population densities. The relationship of ciliates to the rest of the decomposer food chain and their role in estuarine productivity will be investigated. Measurements of relative and absolute abundance of members of the microbenthos correlated with variations in physical and chemical factors, will be employed in assessing diurnal and seasonal changes in ciliate community structure.

ISG

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SIE NO.
GY-10428-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES, SERVICE
NEW HAMPSHIRE

AGENCY'S NUMBER(S):
0010428
NH00191

TITLE OF PROJECT:
THE INFLUENCE OF WETLANDS ON QUANTITY AND QUALITY OF STREAM FLOW

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FR HALL
GL BYERS

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
INST. OF NAT. & ENVIRON. RSOU.
PETTEE HALL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Study the magnitude of water losses due to evapotranspiration from wetlands. Determine the influence of wetlands on base flow of a stream. Study the effect of vegetation in wetlands on the chemical quality of water.

Approach: Air temperature, dew point precipitation, wind velocity, and short- and long-wave radiation will be measured at a wetland site. Groundwater levels, soil moisture, and stream flow will be measured as needed. Chemical samples will be collected within the wetlands and where possible on inflow and outflow. Major ions, pH, silica, iron, and conductivity will be determined on the samples. A multivariate analysis of evapotranspiration, base flow, pH, and iron will be made to determine the relationships and significance of hydrologic and meteorologic variables that affect quality and quantity of flow.

Progress report: This investigation was undertaken to determine the feasibility of implementing management practices on wetlands to increase their yield of water during the dry months of the year for use in augmenting water supplies. It was found that the water losses during the months of June, July and August, 1969, due to open water, evaporation and transpiration were equal to approximately 20 inches of rainfall. Evapotranspiration from the vegetated areas was 1.7 times as great as the evaporation from the open water surface. An evaporation retardant was applied to the open water surface during the summer of 1970. This proved to be successful by reducing evaporation by approximately 32 percent. Chemical analysis showed that the waters are of a calcium sodium or sodium calcium sulfate bicarbonate or sulfate chloride type with rather low total dissolved solids, moderate pH, and low alkalinity. Iron is relatively high and silica low. The study showed that wetlands are areas from which significant additional quantities of water of adequate quality can be obtained if management practices are initiated.

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SIE NO.
GUN-9670

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-R-13-4-4

TITLE OF PROJECT:
STUDY OF SELECTED PHYSICAL, CHEMICAL, AND BIOLOGICAL FEATURES OF THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Objective: To determine the biological characteristics of selected areas of the Connecticut River System.

Procedures: This work will entail the use of gill nets and electrofishing gear, as well as other suitable means of sampling that may prove effective in determining the resident fish population. All fish will be identified and the relative abundance of each species will be recorded.

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SIE NO.
GUN-11223

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-36-R-1-2-1

TITLE OF PROJECT:
MAXIMIZING THE SURVIVAL OF MIGRATING JUVENILE COHO

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LW STOLTE

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: The objective of this job is to determine if the survival of coho salmon following hatchery rearing can be increased through the use of release-pens in the tidal portions of the parent streams.

Procedures: A floating pen will be built and positioned in the Lamprey River near the head-of-tide. During April of 1974, 1975 and 1976, 15,000 coho smolts will be put into the pen and fed for two days, after which they will be released. These fish will have been previously marked by excision of the left ventral (Lv) fin. Another group of smolts of the same number and size will be marked by excision of the right ventral (Rv) fin and released into the freshwater portion of the Lamprey River. Survival to the fishermen and the parent stream for each group of fish will be compared using a chi-square analysis. These data will be collected under Study 1 and Job 1.

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SIE NO.
GUN-9039-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-30-R-3-1

TITLE OF PROJECT:
CONNECTICUT RIVER WATERSHED

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS $4,950

SUMMARY OF PROJECT:

Objective: To acquire title or easement to lands beside and under the Connecticut River and its tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are critical spawning, resting or fishing areas for anadromous fish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the watershed.

After the number and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. A personal inspection will be made of the region to study its geography, regional and local growth and the attitude of the population toward the installation of State facilities.

In determining the market value of lands a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels.

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SIE NO.
GUN-9038-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-30-R-3-2

TITLE OF PROJECT:
MERRIMACK RIVER WATERSHED

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS $1,800

SUMMARY OF PROJECT:

Objective: To acquire title or easement to lands beside and under the Merrimack River and its tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are critical spawning, resting or fishing areas for anadromous fish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the site.

After the number and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. An inspection of the region will be made to study its geography, regional and local growth and the attitude of the population toward the installation of State facilities.

In determining the market value of lands, a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels.

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SIE NO
GUN-6252-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-9-2

TITLE OF PROJECT:
SALMON STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
8/71 TO 6/72
FY72 FUNDS $600

SUMMARY OF PROJECT:

Objectives: To evaluate growth and survival of juvenile Atlantic salmon in tributaries.

Procedures: Atlantic salmon fry will stocked into Ammonoosuc River System.

Sampling for growth and survival rates and distribution will be conducted with the aid of a portable fish shocker.

At times two or more of these jobs will be carried on simultaneously. ISG

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SIE NO.
GUN-6251-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-9-1

TITLE OF PROJECT:
SHAD STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $1,800

SUMMARY OF PROJECT

Objectives: Restoration of the American shad (alosa sapidissima) to the Connecticut River System.

Procedures: Green shad eggs will be obtained and stocked into the Connecticut River in the Bellows Falls-Lebanon area.

Portions of the eggs will be placed in specially constructed shad egg boxes; the remainder to be broadcast. Hatching success and subsequent survival will be checked during the summer and fall period.

It is anticipated that an approximate ten (10) million shad eggs will be made available for stocking. With this magnitude of eggs and subsequent juvenile shad in the river it is anticipated that a maximum concerted effort will be made by the bordering states to evaluate the potential contribution of this area to the fishery should it extend beyond the Bellows Falls area with the advent of suitable fish passage facilities.

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SIE NO.
GUN-8055-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-5-4-5

TITLE OF PROJECT:
COASTAL WATERSHED SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LW STOLTE

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $900

SUMMARY OF PROJECT:

Job Objectives: 1. To assess suitable areas for coho salmon which might lead to expansion of the program. a) To sample resident fish populations with emphasis on number and species composition. b) To monitor physical and chemical parameters of selected streams during the critical summer months: c) To assess the salmon rearing and spawning habitat.

Procedures: Stream flow gauging stations will be utilized whenever possible. Water chemistry will primarily deal with dissolved oxygen and pH. The important physical parameter will be temperature. Resident fish populations will be sampled using electro-fishing techniques. Lengths, weights, and scales will be obtained from a representative sample of the fish captured and catalogued according to species. Salmon rearing and spawning habitat will be examined by direct observation. Habitat areas will be calculated in specific area units. ISG

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SIE NO.
GUN-6254-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-11-5

TITLE OF PROJECT:
FISH POPULATION STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR NORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Objectives: Investigate resident fish population in the Connecticut River between Wilder Dam and the Woodsville area, in the main stem of the Connecticut River and its tributaries.

Procedure: This work will entail the use of gill nets and electro-fishing gear as well as any other suitable means of sampling that may prove effective.

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SIE NO.
GUN-5014-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-11-3

TITLE OF PROJECT:
HABITAT SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $5,400

SUMMARY OF PROJECT:

Objectives: Physical survey of the Connecticut River system.

Procedures: The two remaining sections of the Connecticut River from (1) Lebanon to Wilder and (2) Woodsville to Ryegate will be surveyed to show bottom types, characteristics, depths, water velocities and quality. All pertinent data will be plotted on a map comparable with that of neighboring states, and will be made available upon completion. In addition, this year, the tributary stream will also be surveyed.

The work will be accomplished through the use of an electric fathometer, Peterson dredge, underwater observation, thermograph and any other specialized equipment necessary.

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SIE NO.
GUN-8237-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
N.H.AFS-10-3-3

TITLE OF PROJECT:
HABITAT SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PH WIGHTMAN

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,368

SUMMARY OF PROJECT:

Objectives: Continuation of physical survey of the Merrimack River from the Massachusetts line to the headwaters as well as the major tributaries.

Procedures: The main stem of the Merrimack River and the major tributaries from the Massachusetts-New Hampshire line will continue to be surveyed to show the bottom types, depth characteristics, water velocity, and quality. All pertinent data will be plotted on maps and made available upon completion. Work will be accomplished utilizing an electronic fathometer, Peterson dredge, thermographs, and other equipment as needed. Bioassay and chemical analysis studies will be conducted in headwaters of the Pemigewasset River to determine the toxicity of past paper production. Determination of the fishery composition in the watershed will be accomplished by fyke nets, gill nets and electroshocking equipment, depending on whichever is most feasible.

Data collected will be analyzed and tabulated during the winter months.

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SIE NO
GBP-1059

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35244

TITLE OF PROJECT:
MARICULTURE AND THE LOBSTER FISHERY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR BA MILLER

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
GRADUATE SCHOOL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Even though it is generally believed that commercial lobster mariculture will be achieved within the next few years, there is little agreement on the viability of the existing lobster fishery in New England, and on the potential effect of mariculture on this important fishery.

In the northern New England region the tradition of the independent lobsterman is extremely strong, and the livelihoods of many coastal families depend on the lobster. Therefore, before lobster culture is commenced on a commercial basis, any maricultural program, especially when supported by government funds, must seriously address itself to the socio-economic problems of the lobstermen. Information on the status of the lobster fishery should be consolidated, the impact of mariculture on the fishery should be evaluated, and approaches to include the lobstermen in any mariculture effort should be studied.

This study is intended to be a cooperative effort among other universities and agencies, and the seed money requested will be used to develop contact with all individuals and organizations presently involved in lobster mariculture and the lobster fishery. After contact is made, efforts will be made to determine the need for and desirability of planning and carrying out such a cooperative study. If deemed appropriate, requests for funding for the study will be made before June, 1973.

Accomplishments during the past twelve months: 1. The study of Cancer magister potential was completed and a report submitted. 2. This study generated interest in lobster mariculture and a full literature survey plus field trips to Maine, Martha's Vineyard and New England Aquarium plus telephone interviews have been conducted. 3. Work has been started on technical problems of a closed circuit system and feeding system in New England weather.

For additional information pertaining to this project contact Dr. Godfrey H. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire, Durham, New Hampshire 03824.

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SIE NO.
GMA-629

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
18080 FBW

TITLE OF PROJECT:
ENVIRONMENTAL REQUIREMENTS OF SELECTED ESTUARINE CILIATED PROTOZOA

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:
AC BORROR ZOOLOGY

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
SCHOOL OF LIBERAL ARTS
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $28,791

SUMMARY OF PROJECT:

Description: As a continuation of project 18050 FBW, this study is designed to determine the possible role of ciliated microorganisms (Phylum Protozoa, Class Ciliophora) as water pollution indicators. It will involve investigation of factors affecting species composition and microdistribution of populations of intertidal ciliates of the tidal marshes of the Great Bay - Little Bay Estuary, New Hampshire, where they reach particularly high population densities. The relationship of ciliates to the rest of the decomposer food chain and their role in estuarine productivity will be investigated. Measurements of relative and absolute abundance of members of the microbenthos correlated with variations in physical and chemical factors, will be employed in assessing diurnal and seasonal changes in ciliate community structure.

This research is being carried out using the facilities at the University of New Hampshire and the Jackson Estuarine Laboratory, University of New Hampshire, on Adams Point, Great Bay, New Hampshire.

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SIE NO.
GBP--1057

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35244

TITLE OF PROJECT

IMPROVED SENSING OF SURFACE SLICKS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

GC GERHARD ELECTRICAL ENGINEERING

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
SCHOOL OF TECHNOLOGY
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP

6/72 TO 5/73
FY72 FUNDS $18,900

SUMMARY OF PROJECT

Objectives: 1. Demonstrate feasibility of using infrared spectral emissive signatures of oil films for providing an additional method of classifying ocean surface slicks. 2. Investigate feasibility of using infrared spectral information at several wavelengths to improve oil slick thickness determinations. 3. Evaluate awareness determinations of appropriate agencies concerned with the Gulf of Maine with respect to oil surveillance programs, present and future.

How information will be applied: 1. Technical evaluations will be forwarded directly to user and potential user agencies in report form. 2. Surveillance need and planning information will coordinate with appropriate state and federal agencies.

Accomplishments during the past twelve months: 1. Completed state of the art study of remote sensing of oilslicks. 2. Evaluated scope and costs of current and proposed surveillance programs. 3. Set up cost effectiveness model.

For additional information pertaining to this project contact Dr. Godfrey H. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire, Durham, New Hampshire 03824.

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SIE NO.
GRP-1060

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35244

TITLE OF PROJECT

MODELING OF NEW ENGLAND COASTLINE WAVE PROCESSES AND COLLECTION OF REAL WAVE INPUT DATA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

PROF GH SAVAGE MECHANICAL ENGINEERING
AE PINN

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
SCHOOL OF TECHNOLOGY
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP

6/72 TO 5/73
FY72 FUNDS $41,000

SUMMARY OF PROJECT

Objectives: 1. To develop a computer model of the wave refraction, bottom friction effects and wind energy inputs for the 300 mile fetch length from deep water to the N.H. coast. This model is to use methods adaptable to any shelf area and to provide means of studying wave forces at any depth or location, sand transport studies relating to dredging and other environmental changes, and to be available to the offshore survey and construction industry. 2. To build a directional wave spectra data buoy system that is easy to install and can accumulate long term, (2 years), wave data to be used for inputs to computer models for design purposes.

How information will be applied: The information will be applied for offshore pipelines when the Gulf of Maine is drilled for oil in 1976, for placement of transmission cables for offshore power plants, for model studies of effects of bottom changes by proposed offshore sand and gravel dredging to determine whether or not a license should be granted; also, for feasibility of building structures such as oil storage tank farms offshore on the bottom.

Accomplishments during past twelve months: 1. A pure refraction model of a 50 mile length of the N.H.-Maine-Massachusetts coastline has been developed and is working. 2. The directional wave spectra buoy system has been designed and built and will be installed and working in July, 1972, including an instrument building with 140 watt thermal electric power on shore for continuous recording of data.

For additional information pertaining to this project contact Dr. Godfrey H. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire, Durham, New Hampshire 03824.

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SIE NO.
AR-183

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
PUBLIC SER. CO. NEW HAMPSHIRE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
PISCATAQUA RIVER ECOLOGY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR PIEHLER
JI NELSON

RECIPIENT INSTITUTION:
NORMANDEAU ASSOCIATES INC.
686 MAST RD.
MANCHESTER, NEW HAMPSHIRE 03102

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: This study involves the gathering of basic information on plant and animal communities indigenous to the Piscataqua River - Great Bay estuarial complex. The primary objective here is to better understand existing ecological conditions which may possibly be affected by the Newington Generating Station - Unit No. 1, presently under construction. Information is being gathered on physical, chemical and biological characteristics. Physico-chemical parameters studied include temperature, salinity, transparency, turbidity, conductivity, pH and dissolved oxygen. Biological studies involve determination of densities, diversities and natural fluctuations of epibenthic, littoral and finfish. Adjunct studies are being carried out on oyster growth and recruitment, crab movement, striped bass-coho salmon movement (determined by sonic tracking), creel censusing of sportsfish (striped bass and smelt) and productivity. Data acquired may disclose, through application of statistical methods, biotic interrelationships and/or correlation between physico-chemical and biotic characteristics.

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SIE NO.
GBP-712

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
730055
241360

TITLE OF PROJECT:
APPLIED RESEARCH & MARINE EDUCATIONAL DEVELOPMENT TO IMPROVE MANAGEMENT OF THE CONTINENTAL SHELF & ESTUARINE AREAS OF N. NEW ENGLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
G SAVAGE MECHANICAL ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
SCHOOL OF ENGINEERING
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $44,600

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.

Massachusetts

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SIE NO.
AR-181

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY: AGENCY'S NUMBER(S):

PUBLIC SER. CO. NEW HAMPSHIRE

TITLE OF PROJECT:

HAMPTON - SEABROOK ECOLOGY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GR PIEHLER
WS BOSWORTH

RECIPIENT INSTITUTION:

NORMANDEAU ASSOCIATES INC.
686 MAST RD.
MANCHESTER, NEW HAMPSHIRE 03102

PERIOD FOR THIS NRP:

7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Description: These studies are designed to provide information useful in the design of the Seabrook Nuclear Power Plant which will use oceanic water for cooling purposes. The main objective is to minimize the anticipated impact by the incorporation of plant design features which effectively avoid unnecessary adverse effects on the local biota. Major topics of study include spatial and temporal distribution of regional plants and animals, life cycles of which influence the local ecosystem. Considerable information has been gained on the local soft-shell clam (Mya arenaria) population, and area finfish, zooplankton and benthos. In addition, special studies have been directed at bioassay of marsh peat extract, salt marsh recovery and primary productivity of a salt marsh.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GBP-966 (CONTINUED)

INVESTIGATORS (CONT)
WK LEWIS
DP HOULT
SF MOORE

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SIE NO.
GBP-966

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

TITLE OF PROJECT:
OFFSHORE PETROLEUM AND NEW ENGLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JW DEVANNEY OCEAN ENGINEERING
JB LASSITER
MA ADELMAN
JA FAY
ER GILLILAND

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $47,280

SUMMARY OF PROJECT:

Objectives: This study seeks to lay out as clearly as possible the economic and environmental consequences to New England of a range of hypothetical petroleum discoveries on the New England continental shelf.

How information will be applied: The study's short-run significance is selfevident. It could have a critical effect on New England's response to the potential offshore petroleum, which response in turn could effect a major swing in both the quality of the region's environment and the level of real regional income. The study is a response to a deeply felt need within the region's body politic which faces what it realizes is an extremely important set of decisions. Beyond this, the study is an opportunity to demonstrate by concrete example the type of aid which objective analysis can offer a public decision-maker facing a decision with both market and non-market consequences and the limitations on this aid. Fiscal support provided by New England Regional Commission and New Regional River Basins Commission.

Accomplishments during the past twelve months: A computer stochastic model simulating the meterological and oceanographical conditions offshore New England has been completed so that the track of a hypothetical oil spill may be calculated and the frequency of landfall predicted based on spill location and ambient weather conditions.

A computer model simulating the production, transportation, refining and distribution of both regional and extra-regional petroleum has been completed which allowed the correlation of different regional and extra-regional sources of petroleum with the changes in real wealth.

A survey of the Corps of Engineers refinery permit applications has been completed which provides the correlation of refinery outputs with the volumes and contents of waste water, solids, and gases.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass 02139.

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SIE NO.
ZUA-1784-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
981550

TITLE OF PROJECT:
EAST COAST CONTINENTAL MARGIN, WOODS HOLE OCEANOGRAPHIC INSTITUTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JS SCHLEE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Atlantic Seaboard states.

The principal field measurement phase of the project has been terminated; about 90% of the report phase is completed. The contract with WHOI was ended in September 1971; report obligations have been satisfied by WHOIOpersonnel. Future plans include completion of reports listed in 9a, and minor additional studies in near-shore areas.

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SIE NO.
ZTA-404-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SMITHSONIAN INSTITUTION
MUSEUM OF NATURAL HISTORY

AGENCY'S NUMBER(S):
6800-063

TITLE OF PROJECT:
MARINE NEMATODES OF THE CAPE COD AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WD HOPE INVERTEBRATE ZOOLOGY

RECIPIENT INSTITUTION:
SMITHSONIAN INSTITUTION
WASHINGTON, DISTRICT OF COLUMBIA 20560

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Marine nematodes of the Cape Cod Area are virtually unknown except for a few species described, but not illustrated, by Cobb (1933). Research on this group of animals in the Cape Cod area has been prohibitive because of taxonomic difficulties. Yet, they are a very important, if not the most important, constituent of the meiofauna.

For this reason, a survey of the marine nematodes of the Cape Cod Area was conducted during the winter and summer of 1965 which will lead to a series of publications describing and illustrating specimens that were collected. It is intended that keys and habitat data will also be included.

The specimens are presently being sorted and mounted for study and all type specimens of marine nematodes originally collected on mid and Northern shores of the East Coast of the United States have been gathered at the Museum of Natural History for comparative studies. ISG

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZUA-2957 (CONTINUED)

analysis later. A report was written describing the computer model and releasing the program. The program was modified for more sophisticated importation methods and to handle certain water quality parameters (such as BOD).

The model will be improved t (Text Truncated - Exceeds Capacity)

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SIE NO.
ZUA-2957

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
MA 71-035

TITLE OF PROJECT:
MATHEMATICAL MODELING OF IPSWICH RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
IC JAMES WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $33,200

SUMMARY OF PROJECT:

Over twenty towns are in competition for the rather limited water supplies of the Ipswich River Basin. The limited and interdependent nature of this supply for these towns, coupled with their tremendous growth potentials as suburban areas on the north side of Boston, precludes any long-term solutions to the water supply on an individual town basis. The state cooperator, recognizing the economies of scale to be achieved in multitown or regional approaches, has requested the development of a mathematical model which can be used for screening the large number of alternatives for in-basin development, import sources, and operating policies.

The objective of this project is to develop a computer simulation model of the Ipswich River Basin to enable the assessment of possible water resource development alternatives including internal development and the impact of potential import of water to the basin.

The plan for the study is to develop a flexible simulation model of the basin hydrology and water demands. By the specification of a few control parameters, a study can be made of a particular set of alternatives for basin development. The first developed model will consider local resources such as wells, local storage, and local stream diversions; regional storages; and several major import sources. This first model will be limited to quantity calculations without considerations of water quality, and is scheduled for completion in July 1971. At this time a major review of needs will be made with the cooperator based on results of the first model. An advanced model will be designed which will include such possible features that the cooperator may deem necessary such as water quality parameters, partial optimization of design features, construction staging strategies, effects of land use planning, and recreational benefit evaluation. In particular, an effort will be made to develop comparisons of alternatives which show the trade-offs between economic efficiency and environmental considerations.

A number of water-supply developments were assessed at various levels of demand using the computer model. These results were discussed

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SIE NO.
ZUA-2578

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00932

TITLE OF PROJECT:
CONTINENTAL SHELF STRATIGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JC HATHAWAY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project plans to study the stratigraphy of the sediment underlying the continental margin of the northeastern United States from the area of Cape Hatteras to Georges Bank by shallow core drilling. The initial effort is concentrated on the margins of Georges Bank because here the older underlying Mesozoic and Tertiary beds, although covered by a mantle of Pleistocene deposits, make their closest approach to the sediment water interface. Studies are planned of the paleontology, lithology, mineralogy, and geochemistry of the cores obtained. Similar work is planned on the continental margin south of Georges Bank along the continental shelf break toward Cape Hatteras.

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SIE NO.
ZUA-2583

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
3-9810-00479

TITLE OF PROJECT:
MASSACHUSETTS COOPERATIVE PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RN OLDALE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
222 MAIN ST.
FALMOUTH, MASSACHUSETTS 02540

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachusetts.

The project has as its main objective to provide maps of the offshore area adjacent to eastern Massachusetts. The maps are to portray sediment distribution and thickness, the distribution of glacial deposits and older sedimentary formations of Tertiary and Cretaceous age, the distribution of Triassic and older sedimentary and metasedimentary rocks and the patterns of water movement through the area. The scientific purpose is to reconstruct the geologic history of the area and to tie the offshore geology with that already mapped on the land. The Commonwealth's interest is in providing the basic information on what is there. The project is gathering data mainly in the form of sonic profiles (3.5 KHz, air gun, and uniboom), magnetometer profiles, and cores and grab samples. The means are indirect in the case of the geophysical profiles, but are being coupled with cores. Additional coring is planned at strategic locations for stratigraphic purposes. Core and grab samples have been taken to delineate the different kinds of sediment and are keyed in particular to broad physiographic features (ledges, basins, intricately complex areas of bedrock) because they have shown in previous work to relate most directly to surficial sediment. Water currents have been investigated with situ meters, sea bed drifters, and salinity-temperature probes to see the pattern of water movement offshore and to find out regime of sediment transport (suspended and bottom).

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SIE NO.
ZUA-2350

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
MA-70-032-C

TITLE OF PROJECT:
WATER RESOURCES OF THE COASTAL DRAINAGE BASINS OF SE MASS. - PART 1, HINGHAM TO KINGSTON; PART 2, PLYMOUTH TO WAREHAM (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JR WILLIAMS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: To obtain and present hydrologic data and interpretations of these data for a better understanding of the hydrology to the physical and social environment for use in planning water projects.

Methods: Collect and synthesize ground-water, streamflow, and chemical data and prepare individual atlases and supporting basic-data releases for northern and southern parts of the area. Surface-water evaluations are based on two short-term stations, 20 low-flow sites, and correlation with long-term gaging stations outside areas with sub-basin geology. Ground-water availability is based on existing and current geologic mapping, subsurface data, pumping test analysis, and estimated transmissivity of the aquifers. Data on salinity of North-South River estuary and its variation with fresh-water inflow will be published in a by-product report (open file).

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SIE NO.
ZUA-2449

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00932

TITLE OF PROJECT:
CONTINENTAL SHELF STRATIGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JC HATHAWAY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project plans to study the stratigraphy of the sediments underlying the continental margin of the northeastern United States from the area of Cape Hatteras to Georges Bank by shallow core drilling. The initial effort is concentrated on the margins of Georges Bank because here the older underlying Mesozoic and Tertiary beds, although covered by mantle of Pleistocene deposits, make their closest approach to the sediment water interface. Studies are planned of the paleontology, lithology, mineralogy, and geochemistry of the cores obtained. Similar work is planned on the continental margin south of Georges Bank along the continental shelf break toward Cape Hatteras.

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SIE NO.
ZUA-2111-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
981012

TITLE OF PROJECT:
MASSACHUSETTS CO-OP

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RN OLDALE OFF OF MARINE GEOLOGY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachusetts, New Hampshire, Maine.

The project has as its main objective to provide maps of the offshore area adjacent to eastern Massachusetts. The maps are to portray sediment distribution and thickness, the distribution of glacial deposits and older sedimentary formations of Teritary and Cretaceous Age, the distribution of Triassic and older sedimentary and meta-sedimentary rocks and the patterns of water movement through the area. The scientific purpose is to reconstruct the geologic history of the area and to tie the offshore geology with that already mapped on the land. The Commonwealth's interest is in providing the basic information on what is there. The project is gathering data mainly in the form of sonic profiles (3.5 kHz, air gun) magnetometer profiles, and cores and grab samples. The means are indirect in the case of the geophysical profiles and should eventually be coupled with core holes drilled at strategic locations for stratigraphic purposes. Core and grab samples are being taken to delineate the different kinds of sediment and are keyed in particular to broad physiographic features (ledges, basins, intricately complex areas of bedrock) because they have shown in previous work to relate most directly to surficial sediment. Water currents are being investigated with in situ meters, seabed drifters, and salinity-temperature probes to see the pattern of water movement offshore and to find regime of sediment transport (suspended and bottom).

ISG

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SIE NO.
ZUA-2351

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
MA-73-040-C

TITLE OF PROJECT:
WATER RESOURCES OF COASTAL BASINS OF SE MASSACHUSETTS, WEWEANTIC RIVER, WAREHAM TO UPPER NARRANGANSETT BAY WATERSHED AND SEEKONK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JR WILLIAMS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: To obtain and present hydrologic data and interpretation of these data to provide understanding of the hydrologic framework to solve the above problem and for use in planning water projects within the area.

Method: Collect and synthesize ground-water, streamflow, and chemical data and prepare individual atlas-type reports and basic data releases for eastern and western parts of the area. Surface-water evaluation will have to be done by establishing temporary gaging stations and a network of low flow partial-record stations for correlation with long- term gaging stations in adjacent basins and for correlating with geology of the individual sub-basins. Groundwater availability is to be based on existing data and a large amount of geologic mapping to be done on the project, subsurface data to be collected, pumping test analysis, and estimated transmissivity of the aquifers.

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SIE NO.
ZUA-1186-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9550-00641

TITLE OF PROJECT:
SEA-CLIFF EROSION STUDIES, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CA KAYE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachusetts.

The project hs studied the erosion of sea cliffs on Martha's Vineyard, particularly Gay Head. The many factors controlling the erosion necessitated an understanding of the geology of the cliffs. This work was extended and in consequence the geology of the island was studied in detail. Field studies are essentially completed. Report writing is the next phase. Vertebrate, invertebrate, and plant fossils collected from the cliffs are being studied by specialists, and it is hoped that final report will include chapters on the paleontology and pre-Pleistocene and Pleistocene geology as well as coastal erosion.

In addition, the project has studied erosion of sea cliffs in Boston Harbor and intertidal rock erosioon at Nahant, Massachusetts. Fieldwork is completed except for the making of a detailed plane-table map of the Nahant area.

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SIE NO:
ZUA-1072-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
MA68-029-C

TITLE OF PROJECT:
HYDROLOGY AND WATER RESOURCES OF CHARLES RIVER BASIN, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EH WALKER

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U. S. Geological Survey in cooperation with the State of Massachusetts.

Purpose: To obtain and evaluate hydrologic data for use in planning current and future water supplies.

Methods: Aspects of urban hydrology will be emphasized in the study of the lower reach of the Charles River because much of it is within the Boston metropolitan area. In the upper reaches emphasis will be placed on evaluation of ground-water reservoirs.

Data from the 4 existing and 1 proposed stream-gaging stations in the basin will be analyzed and additional measurements will be made in order to determine the streamflow characteristics including ground-water runoff and flood flows. Time-of-travel studies will be performed. Aquifer transmissibilities will be computed from existing data and from proposed drilling and surficial geologic mapping where needed. Sediment and water-quality samples will be collected and evaluated. ISG

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SIE NO.
ZUA-1478-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
3-9510-00514

TITLE OF PROJECT:
MASSACHUSETTS COOPERATIVE GEOLOGIC PROGRAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LR PAGE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachusetts.

The Massachusetts Cooperative project will continue to map and publish the bedrock and surficial geology of the Commonwealth at the 1:24,000 quadrangle scale as funds permit. This mapping will be used to compile bedrock and surficial maps of the Commonwealth at the scale of 1:125,000. Eastern and western Massachusetts is underlain by north-northeast-trending Precambrian and lower Paleozoic metamorphosed sedimentary, volcanic, and igneous rocks which are complexly folded and faulted. There are several small basins in eastern Massachusetts with relatively unmetamorphosed Carboniferous rocks. A low-lying north-trending graben with Triassic sediments and mafic flows and dikes underlies the central part of the Commonwealth. The upland areas are overlain by till and the major stream valleys and lowlands have a complex succession of fluvial stratified deposits of Pleistocene age. Southeastern Massachusetts and Cape Cod are overlain by outwash and sandy till.

Aeromagnetic maps have now been published on translucent vellum for the entire Commonwealth except for the outer tip of Cape Cod and the offshore islands of Martha's Vineyard and Nantucket at the scale of 1:24,000 so that they may be superimposed on the bedrock geologic maps. Shallow seismic studies and research are being done along some proposed highway relocations in order to improve seismic methods, interpretations, and predictions. A recently started offshore program is preparing maps of the movement of water masses and the distribution and thickness of sediments on the ocean floor under the territorial waters of the Commonwealth. ISG

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SIE NO.
ZUA-1214-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9550-00637

TITLE OF PROJECT:
ENGINEERING GEOLOGY OF METROPOLITAN BOSTON, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CA KAYE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachusetts.

Project objectives are: a. Subsurface maps, scale 1:6,000, of buried bedrock surface and principal Quaternary sedimentary units beneath Boston and parts of adjoining Cambridge and Brookline. Maps aimed primarily at engineers and city planners. b. Standard 1:24,000-scale maps of surficial geology of six greater Boston quadrangles, with emphasis on subsurface and engineering data. c. Map of submarine geology of Boston Harbor, utilizing sonar surveys. d. Professional Paper describing geology of Boston, mainly as revealed in studies of construction excavations and utilizing subsurface information from the project file of over 25,000 foundation borings.

Compilation of 1:6,000-scale subsurface maps should be completed in about 1 year, and the project should be completed in about 3 years.

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SIE NO.
WZ-2071-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
EUTROPHICATION STUDIES IN BOSTON HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

JJ COCHRANE CIVIL ENGINEERING
CJ GREGORY
G ARONSON

RECIPIENT INSTITUTION:

NORTHEASTERN UNIVERSITY
SCHOOL OF ENGINEERING
360 HUNTINGTON AVE.
BOSTON, MASSACHUSETTS 02115

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Laboratory studies continue at the Marine Science Institute in Nahant on the growth characteristics of the marine algae, Ulva latissima. In Boston Harbor, specific sites of high Ulva growth have been located, and in the field, changes in water quality and other environmental conditions are being followed to establish a correlation with laboratory results. The information will be used to develop a predictive model for marine algal blooms and their control. ISG

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SIE NO.
ZUA-1067-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
MA66-025-C

TITLE OF PROJECT:
WATER RESOURCES OF THE NEPONSET AND WEYMOUTH RIVER BASINS, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RA BRACKLEY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U.S. Geological Survey in cooperation with the State of Massachusetts.

Purpose: To obtain, interpret and present hydrologic data for a better understanding of the relationship of the hydrology to the physical and social environment for use in planning water projects.

Methods: A well inventory, records of streamflow at four gaging stations, ground-water levels at three continous record and seven monthly observed stations, miscellaneous or partial record discharge measurements on numerous streams, well logs from test holes, well logs and pump test data from well drilling contractors, stream and ground-water chemical quality samples, and municiple water consumption will be used to evaluate surface water - ground water relationships, location and extent of aquifers, aquifer yield, streamflow characteristics, and chemical quality of ground and surface waters. ISG

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SIE NO.
GUX-664-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
11020 FAT

TITLE OF PROJECT:
THE CONSTRUCTION OF THE STORM DETENTION AND CHLORINATION STATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

H WHITMORE	
FW SEW	ENGINEERING
MF CASGRAVE	ENGINEERING
FT BERGIN	SANITARY ENGINEERING

RECIPIENT INSTITUTION:
METROP. DISTRICT COMMISSION
20 SOMERSET ST.
BOSTON, MASSACHUSETTS 02108

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The storm detention and chlorination station is being constructed for the treatment of storm water overflows from the combined sewage system of the cities and towns bordering on the Charles River Basin. The proposed installation will be capable of handling a maximum of 230 million gallons per day of excess flow from the new and old sewerage systems. Consisting of screening and pumping facilities, chlorine dosing and detention facilities and skimming and flushing facilities, this installation will be fully automatic and will become an integral component of the overall sewage control program for Metropolitan Boston. A comprehensive sanitary survey of the Basin is now underway and will be followed up by correlation of operation data with rainfall; frequency and extent of overflows; physical, chemical and bacteriological analyses of influent and effluent; regrowth of coliforms; effectiveness of chlorination and solids removal with measurements of solids return to sewer; effectiveness of the double-sided overflow weirs in relief conduits; effectiveness of effluent diffusers into Basin and overall unit cost studies relating to operation, utilization and performance of the installation. Scheduled to be under construction in the Fall of 1967, the facility will be in preliminary operation in the Fall of 1969.
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SIE NO.
GY-30748-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
MASSACHUSETTS

AGENCY'S NUMBER(S):
0030748
MAS00008

TITLE OF PROJECT:
USE OF AERIAL PHOTOGRAPHS TO EVALUATE THE RECREATIONAL RESOURCES OF A RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WP MACCONNELL MCINTIRE STENNIS PROGRAM

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
AGRICULTURAL EXPERIMENT STA.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Develop and test the use of aerial photogrammetric techniques as a tool for identifying and classifying river-based recreation sites, examine and map a large river by these methods and make recommendations for its recreational use, and determine the land use changes which have taken place along a portion of the river since it was last photographed in 1952.

APPROACH: The Connecticut River will be studied. Refinement of analytical techniques will be based on a study of the river in Massachusetts; later the entire river will be studied from its source in Northern New Hampshire to its mouth in Connecticut. The entire length of the river will be photographed in a swath at least 500' wide on either side. Photographs will be examined photogrammetrically with frequent ground checks to determine what can be detected with respect to land bordering the river-accessibility, locations for parking, camping and picnic areas, scenic overlooks and other picturesque sites, soil drainage, and characteristics of vegetation, the shoreline--beach sites, dock sites, shorelines fishing and hiking, and the river itself--water depth, flood level, currents, nature of the bottom, physical obstacles, navigational landmarks, aquatic vegetation. A classification system for recreational use of a river will be developed and the entire river will be analyzed, mapped, and classified.

PROGRESS: LOUIS, a map information storage, manipulation, retrieval and display system, was evolved for computer storage of map information on the Connecticut River in Massachusetts. For the past year urban changes on the river have been studied on 1952 and 1965 aerial photographs to measure changes with a time lapse of 13 years. A new aerial photographic classification for cityscapes was developed and extensively tested on the larger cities on the river. 1 graduate student

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GUW-3757

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-4116

TITLE OF PROJECT:
DETERMINATION OF DECISION MAKING PROCESSES IN WATER RESOURCE PLANNING AND DEVELOPMENT - THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
ER KAYNOR POLITICAL SCIENCE
BB BERGER
W LITSKY

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The proposed research project will investigate water resource planning and development in the Connecticut River Basin. Focus of the project will be on actual procedures rather than on institutional arrangements, laws, authority, and the like. That is, project findings will answer the question: "Who decides" rather than "what agency has authority to decide"? Preliminary research indicates that the answers to these two questions differ extensively. Research will be directed at actual action taken and at patterns of influence, rather than at the formal system as it was designed to work.

Research will center on five water resource areas of concern in the Basin: Water supply, waste water management, flood control, electric power generation, and water and related land-based recreational and environmental enhancement programs. These five areas will be described in terms of past and present planning and development, and patterns of decision-making will be ascertained by a combination of extensive interviews and exhaustive analysis of the written record. The final project report in 1975 will provide a detailed empirical base for use in redesigning institutional arrangements and will provide new analytic probes for use elsewhere in research on water resouce planning and development.

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SIE NO.
GUW-3853

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-063-MASS

TITLE OF PROJECT:
DETECTION OF MUTAGENIC POLLUTANTS BY DETERMINATION OF THE FREQUENCY OF RECESSIVE LETHALS IN SELECTED PLANT POPULATIONS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF EJ KLEKOWSKI BOTANY

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Genetic load estimates will be made for populations of the fern Matteuccia struthiopteris growing along the Connecticut River. The mutational load component will also be estimated by measuring the genetic divergence of somatic tissues. Fern populations throughout the length of the river will be investigated with respect to these two genetic parameters and their magnitudes will be compared to the pollutional characteristics of the river to determine possible correlations.

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SIE NO.
GUW-3560-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-062-MASS

TITLE OF PROJECT:
ANALYSIS OF SELECTED EXISTING WATER QUALITY DATA ON THE CONNECTICUT RIVER PHASE II

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AJ GROSS PUBLIC HEALTH
R GALKIEWICZ

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $4,900

SUMMARY OF PROJECT:

A study of available data is proposed to analyze variability in dissolved oxygen levels and coliform levels at selected points in the Connecticut River. It is further proposed that these variables (dissolved oxygen and coliform) be studied with regard to their relationship with other selected variables of interest, e.g. phosphates, nitrate-nitrogen, and biological oxygen demand.

Emphasis will be placed on the development of time series models in the analyses of coliform and dissolved oxygen levels in order to assess, at least partially, the quality of the Connecticut River over a period of several years and to forecast future coliform and dissolved oxygen levels.

In the process of doing the above, procedures for data collection will be reviewed in an effort to outline methodology for improvement. In particular, methods will be explored to integrate data collection and data analyses procedures.

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SIE NO.
GUW-3395-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-050-MASS

TITLE OF PROJECT:
LEGAL ISSUES ON ECONOMIC UTILIZATION OF THE CONNECTICUT RIVER FLOOD PLAINS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
D WILKES

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
MAN & HIS ENVIRONMENT INST.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Identifies legal issues with an impact on permissible uses of flood plains along the Connecticut River and issues which influence calculations of public costs involved in flood plain management along the River.

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SIE NO.
GUW-3380

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-039-MASS

TITLE OF PROJECT:
OPTIMIZING A UNIVERSITY CONTRIBUTION TO A BASIN-WIDE WATER QUALITY PLANNING PROGRAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RE MCGARRAH

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF BUSINESS ADMIN.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $4,500

SUMMARY OF PROJECT:

Project will test and improve methods of transferring knowledge on water quality management from the University to planning agencies. It will identify opportunities for such transfer in the comprehensive Nashua River Sub-Basin program of water pollution control. The project will also evaluate alternative methods for transferring information from the University to the planning agencies and seek to evaluate the results of such transfers of information.

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SIE NO.
GUW-3379-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-038-MASS

TITLE OF PROJECT:
EFFECTS OF WATER DIVERSION ON ESTUARINE FAUNA IN MERRIMACK RIVER, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF CF COLE FORESTRY & WILDLIFE MANAGEMENT

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF AGRICULTURE
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The proposed research plan involves a study of the likely effects of a proposed freshwater diversion from the Merrimack River whose estaurine mouth contains a fauna of considerable commercial and recreational value. Estuarine animals are adapted to a fluctuating though mid-range salinity and to a seasonal change in salinity due to spring freshets and summer dry periods. Changes in the natural salinity patterns could affect the distribution and abundance of these species causing their decline in abundance and vigor.

We intend to conduct field studies on: 1. The current range and distribution of sessile shellfish and the seasonal salinity patterns and other environmental factors affecting their abundance. 2. The seasonal appearance of anadromous species such as the blueback herring and other fishes in this estuary to determine if their arrival is related to changes in salinity due to spring freshets. 3. The seasonal cycle of estuarine ichthyoplankton and young of the year fishes that might be related to seasonal salinity patterns.

Field studies will be correlated with climatological and run-off data during the two and one-half years of field study. Historical records and previous work on the estuary will be integrated and evaluated to provide baseline information on the possible biological effects of the proposed diversion. ISG

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SIE NO.
GUW-3388-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-042-MASS

TITLE OF PROJECT:
ECOLOGICAL STUDIES OF MARSH VEGETATION IN DISTURBED STREAM ENVIRONMENTS OF THE CONNECTICUT RIVER WATERSHED IN MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CJ BURK BIOLOGICAL SCIENCES

RECIPIENT INSTITUTION:
SMITH COLLEGE
GRADUATE SCHOOL
COLLEGE HALL
NORTHAMPTON, MASSACHUSETTS 01060

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $3,500

SUMMARY OF PROJECT:

The proposed research involves an analysis of vegetation of marshes which have developed behind impoundments or elsewhere along selected streams within the Connecticut River watershed in Massachusetts. The structure of marsh vegetation will be correlated with disruptive factors, including improper land use, pollution, and manipulations of the water; and an attempt to establish parameters by which the structure of vascular plant communities or populations may be used as biological indicators of disturbance will be made.

Previous work conducted by the principal investigator on a single stream suggests that diversity and total coverage of vascular plant species decrease in all zones of downstream marshes while the tendency towards large single-species stands increases. The proposed research will attempt to determine whether these observations may be defined as characteristics of all tributary streams within the watershed. Standard ecological procedures will be utilized throughout the study; the data thus obtained will be analyzed and correlated with land use along each stream and with the history of each tributary and its floodplain. ISG

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SIE NO.
GUW-3381-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-040-MASS

TITLE OF PROJECT:
THE EFFECT OF LAND USE ON THE CHEMICAL AND PHYSICAL QUALITY OF SURFACE AND GROUND WATERS IN SMALL WATERSHEDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR ME WEEKS — PLANT & SOIL SCIENCE
JH BAKER
GL STEWART
ME HILL

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF AGRICULTURE
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $4,000

SUMMARY OF PROJECT:

Water quality in a small river with a reach of about 10 miles is to be studied in relation to runoff from the adjacent watershed. The river originates in this Berkshire Hills section of Massachusetts and empties into the Deerfield River, a branch of the Connecticut River. Vegetation in the watershed is largely hardwood forest but there are 12 to 15 active dairy farms in the area and there are two small towns that use the river for most sewage disposal.

The dairy farms should give a good opportunity to determine the effect of this type of dairy enterprise on water quality as compared with the woodland areas.

Land use patterns on farms, numbers of cattle, fertilizer practice, pesticide use and handling of wastes will be evaluated as to their possible effects on pollution. Water samples are to be collected on a regular schedule from stragetic locations and analyzed for pertinent mineral and biological constituents which include nitrates, phosphates, chlorides, calcium and C.O.D., B O.D., D.O. and possibly at times certain bacterial forms.

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SIE NO.
GUW-1845-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-2169

TITLE OF PROJECT:
FORMATION OF PUBLIC POLICY ON OUT-OF-BASIN DIVERSION OF CONNECTICUT RIVER FLOOD WATERS TO BOSTON METROPOLITAN AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BB BERGER

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
WATER RESOURCES RESEARCH CTR.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The study will seek to answer two sets of questions: (1) How does public policy evolve in respect to this inter-basin transfer of water? Subordinate questions are: (a) How did the various interested public groups form their opinions on this controversial issue? (b) How did the attitudes of these public groups change in time and what factors accounted for these changes? (c) How effective were public hearings in providing an opportunity for expression of public opinion? (d) What factors most strongly influenced the attitudes of the members of the special task force assigned by the General Court to the study of the proposed legislation? (2) What consequences in the Connecticut River Basin may reasonably be associated with diversions out of the basin? Subordinate questions are: (a) What is the role of flood flows in scouring bottom deposits? (b) What is the role of spring and autumnal flood flows in triggering movements of anadromous fish? (c) What is the role of flood flows in nutrient supply and removal? (d) What is the role of flood flows in the pollution of the river and its amelioration? (e) What is the influence of flood flows on the ecology of tidal and estuarial water? (f) What are the long-term water supply requirements of the basin region? (g) What is the role of Connecticut River flood flows in recharging regional groundwater aquifers important to the region?

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SIE NO.
GUW-1860-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-018-MASS

TITLE OF PROJECT:
ATTITUDES, VALUES, AND PERCEPTIONS IN WATER RESOURCE DECISION-MAKING WITHIN A METROPOLITAN AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

I HOWARDS GOVERNMENT
LC MAINZER
RA SHANLEY
ER KAYNOR

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project will investigate the values, attitudes, and perceptions of water resource decision-makers and those who affect and are affected by such decisions in the Springfield, Massachusetts area. The principal focus of the project will be on verification or disproof of four hypotheses called respectively the fragmentation hypothesis, the apathy hypothesis, the conflict hypothesis, and the distorted perception hypothesis.

Interview techniques will be supplemented with research designed to specify the criteria and weighting procedures necessary to define a metropolitan area, a careful specification on the area's geophysical and hydrologic characteristics, a summary of federal, state, and local institutional mechanisms to accomplish water resource planning and development, and the assembling of community social, economic, and political profiles within the target metropolitan area as preconditional data necessary to evaluate properly the interview responses. ISG

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SIE NO.
GUW-1610-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-023-MASS

TITLE OF PROJECT:
A MULTI-VARIATE MODEL FOR PUBLIC MANAGEMENT OF FRESHWATER WETLANDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JS LARSON — FORESTRY & WILDLIFE MANAGEMENT
WP MACCONNELL
WL CUDNOHUFSKY
J FABOS
WS MOTTS

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF AGRICULTURE
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project proposes to conduct a comprehensive study of Massachusetts wetlands through five coordinated sub-projects involving inventory, classification of wetland geology, classification of wildlife values, a study of aesthetic values, and an analysis of economic values of wetlands.

By aerial photography the wetlands will be mapped and subsequently compared with similar maps now 18 years old. Quantitative and qualitative descriptors will be prepared for computer analysis of the change in wetlands over this time interval and some predictions of future change will evolve.

A geological framework for wetlands will be developed to better understand the causal factors involved and to develop means to assess the involvement of given wetlands in local groundwater regimes.

Indicators of wildlife values will be developed to aid in evaluating probable effects on wild animal populations as the wetlands of the State experience change.

Visual-social values of wetlands will be studied to determine the roles these land types play in aesthetic contributions to the general environment and to establish values useful in economic analyses of wetlands.

Broad economics of wetlands, including costs and benefits, traditional and aesthetic, will be studied to provide a value fact base to aid in management decisions. ISG

INVESTIGATORS (CONT)
JH FOSTER

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SIE NO.
GUW-1846-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-032-MASS

TITLE OF PROJECT:
OPTIMIZING STRATEGY FOR STATE WATER POLLUTION CONTROL IN THE POST "PLAN OF IMPLEMENTATION" PERIOD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BB BERGER

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
WATER RESOURCES RESEARCH CTR.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,000

SUMMARY OF PROJECT:

A survey will be made of institutions that have evolved or have been designed to accomplish a regional objective in environment quality control, natural resources allocation and conservation, and in related fields. Efforts at regionalization in Massachusetts will be reviewed. Based on these steps: (1) the essential features of effective institutions for regional or basin-wide water quality management will be detailed and (2) the special problems in evolving such institutions in Massachusetts will be described; a strategy will be proposed for official consideration of alternative institutions that provide the essential requirements for regionalization of water quality control and appear to be fitted to the needs of Massachusetts and New England. ISG

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SIE NO.
GUN-9672

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-R-13-4-5

TITLE OF PROJECT:
STUDY OF SELECTED PHYSICAL, CHEMICAL, AND BIOLOGICAL FEATURES OF THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PH OATIS

RECIPIENT INSTITUTION:
STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG.
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $1,980

SUMMARY OF PROJECT:

Objective: To determine the pressure on and success of the sport fishery for shad below the Holyoke Dam.

Procedures: During the seven-week period of the shad run at Holyoke, a creel census of shad fishermen will be conducted. Implementation of this job will require a creel census agent working a total of five eight-hour working days per week, including all weekend days and three weekdays. The census agent will cover either a shift from 6:00 a.m. to 2:00 p.m. or from 2:00p.m. to 10:00 p.m. Two angler counts will be made during each shift, recording number of boats; boat anglers; and shore anglers. Shore fishermen interviews will be made at angler concentration points, including but not limited to the pool one-half mile below the Holyoke Dam and the Willimansett Bridge. Boat anglers will be interviewed at the public launching ramp on the East bank near the Massachusetts Turnbpike Bridge; and on the West bank at Crowley's Marina.

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SIE NO.
GUN-9673-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-13 (R)-3-2

TITLE OF PROJECT:
ATLANTIC SALMON STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PH OATIS

RECIPIENT INSTITUTION:
STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG.
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $18,990

SUMMARY OF PROJECT:

Objective: To determine the number of Atlantic Salmon caught from the high seas from smolts stocked into the Connecticut River and numerate the number of adult Atlantic salmon that return to the Connecticut River.

Procedures: Seventy thousand to one hundred thousand Atlantic salmon smolts will be marked--some 25 percent with Carlin-type tags; the remainder by cold branding--and released into the Connecticut River. All fish will be released into the river as spring smolts. A reward will be paid for all tags returned from the captured fish. The assistance of commercial fishermen will be sought to capture adult salmon returning to the Connecticut River. In addition, salmon attempting to move upriver over dams will be trapped and counted.

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SIE NO.
GUN-9418

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-11-8

TITLE OF PROJECT:
SHAD SAMPLING BELOW TURNERS FALLS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PH OATIS

RECIPIENT INSTITUTION:
STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG.
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:
5/72 TO 6/72
FY72 FUNDS $120

SUMMARY OF PROJECT:

Objective: To determine relative abundance of shad passed over the Holyoke Dam ascending the Connecticut River to the vicinity of the Turners Falls Dam.

Procedures: In 1968, it was reported that shad were present in the Falls River, a tributary to the Connecticut River, which enters the mainstream immediately below the Turners Falls Dam. In 1964 it was reported that 200 shad were observed below the Cabot Station generating plant at Turners Falls. Observations will be continued in 1972. Drift gill nets will be fished at suitable locations downstream of the Cabot Station in an attempt to better determine the relative abundance of shad below Turners Falls. Completion of this job will depend on suitability of flow condtions during June.

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SIE NO.
GUN-9420

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFT-4-11-9

TITLE OF PROJECT:
REARING ATLANTIC SALMON SMOLTS FOR STOCKING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
D FREDENBURGH

RECIPIENT INSTITUTION:
STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG,
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:
5/72 TO 6/72
FY72 FUNDS $360

SUMMARY OF PROJECT:

Objectives: To rear Atlantic salmon to smolts for stocking in the Connecticut River.

Procedures: In 1972, 40,000 eyed eggs were received from Canada for rearing at the Palmer State Fish Hatchery. Approximately 25,000 yearlings on hand will be reared to smolt stage. Experimentation with ponded water will be undertaken in an attempt to accelerate growth and possible smolt development.

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SIE NO.
GSV-3138-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-27405

TITLE OF PROJECT:
SYSTEMATIC AND DISTRIBUTIONAL STUDIES OF CALANOID COPEPODS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GD GRICE

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
12/71 TO 12/72
FY72 FUNDS $56,100

SUMMARY OF PROJECT:

This grant continues support by the National Science Foundation of studies of zoogeography and speciation in oceanic copepods (Candaciidae). Zoogeographical investigations include computer analysis to relate recurrent groups of species to particular water masses. Speciation studies involve the use of the methods of numerical taxonomy to elucidate intraspecific variation and interspecific variation. By such means the investigator proposes to identify morphologically similar populations and species with the view to formulating hypotheses on speciation within the Candaciidae. Simultaneously, rearing experiments are being conducted, to distinguish between environmental and genetic effects on adult morphology. Additionally, collections of deep water calanoid copepods are to be obtained from the Mediterranean Sea and the adjacent northwest Atlantic Ocean in order to further examine the species composition of the Mediterranean basin, the vertical distribution of the species and the extent to which they have diverged from North Atlantic populations. At the same time, the specific areas, in or near the bottom where planktobenthic copepods typically live is to be studied in detail in order to make possible precise collections of these animals and thus to understand fully the local and geographic distributions of the species in bottom depths between 500 and 2000 meters off the coast of Massachusetts and Florida. In a broad sense, this data will contribute to our interpretation of marine food chains and secondary production in the oceanic environment and will provide, as well, a meaningful background for speculation on the evolution of life in the sea. ISG

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SIE NO.
GSV-3957

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-35617

TITLE OF PROJECT:
PATTERNS OF SPECIES DIVERSITY IN ROCKY INTERTIDAL COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BA MENGE

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
BOSTON, MASSACHUSETTS 02116

PERIOD FOR THIS NRP:
8/72 TO 8/73
FY73 FUNDS $11,500

SUMMARY OF PROJECT:

There is a distinctly less rich fauna in the rocky intertidal communities of the North Atlantic Ocean than that of the Northeast Pacific Ocean. The investigator will test the hypothesis that the lower diversity of the former community results from the virtual absence of a functionally dominant secondary carnivore which in turn results from a relatively unpredictable environment (as compared to that experienced by the latter community). The two main components of this test will be (1) an analysis of a typical North Atlantic rocky intertidal community (in Maine) and (2) a comparison of this community to the already well understood Northeast Pacific community. The research program to be undertaken in the North Atlantic community includes (1) measurements of the predictability of resource availability for primary and secondary consumers, (2) construction of and comparison between energy budgets of the potentially functionally dominant carnivore (Asterias forbesi) in the subtidal habitat (presumed optimal) and the intertidal habitat (presumed sub-optimal) and (3) an analysis of the causes of the observed patterns of community structure in Maine. The proposed research program is based on field (and some laboratory) experimentation supplemented by observations and measurements of fundamental natural history phenomena, a powerful approach of proven value.

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SIE NO.
GSV-986-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-28622X2

TITLE OF PROJECT:
DYNAMICS OF SMALL SCALE PROCESSES IN AIR-SEA INTERACTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR EL MOLLOCHRISTENSE METEOROLOGY

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $92,900

SUMMARY OF PROJECT:

The objective of this study is to continue research on the dynamics and statistics of intermittent events and sporadic flux and turbulence production events as pertinent to air-sea interaction. The studies will include observations from the M.I.T. 108 ft. spar buoy placed in Massachusetts Bay and laboratory experiments on naturally occurring and artificially triggered turbulence production, flux events in Ekman layers, shear flows and convectively driven flows. ISG

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GSV-3336-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-28365

TITLE OF PROJECT:
COLLABORATIVE RESEARCH IN STRUCTURE, FUNCTION AND EXPORT OF A SALT MARSH ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JM TEAL
I VALIELA

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST,
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
4/72 TO 4/73
FY72 FUNDS $35,850

SUMMARY OF PROJECT:

This grant supports a study of the structure and function of a New England salt marsh-tidal creek ecosystem subjected to nutrient enrichment by the addition of sewage sludge and chemically defined fertilizers. The consequences of enrichment will be followed in the main structural components of the marsh, particularly primary producers and secondary consumers. These two elements are crucial to the energy exchange between the marshes and adjacent creeks. The research will concentrate on gas exchange in marsh grasses, production of benthic diatoms, populations of benthic animals, especially fiddler crabs and mussels, and growth of fish. ISG

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SIE NO.
GQN-823054-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN823054
CONTRACT
N00014-69-C-380

TITLE OF PROJECT:
NAVY ENVIRONMENT - PHYTOPLANKTONIC DETERMINANTS OF SONIC SCATTERING LAYER OCCURRENCE - PHOTIC REQUIREMENTS OF MARINE PHYTOPLANKTON

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GC MCLEOD

RECIPIENT INSTITUTION:
NEW ENGLAND AQUARIUM CORP.
CENTRAL WHARF
BOSTON, MASSACHUSETTS 02110

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $50,546

SUMMARY OF PROJECT:

The effective Navy use of underwater acoustics for surveillance, communications and guidance systems is severely impaired by acoustic scattering layers. The occurrence of scattering layers is influenced by a number of environmental factors including light, and the development of a predictive model for the DSL phenomenon will be dependent on a complete understanding of these environmental factors. This study is concerned with spectral measurements of irradiance in the sea as it relates to plankton productivity.

Growth characteristics of selected phytoplankton species exposed to monochromatic light are being studied to determine the precise spectral requirements of phytoplankton production. These results will be applied to the design and development of detectors capable of measuring the photosynthetically active light available in natural waters. The validity of phytoplankton growth potential prediction by this approach will be tested in Massachusetts Bay field studies.

Supporting Agency Address Information: Office of Naval Research 484, Arlington, Va. 22217

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SIE NO:
GSN-766

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF NATL. & INTERNAT. PRG.

AGENCY'S NUMBER(S):
GD-32558

TITLE OF PROJECT:
SUPPORT OF SUBMERSIBLE OPERATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RW MORSE

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
2/72 TO 2/73
FY72 FUNDS $174,000

SUMMARY OF PROJECT:

This project provides partial support for the WHOI operated Deep Submergence Vehicle ALVIN and her tender LULU which are used as research tools for a broad program of investigations in the marine environment. This submersible and tender will be utilized as a shared facility through the University National Oceanographic Laboratory system for oceanographic investigation by the staff of the WHOI and other institutions. Examples of utilization of this facility are: geological and biological studies of the Hudson Canyon and adjacent slopes; geological and geophysical investigations of the continental margin of Nova Scotia; field testing and evaluation of oceanographic instrument systems in the Tongue of the Ocean, the continental shelf and the New England sea mounts.

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SIE NO.
GOF-274090-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
AIR FORCE

AGENCY'S NUMBER(S):
DF274090
CONTRACT

TITLE OF PROJECT:
LONG PERIOD CRUSTAL TILT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
I SIMON

RECIPIENT INSTITUTION:
ARTHUR D. LITTLE INCORPORATED
15 ACORN PARK
CAMBRIDGE, MASSACHUSETTS 02140

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

AF FUNCTION - WEAPONS SITING, MISSILE GUIDANCE, DEFICIENCY - MAGNITUDE OF EARTH STRAINS AFFECTING MISSILE GUIDANCE (INERTIAL) SYSTEMS ARE UNKNOWN. RESEARCH - DESIGN AND FABRICATION OF BOREHOLE TILTMETER ARRAY. HOW RESEARCH CONTRIBUTES - QUANTITATIVE MEASUREMENTS OF SMALL EARTH TILTS WILL BE POSSIBLE. MEASUREMENTS WILL BE MADE OF THE LONG-PERIOD AND APERIODIC TILT OF A LIMITED AND TECTONICALLY INACTIVE REGION OF THE EARTH'S CRUST. INTERPRETATION WILL BE IN TERMS OF THE RESPONSE OF AN ELASTIC, VISCOUS, VISCOELASTIC EARTH MODEL TO TIDAL AND OTHER PERTURBING FORCES. THE USE OF AN ARRAY OF BOREHOLE TILTMETERS SHOULD PERMIT THE ASSESSMENT OF SHORT SPATIAL FREQUENCIES AND COHERENCE OF LOCAL EFFECTS. BOREHOLE INSTALLATION SHOULD OBVIATE THE USUAL REQUIREMENT FOR ELABORATE UNDERGROUND INSTALLATION AND PERMIT OPERATIONAL SENSITIVITIES OF 0.001 ARCSECONDS.

PROGRESS FROM 31 DEC 69 TO 02 SEP 70, THREE HOLES HAVE BEEN DRILLED - 50 FT INTO GRANITE ON THE NORTH SIDE OF L. G. HANSCOM FIELD. ONE OF THESE BIAXIAL TILTMETERS HAS BEEN RECEIVED AT AFCRL AND IS OPERATIONAL SINCE 8 JULY 1970 IN A NEARLY 22 FT. HOLE. TIDAL TILTS OF ABOUT 0.1 ARCSECOND ARE BEING RECORDED, DRIFT APPEARS TO BE LESS THAN 0.1 ARCSECONDS PER MONTH. AN ANALYSIS OF LOADING EFFECTS FROM OBSERVED OCEAN TIDES IN MASSACHUSETTS BAY HAS BEEN COMPLETED.

SUPPORTING AGENCY ADDRESS INFORMATION: AF CAMBRIDGE RESEARCH LABORATORIES LW L G HANSCOM FIELD, BEDFORD, MASS. 01730

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SIE NO.
GSB-12027-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-33217

TITLE OF PROJECT:
METABOLISM OF THE FORT RIVER ECOSYSTEM, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
SG FISHER BIOLOGY

RECIPIENT INSTITUTION:
AMHERST COLLEGE
GRADUATE SCHOOL
BOX 65
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
3/73 TO 2/74
FY73 FUNDS $17,500

SUMMARY OF PROJECT:

The Fort River is a medium size stream draining a multiple-use watershed in central Massachusetts. This research is designed to yield an annual organic carbon budget for a 5 km main stem section of the river using the ecosystem compartment model approach. All organic matter inputs and outputs, as well as seasonal changes in organic matter storage, will be monitored for two years. This will require measurements of meteorologic inputs (precipitation and litter fall), geologic inputs and outputs (organic matter in stream water and groundwater), and biologic inputs and outputs (primary production and respiration). The storage and flux data will be assembled in budget form to provide short and long term views of the metabolism of the ecosystem. The approach used is designed to generate a holistic context which will be used in further compartmentalization of the system. Detailed studies of intrasystem processes will take place after the system is better understood.

Ultimately the goal is to expand the study to include nutrient budgets as well and to model the system using independent variables such as channel morphometry, substrate type, temperature, discharge and hydrologic regime, turbidity, inorganic nutrients, and land use as predictors of stream metabolism.

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SIE NO.
GMA-1617

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
800505
72P15903

TITLE OF PROJECT:
LAND USE, WATER QUALITY AND ECOSYSTEM METABOLISM OF FORT RIVER MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR SG FISHER BIOLOGY

RECIPIENT INSTITUTION:
AMHERST COLLEGE
SCHOOL OF LIBERAL ARTS
BOX 65
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Proposal seeks support for first year of ecosystem study of Fort River, Massachusetts. Objective of project is to construct ecosystem level energy budgets for two contiguous sections of river. All inputs and outputs will be monitored. Initial data on nutrient fluxes will be collected so major sources of enrichment can be identified. Nutrient budgets will be constructed following same scheme used to study energy flow. Routine sampling of algae and macroinvertebrates at several stations on main stem will provide qualitative and quantitative description of biotic component of ecosystem. Experimental phase is generated by Amherst East Village development project which calls for construction of 2,000 living units on 630 acres of Fort River watershed adjacent to upstream section. First year of study will be directed toward establishing baseline data on ecosystem metabolism, i.e., before data. Continuation grants will be applied for in subsequent years so that effects of development on ecosystem metabolism may be monitored. Entire project will document changes in metabolism of lotic ecosystem induced by construction in watershed.

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SIE NO.
GPE-2061-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1)-4150

TITLE OF PROJECT:
THE DISTRIBUTION OF SOME CHEMICAL ELEMENTS BETWEEN DISSOLVED AND PARTICULATE PHASES IN THE OCEAN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR DW SPENCER CHEMISTRY
PG BREWER
PL SACHS

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
8/71 TO 7/72
FY72 FUNDS $65,333

SUMMARY OF PROJECT:

The long range objective of the work is to understand the fundamental chemical behavior of the elements in the ocean. Special emphasis is laid upon the uptake of the trace elements by marine organisms and the return of these elements to solution on sinking and decay.

In the coming year we propose to complete our program of instrumental neutron activation analysis of samples from the Gulf of Maine and assess the importance of the seasonal cycle. We propose to participate in a cruise to the Cariaco Trench on R/V ATLANTIS II to continue our work on anoxic basins, and to continue to improve our analytical capability.

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SIE NO.
GMA-209-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
800656

TITLE OF PROJECT:
QUANTITATIVE ANALYSIS OF THE CAPE COD BAY ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AD MICHAEL SYSTEMATICS ECOLOGY PROGRAM
WH PRESTON

RECIPIENT INSTITUTION:
MARINE BIOLOG. LABORATORY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The overall objectives of the Biotic Census of Cape Cod Bay are as follows: A). to study the kinds, abundance, diversity, and groupings of marine benthic animals in relation to particle size and organic content of sediments, depth, temperature, salinity, and B), Data from Part A will be handled by computer analyses. Part B will include (1) preparation of publications on the systematics of specimens collected by the Census, and (2) a study of animal sediment relationships along a transect of established Census stations. When support by ONR terminated, the field work and some synthesis was accomplished. The following remain to be completed, and support is requested of EPA and the Massachusetts Division of Water Pollution Control for 12 months for this: a. sorting of remaining quantitative samples, and identification by participating systematists of a backlog of specimens, b. computer analyses of the major groups of invertebrates relative to environmental factors, c. determination by statistical techniques those indicator species which are most sensitive to changes in environmental variables, d. comparison of data to assess the utility of the various objective techniques which have been proposed for delineating communities, and e. analysis of sampling gear and strategy to determine their effect upon the resulting biological and physical data.

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SIE NO.
GMA-832-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
801001
72P00615

TITLE OF PROJECT:
BIOLOGICAL RECOVERY FOLLOWING AN OIL SPILL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HL SANDERS

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Biological Recovery Following an Oil Spill. The monthly sampling program including biological samples and sediment samples for oil analysis will continue through September, 1971. Thereafter biological samples will be collected at selected stations at three-month intervals. 2 fuel oil spills occurred September 16, 1969, off West Falmouth, Massachusetts. This one year study will provide the best documentation of effects and subsequent recovery following an oil spill yet available. About 50 samples have been carefully sorted under the microscope and all of the animal groups retained on a 0.297 mm mesh screen have been identified to species. To fully document the sequence of events in the recovery of the area and provide greater statistical validity to the results, the time consuming process of sorting and identification will be completed for a substantial portion of the remaining 200 samples collected.

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SIE NO.
GBP-1225

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
0285202100

TITLE OF PROJECT:
WINTER FLOUNDER INVESTIGATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AB HOWE

RECIPIENT INSTITUTION:
STATE DIV. OF MARINE FISHERIES
100 CAMBRIDGE, STATE OFFICE BLDG.
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $21,975

SUMMARY OF PROJECT:

Technical Objective: To assess the contribution of offshore spawning areas. To measure relative abundance, movement and recruitment of estuarine sub-adult flounder in Waquoit Bay-Fel Pond, To analyze the probable variation in the number of fin rays in dorsal and anal fins in young flounder.

Approach: For the third year surface and bottom plankton samples were obtained bi-monthly, April-June, from eleven Nantucket Sound stations. Flounder eggs and larvae from all samples have been extracted and counted. For the first time reliable quantitative data was made available following the acquistion of a General Oceanics Digital Flowmeter for our benthic plankton sled. Stations were also monitored for young-of-the-year with an experimental beam trawl, July-September. We believe three years' effort and data, particularly that obtained during the past year, are sufficient to fulfill the objective of this study. Segment Five work will be aimed at a write-up of this data and our conclusions.

The winter flounder population in Waquoit Bay-Eel Pond has been intensively studied since 1969. Our work has centered on defining the age structure and population through mark-recapture studies and the tagging of 1,216 recruitable (age II and III) fish.

Final segment efforts will be directed towards an assessment of recruitment of Waquoit Bay-Eel Pond flounder to the offshore fishery attained through two methods. One will involve a comparison of the number of recruitable fish to overall stock recruitment, the latter being derived from a population estimate using tag return data and the total instantaneous mortality rate, which can be calculated from survival rate estimated from the release of tagged flounder in two consecutive years. The second method will involve yield equation work-sheet methodology, using catch records and tag return data to estimate mortality, combined with other vital statistics and growth parameters of flounder south of Cape Cod.

In large part the analysis is predicated on official catch statistics in statistical sub-unit areas. We anticipate the inherent

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SIE NO.
GMA-294

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
11023 FAT

TITLE OF PROJECT:
THE CONSTRUCTION OF THE STORM DETENTION AND CHLORINATION STATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
METROP. DISTRICT COMMISSION
20 SOMERSET ST,
BOSTON, MASSACHUSETTS 02108

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $4345,650

SUMMARY OF PROJECT:

Description: A detention basin will be constructed to intercept peak flows and to chlorinate waste water, as a means of reducing combined sewage overflows into the Charles River. The project includes the construction and evaluation of a combined sewer overflow facility, designed to provide a 10-minute minimum sedimentation detention time with an influent of 233 MGD. The chlorinated effluent will flow by gravity from the detention tanks through a 96 inch outfall pipe into the Charles River. Sludge deposits in the detention tanks will be returned to the sewer system to be treated at the sewage treatment plant. All settled materials will by flushed out of the tanks and into the sewer system after the storm subsides.

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SIE NO.
GBP-1210

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
78121080

TITLE OF PROJECT:
REVIEW OF THE PHYSICAL OCEANOGRAPHY OF MASSACHUSETTS BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DF BUMPUS

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $13,500

SUMMARY OF PROJECT:

Technical Objective: Assess the present status of knowledge of the hydrography of the study area to aid in establishing priorities for research in fishery ecology and man's impact on the marine environment.

Approach: Review the oceanographic literature from Bigelow's first studies to the present time and provide a generalized view of water currents and seasonal salinity and temperature regimes for Massachusetts Bay waters.

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NOTICE OF RESEARCH PROJECT

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AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GBP-1225 (CONTINUED)

delay in obtaining the 1972 statistics but believe that job #2 can be completed and presented as a technical paper during this segment.

From 1969-71 young-of-the-year flounder were collected from twenty-three estuaries, north and south of Cape Cod, in Buzzards Bay and on Martha's Vineyard.

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NOTICE OF RESEARCH PROJECT

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AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

GBP-983 (CONTINUED)

"Methods of Observation and Analysis of Harbor and Coastal Pollution," was offered in June, 1972 to 56 participants from government and industry.

Ground truth observations were provided by MIT boats for the tidal current and thermal surveys carried out by NOAA during summer - fall 1971.

For additional information to this project contact Dr. Alfred Keil, Sea Grant Project Office, MIT, Cambridge, Mass. 02139.

INVESTIGATORS (CONT)
DR HARLEMAN
ER MCCAFFREY
SF MOORE
K MOREY

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SIE NO.
GBP-983

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

TITLE OF PROJECT:
THE SEA ENVIRONMENT OF MASSACHUSETTS BAY AND ADJACENT WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AT IPPEN — CIVIL ENGINEERING
EL MOLLOCHRISTENSE
RC BEARDSLEY
BR PEARCE
JM EDMONDS

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $140,050

SUMMARY OF PROJECT:

Objectives: The comprehensive understanding of the physical environment of the waters of Massachusetts Bay and adjacent waters, with primary emphasis on pollution problems definition and solution, and the development of a predictive hydrodynamic model of the water environment that includes all the dynamic factors, such as wind, tide, currents, seasonal variation, temperature, salinity, etc., on a continuous time scale that will be the datum base for follow-on, related projects.

The methods and techniques developed for data acquisition, analysis and integrated systems response are designed for general application to other large ocean areas and water bodies.

How information will be applied: A predictive model will be developed to forecast the behavior of the Bay and the effects thereon of natural and man-made changes and actions.

The governmental agencies, charged with control and regulation of the ecology and environment of the Bay, will have an accurate tool for decision-making.

The instrumentation and analysis procedures developed will have broad application to environmental studies.

The resultant data base will support a wide range of important related research projects.

Accomplishments during past twelve months: Special instrumentation, with computer compatible outputs, has been developed and extensive S-T-D Surveys of Boston Harbor, conducted February 1 to June 30, 1972.

Mathematical modeling efforts to date include application of the MIT Boston Harbor Water Quality Model and Surface Heated Discharge Model and the initiation of Massachusetts Bay Mathematical Model studies in June, 1972.

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SIE NO.
GBP-963

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

TITLE OF PROJECT:
MARICULTURE PROJECT DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WW SEIFERT CIVIL ENGINEERING

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $7,250

SUMMARY OF PROJECT:

Objectives: The objective of this project is to enable a small systems-oriented group at M.I.T. to develop sufficient background knowledge of the range of activities currently underway in the field of mariculture to enable them to design a broad study to appraise the interaction of the economic and legal possibilities for initiating significant mariculture activities in the Massachusetts Bay area.

How information will be applied: We believe that knowledge in the mariculture field has now progressed to the point where a broad study designed to interrelate the various aspects of the mariculture problem as well as the application of engineering technology to specific problems will be important for development of this field in New England. The proposed effort would permit a group which is experienced in making systems-type studies to develop the background in mariculture necessary to outline a broad study of the field.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass. 02139.

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SIE NO.
GBP-965

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

TITLE OF PROJECT:
ASSAY OF THE MARINE RESOURCES OF MASSACHUSETTS BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JB LASSITER OCEAN ENGINEERING

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $21,000

SUMMARY OF PROJECT:

Objectives: The objectives of this project are to collect and to aggregate existing data at the Woods Hole Oceanographic Institution and the National Marine Fisheries Service Laboratory at Woods Hole relative to the finfish, sand, and gravel resources of the Massachusetts Bay. This will provide the geological and biological reference base lines, related to the sea environment project and model under Professors Ippen and Mollo-Christensen, to support future work under the "Massachusetts Bay - A Major Resource" - the theme.

How information will be applied: The existing raw data is not having any significant impact on the potential for developing Massachusetts Bay as a major resource. The data has been collected at public expense, yet it is not being fully utilized. The proposed study seeks to make aggregated data available to government agencies and to the public. This project seeks to initiate investment in and reasoned utilization of the main resources of Massachusetts Bay.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass. 02139.

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SIE NO.
GBP-749

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
WATER QUALITY MODEL FOR A NETWORK OF ESTUARINE CHANNELS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DR HARLEMAN CIVIL ENGINEERING
AT IPPEN

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An estuary consisting of channels and junctions is modeled mathematically by a network of one-dimensional channels. A finite element model is used for solution of the equation of motion and mass transfer with tidal advection and dispersion included for each branch of the network. These equations are solved, subject to interactions among branches and boundary conditions on the network as a whole, to provide time-dependent concentration distributions for non-conservative water quality parameters.

The model is capable of handling interactions among multiple water quality parameters such as temperature, salinity, B.O.D. and D.O. The ocean boundary condition distinguishes between ebb and flood tide transport of pollutants at the ocean entrance. Data from the James Estuary and its tributaries are used for verification of the model. The model has also been used to study water quality on Cork Harbour (Ireland) due to either steady or intermittent injection of wastes.

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SIE NO.
GBP-750

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
A PREDICTIVE MODEL FOR UNSTEADY SALINITY INTRUSION IN ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DR HARLEMAN CIVIL ENGINEERING
AT IPPEN

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Development of a finite difference model to predict time-dependent longitudinal salinity distributions in an estuary. The model couples the continuity and momentum equations for the tidal motion with the one-dimensional mass transport equation for salinity. The model incorporates the time-dependent boundary conditions of tidal range at the ocean end and variable fresh water inflows at the head of the estuary and from tributaries along the estuary.

The temporal and spatial variation of the longitudinal dispersion coefficient, E sub(x,t) is shown to be given by the functional relation E sub (x,t) equals K (partial differential s/x) plus E sub T where partial differential s/x is dimensionless local salinity gradient, E sub T is the dispersion coefficient in the non-saline region and K is the parameter depending on the degree of stratification. A general correlation for K for estuaries covering a wide range of stratification conditions has been obtained. The model has been verified for steady state and transient salinity distribution data for the Delaware, Potomac and Hudson estuaries. A user's manual for the computer program has been prepared.

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SIE NO.
AH-719-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
STONE & WEBSTER ENGIN. CORP.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SUBMERGED DIFFUSERS FOR THERMAL DISCHARGES IN COASTAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DR HARLEMAN CIVIL ENGINEERING

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: Design and prediction of the near-field temperature distribution for submerged, multi-port diffusers in shallow coastal waters. Temperature criteria prescribe a maximum temperature rise of 1-1/2F at the water surface. Studies are concerned with two power plant sites on the South shore of Long Island Sound, the proposed Shoreham Nuclear Power Station and the expansion of generating capacity at the Northport Station. Studies for the Shoreham Station have been completed. Undistorted models at scales of 1/20 and 1/100 were tested to determine near-field temperature distributions for two and three-dimensional multi-port diffuser configurations in shallow (15-20') water. Vertical temperature profiles indicated that fully mixed conditions were obtained downstream of the diffuser. The diffusers were tested under various steady and unsteady currents in the receiving water to simulate the effect of the changing magnitude and direction of the prototype tidal currents. Studies for the Northport Station have been completed. Emphasis is on the development of design criteria for multi-port diffusers in water of intermediate depth (24-40') to define conditions under which either a vertical temperature stratification or a fully mixed temperature field will be produced. Initial studies on a two-dimensional slot discharge were used to design the diffuser for subsequent undistorted model tests on a three-dimensional configuration. A new model basin will be constructed to accomodate this diffuser.

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SIE NO.
GBP-362

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
710157
294333000

TITLE OF PROJECT:
OCEAN TRANSPORTATION, SEA FOOD DEVELOPMENT, AND MARINE RESOURCES MANAGEMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR A KEIL NAVAL ARCH & MARINE ENGIN

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $315,000

SUMMARY OF PROJECT:

Technical Objective: This coherent area project is a continuation of a program initiated last year at MIT. It is composed of a series of sub-projects including work on various programs associated with ocean transportation, estuary modeling, physical oceanography on Massachusetts Bay, use of squid for food development, new underwater welding techniques and studies related to the management of marine resources. Also included in the program are several educational projects.

Approach: The approaches to the various projects, of course, vary with the type of study involved, including the determination of the present knowledge available, then the conducting of the various experiments and data collection necessary. Many of the projects involve other colleges, states, or federal agencies.

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SIE NO.
GSV-3985

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-35819

TITLE OF PROJECT:
BIOLOGICAL CHARACTERISTICS OF THE MARINE SEDIMENT-WATER INTERFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BG JOHNSON GEOPHYSICAL SCIENCES

RECIPIENT INSTITUTION:
UNIV. OF CHICAGO
SCHOOL OF PHYSICAL SCIENCES
5801 S. ELLIS AVE.
CHICAGO, ILLINOIS 60637

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS $29,100

SUMMARY OF PROJECT:

Part of the spatial and temporal variations in the diversity of benthic marine communities can be explained as the consequence of local disturbances of the sediment-water interface. The immediate objective of the proposed study is to determine the biological characteristics of the sediment water interface. Special emphasis will be given to determine the amount and distribution of organic matter which is potentially available to the benthos. The ultimate objective is to attempt to relate variations in the character of the sediment-water interface to variations in the diversity of benthic communities.

Destructive analyses of total carbon, nitrogen or of particular compounds do not measure the amount of organic matter that is biologically utilizable as food for the benthos. It is proposed that a mixture of several enzymes be used as the basis of evaluating potential food resources and their variation in natural sediments. Synoptic studies will be made in shallow and deep water environments in the region of Woods Hole, Massachusetts and Pigeon Key, Florida. In addition, an attempt will be made to correlate the variation in food resources with variation in species composition and diversity within a community in the environs of Woods Hole. The results of this study could have broad ecological implications and be of use in understanding the effects of pollution in the sea.

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SIE NO:
AA-704-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
BATTELLE MEMORIAL INSTITUTE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ECOLOGICAL STUDY OF DUXBURY BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR CA WILLINGHAM
RE HILLMAN
J WENNEMER
NW DAVIS
H QUINBY

RECIPIENT INSTITUTION:
WILLIAM F. CLAPP LABORATORIES
DUXBURY, MASSACHUSETTS 02323

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this study is to survey the flora and fauna of Duxbury Bay and establish the pattern of interactions between these organisms and the various environmental parameters found in Duxbury Bay. The Bay itself is a relatively high salinity area with a fifteen foot tidal amplitude. Twice each day the bay bottom is left exposed by the out-going tide. Data are collected on the various organisms from twelve stations along transects which cross the Bay.

Included are transects crossing associated wetland areas of the bay region when marsh productivity determinations are made.

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SIE NO.
ZUA-2584

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00937

TITLE OF PROJECT:
NEW ENGLAND NEARSHORE GEOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RN OLDALE OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: New England states.

Detailed geologic mapping of complex bedrock structure is planned for the nearshore areas of Mass., New Hampshire, and Maine. The mapping will depend in large part on bottom gravity and underway magnetic measurements and to a lesser extent on reflection and refraction seismic data. An initial gravity cruise was undertaken this past fall, but bad weather and instrument problems caused the cruise to abort. A gravity cruise in the New Hampshire and southern Maine is planned for this spring.

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SIE NO.
GQN-723482-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN723482
CONTRACT CODE NA
N00014-67-A-0230-0001

TITLE OF PROJECT:
NAVY ENVIRONMENT - TIDAL CIRCULATION AND SEDIMENT MOVEMENTS IN NAVIGABLE CHANNELS OF SMALL ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MO HAYES GEOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $55,321

SUMMARY OF PROJECT:

Improved understanding of the interactions among estuarine environmental forces, and of their time and spatial variations, assists the Navy and Marine corps planning and decision making regarding shallow water and coastal operations. This research contributes to an improved basis for the prediction of estuarine environmental conditions to be encountered, e.g., in amphibious operations, riverine warfare, mine implantation and detection, harbor improvement, and coastal construction.

Research is continuing on the dynamic processes of the beach-estuarine systems of New England, and along the outwash plain shorelines of southeastern Alaska. Field work includes aerial photographic interpretation; systematic measurements of current velocity, temperature, salinity, and suspended sediments through the tidal cycle; periodic measurement of profiles of beaches; and sampling of sediments from outwash plains, rivers, estuaries, beaches, and marshes.

Supporting Agency Address Information: Office of Naval Research 414, Arlington, Va. 22217.

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SIE NO.
ZUA-2451

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00973

TITLE OF PROJECT:
ENVIRONMENTAL IMPACT OF PETROLEUM EXPLORATION AND PRODUCTION ON GEORGES BANK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HJ KNEBEL OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Actual area of Georges Bank outside jurisdiction of individual states - but of interest to all New England states.

The proposed environmental program on Georges Bank will outline the spatial and temporal variability of the principal dynamic factors involved in the movement and dispersal of an oil spill and will provide baseline data on key environmental parameters that may be affected subsequently. It provides an interdisciplinary approach to the problem and encompasses physical, geological, chemical, and biological oceanographic studies as well as meteorological studies. Individual studies include: 1) water circulation and distribution of properties, 2) the magnitude, direction, and frequency of winds and storms, 3) the movement and spatial distribution of suspended and bottom sediments, 4) the concentrations of hydrocarbons in the sediments, and 5) the census and hydrocarbon content of benthic organisms.

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SIE NO.
ZUA-2453

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00937

TITLE OF PROJECT:
NEW ENGLAND NEARSHORE GEOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RN OLDALE OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: New England states.

Detailed geologic mapping of complex bedrock structure is planned for the nearshore areas of Massachusetts, New Hampshire, and Maine. The mapping will depend in large part on bottom gravity and magnetic measurements underway and to a lesser extent on reflection and refraction seismic data. An initial gravity cruise was undertaken this past fall, but bad weather and instrument problems caused the cruise to abort. A gravity cruise in the New Hampshire and southern Maine area is planned for this spring.

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SIE NO.
GSV-5380

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-41075

TITLE OF PROJECT:
CONTINENTAL SHELF DYNAMICS EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RC BEARDSLEY METEOROLOGY

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
11/73 TO 10/74
FY74 FUNDS $47,800

SUMMARY OF PROJECT:

A field experiment will be conducted during the late winter/early spring of 1973-1974 so that winter-time hydrographical conditions will exist. The probable duration of the experiment will be one or two months. The focus of the proposed experiment will be on the effective vertical mixing of horizontal momentum during both steady and severe transient meteorological conditions. A linear array of three instrumentation moorings will be set across the New England shelf near the site of a pilot experiment conducted last year. The important horizontal length scales in the parallel and cross-shelf directions are not yet known so the choice of horizontal spacing of the moorings is still unclear. The preliminary design for the array has mooring spacings of 1L and 2L, allowing measurement of horizontal coherence over three spatial increments. A value of 15 km for L is the present best choice.

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SIE NO.
GBP-1249

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
NEW ENGLAND FISHERIES MEGABENTHIC INVERTEBRATE INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RA COOPER

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
6/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project will use a submersible and surface ships to: 1. Develop methodology for a rapid, economical inventory of offshore stocks of lobsters, shrimp and crabs. An economical method of obtaining basic quantitative distribution data for several commercially fished invertebrate species (lobsters, shrimb, crabs) is required for annual assessment of these resources to provide a data base upon which state and federal management decisions can be based. A minimum requirement is an annual measure of abundance and geographic distribution. Presently there is no economical way of getting this information. 2. Define the ecology, population structure and trap related behavior of the offshore lobster. Included in this objective is a quantitative assessment of "ghost pots" and their potential effect on the lobster and crab resources.

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SIE NO.
GSV-986-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-28622X2

TITLE OF PROJECT:
DYNAMICS OF SMALL SCALE PROCESSES IN AIR-SEA INTERACTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR EL MOLLOCHRISTENSE METEOROLOGY

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $92,900

SUMMARY OF PROJECT:

The objective of this study is to continue research on the dynamics and statistics of intermittent events and sporadic flux and turbulence production events as pertinent to air-sea interaction. The studies will include observations from the M.I.T. 108 ft. spar buoy placed in Massachusetts Bay and laboratory experiments on naturally occurring and artificially triggered turbulence production, flux events in Ekman layers, shear flows and convectively driven flows. ISG

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SIE NO.
GSV-3957-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-35617

TITLE OF PROJECT:
PATTERNS OF SPECIES DIVERSITY IN ROCKY INTERTIDAL COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BA MENGE

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
BOSTON, MASSACHUSETTS 02116

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $11,500

SUMMARY OF PROJECT:

There is a distinctly less rich fauna in the rocky intertidal communities of the North Atlantic Ocean than that of the Northeast Pacific Ocean. The investigator will test the hypothesis that the lower diversity of the former community results from the virtual absence of a functionally dominant secondary carnivore which in turn results from a relatively unpredictable environmemt (as compared to that experienced by the latter community). The two main components of this test will be (1) an analysis of a typical North Atlantic rocky intertidal community (in Maine) and (2) a comparison of this community to the already well understood Northeast Pacific community. The research program to be undertaken in the North Atlantic community includes (1) measurements of the predictability of resource availability for primary and secondary consumers, (2) construction of and comparison between energy budgets of the potentially functionally dominant carnivore (Asterias forbesi) in the subtidal habitat (presumed optimal) and the intertidal habitat (presumed sub-optimal) and (3) an analysis of the causes of the observed patterns of community structure in Maine. The proposed research program is based on field (and some laboratory) experimentation supplemented by observations and measurements of fundamental natural history phenomena, a powerful approach of proven value. ISG

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SIE NO
AQ-607

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW ENGLAND GAS & ELEC. ASSN.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MARINE LIFE STUDY - CAPE COD CANAL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
NEW ENGLAND GAS & ELEC. ASSN.
130 AUSTIN ST.
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: Measure the water temperature patterns before and during plant operation. Determine the effect of abrupt temperature changes in species of fish found in this area.

Address for correspondence: M.P. Griffith, 130 Austin St., Cambridge, MA 02139

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SIE NO.
GSB-13141

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-40282

TITLE OF PROJECT:
TROPHIC AND COMMUNITY STRUCTURE CHANGES IN A NEW ENGLAND POND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WHITEHEAD BOTANY

RECIPIENT INSTITUTION:
INDIANA UNIVERSITY
SCHOOL OF ARTS
BLOOMINGTON, INDIANA 47401

PERIOD FOR THIS NRP
9/73 TO 8/74
FY74 FUNDS $16,000

SUMMARY OF PROJECT

This project involves a careful study of the stratigraphy of diatoms and invertebrates in Berry Pond, Berkshire County, Massachusetts, with a view toward answering the following questions: 1) Do accurate stratigraphic and sedimentation rate data for diatoms support the evidence for apparent trophic changes? 2) Does diatom community structure (diversity and equitability) change in the manner predicted by contemporary ecological theory? 3) Is diatom community structure affected by the pattern of leaf input? 4) Does sedimentation rate data for consumer organisms (Cladocera, etc.) correspond to similar data on primary producers? 5) Are there changes in consumer community structure (both plankton and benthos) which reflect changes in primary production and leaf input? 6) Can we detect changes in planktonic community structure during the latter portion of the postglacial which might reflect an increase in flushing rate? 7) Do niche breadths and overlaps calculated from sedimentation rate data for both diatoms and invertebrates adequately reflect the known ecological tolerances of the species in question? 8) If separate niche breadths and overlaps can be calculated for different sections of the core can we detect changes in niche properties which are related to changes in productivity, community structure, etc.? 9) To what extent are all of the preceding correlated with vegetational events involving the Berry Pond watershed? 10) Are the trophic changes unique to Berry Pond or can they be detected in nearby ponds as well?

Rhode Island

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SIE NO.
GY-59477-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
MASSACHUSETTS

AGENCY'S NUMBER(S):
0059477
MAS00013

TITLE OF PROJECT:
REMOTE-SENSING TWENTY YEARS OF CHANGE IN THE HUMAN ENVIRONMENT IN MASSACHUSETTS, 1951-1971

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WP MACCONNELL FORESTRY & WILDLIFE MANAGEMENT
JS LARSON

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
AGRICULTURAL EXPERIMENT STA.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: Use remote-sensing techniques to monitor forest and other environmental changes in Massachusetts from 1951-1971. The maps prepared from 1971 aerial photography will provide ground truth for training in interpretation of Earth Resources Technology Satellite (ERTS) imagery.

Approach: Develop and test the use of aerial photogrammetric techniques as a tool for identifying and classifying agricultural, forest and wet lands; mining and waste disposal areas, as well as urban land and outdoor recreation sites. Determine changes in vegetation and land use which have taken place since the state was photographed and mapped in 1951 and 1952 by a similar system. Establish predictions of future rates and patterns of change for major land-use types based on changes over the past 20 years. Population growth and construction of transportation facilities will be used to help predict future change. Provide vegetative cover and land-use maps of the entire state for watershed managers, foresters, wildlife biologists, resource planners and others interested in the environment. Study urban growth and decay, especially the situation in the urban-agriculture or urban- forest interface in Massachusetts.

Progress: Specifications for aerial photography for Massachusetts were prepared, a contract for the flying was let, and aerial photographs were inspected for quality as they came in, and then filed for easy access. The land-use classification used for the Connecticut River (MS-8) was refined and improved. Two photo interpreters, one with Viet Nam experience, began field reconaissance and land-use typing on July 1, 1971. Three more interpreters went into training on September 1, and two technicians began transferring the land-use types from the annotated photographs to USGS maps on the same date. All hands are now working on Plymouth County and it should be completed sometime in February. As soon as Plymouth County is completed, the maps will be reproduced and a publication will be prepared so that Plymouth County can be considered a pilot study for the whole state.

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SIE NO.
ZUA-3029

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
RI 65-011

TITLE OF PROJECT:
FLOOD CHARACTERISTICS OF SMALL DRAINAGE BASINS IN RHODE ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CG JOHNSON WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $10,000

SUMMARY OF PROJECT:

To obtain an adequate measure of streamflow characteristics of small drainage areas, and to analyze the streamflow records for particular needs of the highway engineer.

The development of a technique for estimating the magnitude and frequency of floods on small drainage areas in Rhode Island, for the use of the highway engineer.

Installation and maintenance of 5 continuous-recording stream gages with recording rain gages plus about 15 crest-stage gages on drainage basin of less than 10 square miles, all located in carefully selected places so as to sample a wide range of physiographic variables. Probably using a multiple-regression analysis.

Discharge data has been collected at 5 continuous-recording streamflow stations plus recording rainfall records in addition to annual peaks at the 15 crest-stage gages. A status report has been started.

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GY-30932-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
RHODE ISLAND

AGENCY'S NUMBER(S):
0030932
RI00135

TITLE OF PROJECT:
ECONOMIC ANALYSIS ON ENVIRONMENTAL EFFECTS ASSOCIATED WITH SEASONAL HOMES

PRINCIPAL INVESTIGATOR(S) AND DEPARTMENT SPECIALTY:
D FISCHER — RESOURCE ECONOMICS
N RORHOLM

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Determine environmental situations associated with shoreline seasonal homes, especially in estuarine areas. Locational considerations and impacts will be ascertained. Evaluation of social and private benefits and costs of seasonal homes on environment of the shoreline will be stressed. Future market potential for seasonal homes will be assessed and alternative planning arrangements analyzed.

Approach: Identification, classification, sampling and questionnaires will provide basis for determining relationships between environmental factors and shoreline seasonal homes. Varying environmental products of seashore estuarine areas will be studied for their susceptibility to modification and their reversibility. Benefit-cost analysis will be employed to assess allocation and incidence of public and private benefits and costs associated with seasonal homes. Alternative institutional arrangements will be determined and their impact tested against existing arrangements. Optimal planning considerations will be studied for balancing multiple use of the coast line in Rhode Island.

Progress Report: The low cost housing study is leading to basically negative results in the sense that there does not appear to be any substantial savings in the housing construction industry, except at the expense of quality or choice. A more important problem, is to examine what savings are rather than construction since construction costs are only a part of total ownership costs. This is being done and will be completed by this summer. ISG

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SIE NO.
GBP-65-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BAY WATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
B LEVINE OCEAN ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The Bay Watch Program has a series of multiple but related goals. One is the design of a physical (and eventually a biological) monitoring system for the Rhode Island Coastal Zone. Such a system would have a variety of uses, including pollution control. It is not our present intention to implement fully such a monitoring system, since this appears to be a task better suited for a state or federal agency. However, we do expect to operate a system sufficient to assist in the development and verification of the various physical and biological models previously discussed.

Our plan is to develop a limited operational capability by the summer of 1970 using standard instrumentation and processing techniques where possible, in order to gain operational experience. At the same time we will be undertaking limited development work in instrumentation and data processing; these developments will be fed into the operational system as practicable. The predicted state of the bay from the analytical models will be compared with the available data and new data from the bay instrumentation system.

ISG

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SIE NO.
GBP-437-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
208520256

TITLE OF PROJECT:
THE GROWTH AND MOVEMENT OF SCUP (STENOTOMUS CHRYSOPS) IN NARRAGANSETT BAY, R.I. AND ALONG THE ATLANTIC COAST

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RT SISSON

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $9,675

SUMMARY OF PROJECT:

Objectives: To determine movement of age classes of scup into Narragansett Bay, and to determine age structure of the scup population in Narragansett Bay throughout the seasons that scup occupy its waters.

To determine growth and movement of scup found in Narragansett Bay and after they leave the bay. Determine whether tagged fish are harvested locally or elsewhere.

Use data collected to formulate a management plan for R.I. scup harvests, and to contribute these data to research programs of other Atlantic Coast states.

Procedures: Sample scup population with otter trawl, and fish trap. Samples will be used to obtain weight, length, and scale samples for aging.

Tag and release scup of all year classes caught in Narragansett Bay. Weigh and measure fork length of all fish released. Floy fingerling tags to be used for young of the year fish, and Floy dart tags to be used for older fish.

Use data collected in this segment to aid in decision-making for the scup industry.

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SIE NO.
GBP-47

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ECONOMIC IMPACT OF MARINE RESOURCE USE-RECREATIONAL BOATING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
N RORHOLM RESOURCE ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/70 TO 6/71
FY71 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose is to determine costs and returns, both internal and external of different uses of coastal areas, to measure the sensitivity of optimal solution to variations in the basic data.The area studied will be in Narragansett Bay, R.I.. Data will be gathered on the physical suitability of the coastline for various uses, such as marinas, housing, beaches, natural areas, etc; based, in part, on available data which will be updated (Ref, NO. 7 and FWPCA) and, in part, on data to be collected. Economic activities and conflicts associated with the various uses will be analyzed from the point-of-view of different optimization rules in order to discover the use of coastal areas that best serves society's purposes, and of maximum economic gain and environmental benefits. This latter testing of the data will be carried out in conjunction with work being done by the "systems group" under the leadership of H.C. Lampe. The "sensitivity testing" will be carried out either by introducing specifically selected variability in the data and observing the effect on solutions, or by introducing random disturbances. The work will initially concentrate on variables associated with services for recreational boating.

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SIE NO.
GBP-49-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
F WHITE OCEAN ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An analytical physical model of the Bay is being constructed. The long term objective is to produce a mathematical model which can predict hydrodynamic, thermal, salinity and oxygen changes in the Bay as a function of location and time. The analytical model of the Bay must include all types of equations, algebraic or possibly stochastic in nature, which accurately model the turbulent transport. Although there is already considerable work reported in this area, it will be necessary in Narragansett Bay to have supporting equipment to verify these models and, in the case of specific pollutants, data which refine presently proposed models. A pilot study of a three dimensional hydrodynamic model has been successfully completed for the Harbor of Refuge at Gallilee. A similar model is being constructed for Narragansett Bay and Providence River.

To assist in the development and verification of mathematical models, the "Bay Watch" Program is developing a limited capability to measure various physical, chemical and biological parameters. For ease of operation, the majority of the initial experiments are being conducted in West Passage.

ISG

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TAPE INPUT 281

SIE NO.
GY-57767-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0057767
RI00405
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
FECAL BACTERIAL AND COLIPHAGE IN RELATIONSHIP TO ENTERIC VIRUS POLLUTION IN SEWAGE AND RIVERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
YATES V J
CHANG P W

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
ANIMAL PATHOLOGY except
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP:
BEG 700701 END 720630
FY 74 FUNDS 00000000
50513414 sub

SUMMARY OF PROJECT:

OBJECTIVE: Correlate the concentration of coliform bacteria, fecal streptococci, or coliphage in polluted water to viral pathogens, such as coxsackie and poliovirus. It is hoped that a correlation can be established between the two, so that the measurement of one may provide a quantitative estimate of the other.

APPROACH: Sewage and river water will be collected at several sampling points in southern and eastern Rhode Island. Gauze pads encased in stockinettes will be used in the collection of the samples. After an exposure period, the pad will be removed and the bacteria and viruses eluded. The eludate will be examined for enteric viruses, coliform bacteria and coliphage. The concentration of the coliform bacteria and/or coliphage will be correlated to the concentration of enteric viruses.

PROGRESS: A total of 181 sewage samples from the sewage plant, University of Rhode Island, was collected. Of these samples only four yielded enteric virus. The data of Coliform bacteria, fecal Streptococci and Coliphage counts were analyzed to determine their correlation. The method used was product moment correlation. These correlations appear to be small and negative. The independent counts do not correlate in any way.

016010
WATER-QUALITY WATER-ANALYSIS FECES POLIOVIRUSES WATER-POLLUTION COLIFORM
016010
S BACTERIA POLLUTION SEWAGE RIVERS MICROBIOLOGY ANIMAL-PATHOGENS VIROLOG
016010 Y STREPTOCOCCUS ENTERO-VIRUSES
021001 CCCCCCCC

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SIE NO.
AO-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
800981
72P00005

TITLE OF PROJECT:
EFFECT OF THERMAL POLLUTION ON PELAGIC LARVAE OF CRUSTACEA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AN SASTRY OCEANOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $45,756

SUMMARY OF PROJECT:

$ e,, temperature, salinity, and oxygen, and to determine the affect of acute and gradual changes of temperature on metabolism and survival of larvae of representative brachyuran crabs common to the Narragansett Bay and vicinity. Qualitative and quantitative changes in lipids and proteins for each larval stage of each species reared under optimum conditions and exposed to altered temperatures will be determined. The patterns of lipids and proteins for larvae reared under optimum conditions and exposed to altered temperatures provide a useful reference for bioassay.

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SIE NO
GY-57970-2

NOTICE OF RESEARCH PROJECT

REPORTING AGENCY
~~DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0057970
RI00124
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
ECONOMIC ASPECTS OF COASTAL USE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FORHOLM N

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
RESOURCE ECONOMICS - Dept
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP
BEG 7C07C1 END 730630
FY 74 FUNDS 00C00000
50513414 Fed D

SUMMARY OF PROJECT:

OBJECTIVE: Determine costs and returns, both internal and external of different uses of coastal areas. Measure the sensitivity of optimal solutions to variations in the basic data.

APPROACH: The area studied will be in Narragansett Bay, R.I. Data will be gathered on the physical suitability of the coastline for various uses, such as marinas, housing, beaches, natural areas, etc. based, in part, on available data which will be updated (ref. no. 7 and FWPCA) and, in part, on data to be collected. Economic activities and conflicts associated with the various uses will be analyzed from the point-of-view of different optimization rules in order to discover the use of coastal areas the best serves society's purposes, be they maximum economic gain and environmental benefits. The latter testing of the data will be carried out in conjunction with work being done by the "systems group" under the leadership of H. C. Lampe. The "sensitivity testing" will be carried out either by introducing specifically selected variability in the data and observing the effect on solutions, or by introducing random disturbances.

PROGRESS: In response to requests from industry organizations and state planners in New England and New York, an informal regional research proposal for a study of the economic impact of the marina industry has been developed in cooperation with personnel from state universities in New England and New York. The primary questionnaire has been developed, pretested, and refined. Funding sources are presently uncertain in all states but Connecticut and New York.

016010
MANAGEMENT LAND-USE ECONOMICS COASTAL-AREAS RESOURCE-MANAGEMENT HOUSING
016010
RESOURCE-DEVELOPMENT ENVIRONMENT ALTERNATIVES SUITABILITY UTILIZATION LA
016010 RETURNS COSTS VALUES
021001 00000000

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SIE NO.
GY-57851-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0057851
RI00007
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
ORGANIC GEOCHEMISTRY OF SHALLOW AND PRODUCTIVE BENTHIC ENVIRONMENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PELBECK G T JR

KIND A AWARD
DATE SP01 DISTR

FOOD RESOURCE CHEMISTRY DEPT.

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
RESOURCE ECONOMICS
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP:
BEG 700701 END 720630
FY 74 FUNDS 00000000

50513414 Sub

SUMMARY OF PROJECT:

OBJECTIVE: Extract, fracticnate, and characterize the organic matter from both productive and non-prcductive benthic sediments, and study the biolcgical transformations that these fractions undergo.

APPROACH: A set of 16 sediments and 8 scils will be sequentially extracted, and the fracticns cbtained will be characterized by physical and chemical properties. Two fractions will be studied by the methods of lithium reduction and sodium hypobrcmite oxidation. A model system involving an Actinomycetales isolated from a sediment will be studied. This organism produces a water-soluble, yellow-colored exudate that has many properties similar to several fracticns cf sedimentary organic matter.

PROGRESS: Serial extraction and partial analysis of eight sediment samples (three anaerobic, three aerobic, add two soils) has been completed and the data have been compiled for statistical consideration. Five organic fractions have been obtained from each sample and each has been analyzed for total mass, ash content, and C, H, and N contents. A study of the organic matter-metal chelates cf zinc and copper in Narragansett Bay sediments has been initiated in crder to characterize the organic moieties those fractions of high molecular weight, require a suitable method of degradation. To date, apparently the most satisfactory methcd develcped involves the cleavage of intermonomeric bonds by reduction with metallic lithium in an ethancl-benzene solvent system at temperatures frcm 125 to 175 C. Yields of the order of 40 to 50% are typically cbtained. Four fractions (acidic, neutral, basic, and amphoteric) have been obtained by solvent fracticnation, with further fractionation accomplished by thin-layer chrcmatcgraphy.

016010
CHEMICAL-ANALYSIS CHEMICAL-PROPERTIES PHYSICAL-PROPERTIES ACTINOMYCETES
016010
CHARACTERIZATION FRACTIONATION BIOCHEMISTRY ORGANIC-MATTER SEDIMENTS HUM
016010 IC-ACIDS EXTRACTION TRANSFORMATION SOILS BENTHOS
021001 00000000

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SIL NO.
GY-31462-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0031462
RI00121
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
AN EVALUATION OF THE COMPETITIVE POSITION OF THE NEW ENGLAND FISHING IND USTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
NORTON V
GATES J M

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
RESOURCE ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP
BEG 680701 END 710630
FY 74 FUNDS 00000000
50513414

SUMMARY OF PROJECT:

OBJECTIVE: Obtain data necessary to improve the relative economic efficiency of the New England industry. Improvement in economic efficiency cannot be attained until specific problem areas (ie, capital costs, labor availability, management capabilities, resource depletion, and competition from other U.S. or world fisheries) are identified and fisheries or activities in which New England may hold absolute and comparative advantage are specified.

APPROACH: When this framework has been established, federal, state, and private investment and aid can be concentrated in those fisheries or activities in which problem areas can be overcome and which represent either the greatest pay-off from public expenditure or the greatest profit from private expenditure. Only in this way can research and investment toward the development of the New England Fishing Industry be expected to enhance the long-run return to labor and capital in this industry.

PROGRESS: 1. Completion of a steady-state bio-economic model for a fishery (Gates). 2. Completion of a dynamic bio-economic simulator for a fishery (Lampe). 3. Application of (1) and (2) to yellowtail flounder and menhaden fisheries. 4. Seminar defense of (1) at Woods Hole Oceanographic Institute. 5. Demand analysis for yellowtail flounder which incorporates the effect of fish size.

016010
ECONOMIC-DEVELOPMENT COMPETITION FISHERIES CAPITAL FISHING INDUSTRY FISH
016010
INTERREGIONAL-COMPETITION LABOR MANAGEMENT RESOURCES INVESTMENTS ECONOM
016010 ICS MARKETING #RL 1
021001 CCCOCOOC

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SIE NO
GY-31461-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0031461
RI00122
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
ECONOMICS OF MARINE-LAND INTERFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

MLOTCK P D
LAMPE H C

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
RESOURCE ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP
BEG 680701 END 720630
FY 74 FUNDS 00000000
50513414 SUB

SUMMARY OF PROJECT:

OBJECTIVE: Isolate and accurately define the problem surrounding the resources conflict of tidal marsh.

APPROACH: Future work will consist of a continuation of the above and the establishment of a close relationship with ecologist for data collection and preparation for later modeling. It is also proposed to write an article outlining the problem and its various aspects for publication to obtain a feedback from interested scholars.

PROGRESS: A model linking the economy of the state to water borne residuals production has been developed. This required an updating of an input-output model for the state and the development of residuals (pollution) coefficients for 59 industrial sectors of the state. The residual coefficients were developed largely from data submitted by firms in applications for discharge to the Corps of Engineers. The model permits evaluation of the impact of a changing economy on the discharge of pollutants into Narragansett Bay.

016010
MARSHES TIDELANDS SALT-MARSHES RESOURCES ECOLOGY NATURAL-RESOURCES MARIN
016010 E-RESOURCES MARINE ESTUARIES ECONOMICS #RD-3
021001 0C000000

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SIE NO.
ZQN-14506

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN014506

TITLE OF PROJECT:
EFFECT OF WATER POLLUTION ON NAVAL OPERATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JJ GALLAGHER
DF GIULIANO

RECIPIENT INSTITUTION:
U.S. NAVY
UNDERWATER SYSTEMS CENTER
NEWPORT, RHODE ISLAND 02840

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Investigate the aquatic environmental parameters that are influenced by pollution so as to hinder Navy functions or operations in coastal waters, conduct studies on turbidity, fouling, and inorganic and organic concentrations as they may influence ambient noise, sound propagation, equipment and material performance, transportation, etc. Suggest methods to reduce water pollution and its deleterious effects. Investigate remote sensing techniques for rapid detection, identification, areal distributions, and sources of surface and subsurface water-borne pollutants.

Expand the biological, chemical, geological, and physical environmental aspects of the present NUSC oceanography program to include the investigation of the temporal and spatial distribution of temperature, salinity, dissolved oxygen, nutrients, heavy metals, and petroleum products in an area subjected to thermal discharge, and in local estuaries (Thames River and Narragansett Bay) where Navy facilities are located.

Supporting Agency Address Information: Naval Underwater Systems Center MAT03L4, Newport, R.I. 02840.

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TAPE INPUT 281
SIE NO
GY-32323-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0032323
RI00238
SUBGROUP H
CSRSRI. 0000000000

TITLE OF PROJECT:
SALT MARSH ECOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
STUCKEY I H

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
PLANT & SOIL SCIENCE DEPT.
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881 50513414 SUB

PERIOD FOR THIS NRP:
BEG 690701 END 720630
FY 74 FUNDS 00000000

SUMMARY OF PROJECT:

OBJECTIVE: Determine the basic ecology of several representative Rhode Island salt marshes: Species of plants and animals found, plants utilized by animals including shell fish, fin fish, and water fowl and animals used by other animal species, plant species as indicators of salinity and stage of marsh development, accumulation of organic matter as a measure of development, how salt marshes can be made and species of plants involved.

APPROACH: Map four or five salt marshes of somewhat different types. Records will be taken of species of plants, areas occupied by them and possible stages of succession. Animals will be recorded with reference to species that breed in Rhode Island and the temporary or migratory species. Take soil samples for determination of soluble salts from marked plots within the different zones of vegetation at least three times during the year. Correlate salt levels with species found. Use marking substance to indicate whether the marshes are being built up by sediment and accumulation of organic matter, or are being washed away. Collect samples of soil and vegetation for determination of total organic matter to help clarify the status of "saltmarsh peat". By use of sand boxes on a sand flat area, explore the conditions under which salt marshes can be built.

PROGRESS: Considerable effort was spent taking photographs of salt marsh species and in determining what species are present on specific salt marshes since we do not have data from a formal biological survey. Spartina alterniflora survived in some of the s sandboxes in spite of severe scouring. This work needs repeating with refinements in the original design.

016010
MARSHES ECOLOGY FLORA FAUNA SOILS VEGETATION SALT ORGANIC-MATTER ECOLOGY
016010 CONSERVATION RECREATION SEDIMENTS #RD-1
021001 00000000

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SIE NO.
GY-30934-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
RHODE ISLAND STATE GOVERNMENT

AGENCY'S NUMBER(S):
0030934
RI00118

TITLE OF PROJECT:
THE STRUCTURE OF THE NORTHERN LOBSTER INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
A HOLMSEN RESOURCE ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Determine: Cost and return in the trap and trawl fishery for lobster including returns to labor and capital. Investment in and financing of industry and determine sources of supply of input factors and markets. Fishing effort and characteristics of labor force, its education, skills and supplementary sources of income.

Approach: The study will be based on data collected by personal interview. Cluster sampling will be used (to prevent excessive travel), probability proportional to size (PPS), but stratified to reveal differences in geographical location within the region.

Progress Report: A survey was made of offshore lobster firms in order to determine costs and earnings of the vessels and to measure return to labor and capital. The survey also determined some of the major problems facing this industry. The results of the work will be particularly useful to those considering investing in this industry.

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SIE NO.
GY-56076-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
RHODE ISLAND STATE GOVERNMENT

AGENCY'S NUMBER(S):
0056076
RI00901

TITLE OF PROJECT:
STUDY OF NON-COMMERCIAL SHELLFISHERY OF POINT JUDITH AND POTTER'S POND IN SOUTH KINGSTON, RHODE ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
J KUPA FORESTRY & WILDLIFE MANAGEMENT

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Map areas in Point Judith and Potter's Pond that are potential shellfishing areas and rate their importance to shellfishery. Determine number of persons engaged in non-commercial shellfishing on area and degree of participation. Determine value of shellfishery to users in site, cost and conflicting uses. Determine quantities of shellfish taken by non-commercial shellfishermen from April through September. Determine age, residence and financial status of persons forming population of shellfishermen. Determine species preferences of shellfishermen and catching techniques. Determine relationship between average catch of shellfish, man-hours required and the numbers of shellfishermen.

Shellfish habitats will be delimited on Coast and Geodetic charts of study areas and appropriate survey units will be established to facilitate data collection, classification and analysis. Enumerate persons engaged in shellfishery by daily counts of each survey unit at predetermined time intervals by land and boat. Amount of time persons spend shellfishing and the numbers and species of shellfish taken will be determined by observation of survey units. Personal interviews to corroborate observational data. Correlations will be sought between average catch of shellfish and several variables: man-hours of effort, tide, weather condition and time of year.

Progress Report: Field work and data analysis for the project have been completed and preliminary reports submitted to the Department of Natural Resources. A MS Thesis is being developed from the data and will be completed in January 1971.

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SIE NO.
GY-30932-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES, SERVICE
RHODE ISLAND

AGENCY'S NUMBER(S):
003093
RI00135

TITLE OF PROJECT:
ECONOMIC ANALYSIS ON ENVIRONMENTAL EFFECTS ASSOCIATED WITH SEASONAL HOMES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
D FISCHER — RESOURCE ECONOMICS
N BORHOLM

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: Determine environmental situations associated with shoreline seasonal homes, especially in estuarine areas. Locational considerations and impacts will be ascertained. Evaluation of social and private benefits and costs of seasonal homes on environment of the shoreline will be stressed. Future market potential for seasonal homes will be assessed and alternative planning arrangements analyzed.

Approach: Identification, classification, sampling and questionnaires will provide basis for determining relationships between environmental factors and shoreline seasonal homes. Varying environmental products of seashore estuarine areas will be studied for their susceptibility to modification and their reversibility. Benefit-cost analysis will be employed to assess allocation and incidence of public and private benefits and costs associated with seasonal homes. Alternative institutional arrangements will be determined and their impact tested against existing arrangements. Optimal planning considerations will be studied for balancing multiple use of the coast line in Rhode Island.

Progress Report: The low cost housing study is leading to basically negative results in the sense that there does not appear to be any substantial savings in the housing construction industry, except at the expense of quality or choice. A more important problem, is to examine what savings are rather than construction since construction costs are only a part of total ownership costs. This is being done and will be completed by this summer.

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SIE NO.
GY-32770-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
RHODE ISLAND STATE GOVERNMENT

AGENCY'S NUMBER(S):
0032770
RI00402-NF

TITLE OF PROJECT:
ISOLATION OF VIRUSES FROM INLAND AND ESTUARINE WATER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.

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SIE NO.
GUW-4017

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-052-RI

TITLE OF PROJECT:
NUTRIENT EXCHANGE IN WATER-SEDIMENT INTERFACE AND ITS EFFECTS ON WATER QUALITY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CP POON CIVIL & ENVIRONMENTAL ENGIN

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/73 TC 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Two phases of work are proposed in this study. (1) Field sampling and analysis of sediment cores taken from various locations in Narragensett Bay as well as in the Pawtuxet and Seekonk rivers. The nutrient profiles (nitrogen and phosphorus) will be determined. The results will provide information concerning the present state of nutrient accumulation and the nutrients storage capacities of the Bay and the rivers. (2) Microcosms study in the laboratory to determine the nutrients exchange in water-sediment interface. The amount and rates of N or P released from or transferred into sediments under aerobic or anaerobic condition, with or without algal growth in the overlying water, will be determined. Excessive amount of N or P may be added into the water to simulate pollution discharge.

The results of this study complement others studying the nutrient budget of the Bay water and organic depositions in sediments. The information is essential for determining the effects of existing nutrients on water qualities the allowable discharge of nutrients without upsetting the equilibrium as well as a proper dredging procedure to obtain a beneficial instead of an ill effect on the water qualities.

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SIE NO.
GUX-498-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
18050 DXU

TITLE OF PROJECT:
SENSITIVITY OF BENTHIC MICROFLORA TO POLLUTION GRADIENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
N MARSHALL

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $19,602

SUMMARY OF PROJECT:

Description: To evaluate relationships between the productive condition of the sediment environment and pollution effects normally experienced along a densely populated coastline. Specifically the work was designed to: (a) determine the normal rate of productivity of the microflora community of shoal benthic environments, as indicated by the rate of 14C uptake by intact samples of sediments; (b) compare this norm with productivity in an area affected by heavy domestic pollution and an area affected by thermal addition; (c) improve the methodology for measuring the productivity of the benthic microflora community. ISG

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SIE NO.
GUW-3318-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-039-RI

TITLE OF PROJECT:
NEW FLUORESCENT TRACER DETECTION TECHNIQUES FOR USE IN POLLUTED ENVIRONMENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JA NORTHBY PHYSICS
A CHOUDRY

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ARTS
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The initial phase of this work will be to establish the nature and variability of the background fluorescence of water samples collected from the Providence River and Narragansett Bay. We will pay particular attention to the polarization of the prompt spectra, and to the existence of any delayed spectrum. In light of this information, we will next examine several fluorescent materials as possible tracers for use in pollution dispersal studies. The selected tracer and corresponding detection technique should optimize absolute detectability in the presence of the expected large, fluctuating background fluorescence. We will consider both polarization dependent and/or delayed fluorescence effects as possible means to achieve this result. The tracer will also be selected with a view to its future detection by a simple in situ fluorometer. The final phase of this study will be the preliminary design work on such an instrument. ISG

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SIE NO.
GUW-3693

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-047-RI

TITLE OF PROJECT:
EFFECT OF OZONATION ON HUMAN ENTERIC VIRUSES IN WATER FROM RHODE ISLAND RIVERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF PW CHANG
LT MILLER
H ETZOLD

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Ozonation for water purification has several advantages over that of chlorination. Because of cost and problems in control, ozonation has not been used as extensively as chlorination in the past. However, modern technology has eliminated these problems and ozone is now both competitive and desirable as an oxidizing agent in water purification.

Prior to the mass application of ozone in water purification, parameters must be set for its virucidal effect. These guidelines have not been well established and it is our objective to define them.

The proposed project involves testing five different human viruses (polio-, coxsackie-, echo-, adeno-, and reoviruses) against ozone. The main approach is to determine the time required to devitalize a virus when in contact with a fixed concentration of ozone in water at a constant temperature.

To establish a situation as realistic and close to actuality as possible, water from a Rhode Island river will be used to suspend the virus. This will be compared with results using distilled water as a suspending media for viruses. A thorough chemical analysis of the river and distilled water will be performed.

To determine the effectiveness of ozonation, virus assay will be performed in monkey and mouse cell cultures using the plaque technique.

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SIE NO.
GUW-1910-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-035-RI

TITLE OF PROJECT:
SIGNIFICANCE OF THE FECAL STREPTOCOCCI, COLIFORM BACTERIA AND COLIPHAGE IN RELATIONSHIP TO ENTERIC VIRUS POLLUTION IN SEWAGE AND RIVERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
VJ YATES ANIMAL PATHOLOGY
PW CHANG

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF AGRICULTURE
WOODWARD
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Due to the ease of measurement, the coliform group of bacteria have for many years been used to indicate the degree of pollution of water with wastes from human or animal sources. The limitation of such a method rests upon the fact that coliform bacteria are normal inhabitants of human or animals body and normally are not pathogens. So long as the rivers containing large numbers of coliform group of bacteria are condemned and cleaned, it can be said that such tests do serve their purpose. But the status of todays rivers in Rhode Island clearly indicate that many are heavily polluted with coliform bacteria; some have coliform counts equal to that of the raw sewage. Provided such an environment does exist, it is important to find out the concentration of viral contaminants.

The objective of the present proposal is to correlate the concentration of coliform bacteria, fecal streptococci, or coliphage in polluted water to viral pathogens, such as Coxsackie and poliovirus. It is hoped that a correlation can be established between the two, so that the measurement of one may provide a quantitative estimate of the other.

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SIE NO.
GUW-1926-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-2034

TITLE OF PROJECT:
THE FEASIBILITY OF OPTIMIZING MULTI-UNIVERSITY REGIONAL WATER RESOURCES RESEARCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AR THOMPSON
RW HARDY

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
WATER RESOURCES CENTER
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 12/72
FY73 FUNDS $57,540

SUMMARY OF PROJECT:

In order to test the value of regional water resources research coordinator, it is proposed that a qualified individual be appointed to such a post under the supervision of the six New England water center directors. The coordinator is to perform the duties of the position as outlined for the purpose of determining whether or not this is a practicable method of handling multi-university regional water resources research. While it is believed that an appointment of this type would be an effective way to plan, coordinate and manage regional research, existing uncertainties require that its feasibility be tested by an actual operation for a period of time. The overall theme of the project is, obviously, how best to plan, organize and conduct coordinated regional research. It is believed that results obtained from this experimental position would be useful to all sections of the country which have been and will be contemplating regional water resources research projects as well as to the New England area itself. ISG

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SIE NO.
GUN-9496

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F26-R-8-1-3

TITLE OF PROJECT:
INVENTORY OF MARINE WATER COURSES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JA STOLGITIS

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,400

SUMMARY OF PROJECT:

Objectives: To determine, define and establish the boundary separations of the marine and fresh water environments for the coastal streams, rivers and estuaries of the Rhode Island coastline as a prerequisite for management and regulatory guidelines.

Procedures: The limit of salt water intrusion in each stream, river and estuary will be defined and permanently marked. Upon definition, the areas in question will be established through statute.

Salinity determinations will be made with an electrodeless in-situ electronic salinometer. Where possible, boundaries will be designated using existing structures such as bridges and dams. Otherwise, a geographical location will be defined using concrete structure and sign.

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SIE NO.
GUW-1704-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-022-RI

TITLE OF PROJECT:
POTENTIAL BENEFITS OF INTEGRATING A NEW COMMUNITY AND A POWER REACTOR WITH SPECIAL REFERENCE TO THE WATER ECOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D HAMMERSCHLAG COMMUNITY PLANNING
VC ROSE

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Much progress has been made during the last decade in reducing the cost of nuclear power generation of electric energy. Coupled with a steady increase in energy requirements large power reactors have been considered and built in many instances.

There is a possibility that such a reactor would be built by Narragansett Electric on land owned by them at Rome Point south of Wickford, Rhode Island. The waste heat, which is a by product in the power generation, would be removed by a coolant--in this case the water of Narragansett Bay. Under this arrangement, no benefit is derived from the heat so discharged. In fact, the "thermal pollution" might create undesirable effects on the water ecology of the area. On the other hand, the excess energy could become a major positive determinant in a carefully conceived new community.

This study will investigate residential, commercial, industrial and public benefits of such a plan, with proper attention to water ecology if the development of a power reactor is fully integrated with and made the focal point of a new community at that location. Techniques developed in the study would not be restricted to this site.

Since this is a truly interdisciplinary subject, an advisory panel with expertise in oceanography, industrial engineering, resource economics and government has been asked to provide guidance by the applicants and agreed to provide same.

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SIE NO.
GSN-949-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF NATL. & INTERNAT. PRG.

AGENCY'S NUMBER(S):
GX-33777A1

TITLE OF PROJECT:
ATMOSPHERIC POLLUTANT TRANSPORT AND DEPOSITION ON THE SEA SURFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RA DUCE OCEANOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
3/73 TO 2/74
FY73 FUNDS $15,600

SUMMARY OF PROJECT:

The proposed research concerns the measurement of atmospheric transport of pollutants from the North American continent to the sea surface in an open ocean area near Bermuda and in a region closely adjacent to the northeast coast of the U.S., Block Island Sound. From tower facilities located on the island of Bermuda and another at Kingston, Rhode Island, atmospheric samples will be collected and analyzed for heavy metals, petroleum hydrocarbon and chlorinated hydrocarbons. In conjunction with the atmospheric studies, the concentrations, dispersal and chemical form of these same pollutants will be measured at the sea surface and in the upper one meter. Corollary laboratory studies will investigate the physical mechanism of pollutant concentration and stability in the ocean. ISG

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SIE NO.
GUN-8864-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-20-R-14-1-3

TITLE OF PROJECT:
PUBLICATION OF RESULTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CL PHILLIPS
RC GUTHRIE

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP:
4/72 TO 11/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: To Publish 1. Pond Surveys, Job I,1; 2. Fishery Investigations of the Pawcatuck River Drainage, Job I,2.

Procedures: 1. Pond survey maps and charts will be completed and the manuscript prepared for publication. 2. Pawcatuck manuscript completed and in final preparation for publisher.

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SIE NO.
GMA-988

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
16020 EYP
CONTRACT
14-12-836

TITLE OF PROJECT:
PLANNING AND DESIGN OF A NARRAGANSETT BAY SYNOPTIC WATER QUALITY MONITORING SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RF HILL

RECIPIENT INSTITUTION:
NEREUS CORPORATION
WAKEFIELD, RHODE ISLAND

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $23,805

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.

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SIE NO.
GMA-1682

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
72P00005

TITLE OF PROJECT:
EFFECT OF THERMAL POLLUTION ON PELAGIC LARVAE OF CRUSTACEA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AN SASTRY OCEANOGRAPHY
DK PHELPS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $45,756

SUMMARY OF PROJECT

The objectives are to measure temperature, salinity, and oxygen, and to determine the effect of acute and gradual changes of temperature on metabolism and survival of larvae of representative brachyuran crabs common to the Narragansett Bay and vicinity. Qualitative and quantitative changes in lipids and proteins for each larval stage of each species reared under optimum conditions and exposed to altered temperatures will be determined. The patterns of lipids and proteins for larvae reared under optimum conditions and exposed to altered temperatures provide a useful reference for bioassay.

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SIE NO.
GBP-1048

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
BAY WATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
G BROWN OCEAN ENGINEERING
T KOWALSKI

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1) To conduct experimental programs to obtain necessary data for development and verification of the Analytical Physical Model, the Systems Ecology Model and the Integrated Systems Model, or the Bay Models, of Narragansett Bay. 2) To participate in the application of the Bay Models and data to management decisions for Narragansett Bay. 3) To participate in the development of the Bay Models. 4) To pursue similar objectives for the Coastal Resources Center.

Specific Objectives: 1) To predict the effects of power plants, sewage plants, etc., on the state of Narragansett Bay. 2) To predict the effects of variety of Rhode Island economic growth plans on the state of Narragansett Bay. 3) To develop new tide and current charts for Narragansett Bay for marinas, shipping, etc. 4) To develop an oil spill contingency plan for Narragansett Bay. This includes oil spill spreading details. 5) To provide data from the Narragansett Bay Watch Buoy System and the water quality survey to various users.

How information will be applied: 1) Output from specific objects 1, 2, 4 and 5 will be distributed to the Coastal Resources Management Council, the R.I. Departments of Health and Natural Resources, town governments, the R.I. Petroleum Association, Narragansett Electric, etc., for planning and design purposes. Legislative recommendations will be made where appropriate. 2) For specific objective 3, output will be supplied to marinas, shipping activities, the general public, and NOAA.

Accomplishments during past twelve months: 1) Verification work on hydrodynamic, salinity and temperature models was continued. 2) Joint water sampling program was started including data on DO, BOD, coliform, phytoplankton, zooplankton, etc. 3) Narragansett Bay Watch Buoy System was launched and one month of data obtained to date. 4) A sediment survey was started to assist in dredging plans in Narragansett. 5) A mnemiometer development was started for the Systems Ecology Model Project. 6) Tide gage installed at Whale Rock.

For additional information pertaining to this project contact Dr.

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SIE NO.
GMA-627

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
18080 HCT
CONTRACT

TITLE OF PROJECT:
DISSOLVED OXYGEN AND TEMPERATURE MONITORING SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AP ALARIE

RECIPIENT INSTITUTION:
OCEAN DATA EQUIPMENT CORP.
PROVIDENCE, RHODE ISLAND

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $50,522

SUMMARY OF PROJECT:

Description: To design, construct, test, install, and evaluate an automatic system for monitoring and controlling the dissolved oxygen concentration and temperature in a series of 90 and 120 gallon marine aquaria systems located on Water Quality Office Research Houseboat No. 1-8399 located in the vicinity of Narragansett, R. I. on the Pettaquamscutt River.

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SIE NO.
GBP-1052

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
PETROLEUM IN NEW ENGLAND - INSTITUTIONS AND ECONOMIC IMPACTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
TA GRIGALUNES RESOURCE ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $26,787

SUMMARY OF PROJECT:

Objectives: To estimate and evaluate the potential economic-environmental impacts on New England of the exploitation of offshore petroleum deposits.

It is anticipated that detailed quantitative estimates of the regional economy implications of offshore oil recovery will have been calculated before June 1, 1973. It is also expected that an assessment of several environmental issues related to oil activity will have been made by that date.

How information will be applied: The findings of this study will indicate, in a detailed way, the potential economic and environmental implications for New England of the extraction of offshore petroleum. The study results should prove informative to residents of the region as well as to the business community. It is also an important aim of this study to continue to provide objective information to policymakers so that the economic and environmental implications of this issue can be anticipated.

Accomplishments during the twelve months: The investigator is supervising a Ph.D. dissertation examining the regional pricing implications for selected petroleum products of an offshore oil find.

A substantial amount of data and information has been gathered and will be used as an input to generate the quantitative impact estimates discussed above.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

GBP-1048 (CONTINUED)

Nies Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1056

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
INTEGRATIVE SYSTEMS MODELING OF NARRAGANSETT BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
H LAMPE RESOURCE ECONOMICS
SW NIXON

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: To develop an integrated mathematical simulation model of the Narragansett Bay system, interfacing submodels of physical circulation, biological population dynamics, and bay related economic activity.

How information will be applied: The eventual development of this model will provide a master tool for the management of the bay system by groups such as the Rhode Island Marine Resources Council. Such a simulation model will, for the first time, provide a predictive power that can guide decision-making involving the bay. For example, much of the controversy surrounding future development, as in the siting of nuclear power generating plants, arises because of uncertainties as to probable effects.

Accomplishments during past twelve months: 1. Difficulties in the most applicable programming approach have been resolved. 2. A model of physical circulation compatible with the needs of the biological model has been developed with Ocean Engineering. 3. Weaknesses in numerical parameters of grazing in the biological model have emerged and are being studied. 4. A conceptual synthesis of ecological and economic models has been developed involving environmental coefficients and stress-response curves. 5. The study of shore-land use has been completed and is in first draft form.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1055

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
GEAR DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
SB SAILA

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $45,819

SUMMARY OF PROJECT:

Objectives: The general objectives include gear research, development and related activities which will contribute toward a practical predictive and advisory model designed to optimize fishery operations centered in the Point Judith, Rhode Island area. Obviously, all of the above cannot be completed by the estimated completion data of 1973; however, it is anticipated that this program will be restructured at this time into a new project.

The sub-objectives which it is expected to complete include: 1. Final publications of two papers now in press. 2. Final deep-sea evaluation of electric trawl. 3. Trawl behavior model development and preliminary empirical testing of current speed and direction effects on trawling in local waters.

How information will be applied: The information obtained will be applied toward improving the operating efficiency of the Point Judith, Rhode Island fishing fleet. Mechanisms for the application include pubications, extension activities, and direct demonstrations.

Accomplishmnts during the last twelve months: 1. Development and construction of a self-contained electro-trawl and publication as a Ph.D. Thesis in Ocean Engineering. 2. Critical evaluation of the electro-trawl demonstrating its value in significantly improving lobster and crab yields. 3. Preparation of two publications submitted to Marine Technology Society. 4. First stage development of an otter trawl simulation model. 5. Field testing of electro-trawl in effective areas.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1033

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
SYSTEMS ECOLOGY STUDIES OF NARRAGANSETT BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
SW NIXON
C OVIATT

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $68,082

SUMMARY OF PROJECT:

Objectives: The major objective of this project is to gather data on the basic biological and ecological dimensions of the Narragansett Bay ecosystem. By June 15, 1973, our specific objectives are: 1. To make experimental measurements of the response of major bay subsystem to pollution stresses. The first measurements will be the comparison of a marina area with a natural harbor area. 2. To develop preliminary work begun this year on the feeding dynamics, role in nutrient cycling, and general ecological impact of comb-jellies, menhaden, alewife, and sponge beds on the bay system.

How information will be applied: A prediction of the position of natural communities in the bay system on the stress-response curve will indicate the probable effects of increased or decreased pollution stress on the ecology of an area. This information will provide quantitative data necessary for the interface between economics and biology in the simulation model of the bay.

Measurements of grazing pressures and effects on nutrient cycles are necessary for any understanding of the dynamics of the bay ecosystem, as well as the simulation model. The end purpose of the model is to assist decision-makers in determining interrelationships in the bay ecosystem.

Accomplishments during the past twelve months: Data from the Bissel's Cove marsh embayment have been analyzed and the study is in preparation for press. Synoptic surveys of plankton metabolism, benthic respiration, infauna, epifauna and organic content of the sediments of Narragansett Bay and its harbors were made. The influence of grazing plankton consumers including ctenophores and menhaden upon plankton and water chemistry were studied. In addition, the metabolism and extent of sponge beds in the Bay are being investigated.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
USE CONFLICTS IN THE COASTAL ZONE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
N RORHOLM RESOURCE ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1. To establish the relationship between effluents and economic activities operating at different levels in the Narragansett Bay area. 2. To estimate the conflicts created by the activities, including effluents. 3. To evaluate the applicability of the conflict-matrix approach to conflict measurement and resolution.

How information will be applied: 1. Direct input to Systems Study of Narragansett Bay. 2. Through the Coastal Resources Center to the R.I. Coastal Resources Management Council as input to their decision-making processes. 3. The conflict-matrix will also be used as an educational tool with students and community groups to help them discover the problems of multiple use and some possible ways of solving these problems.

Accomplishments during the past twelve months: Analyzed data and published "Rhode Island Marinas and Boatyards 1970," Resource Economics Occasional Paper 71-001, URI, January 1971.

An average R.I. marina (126 boats) uses 473 feet of shore and 3.6 acres of land and, from gross business of approximtely $120,000, generates an additional $91,773 spending. Of this total of $211,773 of spending, $101,445 accrues to people of the area in the form of personal income.

An input-output model for part of R.I. is being generated to show relationships between economic activities and water pollution loads.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GBP-1035 (CONTINUED)

Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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GBP-1035

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FM WHITE OCEAN ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $21,935

SUMMARY OF PROJECT:

Objectives: The objective of this project is to develop and verify a mathematical computer model which has the capability of predicting the spatial and temporal variations of the physical characteristics of Narragansett Bay. When completed, this model should be able to compute, at any time in the past or future and at any point in the Bay, the tidal heights, current salinity, temperature, and certain chemical species concentrations, notably dissolved oxygen. The model will also be able to take account of proposed changes in the dynamics of the Bay, such as hurricane barriers, thermal discharges, sewage outfalls, and channel dredging, with a view toward its use in decision-making and management of Narragansett Bay. The experimental verification of the model is being provided by the Bay Watch program.

How information will be applied: the information derived from this model has three primary uses: 1) to aid in Bay management by providing design studies of proposed physical changes; 2) to provide detailed predictions of the physical state of the Bay, in the past or in the future, for use in coordinating experimentation in the Bay; and 3) to provide physical parameters for use with the associated biological and socio-economic models being prepared under other projects associated with the Systems Model Studies.

Accomplishments during past twelve months: 1. The depth-averaged tidal model has been used in the following important applications: a) revised current charts for the Bay; b) hurricane surges; c) drifting trajectories and flushing times for the Bay; d) motion of oil spills in the Bay; and e) net flow rates at various key points in the Bay. 2. The depth-averaged salinity model is now being applied to dye study problems. 3. The temperature model is now being applied to the proposed Rome Point power plant. 4. The laterally-averaged, water-quality model has been completed and successfully compared to dissolved oxygen and biochemical oxygen demand data from the Bay. 5. A finite-element model for rapid calculations of physical and biological parameters in the Bay is now being developed, in cooperation with the Systems Ecology Project.

For additional information pertaining to this project contact the

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SIE NO.
GBP-1037

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ORGANIC GEOCHEMISTRY OF SHALLOW AND PRODUCTIVE BENTHIC ENVIRONMENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GT FELBECK FOOD & RESOURCE CHEMISTRY

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $19,954

SUMMARY OF PROJECT:

Objectives: General: 1) To determine the role of sedimentary organic matter in the absorption, migration and degradation of pesticides carried into the marine environment. 2) To study the effect of various fractions of sedimentary organic matter on the geochemistry of heavy metals, particularly zinc and copper, that are deposited in the Narragansett Bay as a result of industrial pollution.

Specific: 1) To complete a comparison study of several methods of extracting organic matter from soils and marine sediments. 2) To complete, as far as technically possible, an analysis of the "bound" lipid portion of sedimentary organic matter. 3) To determine the role of these bound lipids in the absorption of DDT by sediments of the Narragansett Bay. 4. To determine the distribution of Cu and Zn in the Narragansett Bay as affected by the various fractions of soluble and sedimentary organic matter.

How information will be applied: Among the most important pollutants of the Bay are various pesticides and heavy metals. It is not now known whether the levels of these pollutants are increasing or decreasing, and even more important it is not known whether these pollutants have reached a level where they may adversely affect the finfish and shellfish industries. The results of the present studies, in combination with other systems studies of the Bay, will be coordinted in order to provide answers to these questions.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 03881.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ESTUARINE BIOGEOCHEMISTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JG QUINN

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $29,866

SUMMARY OF PROJECT:

Objectives: To measure the source, nature, effect and fate of organic nutrients and pollutants in Narragansett Bay.

Specific: To study the sorption of the lipid class compounds in sea water by clay minerals in order to determine the mechanism of incorporation, transport and release of these organic compounds by sediments. 2. To explore the relationship between lipid class pollutants in sediments and the lipid metabolism of benthic animals. 3. To investigate the formulation, transport, and nutritional value of plant detritus from tidal marshes by measuring changes in the lipid composition of Spartina alterniflora as it passes through various stages in its decomposition. 4. To measure the qualitative and quantitative distribution of lipid class compounds in particulate matter in order to establish the role of this material in the estuarine food chain.

How information will be applied: The results of this project provide information on the source, nature, effect and fate of selected organic compounds (nutrients and/or pollutants) found in the waters, sediments, and benthic organisms of Narragansett Bay. This information is applied to systems ecology studies and pollution control of the Bay.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
IMPACT OF INTERNATIONAL TRADE LEGISLATION ON THE COMMERCIAL FISHERY INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
V NORTON RESOURCE ECONOMICS

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1. To identify and evaluate the long-term effects of the Kennedy-round GATT negotiations on the U.S. fishstick and portion industry. 2. To determine the economic implications of possible changes in the New England fishstick and portion industry on other segments of the New England fishing industry. 3. To determine the effects of the current trend of increasing fresh fish imports on the New England fishing industry.

How information will be applied: 1. The analysis is intended to illustrate to trade negotiators, the implications of tariff changes in the commercial fishing industry. 2. The fishstick and portion industry will have information as to their competitive position versus foreign nations.

Accomplishments during the past twelve months: Objectives have been accomplished. In addition, information has been provided for: 1) data and testimony for hearings on the constructive nature of this industry; 2) data and information to the National Marine Fisheries Service and the fishing industry on the potential of fish block production in Alaska; and 3) general information for a presidential subpanel on fishery productivity and background information for study on nomenclature problems in fisheries.

This information will also be useful in evaluating the effects of very recent activity of the Japanese fishing industry and the related Japanese increased catch of pollock off the Alaska Coast.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
BIOCHEMICAL STUDIES IN ECOSYSTEMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HP JEFFRIES

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,140

SUMMARY OF PROJECT:

Objectives: Feeding relationships. To determine the proportions of living and dead detrital materials eaten by commercially important shellfish (hard clam, ocean quahog, smooth mussel) and juvenile menhaden. Fatty-acid patterns in the material removed from the digestive tracts of these species will be determined, and dietary mixture determined using a recently developed model of fatty-acid flow from producer to consumer.

Long-term fisheries survey: To compile and make available a survey on the distribution and abundance of benthic fishes in Narragansett Bay. To evaluate long-term variations as function of climatic change and environmental alteration.

How information will be applied: 1. Less than half of the total particulate organic matter suspended in estuarine water is phytoplankton; detritus, the major fraction, must be evaluated as an energetic input to filter feeders, an essential compartment in the ecosystem model. 2. Records of fisheries abundances, species contributions and water temperatures have been applied in studies on the environmental impact of a proposed power plant in Narragansett Bay. These records are also being used as background information on the life history and ecology of sport fishes.

Accomplishments during past twelve months: 1. The marsh fishes Fundulus majalis and F. heteroclitus have a diet that is composed of five parts detritus to one part live, invertebrate tissue (Palaemonetes pugio). 2. Juvenile menhaden appear to ingest more detritus the further they move into an estuary. 3. There is a 6-year cycle of abundance in the winter flounder population of Narragansett Bay; the cycle is related to small changes in mean water temperature. 4. Abundances of the winter flounder and lobster in Narragansett Bay are positively correlated.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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S.I. NO
GBP-49-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)
2-35190

TITLE OF PROJECT
ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
FM WHITE OCEAN ENGINEERING

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP
7/72 TO 6/73
FY73 FUNDS $21,935

SUMMARY OF PROJECT

Objectives: The objective of this project is to develop and verify a mathematical computer model which has the capability of predicting the spatial and temporal variations of the physical characteristics of Narragansett Bay. When completed, this model should be able to compute, at any time in the past or future and at any point in the Bay, the tidal heights, current salinity, temperature, and certain chemical species concentrations, notably dissolved oxygen. The model will also be able to take account of proposed changes in the dynamics of the Bay, such as hurricane barriers, thermal discharges, sewage outfalls, and channel dredging, with a view toward its use in decision-making and management of Narragansett Bay. The experimental verification of the model is being provided by the Bay Watch program.

How information will be applied: the information derived from this model has three primary uses: 1) to aid in Bay management by providing design studies of proposed physical changes; 2) to provide detailed predictions of the physical state of the Bay, in the past or in the future, for use in coordinating experimentation in the Bay; and 3) to provide physical parameters for use with the associated biological and socio-economic models being prepared under other projects associated with the Systems Model Studies.

Accomplishments during past twelve months: 1. The depth-averaged tidal model has been used in the following important applications: a) revised current charts for the Bay; b) hurricane surges; c) drifting trajectories and flushing times for the Bay; d) motion of oil spills in the Bay; and e) net flow rates at various key points in the Bay. 2. The depth-averaged salinity model is now being applied to dye study problems. 3. The temperature model is now being applied to the proposed Rome Point power plant. 4. The laterally-averaged, water-quality model has been completed and successfully compared to dissolved oxygen and biochemical oxygen demand data from the Bay. 5. A finite-element model for rapid calculations of physical and biological parameters in the Bay is now being developed, in cooperation with the Systems Ecology Project.

For additional information pertaining to this project contact Dr.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ECONOMIC ASPECTS OF MULTIPLE USE COASTAL ZONE PLANNING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
P MLOTOK RESOURCE ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $20,075

SUMMARY OF PROJECT:

Objectives: To evaluate the economic costs and benefits arising from the various uses of the coastal zone, to determine the manner in which these uses conflict, and to develop an economic framework for analyzing how these conflicts should be resolved. Specifically, for the next two years, the work will concentrate jointly with other studies on the institutional aspects of waste disposal in Narragansett Bay.

How information will be applied: The information and analytical framework developed in this study will be of direct use to planning bodies (such as the new Rhode Island Marine Resources Council), which have to make regular working decisions to resolve multiple conflicting demands upon scarce coastal zone resources.

Accomplishments during the past twelve months: A study of the economic impact which a proposed nuclear power plant would have on N. Kingston, R.I., and on users of adjacent coastal waters is nearing completion. Plans for a study of the institutional aspects of waste disposal in Narragansett Bay have been formulated and the study will be commenced upon completion of the power plant study.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

Connecticut

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GBP-49-2 (CONTINUED)

Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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GY-59386-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
CONNECTICUT STORRS

AGENCY NUMBER(S)
0059386
CONS00424
SUBGROUP H
CSRSCONS0000000000

TITLE OF PROJECT
COMMUNITY SERVICES FOR NONMETROPOLITAN PEOPLE IN THE NORTHEAST

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
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RECIPIENT INSTITUTION
UNIV OF CONNECTICUT
AGRI ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
STORRS - CONNECTICUT 06268
50511417

PERIOD FOR THIS NRP
BEG 710401 END 750731
FY 74 FUNDS 00000000

SUMMARY OF PROJECT

OBJECTIVE: Identify alternative institutional arrangements for the delivery of community services and to estimate the political, social, and economic consequences of these alternatives.

APPROACH: Using uniform regional procedures, collect secondary data on services of central importance to rural development throughout the region. Select localities of variable population change patterns in the region and describe selected services within these in terms of organization, quality, financing, accessibility and mix of services. Use appropriate statistical and other techniques for comparative macro- and micro-analysis of quantitative and qualitative data to isolate factors that could be manipulated to improve services. On the basis of theory, literature and available data, identify existing and potential institutional arrangements in the region for delivery of selected services. Analyze each alternative arrangement in terms of benefits/costs, efficiency of production and representation of various groups of citizens and efficiency in reconciling conflicting views and values.

PROGRESS: In attacking the regional concerns on the nature and availability of personal health services, 1967 and 1970 county data for Connecticut were updated to 1971 and reanalyzed by comprehensive health planning districts. Physical facilities of non-metropolitan general hospitals and nursing homes are increasing significantly. Numbers of nursing homes, however, are declining. To an increasing extent, new and larger nursing homes are being owned and managed in groups rather than singlely such that the health care organizational structure for nursing homes is becoming more oligarchical. For the housing component of the regional project, 1960 and 1970 tabulated census data by counties in Connecticut were checked prior to publication in the forthcoming regional report on housing.

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ZUA-2119-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
3-9510-00521

TITLE OF PROJECT:
CONNECTICUT VALLEY URBAN AREA PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LR PAGE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Conn., Mass., Vt., & N.H.

The Connecticut Valley Urban Area Project is one of several U.S.G.S. projects undertaken to demonstrate the importance and usefulness of natural resource information in planning for the development and management of land and water resources. The project area is more than 5000 square miles and extends from latitude 43 degrees in southern Vermont and New Hampshire southward to Long Island Sound, between longitude 72 degrees 7 1/2' and 73 degrees. The boundaries coincide with those of 7 1/2-minute topographic quadrangle maps because most of the geologic and hydrologic data are compiled on this base. Also, this base permits various combinations of natural-resources maps to be used as overlays at a common scale.

The project is designed to meet a variety of needs for earth-resource information in planning and resource management, but should not be considered a substitute for detailed site investigations. Natural-resource data will be presented at two scales: 1:24,000 (one inch equals 2000 feet) and 1:125,000 (one inch equals approximately two miles), for local and regional use, respectively. The 1:24,000-scale maps are available on paper and also on transparent, scale-stable base to accommodate use of the maps as overlays. The 1:125,000-scale maps will be compiled as final products of the project and will be accompanied by an orthophoto mosaic map of the entire project area at 1:125,000 scale.

Because the earth-resource maps will be used for planners and educators (predominantly by non-technically oriented users), simplified earth-resource maps are being prepared. For the non-geologist, standard geologic and hydrologic maps are commonly too complex and too technical because of the scientific vocabulary, the detailed symbolism, and the fact that several levels of spatial and conceptual information are presented on a single sheet of paper. CVUAP maps separate these levels of information, presenting them as simplified, single-subject resource maps, consistent with the scientific integrity of the original product, but more readily useable by the general public.

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ZUI-66-8

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
133-007B

TITLE OF PROJECT:
ECOLOGICAL FACTORS AFFECTING REPRODUCTION OF SHELLFISH (PHYSIO-ECOLOGY OF SHELLFISH PROGRAM)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HC DAVIS BIOLOGICAL LABORATORY
A CALABRESE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project has developed largely in an attempt to discover the origin and distribution pattern of the oyster larvae that set in Long Island Sound. Studies of the intensity of setting in the Bridgeport-Milford-New Haven area have shown that, while certain sections are more likely to get a heavier set than others, setting is usually very spotty, i.e., some sections may get a heavy set while nearby sections receive almost none at all. Plankton samples have shown that, even during the spawning season, oyster larvae are not numerous and that the earlier stages, 75-250 microns in length, are rarely encountered. The 250-325 micron larvae appear suddenly in the plankton samples and setting starts immediately.

At present we are attempting to locate the "nursery areas" where these larvae develop to the 250-325 micron stage before they appear in Long Island Sound. Once these "nursery areas" have been discovered, we shall attempt to determine the attributes that enable the larvae to develop there and to increase recruitment by replenishing the spawning stock in these areas. ISG

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
CONNECTICUT NEW HAVEN

AGENCY'S NUMBER(S):

0056027
CONH00732
SUBGROUP S
SAESCONH0000000000

TITLE OF PROJECT

NUTRIENT EXCHANGE IN RIVERS AND LAKES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

FRINK C R

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION

CONNECTICUT AG EXP STATION
SOIL & WATER SCIENCE

PERIOD FOR THIS NRP:

BEG 691024 END 721023
FY 74 FUNDS 00000000

NEW HAVEN CONNECTICUT 06504 00006160 SUB

SUMMARY OF PROJECT

OBJECTIVE: Determine the contribution of nutrient ions to waterways from woodlands, farms, homes, and cities, and its division water, sediments, plants and outflow from a lake.

APPROACH: Monitor water volume and concentration of nutrients entering and leaving impoundments on the Housatonic River.

PROGRESS: A computer model has been developed to predict water flow in a 33-mile stretch of the Housatonic River. Allowance is made for varying retention times in the two impoundments and the pump-storage reservoir located within this section of the river. Estimates of run off from the ungaged portion of the watershed have also been derived. On an annual basis, the predicted flow agrees closely with the gaged flow at the downstream end of the stretch under study. On a daily or even weekly basis, however, large and unexplainable discrepancies occur between predicted and observed flow. Bank storage is not large enough to account for this discrepancy, and other possible sources of error are under investigation.

016010
PLANT-NUTRITION WATER PLANT-NUTRIENTS WATER-POLLUTION EUTROPHICATION LAK
016010 ES RIVERS NUTRIENT-MOVEMENT ION-EXCHANGE ION-TRANSPORT
021001 00000000

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SIE NO.
GBP-478

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
720403
CONTRACT
028520430

TITLE OF PROJECT:
A STUDY OF THE MIGRATORY BEHAVIOR OF AMERICAN SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RA JONES

RECIPIENT INSTITUTION:
STATE BOARD OF FISH. & GAME
STATE OFFICE BLDG.
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $11,000

SUMMARY OF PROJECT:

Technical Objective: To investigate the orientation and migratory behavior of shad in Long Island Sound and at the mouth of the Connecticut River. To learn the role of olfaction and vision in orientation and homing. To investigate behavior patterns in the lower Connecticut River in relation to osmoregulation.

Approach: Shad will be marked with either dart tags or sonic tags. Some individual fish will have sonic tags inserted in their stomachs and their movements monitored with boat-mounted receivers. In an effort to determine the migration pattern of schools, many fish will be marked with the simpler, more easily applied, dart tags.

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SIE NO.
ZUA-2931

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
CT 62-012

TITLE OF PROJECT:
SMALL STREAM FLOOD CHARACTERISTICS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MD THOMAS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,000

SUMMARY OF PROJECT:

Records of streamflow are relatively plentiful on medium sized and larger streams in Connecticut. However, records on small streams especially those below 10 square miles, are extremely limited. There is an immediate need for information on the magnitude and frequency of flood stages and discharges on these areas. Project should contunue until at least 10 years of record have been completed.

To provide flood flow information at many new sites in Connecticut on streams with small drainage areas. Use this information to supplement similar information at other long-term continuous records to improve or develop a new "flood-flow formula for Connecticut" based on basin characteristics.

Establish and maintain a crest-stage gage network throughout Connecticut and prepare a stage-discharge rating for each station. Analyze records of annual peak discharges with respect to frequecy, regional characteristics, drainage areas, slopes and other drainage basin characteristics. Information on low flow will also be collected systematicaly at each site.

Partial duration series of food peaks were compiled for 45 CSI stations. Flood frequency curves were plotted for all stations through 1971. Flood- frequency analysis was made based on drainage basin characteristics.

Continue compilation of partial duration series of flood peaks for 45 CSI stations; plotting of flood frequency curves for all stations through 1972; flood-frequency analysis based on drainage basin characteristics.

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SIE NO.
GBP-1193

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520479

TITLE OF PROJECT:
A STUDY OF WEIGHT LOSS IN AMERICAN SHAD DURING THE FRESHWATER MIGRATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WC LEGGETT

RECIPIENT INSTITUTION:
ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $45,000

SUMMARY OF PROJECT:

Objectives - To examine the weight loss in adult American shad during the freshwater spawning migration in the Connecticut River, from the time of their entry into the river, to their return to Long Island Sound following spawning. To determine the source and extent of this weight loss from various body parts, and to classify this loss as to percent fat, carbohydrate, protein, etc. To assess the significance of this weight loss in terms of total available reserves at the time of entry into the Connecticut River. To relate the potential energy available from utilization of these stored reserves to the work done during migration in an effort to estimate the efficiency of the spawning migration.

Procedures - Weight loss will be determined by comparing fish of like sex, length and age caught at various stages of the freshwater migration. Individual variation in weight per given sex, length and age will be determined by comparing specimens collected in Long Island Sound prior to their entry into the river. Classification of the components of the weight loss will be accomplished by standard chemical techniques. Energy equivalents of the consumed reserves will be calculated, and these values will be related to estimates of work required for the spawning migration in an attempt to determine the efficiency of migration and the maximum migration possible under existing environmental conditions.

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S.I.E.NO.
GQN-525215-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN525215
CONTRACT
NONR-4750(00)

TITLE OF PROJECT:
NAVY ENVIRONMENT - LOAN OF EQUIPMENT TO UNIVERSITY OF CONNECTICUT FOR PHYSICAL, CHEMICAL AND GEOLOGICAL OCEANOGRAPHIC RESEARCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
P DEHLINGER GEOLOGY & GEOGRAPHY
W LUND

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $44,989

SUMMARY OF PROJECT:

A knowledge of the dispersal of sediments and pollutants in estuarine environments is important to the proper design of harbor installations and to the bottom placement of man-made objects. Knowledge of this kind is being acquired under this research task in the Long Island Sound area.

The University of Connecticut has for some years operated a small marine research laboratory at Noank, Connecticut and has provided instruction in marine biology. They have now formed a marine sciences institute to provide graduate student training and to conduct research in all fields of marine science. Already they have acquired two buildings at Avery Point (Groton, Connecticut), acquired several small boats, and begun expansion of staff and faculty. Plans over the next five to seven years are to add about 20 faculty members plus associated supporting staff. Copies of reports or publications by institute members who use any of the Navy equipment loaned them will be submitted to ONR.

Supporting Agency Address Information: Office of Naval Research 480D, Arlington, Va. 22217.

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SIE NO.
GSQ-427

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENV. SYSTEMS & RESOU.

AGENCY'S NUMBER(S):
GI-36580

TITLE OF PROJECT:
THE IMPACT OF ECONOMIC DEVELOPMENT AND LAND UTILIZATION POLICIES ON THE QUALITY OF THE ENVIRONMENT WITH INITIAL APPLICATION TO NEW ENGLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GD ROBINSON

RECIPIENT INSTITUTION:
CENTER FOR ENVIRON. & MAN INC.
HARTFORD, CONNECTICUT 06120

PERIOD FOR THIS NRP:
12/72 TO 1/74
FY73 FUNDS $248,700

SUMMARY OF PROJECT

A methodology for assessing the environmental consequences of alternative plans and policies that affect regional economic development, population growth, and the quality of the environment will be developed and tested in a two-phased program. Only the first phase is to be conducted in this study.

The research proposed for phase I involves the development of: (1) a regional industrial interaction model, (2) residuals coefficients for those industrial, household, and governmental activities which generate significant amounts of pollutants, (3) a mathematical model of the lower Connecticut River, and (4) adaptations of CEM's existing air quality model by coupling it with outputs or the existing land-air interaction model and by adding the capability to accommodate intrusions of pollutants from boundary regions. Some work will also be done on detailed planning of the Phase II part of the program.

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SIE NO.
GSV-3703-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-32067

TITLE OF PROJECT:
COMMUNITY TROPHIC STRUCTURE OF ESTUARINE FORAMINIFERA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
L FRANKEL GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
12/72 TO 11/73
FY73 FUNDS $7,700

SUMMARY OF PROJECT:

The object of this investigation is to determine the structure and trophic relations of foraminifera-containing communities in the nearshore sandy sediments of the marine Poquonock River estuary of southeastern Connecticut.

The "backbone" of the study is a new method of epoxy resin impregnation of sediments which preserves in situ the sedimentation features, interstitial organism distribution, and the protoplasmic materials of micro- and macroorganisms (both plant and animal) without the contractions common in these types of preservations.

The upper six centimeters of thin-sections cut from impregnated sediments collected seasonally from different environmental settings in the Poquonock River estuary will be studied by light microscopy to determine the similarities and differences among foraminifera-rich and foraminifera-poor communities, and try to ascertain why there is an unequal distribution of foraminifera in similar contiguous materials and what constitutes the foraminifera's food supply.

The question of whether shallow water foraminifera are epifaunal or infaunal organisms will also be investigated. The writer's study of thin sections cut from one impregnated Poquonock River core collected in 1969 shows subsurface reproduction in foraminifera; joined foraminifera undergoing gamogony are found from 3 to 34 millimeters below the sediment-water interface.

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SIE NO.
GUN-5243-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-5-5-3-R

TITLE OF PROJECT:
INTRODUCTION OF COHO SALMON

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT (325)

RECIPIENT INSTITUTION:
STATE BOARD OF FISH, & GAME
STATE OFFICE BLDG,
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
9/71 TO 6/72
FY72 FUNDS $0

SUMMARY OF PROJECT:

Objective: To determine the success of the introduction of coho salmon.

Procedures: Gill nets, trap nets, electro-fishing, fishermen checks and visual observations will be used to capture returning coho salmon. Any coho's taken will be checked for fin clips, weighed, measured and checked for sex and maturity.

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SIE NO
GUN-8875-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-5-6-5

TITLE OF PROJECT

REMOTE TEMPERATURE PROFILES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT-SPECIALTY

DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $600

SUMMARY OF PROJECT

Objective: To obtain surface water temperature profiles of the Thames, Quinebaug, Shetucket, Yantic Rivers, their important tributaries, and parts of Long Island and Fishers Island Sounds.

Procedures: A helicopter-mounted Barnes Model PRT-5 plus an A.R.A. 0-1000 millivolt recorder will be used to obtain temperatures on the river system. Eight flights will be scheduled annually, two each in September and October, none in the period December to March, one in the period June to August and one in April, May, and November. This schedule may be modified depending on water conditions and availability of aircraft.

All temperature profiles will be hand drawn rather than using a computer to make the profiles.

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SIE NO.
GUN-5245-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-5-6-1

TITLE OF PROJECT:
LIMNOLOGICAL AND FISHERIES SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $4,500

SUMMARY OF PROJECT

Objective: To continue the limnological and fisheries survey of the Thames River System.

Procedures: Selected present limnological stations on the Thames, Quinebaug and Shetucket Rivers will be monitored for temperature, oxygen, pH, specific conductance and other parameters including some fish and bottom samples. Special monitoring will be continued in the upper Thames River where a serious oxygen depletion occurs during low water flow conditions. This study will also be expanded to include the Yantic River.

All tributaries and suitable main stream areas will be surveyed to evaluate and measure potential spawning areas for seatrout. Potential shad spawning areas on the Quinebaug and Shetucket Rivers will also be measured.

The owners of each major dam in the system who have been licensed by the Federal Power Commission will be contacted and the following materials and information obtained. 1. Plans showing the dam, gates, power houses, canals, etc. 2. Schedules of normal water usage. 3. Map of lands owned by the owner showing areas to be open for recreational use.

Using this information and the calculated size of the shad and seatrout run, preliminary engineering and hydraulic parameters for fish passage facilities will be obtained.

Turbine mortality tests will be run on each of these dams to determine if any special downstream passage structures will be required.

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SIE NO.
GUN-5244-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-5-6-2

TITLE OF PROJECT:
REINTRODUCTION OF SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Objective: To determine the success of the reintroduction of shad.

Location: Quinebaug River and Thames River.

Prodecures: Shad eggs will be available from the Board and will be placed in special hatching boxes or broadcast in the river. Estimates of mortality will be made and the young will be recaptured using plankton nets, mid-water trawls and small mesh gill nets to determine downstream movements, growth, mortalities associated with passage through power turbines. ISG

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SIE NO.
GUN-9706

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-R-13-4-1

TITLE OF PROJECT:
STUDY OF SELECTED PHYSICAL, CHEMICAL, AND BIOLOGICAL FEATURES OF THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
P MINTA

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $4,800

SUMMARY OF PROJECT:

Objective: Determine periodically the surface water temperatures of the main stem and selected tributaries of the Connecticut River from Old Saybrook, Connecticut, to Wilder, Vermont.

Procedures: Temperature determinations will be obtained with a Barnes Model PRT-5 infrared radiation thermometer and recording equipment mounted on S-46 helicopter owned and operated by the State of Connecticut Dept. of Aeronautics.

Over-flights will be made at altitudes of 100 feet or less on a monthly basis from April through November. One day each month, upriver flights will be made from Saybrook, Connecticut, to the vicinity of Wilder, Vermont. During these flights, the river to Hartford will be crisscrossed using marine navigation aids and man-made structures as reference points. Above Hartford, the flight will be essential midriver using man-made objects and topographic features as reference points.

After a review of the average temperature profile at the completion of the upriver flight, a detailed survey will be made at points of temperature rise and depression--such as heat effluents, impoundments and tributaries during the return flight. Certain major tributaries will be surveyed to provide data to correlate with main stem temperature patterns.

Data will be plotted as an average temperature profile along the length of the study area against river miles and man-made features. Detail survey data will be plotted as isotherms in the areas of interest. Completed temperature information will be utilized as base data for future analysis as regards recommendations to regulatory agencies on location and allowances for heat-producing industries. Data will be used also to provide information on the cause and magnitude of thermal loading from various sources such as steam electric plants, manufacturing operations and solar energy in areas of impoundments and shallows related to hydroelectric operations.

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SIE NO.
GUN-9678

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

AFS-4-R-13-2-1

TITLE OF PROJECT:

EFFECTS OF BARRIERS ON SHAD MIGRATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

P MINTA
ALSO WITH STATE DIV. OF FISHERIES & GAME

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $5,400

SUMMARY OF PROJECT:

Objective: To determine the number of shad passed upstream over Holyoke and the relative abundance reaching Turners Falls Dam versus the number entering the mouth of the river.

Procedures: In 1968, it was reported that shad were present in the Falls River, a tributary to the Connecticut River that enters the main stream immediately below the Turners Falls Dam. In 1964, it was reported that 200 shad were observed below the Cabot Station generating plant at Turners Falls. Observations were made in 1969, 1970, 1971, 1972, and will be continued in 1973. Drift gill nets will be fished at suitable locations downstream of the Cabot Station, in an attempt to better determine the relative abundance of shad below Turners Falls. Completion of this job will depend on suitability of flow conditions during June.

The number of shad lifted over Holyoke Dam will be counted as they are released into the river above the dam. Population estimates, at the mouth of the river, will be made by the Peterson method of capture, mark, and release; and recapture.

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SIE NO.
GUW-3188-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-040-CONN

TITLE OF PROJECT:
SHELLFISH CULTURE USING THE HEATED EFFLUENT FROM ELECTRIC POWER PLANTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR SY FENG BIOLOGY
GS CAMPBELL

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS $4,460

SUMMARY OF PROJECT:

A joint study to be conducted by the Marine Research Laboratory at Noank and the School of Engineering has as its primary objective determination of feasibility of using the heated water discharge by electric power stations to increase the efficiency of shellfish production. If it turns out that the proposed use of the heated water discharged from power plants is not feasible, research will be carried out in order to establish criteria for preventing harmful ecological effects.

This research has an important bearing upon multiple use of water resources because of the large quantities of water committed to nuclear power plant usage. Enchancing the production of shellfish is, of course, an important consideration for the coastal regions of New England.

Research at the Marine Research Laboratory at Noank, Connecticut will consist of laboratory and field studies of the effect of thermal effluent on oysters. By comparing the metabolic activity and the rate of growth of oysters in heated and unheated waters of the Long Island Sound, the practicality of using the heated effluent can be assessed. The proposed source of the heated seawater is the effluent from the Norwalk fossil-fuel power plant of Northeast Utilities. ISG

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SIE NO.
GUO-568-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
AFC-6-1

TITLE OF PROJECT:
BEHAVIOR PATTERN OF SHAD IN THE VICINITY OF A HEATED EFFLUENT DURING A NO-HEAT PERIOD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WC LEGGETT
ALSO WITH STATE BOARD OF FISH, & GAME

RECIPIENT INSTITUTION:
ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: To use sonic tags to ascertain the migration behavior, especially migration rate, through an area of the Connecticut River with a significant heated effluent during a no-heat period.

Location: Study site will be in the vicinity of the Connecticut Yankee Atomic Power Company (CYAP) outfall at Haddam Neck on the Connecticut River.

Procedures: Shad tagged during Job 1 of this segment will be expected to pass the CYAP outfall area within 5 - 10 days of entering the river. Shore based automatic monitors (described in AFC-1) will be installed at, above and below the outfall area to determine migration rates in this area. After the major tracking effort of Job 1 is accomplished, attempts will be made to track individual fish in the outfall area in order to obtain additional patterns of migration. Data will be processed as in Job 1. ISG

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SIE NO.
GUW-3191-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-044-CONN

TITLE OF PROJECT:
THE ANALYSIS OF TRITIUM OXIDE FROM SELECTED AREAS OF THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DM SKAUEN PHARMACEUTICAL SCIENCES

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF PHARMACY
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS $1,100

SUMMARY OF PROJECT:

The proposed research plan involves mainly laboratory investigation with a limited amount of field activity with the intent of evaluating and adapting analytical methods for estimation of low-level concentrations of tritium oxide in the Connecticut River.

Laboratory research will be conducted using electrolytic enrichment methods and liquid scintillation counting. Data accumulated from environmental samples will be used as a basis for additional studies in acute and chronic toxicities. It will also be correlated with related hydrologic data.

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GUW-3189-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-041-CONN

TITLE OF PROJECT:
AN INVESTIGATION OF TURBIDITY IN ESTUARINE WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF WF ROHLEN

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS $5,275

SUMMARY OF PROJECT:

The clarity of river and estuarine waters or, conversely, their turbidity can serve as an index of the rate and degree of fine sediment transport and biological productivity. To date, the utility of such data within water quality studies has been limited by an imperfect understanding of the relationship between total turbidity and its component parts (i.e., primarily its organic and inorganic constituents) and a lack of instrumentation that would permit in situ detailing of the suspensoid. A program is proposed to examine the relationship between total turbidity and its constituents and to develop the methods and instrumentation capable of providing long-term in situ data in rivers and estuaries.

Drawn samples from selected sites in the Connecticut River will be analyzed in the laboratory to determine the volume concentration and major constituents of the suspended load. These data will be used to establish the design requirements of a nephelometer. The feasibility of combining the principles of light scattering and selective absorption to permit in situ detailing of suspended load characteristics will be studied. Measured light properties obtained in the field will be correlated with the suspended load characteristics obtained in the laboratory to calibrate the instruments and to derive a governing equation. After development, the instrument will be used to map the spatial variations in turbidity near the mouth of the Connecticut River and to monitor the temporal variations on a seasonal scale. ISG

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SIE NO.
YCN-213

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECTICUT STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HOUSATONIC RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JJ POLUHOWICH BIOLOGY

RECIPIENT INSTITUTION:
UNIV. OF BRIDGEPORT
GRADUATE SCHOOL
285 PARK AVE.
BRIDGEPORT, CONNECTICUT 06602

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $15,000

SUMMARY OF PROJECT:

A survey was conducted in the Summer and Fall of 1970 to determine the characteristics of the water in the Housatonic River Estuary, for a distance of 12 miles between the Derby Dam and Long Island Sound. Water samples taken at weekly intervals at seven stations were analyzed for heavy materials and several anions. Indicators of pollution, such as BOD and bacterial count, were also determined. These data were intended to furnish a base line for a more extensive ecological study, but funds for it were not available.

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SIE NO.
GUW-3394

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-052-CONN

TITLE OF PROJECT:
BIOTIC CHANGES IN THE WILLIMANTIC/SHETUCKET RIVER ASSOCIATED WITH IMPROVEMENTS IN SEWAGE TREATMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF WJ WIDMER CIVIL ENGINEERING
JD BUCK
FR TRAINOR
WR WHITWORTH

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF ENGINEERING
BOX U-37
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
2/72 TO 1/73
FY72 FUNDS $24,876

SUMMARY OF PROJECT:

The Shetucket River at Willimantic, Conn, has been receiving discharges from the Willimantic sewage treatment plant since 1959, prior to which raw sewage was discharged. This represents the only significant pollution input along the river from Mansfield to Occum, Conn. The city is currently converting its waste treatment method from a plain sedimentation process (primary treatment) to an activated sludge process. The research proposed herein would establish biotic conditions in the river over the coming eighteen months prior to operation on the new plant, and would determine whether desirable improvements in the biotic environment would be realized during the following two years. The information derived from this investigation should be useful not only for its local scientific interest, but also it could serve as a base-line guide for State regulatory agencies and others engaged in stream pollution control. The study would provide a local evaluation of the tentative Provisional Algal Assay Procedure recently proposed by a Joint Industry/ Government Task Force on Eutrophication.

Field collections/observations on benthic and pelagic organisms would be made periodically evaluation. The biota studied would include along the study reach for subsequent laboratory processing, examination, preservation, and evaluation. The biota studied would include bacteria, algae and other micro-forms, various invertebrates, and fish. Related chemical and physical parameters would be measured for correlation with the biological observations. The team for this work will be an interdisciplinary one comprising students and faculty from the Departments/Divisions of Biological Sciences, Civil Engineering, Fisheries Management, and Microbiology at the University of Connecticut.

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SIE NO.
GUW-3790

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-053-CONN

TITLE OF PROJECT:
IDENTIFICATION OF STABLE ORGANIC COMPOUNDS IN WASTE EFFLUENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RP COLLINS BIOLOGY

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The proposed research plan involves laboratory and field investigations directed at the identification and fate of refractory organic chemicals released in the effluents from waste treatment plants. The effect of chlorine treatment on organic molecules will also be determined.

Laboratory investigations would employ the following methods: 1. Model experiments to test the effect of chlorine on various classes of organic compounds. 2. In vitro testing of these chlorinated compounds to determine their possible toxicity. 3. The development of analytical methods for isolation and identification of trace amounts of organic materials.

Field investigations would include: 1. The identification of trace organic materials present in the Willimantic River. 2. An attempt to assess the effects of these chemicals on water quality and on the biota of the river.

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SIE NO.
YCN-214

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECTICUT STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DISEASES OF FISH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WR WHITWORTH ANIMAL DISEASES
RE WOLKE

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF AGRICULTURE
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $42,430

SUMMARY OF PROJECT:

A survey was made of the number of types of diseases and parasites present in fish in the Quinnebaug and Thames rivers between Danielson and New London to evaluate the potential hazards to any non-native fish that might be introduced into these rivers. Initial results indicate that diseases and parasites have minimal effect on the fish in this area, except when environmental conditions are very poor, for example when flow is low and pollutants increase. The numerous slides of normal and disease tissue that were prepared will be available to other investigators.

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SIE NO.
YCN-201-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECTICUT STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ANALYTIC STUDY OF COASTAL UPWELLING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RW GARVINE

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:
12/71 TO 5/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Support is requested for one year to develop a quantitative theoretical treatment of steady state coastal upwelling. The work will proceed in phases of increasing sophistication. First, the simplest case of the upwelling of homogeneous water of constant depth will be studied. These results will form the basis for the next phase which will be to study the important effects of bottom topography typical of areas on continental shelves, such as that south of New England. Finally, the problem of upwelling of inhomogeneous water (water of variable density) will be initiated. Completion of the third phase will be a major task, and will probably entail work beyond the first year.

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SIE NO.
YCN-211

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECTICUT STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
REPRODUCTIVE POTENTIAL OF SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WC LEGGETT

RECIPIENT INSTITUTION:
ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $6,158

SUMMARY OF PROJECT:

The characteristics of the spawning populations of the American shad in four Atlantic Coast rivers in latitudes from Florida to New Brunswick were studied. The findings support a theory advanced three decades ago, that the characteristics of the spawning populations reflect adaptation to the environment in which they spawn.

The investigator concluded that repeat spawning by Connecticut River shad is important in maintaining the reproductive potential of this stock, and in offsetting short term environmental fluctuations which could otherwise initiate large scale oscillations in reproductive potential. He therefore warns against any significant alteration of the environment that would affect the present reproductive characteristics of the Connecticut River shad.

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SIE NO.
ZBP-184

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
720159
0281802

TITLE OF PROJECT:
LABORATORY FOR EXPERIMENTAL BIOLOGY, MILFORD, CONNECTICUT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JE HANKS
W LANDERS
R UKELES
A LONGWELL
C MACKENZIE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
LAB. FOR EXPERIMENTAL BIOLOGY
ROGERS AVE.
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $450,000

SUMMARY OF PROJECT:

Objective: To determine the effects of environmental factors, as heavy metals and pesticides, on the marine resources of New England waters, particularly Long Island Sound. This is a part of the cooperative study of marine contaminants coordinated by the North Atlantic Coastal Fisheries Research Center, Sandy Hook, New Jersey.

Approach: a. Experimental studies are conducted to include bioassay of heavy metals and pesticides with egg and larval stages of marine invertebrates; genetic heritability studies for the selective breeding of commercial mollusks; bacteriological and physiological studies with egg, larvae, and juvenile invertebrates related to mortalities, growth and environmental stresses; development of standard rearing methods for coastal invertebrate organisms; and physiological studies with marine phytoplankton, including the development of mass-culture techniques; b. Field studies at a dump site and control area in Long Island Sound to determine pollutants present in the environment and in fish and shellfish tissues and the relationship to fluctuations of abundance and species composition in the Long Island Sound ecosystem.

Progress: a. Experimental results of this recently redirected program have provided lethal levels for eggs and larvae of the American oyster, C. virginica, for 10 heavy metals. Work in progress will provide similar information for the hard clam, M. mercenaria. b. Samples of several target species have been collected and prepared over the past four months, June-September, 1971, and turned over to other NMFS research groups for chemical and histopathological analysis.

INVESTIGATORS (CONT)
A CALABRESE
W BLOGOSLAWSKI
F THURBERG

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SIE NO.
ZUA-2368

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
CT-66-016-C

TITLE OF PROJECT:
WATER RESOURCES OF CONNECTICUT - PART 5, LOWER HOUSATONIC RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: This is one part of an overall investigation of water resources of Connecticut authorized by Public Law 594, passed by the legislature in 1959. Funds are provided biennially for the program which is carried out in cooperation with the State Water Resources Commission. This project is the fifth of a series using the river basin approach which will provide the required inventory of the State's water resources. It is geared to the solution of the water problems described in the Council's long-range plan.

Methods: The project will expand the present program of collecting data on surface waters, ground water and water quality to supplement that already available. Data on streamflow and on yield of lakes and ponds will be related to long-term records now on hand. Additional information on ground water will be obtained from wells, test borings, and shallow test holes, geologic mapping, and a study of low-flow characteristics of streams. Water from many of the surface- and ground-water sources will be tested for chemical and physical qualities, and a reconnaissance of sediment in streams during several storm periods will be made.

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SIE NO.
WZ-2288

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ECOLOGICAL SURVEYS OF ATLANTIC COAST ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RJ BENOIT

RECIPIENT INSTITUTION:
ECO SCIENCE LABORATORY
NORWICH, CONNECTICUT 06360

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A variety of brief survey projects including temperature, salinity, DO, transparency, suspended sediment, benthos, sediment analyses and in situ bioassays are being carried out in estuaries in Connecticut and New Jersey to assess ecological effects of proposed and on-going public works such as bridge building, and dredging. Data and information records are for the most part proprietary, but could be made available on a case-by-case basis.

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GBP-479=1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520491

TITLE OF PROJECT:
ESTIMATING THE NUMBER OF RIVER HERRING IN THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR W LUND

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,000

SUMMARY OF PROJECT:

Technical Objective: To estimate the numbers of herring utilizing the Connecticut River, to obtain additional information on the time and duration when the two species of herring are present in the river, and to determine the possibility of a regulated commercial harvest of these two species.

Approach: During the first year of this new project, a pound net was purchased and set at the mouth of the Connecticut River. The net did fish very well and large numbers of river herring were easily captured. The techniques were developed for removing fish from the net and for mass marking the fish with a visible pigment. It was established that a tag and recapture study on river herring in the Connecticut River is possible.

The proposed plan is to conduct a mark and recapture study on river herring in the Connecticut River to estimate the total numbers utlizing the river as a spawning area and to gather some insight into the movements of herring within the river. Fish will be marked at the pound net and recaptured up river by means of trap nets and seins. It will then be possible to estimate the numbers of fish in the river and gain an insight into the movements within the river by recapturing marked individuals. Trap nets and seines will be fished at the stations established during the previous study on the life histories of the alewife and blueback herring. An exact sampling plan cannot be presented as it is not known how the two species move in the river.

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SIE NO.
GSV-3709-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-32067A1

TITLE OF PROJECT:
COMMUNITY TROPHIC STRUCTURE OF ESTUARINE FORAMINIFERA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
L FRANKEL GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
12/73 TO 11/74
FY74 FUNDS $8,000

SUMMARY OF PROJECT:

The object of this investigation is determining the structure and trophic relations of foraminifera - containing communities within the nearshore sandy sediments of estuaries in south-eastern Connecticut. Problems of foraminiferal habitat, habit, spacing, and potential food in interstitial spaces will be approached through the method of epoxy resin impregnation of sediment cores. This technique preserves in situ the sediment features, interstitial organism distribution, and the protoplasmic materials of micro- and macroorganisms.

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SIE NO.
GMA-182

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
16010 ELC

TITLE OF PROJECT:
UTILIZATION OF ORGANIC COMPOUNDS BY ALGAE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF FR TRAINOR BIOLOGICAL SCIENCES
H ROWLAND

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $23,828

SUMMARY OF PROJECT:

We will determine the role of organic matter in the growth of algae isolated from Connecticut waters. When algae are studied in culture, usually organic compounds are not supplied in the medium, unless there is an absolute requirement. Thus, considerable information on growth in inorganic media has developed, but we know little about the range and effects of organic compounds utilized by some common algae. Do organics have a role in heterotrophic growth, development of form, serve as buffers, chelators?

We have isolated into culture and have initiated studies of a variety of algae from the Connecticut and Willimantic Rivers and know of groups of compounds found in natural waters or liberated by algae. Under a variety of conditions we are determining whether these compounds (some of which were directly secreted by algae) can be important sources of energy for the organisms, especially when substrate concentrations are low, as in nature. By frequent transfer of cultures, we can work at low levels, avoid drastic changes in cell number, shading, inorganic mineral deficiency, etc.

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SIE NO.
AQ-811

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NORTHEAST UTILITIES SERV. CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
FACTORS NECESSARY FOR RE-ESTABLISHMENT OF FISH RUNS IN THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
NORTHEAST UTILITIES SERV. CO.
176 CUMBERLAND AVE.
HARTFORD, CONNECTICUT 06101

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: Determine factors necessary for re-establishment of anadromous fish runs in the Connecticut River.

Address for correspondence: W.A. Greten, 176 Cumberland Avenue, Wetherlands, CT 06101.

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SIE NO.
GPE-5014-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
BER-74-116
CONTRACT
AT(11-1)-3573

TITLE OF PROJECT:
TRACE ELEMENTS IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF KK TUREKIAN GEOLOGY & GEOPHYSICS
J THOMSON

RECIPIENT INSTITUTION:
YALE UNIVERSITY
SCHOOL OF ARTS
206 ELM
NEW HAVEN, CONNECTICUT 06520

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $35,000

SUMMARY OF PROJECT:

We will concentrate all our efforts in this grant during the next few years on the problems of metal transport by streams and their fate in estuaries. The importance of this information to problems of metal pollution and the fate of reactor generated radionuclides is self-evident. We have four areas of research that are now being pursued under AEC aegis and we plan to bring them to successful conclusions in the next few years: 1. The fates of iron and manganese in an estuary, Long Island Sound, and the consequences for the trace metal regimes in estuaries. 2. The natural and man-induced controls on the chemistry of a major river system, the Susquehanna, and the supply of metals to the coastal ocean. 3. Pb210 dating of salt marsh deposits. 4. The horizontal and vertical distribution of Pu239 in Long Island Sound sediments.

Results: Logistic preparations for the sampling activities in estuaries and streams were made and preliminary analytical techniques for Fe and Mn determinations in natural waters were tried. The detailed chronologic study of estuarine deposits such as bottom sediments and salt marsh deposits were continued using Pb210 and other natural radionuclides. The papers on mercury in New Haven harbor sediments and the mechanism of molybdenum deposition announced in press in the last progress report have been published and similarly the papers on trace elements in pteropods and plankton, and molybdenum in marine deposits are due to appear in journals before July 1, 1973.

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SIE NO.
GH-10924

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. AERONAUTICS & SPACE ADM.
OTHER UNKNOWN OFFICE
MISCELLANEOUS UNITS

AGENCY'S NUMBER(S):
CONTRACT
NAS 5-21792

TITLE OF PROJECT:
AN INTERDISCIPLINARY STUDY OF THE ESTUARINE AND COASTAL OCEANOGRAPHY OF BLOCK ISLAND SOUND AND ADJACENT NEW YORK COASTAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR R HOLLMAN
ALSO WITH LONG ISLAND UNIVERSITY

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An interdisciplinary study of the physical, chemical, and biological relationships of Block Island Sound and coastal waters is currently being conducted using shipboard sampling techniques. Preliminary studies to date have indicated the presence of unexpected large color differences which are believed to be related to circulation and water mass characteristics, nutrients, trace metal, and the organic content of the water as well as to the quantity of phytoplankton present.

It is proposed to use the ERTS-A RBV and MSS imagery and to perform a Skylab EREP experiment using the S190 multispectral camera, S191 IR spectrometer, and the S192 multispectral scanner to support and extend this shipboard study. The imagery obtained from these experiments will be analyzed using additive color viewing equipment, density slicing-masking techniques, and computer classification programs. These data will be correlated with the results of shipboard sampling and in situ spectra using multiple regression techniques.

It is expected that the ERTS and Skylab space-acquired data will significantly contribute to this state-supported program by providing synoptic repetitive coverage of the Block Island Sound and adjacent coastal waters. Particularly the tidal and seasonal affects on dynamic variation in the interaction between, as well as changes within, water masses will be invaluable in understanding the coastal environment sufficiently to manage this irreplaceable resource which is being rapidly depleted.

New York

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SIE NO.
GBP-1292

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRODUCTION OF A PRELIMINARY NEW YORK BIGHT ENVIRONMENTAL ATLAS - PHASE I. COMPILATION AND EDITORIAL REVIEW

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DF SQUIRES
JM HOPKINS

RECIPIENT INSTITUTION:

STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
1400 WASHINGTON AVE.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP:

5/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The objectives of the proposed work are to provide the MESA program, its New York Bight Project Office, and the community of decision-makers and concerned citizens in the New York Bight region with interim information on the environment of that region, pending the completion of the New York Bight project. These objectives are to be met in the production of a summary statement of current knowledge, based upon existing data, of environmental factors in the New York Bight presented in the format of an atlas consisting of graphics necessary for explication of data and accompanying text. The text and graphics are to be prepared by a panel of experienced authorities in various subject areas under the guidance of and according to standards set by the grantee in consultation with the MESA Program Office.

Specifically, the objectives of the task described herein are: 1) To provide the MESA Program's New York Bight Project Office with background statements of status of knowledge and of existence of data by experienced authorities as a basis for project planning by the Office. 2) To develop syntheses of the state of knowledge and interpretation of existing data as text for a "Preliminary New York Bight Environmental Atlas". 3) To develop appropriate graphics to explicate the text and to clarify for nontechnical users of the atlas the significance and the interpretation of existing data. 4) To provide the MESA Program Office with guidance for Phase II of the project (not covered by the present proposal) which is to be the publication of both graphics and text, and their distribution. The overall goal of the atlas will be to provide an inventory of biophysical resources, indicate sensitive environmental area, provide an overview of the complicated interrelationships within and between the marine and coastal ecosystems, and indicate planning priorities.

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SIE NO.
GBP-1296

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
03-3-043-50

TITLE OF PROJECT:
PHYSICAL-CHEMICAL ANALYSES OF SEDIMENTS FROM THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AE COK EARTH SCIENCES

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
6/73 TO 5/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The results of this study will provide information and insight necessary for sediment size and characteristics interpretation and correlation with other ongoing in-house and outside contractual research projects. With this information, we will be able to develop an environmental monitoring prediction system based on what organisms exist in these waters at the present and what changes are noted in any subsequent analysis of the area. It will give us factual information to use in our analysis of the effects of man-induced changes in the marine environment.

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SIE NO.
GBP-1207

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM, ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520494

TITLE OF PROJECT:
A STUDY OF STRIPED BASS IN THE MARINE DISTRICT OF NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN ENVIRONMENTAL CONSERVATION

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $21,500

SUMMARY OF PROJECT:

Technical Objective: To hire the Conservation Biologist, marine resources technicians, stenographer, graduate assistants and statistical advisor. To purchase the equipment and supplies necessary to carry out the studies which will get underway in the field on 4/1/73. To survey the location where the studies will be undertaken so that field operations will be run efficiently.

Approach: Recruitment of qualified personnel will be performed in accordance with the regulations set forth by the New York State Department of Civil Service. Until such time as project personnel are actually employed, the ordering of necessary supplies, materials and equipment will be carried out by supervisory personnel of the Bureau of Marine Research. The project personnel will travel to various areas of the Hudson River to locate suitable seining sites for the collection of young striped bass. Also, the personnel will travel to eastern Long Island to make arrangements with commercial haul seiners so that adult striped bass may be obtained for tagging purposes. The area in which the creel census will be conducted will be determined by project personnel after they have visited eastern Long Island and have noted the marinas, boat launching sites and beach locations from which sport fishermen attempt to catch striped bass. Statistical advice will be obtained from a professional bio-statistician who has had experience in creel census studies. Although not collected through direct effort of this project, all information relative to the commercial landings of striped bass will be reviewed by project personnel.

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GBP-1286

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281803

TITLE OF PROJECT:
MESA/ECOSYSTEMS INVESTIGATIONS - PHYSICAL-CHEMICAL ANALYSES OF SEDIMENTS FROM THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR A COK EARTH SCIENCES

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: Provide (1) chemical and physical analyses of up to 1000 samples of bottom sediments taken from the apex of the New York Bight, and (2) information and insight necessary for sediment size and characteristics interpretations and for correlations with complementary in-house research findings.

Approach: Coordinate work with macrobenthic studies (MESA) underway at Sandy Hook Laboratory, MACFC, and NOAA/AOML. Samples to be obtained by grab or gravity corer by Sandy Hook Laboratory and supplied to contractor.

Progress: Detailed planning developed by TDP (NMFS) and MESA.

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SIE NO.
GBP-1058

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35281

TITLE OF PROJECT:
STUDY OF EXCHANGE OF NUTRIENTS AND SALINITY BETWEEN EAST RIVER AND LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JD LONGOBARDI
D EPSTEIN
J PESCATORE

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
1400 WASHINGTON AVE.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP:
10/72 TO 9/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objective of this project is to determine the exchange of salt and nutrients between the East River and Long Island Sound through the line extending from Throggs Neck to Willets Point. The program will run for a year and thus the results will represent the exchange of salt and nutrients on an annual basis.

How information will be applied: Information derived from this project will be utilized by related Sea Grant Projects. The City of New York and the Interstate Sanitation Commission are interested in the research results for utilization in planning sewage outfalls projected for the East River region.

Accomplishments during past twelve months: Preliminary analyses suggest that determination of the exchange between western Long Island Sound and the East River can be achieved by the methods of this research.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York 12210.

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SIE NO.
GBP-1195

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520578

TITLE OF PROJECT:
STUDY OF SETTING, ATTACHMENT AND GROWTH OF CODIUM FRAGILE ON SHELLFISH IN LONG ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RE FOX

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. CONSERV.
4175 VETERANS MEMORIAL HWY.
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $10,150

SUMMARY OF PROJECT:

Objectives - Determination of necessary conditions for successful attachment of Codium macrospores to shellfish, laboratory culture experiments with germling stages. Determine depth survival limits for three different age groups of Codium plants for use as a possible control measure, Preparation of final report.

Procedures - Determine yearly cycle of macrospore viability. Viability will be determined by inoculating enriched culture media with spores obtained by inducement from field collected adult thalli.

Place suitable substrates along gradients of an established population to determine probable range of successful macrospore germination.

Correlate ecological conditions including micronutrients, physical and chemical factors and meteorological conditions to observed population dynamics. Water quality measurements, undertaken for the past several years, will be continued in this phase.

Employ variations of temperature, salinity, light intensity and nutrient concentrations of culture media. Corresponding primary production rates would be determined using radio-isotope tracer techniques. Corresponding chlorophyll types and amounts would be determined using spectrophotometric methods.

Each station would consist of two year plants, one year plants and germling stages all attached to natural substrates.

At two week intervals the following data would be collected for each station: increase in length, light intensity, turbidity and extensive chemical and physical water analysis.

Thorough analysis of data collected for duration of project, preparation of some segments of project for publication.

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SIE NO.
GBP-489-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520260

TITLE OF PROJECT:
POND CULTURE OF OYSTER SEED IN A CONTROLLED NATURAL ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AR BRAND

RECIPIENT INSTITUTION:
STATE DIV. OF MARINE RESOURCES
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $30,000

SUMMARY OF PROJECT:

Objectives: To determine the potential of Oyster Pond as a nursery area for juvenile oysters, both natural and introduced set, by providing a relatively predator-free environment for seed oyster growth.

To determine the potential of Oyster Pond, a natural salt pond located in the Town of East Hampton on the fork of eastern Long Island, for development as a sustained source of oyster seed. Oyster Pond is owned and controlled by the Long Island State Park Commission and irregularly experiences a natural set of oysters.

Procedures: Natural shell cultch will be prepared and suspended from rafts in the pond in accordance with the timing of natural and/or conditioned spawning of the oyster stocks involved. A spawning stock of Long Island Sound oysters will be purchased and introduced into the pond to supplement and strengthen native oyster spawning. Conditions favorably affecting spawning and larval success will be provided insofar as possible. Biological, physical and chemical characteristics of Oyster Pond will be regularly sampled and analysed for comparison with accumulated data, for determination of spawning intensity and for timing of cultch exposure. Oyster seed obtained during prior project segments will be monitored for growth and development.

Natural and introduced oyster set will be suspended from rafts and placed on hard bottom in Oyster Pond during the warm-water months.

The oyster set will be observed periodically during the growing season for growth and survival data which will be recorded.

Prior to the next growing season, the juvenile oysters will be removed from Oyster Pond and placed on natural bottom in East Hampton Town waters to contribute to the reestablishment of once-productive oyster habitat and to make these oysters available for public harvesting.

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SIE NO.
GBP-771

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
03-3-043-35

TITLE OF PROJECT:
SUBLITTORAL MEIOBENTHOS OF THE NEW YORK METROPOLITAN REGION - LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JH TIETJEN BIOLOGY
CM REDMAN

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
3/73 TO 2/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The ecology and distribution of the sublittoral meiobenthos occurring in the sediments occurring in Long Island Sound will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments will be examined. Seasonal fluctuations in meiofauna population densities will also be examined. These studies will be integrated with concurrent benthic macrofaunal studies underway at the Sandy Hook Marine Laboratory, and will attempt to evaluate the effects of major environmental stresses upon benthic macro- and meiofauna. Detailed investigation of the dominant meiofaunal taxon, the free-living nematodes, will commence during the period of investigation.

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SIE NO.
AP-565

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
PRE-OPERATIONAL AQUATIC STUDIES - SHOREHAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
LONG ISLAND LIGHTING COMPANY
175 E. OLD COUNTRY RD.
HICKSVILLE, NEW YORK 11801

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: These studies are directed at investigating the many unknown factors associated with aquatic organisms in the eastern portion of the L.I. Sound to enable predictions to be made relative to the impact of a nuclear plant located adjacent to a shoal of the eastern Sound.

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SIE NO.
AP-582

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MONITORING THERMAL DISCHARGE FROM NORTHPORT POWER STATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
LONG ISLAND LIGHTING COMPANY
175 E. OLD COUNTRY RD.
HICKSVILLE, NEW YORK 11801

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: Study is to determine whether the circulating water temperature from Units 3&4 will exceed 96 degree F at any time. These discharges will impinge on the oyster seedling rack on the L.I. Oyster Farms located in the discharge lagoon. Data from the study will be used to determine the amount of dilution water that will be required to assure that the optimum temperature range for maximum oyster seedling growth is not exceeded.

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SIE NO.
AO-20993

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
802240
72P20993

TITLE OF PROJECT:
SANITARY CRITERIA SALT WATER BATHING BEACHES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
P HABERMAN

RECIPIENT INSTITUTION:
CENTER FOR POLICY RES, INC.
475 RIVERSIDE DR., SUITE 7221
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $87,299

SUMMARY OF PROJECT:

This project is to determine whether test beaches selected are, in fact, suitable as regards the demographic characteristics and bathing activities of the populations at the beaches on weekends; to pretest the "Illness Inquiry System" as a means of obtaining accurate and unbiased data on the incidence of illness among populations swimming at the test beaches, and to define the relevant methods of data collection and analysis. Interviews and follow-up required inquiries by mail, phone, and personal interviews will be conducted to determine if the required quality and quantity of information can be obtained from populations using the New York City Beaches on summer weekends. An inquiry system has been developed and will be tested on weekends during the summer of 1973. This project isto determine whether test beaches selected are, in fact, suitable as regards the demographic characteristics and bathing activities of the populations at the beaches on weekends; to pretest the "Illness Inquiry System" as a means of obtaining accurate and unbiased data on the incidence of illness among populations swimming at the test beaches, and to define the relevant methods of data collection and analysis. Interviews and follow-up required inquiries by mail, phone, and personal interviews will be conducted to determine if the required quality and quantity of information can be obtained from populations using the New York City Beaches on summer weekends. An inquiry system has been developed and will be tested on weekends during the summer of 1973.

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SIE NO.
AO-21133

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
16110 HUR
72P21133

TITLE OF PROJECT:
THE ROLE OF PRIVATE FINANCING IN ENVIRONMENTAL PROTECTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RH ALDRICH
ALSO WITH CONN. BANK

RECIPIENT INSTITUTION:
CHASE MANHATTAN BANK
NEW YORK, NEW YORK

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The feasibility of applying an integrated ecologic/econometric model to the Connecticut River Basin to aid in developing implementable schemes for maintaining environmental quality will be investigated. Airborne, waterborne, and solid wastes will be considered, and the project will emphasize development of a financing plan based primarily on regional private financial institutions. Also, a regional planning and coordinating authority emphasizing economic planning, user charge assessment and collection, etc., will be proposed. Other factors to be considered are total cost for meeting environmental standards, effect of these costs on the regional economy, and increased benefits due to improved environmental quality.

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SIE NO.
XNE-86-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK CITY GOVT, - N.Y.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
AN ENVIRONMENTAL CONTROL PLAN FOR THE KENNEDY, LAGUARDIA AND NEWARK AIRPORTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RJ PILIE ENVIRONMENTAL SYSTEMS

RECIPIENT INSTITUTION:
CALSPAN CORPORATION
P.O. BOX 235
BUFFALO, NEW YORK 14221

PERIOD FOR THIS NRP:
5/73 TO 5/74
FY73 FUNDS $390,000

SUMMARY OF PROJECT:

There is concern that potentially detrimental wastes possibly could work their way into the airport drainage systems and be discharged with rainwater into adjacent bays. The Port Authority has retained CAL to evaluate this potential problem and to develop preventative measures. In a comprehensive two-year program that will cost $400,000, CAL will: -Collect data, including an inventory of all chemicals and other substances in use on the airports; -Analyze samples collected and their relationship to environmental quality; -Determine immediate preventive and corrective measures; -Determine long-term control systems, including control alternatives, new treatment processes and construction of facilities that may be required. ISG

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SIE NO.
AL-986

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK OCEAN SCIENCE LAB.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
GROIN STUDY ON THE NORTH SHORE OF SUFFOLK COUNTY, LONG ISLAND, NEW YORK, BETWEEN ORIENT POINT AND PORT JEFFERSON HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR T OMHOLT

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Approximately fifty small groins located on the north shore of Suffolk County will be evaluated for their effectiveness in trapping sand and their effects on adjacent beaches. Changes in the shoreline will be investigated by the use of existing maps, charts and aerial photographs, beach surveying and wave refraction techniques.

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SIE NO.
QT-6198-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ROCKEFELLER FOUNDATION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
BOYCE THOMPSON INST. PLANT RES
YONKERS, NEW YORK 10701

PERIOD FOR THIS NRP:
1/72 TO 12/72
FY72 FUNDS $386,000

SUMMARY OF PROJECT:

The Boyce Thompson Institute, in consultation and cooperation with other institutions, has initiated research into the ecosystem of the lower part of the Hudson River to help establish a scientific basis for a cooperative ecological zoning plan for that part of the river. The Institute plans to make a study of the plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. The members of the Institute will meet continually with officials of the communities involved; local high-school students and teachers will assist its professionals in obtaining field data.

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SIE NO.
PW-2162-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SOCIETY OF THE SIGMA XI

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
THE ESTUARINE AND MARINE CYANOPHYTA OF THE NEW ENGLAND COAST

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EE WEBBER

RECIPIENT INSTITUTION:
KEUKA COLLEGE
UNDERGRADUATE SCHOOL
KEUKA PARK, NEW YORK 14478

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange. ISG

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SIE NO.
GUW-3620

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-043-NY

TITLE OF PROJECT:
WATER RESOURCES DEVELOPMENT AND WILDERNESS VALUES - A STUDY OF THE UPPER HUDSON

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF B WILKINS NATURAL RESOURCES
G REETZ

RECIPIENT INSTITUTION:
CORNELL UNIVERSITY
GRADUATE SCHOOL
101 SAGE GRADUATE CENTER
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS $5,000

SUMMARY OF PROJECT:

The research will investigate values involved in conflict between water resources development and wilderness preservation. The Upper Hudson River represents an excellent case study for this research.

The investigation will include the following: 1. A thorough examination of the various proposals for the Upper Hudson. Emphasis will be placed on the proposed Gooley Reservoir and on the recommendation that a portion of the Upper Hudson be designated as a Wild River with the surrounding area established as a Primitive Area. 2. Discussion of the alternatives with the appropriate public agencies. 3. An environmental analysis of the area of conflict. This will include quantifying various aesthetic factors and determining the uniqueness of the area. 4. A survey of the present users of the area with emphasis on determining their evaluation of the region and their perception of the environment. 5. An analysis of past public referendums relative to wilderness preservation and/or water resources development in the Adirondacks.

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SIE NO.
GUX-921-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
16050 DDK

TITLE OF PROJECT:
DYNAMIC WATER QUALITY FORECASTING AND MANAGEMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DJ OCONNOR CIVIL ENGINEERING

RECIPIENT INSTITUTION:
MANHATTAN COLLEGE
SCHOOL OF ENGINEERING
4513 MANHATTAN COLLEGE PKWY,
BRONX, NEW YORK 10471

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $41,659

SUMMARY OF PROJECT:

Description: The primary objective of this project is to apply the water quality models developed under last year's grant to several important nitrification, nutrient, and algal growth problem contests. The models will be applied to (a) a lake situation subjected to direct waste water inputs and land runoff with resulting poor water quality and algal proliferation, (b) an estuary receiving nitrogenous waste discharge with substantial present and possible future algal growths, resulting in poor water quality, and (c) a river. ISG

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SIE NO.
GUW-1402-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-1196

TITLE OF PROJECT:
A STUDY OF POTENTIAL INSTITUTIONAL ARRANGEMENTS FOR WATER POLLUTION CONTROL IN THE HUDSON-MOHAWK RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF LB DWORSKY WATER RESOURCES ENGINEERING

RECIPIENT INSTITUTION:
CORNELL UNIVERSITY
SCHOOL OF ENGINEERING
242 CARPENTER HALL
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP:
9/71 TO 8/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Basin or sub-basin wide solutions to water pollution problems are technologically feasible considering existing technology and are possible conceptually using new and developing technology. Such solutions are expected to result in economies of scale, operational efficiency and the establishment of an improved priority basis for scheduling and pollutional control efforts.

A major obstacle to the development of basin or sub-basin-wide solutions has been the lack of modernization of governmental institutional arrangements to stimulate and encourage the early and efficient utilization of existing and newly developing technology for the public benefit.

The research proposes to develop alternative institutional arrangements for the Hudson-Mohawk River Basin, or appropriate sub-basin units, to achieve a substantially improved water pollution control program for the study basin.

The plan of research will consider basin history, geography and culture; current water pollution control programs of state, federal, compact and local agencies; government organization affecting water pollution control; water pollution control plans; preliminary type engineering-economic studies of alternative pollution control measures; formulation of criteria to consider in the development of regional institutional arrangements for pollution control; the relation of alternative institutional arrangements for water pollution control to local water and waste water utility services, and to multi-basin and multi-purpose water and related land resources development programs in the northeastern United States. The research will conclude with a synthesis, recommendations and supporting references. ISG

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SIE NO.
GUW-1748-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-1629

TITLE OF PROJECT:
COORDINATED MANAGEMENT AND DESIGN OF METROPOLITAN AREA WATER SUPPLY AND WASTE WATER DISPOSAL NETWORKS - A LINKED SYSTEMS ANALYSIS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR L ZOBLER GEOGRAPHY

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
UNDERGRADUATE SCHOOL
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A linked systems analysis is to be made of the water supply system and the waste water disposal system of metropolitan areas. The nature of the connectivity entities will be specified. System parameters will be identified and manipulated. A computer simulation model will be constructed and the water resource of the total will be maximized by an optimizing method. The model will be tested with data for the New York Metropolitan Region.

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SIE NO.
GSV-3724

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-32421

TITLE OF PROJECT:
GENETIC-ADAPTIVE STRATEGIES OF MARINE BIVALVIA IN GRADIENTS OF ENVIRONMENTAL VARIABILITY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JS LEVINTON

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP:
2/72 TO 2/73
FY72 FUNDS $24,000

SUMMARY OF PROJECT:

The proposed study seeks to relate the degree of isoenzyme polymorphism to the amount of environmental variability in natural populations of marine Bivalvia (Mollusca). The working hypothesis to test this relationship is that polymorphism and variability of allellic frequencies are more pronounced as an historical consequence of variable environments. Such evolutionary flexibility may result from the genetic variability necessary to survive sudden environmental change, and also from the heterozygote advantage in variable regimes. The role of genetic variability in ecological specialization, evolutionary flexibility, and propensity to mass extinctions in organisms is currently a controversial topic in both paleontological and evolutionary science. The establishment of a firm data base for theoretical discussion in this field would be most important.

Environmental variability decreases with increasing water depth, due to the damping of temperature, salinity and environmental variation caused by surface effects. Therefore, populations of a given species, or a group of species, will be sampled from this gradient. Intertidal and shallow subtidal populations will be compared with deeper water (100-300 m), continental shelf, and slope populations. Environmental variability may also be studied by comparing shallow water species from the Atlantic and Pacific coasts of the U.S. Due to its maritime climate, waters of the Pacific coasts are much less variable than those of the Atlantic coast. Since several Atlantic coast species have been introduced to the other coast, it will be possible to make comparisons of the degree of genetic polymorphism in a single species from both coasts.

Genetic variability will be evaluated using horizontal starch gel and vertical acrylamide gel electrophoresis of isoenzymes. This technique will be used to measure: gene frequencies, per cent of polymorphic loci, zygotic proportions, degree of heterozygosity, and the variance of the above parameters (where appropriate). Areas of study will include the Long Island Sound and Cape Code regions, Puget Sound (Washington), and the Western Atlantic continental shelf.

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SIE NO.
GUE-1126

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF SALINE WATER

AGENCY'S NUMBER(S):
14-30-3166

TITLE OF PROJECT:
POROUS CARBON TUBE PERMEATORS FOR ULTRAFILTRATION/REVERSE OSMOSIS OF SEA WATER & OTHER CHEMICALLY CHARGED WATERS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LM LITZ
B HARGITAY
HW MCROBBIE

RECIPIENT INSTITUTION:
UNION CARBIDE CORPORATION
P.O. BOX 278
TARRYTOWN, NEW YORK 10591

PERIOD FOR THIS NRP:
11/72 TO 11/73
FY73 FUNDS $97,385

SUMMARY OF PROJECT:

Objectives: To develop an improved process for 1) pretreatment of sea water to facilitate its subsequent desalination to potable water by state-of-the-art reverse osmosis systems, and 2) reclamation of potable water from sewage water.

Approach: The general approach is centered on the use of porous carbon tube permeators developed in Union Carbide but so modified via dynamically formed membranes (or "precoat" agents) to enable the attainment of the above objectives.

Current Plans and/or Progress: Initial studies will be made on the type of coatings and tubes which will best satisfy the objectives utilizing sea water obtained off the Atlantic Coast near New York City. Initial test equipment is being designed and fabricated. Successful membrane systems will be tested in a multi-tube pilot plant at Wrightsville Beach, North Carolina. A similar program will be followed utilizing primary and secondary sewage effluent from the municipal treatment plant of Greenwich, Conn.

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SIE NO.
XAR-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SUFFOLK COUNTY GOVT. - N.Y.

AGENCY'S NUMBER(S):
CONTRACT
377

TITLE OF PROJECT:
INVESTIGATION OF SURFACE AND SUBSURFACE SEDIMENTS IN OFFSHORE ENVIRONMENTS OF SOUTHERN LONG ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AE COK EARTH SCIENCES

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
6/72 TO 3/73
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Research on the geomorphology, sedimentology, and stratigraphy of surface and subsurface sediments in the offshore region of southern Long Island, primarily within an area of 6 square miles, 1 mile off Sailor's Haven, Central Fire Island. Seismic profiles ranging from Reynolds Channel to Moriches Inlet at 1 and 1 1/2 nautical miles offshore were also taken. Six cores at 86 bottom grab stations were taken in Ridge and Swale areas off Sailor's Haven.

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SIE NO.
GMA-297

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
11023 FAQ

TITLE OF PROJECT:
EVALUATION OF SPRING CREEK AUXILIARY POLLUTION CONTROL PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
NEW YORK CITY DEPT. PUB. WORKS
NEW YORK, NEW YORK

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $1126,000

SUMMARY OF PROJECT:

Description: Overflows from combined sewers contribute significantly to the pollution of Jamaica Bay, New York City, In constructing a major combined sewage treatment facility, Spring Creek Auxiliary Pollution Control Project was specifically designed to provide sedimentation and chlorination treatment to combined sewage. The demonstration project will establish pre-construction water quality conditions in Jamaica Bay, Spring Creek Bay. Characterization of parameters that measure the effects of combined sewers will be a part of the investigations. Following construction, the effectiveness of the combined sewage treatment facilities will be evaluated. It is anticipated that the Spring Creek facility will serve as a prototype for additional projects leading to an upgrading of the quality of Jamaica Bay waters.

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SIE NO.
GBP-1045

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35281

TITLE OF PROJECT:
DEVELOPMENT OF A MANAGEMENT MODEL FOR THE WEST END OF LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MJ BOWMAN

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
MARINE SCIENCES RES. CENTER
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP:
10/72 TO 9/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: The objective of this project is to develop a management model for the western end of Long Island Sound to predict the oxygen level in the water, and how that level would be modified by changes in the inputs of pollutants and by modification of the physical configuration. During the first year we propose to initiate the development of a mathematical model and techniques to measure the kinetics of oxygen uptake and evolution in the sound.

How information will be applied: The mathematical model developed during the first year will permit us to plan on observational program during the second year. The instrumentation to measure the kinetics of oxygen developed during the first year will be used to provide the data needed for the management model.

Accomplishments during the past twelve months: 1. Completion of a manuscript for a book on Long Island Sound summarizing its oceanographic and hydrologic features. 2. Familiarization with electrode techniques for measuring in situ dissolved oxygen and their limitations. 3. Preliminary development of techniques for determination of the advection of water from the East River into Long Island Sound.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York 12210.

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SIE NO.
GBP-1200

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35281

TITLE OF PROJECT:
ENVIRONMENTAL GEOMORPHIC STUDY OF THE COASTAL REGIMES ALONG THE SOUTH SHORE OF LONG ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR COATES GEOLOGY
M MORISAWA

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
SCHOOL OF ARTS
VESTAL PKWY.
BINGHAMTON, NEW YORK 13901

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are to evaluate and measure those geomorphic processes that affect the erosional and depositional sedimentation regimes of the beach environment on the South Shore of Long Island.

How information will be applied: Despite enormous expenditures by Federal and State agencies on erosion of the south shore of Long Island, there has been little attention given to providing information of use to local management entities and to the development of alternative procedures other than those of federal orthodoxy. Among the agencies actively seeking information from this project are: Fire Island National Seashore Commission, Nassau-Suffolk Regional Planning Board, the New York State Park Commission and Town governments. Citizens conservation and environmental groups also seek the information. Through close liaison with these groups and through the Sea Grant Advisory Services Program an educational program will be established in the above agencies and among the citizens as a group.

Accomplishments during the past twelve months: Analyzed the dune stabilization problem on Fire Island. 2. Determined the nature of man-made alterations on bay side of Fire Island such as boat slips, marinas, dredging. 3. Evaluated those causes that contribute to abnormal accelerated erosion of certain parts of Fire Island. 4. Studied factors that are controlling limits for utilization of Fire Island region as a human resource. 5. Measured quantitative shoreline changes of Fire Island for the period 1962-1972. 6. Initiated a program for wave hindcasting of the south shore. 7. Identified areas of potential washovers or breakthroughs on Fire Island. 8. Initiated a study of the relationship of dune height and profile to shore recession.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York 12210.

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SIE NO.
AP-569

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
PRE-OPERATIONAL AQUATIC STUDIES - SHOREHAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JC BAIARDI

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

DESCRIPTION: These studies are directed at investigating the many unknown factors associated with aquatic organisms in the eastern portion of the L.I. Sound to enable predictions to be made relative to the impact of a nuclear plant located adjacent to a shoal of the eastern Sound.

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SIE NO.
GBP-284-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
720332
CONTRACT
028520221

TITLE OF PROJECT:
A STUDY OF BAY SCALLOP GROWTH DURING FALL, WINTER AND SPRING IN HEATED SEA WATER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RC BATSON

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. CONSERV.
4175 VETERANS MEMORIAL HWY.
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $12,750

SUMMARY OF PROJECT:

Technical Objective: To determine effects of heated water on bay scallop growth.

Approach:. A sample of bug bay scallops collected in early fall will be divided into four equal subsamples. The scallops will be measured, and a statistical analysis will be made to determine whether or not these subsamples are derived from the same population. If they are not from the same population, random divisions of a sample into four subsamples will be made until it is established that they are from the same population. One subsample will be placed in an aquarium receiving 34 gallons per hour of salt water at ambient temperature. The three remaining subsamples will be placed in aquaria each receiving 34 gallons per hour of salt water at 50 degrees F., 60 degrees F., and 70 degrees F. Each week from early fall to spring, the scallops will be measured and returned to the aquaria. These measurements will be treated by analysis of variance and a test of critical differences to determine the effect of temperature on scallop growth.

At the same time that the study is going on in the laboratory aquaria, a field study will be made. Bug bay scallops will be collected in early fall. Procedures described above will be used to make certain that the two subsamples of scallops come from the same population. These subsamples will be suspended from anchored floats. One will be placed near the heated salt water discharge at a power plant; the other will be placed nearby and in water not affected by the heated effluent. Each week the scallops will be measured and returned to the floats. The measurements will be treated statistically as previously described to determine the effect of power plant heated effluent upon scallop growth.

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SIE NO.
AN-829

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AFFILIATED COLL. & UNIV. INC.

AGENCY'S NUMBER(S):
SR 71-22B

TITLE OF PROJECT:
BENTHOS OF THE DUNWOODIE-GLENWOOD INTERCONNECTION, NORTHPORT, SHOREHAM, AND MATTITUCK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

A DAGOSTINO
J ALEXANDER
H AUSTIN
R NUZZI

RECIPIENT INSTITUTION:

NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The marine biology laboratory of the New York Ocean Science Laboratory is compiling censuses of the benthic invertebrates of the near shore water of Long Island Sound.

The temporal and spatial distribution of the communities of invertebrates is related to sediment composition.

Sediments were taken: on a transet extending from Dunwoodie to Glenwood, across western Long Island Sound; at Northport and Shoreham. Additional sites are scheduled for intense study commencing July, 1973.

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SIE NO.
AP-282

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):
SR 72-32

TITLE OF PROJECT:
MARINE ECOLOGICAL STUDY AT SHOREHAM, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR HM AUSTIN
JE ALEXANDER
A DAGOSTINO
R HOLLMAN
R NUZZI

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
1/73 TO 6/74
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Interdisciplinary Study:

Monitoring of currents with implanted current meter assay. Weekly sampling for ichthyoplankton, bi-weekly sampling for phytoplankton, zooplankton, and fish populations. Monthly sampling of water chemistry and benthos. Quarterly tidal studies (24 hour station occupation) measurements every two hours of Temperature, Salinity, O2, nutrients, heavy metals, phytoplankton and zooplankton. Area of Long Island Sound studies approximately 30 square miles.

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SIE NO.
AJ-120-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
UNION COLLEGE & UNIVERSITY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ECOSENSITIVE MUNICIPAL WATER-USE STRATEGIES - A MODEL STUDY OF THE NORMAN'S KILL DRAINAGE BASIN, EASTERN NEW YORK STATE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PJ BUTTNER SPECIAL PROGRAMS DIV
C WACHMANN

RECIPIENT INSTITUTION:
ECOSYSTEMATICS
52 HANES ST.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

In 1970 a five-year study was begun to assemble empirical data for the development of resources management strategies for small quasi-urban river basins, such as that of the Norman's Kill of eastern New York. This 250 square mile basin, located just south of the confluence of the Mohawk and Hudson systems, contains six sub-basins which demonstrate a wide geomorphological diversity. The total contribution to the lower Hudson basin of these sub-basins (the Hunger Kill, Duanesburg, Bozen Kill, Black Creek, Vly and Kalkout) amounts to a yearly average of about 150 cfs. Of special interest to this study are: sub-basins geometry, organization and patterning; ecostructure and environmental setting; flow dynamics, substrate structure and sedimentology; water and land use management; and climatology.

A network of first order quadrilateral monitoring stations has been located in each of the sub-basins. The Hunger Kill network ties into U.S.G.S. Station No. 1-3595.13 as part of a cooperative study. Data from this network includes information on: water properties (physical, chemical and biological); sedimentology and hydrodynamics; channel style and development; and local ecosystematics. While such a network is of fundamental importance to this study, it has proven also to be a versatile teaching and research adjunct for our graduate and undergraduate students.

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SIE NO.
AL-984

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK OCEAN SCIENCE LAB.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
WATER QUALITY STUDY OF MONTAUK HARBOR, LONG ISLAND, NEW YORK, USING A HYDRAULIC MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JP HUNT
T OHHOLT

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A distorted model (scales 1/290 horizontal - 1/15 vertical) of Montauk Harbor has been constructed. The purpose of this model is to study velocity patterns in a small bay, dispersion and diffusion of petroleum products and domestic wastes and changes in water quality as a result of future increases in boating activities and shoreline developments. The study should be helpful in understanding tide generated flow patterns in similar semi-enclosed bodies of water.

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SIE NO.
GUN-11096

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-1&2-B2-8

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE VARIABLES OF DEVELOPED LANDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $4,050

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of developed lands in sufficient detail to permit review for the setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of wetland ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate, air and climatic, vegetative, land uses, water location, educational value. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available.

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SIE NO.
GUN-11095

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-1&2-B2-7

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE CULTIVATED AND OPEN LAND VARIABLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $9,600

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of cultivated and open lands in sufficient detail to permit review for setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue wll be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of cultivated and open land ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate, air and climatic, vegetative, land uses, water, location, shape and size. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available.

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SIE NO.
GSV-3794

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-33076

TITLE OF PROJECT:
DOCTORAL DISSERTATION RESEARCH - A STUDY OF THE DISTRIBUTION OF HEAVY METALS IN THE SEDIMENTS OF LOWER NEW YORK HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WE YASSO SCIENCE EDUCATION

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
SCHOOL OF ARTS
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
3/72 TO 3/73
FY72 FUNDS $2,000

SUMMARY OF PROJECT:

The objective of this research is to devise and apply a suitable procedure for analyzing heavy metal concentrations in sediment samples obtained from the sewage sludge and dredge spoil dumping areas of New York Harbor. The samples will be obtained monthly for a period of a year from sampling stations located within and adjacent to the dumping areas. The geochemical data together with information concerning seasonal circulation patterns, bottom topography, benthic biota, and dumping schedules will provide insight into the patterns and mechanisms of dispersal and the effects of this sort of waste disposal on a continental shelf benthonic environment.

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SIE NO.
GTR-185-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
INSTITUTIONAL REQUIREMENTS FOR REGIONAL WATER SUPPLY OF SOUTHEAST NEW ENGLAND, NEW JERSEY, NEW YORK CITY AND WESTERN CONNECTICUT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MW CANNON
RP MACK
M GORDON
R MINNEHAN
J VANDEWATER

RECIPIENT INSTITUTION:
INST. OF PUBLIC ADMINISTRATION
NEW YORK, NEW YORK

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this study is to develop feasible alternatives for the legal, economic and organizational framework necessary to create, maintain, and operate a regional water supply system to serve the metropolitan area of New York City - Northern New Jersey - Western Connecticut, and another regional system to serve the Southeastern New England area. Both systems will be designed to meet the needs of their respective areas through the year 2020.

Financing Regional Water Supply: A. Cost sharing principles; B. Economic analysis of regional water supply schemes; C. Economic worth of investment in water supply installations.

Legal Framework: A. Existing legislation, statutes and policies; 1. Modifications necessary to implement regionalization.

Issues and Choices in Selection of a Regional Organization: A. Government framework; B. Organizational form; C. Legal basis; D. Internal structure.

Allocation of functions Among Institutions and Institutional Relationships.

This study is being coordinated with two ongoing feasibility studies concerned only with the engineering aspects of potential alternative regional solutions of water supply problems for this area.

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GSQ-456

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

NATL. SCIENCE FOUNDATION
RESEARCH APPLICATIONS DIRECT.

AGENCY'S NUMBER(S):

GI-37312

TITLE OF PROJECT:

CADMIUM IN AN AQUATIC ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

TJ KNEIP ENVIRONMENTAL MEDICINE
HI HIRSHFIELD

RECIPIENT INSTITUTION:

NEW YORK UNIVERSITY
SCHOOL OF MEDICINE
550 1ST AVE.
NEW YORK, NEW YORK 10016

PERIOD FOR THIS NRP:

2/73 TO 1/74
FY73 FUNDS $50,000

SUMMARY OF PROJECT:

Discharge of dissolved and precipitated cadmium from a nickel-cadmium battery plant into a cove on the Hudson River for the past 15 years provides an unusual opportunity to study the rates, routes, reservoirs and biological effects of this toxic heavy metal. Food web relationships will be established by both field sampling and by controlled laboratory uptake and loss studies with selected organisms under varying conditions of temperature, salinity, biological growth cycle, etc. Specific objectives will be to: 1. Determine the extent of Cd interchange between sediments and water. 2. Determine the mechanism of spread of Cd away from the outfall and the degree and rate of transfer to the mainstream of the river. 3. Determine the major source of cadmium to the food web and if biomagnification occurs. 4. Determine the toxicity to representative organisms and identify the effects on aquatic populations. 5. Define mechanisms for the transfer of Cd through ecosystem compartments.

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SIE NO.
GSV-3030-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
CHARACTERISTICS AND STRATIGRAPHIC SUCCESSON OF SANDS DEPOSITED BY AN ACTIVELY MIGRATING TIDAL INLET, FIRE ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JE SANDERS

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
UNDERGRADUATE SCHOOL
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
10/71 TO 9/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The principal objective of this research is to investigate the effects of a migrating tidal inlet as an agent of lateral sedimentation and to determine if there are distinctive "inlet successions" of strata that would 1) provide a basis for new insights into the interpretation of relict sands on continental shelves and 2) permit improved paleographic analysis of ancient basal trangressive sandstones. The study, basically one of modern environments and processes as a means for understanding the ancient geologic record, is centered on Fire Island Inlet, Long Island, New York.

In order to determine if a distinctive inlet sequence of sediments does exist it is necessary to study the hydrodynamic conditions in the active inlet, to sample the bottom sediments systematically in all parts of the channel, and to examine bore-hole samples from the Fire Island barrier in places where historically dated maps show tidal inlets to have existed in the past. The study thus involves an investigation of speed and direction of water currents, nature of transported sediment, characteristics of deposited materials, sedimentary structures, and related geologic parameters. ISC

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SIE NO.
GMA-840

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
15080 FVP

TITLE OF PROJECT:
COMPREHENSIVE OIL SPILL CONTROL PROGRAM FOR NEW YORK HARBOR AND IMMEDIATE WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JF CONNOR MARINE DIVISION

RECIPIENT INSTITUTION:
NEW YORK CITY FIRE DEPARTMENT
NEW YORK, NEW YORK 1007

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $518,415

SUMMARY OF PROJECT:

Description: The project will demonstrate a comprehensive full scale program for coping with oil spills. The project will involve: 1. A thorough inventory and determination of the sources, fate and movement of oil spills in and near a major sea port - the New York Harbor. 2. Design analysis and evaluation of state-of-the-art devices and techniques for oil spill control. 3. Procurement of equipment, development of spill response plans and the evalution of their effectiveness on actual spills of opportunity in the New York Harbor area.

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SIE NO.
GPE-1694-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT AT(11-1)3254 CODE AA

TITLE OF PROJECT:
THE EFFECTS OF ENVIRONMENTAL STRESS ON THE COMMUNITY STRUCTURE AND PRODUCTIVITY OF SALT MARSH EPIPHYTIC COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JJ LEE BIOLOGY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
CONVENT AVE. & 138 ST.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

We propose to analyze and define the subtle variables which regulate the microbial and micrometazoan assemblages in salt marshes and shallow embayments in the greater New York City metropolitan region. This year we plan to make a comparative assessment of the role of diverse species of marine nematodes and ciliates in the detritus food chain including: mineral cycling and concentration, energy flow, biological half-life, food web complexion, biotic potential and trophic efficiency estimations. Microcosm experiments will be used to evaluate effects of environmental stress including: intense radiation; thermal, heavy metal; organic and petrochemical; as well as in the design and testing of a water quality assay system for near-shore water testing. It is hoped that the identification of the structure-function relationships may help to establish realistic guidelines for more effective use and management of this important habitat which surrounds much of this great city.

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SIE NO.

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GH-10923 (CONTINUED)

equals 0.68 micron minus 10.66 micron). Separate counts are performed at one micron intervals except for the lower and upper ends of the scale.

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SIE NO.
GH-10923

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. AERONAUTICS & SPACE ADM.
OTHER UNKNOWN OFFICE
MISCELLANEOUS UNITS

AGENCY'S NUMBER(S):
SR070

TITLE OF PROJECT:
AN INTERDISCIPLINARY STUDY - THE ESTUARINE AND COASTAL OCEANOGRAPHY OF BLOCK ISLAND SOUND AND ADJACENT NEW YORK COASTAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR R NUZZI
ALSO WITH LONG ISLAND UNIVERSITY

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An interdisciplinary study of the physical, chemical, and biological relationships of Block Island Sound and coastal waters is currently being conducted using shipboard sampling techniques. Preliminary studies to date have indicated the presence of unexpected large color differences which are believed to be related to circulation and water mass characteristics, nutrients, trace metal, and the organic content of the water as well as to the quantity of phytoplankton present.

It is proposed to use the ERTS-A RBV and MSS imagery and to perform a Skylab EREP experiment using the S190 multispectral scanner to support and extend this shipboard study. The imagery obtained from these experiments will be analyzed using additive color viewing equipment, density slicing-masking techniques, and computer classification programs. These data will be correlated with the results of shipboard sampling and in situ spectra using multiple regression techniques.

It is expected that the ERTS and Skylab space-acquired data will significantly contribute to this state supported program by providing synoptic repetitive coverage of the Block Island Sound and adjacent coastal waters. Particularly, the tidal and seasonal effects on dynamic variation in the interaction between, as well as changes within, water masses will be invaluable in understanding the coastal environment sufficiently to manage this irreplaceable resource which is being rapidly depleted.

More specifically, this section of SR070 involves the following: three sections in Block Island Sound, comprising 12 stations, are sampled monthly, as close as possible to the period of satellite overflight. Samples are collected quasi-synoptically over a tidal cycle. A series of 16 stations in the New York Bight are sampled seasonally. Differential phytoplankton cell counts are performed on the samples collected from the surface water of Block Island Sound and the New York Bight. Suspended particulate material is analyzed with a Coulter Counter, Model B. By using the aperture tubes (30 micron 100 micron) and varying the threshold controls, it has been possible to count particles between 0.16-635 micron 3 in volume (equivalent diameter

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SIE NO.
GUN-11094

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-1&2-B2-6

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE FOREST AND OVERGROWN LAND VARIABLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
2/73 TO 3/74
FY73 FUNDS $810

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of forest and overgrown lands in sufficient detail to permit review for setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of wetland ecology and management. (c) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate, air and climatic, vegetative, land uses, watersheds, location, shape and size, elevation, slope and aspect. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available.

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SIE NO.
GBP-1231

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS; SUBLITTORAL MEIOBENTHOS OF THE NEW YORK METROPOLITAN REGION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR J TIETJEN BIOLOGY
C REDMAN

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $13,000

SUMMARY OF PROJECT:

Technical Objective: The ecology and distribution of the sublittoral meiobenthos occurring in the sediments of the Lower Hudson River and New York Bight will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments in relation to ocean disposal of solid wastes will be examined in detail. Seasonal fluctuations in meiofauna population densities will also be examined. Detailed investigation of the temporal and spatial distribution of the dominant taxon, the free-living marine nematodes, will commence in February 1973.

Approach: Field studies will be coordinated with macrobenthos studies expedited by Ecosystems Investigations, MACFC, and project MESA. Samples will be obtained by grab or gravity core and processed according to Hulings and Gray (1971), "A Manual for the Study of Meiofauna".

Progress: Detailed planning developed as a TDP and MESA proposal.

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SIE NO.
GV-30966

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
OFFICE OF DEP. COM. FOR DEV.

AGENCY'S NUMBER(S):
R021143
OEG-0-72-5060

TITLE OF PROJECT:
DEVELOPMENT OF PILOT WORKSHOPS FOR SCHOOL AND COMMUNITY BASED UPON THE ECOLOGY OF A RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
H DUFFY

RECIPIENT INSTITUTION:
HUDSON RIVER SLOOP RESTOR. INC
P.O. BOX 25
COLD SPRING, NEW YORK 10516

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

THE UNIQUE RESOURCES OF THE HUDSON RIVER SLOOP RESTORATION (HRSR) WILL BE JOINED WITH THE RESOURCES OF THE CITY OF BEACON SCHOOL DISTRICT, COMMUNITY ORGANIZATIONS, AND LOCAL MEDIA TO PROVIDE AN ENVIRONMENTAL EDUCATION PROGRAM DESIGNED TO PROMOTE AWARENESS AMONG THE ENTIRE BEACON COMMUNITY OF THE NEED TO PRESERVE THE NEARBY HUDSON RIVER, ITS WATERFRONT, HILLS AND PEOPLE. IN THIS PROGRAM, 1000 BEACON SCHOOL DISTRICT STUDENTS WILL PARTICIPATE IN FLOATING CLASSROOM, OR A SHIP WHICH WILL SERVE AS AN ENVIRONMENTAL LABORATORY FOR TESTING WATER, EXAMINING ORGANISMS, AND CONDUCTING OTHER ECOLOGICAL ACTIVITIES. AN ADDITIONAL 2500 STUDENTS WILL BE INVOLVED IN A WIDE RANGE OF SHORE ACTIVITIES, SHOWING FIRSTHAND HOW POLLUTION IS CREATED. ALL ACTIVITIES WILL BE CONDUCTED IN SMALL GROUPS ACCORDING TO INTERDISCIPLINARY AND "LEARNING THROUGH DOING" APPROACHES. HRSR WILL FORM A COALITION PLANNING COMMITTEE IN THE COMMUNITY TO PROVIDE A PROGRAM OF MEETINGS AND SEMINARS FOR CONCERNED CITIZENS TO DISCUSS AND SOLVE ENVIRONMENTAL PROBLEMS, FILMSTRIPS, EXHIBITS, AND SAILING EXPERIENCES WILL SUPPLEMENT THE COMMUNITY DISCUSSION PROGRAMS. IN ADDITION, STUDENTS AND INTERESTED COMMUNITY MEMBERS WILL ALSO DIRECT ATTENTION TO THE POSSIBILITY OF RECLAIMING VACATED RIVERFRONT PROPERTY AS A RECREATIONAL PARK AND A PERMANENT STATION FOR ANTI-POLLUTION EFFORTS. ANOTHER ACTIVITY STUDENTS WILL UNDERTAKE WILL BE THE DEVELOPMENT OF THEIR OWN COURSE OR CURRICULUM OF ENVIRONMENTAL STUDIES. DUPLICATION OF THIS PROJECT IN SIMILAR COMMUNITIES WILL BE MADE POSSIBLE. (SW/FP)

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SIE NO.
GUN-11093

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-1&2-B2-5

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE WETLAND VARIABLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
2/73 TO 3/74
FY73 FUNDS $3,750

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of wetlands in sufficient detail to permit review for setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of wetland ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that be will investigated include: economic, social, wildlife, (as an environmental factor), substrate, air and climatic, vegetative, land uses, water, location, shape and size. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available. (F) A preliminary catalogue will be constructed by 31 March, 1973. A basic catalogue will be developed by 31 March, 1974. Therefore the job will be to maintain and update the catalogue.

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SIE NO.
NCO-29

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COLUMBIA UNIVERSITY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
RELATIONSHIPS BETWEEN SEDIMENTS AND WATER MOTIONS, NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JE SANDERS GEOLOGY

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
SCHOOL OF ARTS
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Geologic history of the New York Bight as revealed in subsurface sediments from engineering borings and geologic borings (Hudson Valley, Great South Bay, and Peconic Bay).

Effects of Holocene submergence on shelf and nearshore sediments (L. I. shelf, Peconic Bay).

Relationships of waves and tides to movement of sediments on L. I. shelf, Fire Island Barrier, Fire Island Inlet, tidal delta at Moriches Inlet.

Provenance of sediments and relationship to drainage history, sediment movement, and transport of sediment across the shelf valley to the Hudson submarine canyon.

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SIE NO.
GUW-1750-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-1818

TITLE OF PROJECT:
EVALUATION OF RECREATIONAL AND CULTURAL BENEFITS OF ESTUARINE USE IN AN URBAN SETTING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AJ VANTASSEL
ALSO WITH HEMSTEAD DEPT. OF CONSERVATION

RECIPIENT INSTITUTION:
HOFSTRA UNIVERSITY
CENTER FOR BUS. & URBAN RES.
1000 FULTON AVE.
HEMPSTEAD, NEW YORK 11550

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The proposed research plan involves field investigations to determine the extent of use of estuarine waters of the Town of Hempstead (located in an intensively urbanized area) as a basis for evaluating the benefits from such use. These surveys of use will be supplemented by studies of expenditures with local businesses by users. Data from both types of surveys will be subjected to economic and statistical analysis by investigators from the Hofstra University Center for Business and Urban Research.

Surveys of use will consider four phases: (1) Fishing, (2) Boating, (3) Clamming, (4) Nature Study. On the first of these, the Town of Hempstead has collected extensive data in considerable detail since 1966, and these data will be supplemented by similar data for 1969-1971. In addition, state and local governmental records will be supplemented by field investigations on other uses of Hempstead estuarine waters.

The data collected in these surveys will be subjected to economic analysis by the Hofstra investigators for the purpose of estimating the dollar value of benefits from use of the estuarine waters by type of activity. This has importance in establishing the value of maintaining the estuarine waters in relatively unpolluted conditions. ISG

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SIE NO.
XAR-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SUFFOLK COUNTY GOVT, - N.Y.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
OCEANOGRAPHY OF BLOCK ISLAND SOUND (ZOOPLANKTON AND ICHTHYOPLANKTON)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR HM AUSTIN
PM STOOPS

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The project is interdisciplinary in nature and includes the efforts of the NYOSL Physical, Chemical, and Fisheries Oceanography Laboratories and the Phytoplankton Ecology Laboratory. The project is designed to permit the inter-relationships of the physical-chemical and biological environment to be studied seasonally, and tidally.

The main interest of this laboratory is the definition and delineation of the physio-chemical water masses in Block Island Sound using biological indicator organisms. Source of Block Island Sound waters, regions of mixing, and eventually percent-by-volume of mixed waters is being studied.

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SIE NO.
NNY-697

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
STATE UNIVERSITY OF NEW YORK

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MICROBIOLOGY OF OYSTER BAY, GREAT SOUTH BAY, AND ADJACENT WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JM CASSIN

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
INSTITUTE OF MARINE SCIENCE
LEVERMORE HALL
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
5/72 TO 12/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The phytoplankton dynamics of spring, summer, and fall were determined for Oyster Bay, Great South Bay, and adjacent south shore waters. Standing crop, biomass, diversity, and distribution by genus and species were determined. This data is to be used for evaluation of impact of ocean outfall projected for 1980.

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SIE NO.
WZ-2254

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BEDROCK ELEVATIONS WITHIN THE HUDSON RIVER VALLEY AND ADJACENT TRIBUTARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JF DAVIS EDUCATION
RJ DINEEN

RECIPIENT INSTITUTION:
STATE DEPT. OF EDUCATION
S. SWAN, NEW YORK STATE OFFICE BLDG.
ALBANY, NEW YORK 12225

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: This investigation is directed towards mapping the bedrock surface into which the Hudson Valley and its tributaries have been cut by stream and glacial erosion. The reconnaissance mapping of the unconsolidated materials which cover over 80% of the bedrock, is also part of this investigation. The results of this investigation will be useful in major construction decisions within the Hudson Valley and in evaluating the groundwater resources of this area.

Approach: Refraction seismic techniques, inventorying the logs of domestic water wells, and the evaluation of bore hole data from engineering investigations are the principal sources of information for mapping the bedrock surface of the Hudson Valley.

Current Plans and/or Progress: The possibility of using minor variations in the earth's gravity field as a means of mapping buried valleys within the study area will be investigated during the fall of 1972. If the results are satisfactory, this approach will be used to considerable extent for completion of the project in 1973.

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SIE NO.
YNY-965

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SURVEY OF WILD AREAS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR DL COLLINS EDUCATION
EM REILLY
SJ SMITH

RECIPIENT INSTITUTION:

STATE DEPT. OF EDUCATION
S. SWAN, NEW YORK STATE OFFICE BLDG.
ALBANY, NEW YORK 12225

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $3,000

SUMMARY OF PROJECT:

Objectives: To identify important "natural areas," especially those with rare or endangered species of plants and animals so that steps can be taken by the responsible state departments (e.g. Environmental Conservation; Transportation) to preserve them from highway and commercial encroachment, impairment or destruction.

Approach: Using Museum records and all other available data as basic information, we make special surveys of selected sites where and when indicated, prepare and publish reports on them, and discuss and explain them to the appropriate state agencies.

Current Plans and/or Progress: Have made special surveys of Hudson Valley and Long Island, and have compiled information on sites in other areas, e.g. Adirondacks and Western New York. We plan continuation of these activities and hope to add new staff members for this purpose.

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SIE NO.
QT-6370

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ROCKEFELLER FOUNDATION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
THE ECOSYSTEM OF THE LOWER PART OF THE HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
BOYCE THOMPSON INST. PLANT RES
YONKERS, NEW YORK 10701

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $386,000

SUMMARY OF PROJECT:

The Boyce Thompson Institute for Plant Research in Yonkers, New York, in consultation and cooperation with other institutions, has initiated research into the ecosystem of the lower part of the Hudson River. It is hoped that this investigation will help establish a scientific basis for a cooperative ecological zoning plan for that portion of the river.

The Institute plans to make a study of the plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. (It has been estimated that during the next 15 years more than $5 billion will be invested in major new industry with waste disposal needs in the lower Hudson.)

A salient feature of the Institute's program is that it is designed to draw community participation at every step. The members of the Institute will meet continually with officials of the communities involved; local high school students and teachers will assist its professionals during the summer in obtaining field data.

Boyce Thompson scientists and their student assistants will first collect and identify plant species. They will then investigate problems associated with the decomposition of plant materials, the growth rate of plants, the interaction of competing species, and the effects of pollutants upon the plant communities. Finally they will return to the field to test laboratory observations and hypotheses. the aim of the program will be a continuously improving understanding of the biological system rather than a routine sampling of it.

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SIE NO.
WZ-2287

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY: NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HOLOCENE EVOLUTION OF THE BLOCK ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
NK COCH EARTH & ENVIRONMENTAL SCIENCES

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
65-30 KISSENA BLVD.
FLUSHING, NEW YORK 11367

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The research program, initiated in 1971, encompasses a detailed study of the Block estuary (Peconic Bays, Gardiners Bay, Western Block Island Sound, easternmost Long Island Sound) and the shallow continental shelf from East Hampton, New York to Block Island, R.I.

Over 800 sediment samples and shallow cores have been taken. Information on the physical and chemical parameters are being determined from these samples at present. Data from size analyses, supplemented by bottom observations and current measurements will be used to determine the sediment dispersal patterns through the area.

Data from surface sediment, plus data obtained from deep cores, will be used to determine the late Holocene evolution of the area.

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SIE NO.
GBP-1295

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
03-3-043-53

TITLE OF PROJECT:
STATISTICAL ANALYSIS OF BENTHIC SAMPLE DATA FROM THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF SB SAILA
DS VAUGHAN
RA PIKANOWSKI
SD PRATT

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
6/73 TO 12/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project involves the creation of standardized machine readable files of biological and environmental data in cooperation with MESA project personnel. Historical sample data concerning the abundance and species composition of organisms from benthic samples will be analyzed. Analyses will include fitting various models to observed frequency distributions, application of transformations, and analyses to provide some indication of sample size required for estimation problems or hypothesis testing.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281803

TITLE OF PROJECT:
STATISTICAL ANALYSIS OF BENTHIC SAMPLE DATA FROM THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR S SILA

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: (1) Provide Statistical Analysis of Replicate data from 205 stations in the apex of the New York Bight - to demonstrate (a) accuracy, (b) precision and (c) consequent necessary sampling intensity for predictive monitoring capability.

(2) Provide ADP program for analyzing (a) routine distributions around a variable, (b) distributions around two or more variables, (c) associations and interrelationships (dependent/independent) of a host of environmental and biological variables.

Approach: Apply frequency distributions of counts of invertebrate species to positive binomial, Poisson series and negative binomial distribution models. Develop transformations to normalize frequency distributions. Apply statistical analyses associated with normal distributions to the transformed data. Write and apply suitable computer programs for data analysis.

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SIE NO.
GSV-3822-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
AG-375

TITLE OF PROJECT:
CARBON BUDGET OF FLAX POND ESTUARY, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GM WOODWELL
PH RICH
CA HALL
CS HEUSSER

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
5/73 TO 4/74
FY73 FUNDS $105,000

SUMMARY OF PROJECT:

A two-year program of basic research on the carbon cycle of a Long Island estuary is proposed to contribute to knowledge of the exchanges of carbon and its compounds between estuaries and other ecosystems. The Flax Pond estuary offers a simple and reasonably practical opportunity for appraisal of net ecosystem production measured as carbon and as other elements including N, P, S and cations. In the first year water chemistry analyses and studies of underwater benthos will be conducted. The work on productivity will be restricted during this period to preliminary studies of methods and limited sampling. In the second year the program will be expanded to measure net primary production and respiration of the Spartina mat, the benthos and the water by a series of techniques designed to give separate, independent measurements of the same attributes. Partitioning of net production among its principal uses will be measured as will major segments of the secondary production. An estimate of net ecosystem production will be available at the completion of the second year's work. ISG

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SIE NO.
QT-6198-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ROCKEFELLER FOUNDATION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
BOYCE THOMPSON INST. PLANT RES
YONKERS, NEW YORK 10701

PERIOD FOR THIS NRP:
1/74 TO 4/74
FY74 FUNDS $40,000

SUMMARY OF PROJECT:

The Boyce Thompson Institute, in consultation and cooperation with other institutions, has initiated research into the ecosystem of the lower part of the Hudson River to help establish a scientific basis for a cooperative ecological zoning plan for that part of the river. The Institute plans to make a study of the plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. The members of the Institute will meet continually with officials of the communities involved; local high-school students and teachers will assist its professionals in obtaining field data.

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SIE NO.
GBP-1187-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R63103541

TITLE OF PROJECT:
NOAA/NAVY MESA NEW YORK BIGHT EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E RIDLEY
L FISHER

RECIPIENT INSTITUTION:
U.S. NAVY
OCEANOGRAPHIC OFFICE
WASHINGTON, DISTRICT OF COLUMBIA 20390

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $12,000

SUMMARY OF PROJECT:

Technical Objective: Enlist technical capabilities of the Naval Oceanographic Office to conduct in situ oceanographic measurements, analyze data collected, and generate hydrodynamic model from acquired dye tracer and current meters data.

Approach: The Naval Oceanographic Office (NAVOCEANO) under the direction of Mr. Dennis Clark, NOAA/NESS will provide equipment, personnel, and data analysis capabilities to the NOAA/MESA New York Bight Experiment in July 1973. The requirements to be filled by NAVOCEANO are contained in the NOAA/MESA experiment plan and in the work statement attached to DOC CD-45 (Jan. 1973) transferring funds to NAVOCEANO for the task. Documentation of data and current model will be made to Mr. D. Clark, NOAA/NESS 30 days after data acquisition in July 1973.

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SIE NO.
GRE-1694-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
BER-74-165
CONTRACT CODE AA
AT(11-1)3254

TITLE OF PROJECT:
THE EFFECTS OF ENVIRONMENTAL STRESS ON THE COMMUNITY STRUCTURE AND PRODUCTIVITY OF SALT MARSH EPIPHYTIC COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JJ LEE BIOLOGY
WA MULLER
M MCENERY
J GARRISON
E KENNEDY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
CONVENT AVE. & 138 ST.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $47,300

SUMMARY OF PROJECT:

We propose to analyze and define the subtle variables which regulate the microbial and micrometazoan assemblages in salt marshes and shallow embayments in the greater New York City metropolitan region. This year we plan to make a comparative assessment of the role of diverse species of marine nematodes and ciliates in the detritus food chain including: mineral cycling and concentration, energy flow, biological half life, food web complexion, biotic potential and trophic efficiency estimations. Microcosm experiments will be used to evaluate effects of environmental stress including: intense; radiation; thermal; heavy metal; organic and petrochemical; as well as in the design and testing of a water quality assay system for near-shore water testing. It is hoped that the identification of the structure-function relationships may help to establish realistic guidelines for more effective use and management of this important habitat which surrounds much of this great city.

Results: A 578 page progress report (COO 3254-12) summarizes our results to date. In total, 3 technical papers supported by this contract were published this year, 5 papers have been accepted for publication and are in press, and 3 papers have just been completed and are under review. The results of one subproject (COO 3254-9), when published will be a substantial contribution to the field and will, in our opinion, be considered a major breakthrough in approaches to microbial and micrometazoan food web analysis.

INVESTIGATORS (CONT)
H RUBIN

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SIE NO
GBP-1188-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
CONTRACT
R63103531

TITLE OF PROJECT:
NEW YORK BIGHT COASTAL OCEANOGRAPHY EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FJ WOBBER

RECIPIENT INSTITUTION:
EARTH SATELLITE CORPORATION
1771 N ST. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20036

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $27,000

SUMMARY OF PROJECT:

Technical Objective: To develop remote sensor information products related to in situ data for an analytical summary of physical and biological characteristics in the New York Bight coastal area.

Approach: The Earth Satellite Corporation, in cooperation with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and the Naval Oceanographic Office will collect and summarize remote sensor data and correlative in situ ocean sensor data from the New York Bight coastal marine area. Previous remote sensor and in situ ocean sensor data will be inventoried in preparation for the April-May 1973 New York Bight experiment to determine the sensors, locations, flight lines, equipment, and other materials needed in the summary analysis of currents, pollution dispersion, and oceanographic features in this test area. The contractor will provide personnel, equipment, and technology before, during, and after data acquisition as well as post experiment analyses, interpretation, data display, and documentation of results. ISG

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SIE NO.
GBP-1327

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
03-4-043-310

TITLE OF PROJECT:
PHYTOPLANKTON PRODUCTIVITY, NUTRIENT RECYCLING & ENERGY FLOW IN THE INNER NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
TC MALONE BIOLOGY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF ARTS
CONVENT AVE. & 138 ST.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP
9/73 TO 8/74
FY74 FUNDS $33,298

SUMMARY OF PROJECT:

Seasonal variations in the distribution and magnitude of phytoplankton and zooplankton abundance and productivity in the dumping grounds of the New York Bight will be studied in relationship to selected environmental parameters which reflect the effects of current practices of waste disposal in the area. The study will focus on the relationships between phytoplankton productivity water turbidity concentrations, volume transport of the Hudson River and zooplankton grazing. In addition to its basic ecological importance this study is designed to provide information required to predict and monitor the impact of changes in the quantity and quality of municipal wastes and dredge spoils discharged into the lower Hudson River Estuary and the New York Bight on the pelagic ecosystem.

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SIE NO.
GBP-1185-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
CONTRACT
R63103532

TITLE OF PROJECT:
AEROSPACE OCEAN IMAGERY DISPLAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DK ROSS

RECIPIENT INSTITUTION:
INTERNAT. IMAGING SYSTEMS CORP
510 LOGUE AVE.
MOUNTAIN VIEW, CALIFORNIA 94040

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $33,000

SUMMARY OF PROJECT:

Technical Objective: To provide services to NOAA/NESS SPOC Group for enhancing selected aircraft and satellite imagery and testing of various films for optimum oceanic image acquisition relevant to NOAA Marine Ecosystem Analysis in the New York Bight test area.

Approach: Imagery will be acquired with the NASA MSC remote sensing aircraft. NOAA will obtain concurrent in situ oceanic data in conjunction with contractors (ERIM, NAVOCEANO, EARTHSAT). International Imaging System (I2S) will enhance imagery selected by NOAA for improving information content by density slicing and false coloring techniques and aid in interpretation through comparison of imaged data and in situ measurements of currents, depths, sediment, and other coastal marine features. I2S will also modify the NOAA SPOC camera to test various films during the NOAA MESA experiment over the New York Bight test site.

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SIE NO.
GBP-771-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
03-4-043-311

TITLE OF PROJECT:
SUBLITTORAL MEIOBENTHOS OF THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JH TIETJEN BIOLOGY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $14,219

SUMMARY OF PROJECT:

The ecology and distribution of the sublittoral meiobenthos occurring in the sediments of the Lower Hudson River and New York Bight will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments will be examined. Seasonal fluctuations in meiofauna population densities will also be examined. Detailed investigation of the temporal and spatial distributing of the dominant taxon, the free-living marine nematodes, will commence during the year.

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SIE NO.
GZF-28

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
TRANSPORTATION DEPARTMENT
COAST GUARD

AGENCY'S NUMBER(S):
CONTRACT
038155 (TRAIS NO.)

TITLE OF PROJECT:
SURFACE WATER MOVEMENTS IN NEW YORK HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
J TYLER

RECIPIENT INSTITUTION:
LONG ISLAND UNIVERSITY
GRADUATE SCHOOL
GREENVALE, NEW YORK 11548

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Definition of geographical limits of NY harbor for the purpose of oil pollution transport control. Compilation and review of the existing literature on water movements in NY harbor, with special emphasis on surface waters. Identification of the current local government, industries, and academic data acquistion programs and their applicability to the Coast Guard's mission. Specification of a sampling program to provide necessary information for further harbor modeling and flow knowledge.

Document provided to S.S.I.E. by the T.R.A.I.S. Information Service.

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SIE NO.
GBP-111-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R69103511

TITLE OF PROJECT:
REMOTE SENSING OF COASTAL PROCESSES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF FC POLCYN
RE TURNER
SR STEWART

RECIPIENT INSTITUTION:
ENVIRONMENTAL RES. INST. MICH.
P.O. BOX 618
ANN ARBOR, MICHIGAN 48107

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $20,000

SUMMARY OF PROJECT:

Technical Objective - To develop remote sensing data acquisition and analyses techniques for basic research on coastal marine processes.

Approach - The Environmental Research Institute of Michigan will conduct overflights over the New York Bight and other nearshore sites to obtain multispectral and infrared scanner data concurrently with in situ oceanographic data. Thermal, optical, biological, sediment, and physical in situ data will be correlated to the aircraft sensor data to construct and evaluate models of currents, diffusion, water quality, bathymetry, productivity, sediment patterns, and other coastal phenomena.

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SIE NO.
ZH-6101

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. AERONAUTICS & SPACE ADM.
OTHER UNKNOWN OFFICE
MISCELLANEOUS UNITS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ESTUARINE AND COASTAL WATER DYNAMICS CONTROLLING SEDIMENT MOVEMENT PLUS PLUME DEVELOPMENT IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FH RUGGLES

RECIPIENT INSTITUTION:
U.S. NATL. AERO. & SPACE ADM.
HEADQUARTERS
WASHINGTON, DISTRICT OF COLUMBIA 20546

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The movement of water and sediment in and out of 3 estuaries of Connecticut and areas of littoral drift along shorelines will be studied using ERTS imagery. The 3 estuaries are the Thames, Connecticut, and Housatonic -- all of which enter Long Island Sound, and water movement in and out of the sound near Fishers Island and Throgs Neck will be obtained. Temperature, conductivity, and turbidity data will also be collected.

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SIE NO.
GY-63464

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK STATE GOVERNMENT

AGENCY'S NUMBER(S):
0063464
NYC-121368

TITLE OF PROJECT:
MARINA BUSINESSES AND USERS IN NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DA EILER AGRICULTURAL ECONOMICS
TL BROWN

RECIPIENT INSTITUTION:
STATE UNIVERSITY OF NEW YORK
AGRICULTURAL EXPERIMENT STA.
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Identify private marinas in New York's Great Lakes, St. Lawrence Seaway, and Long Island waters. Survey these marinas to determine facilities provided, planned rates of expansion, and economic viability. Survey New York boat owners, focusing on characteristics of users, and demand for marina-related facilities in the study areas. Survey local units of government to determine plans for marina development and expansion, facilities currently provided, and existing marina needs. Determine areas where more marinas are needed, and any barriers that exist to private development of marinas in those areas. Suggest criteria for public involvement in development of marinas by public and private agencies or groups.

APPROACH: Conduct personal interviews of a stratified sample of marinas in each of the regions. Conduct a mail survey of a sample of New York boat owners.

PROGRESS:

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SIE NO.
ZMA-706

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21 AIS 52

TITLE OF PROJECT:
DEVELOP MARINE ECOSYSTEM ALTERATION ASSESSMENT TECHNIQUES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RC SWARTZ — NATL COAST POLLUTION RES, PROG
WA DEBEN
FN COLE

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
PAC. N.W. ENVIRON. RES. LAB.
200 S.W. 35TH ST.
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $38,500

SUMMARY OF PROJECT:

The overall objective of this project is to develop quantitative methods of assessing ecosystem alterations caused by pollution stresses associated with waste discharges to coastal waters, These techniques are expected to be useful for regulatory agencies to monitor discharge areas prior to and after discharges. In the first phase of this project, a site in the New York Bight will be studied before, during, and after an experimental sewage sludge dumping program. Spatial and temporal changes in the structure of the macrofaunal association will be determined thru analysis of faunal composition, density, dominance, biomass, diversity, and homogeneity. Correlations between these biotic parameters and abiotic factors will be attempted in relation to differences at the dumping site and surrounding stations before, during, and after the experimental dumpings. Documentation of ecosystem alterations at one point in time does not in itself indicate lasting effects; therefore, we intend to observe the rate of recovery of the area in the post-dumping period. This should provide measures of the vulnerability of the local ecosystem and the extent of enviromental damage sustained.

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SIE NO.
ZBP-442

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
PILOT EXPERIMENT FOR THE REMOTE SENSING OF THE NEW YORK BIGHT MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DK CLARK ENVIRONMENTAL SCIENCES GROUP
LV STREES
WS GLIDDEN

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. ENVIRON. SATELLITE SERV.
WASHINGTON, DISTRICT OF COLUMBIA 20230

PERIOD FOR THIS NRP:
1/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:
An extensive experiment was executed on 7 April 1973 involving two satellites, three aircraft, nine surface vessels, two helicopters, 140 dye markers, three installed tide and current meters, and coordination between six federal and state agencies and three NOAA Main Line Components. Primary objectives of this experiment were: 1. Describe via remote sensing sea surface spectral band signatures, water masses and their movement as indicated by: a) Tubidity components of suspended particulate matter and/or chlorophyll concentrations. b) Sea surface temperature distribution. c) Surface slicks concentrated in areas of convergent flow. d) Spoil dump "scars". e) Dye tracer materials. 2. Determine the accuracy and limitations of photogrammetric measurements of dye tracer displacements for calculating surface current velocities and horizontal diffusion rates under specific conditions. 3) Characterize as a function of time both the physical and optical (spectral transmittance and scattering) properties of the waters surrounding and within a spoil dump. 4. Define the appropriate spectral ratios within the chlorophyll absorption bands and relate various ratios as a possible indicator of nutrient and productivity levels. 5. Generate surface currents from a hydronamic numerical model and evaluate the model. 6. Correlate sea surface temperature map for NOAA-II VHRR data. 7. Determine dye tracer dispersion techniques necessary for imaging and registration by ERTS-1 multispectral scanner. 8. Develop visual/graphical remote sensor data analysis products and techniques for anticipated requirements.

Data collected on 7 April 1973 is sufficient to provide considerable insight into or permit the fulfillment of the above objectives. This data is being processed and analyzed at this time for publication in the near future.

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SIE NO.
GBP-1289

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

SEDIMENT TRACING IN THE AREA OF THE NEW YORK BIGHT USING RADIONUCLIDE-TAGGED SAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

FN CASE ISOTOPES DEVELOPMENT CENTER
HR BRASHEAR

RECIPIENT INSTITUTION:

OAK RIDGE NATIONAL LABORATORY
P.O. BOX X
OAK RIDGE, TENNESSEE 37830

PERIOD FOR THIS NRP:

7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Sand tagged with gold-198/199 is deposited in selected area of the New York Bight and transport is determined by surveying the sea floor with a ship-towed radiation detector that moves over the floor. Realtime data processing and display of radiation contours provide direction and rate of sediment transport as it is dispersed from the original injection point.

Correlation of transport data with waves, currents, and other measured parameters is made from data tapes prepared during survey. The survey systems consists of an underwater detector, positioning equipment, an onboard computer and associated radiation spectroscopy equipment.

This work is part of an intensive study to determine the movement of sediment in the New York Bight area and its relationship to the management of waste disposal operations carried out in the past and to provide a basis for future waste disposal planning and management.

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SIE NO.
GPE-5014-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(11-1)-3573

TITLE OF PROJECT:
TRACE ELEMENTS IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF KK TUREKIAN GEOLOGY & GEOPHYSICS
DP KHARKAR
J THOMSON

RECIPIENT INSTITUTION:
YALE UNIVERSITY
SCHOOL OF ARTS
206 ELM
NEW HAVEN, CONNECTICUT 06520

PERIOD FOR THIS NRP:
12/72 TO 11/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

There are three areas in which our investigation on the sources and fates of trace metals in natural waters will be focussed next year; (1) the riverine sources; (2) estuarine processes; (3) deep-sea processes. We will attempt to distinguish between the natural organically associated particulate trace element burden of streams from man-supplied material from sewer outfalls, using the distinctive trace element and uranium decay series disequilibrium of each as diagnostic criteria. We will try to assess the rates of deposition of metals in salt marshes and off-shore sediments in Long Island Sound using Pb210 for dating purposes. We will begin a budget for iron and manganese in Long Island Sound to see the size of the flux of these metals to the deep ocean. In the deep sea, we will continue our work on the composition of hard tissues of pelagic organisms. We will determine the rates of growth of deep-sea benthic molluscs using Ra228 and assay the nature and rate of growth of ferromanganese deposits on living calcareous molluscan shells from the deep abyss.

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SIE NO.
NTX-206

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ESTUARINE WATER QUALITY-BIOTA MODELS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF NE ARMSTRONG CIVIL ENGINEERING
RH FLAKE
D WILLIAMS

RECIPIENT INSTITUTION:
UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The objective of this research is to develop a mathematical model or models to describe the dynamics of biological populations in estuaries using new models or improvements on existing models and to determine the feasibility of using feedback control theory for large-scale systems as a modeling technique for water quality and biota. Natural environmental conditions and imposed stresses from waste discharges will be included in the models, and the models will be developed using existing (2-year coverage) waste discharge, water quality, and biological data from Jamaica Bay, New York.

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SIE NO.
WZ-2448

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
OPTIMAL CONTROL OF DISPERSED WASTE SOURCES IN ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF RH FLAKE ELECTRICAL ENGINEERING
N ARMSTRONG
BJ OLUFEAGBA

RECIPIENT INSTITUTION:
UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The application of optimal control theory to the process of water quality managment of estuaries. Special interest is being focused on optimization of the locations of waste discharge points so as to achieve the least impact of the waste in the receiving water.

The optimal control model will be tested on one or two major, complex estuaries - Jamaica Bay, New York and Galveston Bay, Texas, both of which have been the subject of recent, comprehensive water quality management studies and in which the problem of method and location of waste disposal was important.

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SIE NO
GBP-1299

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL SYSTEMS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

COMPREHENSIVE CONCEPTUAL MODEL OF THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR GT ORLOB
RP SHUBINSKI
FD MASCH
JA ELDER

RECIPIENT INSTITUTION:

WATER RESOURCES ENGINEERS INC.
8001 FORBES PL., SUITE 312
SPRINGFIELD, VIRGINIA 22151

PERIOD FOR THIS NRP:

7/73 TO 9/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Conceptual modeling of the New York Bight is part of a broader NOAA program which includes field investigations, analysis and data information services to provide a practical master plan for management of the Bight. The modeling program has as its objective the conceptual development of predictive tools which describe the physical, chemical, biological and oceanographic factors influencing the Bight. Emphasis is placed on the solution of real-world problems, i.e., being able to determine the effects of changing outside forces, primarily through man's activities, on the ecosystem of the Bight.

Three major systems have been identified for the conceptual model: 1. Circulation, 2. Sedimentation, and 3. Water quality-ecology.

A number of subsystems representing specific phenomena exist within these divisions and each is a separate part of the conceptual model. The model describes and assesses the driving variables for each subsystem, identifies critical rates and relationships and delineates the transfer paths between subsystems.

In the first phase of the project, the structure of each segment of the model is described, both narratively and graphically, and its relation to other sections is depicted. In subsequent phases, critical subsystems are explored more deeply and data needs are assessed. Attention is given to the impact of model needs on the data acquisition programs, and the framework for an ADP information system is recommended for selected subsystems. Finally, a report describing all aspects of the model is required.

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SIE NO.
NTX-179

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ESTUARINE WATER QUALITY-BIOTA MODELS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF RH FLAKE ELECTRICAL ENGINEERING
N ARMSTRONG
D WILLIAMS

RECIPIENT INSTITUTION:
UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The objective of this research is to develop a mathematical model or models to describe the dynamics of biological populations in estuarines using new models or improvements on existing models and to determine the feasibility of using feedback control theory for large-scale systems as a modeling technique for water quality and biota. Natural environmental conditions and imposed stresses from waste discharges will be included in the models, and the models will be developed using existing (2-year coverage) waste discharge, water quality, biological data from Jamaica Bay, New York.

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SIE NO.
ZUA-2005-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
AC70-048-F

TITLE OF PROJECT:
URBANIZATION AND ITS EFFECT ON STREAM TEMPERATURE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EJ PLUHOWSKI WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Man's impact on the hydrologic environment has received greater attention in recent years. Such factors as increased storm runoff, loss of valuable top soil, stream and atmosphere pollution have come under scrutiny owing to their rather obvious undesirable effects. Aside from large scale isolated instances of thermal pollution, however, little has been done to assess man's influence on the thermal patterns of streams. Alteration of the natural hydrologic environment of a stream may affect its heat energy balance causing substantial changes in water temperatures.

Five streams with varying degrees of urbanization in their drainage basins have been selected for intensive study. Connetquot River in central Long Island was chosen as a control for comparison purposes. This stream flows through a hunting preserve and is essential in its natural state. Five sites were selected along each stream and water temperatures obtained at each site. A statistical analysis employing a randomized block or latin square design will be utilized to test for significance between sites. Stream reaches yielding significantly different results will be subjected to an intensive field reconnaissance to isolate the cause of the anomaly.

An energy-budget approach will be utilized to assess the importance of urbanization factors on the overall flux of energy. Owing to the profound effect of certain meteorologic parameters on the heat balance it is likely that most studies will be restricted to periods of not less than 7 consecutive days. The most important factor in the energy budget is insolation which is being measured directly by placing a pyranometer just above the water surface of the control stream. ISG

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SIE NO.
GBP-1288

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
CONCEPTUAL MODEL OF NEW YORK BIGHT ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
WATER RESOURCES ENGINEERS INC.
8001 FORBES PL., SUITE 312
SPRINGFIELD, VIRGINIA 22151

PERIOD FOR THIS NRP:
7/73 TO 8/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The model will display through a series of graphs with accompanying narrative the major subsystems and forces that influence the ecology of the New York Bight. It will be used both to help scientist assess and predict the impact of man's activities on the Bight, and to aid in the design and development of NOAA's New York Bight Ecosystems Project.

Water Resources Engineers will provide a conceptual model in three formats: 1. A graphical representation similar to a flow chart which should depict clearly all ecosystem subsystems, components, processes and relationships including all transferred parameters and rates clearly identified. Additionally, exogenic inputs, sedimentations or partitioning within the model, and outputs should be easily discernable. 2. A narrative, cross-referenced with the graphical representation above adequately discussing the major subsystems involved. 3. An ADP Information System structured by the framework developed above and functioning to provide information relating to the Marine Environment.

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SIE NO.
ZUA-2687

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NR 70-039

TITLE OF PROJECT:
HYDROLOGIC INTERPRETATIONS BASED ON REMOTE SENSING TECHNIQUES -- LONG ISLAND, LAKE ONTARIO, CHESAPEAKE BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,500

SUMMARY OF PROJECT:

With the proliferation of nuclear power plants, thermal pollution of the nation's waterways becomes an increasingly acute danger. Remote-sensing techniques presently available permit detection and monitoring of thermal plumes generated by powerplants. Moreover, remote sensing provides a means, never before available, of detecting areas of ground-water discharge. Such areas may define potential sources of water supply.

To obtain baseline water-termperature data in the vicinity of two nuclear power stations on Lake Ontario. To identify the source, movement, and fate of pollutants entering the lake from the Niagara, Genessee, and Oswego rivers. To evaluate the extent and identify areas of ground-water discharge.

Black and white, color, and false color photography will help identify pollutants and sediment. Thermal-infrared imagery is suited to thermal field studies. Multispectral scanners may be useful in identifying specific types of pollutants.

Wind stress generated by atmospheric pressure gradients is the major factor controlling sediment-plume patterns. Prevailing westerly winds across the south shore of Lake Ontario cause sediment to be carried predominantly to the east-northeast of the axes of all northward flowing rivers.

It is anticipated that the ERTS-A satellite will be in orbit during FY 1973. Ground-truth data will be obtained under favorable cloud conditions whenever the satellite passes over Lake Ontario.

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SIE NO.
ZUA-2390

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NR-70-039-0

TITLE OF PROJECT:
HYDROLOGIC INTERPRETATIONS BASED ON REMOTE SENSING TECHNIQUES - LONG ISLAND, LAKE ONTARIO, CHESAPEAKE BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EJ PLUHOWSKI WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: To obtain baseline water-temperature data in the vicinity of two nuclear power stations on Lake Ontario. To identify the source, movement, and fate of pollutants entering the Lake from the Niagara, Genessee, and Oswego Rivers. To evaluate the extent and identify areas of ground-water discharge.

Methods: Black and white, color, and false color photography will help identify pollutants and sediment. Thermal-infrared imagery is suited to thermal field studies. Multispectral scanners may be useful in identifying specific types of pollutants.

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SIE NO.
GBP-1187

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R63103

TITLE OF PROJECT:
NOAA/NAVY MESA NEW YORK BIGHT EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E RIDLEY
L FISHER

RECIPIENT INSTITUTION:
U.S. NAVY
OCEANOGRAPHIC OFFICE
WASHINGTON, DISTRICT OF COLUMBIA 20390

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: Enlist technical capabilities of the Naval Oceanographic Office to conduct in situ oceanographic measurements, analyze data collected, and generate hydrodynamic model from acquired dye tracer and current meters data.

Approach: The Naval Oceanographic Office (NAVOCEANO) under the direction of Mr. Dennis Clark, NOAA/NESS will provide equipment, personnel, and data analysis capabilities to the NOAA/MESA New York Bight Experiment in July 1973. The requirements to be filled by NAVOCEANO are contained in the NOAA/MESA experiment plan and in the work statement attached to DOC CD-45 (Jan. 1973) transferring funds to NAVOCEANO for the task. Documentation of data and current model X will be made to Mr. D. Clark, NOAA/NESS 30 days after data acquisition in July 1973.

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SIE NO.
GBP-1188

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
CONTRACT
R63103771

TITLE OF PROJECT:
NEW YORK BIGHT COASTAL OCEANOGRAPHY EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FJ WOBBER

RECIPIENT INSTITUTION:
EARTH SATELLITE CORPORATION
1771 N ST. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20036

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To develop remote sensor information products related to in situ data for an analytical summary of physical and biological characteristics in the New York Bight coastal area.

Approach: The Earth Satellite Corporation, in cooperation with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and the Naval Oceanographic Office will collect and summarize remote sensor data and correlative in situ ocean sensor data from the New York Bight coastal marine area. Previous remote sensor and in situ ocean sensor data will be inventoried in preparation for the April-May 1973 New York Bight experiment to determine the sensors, locations, flight lines, equipment, and other materials needed in the summary analysis of currents, pollution dispersion, and oceanographic features in this test area. The contractor will provide personnel, equipment, and technology before, during, and after data acquisition as well as post experiment analyses, interpretation, data display, and documentation of results.

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SIE NO.
ZMA-743

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
72P20696

TITLE OF PROJECT:
DEVELOP MARINE ECOSYSYEM ALTERATION ASSESSMENT TECHNIQUES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RC SWARTZ

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
NATL. ENVIRON. RESEARCH CENTER
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $38,500

SUMMARY OF PROJECT:

The overall objective of this project is to develop quantitative methods of assessing ecosystem alterations caused by pollution stresses associated with waste discharges to coastal waters. These techniques are expected to be useful for regulatory agencies to monitor discharge areas prior to and after discharges. In the first phase of this project, a site in the New York Bight will be studied before, during, and after an experimental sewage sludge dumping program. Spatial and temporal changes in the structure of the macrofaunal association will be determined through analysis of faunal composition, density, dominance, biomass, diversity, and homogeneity. Correlations between these biotic parameters and abiotic factors will be attempted in relation to differences at the dumping site and surrounding stations before, during, and after the experimental dumpings. Documentation of ecosystem alterations at one point in time does not in itself indicate lasting effects; therefore, we intend to observe the rate of recovery of the area in the post-dumping period. This should provide measures of the vulnerability of the local ecosystem and the extent of environmental damage sustained.

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SIE NO.
ZMA-720

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21 AIS 05
72P18019

TITLE OF PROJECT:
EVALUATION OF POLLUTION LOADINGS, LOCAL WATER QUALITY, TOXICITY AND RESOURCE DATA IN PUGET SOUND AND NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DJ BAUMGARTNER NATL COASTAL POLL RES PROG
DT MARTIN

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
PAC. N.W. ENVIRON. RES. LAB.
200 S.W. 35TH ST.
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $25,000

SUMMARY OF PROJECT:

The objectives of this project are to aid the formulation and direction of research projects and to assist regulatory programs of the Environmental Protection Agency in formulating water quality criteria and implementation procedures for two critically important costal areas--Puget Sound and the New York Bight. This is to be achieved through desk-top evaluations of available literature and personal interviews with scientists and water pollution control officials in the area. In Puget Sound, the effort to date nas been concentrated on the formulation of research plans, and a report of the results is in press. The New York Bight activities will focus on the environmental interactions of sewage sludge dumped from barges. Results of this work will be used to develop information for an environmental impact assessment of an experimenal sludge dmping project to be initiated by the National Coastal Pollution Research Program.

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SIE NO.
ZUA-2378

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
CT-71-027-0

TITLE OF PROJECT:
REMOTE SENSING OF LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FH RUGGLES WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: To evaluate data collected by remote sensing techniques as tools to measure hydrologic parameters such as sediment transport and tidal currents.

Method: This is a continuing program to utilize NASA overflights at altitudes of 15,000, 25,000, and 50,000 ft, to record dynamic hydrologic parameters via photography and infrared scanning. These data will be used together with some ground truth data to document present conditions and attempt to forecast changes that will be monitored by satellites.

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SIE NO.
ZMA-683

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21 AIS 06

TITLE OF PROJECT:
DETERMINE DISTRIBUTION OF PCB'S AND OTHER PERSISTENT ORGANICS ASSOCIATED WITH PARTICLES OF WASTE ORIGIN IN THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JN BLAZEVICH

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
NATL. ENVIRON. RESEARCH CENTER
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $70,000

SUMMARY OF PROJECT:

The objective of this research is to study the fate of persistent organics (i.e., chlorinated hydrocarbons) in sewage sludge discharged by barge dumping into the near-shore ocean environment. This includes determination of rates and mechanisms of accumulation, transport, and transformation of persistent organics in the water column, sediments, surface films, and biota. The results will be used to make recommendations on monitoring schemes, for abatement, and guidance on discharge restrictions relating to persistent organics. The work will be carried out in three phases. First, a determination of a suitable sludge plant and dumping site will be made based on levels of persistent organics found in sludges and at the sites. Second, dumping will be initiated and continue for a predetermined period of time. Samples of sludge, sediments, surface films, water, and biota will be taken and analyzed at appropriate intervals. Third, the site will be monitored after dumping to determine changes in concentration of persistent organics with time in sediments and biota. Cooperative efforts with NOAA have been initiated and are expected to continue. Phase I of the plan has been initiated. A tentative dumping site and sludge plants are being investigated.

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SIE NO.
GBP-1290

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
STUDY OF THE DUMPED MATERIALS AT THE NEW YORK BIGHT SEWAGE SLUDGE AND DREDGE SPOILS SITES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JJ DOWLING GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:
6/73 TO 11/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This study is designed to map the distribution of spoils material within the New York Bight. Seismic reflection profiling and analysis of bottom samples are the principle field techniques. In addition, bottom photography will be used.

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SIE NO.
ZBP-395

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281810

TITLE OF PROJECT:
EXPERIMENTAL BIOLOGY INVESTIGATIONS - ENVIRONMENTAL BIOASSAY INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR A CALABRESE
FP THURBERG
E GOULD
R COLLIER

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
LAB. FOR EXPERIMENTAL BIOLOGY
ROGERS AVE.
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To examine in the laboratory by bioassay, physiological and biochemical techniques, a selected group of New York Bight coastal animals and the effect of contaminants on their normal life functions. These experiments will indicate that some marine animals are extemely sensitive to minute amounts of pollutants, or that certain animals or communities will flourish where specific contaminants are available at those levels.

Approach: Experiments will be conducted to assess physiological changes in various species of marine bivalves, crustaceans and fish. Embryos and larvae of shellfish will be exposed to heavy metal ions through in vivo laboratory experiments to determine concentrations which affect normal development. Adult crustaceans and fish will be exposed to contaminants to determine changes in osmo-regulation and respiration rates. Also, as part of a broad-spectrum study of the effects of pollutants upon representative marine organisms, studies will be made to discover significant enzymological changes in the tissues of target animals during their exposure to known amounts of pollutants, and to interpret any such changes from the standpoint of biochemical adaptation or malfunction in response to the pollutant. By determining the degree and rate of such change in the light of concurrent work in related disciplines, it should be possible to monitor and even to predict the probable success or failure of the species to survive under known conditions of pollution. These organisms will be exposed to a great assortment of contaminant material. They will be subjected to acute exposures initially, but as facilities are developed, they will be subjected to long-term, chronic exposures of sublethal stress levels of pollutants.

Progress: Experimental results have provided lethal levels for embryos of the American oyster and hard shell clam for 10 and 5 heavy metals, respectively. Tests on changes of osmo-regulation and respiration rates of various species of crustaceans have been completed.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

GBP-1196 (CONTINUED)

under water photometer and direct measurement of suspended material.

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SIE NO.
GBP-1196

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520577

TITLE OF PROJECT:
STUDIES ON METHODS FOR CONTROL OF CODIUM FRAGILE IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,621

SUMMARY OF PROJECT:

Objectives - Management of shellfish beds infested with Codium, assessment of colonization rates of Codium, in shellfish beds, and natural factors which encourage the growth of Codium. Continued experiments on the development of 'dips' for the removal of Codium from shellfish. Determination of vertical distribution of Codium as a function of water turbidity (light penetration).

Procedures - At 5 estuary sites lay-out 3 bottom plots at 2 meters depth, middle estuary, in early spring. Remove all Codium in 2 plots. The third shall remain a control. In 1 of the 2 culled plots, continue to remove Codium at 4-week intervals. Monthly census of both living and dead scallops, oysters, quahaugs and Codium, and if possible relate condition of shellfish to Codium.

At five sites on the estuary, water quality analyses will be continued. Settling surfaces for Codium were set out in March at these sites. They consist of oyster shells strung on buoyed lines anchored by cement blocks. They thus far have proven excellent in that the settling surfaces are easy to remove, resist sedimentation and are not easily located by vandals. At each site, two lines are removed and replaced at 1 - month intervals. The attached Codium is harvested for measurements of growth and photosynthetic capacity.

Use techniques developed in the past year to produce differentiating plants on oyster shells in culture. By varying exposure time and concentration, test lethality of heavy metal salts, oxidizing agents, biodegradable organic compounds, chelators and osmoticums. Adapt findings to shellfish cultivation practices.

Pre-measured apical segments of physiologically uniform Codium are attached to vertically-buoyed lines at 1 meter intervals. After 2 days, the plants are assayed for photosynthetic capacity in situ by measuring $H^{14}CO_3$ uptake rates. After 2 weeks, the plants are harvested and assayed for increase in length, wet weight and dry weight, and levels of chlorophyll and starch.

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SIE NO.
GBP-482-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520276

TITLE OF PROJECT:
ECOLOGY, POPULATION STRUCTURE AND MOVEMENTS OF LOBSTERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR W LUND

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $18,600

SUMMARY OF PROJECT:

Objectives - Determine the movements of lobsters in and from Long Island and Fishers Island Sounds. Define the population to which these lobsters belong. Determine hours and periods of activity and inactivity on a daily and seasonal basis.

Procedures - It is planned to continue the tagging program by tagging lobsters in Block Island Sound. The lobsters will be captured for tagging by fishing our own traps, SCUBA diving and buying directly from the fishermen. Lobsters will be tagged underwater and aboard ship and returns should allow us to evaluate the two methods.

Sub-legal as well as legal lobsters will be tagged to determine any differential movements which might exist with size. Recapture of moulted lobsters will give information on frequency of moulting for individual lobsters as well as the increase in size increment.

Sonic tags will be employed to study movements of individual lobsters on a daily basis. The power source for the tags lasts about 14 days but this source can be renewed. The lobster is recaptured by diver and the entire sonic tag replaced. In this way an individual lobster's daily movements can be followed over an extensive period.

The sonic tag program will continue on a limited basis. All information collected during the last two years will be analyzed and prepared for publication. The use of sonic tags during the coming year will be to complete any part of the program which is found incomplete. Expansion of the sonic tagging program will be undertaken until all data collected have been analyzed.

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SIE NO.
GBP-753

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520483

TITLE OF PROJECT:
A STUDY OF THE MIGRATORY BEHAVIOR OF AMERICAN SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WC LEGGETT

RECIPIENT INSTITUTION:
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $8,500

SUMMARY OF PROJECT:

Objectives: To use sonic tags to track normal and sensory impaired shad in Long Island Sound and to use dart tags to follow the general movement of normal and sensory impaired shad in Long Island Sound.

Procedures: Individual shad will be tagged with sonic tags and tracked with boat mounted receivers. Shad to be tracked are control, blind, anosonic, anosonic and blind. Movements of these shad will be plotted on coastal navigation charts coincident with measurements of wind direction and force, wave direction and height, tide state, sky condition, salinity, and fish swimming speed.

Seventy-five fish of each of the aforementioned categories will be tagged and released from each of the two tagging areas. Fifty fish of each category will be captured east of the river, displaced to the tagging station west of the river, and released. Blinding will be accomplished by injection of 3% aqueous benzethonium chloride directly into the eye. Olfactory occlusion procedures will be finalized following a more complete evaluation of available methods.

School size and dispersal of shad entering Long Island Sound from the east will be determined by echo location procedures. The extent of the fresh water plume originating from the Connecticut River over eastern Long Island Sound will be determined by infrared imagery and airborne radiation thermometer techniques.

Dart tag returns will be analyzed for different return frequencies between the two tagging sites and between normal and impaired fish.

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SIE NO.
GBP-1253

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

NEW YORK BIGHT REGIONAL PROJECT (MESA)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RL SWANSON MARINE ECOSYSTEMS ANAL PROG

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
OFF. OF COASTAL ENVIRONMENT
ROCKVILLE, MARYLAND 20852

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The New York Bight MESA Project is a five-year effort designed to undertake integrated studies of the physical, chemical and biological characteristics of the marine environment. It is not only established to coordinate NOAA activities in the Bight but also will help to serve as a focus and coordinator of other pertinent research in the area. The objectives are to: 1. Describe, understand, and monitor the physical, chemical, and biological processes of the marine environmental system. 2. Provide information and expertise required for effective management of marine areas and the rational use of their associated resources. 3. Analyze impact of natural phenomena or man-made alterations on the marine environment.

The first year's effort will specifically address the research on ocean dumping, the authority of which is assigned to NOAA in Public Law 92-532 - The Marine Protection, Research and Sanctuaries Act of 1972.

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SIE NO.
GBP-470-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520546

TITLE OF PROJECT:
STUDIES DIRECTED TOWARD METHODS FOR CONTROL OF CODIUM FRAGILE IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RAMUS

RECIPIENT INSTITUTION:
STATE PRESERV. & CONSERV. DIV.
STATE OFF. BLDG.
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $7,500

SUMMARY OF PROJECT:

To determine the effects of variation in environmental conditions on the growth and reproduction of Codium fragile and to test the effectiveness of specific means to control the invasion by this alga.

Procedures: Continued studies on management of shellfish beds infested with Codium will entail creation of three 10 x 10 meter sample plots to be laid out at fine estuary locations in early spring. All Codium will be removed from two, the third plot to serve as a control. Codium will be culled from one of the cleared plots at four week intervals to ascertain the re-infestation rate of this organism and its effect upon shellfish. Water quality analyses will be continued. Determination of total soluable phosphates and nitrates, temperature, salinity, light penetration, and dissolved oxygen profiles will be made. Laboratory experiments on the development of dips for removal of Codium from shellfish will be continued. Tests of lethality of heavy metal salts, oxidizing agents, biodegradable organic compounds, chelators, and osmoticums will be made to determine responses to various exposure times and concentrations. Determination of vertical distribution of Codium as a function of turbidity (light penetration) will be made by utilizing premeasured apical segments of physiologically uniform Codium attached to vertically buoyed lines at 1-meter intervals. After 2 days, the plants are assayed for their photosynthetic capacity and, after 2 weeks, they are harvested and assayed for increased length, wet weight, dry weight, and levels of chlorophyll and starch. Light penetration will be measured by underwater photometer and direct measurement of suspended material.

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SIE NO.
ZTK-59

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
JAMAICA BAY HURRICANE BARRIER STUDY NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
TC HILL ESTUARIES BRANCH

RECIPIENT INSTITUTION:
U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To determine the effects of a hurricane protection structure with all tidal passages open on tidal heights, current velocities, salinities, temperatures, and dye dispersion within Jamaica Bay for normal tides. Plans which had no adverse effects on the above phenomena and which did not create maximum velocities hazardous to navigation were subjected to hurricane surges to determine the amount of suppression obtained throughout Jamaica Bay. An additional objective of the investigation to improve the quality of water in the Bay has been added by the New York District. This modification may involve barrier gate operation and/or structural changes in the Bay.

Approach or Plan: The Jamaica Bay segment of the existing New York Harbor Model was updated to topographic conditions of 1967. The existing New York Harbor model linear scale ratios are 1:100 vertically and 1:1000 horizontally. A hurricane surge generator was added to the model to conduct the surge test. A series of tests was conducted for existing conditions and then duplicated for plan conditions: comparison of test results allows the effects of the plans to be evaluated.

Progress to Date: New York District personnel recommended a barrier plan consisting of a 300-ft-wide ungated navigation opening to natural bottom depths (approximately -32 ft msl) plus six 75-ft-wide gated tidal passages with bottom sills to an elevation of -26 ft msl on each side of the navigation opening. Model tests indicated no adverse effects on tidal heights, current velocities, salinities, and dye dispersion within Jamaica Bay; however, the plan would not provide adequate suppression of the hurricane surge elevations within the Bay. Plan 6 included a 110-ft wide ungated navigation opening to natural bottom conditions plus eight 75-ft-wide gated tidal passages with bottom sills to elevations of -26 ft msl on each side of the navigation opening. This plan had no adverse effects on the related phenomena and provided the required suppression of hurricane surges within the Bay; however, the 110-ft-wide navigation opening did not meet the present navigation needs which require a minimum opening of 150 ft. A series of hurricane surge tests was conducted utilizing widths of navigation openings varying from 150 to 200 ft. These openings provided bottom

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SIE NO.
GBP-111-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R63103761

TITLE OF PROJECT:
REMOTE SENSING OF COASTAL PROCESSES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF FC POLCYN
RE TURNER
SR STEWART

RECIPIENT INSTITUTION:
ENVIRONMENTAL RES. INST. MICH.
P.O. BOX 618
ANN ARBOR, MICHIGAN 48107

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective - To develop remote sensing data acquisition and analyses techniques for basic research on coastal marine processes.

Approach - The Environmental Research Institute of Michigan will conduct overflights over the New York Bight and other nearshore sites to obtain multispectral and infrared scanner data concurrently with in situ oceanographic data. Thermal, optical, biological, sediment, and physical in situ data will be correlated to the aircraft sensor data to construct and evaluate models of currents, diffusion, water quality, bathymetry, productivity, sediment patterns, and other coastal phenomena.

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SIE NO.
ZTK-57

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MODEL STUDY OF MORICHES INLET, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RA SAGER ESTUARIES BRANCH

RECIPIENT INSTITUTION:
U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To develop an effective plan of improvement for Moriches Inlet, to maintain a stable and safe navigation channel through the inlet and effectively transfer sand past the inlet.

Approach or Plan: Fixed- and movable-bed model tests were conducted to define the effects of proposed plans of improvement on the hydraulic conditions and shoaling and scouring trends of the inlet, respectively.

Progress to Date: Several tests in both the fixed- and movable-bed models were conducted with various size navigation channels and single littoral traps at various locations or a combination of a littoral trap, and rehandling basin each at various locations. Results indicated that a single littoral trap sufficiently protected from ocean waves to allow dredging to be effectively performed, could not be considered. Previous tests with protective structures have been effective; however, excessive costs would be required. Tests conducted with the littoral trap located sufficiently landward to achieve wave protection demonstrated that material would not move into the littoral traps. Tests with a combination ocean littoral trap and interior rehandling basin indicated effective results could not be achieved.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZTK-59 (CONTINUED)

sill elevations varying from -23 ft msl to -26 ft msl.

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SIE NO.
ZUH-3310-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR2518-03

TITLE OF PROJECT:
HYDROGRAPHY OF NEW YORK BIGHT IN RELATION TO OFFSHORE WASTE DISPOSAL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RI WICKLUND

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Study the hydrography of the New York Bight with particular emphasis on conditions having a direct effect on the movements of waste disposal.

Measure and analyze temperature and salinity throughout the water column at 26 stations every two weeks, and release 300 sea bed drifters and drift bottles once a month.

Establish stations, utilizing sub-surface buoys, at six locations equipped with thermographs located at the bottom and in mid-water. Supplemental buoy stations may be added to verify hyrothesis developed from interpretation of regular station data.

Temperature, salinity, and density determinations to be plotted on horizontal and vertical profiles and drifter, current meter, and thermograph data processed and analyzed by computer techniques. ISG

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SIE NO.
ZTK-42

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MODEL STUDY OF HAMLIN BEACH HARBOR, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RW WHALIN WAVE DYNAMICS BRANCH

RECIPIENT INSTITUTION:
U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To determine the optimum design of the proposed harbor.

Approach or Plan: A 1:64-scale model of the proposed harbor and sufficient portion of Lake Ontario needed to generate the required test waves will be used to determine the optimum design of the harbor.

Progress to Date: Model construction has been completed, and model testing will be initiated as soon as funds are provided by the Buffalo District.

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SIE NO.
GBP-1293

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281803

TITLE OF PROJECT:
ANALYSIS OF BENTHIC SAMPLES COLLECTED BY NOAA-MESA PROGRAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR D ROSE

RECIPIENT INSTITUTION:
TRENTON STATE COLLEGE
GRADUATE SCHOOL
HILLWOOD LAKES
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $16,758

SUMMARY OF PROJECT:

Technical Objective: One of three Universities and two MACFC Laboratories who will receive sub-samples of 340 bottom grab samples taken from the Apex of the New York Bight during June, 1973.

Approach: Macrofaunal sub-samples, under dissecting microscopes, are sorted and identified to the species level; count of individuals by species and count of number of species. Quality control rechecks will be made.

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SIE NO.
ZBP-466

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS-MARINE CONTAMINANTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RK TUCKER
A MATTEE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: Objectives of the investigation are to: establish the patterns of distribution of heavy metals, pesticides, petrochemicals and other toxic materials in sediments collected in the New York Bight and ancillary waters and embayments; determine patterns of distribution of bottom-dwelling macrofauna and meiofauna as these patterns are related to heavy metals and other toxins, thermal additions and deteriorated environments; determine the effects of a variety of contaminants on the physiology, behavior and reproduction of selected species of marine organisms indigenous to the New York Bight; study the sublethal and lethal effects of thermal additions and oil pollution on marine and estuarine species; and begin to develop, based on laboratory and field data collected from the New York Bight, hypotheses and models which can be used to predict the effects of waste disposal in coastal and estuarine waters on the life history of selected species and which would be generally applicable to other temperate water exosystems.

Approach: In conjunction with the Biological Oceanography Investigation we have developed a grid of sampling stations which will encompass portions of the New York Bight, western Long Island Sound and Raritan Bay, including adjunct embayments and estuaries. Initally, grab, dredge, trawl and epibenthic samples are taken at five-mile intervals except with the Hudson Shelf Valley, alternative dumping sites, and embayments. At these sites collections will be taken at intervals necessary to obtain samples for analyses for heavy metals and other contaminants. Once having ascertained the amounts of specific metals and other toxins in living tissues and the physical environment, we perform laboratory tests to determine the effects of toxins and thermal additions on amino acid metabolism, ionic regulation and ion transport, neurophysiology and behavior, and respiration. Tests are performed using laboratory grade reagents as toxins as well as sediments and water from the field which contain known amounts of toxic materials. Experiments utilizing actual toxic materials collected from the environment are extremely difficult to set up, perform and interpret because of the synergistic effect of the numerous toxins present in sediments and water. This tends to decelerate the progress of work but experiments are essential if the real environment is to be understood.

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SIE NO.
GBP-454

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
720102
CONTRACT

TITLE OF PROJECT:
A BASELINE STUDY OF THE WATERS SURROUNDING DAVID'S ISLAND PRIOR TO THE INTRODUCTION OF THERMAL ADDITIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JB PEARCE MARINE LABORATORY
CI GIBSON

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
BUR. OF SPORT FISH. & WILDLIFE
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $11,000

SUMMARY OF PROJECT:

Technical Objective: To assess the standing crops of finfish, zooplankton and bottom-dwelling invertebrates in waters surrounding David's Island, western Long Island Sound. Evaluate the potential effects which thermal additions from a steam-electric generating station might have on those living resources.

Approach: Sampling transects and stations are sampled on a monthly basis. Appropriate nets, dredges and bottom samplers are used. Hydrographic data including temperature, salinity, dissolved oxygen and nutrients are collected simultaneously. Laboratory studies to determine the sublethal effects of elevated temperatures are being conducted.

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SIE NO.
GBP-1229

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
281890

TITLE OF PROJECT:
LONG ISLAND SOUND BASELINE SURVEY (BENTHIC MACROFAUNA)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR D DOREMAN

RECIPIENT INSTITUTION:
MONMOUTH COLLEGE
GRADUATE SCHOOL
WEST LONG BRANCH, NEW JERSEY 07764

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $10,000

SUMMARY OF PROJECT

Technical Objective: Provide data on species diversity and on seasonal and spatial distribution and abundance of benthic macrofauna in Long Island Sound.

Approach: Sort, identify, and enumerate, by species the macrofauna found in 158 sediment samples derived from the Sound.

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SIE NO.
ZBP-529

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY: AGENCY'S NUMBER(S):

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

TITLE OF PROJECT:

NEW YORK BIGHT - MARGINAL AREA SEDIMENT AND SEDIMENT INVENTORY COMSED PROJECT OF AOML

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR TF MCKINNEY
ALSO WITH VASSAR COLLEGE
D SWIFT
M DICKEN CITY UNIVERSITY OF NEW YORK
W STUBBLEFIELD

RECIPIENT INSTITUTION: PERIOD FOR THIS NRP:

U.S. DEPT. OF COMMERCE
ATL. OCEAN. & METEOROL. LAB.
MIAMI, FLORIDA 33132

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This study is a part of the COMSED project of AOML (Continental Margin Sedimentation). Data collection began in the summer of 1972 in two detailed study area on the New Jersey continental shelf: 1) area 1A, the Brigantine Shoal area of the inner shelf 2) area 1B, The Great Egg Massif Ridge Field of the central shelf. Data consisted of bottom samples (1A - 189, 1B - 200), side scan sonar surveys (1A - 20 n.mi., 1B - 91 n.mi.), vibrocores (1A - 3, 1B - 4) and submersible dive traverses (1A - 1, 1B - 4).

The '72 side scan survey has revealed sediment patterns associated with large-scale current lineations produced by storms. Also revealed were wave ripple patterns and areas of suspected outcroppings of Holocene or Pleistocene clayey sediments in troughs. Observations from submersible dives and bottom samples were correlated with side scan data.

Additional side scan reconnaissance surveys are planned for '73 1A-60 n.mi., 1B - 60 n.mi.). This will complete the resonnaissance of 1A, expand into adjacent areas of 1B and rerun segments of the '72 1B surveys. The rerun of parts of 1B will be used to check for changes in the nature and directional aspect of th lineations. Sub-bottom profiling will run concurrently with the side scan surveys using a 3.5 Khz acoustic transducer to evaluate the shallow stratigraphy of the Holocene transgressive sequence. In addition to continued bottom sampling (about 75 in each area), camera stations and a few gravity cores are also planned.

This study will seek to clarify the origin of the ridge and swale topography and its evolution on the inner and central New Jersey shelf and evaluate the nature of the shelf response to modern shelf hydraulics.

INVESTIGATORS (CONT)

P NEWSON STATE BUR. OF LAND MANAGEMENT

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SIE NO.
GBP-1298

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
CYCLESONDE MEASUREMENTS IN NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JC VANLEER

RECIPIENT INSTITUTION:
UNIV. OF MIAMI
GRADUATE SCHOOL
MIAMI, FLORIDA 33149

PERIOD FOR THIS NRP:
5/73 TO 5/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The Cyclesonde will be used in the New York Bight area to explore the vertical structure of current and temperature over several diurnal tidal cycles at three or four locations. This diagnostic information will allow planning for the best placement of fixed current meters in later phases of the project in addition to its own intrinsic value. One can compute fluxes of heat and momentum either in layers or integrated over the content of the entire water column during individual profiles or whole tidal or inertial periods to form realistic mean values without the spatial aliasing problems inherent in usual fixed instrument arrays.

The Cyclesonde consists of a buoyancy driven platform with a recording package containing sensors for pressure, temperature, conductivity, current speed, and current direction. The Cyclesonde makes repeated automatic round trips up and down a taut-wire, subsurface mooring while scanning all five parameters with a 26-second sampling interval. According to the adjustable vertical speed ranging between 2 and 20 cm/sec, a vertical resolution ranging between 0.5 and 5 meters can be achieved.

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SIE NO
GMA-1462

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
IAG 0228(D)

TITLE OF PROJECT:
DEVELOPMENT AND TESTING OF NUMERICAL MODELS OF POLLUTION OF THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR T LAEVASTU

RECIPIENT INSTITUTION:
U.S. NAVY
POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA 93941

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $48,500

SUMMARY OF PROJECT:

To develop single and multi-layer models of circulation, dispersion, and transport and apply them to the New York Bight area. Two-dimensional, vertically integrated, solutions of the equations of motion and continuity are numerically integrated to describe the flow field. Numerical integration of the mass transport equations is used to predict dispersion of effluents in various regions of the Bight.

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SIE NO.
GBP-1185

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
CONTRACT
R63103332

TITLE OF PROJECT:
AEROSPACE OCEAN IMAGERY DISPLAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DK ROSS

RECIPIENT INSTITUTION:
INTERNAT. IMAGING SYSTEMS CORP
510 LOGUE AVE.
MOUNTAIN VIEW, CALIFORNIA 94040

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To provide services to NOAA/NESS SPOC Group for enhancing selected aircraft and satellite imagery and testing of various films for optimum oceanic image acquisition relevant to NOAA Marine Ecosystem Analysis in the New York Bight test area.

Approach: Imagery will be acquired with the NASA MSC remote sensing aircraft. NOAA will obtain concurrent in situ oceanic data in conjunction with contractors (ERIM, NAVOCEANO, EARTHSAT). International Imaging System (I2S) will enhance imagery selected by NOAA for improving information content by density slicing and false coloring techniques and aid in interpretation through comparison of imaged data and in situ measurements of currents, depths, sediment, and other coastal marine features. I2S will also modify the NOAA SPOC camera to test various films during the NOAA MESA experiment over the New York Bight test site.

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GSV-3822-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):

AG-375

TITLE OF PROJECT:

CARBON BUDGET OF FLAX POND ESTUARY, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL
PH RICH
CA HALL
CS HEUSSER

RECIPIENT INSTITUTION:

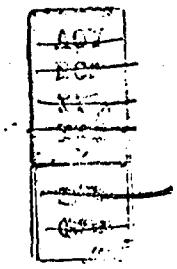
BROCKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

~~5/73~~ TC 4/74
~~FY74~~ FY73

FUNDS $105,000

SUMMARY OF PROJECT:

A two-year program of basic research on the carbon cycle of a Long Island estuary is proposed to contribute to knowledge of the exchanges of carbon and its compounds between estuaries and other ecosystems. The Flax Pond estuary offers a simple and reasonably practical opportunity for appraisal of net ecosystem production measured as carbon and as other elements including N, P, S and cations. In the first year water chemistry analyses and studies of underwater benthos will be conducted. The work on productivity will be restricted during this period to preliminary studies of methods and limited sampling. In the second year the program will be expanded to measure net primary production and respiration of the Spartina mat, the benthos and the water by a series of techniques designed to give separate, independent measurements of the same attributes. Partitioning of net production among its principal uses will be measured as will major segments of the secondary production. An estimate of net ecosystem production will be available at the completion of the second year's work.



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SIE NO
GSB-12585

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-36593

TITLE OF PROJECT:
EFFECTS OF PERSISTENT POLLUTANTS ON BIRD POPULATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RW RISEBROUGH

RECIPIENT INSTITUTION:
UNIV. OF CALIFORNIA
BODEGA MARINE LABORATORY
BODEGA BAY, CALIFORNIA 94923

PERIOD FOR THIS NRP:
12/72 TO 11/73
FY73 FUNDS $32,450

SUMMARY OF PROJECT:

Studies of pollutant effects on bird populations will be continued. Work with chlorinated hydrocarbons will be expanded to include studies of heavy metals. Priority will be given to an examination of pollutants associated with abnormalities in a Common Tern colony in Long Island Sound. The phenomenon of feather loss will be investigated both in this colony and in a colony on Sooty Terns on the Dry Tortugas. Known-age banded Common Terns will be obtained for tissue and whole body analysis to investigate the accumulation with age of the chlorinated hydrocarbons, the principal heavy metals, and petroleum compounds. Detailed studies of food chain accumulation of heavy metals will be made in the Long Island Sound ecosystem, in brown pelicans of Florida, and in birds occupying a variety of niches on St. Lawrence Island, Alaska. A long-term program for measuring trends in organochlorine concentrations in a raptorial species will be begun with biopsy samples of sharp-shinned hawks trapped in the fall in Wisconsin. Studies of the breeding biology of the ashy petrel will be undertaken on the Farallons to assess the impact of shell thinning in that species. Continuing studies on the physiology of pollutant effects on birds will be undertaken in collaboration with other laboratories.

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SIE NO.
ZUA-3000

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NY 72-014

TITLE OF PROJECT:
GEOCHEMICAL ASPECTS OF GROUND-WATER POLLUTION IN THE BABYLON-ISLIP AREA, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CA HARR WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $56,000

SUMMARY OF PROJECT:

Ground water and, to some extent, surface water in the Babylon-Islip area, Long Island, New York, have been polluted by the activities of man. The source of public water supply in the area is ground water derived from the upper glacial and magothy aquifers. The extent and manner of pollution in the two aquifers needs to be more clearly defined so as to provide a basis from which water managers can develop plans to assure a safe public water supply in the future along with satisfactory disposal of sewage and waste materials without attendant deleterious effect to the ecology or the environment.

The major objective of this proposed project is to evaluate the geochemical aspects of the nature, extent, movement, and temporal variations of inorganic and certain organic pollutants in the ground-water reservoir of the study area, with special emphasis on the water in the upper glacial and magothy aquifers. The information thus developed will be useful in evaluating present and future suitability of ground water for public use, and will provide a data base and data collection network for monitoring the effects of proposed sewers, Other water-management activities, and waste disposal.

Assemble and review existing hydrologic data and reports on the area of study. Collection of new data will consist of: periodic water-level measurements; collection of water samples from existing wells and streams. Additional wells will be drilled in areas where needed; especially in the vicinity of sanitary landfill and sewage disposal operations. Stage and conductivity recorders will be installed on streams or wells where needed. A series of maps and cross sections will be constructed to show areal and vertical extent of pollutants in the aquifer as well as temporal trends.

A ground-water and surface-water sampling network has been established and samples collected for chemical analyses including the toxic-trace metals. The chemical data has been placed on maps for contouring water-quality parameters. 5000 chemical analyses from cooperator's files have been processed for computer analyses of trends in water-quality changes. Water-levels are being measured for preparation of water-level change maps. Preliminary draft of final

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW YORK ITHACA

AGENCY'S NUMBER(S)
0006361
NYC-147403
SUBGROUP H
CSRSNY.C0000000000

TITLE OF PROJECT
IMPACTS OF WATER RESOURCE DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
HAMILTON L S
REETZ G R

KIND C AWARD
DATE SP01 DISTR

31-1111-20-931

RECIPIENT INSTITUTION
~~CORNELL UNIV~~ STATE UNIV. OF NY
NATURAL RESOURCES - Dept
AGRICULTURAL EXPER. STATION
ITHACA NEW YORK 14850 50512711

PERIOD FOR THIS NRP
BEG 600926 END 740208
FY 74 FUNDS 00000000

SUMMARY OF PROJECT

OBJECTIVE: Investigate the myriad impacts of various kinds of water development projects. Results will be made available to the planning process.

APPROACH: The case study approach will be used, both prior and post-facto in order to develop methods whereby impacts of water development projects may be assessed in advance of implementation. Previous case study work has shown the value of this approach. The particular kind of water project studied will be selected on the basis of timeliness and the expertise of the research assistants. Two initial sub-project studies are: An assessment of the physical, chemical, biological, social and economic effects of a reservoir on a stream. The case study will be a proposed reservoir on Fall Creek (Central N.Y.). The development of an ecosystem framework for planning water and related resources development in a lake basis. Owasco Lake basin has been selected as the study area. Attempt to identify the major processes operating as natural or man-made variables in the watershed and to indicate what the effect of a change in any one of these will have on the others. At first this will be a directional change only, but will search for quantifiable data.

PROGRESS: Following completion of the sub-project on Owasco Lake Basin ecosystem planning, and the re-direction of that study under other funding, a new sub-project has been initiated. This concerns the apparent conflict between water development and wilderness values. This research is investigating as a case study a portion of the Upper Hudson River in New York State, in particular the Hudson River Gorge area. Water resource planning alternatives are being examined, with a focus on the "values" of preservation of this as a wild river. To date most research effort has been directed at obtaining information about current recreational use of the Gorge area. Four self administering trail registers were installed at strategic access points to the Gorge. Non-registrants were accounted for by a stratified random sample of users of the only public trail to the Gorge. A mail survey questionnaire has been developed (Wilderness Recreation in the Hudson

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SIE NO.
ZUA-3003

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NY 69-055

TITLE OF PROJECT:
HYDROLOGIC EFFECT OF RECHARGE BASINS ON LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GE SEABURN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

More than 2100 recharge basins on Long Island have markedly affected the natural hydrologic regimen of the island. Specifically, runoff to streams, ground-water recharge, and perhaps the chemical quality of the water have been affected. The proposed study is designed to evaluate the nature and magnitude of these changes in the natural hydrologic regimen.

(1) catalog basic physical data on all recharge basins in operation on Long Island. (2) Make quantitative and qualitative measurements of precipitation and inflow and measurements of infiltration rates at selected basins. (3) Evaluate the regional effects of recharge basins on the hydrologic regimen of Long Island.

(1) Collect, catalog, summarize, and publish basic physical and engineering data on all recharge basins on Long Island. (2) instrument three recharge basins to measure precipitation, inflow, and infiltration rates; chemical quality of precipitation and inflow. (3) evaluate islandwide recharge using data from (1) & (2).

Reports completed; and one approved for publication as U.S.G.S. water supply paper 200L-D, the second in review.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

ZUA-3000 (CONTINUED)

report outline is being prepared.

Complete the water-quality sampling program particularly in areas not presently covered. Revise outline of final report and prepare interim reports as needed. Complete computer analysis of water quality trends.

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AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

ZUA-2722 (CONTINUED)

acquisition of required equipment and instrumentation is planned for next year.

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ZUA-2722

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NY 65-021

TITLE OF PROJECT:
ARTIFICIAL RECHARGE OF TREATED SEWAGE WATER AT BAY PARK, N. Y.--PHASE 1

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $234,000

SUMMARY OF PROJECT:

Nassau County is an area of Long Island, N. Y., with a rapidly increasing population and a concurrent rapid increase in water-supply requirements. Engineering studies have recommended programs for optimizing this water supply. One recommended water-management approach is to inject tertiary-treated sewage into the deep aquifer to (a) halt and perhaps reverse landward movement of salty water into the aquifer and (b) replenish the ground-water supply. This project will develop some of the information needed to evaluate this water-management proposal.

Objectives are to experimentally evaluate the feasibility of injecting treated sewage through a specially designed recharge well into a deep aquifer. The study is intended to furnish the cooperator with information on the mechanics, difficulties and costs associated with artificial recharge of highly treated sewage wastes; and to assess, to whatever extent possible, the hydrologic and geochemical effects of such recharge.

An injection and several observation wells have been installed at the site. The cooperator has provided a plant for storage, treatment and pumping of the waste water, and a laboratory for on-site chemical work. The study will involve: an investigation of the pre-injection hydrology and chemistry at the injection site; a number of injection experiments utilizing municipal-supply water; and a series of injection experiments utilizing the sewage wastes. Extensive hydraulic and chemical monitoring will accompany each experiment.

Injection testing involving variations in organic content, chlorine resi

A quasi-continuous injection period of up to 6 months is planned. This test will aid in determining the long-term rate of well clogging and long-term geochemical stability of the injected water. Preparation of reports for the professional paper series and of papers for the new Geological Survey Journal and outside journals will be continued. Scope of the project is being expanded to include laboratory studies of the application of the treated sewage to soil columns. Design and

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ZPE-10092

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S)

CONTRACT
AT(30-1) 16

TITLE OF PROJECT:

COMMUNITY OXYGEN METABOLISM OF FLAX POND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
CA HALL

RECIPIENT INSTITUTION:

BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Existing techniques for the analysis of community oxygen metabolism are being modified for use in strongly tidal estuaries such as Flax Pond, Old Field, New York. Analysis is corrected both for changing morphology with tide and for influx of different water masses. The results will be useful as a basic model for analysis in other estuaries and for determining the primary production and respiration of Flax Pond. The analysis is computerized and gives results both as readout and as "CALCOMP" plots.

Results: Preliminary analysis of the first year's data (1971) indicates that the pond has a sharp peak of productivity from the end of May through the end of July, with gross oxygen productivity during this period about 10 g per day. During August, high benthic nighttime metabolism during low tide created conditions of very low oxygen that was eliminated during intlow of salt water from the Long Island Sound. During the next year's studies, the effect of this on the fishes will be investigated more thoroughly. Formulae for correcting productivity for stress are being devised.

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SIE NO.
ZPE-10087

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1) 16

TITLE OF PROJECT:
PRODUCTION AND ROLE OF AQUATIC BIO-DETRITUS IN A TIDAL SALT MARSH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
PH RICH

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Production of bio-detritus, both particulate and dissolved, is being measured in Flax Pond, a small tidal marsh on the north shore of Long Island. Production is measured by determining the concentrations of bio-detritus and the volumes of water entering and leaving the marsh during the twice-daily tidal cycle. Samples have been taken at the Flax Pond channel since June 1971, and have been proceeding on a weekly basis since October.

The role of bio-detritus in the marsh ecosystem (i.e. that not exported to Long Island Sound) is being investigated in terms of benthic metabolism.

Results: Data suggest that a major fraction of this material is oxidized in the benthos, and that the resulting metabolism has a profound effect upon both the biota and the physico-chemical environment. An incubation chamber for measuring low level benthic metabolic rates in situ has been constructed and successfully tested. A second in situ chamber of flow-through design for higher ranges of metabolism is presently being developed.

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SIE NO.
ZPE-10085

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1) 16

TITLE OF PROJECT:
QUALITATIVE VALUE OF DIFFERENT FORMS OF ENERGY IN MICROCOSMS AND A SALT POND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
CA HALL

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An automatically monitored series of aquatic microcosms have been designed and built. These receive similar levels of different forms of energy (light, heat, sugar, stirring) to determine the effects of each type of energy on the primary production and respiration of the aquatic communities.

Results: Preliminary results indicate that different forms of energy are used quite differently by ecosystems. Field data of metabolism for Flax Pond, a tide pond on the north shore of Long Island, will be analyzed for possible correlations of metabolic levels with monthly tidal variations, sunlight intensity changes, and changes in available dissolved and particulate carbon.

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SIE NO.
ZPE-10093

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1) 16

TITLE OF PROJECT:
THERMAL COMBUSTION FOR ANALYSIS OF DISSOLVED ORGANIC CARBON IN SEAWATER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GM WOODWELL BIOLOGY
ALSO WITH ASSOC. UNIVERSITIES INC.
P RICH

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Thermal combustion of seawater samples at 590 degrees C with subsequent analysis of CO2 by IR spectrophotometry is presently being used to measure dissolved organic carbon exchanges between a small salt marsh and Long Island Sound. Samples (100 ml of water previously acidified and stripped with N2 gas are injected into a quartz combustion tube containing O2 gas and cobaltocobaltic oxide catalyst. The products of combustion then enter a dry-ice trap for removal of water, a second combustion tube containing silver metal for removal of chlorides, and then an MSA IR analyzer. The analysis is standardized against injections of pure CO2 gas.

Results: Values between 6 and 12 mg C/l have been found in water entering the marsh from Long Island Sound, while water leaving the marsh has values consistently between 3 and 5 mg C/l.

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SIE NO.
GBP-1244

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
OUTER HUDSON CANYON STUDY USING DSV ALVIN AND R/V LULU

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WO FAINMIE
GH KELLER U.S. DEPT. OF COMMERCE

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
9/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The Hudson Canyon investigation is the first in a series of studies of bottom dynamics (sedimentary processes) in the submarine canyons of the Mid-Atlantic Bight. The prime purpose of this program is to study the dynamic processes presently active in these canyons. There is good reason to believe that some, if not all, of the canyons may serve as a "pipeline" for the movement of sediment and "sinkable" pollutants from the continental shelf to the abyssal depths.

This study in the Hudson Canyon is directly related to the New York Bight studies of sediment transport by Dr. Donald Swift of A.O.M.L., which deal with the area adjacent to the outer part of the canyon. The initial phases of the outer Hudson Canyon project will be to study the sedimentary processes taking place within the canyon by the measurement of bottom currents and sediments transport. This will be accomplished by photographically recording the dimensions and lineation of bottom features such as ripples and scour pockets, in situ surface sediment density measurements, laboratory analysis of sediment cores for their mass physical properties, placement of stakes in the bottom and adjacent canyon walls, as well as recording bottom currents and suspended sediment concentrations.

Another aspect of this project will be the study of benthic biota and their influence on sediment stability.

The third portion of this project will be the stratigraphic sampling of the canyon walls in order to develop the geological history of the canyon.

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SIE NO.
ZPE-8697-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
AT(30-2)-16

TITLE OF PROJECT:
THE CARBON CYCLE OF AN ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL	BIOLOGY
ALSO WITH	ASSOC. UNIVERSITIES INC.
CA HALL	
P RICH	

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The objective is to measure net ecosystem production of a small Long Island estuary, using carbon as the criterion of production. The work is important because, although the broad functions of estuaries are commonly known, details of their functions are frequently poorly known, especially with respect to net fluxes of organic matter and nutrients. The carbon cycle is fundamental to all other cycles in estuaries and is being used here as the basis of appraising the total function of a single, comparatively simple, intensively studied estuary on the north shore of Long Island, Flax Pond.

Results: Work has included development of an infra-red absorption technique for measurement of dissolved organic matter and small particulate carbon. Other techniques include methods of measurement of gaseous exchanges between the atmosphere and the waters of the estuary. Results show that the estuary is a net user (or storer) of carbon: water leaving the estuary contains less dissolved carbon than that entering from Long Island Sound. ISG

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SIE NO.
GBP-1091

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-18-72

TITLE OF PROJECT:
DEVELOPMENT OF METHODOLOGIES FOR PLANNING FOR THE OPTIMUM USE OF THE MARINE RESOURCES OF THE COASTAL ZONE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR C WILLIAMS
D DAVIES

RECIPIENT INSTITUTION:
NASSAU SUFFOLK REG. PLANN. BD.
SMITHTOWN, NEW YORK 11787

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are: 1. to adopt a Marine Resources Council (MRC) Research Program; 2. to adopt MRC guidelines for marine resources planning and decision-making; 3. to utilize 1 and 2 above to provide priority-oriented guidance to the research community; 4. to monitor research and data collection efforts, and suggest possible revisions consistent with MRC objectives; and 5. to transfer important research findings to the planning, policy and action programs of the MRC and to incorporate such findings into the Management Information System.

How information will be applied: 1. Information will improve relevance of research projects to policy and planning decisions on Long Island's marine environment. 2. Planning guidelines will be the first step in the development of an action program for marine resources utilization and conservation.

Accomplishments during the past twelve months: 1. Completed final report on water supply and waste water disposal on Long Island. 2. Completed final report on dredging on Long Island. 3. Completed final report on beach protection and stabilization on Long Island. 4. Completed final report on wetlands on Long Island. 5. Completed final report on the design of a Management Information System for coastal resources planning. 6. Completed final report on the state-of-the-art for selected marine resources problems on Long Island. 7. Completed final report on a proposed problem-oriented research program. 8. Completed final report on a proposed set of guidelines for marine resources planning.

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SIE NO.
AM-99

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
QUIRK LAWLER & MATUSKY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SALINITY INTRUSION IN THE HUDSON RIVER ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DR HARLEMAN CIVIL ENGINEERING

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Application of the unsteady salinity intrusion model developed under the Sea Grant Program to the Hudson River Estuary.

Transient salinity distributions have been computed for two different periods in the Hudson. Input data includes daily variations in tidal range and salinity at the Battery and the fresh water inflow hydrograph at the head of tide at Troy. Good agreement with field measurements was obtained.

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SIE NO.
ZUI-72-8

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
433.9A

TITLE OF PROJECT:
NATURAL HISTORY OF PREDATORS AND COMPETITORS (PREDATOR CONTROL PROGRAM)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CL MACKENZIE BIOLOGICAL LABORATORY
JJ MANZI

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Because of a scarcity of seed oysters in Long Island Sound, more efficient control of predators and competitors becomes imperative.

Control of oyster drills and starfish has been achieved, To make control methods more efficient, however, we are presently studying various aspects of the biology of both predators. Particular emphasis has been placed on studying feeding rates of each at various salinities and temperatures, and also on the behavior of these and other enemies on oyster beds as observed by SCUBA divers.

Divers have observed that young starfish hid underneath shells during the day. We are presently attempting to determine the reason they do this.

To better equip the shellfish producer to apply more efficient control methods for Stylochus, Crepidula and barnacles, the principal competitors of oysters, we plan to study various stages of their life cycles. ISG

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SIE NO.
ZBP-467

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS - BIOLOGICAL OCEANOGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR J THOMAS
R REID

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: A) To establish baselines in regard to the areal and temporal distribution of benthic, natatory and planktonic invertebrates. We are particularly interested in correlating areal and temporal (either seasonal or long-term fluctuations) distributions with observed physical conditions and man-induced changes. We are also interested in establishing these baselines within the Hudson Shelf Valley and Hudson Canyon and at stations on the continental shelf, especially in areas designated or proposed for alternative dumping sites. In addition, we wish to assess the benthic invertebrate stocks present in embayments and estuaries such as Raritan Bay, Jamaica Bay, Great South Bay and the East River and western Long Island Sound, and waters directly connected to and affected by conditions in the New York Bight. B) To determine the life histories and ecology of invertebrate species found to be of unusual importance in particular marine and estuarine food chains. Studies of most individual species or ecological groups; i.e., the meiofauna, would be done through contract or cooperative studies with academic organizations. C) To establish the relationship between invertebrate species found in gut contents of finfish and invertebrate species diversity and standing crops in areas habituated by the finfish from which the gut contents were removed. This information will enable us to determine those species used as forage by finfishes and the action-reaction phenomena within particular marine exosystems. D) To obtain sufficient samples of tissue and living animals for analyses for heavy metal and microbial contamination as well as experimental manipulation to determine the effects of lethal and sublethal doses of toxins and pathogens.

Approach: We have developed a grid of sampling stations which will encompass the New York Bight and western Long Island Sound, including adjunct embayments and estuaries. Initially, grab, dredge and epibenthic samples were taken at 2.5 mile intervals over the shelf, except within the Hudson Shelf Valley, alternative dumping sites and embayments. At these sites samples are taken at intervals necessary to obtain samples which will provide statistically or descriptively valid data. Subsequently, depending on continuity of sediment types and physical environment, samples will be taken at closer intervals

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SIE NO.
GBP-1287

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SEDIMENTS AND TOPOGRAPHY OF THE BRIGANTINE SECTOR OF THE INNER NEW JERSEY SHELF

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
ML DICKEN
DJ SWIFT
NK COCH

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
65-30 KISSENA BLVD.
FLUSHING, NEW YORK 11367

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this project is to test the hypothesis that the morphology and sediment distribution in the Brigantine sector of the inner New Jersey shelf is in response to the hydraulic regime. This project is part of the National Oceanic and Atmospheric Administration's Marine Ecosystems Analysis Project (MESA). The study area is approximately bounded by the New Jersey coast to the west, longitude 74 degrees 10'W to the east, latitude 39 degrees 30'N to the north, and latitude 39 degrees 18'N to the south.

The field work took place aboard the research vessel VENTURE during early July 1972. The data consists of 169 grab samples, 3 vibracores (approx. 2 meters in length each), side scan sonar, and sonic subsurface depth profiling.

New Jersey

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SIE NO
ZTK-17

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MODEL STUDY OF BARNEGAT INLET, NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RA SAGER ESTUARIES BRANCH

RECIPIENT INSTITUTION:
U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To evaluate the effectiveness of a proposed multiphase plan of improvement for Barnegat Inlet and feasible modifications to the plan for establishing a stable navigation channel through the inlet.

Approach or Plan: Fixed- and movable-bed model tests were conducted to define the effects of the proposed plans of improvement on the hydraulic conditions and shoaling and scouring trends of the inlet, respectively.

Progress to Date: Tests in both the fixed- and movable-bed models were conducted of a basic seven-stage plan of improvement. The results of these tests indicated the dominant feature of the plan was a new south jetty located approximately parallel to the existing north jetty. Several tests with varying lengths and low and high north and south jetties were conducted. Preliminary results of the tests indicate that interior portions of the seven-stage plan of improvement can be eliminated and that proper modifications to the existing jetties will materially reduce instability and shoaling of the navigation channel. Testing has been completed and preparation of the final report is under way.

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SIE NO.
GQA-48925

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):
DAOD8925
DA-ARO(D)-31-124-72-G-93

TITLE OF PROJECT:
INVESTIGATION OF THE PLANT COMMUNITY-SOIL-SOIL STRENGTH-MICROMORPHOLOGY RELATIONSHIPS IN COASTAL MARSHES 10481-EN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
EE MACNAMARA GEOLOGICAL SCIENCES

RECIPIENT INSTITUTION:
LEHIGH UNIVERSITY
SCHOOL OF ARTS
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $22,219

SUMMARY OF PROJECT:

TO STUDY THE GEOTECHNICAL, CHEMICAL, AND MORPHOLOGICAL PROPERTIES OF SALT MARSH SOILS, RELEVANCE. THE RESULTS OF THIS STUDY ARE OBVIOUSLY APPLICABLE TO PROBLEMS IN TRAFFICABILITY AND MOBILITY. ALTHOUGH PREVIOUS INVESTIGATIONS HAVE CONCERNED THEMSELVES WITH TRAFFICABILITY OF THE MARSHES, THEY WERE NOT SPECIFICALLY CONCERNED WITH PLANT COMMUNITIES, THE EFFECT OF ROOT STRUCTURES, DECAY PATTERNS, ETC. ON THE STRENGTH OF THE SURFICIAL SOILS. THE APPLICATION OF THIS STUDY TO ECOLOGICAL PROBLEMS IN THE TENUOUS ENVIRONMENT OF THE MARSH MAY BE EQUALLY RELEVANT.

TYPICAL SALT MARSHES ON THE NEW JERSEY COAST WILL BE INVESTIGATED. DATA WILL BE OBTAINED ON THE DYNAMICS OF TIDAL SALT MARSH SOILS SYSTEMS AS THEY AFFECT SOIL STRENGTH THROUGHOUT THE TIDAL CYCLE AND ON THE RELATIONSHIP OF THE PLANT COMMUNITY TO SOIL STRENGTH. A STUDY OF PARTICLE REARRANGEMENT OF THESE SOILS DURING THE REMOLDING AND SHEAR PROCESSES WILL BE MADE.

SUPPORTING AGENCY ADDRESS INFORMATION: OCRD RESEARCH OFFICE DURHAM DURHAM NC 27706

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SIE NO
ZUH-3269-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR 2518-1

TITLE OF PROJECT:
EFFECTS OF SEWAGE SLUDGE ON FINFISH AND BENTHIC AND PLANKTONIC COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JB PEARCE SANDY HOOK MARINE LAB
CI GIBSON

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Currently 5 million cubic yards of sewage sludge per annum are dumped at a site 4.5 nautical miles SE of Ambrose light. This practice has been continuous for the past 4 decades. Effects of sewage sludge on benthic and planktonic organisms important to the economy of sport and commercial finfishes is not known. From a grid of collecting stations bounded by longitudes 73 degrees 15' W and 74 degrees 0' W and latitudes 40 degrees 10' N and 40 degrees 32' N, we are: 1) using species diversity and community stability as indices for environmental well being, 2) studying movements of the sludge to determine increase in area effected, and 3) measuring viral, bacterial, and heavy metal contamination of shellfish and sediments near the center of the sewage sludge dump area.

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SIE NO.
ZUH-1966-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR 2543-05

TITLE OF PROJECT:
DESIGN, CONSTRUCTION AND LONGEVITY OF ARTIFICIAL FISHING REEFS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RB STONE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Design and install artificial fishing reefs of junk cars, concrete materials and scrap tires on approved reef sites off Monmouth Beach, N. J., Atlantic Beach, N.Y., Charleston, S.C., Jacksonville, Fla., Palm Beach, Fla. and in Biscayne Bay, Miami, Fla. Arrange these to provide comparative data on the design and type of materials used in relation to the effectiveness and longevity of fishing reefs. Make periodic underwater observations on condition of materials, encrusting organisms and population of fish attracted to reefs. Conduct laboratory tests on reef models of the action of currents, tides and other environmental factors.

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Miscellaneous

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SIE NO.
ZUH-3270-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR 2518-02

TITLE OF PROJECT:
BIOLOGICAL EFFECTS OF DREDGE SPOIL AND WASTE ACID DISPOSAL PRACTICES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JB PEARCE SANDY HOOK MARINE LAB
CI GIBSON

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Since 1948, 2.5 million cubic yards/year of dilute acid and iron industrial wastes have been disposed of approximately 10 nautical miles SE of Ambrose Light. The peculiar yellow stain from these wastes can extend for over 20 miles in a north-south direction and up to 5 miles in width. The area provides excellent catches of pelagic sport fishes. We are studying planktonic communities to determine effects of these wastes on components of the food chain.

Collections obtained at various depths are to be compared with organisms from surrounding natural waters. Preliminary findings indicate smaller zooplankton populations exist inside the polluted water masses. We will determine experimentally lethal and sublethal effects of acid wastes. We will study a dredge spoil dump site 4.5 miles south of Ambrose Light employing techniques similar to the Sewer Sludge Study.
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SIE NO.
GBP-1297

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

A PRELIMINARY ECOLOGICAL SURVEY OF SPECIES OF MARINE AMOEBAE IN THE ATLANTIC COASTAL WATERS FROM MARYLAND TO MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR EC BOVEE PHYSIOLOGY & CELL BIOLOGY

RECIPIENT INSTITUTION:

UNIV. OF KANSAS
SCHOOL OF LIBERAL ARTS
249 SNOW HALL
LAWRENCE, KANSAS 66044

PERIOD FOR THIS NRP:

5/73 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this investigation is to make a preliminary survey of the diversity of and distribution of marine protozoa, especially amoebae, along the Atlantic Coast of the United States from Maryland to Massachusetts, working through facilities of the National Marine Fisheries Services at Oxford, Md.; Sandy Hook, N.J. and Wood's Hole, Mass., spending 4 to 5 working days at each locale in collecting, observing, sketching and recording frequencies of incidence and locales for already known and any newly observed species.

It is thus expected to provide for the National Marine Fisheries Service and other interested parties and agencies some information applicable to the position(s) and role(s) of marine amoebae in the ecosystem of the marine coastal environment. It may also provide information applicable to lists of coastal marine fauna and flora (since some protozoa can also be considered algae).

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SIE NO.
ZBP-450

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):
23720133

TITLE OF PROJECT:
OCEAN BASINS - ALTANTIC

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GH KELLER

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $529,000

SUMMARY OF PROJECT:

Technical Objective: The basic objective of this program is to define and interpret the tectonic framework, nature and evolution, and global relationship of major crustal features comprising the ocean basin and its margins by means of marine geophysical-geological investigations. Secondarily, to develop a clearer understanding of the environmental factors, particularly sediment fluxes and depositional processes, associated with continental margins by examining submarine sediment character, monitoring the hydraulic regime, and analyzing the mass physical and chemical properties of sea floor samples. The overall objective of this project is to provide environmental data, be it on a global or local scale, needed by users to effectively evaluate and utilize the potential of the sea floor and its resources.

Approach: As a basis for studies of plate tectonics and continental margin sedimentation, the following investigations will be conducted: (1) complete two geophysical sections of the Trans-Atlantic Geotraverse and two series of seismic refraction stations along the SW African continental margin; (2) detailed survey of Mid-Atlantic ridge in TAG corridor; (3) geophysical survey and heat flow measurements between the Lesser Antilles and the Mid-Atlantic Ridge (EQUAP): (4) analysis and synthesis of tectonic plate motions in the world oceans; (5) geophysical survey, bottom sediment sampling; current meter measurements, and bottom photography in the New York bight area, (COMSED): (6) analysis of physical and chemical properties of sediments.

Progress: Geophysical data and sea floor samples from the North Atlantic indicate that abyssal hill structure is related to stresses imposed on new crust formed at the Mid-Atlantic Ridge and that major fracture zones may be sites of high concentrations of manganese minerals. Sedimentation studies along the U.S. east coast continental margin suggest a multiple-imprint of sedimentary forms developed during the Holocene. Analysis of mass physical properties of selected deep drilling samples from Pacific Ocean JOIDES Program has been completed. Structural lineations between the Lesser Antilles and Mid-Atlantic Ridge are emerging from analysis of initial data from the EQUAP project.

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SIE NO.
GSS-5178

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF SOCIAL SCIENCES

AGENCY'S NUMBER(S):
GS-41241

TITLE OF PROJECT:
TECHNICAL ASSISTANCE IN OCEANOGRAPHIC SCIENCES TO THE COMMONWEALTH CARIBBEAN - DOCTORAL DISSERTATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RE MEUNIER
JF MCCAMANT

RECIPIENT INSTITUTION:
UNIV. OF DENVER
GRADUATE SCHOOL
2115 S. UNIVERSITY BLVD.
DENVER, COLORADO 80210

PERIOD FOR THIS NRP:
12/73 TO 2/74
FY74 FUNDS $4,500

SUMMARY OF PROJECT:

This is a study of the relationship between technical aid as an instrument for economic development and the surrounding political, economic, and organizational environments which shape the scope and impact of such programs. Specifically, the islands of the Commonwealth Caribbean will comprise a comparative arena for analyzing programs undertaken by all donors in fields related to Marine Sciences or resource management during the decade of 1962-1972. This grant will assist research in Washington, New York, London and the Caribbean Islands.

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SIE NO.
GY-56969-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
MARYLAND

AGENCY'S NUMBER(S):
0056969
MD-A-026-CF

TITLE OF PROJECT:
IMPACT OF PRODUCTION, HARVESTING AND PROCUREMENT ON MARKET STRUCTURE OF THE N.E. FISHING INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RJ MARASCO AGRICULTURAL ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF MARYLAND
AGRICULTURAL EXPERIMENT STA.
COLLEGE PARK, MARYLAND 20740

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: Evaluate pricing practices and arrangements that characterize the fishing industry.

Approach: Interviewing schedules will be developed to assess the role of : Auctions and other exchanges, Broker and other merchant middlemen, Contractual arrangements, Basing points in the price system, and private sales.

Progress: During 1972, 24 of the 105 firms that shucked oysters in Virginia were interviewed to isolate the out-of-state flow of oyster products. Collectively, the firms contacted processed over 750,000 of the 2 million gallons of oysters shucked in Virginia during the 1971-72 season. Over 60 percent of Virginia's 1971-72 production of shucked oysters was shipped within the South-Atlantic States region. Roughly 80 percent of the 60 percent stayed in the Maryland-Virginia area. The second highest receiving region was the Mid-West with 20 percent, followed by the Mid-Atlantic States which accounted for approximately 10 percent. The West-Coast, Canada, and the New England region accounted for 4, 2, and 2 percent, respectively. 133 interviews were conducted to obtain socio-economic data on oystermen located in four Maryland communities. The information collected and employment opportunity data were used to assess the economic impact limiting the entry of watermen into the oyster fishery would have on the four communities. Work was also completed on an economic profile of the fisheries of the Chesapeake Bay.

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SIE NO
ZBP-450-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):
23330334

TITLE OF PROJECT:
OCEAN BASINS - ATLANTIC

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GH KELLER

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $535,000

SUMMARY OF PROJECT:

Research/service objective: The basic objective of this program is to develop a clearer understanding of the environmental factors, particularly sediment fluxes and depositional processes, associated with continental margins by examining submarine sediment characteristics, monitoring the hydraulic regime, and analyzing the mass physical and chemical properties of the sea floor. On a broader scale, this program is designed to define and interpret the tectonic framework, nature and evolution, and global relationship of major crustal features comprising the ocean basin and its margins by means of marine geological-geophysical investigations.

The overall objective of this program is to provide environmental data, be it on a global or local scale, needed by users to effectively evaluate and utilize the sea floor and its resources.

Research/service plan: As a basis for studies of continental margin sedimentation and plate tectonics, the following investigations will be conducted: (1) A complete geophysical section along the Transatlantic Geotraverse (TAG) and a series of bathymetric and seismic reflection profiles along the Cape Hatteras continental margin; (2) A detailed sampling and survey program of potential mineral resources at the Mid-Atlantic Ridge in the TAG corridor; (3) Geophysical survey, bottom sediment sampling, current meter measurements, and bottom photography in submarine canyons along the eastern continental margin of the U.S.; (4) Comprehensive analysis of the mass physical and chemical properties of sea floor sediment.

Progress report: Initial bottom current measurements were made in the Hudson submarine canyon; bathymetry and substrata mapping of the Great Abaco canyon were completed. Evidence for rapid deposition of hydrothermal manganese was discovered during the TAG expedition to the Mid-Atlantic Ridge rift valley. Initial development of a 1000 Hz seismic profiling system was completed under contract. FY'74 will see bottom current measurements made in Hudson, Hatteras, Oceanographer and Gilbert submarine canyons. Detailed geological and geophysical observations will be made in and around Hudson, Hatteras, and Pamlico submarine canyons and in the rift valley of the Mid-Atlantic Ridge.

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SIE NO.
GSV-3985-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-35819

TITLE OF PROJECT:
BIOLOGICAL CHARACTERISTICS OF THE MARINE SEDIMENT-WATER INTERFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RG JOHNSON GEOPHYSICAL SCIENCES

RECIPIENT INSTITUTION:
UNIV. OF CHICAGO
SCHOOL OF PHYSICAL SCIENCES
5801 S. ELLIS AVE.
CHICAGO, ILLINOIS 60637

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $29,100

SUMMARY OF PROJECT:

Part of the spatial and temporal variations in the diversity of benthic marine communities can be explained as the consequence of local disturbances of the sediment-water interface. The immediate objective of the proposed study is to determine the biological characteristics of the sediment water interface. Special emphasis will be given to determine the amount and distribution of organic matter which is potentially available to the benthos. The ultimate objective is to attempt to relate variations in the character of the sediment-water interface to variations in the diversity of benthic communities.

Destructive analyses of total carbon, nitrogen or of particular compounds do not measure the amount of organic matter that is biologically utilizable as food for the benthos. It is proposed that a mixture of several enzymes be used as the basis of evaluating potential food resources and their variation in natural sediments. Synoptic studies will be made in shallow and deep water environments in the region of Woods Hole, Massachusetts and Pigeon Key, Florida. In addition, an attempt will be made to correlate the variation in food resources with variation in species composition and diversity within a community in the environs of Woods Hole. The results of this study could have broad ecological implications and be of use in understanding the effects of pollution in the sea. ISG

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SIE NO.
ZQF-255730

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
AIR FORCE

AGENCY'S NUMBER(S):
DF255730

TITLE OF PROJECT:
GEOMORPHOLOGY AND GEOTECTONICS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RS WILLIAMS

RECIPIENT INSTITUTION:
U.S. AIR FORCE
CAMBRIDGE RESEARCH LABS,
HANSCOM FIELD
BEDFORD, MASSACHUSETTS

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

AF FUNCTION - WEAPONS AND AIRFIELD SITING, MAPPING, AND RECONNAISSANCE. DEFICIENCY - PROBLEMS IN SITING AIRFIELDS AND MISSILE SILOS, POOR DATA INTERPRETATION FROM AIRBORNE REMOTE SENSORS, RESEARCH - AIRBORNE, FIELD, AND LABORATORY STUDIES OF TERRESTRIAL FEATURES, HOW RESEARCH CONTRIBUTES - INCREASED INFORMATION FROM AIRBORNE REMOTE SENSORS. OPTIMUM LOCATION OF HARD-ROCK MISSILE SILOS, THIS EFFORT IS CONCERNED WITH GEOMORPHOLOGY AND GEOTECTONICS OF SELECTED GEOLOGIC TEST SITES IN ARID, TROPICAL, AND TEMPERATE AREAS, SPECIFIC AREAS ARE COASTAL AND KARST AREAS OF PUERTO RICO, COASTAL AREAS IN NORTHEASTERN U.S., AND THE ADIRONDACK MOUNTAINS, EMPHASIS IS GIVEN TO LOW-RELIEF LANDFORMS AS POTENTIAL AIRCRAFT LANDING SITES AND TO HARD ROCK AREAS FOR MISSILE SITES, THE GEOMORPHOLOGY RESEARCH INCLUDES ANALYSIS OF AERIAL REMOTE SENSOR DATA AND FIELD WORK. THE GEOTECTONIC RESEARCH INCLUDES GEOLOGIC FIELD MAPPING AND LABORATORY ANALYSES OF ROCK SPECIMENS,

SUPPORTING AGENCY ADDRESS INFORMATION: AF CAMBRIDGE RESEARCH LABORATORIES LW L G HANSCOM FIELD, BEDFORD, MASS 01730

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SIE NO.
NPS-111

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
PENNSYLVANIA STATE UNIVERSITY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
OPTIMIZING WATER RESOURCES SYSTEMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR TM RACHFORD

RECIPIENT INSTITUTION:
PENN. STATE UNIVERSITY
INST. RES. LAND & WTR. RESOUR.
LAND & WATER RES. BLDG.
UNIVERSITY PARK, PENNSYLVANIA 16802

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The objective of this project is to develop and test procedures for optimizing water management systems, particularly within Pennsylvania. The principal focus of these studies is toward models and techniques dealing with water quantity as opposed to water quality. Deterministic models, including the Stanford Watershed Model, and stochastic models, including the Fiering Model are being utilized. These, and other models, are being acquired from various sources, modified or augmented for use with the Penn State IBM 370, tested and calibrated with Pennsylvania data, and will be applied to problem areas within Pennsylvania and the Northeast.

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SIE NO.
ZUA-1721-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
959000883-B

TITLE OF PROJECT:
HOLOCENE OSTRACODA ATLANTIC CONTINENTAL MARGIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JE HAZEL

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS, N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachucetts, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida.

This project entails the study of the ostracodes from several hundred Holocene bottom grab samples taken from the continental shelf and slope. In addition, memberous pre-Holocene rock samples have been dredged from the shelf and submarine canyons and have been analyzed paleontologically.

The distribution of sublittoral Holocene ostracodes along the Atlantic Coast are poorly known. The Holocene samples are being used to document the limits of the species and biofacies and determine the environmental factors controlling their distributions. Patterns of diversity and their controlling factors are also being studied. This will establish a Holocene grid to which fossil assemblages along the Atlantic Coast can be compared. Paleobiogeography and, from that, paleoenvironment are the ultimate goals. Multivariate analytical techniques are being emphasized.

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SIE NO.
ZBP-454

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):
123830200

TITLE OF PROJECT:
NEW ENGLAND OFFSHORE MINING ENVIRONMENTAL STUDY (NOMES)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WN HESS

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $476,000

SUMMARY OF PROJECT:

Technical Objective: Developing the capability to predict the ecological effects of marine sand and gravel mining is the central objective of NOMES. In determining the probable environmental impact of mining at a study site off the coast of Massachusetts, techniques and data requirements will be developed to permit valid determinations in varied physical and biological settings.

Approach: The approach used in Project NOMES will involve a synthesis of theoretical, observational and experimental tasks. Initially the proposed experimental dredge site and projected impact area will be described in terms of geologic, oceanographic and biologic characteristics. These preliminary observations will influence the detailed design of subsequent laboratory and field experiments. Theoretical determinations of the dispersion of suspended sediments discharged from the dredge will, in conjunction with experimental testing of organisms, provide the basis for modeling the degree of stress associated with high sediment levels. If preliminary predictions based on fundamental biological, physical and chemical research indicate that the proposed dredging operation is unlikely to cause extensive environmental damage, models describing the projected ecological impact will be verified in an experimental dredging operation. Following the dredging period, the reestablishment of affected biologic communities and general stability of the redeposited fines will be monitored.

Progress: Project NOMES is scheduled to officially start in the spring of 1973 with dredging operations commencing in May the following year. Project planning and start up activities were the major tasks accomplished in FY 1973.

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SIE NO.
ZTK-46

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
COASTAL ECOLOGY STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
U.S. ARMY
COASTAL ENGIN. RES. CENTER
5201 LITTLE FALLS RD. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20016

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose Of Study/Investigation: To determine ways in which engineering activities can be modified to result in preservation or creation of certain ecological conditions deemed by the Corps of Engineers to have value.

Approach Or Plan: The expected ecological consequence of several types of engineering activities are being considered and listed. When this is finished, research studies will be developed to investigate certain selected effects considered to be of importance to the Corps.

Progress To Date: The presently recognized elements (projects) under the CERC coastal ecology program are: ecology research program development, ecological effects of offshore dredging, vegetation studies, ecological effects of offshore construction, and ecological effects of dredge spoil disposition. Final report is in preparation on one of three field studies monitoring the ecological effects of beach nourishment utilizing offshore dredging. One contract is under negotiation for studies on ecology of live species of clams (one Atlantic, one Pacific) likely to be affected by dredging. Literature surveys and preparation of planning documents for the elements dealing with offshore dredging and construction were completed. The first two years of study on the stabilization and productive use of dredge spoil (establishment of salt marsh using marsh grass) were completed and indicated the feasibility of this type of activity, developed techniques, demonstrated that marsh grass has a long transplanting season, can be transported and successfully transplanted, and can be established by direct machine planting of seed. Study is to be continued and expanded to investigate the large-scale operational feasibility of the techniques. The Texas and Massachusetts dune studies were continued, as was monitoring of the North Carolina dunes. A report on Texas dune study is being reviewed, and a contract was negotiated for another year's work. A low level of coordination was maintained on studies by others on the ecological effects of dredge soil deposition but work on this element was suspended pending completion of WES efforts to develop a comprehensive program on dredge spoil deposition and subsequent assignment of specific items of research from the CERC program.

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SIE NO.
ZTR-94-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DEVELOPMENT OF OFFSHORE SOURCES OF SAND SUITABLE FOR BEACH RESTORATION AND NOURISHMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WATTS	ENGINEERING DEV DIVISION
DB DUANE	GEOLOGY

RECIPIENT INSTITUTION:
U.S. ARMY
COASTAL ENGIN. RES. CENTER
5201 LITTLE FALLS RD. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20016

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This study is to locate and quantitatively assess those offshore deposits which contain sediments suitable for beach restoration and/or nourishment. The present geographical limits of the study are from New Hampshire to the Florida Keys along the Atlantic Coast in water depths of 15 to 100 feet below low water datum. The method of exploration is twofold: (1) Geophysical (acoustic) surveys of the bottom and shallow subsurface strata in selected areas; and (2) The extraction of short (10-15 feet) cores of the unconsolidated sediments. These data are analyzed to develop two and three dimensional maps delineating areas of usable sediments which may be exploited economically. Concurrent studies are in progress to develop and refine methods of offshore dredging and delivery of the material from the dredge to the shore. ISG

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SIE NO.
GBP-1230

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS - SEDIMENT ANALYSES OF BOTTOM GRAB SAMPLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JM PARKS GEOLOGICAL SCIENCES

RECIPIENT INSTITUTION:
LEHIGH UNIVERSITY
SCHOOL OF ARTS
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $19,800

SUMMARY OF PROJECT:

Technical Objective: Provide computer-drawn charts of Long Island Sound bottom sediments (grain size, silts, clays, organic carbon, etc,)! Frequency versus size. Determine temporal and spatial differentiations.

Approach: Coordinate work with macrobenthic studies (LISS) underway at Sandy Hook Laboratory MACFC and NOAA-MESA. Samples to be obtained by grab or gravity corer by Sandy Hook Laboratory and supplied to contractor.

Progress: Detailed planning developed as a TDP.

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SIE NO.
ZBP-445

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY: AGENCY'S NUMBER(S):

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

TITLE OF PROJECT:

SEA STATE AND OCEAN COLOR STUDIES FROM SATELLITES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR AE STRONG ENVIRONMENTAL SCIENCES GROUP

RECIPIENT INSTITUTION: PERIOD FOR THIS NRP:

U.S. DEPT. OF COMMERCE
NATL. ENVIRON. SATELLITE SERV.
WASHINGTON, DISTRICT OF COLUMBIA 20230

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: This task has three primary objectives: (1) to obtain ocean roughness and wind information from sun glitter patterns detected from space; (2) to obtain ocean roughness and wind information from space-derived microwave observations; and (3) to relate ocean color patterns detected from satellites to circulation features.

Approach: The approaches being followed to exploit these objectives are: (1) the utilization of time-lapse photography from geosynchronous satellites to detect reflectance variations in sunglint patterns, and the utilization of north-south strips of visible SR data; (2) modelling the emission from the ocean's surface to procure wind stress information and also accounting for emissions other than from roughness alone; (3) mapping VHRR visible and ERTS imagery. Considerable information exists at low levels of reflectance that provide nearshore current information. These colors are generally related to suspended sediment load and algae and act as current tracers.

Progress: Due to lack of computer resources little progress has been made in area #1 over the previous year. Progress in area #2 has been mainly confined to contract work by Radiometric Technology, Inc. Roughness effects are now being modelled within the accuracy of the field measurements, where foam and white caps are not a severe problem. Using ERTS-1 imagery (area #3) a considerable amount of water color is available to satellite sensors especially when the data is enhanced digitally. Several coastal areas have been under study including: the Great Lakes, Rhode Island Sound, Cape Hatteras, the Mississippi Delta and Monterey Bay on the West Coast.

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SIE NO.
ZUA-2576

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9810-00512

TITLE OF PROJECT:
ATLANTIC OUTER CONTINENTAL SHELF RESOURCES PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RQ FOOTE GEOLOGIC DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, New Hampshire and Maine.

Coordinated geological and geophysical studies are being conducted on the area from Cape Hatteras to the northeastern edge of Georges Bank, in order to assess the petroleum potential of the northeastern Atlantic Outer Continental Shelf (OCS). The geology of the sedimetary wedge is being determined using outcrop and well data from the emerged coastal plain and offshore seafloor outcrops. Geophysical interpretations of the offshore sedimentary section and basement complex depend on (a) purchased proprietary reflection seismic gravity and magnetics data and (b) U.S. Naval Oceanographic office gravity and magnetic data. Preliminary interpretations suggest that the sediment wedge is (1) thick (e.g. more than 10 km in the Baltimore Canyon area and 8 km on Georges Bank), (2) complicated by angular unconformities, and (3) lateral changes in thickness and lithology (i.e. marine sands associated with deltaic sequences and clastics interfingering with carbonates). A linear ridge, large folds and faults are present. The hydrocarbon potential may be significant. A preliminary report, to be completed by June 30, 1973, will describe the results of the study and recommend additional project objectives. Since most of the geophysical data and some of the geological information are proprietary, this report will be classified as Official Use Only.

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SIE NO.
ZUA-2686

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NR 70-048

TITLE OF PROJECT:
TEMPERATURE PATTERNS OF SELECTED EAST COAST STREAMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $11,000

SUMMARY OF PROJECT:

Such factors as increased street runoff, pondage, clearcutting of vegetation, and changes in ground-water levels can have a profound effect on temperatures at any particular point in a stream. Man-induced alterations of temperature patterns usually have a detrimental effect on stream ecology. Little has been done to identify the subtle changes on the heat budget of a stream stemming from man's activities.

To isolate and evaluate the effect of man-imposed environmental changes on the temperature patterns of streams. This project attempts to identify the principal energy fluxes affected by man. Alteration of these energy sources is the major factor in creating stream-temperature anomalies. Another objective is to identify temperature patterns under a wide variety of climate regimens.

Pairs of streams consisting of a "control" stream (one under natural conditions) and another that has been altered by man's activities will be instrumented bimonthly over 7- to 10-day periods. The time sample will, as a minimum, encompass a single year to provide information on seasonal temperature fluctuations. The paired streams will include a variety of geologic, topographic, and climatic regimes along the east coast. Comparisons between an "altered" stream and its control should reveal the effect of environmental changes on temperature patterns.

For comparative site analyses, least-square curves were fitted to all stream-temperature data obtained to date. These curves yield estimated normal temperatures based on sampled temperature runs over a period of one year. Thus, with the aid of a computer, unbiased site comparisons are feasible.

Temperature patterns obtained from computerized curve-fitting techniques will be analyzed to help detect differences stemming from man's activities. Reports covering Vermont and Long Island will be inaugurated.

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SIE NO.
ZUA-1863-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
96140,7

TITLE OF PROJECT:
STRATIGRAPHIC STUDIES OF THE MIOCENE, ATLANTIC COASTAL PLAIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
TG GIBSON

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: New Jersey, Maryland, Virginia, North Carolina.

Distribution, paleoenvironmental relationships, stratigraphic significance, and taxonomy of the Foraminifera and several groups of Mollusca are being studies in the Miocene of the Atlantic Coastal Plain. From the combination of stratigraphic intervals and environmental interpretations, the paleogeography is being reconstructed. Using the paleoenvironments and paleogeography from a succession of time intervals allows the determination of the tectonic history.

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SIE NO
ZTA-343-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SMITHSONIAN INSTITUTION
MUSEUM OF NATURAL HISTORY

AGENCY'S NUMBER(S):
6800-069

TITLE OF PROJECT:
MARINE POLYCHAETE WORMS OF THE NEW ENGLAND REGION (GULF OF ST, LAWRENCE TO CHESAPEAKE BAY)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MH PETTIBONE DIV OF WORMS

RECIPIENT INSTITUTION:
SMITHSONIAN INSTITUTION
WASHINGTON, DISTRICT OF COLUMBIA 20560

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The polychaete worms of the New England region (or Gulf of St, Lawrence to Chesapeake Bay) are being worked up by families, including synopses of the families, keys to the families, genera and species. Included for each species are a brief description, figures, notes on its biology, known geographic and bathymetric distribution, and selected synonymies and references. The first half of the study has been completed. Work continues on completion of the project. New species and revisions are worked up separately. ISG

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SIE NO.
ZUA-1060-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NJ64-035-C

TITLE OF PROJECT:
WATER-QUALITY AND STREAMFLOW CHARACTERISTICS, RARITAN RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PW ANDERSON

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U.S. Geological Survey in cooperation with the State of New Jersey.

Purpose: To obtain information on the long-term, and present knowledge of water quality variations and streamflow characteristics of the Raritan River for the efficient management of the water resources of the area by action agencies.

Methods: Water records of state agencies and private water suppliers will be used to make an appraisal of the existence and magnitude of long-term trends in water quality. Data is being collected at locations established in 1966 to provide additional information necessary to better understand the causative effects and relationships existing between water quality, streamflow, and environmental development in the basin's hydrologic system. ISG

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SIE NO.
ZUA-2726

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NJ 57-032

TITLE OF PROJECT:
GEOLOGY AND WATER RESOURCES OF THE WHARTON TRACT AND MULLICA RIVER BASIN IN SOUTHERN NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,390

SUMMARY OF PROJECT:

To evaluate the geology and hydrology of the tract to determine the degree of hydraulic continuity between the aquifer and the Mullica River.

To determine the feasibility of developing the total water resources of the tract by wells.

Test drilling and pumping tests were used to define aquifer boundaries and conditions. The aquifer test was conducted to provide the aquifer's hydraulic characteristics and the interaction between stream and ground water systems.

Final report was completed and approved by the director for publication by the New Jersey Division of Water Resources.

Revision and submittal of report for approval for publication.

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SIE NO
GY-59280-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW JERSEY NEW BRUNSWICK

AGENCY'S NUMBER(S)
0059280
NJ00291
SUBGROUP H
CSRSNJ. 0000000000

TITLE OF PROJECT
PROCESSES OF ADJUSTMENT TO THE NATURAL ENVIRONMENT AMONG IN-MIGRANT POPU LATIONS.

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
MITCHELL J K

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
RUTGERS UNIV
ENVIRONMENTAL RESOURCES
AGRICULTURAL EXPER. STATION
NEW BRUNSWICK NEW JERSEY 08903

PERIOD FOR THIS NRP
BEG 710401 END 730630
FY 74 FUNDS 00C00000
50512629 Sub

SUMMARY OF PROJECT

OBJECTIVE: Identify types of disposition to the natural environment among in-migrant populations of Ocean County, N.J., determine patterns of adjustment to selected environmental phenomena made by these groups, measure perceptual and adjustment differences between new and long-term residents, assess rates of convergence with respect to length of residence and examine the practical consequences of different orientations to the environment in terms of demands on selected public natural resource management programs.

APPROACH: Locate areas of country which host newly arrived populations. Select study sites from areas of environmental disruption. Draw a stratified random population sample from each of the population subgroups and use personal interview with approximately 200 families. The interview will seek socio-economic backgrounds, environmental characteristics of previous residence area and preference for and attitudes toward nature. An attempt will be made to project the consequences of the information in terms of selected public natural resource management programs.

PROGRESS: A search of the literature on the growth and development of Ocean County, N.J. has been undertaken. A catalog of major changes in the area's physical environment is being maintained using local newspaper reports, data drawn from interviews with governmental and resource management personnel and sequential analyses of aerial photographs. Maps showing the spread of occupance between 1955, 1963 and 1970 have been outlined. In addition, with the aid of data obtained from the U.S. Army Corps of Engineers, zones of potential hazard from coastal and riverine floods have been identified and mapped. Similar maps of coastal erosion, forest fire and gypsy moth hazards are also being developed. A sequence of field trips to acquire photographs which are representative of the range of ecosystems in the county is in progress. These will be used in assessing residents' environmental preferences. Several measures of attitude to environment and tests of social adjustment have been selected and evaluatefor use in subsequent interviews. An outline questionnaire which includes these items has been developed and field tested. This document is now being revised for

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SIE NO.
ZUA-1012-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NJ63-011-C0

TITLE OF PROJECT:
TIDAL DISCHARGE RESEARCH, NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AC LENDO

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U. S. Geological Survey in cooperation with the State of New Jersey, the Corps of Engineers, and the Federal Water Pollution Control Administration.

Purpose: To develop and improve techniques for the collection of tidal stage, discharge, quality of water, and sediment data.

Methods: Synchronous records of tidal stage have been collected by digital recorders at estuary stations. Computer programs are used to compile these records. Discharge equations have also been programmed and calibration has been based on observed discharge by diographs and other parameters by field measurement. Suspended-sediment, particle size, and other water-quality information is collected during discharge calibration measurements to define changes during tidal cycles. ISG

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SIE NO.
ZMA-560

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
15080 FHW

TITLE OF PROJECT:
IDENTIFICATION OF SOURCE OF OIL SLICKS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
EDISON WATER QUALITY RES. LAB.
EDISON, NEW JERSEY 08817

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $47,700

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.

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TAPE INPUT 281

SIE NO.
GY-55237-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW JERSEY NEW BRUNSWICK

AGENCY NUMBER(S)
0055237
NJ00862
SUBGROUP H
CSRSNJ. 0000000000

TITLE OF PROJECT
ECONOMIC ANALYSIS OF ENVIRONMENTAL QUALITY EFFECTS ASSOCIATED WITH SEASONAL HOMES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
DERR D

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
RUTGERS UNIV
AGRI ECONOMICS & MARKETING DEPT.
AGRICULTURAL EXPER. STATION
NEW BRUNSWICK NEW JERSEY 08903 50512629

PERIOD FOR THIS GRP
BEG 690701 END 730630
FY 74 FUNDS 00000000

SUB

SUMMARY OF PROJECT:

OBJECTIVE: Determine the environmental situation associated with seasonal homes and analyze the attitudes, interests, and goals of people for a quality seasonal home environment and assess current and alternative institutional arrangements intended to correct inefficiencies and inequities in resource use in seasonal home communities.

APPROACH: Identify shore areas developed for seasonal homes in last 5 years. Determine environmental factors that influenced the location and those that were modified to permit the development. Cost of improvements and selling price of properties will be determined and related to environmental factors. A regional questionnaire will be used to survey home owners. The Tocks Island National Recreation Area in New Jersey and Pennsylvania will be studied in detail to determine regulations and variances in regulating development. Master plans will be evaluated in relation to possible demands on the environment.

PROGRESS: In the northeast, a pressing environmental problem is the intensive use of lakeshore home developments. An acute shortage of adequate housing and rising real estate taxes has increased the use of unconventional housing. Lakeshore communities typically are not designed for year- round housing. Many lack adequate solid waste collection and sewage facilities. Permanent residents were younger than seasonal occupants, indicating that younger families were forming their primary home in the lake community. People per household was the same for lake homes and all homes in the county. Eighty-two percent of the households contained two adults only; thus the communities were not causing a rise in enrollments as anticipated by township officials. On site septic tanks with drainfields and overflows accounted for most sewage disposal systems. Private community water supplies served six of ten homes and the balance by on site supplies. Seasonal occupants tended to show more concern for lot size and trash than permanent residents. All respondents did agree that their property values were related to the quality of the surrounding environment. The respondents

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SIE NO.
ZBP-471

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
781786

TITLE OF PROJECT:
RESOURCE ASSESSMENT INVESTIGATIONS - ICHTHYOPLANKTON INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WG SMITH

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: The ichthyoplankton investigation team studies the early life histories of coastal fishes by: (1) establishing spawning seasons; (2) determining distributional patterns; (3) investigating environmental factors influencing the distribution of eggs, larvae and juveniles; (4) studying diel movements of larvae and the consequent effects on both active and passive transport; (5) evaluating the importance of the estuarine zone as a nursery ground for juvenile fishes; (6) participating in MARMAP Survey I cruises to develop a functioning capability for a nationally coordinated sampling program that conforms with standards set forth in the Program Planning Document.

Approach: Seasonal cruises are scheduled to study the diel movements of larvae found in continental shelf waters of the Middle Atlantic Bight. By using results of our previous coastal surveys, we have been able to locate concentrations of larvae which we sample for uninterrupted periods of 48 to 72 hours. Several nets are fished in unison, being placed along the towing wire to sample at depths which correspond to the existing vertical temperature regime. Pertinent environment observations are recorded before each tow.

For MARMAP we conducted a survey to collect ichthyoplankton between Massachusetts and Florida, while other NMFS vessels were sampling the Caribbean Sea and in the region of the Antilles Current. Collecting techniques for all vessels are standardized.

Progress: We completed field work on two experiments designed to study the diel movements of fish larvae. During the first, we followed a drifting drogue. The second involved sampling at fixed stations. Sorting of samples from the first experiment is nearly complete and we are identifying, counting and measuring the fish larvae. Atlantic mackerel and yellowtail flounder were most abundant. Larvae taken around the drogue appeared more homogenous in both size and number than those collected at fixed stations. Larvae were more abundant near the surface at night than during the day.

On the first MARMAP survey we sampled at 146 stations between Cape Cod and Daytona Beach. Only cross examination of plankton and neuston

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SIE NO.
ZMA-649

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21APU-02

TITLE OF PROJECT:
DEVELOPMENT AND USE OF A SALT MARSH MICROCOSM AS AN OIL POLLUTION RESEARCH TOOL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RJ NADEAU — OIL SPILLS BRANCH
ALSO WITH — U.S. ENVIRON. PROTECTION AGCY.

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
EDISON WATER QUALITY RES. LAB.
EDISON, NEW JERSEY 08817

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,000

SUMMARY OF PROJECT:

A salt marsh microcosm consisting of marsh sod excised from a nearby native salt marsh (Cheesequake State Park) was established at the EWQRL. Plant growth and fauna development were monitored for six weeks, followed by contamination with low level concentrations of oil. Immediate fate of oil was monitored through chemical analysis and characterization of the hydrocarbon types found in the water column and sediments. Further monitoring during Phase II of the study will delineate chronic impact of the oil to the indigenous biota. The project itself will determine the feasibility of using microcosms to assess potential damage to natural ecological domains.

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SIE NO.
ZBP-465

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS-ENVIRONMENTAL REHABILITATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
F STEIMLE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: A) To determine the spatial effect of reef distribution on finfish abundance, particularly in heavily polluted environments. Information on fish inhabiting reef sites throughout the months of April-November is of special interest since it will provide answers to questions concerning seasonal fish mobility and reef interaction during the prime sport fishing months. B) To compare primary and secondary productivity on reefs and non-reef areas of Raritan Bay. Invertebrates and algae utilized as food for finfish is of particular interest since their seasonal settlement and abundance influence the resident finfish population. Using a bioenergetic approach, details on the rate of utilization by fish will be obtained through laboratory experiments and the effect of predation on the reef communities will be examined in the field. C) To examine the effect of an experimental reef on the behavior of finfish. Diving observations indicate that finfish utilize a reef for "cover" in addition to obtaining food. Coordination of field and laboratory experiments together with a record of the physical parameters will elucidate the importance of this phenomena relative to reef productivity.

Approach: Small artificial reefs, made of tires bound together into units and anchored to wooden pallets, are being randomly placed on the sampling stations, and monitored for finfish activity at monthly intervals. In addition, invertebrate and algal food species are being collected and measured quantitatively, either directly from the tire units or from rubber test panels. The sampling design includes comparisons within and between habitat types. The bioenergetic approach (using bomb calorimetry) will be adopted in examining reef productivity. In addition to their growth and settling rates, the caloric value of the important food species will be determined. Certain aspects of the study, such as identification and sorting of epibenthic samples and morphometric analysis of finfish, are, in part, being completed through contract or cooperative studies.

Progress: Sandy Hook Laboratory has been investigating the development of artificial habitats in relatively unpolluted waters from Gloucester, Massachusetts to St. Thomas, Virgin Islands (1967-72). The studies have been principally concerned with measuring increases in the

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZBP-471 (CONTINUED)

samples were possible at sea. A concentration of juvenile bluefish was found 40 miles east of Chesapeake Bay. Surface temperature was 27.3 degrees C, salinity 26.3 ppt.

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SIE NO.
QY-1804

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
FORD FOUNDATION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SUPPORT AN ECOLOGICAL AND ECONOMIC STUDY OF NEWARK'S WATERSHED LANDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $85,000

SUMMARY OF PROJECT:

To help support an ecological and economic study of Newark's watershed lands. The city's ownership of 32,000 nearby acres, largely unused, is a rare urban asset, and the study is aimed at developing recommendations for optimum use within environmental safeguards and rational land-use policies.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZBP-465 (CONTINUED)

standing crops of epibenthic forage organisms and finfish predators.

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SIE NO.
GUW-1868-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-030-NJ

TITLE OF PROJECT:
DISTRIBUTION OF AUTOTROPHIC NITRIFYING BACTERIA IN A POLLUTED STREAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF MS FINSTEIN ENVIRONMENTAL SCIENCE

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
SCHOOL OF ARTS
OLD QUEENS BLDG,
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $6,570

SUMMARY OF PROJECT:

It is proposed to investigate the distribution of autotrophic nitrifying bacteria in parts of the Passaic River.

The densities of ammonia and nitrite oxidizing autotrophs will be determined in the following environments: water, suspended particulate matter, mud-water interfaces, slimes on rocks and other projecting surfaces. It will be determined if nitrifying bacteria are present as single cells or in multi-cell aggregate in the water phase. Field sampling will be scheduled during different seasons to evaluate the effect of temperature. Sampling sites will be at various distances from outfalls. Ancillary chemical data collected will include - organic nitrogen (tentative), protein, ammonia, nitrite, nitrate and pH; water temperatures will be recorded. ISG

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SIE NO.
GUW-3325-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-040-NJ

TITLE OF PROJECT:
EVALUATION OF ESTUARINE SITE DEVELOPMENT LAGOONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF GF WALTON
GH NIESWAND
CW STILLMAN
SJ TOTH

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG,
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS $14,090

SUMMARY OF PROJECT:

A comprehensive study and evaluation will be made of estuarine site development lagoons constructed along the New Jersey shore and their impact on the existing natural estuarine system. Specific objectives of the project are: 1. To determine the present status (numbers, ages, sizes, locations and types of development) of existing lagoons along the New Jersey shore. 2. To investigate the demand for lagoon building sites, the people who buy them, the uses to which they are put, the needs that are satisfied and the economics of the system. 3. To define the characteristics of the lagoon system in relation to the existing natural esturarine system including the determination of geologic, hydrologic and hydraulic properties and comparative studies of water quality, bottom sediments, fish life and benthic fauna in lagoons and "undisturbed" estuarine waters. 4. To develop models of the lagoon system based on the integration of the data collected in 3 above with emphasis on cause and effect relationships. 5. To answer questions related to the future of the lagoon system including: a) What is the form of the stabilized system (if indeed one exists)? b) How can a desirable system be maintained? c) Can the lagoon system function? d) What are the alternatives to the lagoon system? and e) What are the optimal forms of development for the New Jersey shore? Optimal with respect to what?

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SIE NO.
GUW-1837-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-037-NJ

TITLE OF PROJECT:
OYSTER SETTING AND SPAT SURVIVAL AT CRITICAL SALINITY LEVELS ON NATURAL SEED OYSTER BEDS OF DELAWARE BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF HH HASKIN ZOOLOGY
D KUNKLE

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $11,420

SUMMARY OF PROJECT:

Several major natural seed beds in New Jersey waters of Delaware Bay are now depleted. Immediately up-bay are other seed beds that are still productive. Studies over the past 17 years have shown that the settling of oyster larvae on test surfaces on the depleted beds is, on the average, equal to that on the nearest producing beds. Slightly lower salinities reduce the natural pressures on the oyster population through greater control of competitors and predators. It is now proposed to compare test shells and other experimentally placed surfaces on producing and non-producing beds to determine precisely why the failures in survival occur. With such determinations it may prove possible to improve survival of oyster spat on the lower beds by means other than major control of river flows. ISG

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SIE NO.
GUW-1854-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-027-NJ

TITLE OF PROJECT:
INSTREAM AERATION AND PARAMETERS OF NITROGENOUS BIOCHEMICAL OXYGEN DEMAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
W WHIPPLE
JV HUNTER
MS FINSTEIN
SL YU

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
WATER RESOURCES RESEARCH INST.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $9,107

SUMMARY OF PROJECT:

The proposed investigation involves laboratory and field investigations to determine the explanation for the very high deoxygenation parameter observed downstream of artificial aerators installed in polluted rivers. This effect has been noted in a previous research and demonstration program involving the same principal investigators and others at the N.J. Water Resources Research Institute. Field tests will be made with mechanical aerator and oxygen diffuser equipment in the Passaic River, New Jersey, and samples and data will be obtained from other sites. Laboratory tests will be made, with and without nitrifying inhibitors, to determine the part played by dissolved oxygen level and turbulence in the reaction. Observations of nitrifying populations will be made by a microbiologist. The objective is to determine appropriate parameters for systems analysis for location of instream aeration stations. ISG

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SIE NO.
GUN-11038

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-15-R-15-7-1

TITLE OF PROJECT:
REVIEW OF RIPARIAN GRANTS AND PERMITS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PJ FESTA

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $3,000

SUMMARY OF PROJECT:

Objectives: To review applications for riparian grants and permits to erect structures, dredge, fill, and utilize the waters of the estuarine and marine areas of New Jersey and to make recommendations and comments on the possible impact of such alterations on our marine fisheries resources and their environment.

Procedures: Project personnel will review grant and permit applications Preliminary investigations, using available charts and maps, will be made at the Nacote Creek Research Station followed by on-site inspection of the area involved. When necessary, fish and invertebrate populations will be sampled. Recommendations for approval of disapproval of applications along with pertinent comments and biologcal descriptions will be prepared and submitted through the Director of Division of Fish, Game and Shellfisheries. Involved personnel will also serve on state and interstate task forces and committees which review research relate to the development of marine and estuarine areas.

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SIE NO.
GUW-1589-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-025-NJ

TITLE OF PROJECT:
DYNAMICS OF BIOCHEMICAL OXYGEN DEMAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BGEN W WHIPPLE
JV HUNTER
SL YU

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
WATER RESOURCES RESEARCH INST.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 1/73
FY73 FUNDS $7,000

SUMMARY OF PROJECT:

A quantitative evaluation of biochemical oxygen demand in the rivers of Northern New Jersey. Preliminary studies have indicated that the pollution in these rivers is much larger than can be accounted for by BOD of known effluents. Further research will be conducted into various aspects which might affect this relationship including sedimentation and scour, benthal effects, temperature variation of parameters, nitrogenous BOD, the reliability of 5-day BOD's, and the mathematical variation of carbonaceous BOD with time. Results obtained should be of scientific interest, and also important from planning viewpoints.

ISG

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SIE NO.
GUN-9490

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
1-G

TITLE OF PROJECT:
MARSH DESTRUCTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
F FERRIGNO

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
3/72 TO 6/73
FY72 FUNDS $3,213

SUMMARY OF PROJECT:

Objectives: To determine the forces at work destroying wetlands in New Jersey. To determine the extent of damage; the agencies responsible; and make recommendations to prevent future loss.

Procedures: Surveys will be made of the area, location and kinds of tidal marsh losses (developments, ditching, diking). These areas will be plotted on a map, acreage will be computed and remedies will be suggested to reduce damage. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: This job is essential if this valuable resource, the tidal marsh, is to be saved. It should be continued until all tidal marshes in the state have been surveyed. Thereafter, field checks should be made every five years to determine the rate of loss. Location of previously filled in marshes and an appraisal of their value will be useful in the selection of spoil sites while dredging the Intra-Coastal Waterway.

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SIE NO.
GUN-9479

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
4-C

TITLE OF PROJECT:
ECOLOGY AND MANAGEMENT OF CRANBERRY BOGS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
F FERRIGNO

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,700

SUMMARY OF PROJECT:

Objectives: To provide proper spillways and management for the series of old cranberry bogs on the Tuckahoe River and to determine the effects of this management on waterfowl, plants, anadromous fish, and stream flow.

Procedures: New spillways will be installed in these state-owned cranberry bogs in a manner that will not interfere with the movements of anadromous fish. Cooperative studies between fisheries and wildlife biologist will study the movements of fish, mosquito production and the yield of waterfowl food plants. Cover-typing, mosquito larval dippings, food studies, fish and wildlife censuses will be used to evaluate management. Cooperation with Bureau of Fisheries Management is essential. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: Presently anadromous fish are blocked from free passage to spawn up the Tuckahoe River. This project will eventually lead to management that will increase production of anadromous fish and improve food and habitat for waterfowl.

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SIE NO.
GUN-9267

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-15-R-14-111-2

TITLE OF PROJECT:
REVIEW OF RIPARIAN GRANTS AND PERMITS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
VJ MCDERMOTT

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
4/72 TO 3/73
FY72 FUNDS $975

SUMMARY OF PROJECT:

Objectives: To review applications for riparian grants and permits to erect structures, dredge, fill and utilize the waters of the estuarine and marine areas of New Jersey, and to make recommendations and comments on the possible impact of such alterations on our marine fisheries resources and their environment.

Procedures: Project personnel will review grant and permit applications. Preliminary investigations, using topographic maps, navigation charts, and reports relating to the area in question, will be made at the Nacote Creek Research Station. If it appears necessary, an ecological reconnaisance will be made of the site involved, and may include sampling of fish and invertebrate populations. They also will serve on state and interstate task forces and committees which review research related to the development of marine and estuarine areas and waters. Recommendations are prepared and submitted through the Director of Fish, Game and Shellfish.

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SIE NO.
GUN-9477

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
4-A

TITLE OF PROJECT:
ECOLOGY AND MANAGEMENT OF STREAMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
F CARLSON

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 5/73
FY73 FUNDS $1,950

SUMMARY OF PROJECT:

Objectives: To determine the effect of stream channelization on the fish and wildlife resources of New Jersey.

Procedures: Investigation in cooperation with Fisheries biologist will be conducted to determine effects of stream channelization on fresh water fishes, waterfowl, woodcock and other wildlife. Soil sampling to determine abundance of earthworms, grubs and other insects, and fish and wildlife censuses will be conducted. Vegetational changes, water conditions and mosquito production will also be determined. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: Stream channelization and other alterations of upland streams has affected fish and wildlife. Research in upland streams will improve management and benefit fish and wildlife.

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SIE NO.
GTH-2-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DELAWARE RIVER BASIN COMM.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DELAWARE RIVER FLOW-BAY SALINITY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HH HASKIN ZOOLOGY

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
SCHOOL OF ARTS
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Empirical curves will be constructed relating river flow at Trenton, New Jersey to Delaware Bay salinities at key positions in the oyster producing areas of the Bay. These curves will be constructed from flow-salinity data obtained during the period 1953-1968, A comparison will be made of these curves with previously developed curves made from data of the 1927-1952 period. An interpretation will be made as to the nature and reason for any discrepancies which may exist between the two sets of curves as they relate to river flow-bay salinity.

ISG

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SIE NO.
GUN-9266

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-15-R-14-111-1

TITLE OF PROJECT:
DELINEATION OF FOOD WEB RELATIONSHIPS OF RESIDENT AND MIGRATORY FINFISH SPECIES IN BARNEGAT BAY, N. J.

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
VJ MCDERMOTT

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
4/72 TO 3/73
FY72 FUNDS $15,375

SUMMARY OF PROJECT:

Objective: To plan, design, and coordinate a comprehensive study of the food web relationships in the New Jersey estuaries, including the various invertebrates, forage, gamefish, and waterfowl.

Procedures: 1) To undertake an exhaustive search of the literature concerning the food webs of estuarine organisms, including techniques and methods of study; 2) review and discussion of tentative plans with selected members of the scientific community; 3) pilot field and laboratory testing of selected techniques and methods; 4) final design. Coordination with wildlife biologists during all stages of design and planning.

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SIE NO.
GTH-12-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DELAWARE RIVER BASIN COMM.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DEEPWATER PILOT PLANT ENGINEERING AND INTERCEPTOR FEASIBILITY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PJ WEBBER WATER QUALITY BRANCH
RC KAUSCH
JF WRIGHT
HA HOWLETT
R PORGES

RECIPIENT INSTITUTION:
DELAWARE RIVER BASIN COMM.
P.O. BOX 360
TRENTON, NEW JERSEY

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Studies have indicated the potential economic, technical, and other advantages which can be realized from the construction of a single regional treatment facility at Deepwater, Salem County, New Jersey to solve the liquid wastewater treatment problems of 10 major industries, and the adjacent municipalities in Salem and Gloucester Counties along the Delaware River Estuary. Industrial wastes include pesticides, dyes, heavy metals, plastics, solvents, phenols and other refractory chemicals.

A pilot plant is operative at the site of the regional facility to determine treatability characteristics, develop cost and design criteria for a full scale facility, test methods of secondary and advanced waste treatment and provide data to base on equitable cost apportionment system.

Wastes are being hauled by tank truck to the 50 gpm pilot plant. Currently, BOD removals are in excess of 90% and there are similar removals for heavy metals (as a result of a neutralization unit) and phenol. ISG

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SIE NO.
GTH-6-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DELAWARE RIVER BASIN COMM.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
THE EFFECT OF THE PHYTOPLANKTON ON THE OXYGEN BALANCE OF THE DELAWARE ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CF BAREN

RECIPIENT INSTITUTION:
DELAWARE RIVER BASIN COMM.
P.O. BOX 360
TRENTON, NEW JERSEY

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This is a study to determine the effect and significance of the phytosynthetic oxygen production by phytoplankton in the Delaware Estuary from Trenton, New Jersey to Philadelphia, Pennsylvania. ISG

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SIE NO.
GBP-751

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
028520481

TITLE OF PROJECT:
NEW JERSEY ANADROMOUS FISH INVENTORY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,000

SUMMARY OF PROJECT:

Objectives: To collect and organize existing information on extant and extinct anadromous clupeid spawning runs in New Jersey.

Procedures: A search of literature and records will be complimented by personal interviews with people who have first hand knowledge of existing and extinct anadromous fish runs. Information specifically sought will include the locations of existing or extinct runs by species, the timing of existing runs, the extent to which they utilize or have utilized the specified waters, the magnitude of runs in standardized adjective terms, existing uses of the runs and factors that might effect or has affected them. This will be used to develop a tentative categorical inventory of these runs that can be used as a basis for subsequent detailed investigations.

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SIE NO.
GBP-764

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
018150967

TITLE OF PROJECT:
SURF CLAM STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JA HAWORTH

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG,
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $30,000

SUMMARY OF PROJECT:

Objective: To determine the density and distribution of surf clams in the inshore beds along the New Jersey coast.

Procedures: The survey will cover an area from Loran bearing 3H4-4630 (Sandy Hook) to Loran bearing 3H4-3360 (Cape May) and from shore to a depth of 60 feet. Sampling stations will be established on the basis of a two-mile grid, with some modification to obtain adequate sampling of alongshore areas; -- this plot of stations to be furnished by NMFS. Each station is to be located by Loran. At each station, a five-minute tow will be made and the distance covered will be measured by an odometer attached to the dredge--this piece of equipment to be furnished by NMFS. For each tow, the total bushels, clams per bushel, size frequency of clams, and bottom debris kinds will be recorded. In addition, temperature and salinity measurements will be made at each station on all even numbered transects; these measurements will include bottom and surface and sufficient other measurements to bracket the thermocline at those depths where it may be present. Organisms present in each tow will be recorded. Gonads will be examined on a selective basis to determine ripeness. Stations will be noted on a continual recording fathometer tape. Rutgers will approach the specific biological problems such as age and growth, changes in meat yield with season and depth, location and intensity of setting.

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GY-56969-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
MARYLAND COLLEGE PARK

AGENCY'S NUMBER(S)
0056969
MD-A-026-CF
SUBGROUP H
CSRSMD. 0000000000

TITLE OF PROJECT:
IMPACT OF PRODUCTION, HARVESTING AND PROCUREMENT ON MARKET STRUCTURE OF THE N.E. FISHING INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
MARASCO R J

KIND C AWARD
DATE SP01 DISTR

19-157-20-11

RECIPIENT INSTITUTION:
UNIV OF MARYLAND
AGRI ECONOMICS Dept
AGRICULTURAL EXPER. STATION
COLLEGE PARK MARYLAND 20742 50512103

PERIOD FOR THIS NRP
BEG 700701 END 740630
FY 74 FUNDS 00000000

Sub

SUMMARY OF PROJECT:

OBJECTIVE: Evaluate pricing practices and arrangements that characterize the fishing industry.

APPROACH: Interviewing schedules will be develcped to assess the role of : Auctions and other exchanges, Brcker and cther merchant middlemen, Contractual arrangements, Basing points in the price system, and Private sales.

PROGRESS: During 1972, 24 of the 105 firms that shucked oysters in Virginia were interviewed to isolate the out-of-state flow of oyster products. Collectively, the firms contacted, prccessed over 750,000 of the 2 million gallons of oysters shucked in Virginia during the 1971-72 season. Over 60% of Virginia's 1971-72 productien of shucked oysters was shipped within the South-Atlantic States region. Roughly 80% cf the 60% stayed in the Maryland-Virginia area. The second highest receiving region was the Mid-West with 20%, followed by the Mid-Atlantic States which acccunted fcr approximately 10%. The West-Coast, Canada, and the New England region acccunted for 4, 2, and 2%, respectively. 133 interviews were conducted to cbtain socio-economic data cn oystermen located in four Maryland communities. The information collected and employment opportunity data were used tc assess the econcmic impact limiting the entry of watermen into the oyster fishery would have on the four communities. Work was also completed cn an econcmic profile of the fisheries of the Chesapeake Bay.

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PRICING MARKET-STRUCTURE FISH PRODUCTION FISHERIES PRICES PROCUREMENT ST
016010 RUCTURE MARKET-ANALYSIS HARVESTING ECONOMICS
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SIE NO.
GB-220218-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW JERSEY STATE GOVERNMENT

AGENCY'S NUMBER(S):
2R27220218 (HRB NO.)

TITLE OF PROJECT:
EVALUATION OF CURVED GIRDER BRIDGE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
J WIESENFELD
B COSABOOM RUTGERS THE STATE UNIVERSITY

RECIPIENT INSTITUTION:
STATE DEPT. OF TRANSPORTATION
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $23,923

SUMMARY OF PROJECT:

THE PRINCIPAL AIM IS TO OBTAIN, VERIFY AND MEASURE THE STRESS BEHAVIOR OF CURVED GIRDER BRIDGES, SPECIFICALLY THE PROPOSED ROUTE 18 BRIDGE OVER THE RARITAN RIVER AT NEW BRUNSWICK; AND TO RELATE THESE MEASUREMENTS WITH THEORIES OF DESIGN.

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SIE NO.
GY-58340-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW JERSEY STATE GOVERNMENT

AGENCY'S NUMBER(S):
0058340
NJ00289

TITLE OF PROJECT:
FACTORS AFFECTING THE FISHERY RESOURCES OF NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JR WESTMAN ENVIRONMENTAL RESOURCES

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Study the effects of the use of Barnegat Bay waters by New Jersey Central Power and Light Company, in its nuclear plant at Forked River on the aquatic life of Barnegat Bay.

APPROACH: The procedure includes laboratory studies of thermal tolerances and avoidance reactions of 17 species of marine fishes and field collections and population studies of fishes in the project area and in the adjacent control areas before and after operation of the plant. The before operation phase has been completed in an unreported project.

PROGRESS: ITEM 1: Regular seining collections at six stations in the Barnegat reactor project area, and in immediately adjacent waters, were continued on a monthly basis in winter and a semi-monthly schedule during the warmer months. The data continued to show that thermal addition can attract certain species at particular times of year and water temperature ranges, and repel certain species at certain other times of year. ITEM 2: Laboratory experiments have been conducted to measure the responses of several marine fishes to drops in temperature of different speeds that might be encountered from nuclear plant shutdown. These experiments have revealed that fish may go into "practical death" (loss of equilibrium) and "ecological death" (loss of equilibrium and ultimate death) for an hour or more before physiological death. ITEM 3: Laboratory experiments were conducted to measure the responses of four marine fishes to HCL-fluoride wastes of Allied Chemical Corporation. Fluoride per se had no noticeable effects up to 180 ppm. Lowering of pH to 5.6 resulted in practical death for an hour or more for all species. The final report to Allied Chemical Corporation has been completed and is available.

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SIE NO.
GY-56005

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW JERSEY STATE GOVERNMENT

AGENCY'S NUMBER(S):
0056005
NJ00785

TITLE OF PROJECT:
RED TIDES IN THE SANDY HOOK AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: To Be Determined.

APPROACH: To Be Determined.

PROGRESS:

New England Aquarium

The dollar volume of research committed to the N. E. Aquarium is in the neighborhood of $200,000 to $250,000 per year with the following projects currently being undertaken:

(1) An analysis of the water quality of Boston Harbor and Massachusetts Bay, supported by Division of Water Pollution Control of the State of Massachusetts. This program, initiated in 1970, has the following objectives: (a) to develop a water quality monitoring program for Boston Harbor; (b) to develop a data storage and retrieval system for common water quality parameters; and (c) to develop analytical methodology for measurement of the concentration, form, and accumulation of certain toxic elements in the sediments of Boston Harbor and Massachusetts Bay.

(2) We are working closely with the U.S. Army Corps of Engineers to attempt to design criteria for site selection of dredge spoils. The purpose of this study is to attempt to define the criteria which will aid in site selection for disposal of dredge spoils such areas as Fairhaven Harbor or from larger embayments along the coast.

In addition to these studies we have ongoing work supported by the National Science Foundation to initiate investigations of the biochemical mechanisms of toxicity in marine phytoplankton, and a cooperative program with Brandeis and the National Science Foundation to look at the mechanism of uptake of certain metals in tunicates.

Finally, we are undertaking a major program with the support of foundations of the state of Massachusetts, U.S. Army Corps of Engineers and National Science Foundation to look at the sorption and desorption of metallic ions in the sediments of Boston Harbor and Massachusetts Bay. The rationale for this study is that we feel that an understanding of pollution of bodies of water must take into account the reservoir of heavy metals at the bottom.

G. C. McLeod
Director of Research
New England Aquarium

ATTACHMENT 2

APPENDIX C-4

COASTAL RESEARCH PROGRAMS, FUNDED OR PROPOSED

WHICH WOULD USE NECCRF

Name of Institution: TRIGOM

Title of Project: Establishing safe discharge temperatures from power plants for Northern New England coastal fish

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Atomic Energy Commission

Cost:

Duration:

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: TRIGOM

Title of Project: The development of biomedical procedures for water quality studies on marine fish

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Environmental Protection Agency

Cost:

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Institution:

The Research Institute of the Gulf of Maine (TRIGOM)
96 Falmouth Street, Portland, Maine 04103

Title:

Feasibility of Identifying Mystery Oil Spills

The objective of the Project is to determine the feasibility of combining existing analytical technology with the "Oil Sampling and Storage Procedures" provision of the State of Maine Oil Conveyance Law (Title 38, section 546, 1970) to achieve an effective system for the identification of the source of mystery oil spills. The large marine petroleum traffic (at least 150,000,000 barrels annually) in the Portland Harbor-Casco Bay (Maine) region provides an outstanding, readily available model to work on. The project is a cooperative effort between the enforcement agency of the Oil Conveyance Law (State of Maine Department of Environmental Protection), The Research Institute of the Gulf of Maine (TRIGOM), and the Chemistry Department of Bowdoin College.

Grant Director: Gardner Hunt
Maine Department of Environmental Protection

Principal Investigators: Dana W. Mayo, Bowdoin College and
Donald B. Horton, TRIGOM

Granting Agency: Environmental Protection Agency

Duration of Support: June 1, 1973 - September 30, 1974

Level of Support: $100,360

Anticipated Use of a NECCRF Vessel: Only occasionally to retrieve samples for analysis after an oil spill.

Title:

The Development of Biomedical Procedures for Establishing Water Quality Criteria for Marine Fish.

The purpose of this study is to combine advanced biomedical technology with marine biology to gain

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

Marine Science Institute
Northeastern University
Nahant, Mass. 01908

TITLE OF PROJECT

A Study of the Effects of Disposal of Dredged Material in Massachusetts Bay

BRIEF DESCRIPTION OF PROJECT

Physical, chemical, biological and oceanographic factors relating to the disposal of dredged material in Massachusetts Bay.

GRANTING AGENCY

Corps of Engineers, Dept. of the Army

PRINCIPAL INVESTIGATOR

N. W. Riser

DURATION OF SUPPORT

From 1973 to 1974 (Phase I), Phase II, 1974 to indefinite date.

LEVEL OF SUPPORT

$43,000 (1973 - 1974)

POTENTIAL USE OF NECCRF VESSEL

Winter months when Institute vessel cannot be safely used.

Title:

To Evaluate the Biological Effects of an Artificial Tire Reef in Casco Bay, Maine

The objective of the project will be to evaluate the environmental effects of tires submerged in a Maine coastal area and to determine the usefulness of tires submerged as an artificial reef as a habitat for lobsters.

Principal Investigator: Donald B. Horton

Granting Agency: New England Regional Commission

Duration of Support: For one year with continuation expected

Level of Support: $35,000

Anticipated Use of a NECCRF Vessel: During second and third year of project (1973-1975), to provide logistic support for divers and cameras underwater, possibly submergibles, and lobster tagging work. Anticipated use would be two days per month.

Title: A socio-economic and environmental inventory of the outer continental shelf and adjacent waters of the North Atlantic (Sandy Hook, New Jersey, to the Bay of Fundy)

Objective: To develop a comprehensive inventory of the marine environmental and socio-economic data for the coastal zone for possible use in the preparation of environmental impact assessments of the development of offshore energy resources.

Project Manager: Edward H. Shenton

Funding Agency: Bureau of Land Management

Duration of Support: 13 months

Level of Support: $163,000

Anticipated use of NECCRF vessel: only occasionally to verify published data.

knowledge of physiological disorders of marine organisms caused by sublethal concentrations of waterborne contaminants.

The research team will evaluate, adopt or modify methods currently employed in medical research in the fields of cardiovascular physiology, protein chemistry, immunology and biophysics for use in marine water quality research. They will join in collaborative projects designed to investigate the same basic, physiologic parameters under study in humans as well as to compare these parameters to more traditional methods for determining environmental stress on marine organisms.

Grant Director: Donald B. Horton

Principal Investigator: David W. Bridges

Granting Agency: Environmental Protection Agency

Duration of Support: June 15, 1973 - June 14, 1975

Level of Support: $78,140/year

Anticipated Use of a NECCRF Vessel: Opportunities to collect samples incidentally to other research. Samples of fish, particularly winter flounder and Atlantic herring are desired as often as twice each month. On board facilities needed will include tanks and continously running seawater.

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Determination of Budgets of Heavy Metal Wastes in Long Island Sound.

Abstract:

Chemical and physical examination of eastern Long Island Sound with specific emphasis on heavy metal wastes. Monitoring and determination of these elements in oysters located in selected sites.

Principal Investigator:

Dr. Peter Dehlinger

Funding Agency:

NOAA- Sea Grant

Cost:

Total $147,000 (Contract award $85,000).

Duration:

1 year

Boat use:

35 days

Proposals Planned which Would Make Use of a NECCRF Vessel

Institution:

The Research Institute of the Gulf of Maine
96 Falmouth Street, Portland, Maine 04103

Title:

A Study of the Behavior and Fate of Introduced Contaminants in the Gulf of Maine

This project will entail a number of separate investigations concerning the effects of man's activity on the Gulf of Maine.

Approximately one years lead time will be necessary to plan this study for coherence and compatibility of measured parameters, stations and use of available vessels within the Gulf of Maine. Preliminary planning has identified seven or eight proposals (abstracts will be included) which are compatible with the objectives of the project.

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Geophysical Survey of the Offshore Area Adjacent to Silver Sands State Park and Mumford Cove

Principal Investigator:

Dr. J. J. Dowling

Funding Agency:

State Department of Public Works, and
General Dynamics

Cost:

$8,400

Duration:

6 months

Boat use:

10 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Engineering and Geophysical Studies of Local Areas in Long Island Sound.

Principal Investigator:

Dr. J. J. Dowling

Funding Agency:

General Dynamics

Cost:

$900

Duration:

1 year

Boat use:

2 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Research on Oceanographic Factors Relating to Disposal of Dredged Material in Long Island Sound

Abstract:

Investigation of dredged materials primarily in New Haven Harbor with parallel emphasis on physical and chemical parameters which could affect the condition of the relocation of dredged materials.

Principal Investigator:

Dr. A. J. Nalwalk; Co-Investigator, Dr.W. F. Bohlen

Funding Agency:

U. S. Army Corps of Engineers

Cost:

$69,000

Duration:

1 year

Boat use:

52 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Upwelling Studies

Abstract:

Coastal upwelling studies of Continental United States

Principal Investigator:

Dr. R. W. Garvine

Funding Agency:

National Science Foundation

Cost:

$12,700

Duration:

1 year

Boat use:

None

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Marine Geophysical Studies

Abstract:

Marine geophysical studies to determine crustal and sub-crustal structures in the Bering, Beaufort, and Chukchi Seas in the North Pacific Ocean, using gravity, magnetics and continuous seismic profiling techniques.

Principal Investigator:

Dr. P. Dehlinger; Co-Investigator, Dr. E. F. Chiburis

Funding Agency:

Office of Naval Research

Cost:

$50,000

Duration:

1 year

Ship use:

Aboard Coast Guard ice breakers

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Atmospheric pollution transport and deposition on the sea surface.

Abstract:

Speciation of (Pb, Cd, Hg) certain elements in the northern Atlantic open ocean and shoreline with special emphasis in those areas that pertain to trade wind contributions.

Principal Investigator:

Dr. W. F. Fitzgerald

Funding Agency:

National Science Foundation
International Decade of Ocean Exploration

Cost:

$14,566

Duration:

2 years

Ship use:

Aboard WHOI R/V Knorr, URI R/V Trident, and MSI boats

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Basic Oceanographic Studies in Block Island Sound

Abstract:

Periodic sampling and analysis of water current speed and direction, oxygen and salinity content at various locations in Block Island Sound. Meteorological sea surface information is also collected and analyzed.

Principaal Investigator:

Dr. A. J. Nalwalk; Co-Investigator, Dr. D. F. Paskausky

Funding Agency:

Office of Naval Research

Cost:

$47,715

Duration:

1 year

Boat use:

30 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Theoretical Studies of Physical Dynamics of Coastal Upwelling Ecosystem Analysis

Abstract:

Various data collected over the years being incorporated in Project CUEA and analyzed using dynamic techniques to determine certain aspects of upwelling phenomena.

Principal Investigator:

Dr. R. W. Garvine

Funding Agency:

University of Washington

Cost:

$56,000

Duration:

2 years

Boat use:

None

Name: University of Maine

Title: Pleistocene and recent sediments in the Gulf of Maine

Abstract: Shallow sesimic profiling of unconsolidated sediment sequence. Tracing of Pleistocene glacial events and recent sediment distribution dynamics.

P.I.: Detmar Schnitker

Funding: Open (N.S.F., O.N.R., Petroleum Resource Foundation)

Cost: Approximately $30,000 for 3 years exclusive of ship costs.

Duration: three years

Ship Use: Fourteen days per year; principal user. 3.5 Khz precision profiling, and small air gun low frequency profiling. Piston and gravity coring at selected stations.

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Determination of Budgets of Heavy Metal Wastes in Long Island Sound.

Abstract:

Chemical and physical examination of eastern Long Island Sound with specific emphasis on heavy metal wastes. Monitoring and determination of these elements in oysters located in selected sites.

Principal Investigator:

Dr. Peter Dehlinger

Funding Agency:

NOAA- Sea Grant

Cost:

Total $147,000 (Contract award $85,000).

Duration:

1 year

Boat use:

35 days

Name: University of Maine

Title: Recent Foraminifera, indicators of the health of the marine environment.

Abstract: The abundant and diverse foraminiferal faunas are very delicately adapted to their environment. Any change of this environment, either through natural or man-made causes elicits a response of the microfauna that can be detected.

P.I.: Detmar Schnitker

Funding: Open (NSF, State of Maine)

Cost: $15,000 - 2 years

Duration: 2 years

Ship use: 3 weeks first year, 2 weeks second year. Hitchhiking possible

Name: University of Maine

Title: Late Quarternary paleo - climate and paleo hydrography in the Gulf of Maine.

Abstract: Microfaunal (foraminifera) analysis of piston and vibra cores from the Gulf of Maine and the upper continental slope off the Gulf of Maine should reveal the history of marine late Pleistocene and Recent incursion and the changes in climate that accompanied it.

P.I. Detmar Schnitker

Funding: Open (NSF, ONR)

Cost: Approx. $30,000 for 3 years

Duration: 3 years

Ship use: 14 days for first two years, 4 days last year. Hitchhiking possible.

Name of Institution:	University of Maine Department of Oceanography Walpole, Maine
Title of Project:	Development and Distribution of Lauval fishes in the Gulf of Maine and Adjacent Waters of the North Atlantic
Abstract or Brief Description:	Investigation of the seasonal distributional patterns of lauval fishes as influenced by current patterns, breeding patterns and possible yearly fluctuations in climate as affecting Gulf of Maine waters. Gear would be 1/2 m or 1-meter Bongo nets (metered), or open-closing Tucker Trawls (metered). Vertical distribution and daily migration patterns will be investigated through day-night sampling sequences. The cruises will be coodinated with existing MARMAP cruises so that MARMAP material can be used together with that obtained during our cruises.
Principal Investigator(s):	Hugh H. DeWitt
Funding Agency:	NSF or National Marine Fisheries Service
Cost:	$5,000 per year and expendable supplies. No salaries if the program could fit into the MARMAP program we have now; does not include ship time.
Duration:	Three Years

Ship Use per Year -- as principal user:
-- as hitch-hiker:

Hugh H. DeWitt and Joanne M. Lyczkowski - four 10 day cruises, at the four seasons of the year; cruises would consist of four transects (E-W) from near shore out to beyond the shelf edge of the Gulf of Maine.

Name of Institution: University of Maine at Orono

Title of Project: Ecology and taxonomy of selected echinoderms in the Gulf of Maine

Abstract or
Brief Description: Ecological studies of feeding and reproduction in crinoids and ophiuroids, especially the genus Ophiura, are proposed for the Georges Basin area over a two year period.

Principal Investigator(s): John H. Dearborn, assoc. prof. of zoology and oceanography

Funding Agency: NSF initially, other federal or state agencies if the original proposal is unsuccessful

Cost: $30,000

Duration: two years -- would apply for continuing support if program successful

Ship Use per Year -- as principal user: 4 to 8 days per trip, six trips per year

-- as hitch-hiker: could be combined with other benthic sampling programs if appropriate gear is used.

Name of Institution: U. of Mass. Marine Station

Title of Project: Distribution of non-conservative properties in estuaries or related to the flushing characteristics of the Merrimack Estuary

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Water Resources WR-58

Cost: $5,000

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: University of Maine at Portland, ~~Oregon~~ Maine

Title of Project: Sediment distribution in the Gulf of Maine

Abstract or Brief Description: Twofold purpose: More detailed analysis of the distribtuion of sediment then heretofor undertaken; student training cruises.

Principal Investigator: Irwin Novak

Funding Agency:

Cost:

Duration:

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Can be done in part as hitch-hiker; training portion would require one week cruise each spring our two week cruise each summer.

Name of Institution: U. of Mass. Marine Station

Title of Project: Sea surface observations in support of NASA CV-990 ocean color remote sensing experiment

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: NASA NAS-5-21813

Cost: $16,500

Duration:

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: U. of Mass. Marine Station

Title of Project: Nitrogen uptake by Fucus spiralis L. and other selected marine macroalgae

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: NSF GA 33495

Cost: $39,728

Duration: two years

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: U. of Mass. Marine Station

Title of Project: Fate and behavior of crude oil on marine life.

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: U.S.Coast Guard DOT-CG-13992A

Cost: $40,000

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: U. of Mass. Marine Station

Title of Project: Interrelationship between temperature and photosynthesis of marine phytoplankton

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: NSF GA 29501

Cost: $84,000

Duration: two years

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Some Implications of Solid Waste Disposal in Coastal Basins

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

An investigation in both the laboratory and field of the chemical and biological effects of placing solid wastes in ocean water.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Theodore Loder and Professor Franz Anderson

DURATION OF SUPPORT

1971-1975

LEVEL OF SUPPORT

$75,000/year

POTENTIAL USE OF NECCRF VESSEL

Survey of coastal basins using T. V. cameras and standard chemical, biological and geological survey equipment.

Name of Institution: U. of Mass. Marine Station

Title of Project: The interrelationship of hydrodynamic processes and organic production in the ocean.

Abstract or Brief Description:

Principal Investigator(s):

Funding Agency: Atomic Energy Commission AT(11-1)3024

Cost: $37,000

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Hydromechanical Aspects of Arrays

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

Analysis and field testing of buoyant structures including both static and dynamic analysis and testing plus instrumentation - both radio telemetry and hard wire.

GRANTING AGENCY

Office of Naval Research

PRINCIPAL INVESTIGATORS

Professor Godfrey H. Savage

DURATION OF SUPPORT

From 1963 to undefined future date

LEVEL OF SUPPORT

Varying from $50 - $75,000/year (possibly larger next year)

POTENTIAL USE OF NECCRF VESSEL

To lay cable, plant buoys and conduct detailed bottom surveys. Weight handling requirements - to 3 tons static load.

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Student Ocean Engineering Projects Course

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

Purpose is to have students build devices that work and serve a purpose in ocean research programs. Students in groups of 2 to 6 take interdisciplinary approach in solving problems related to project. They have budgets of $200 - $4000 to accomplish task. Usually 25-30 students involved in these projects in one course.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Joseph Murdock and Professor Donald Melvin

DURATION OF SUPPORT

Continuous since 1968

LEVEL OF SUPPORT

$20,000/year

POTENTIAL USE OF NECCRF VESSEL

Each project requires 2 or 3 days of ship time for ocean tests.

Note: This activity is considered to be more than "educational" in nature since devices designed, built and tested are utilized in research activity.

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

The Science and Technology of Utilizing the Bottom Resources of the Continental Shelf

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

This university/industry cooperative research and development project seeks to develop both an effective technology to classify and assess acoustically the coastal sea floor and sub-bottom sediment for both physical and engineering properties and to study from a broad perspective the technical, ecological, legal and economic understandings essential to a responsible exploration and utilization of a country's continental shelf bottom resources.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Dr. R. W. Corell, Co-Principal Investigator; Dr. A. Yildiz, Co-Principal Investigator; and numerous faculty at UNH and staff of the Raytheon

DURATION OF SUPPORT

Three years completed of a five year project

LEVEL OF SUPPORT

Approximately $500,000/year

POTENTIAL USE OF NECCRF VESSEL

As a research platform for both acoustic data acquisition and for coring to obtain soil mechanical/geological samples. Had the vessel been available, we undoubtedly would have used it rather than leasing vessels from other institutions. Some work also found on this project for NOMES.

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Coastal Engineering - Sea Grant

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

To analyze wave action in the Gulf of Maine using computer models and real wave data collected from a UNH wave buoy system.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Godfrey H. Savage and Professor Alden Winn

DURATION OF SUPPORT

1971 to 1974 or 1975

LEVEL OF SUPPORT

$50 - $60,000/year

POTENTIAL USE OF NECCRF VESSEL

To set buoys and to make bottom surveys to determine effect of wave action on transport of sand and other bottom sediments.

ACTIVE COASTAL RESEARCH PROJECTS

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Ecology of Submarine Canyons - Gilbert Rowe and Richard Haedrich

Research involves a quantitative description of benthic fauna, analysis of specie associations, charting and understanding specie distributions, comparing patterns of biomass, density and diversity as a function of depth, sediments and bottom currents, and determining life strategies of dominant canyon species.

NSF
$57,500

Carboniferous and Mesozoic Rift Structures of the Gulf of Maine - Elazar Uchupi and Robert Ballard

NSF

A study to determine the geologic and tectonic framework of the Gulf of Maine using seismic reflection and oblique-reflection profiling, magnetic and sampling techniques (the latter using ALVIN).

21,500

Study of Solid Waste Disposal - Gilbert Rowe

SEABOARD CORP
16,000

Involved is the deployment and subsequent study of bales of shredded, compressed refuse in order to determine the effects on marine biota.

NE Regional Comm
48 000

Study of Chemical Communication by Marine Animals - Jelle Atema

NSF

A multi-disciplinary investigation of sensory and behavioral phenomena in marine animals, including effects of pollutants. Subjects include the sex pheromone of the lobster and home stream recognition of alewives.

13 000

Sediment-Fauna Relationships on the Deep Ocean Floor - Gilbert Rowe

NSF
19 000

An invesitgation of the effects of benthic fauna on the physical properties of seafloor sediments. Much of this work is done in the Gulf of Maine and on the New England continental slope.

Organic Chemistry of the Marine Environment - Max Blumer

NSF

A long-term study of the sources, variability, interaction and eventual fate of organic compounds in the sea. This includes petroleum, hydrocarbons and their ingestion by marine organisms. Much of this work is coastal in nature.

65,000

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

New England Offshore Mining Environmental Study (NOMES) - University of New Hampshire Phase of Activity

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

The New England Offshore Mining Environmental Study (Project NOMES) is an experiment designed to evaluate the direct and indirect ecological effects of offshore sand and gravel mining. The experiment involves carefully controlled, short duration dredging conducted in connection with an extensive program of environmental monitoring and laboratory analysis. The study is intended to provide a scientific basis for the establishment of realistic environmental safeguards over potential future offshore mining operations.

GRANTING AGENCY

NOAA

PRINCIPAL INVESTIGATORS

Dr. Larry Harris, Dr. Arthur Mathieson, Dr. Hugh Mulligan, Dr. Victor Azzi, and Dr. C. L. Grant

DURATION OF SUPPORT

Into first full year, with program projected to 1975

LEVEL OF SUPPORT

Approximately $600,000/year at UNH

POTENTIAL USE OF NECCRF VESSEL

As a research platform for:

1) Diving scientific studies of Benthic communities, both invertebrates and plants
2) Sampling phytoplankton and zooplankton
3) Fin fish population studies
4) Core sample acquisition for soil mechanical analysis and sedimentary chemistry

Name of Institution: Woods Hole Oceanographic Institution

Total funding presently committed to coastal research: $1,006,000

Ship time requirements per year from those answering questionnaire 26 weeks

46 members of scientific and technical staffs have expressed interest in using proposed vessel

Pilot Plant for Tertiary Sewage Treatment - John Ryther

This program involves a medium-scale operation involving the growth of marine plankton algae from effluent from a secondary sewage treatment plant, and the subsequent continuous culturing of shellfish with the product.

NSF $286,000

Currents at the Edge of the Continental Shelf South of Cape Cod-W.R. Wright

An investigation of the frontal region separating the coastal water on the shelf from the slope water offshore. It involves initially an analysis of existing data to determine the long-term and seasonal changes in position and character of the interface. Field work is anticipated later.

NSF 1 year $ 40,000

Development of Drift Buoy Location System - D.F. Bumpus

Development of a "talking drift bottle" system in which drifting buoys are located by triangulation from shore stations, with range determined by accurate crystal clocks.

National Marine Fisheries Service
National Data Buoy Center 1 year $50,000

Carbon, Nitrogen and Phosphorus Cycles on the Sea Floor of an Upwelling Region -- Gilbert T. Rowe

NSF $61,000

Biological Equipment Development - John Teal, Peter Wiebe, Holger Jannasch

ONR

Involved is the development of various bottom-sited experimental apparatus (e.g., bell-jar biological respirometer) designed to do quantitative experiments in the sea. $30,000

Marine Biological Noise - William Schevill

ONR

A long-term study of sounds from marine mammals. Some of this work is done off the New England coast. 56,000

Sublethal Temperatures on the Social Behavior of Fishes - John Todd

AEC

A study to examine the effects on social behavior of fishes as a result of elevated temperatures as might be caused by thermal pollution from power plants. 35,000

A Membrane Salinometer for Monitoring Estuaries - Paul Mangelsdorf

EPA

The development of a salinometer capable of providing continuous records of salinity change in depth or time, for studies of estuarine circulation patterns and biological micro-environments. 24,000

Oil Pollution Source Identification - Oliver Zafiriou

EPA

The development of techniques to provide methods for analytical identification of the origins of spilled oil. 60,000

Collaborative Research in Structure, Function and Export of a Salt Marsh Ecosystem - John Teal

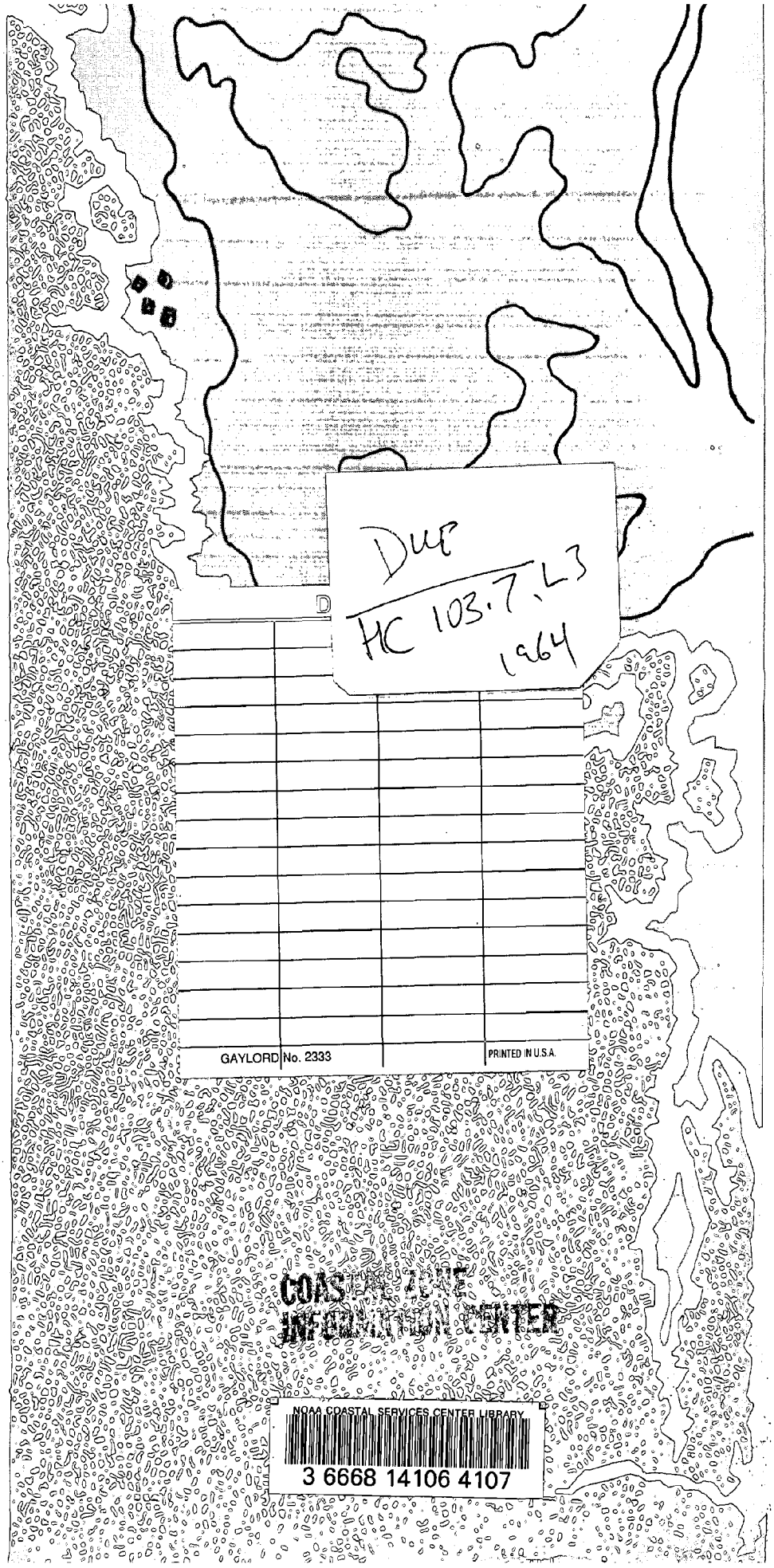
NSF

A study of the consequences of nutrient enrichment on the main components of a salt marsh. The work deals with gas exchange in marsh grass, production of benthic diatoms, population of soil animals, and growth of fish. 40,000

Biological Recovery Following an Oil Spill - Howard Sanders

EPA

A continuing study of the ecological consequences of a major oil spill which occurred in Buzzards Bay. 103,000



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