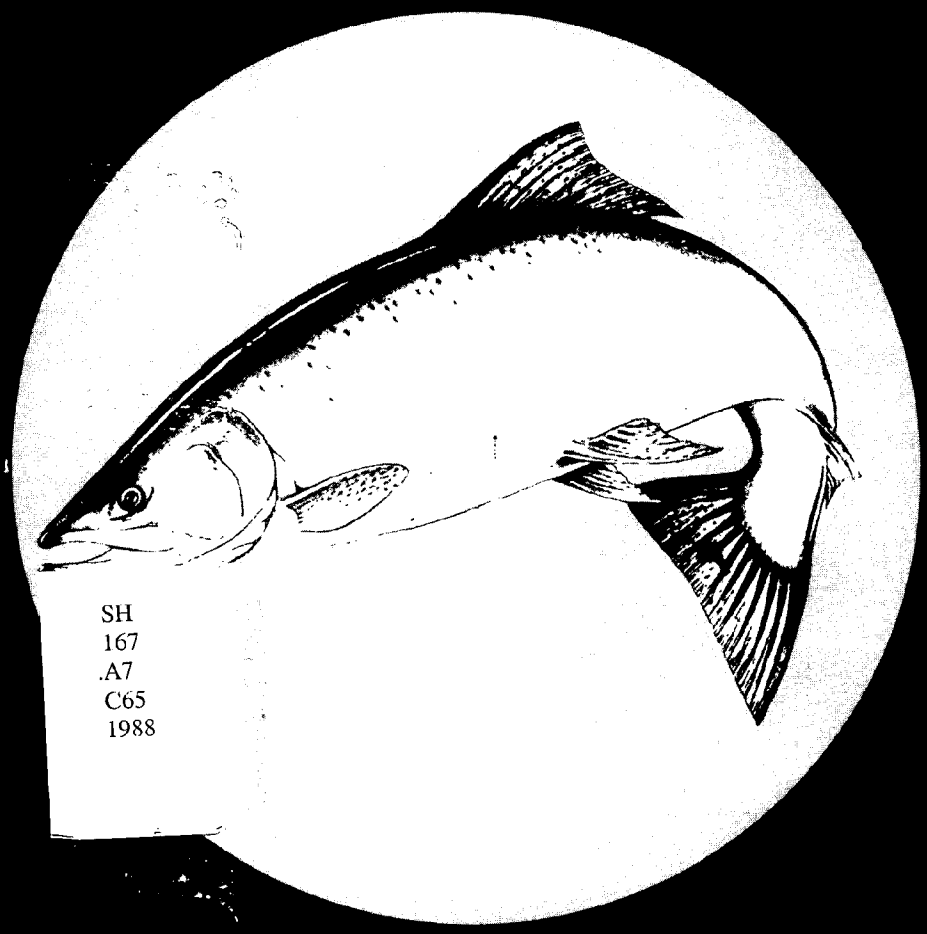
Columbia River Basin Fish and Wildlife Program Work Plan

U.S. Department of Energy
Bonneville Power Administration
Division of Fish & Wildlife

September 1988



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COLUMBIA RIVER BASIN

FISH AND WILDLIFE PROGRAM

WORK PLAN

FOR FISCAL YEAR 1989

BY

DIVISION OF FISH AND WILDLIFE

BONNEVILLE POWER ADMINISTRATION

P.O. BOX 3621

PORTLAND, OREGON 97208

September 1988

EXECUTIVE SUMMARY

The FY 1989 Columbia River Basin Fish and Wildlife Program Work Plan (Work Plan) presents Bonneville Power Administration's plans for implementing the Columbia River Basin Fish and Wildlife Program (Program) in FY 1989. The Work Plan focuses on individual Action Items found in the 1987 Program for which Bonneville Power Administration (BPA) has determined that it has authority and responsibility to implement. Each of the entries in the Work Plan includes objectives, background, and progress to date in achieving those objectives, and a summary of plans for implementation in FY 1989. Most Action Items are implemented through one or more BPA-funded projects. Each Action Item entry is followed by a list of completed, ongoing, and planned projects, along with objectives, results, schedules, and milestones for each project.

The FY 1989 Work Plan emphasizes continuation of 113 projects, most of which involve protection, mitigation, or enhancement of anadromous fishery resources. BPA also plans to start 20 new projects in FY 1989. The number of ongoing FY 1988 projects to be continued in FY 1989 and the number of new projects planned to start in FY 1989 are based on current (September 7, 1988) procurement expectations. Several projects presently in BPA's procurement process are expected to be contracted by September 30, 1988, the last day of FY 1988. Although these projects have not yet started, they have been listed in the Work Plan as ongoing FY 1988 projects, based on projected start dates in late September 1988. Throughout the Work Plan, those projects with projected start dates in September 1988 have been noted.

These continuing and new activities in FY 1989 are summarized briefly by Program or technical area:

Mainstem Passage: BPA-funded projects will continue to support the smolt marking and monitoring program, the Fish Passage Center, and management of the Water Budget (pp. 41-46). BPA will continue to implement three projects in the Reservoir Mortality and Water Budget Effectiveness Area of Research Emphasis (pp. 124-125), as agreed upon through ad hoc negotiation with the fishery agencies and Tribes in FY 1988. Six new projects, including a spill monitoring project (p. 46) and five Area of Research Emphasis projects (pp. 125-126) are expected to begin in FY 1989.

Artificial Propagation: The aim of this Program area is primarily to investigate ways to increase the quality and quantity of fish produced in hatcheries. In FY 1989, BPA will continue to implement the five Hatchery Effectiveness and Fish Disease Technical Work Group (TWG) Five-Year Work Plan research projects that are expected to start in FY 1988 (pp. 127-132). Other continuing hatchery effectiveness/fish health projects include development and recording of fish health data (p. 135), research on two major fish disease problems (infectious hematopoietic necrosis virus and bacterial kidney disease) (pp. 109-111), and research on effects of nutrition on immune response, growth, and survival of salmon

(pp. 109-110). A demonstration project to verify the effectiveness of malachite green removal from hatchery effluent (p.138) will be completed in FY 1989. Six new projects are expected to begin in FY 1989: design, construction, and evaluation of temporary John Day acclimation facilities (p. 88), anadromous fish propagation in the Pelton Dam fish ladder (p. 115), and four research projects from the Hatchery Effectiveness and Fish Disease TWG Five-Year Work Plans (pp. 128-133).

Natural Propagation: A total of 30 ongoing habitat and tributary passage projects in Section 703(c)(1) of the Program will continue or be completed (pp. 55-77). These projects, located throughout Oregon, Idaho, and Washington, emphasize enhancement of anadromous fish spawning and rearing habitat and improvement of passage conditions, with the goal of increasing production of naturally spawning stocks. One new project to evaluate Umatilla River Basin enhancement projects will begin in FY 1989 (p. 69).

Resident Fish: The resident fish projects begun in FY 1988 (pp. 145-177) will continue, as will the sturgeon studies being carried out throughout the Basin (p. 165). One new project will be added to the resident fish program during FY 1989 (p. 149). It is one of the "resident fish substitution" measures amended into the Program to mitigate for anadromous fish losses above Chief Joseph Dam.

Wildlife: BPA will complete wildlife loss assessments for Federal Columbia River Power System (FCRPS) facilities (p. 183) and will continue funding mitigation plans (p. 192). Wildlife mitigation efforts for Libby and Hungry Horse dams in Montana will continue (pp. 197-204), along with negotiation of a long-term mitigation agreement for these facilities. Five new wildlife projects are expected to start in FY 1989 (pp. 196, 201, 204, and 208).

Major Projects: This category includes major hatchery construction, passage improvement, and habitat enhancement projects implemented by BPA's Fish and Wildlife Project Management Branch. During FY 1989, pre-engineering studies and planning will begin for two kokanee hatcheries on Lake Roosevelt (p. 151) and for the artificial production facility or facilities to be located in northeastern Oregon (p. 96). Construction will start on the Umatilla Hatchery (p. 101), while design and construction will continue for the habitat and passage improvements in the Umatilla Basin (pp. 66-70). Several Yakima Basin passage projects are to be completed (pp. 81-82), while design will begin on the Yakima/Klickitat production project (p. 91). Design of the Nez Perce Low-Capital Propagation Facilities (p. 104) and construction of the Colville Hatchery (p. 147) will continue. A new project to provide power for Umatilla River water exchange is expected to start in FY 1989 (p. 85).

Planning Activities: BPA will continue to fund and participate in the four Area of Research Emphasis Technical Work Groups (p. 119). BPA will also participate in the Council-managed System and Subbasin Planning and System Monitoring and Evaluation programs (pp. 34-35).

BPA has developed a collaborative and cooperative implementation process which will provide opportunities for the agencies and Tribes to be involved in planning the implementation of the Program in 1989. This planning process is outlined in Section III (p. 17).

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I. INTRODUCTION

General

The Columbia River Basin Fish and Wildlife Program (Program) was developed by the Northwest Power Planning Council (Council) in accordance with Public Law 96-501, the Pacific Northwest Electric Power Planning and Conservation Act (Act). The purpose of the Program is to guide the Bonneville Power Administration (BPA) and other Federal agencies in carrying out their responsibilities to protect, mitigate, and enhance fish and wildlife of the Columbia River Basin. The Act explicitly gives BPA the authority and responsibility to use the BPA fund for these ends, to the extent that fish and wildlife are affected by the development and operation of hydroelectric generation in the Columbia River Basin. This document presents BPA's plans for implementing the Program during Fiscal Year (FY) 1989.

BPA's Columbia River Basin Fish and Wildlife Program Work Plan (Work Plan) reflects the primary goals of the Council's Action Plan (Section 1400 of the Program): to provide a solid, timely, and focused basis for budgeting and planning. In addition, BPA's Work Plan provides a means to judge progress and the success of Program implementation.

This Work Plan has been organized and written to meet the specific needs of the Council's Action Plan, as described in Action Items 10.1-10.3 of the Program. The Work Plan includes schedules with key milestones for FY 1989 and beyond, and is organized to address the Action Items assigned to BPA in Section 1400 of the 1987 Program.

All BPA-funded projects discussed in the FY 1989 Work Plan are listed in Tables 1 and 2 according to their current status. Table 1 (pp. 3-11) lists completed, ongoing, and deferred projects. Table 2 (pp. 12-13) lists all projects which BPA plans to fund as "new" projects in FY 1989. "Ongoing" status indicates that the project started in FY 1988 or before, and that it was still being implemented by BPA at the end of FY 1988. "Deferred" means that BPA implementation has been postponed to FY 1990 or later. "Completed" indicates completion during FY 1988. "New" denotes projects that BPA plans to start in FY 1989.

A number of projects are expected to begin in late FY 1988 and have been listed in the Work Plan as ongoing, based on their projected start dates in September 1988. Several other projects are expected to end in late FY 1988. These projects have been listed as completed, based on projected completion dates in September 1988.

FY 1989 Work Plan Format

The FY 1989 Work Plan continues to focus on individual Program Action Items. Each Action Item entry is accompanied by the relevant Program measure language (or abstract), a statement of BPA's objectives in implementing the Action Item, a discussion of background and progress to date, and a summary of implementation plans for FY 1989 to accomplish the Action Item.

The Work Plan also presents plans for individual project implementation. Project level reporting has been condensed to tabular form wherever possible. Tables are subdivided into:

I. Completed Projects
II. FY 1988 Ongoing Projects
III. Deferred Projects (if applicable)
IV. New Projects

Within each of these four categories, appropriate information is provided, e.g., Project Number, Project Title, Date Completed, Results/Conclusions, Project Status, Schedule and Milestones, Anticipated Start Date, Reason for Deferral, and Project Officer.

Abbreviations Used

The FY 1989 Work Plan uses many abbreviations to identify various agencies, organizations, and technical terms. Table 3 (pp. 14 and 15) lists the full name of each group or the technical term and the corresponding abbreviation used in the Work Plan.

TABLE 1
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
2.1	WATER BUDGET MANAGEMENT	87-127	ONGOING	SMOLT MONITORING AND WATER BUDGET PROGRAM
2.2	SMOLT MONITORING	84-14	ONGOING	SMOLT MONITORING AT FEDERAL DAMS
		83-323	ONGOING	SMOLT CONDITION AND ARRIVAL TIMING AT LOWER GRANITE
		87-401	ONGOING	SMOLT SURVIVAL AND TRAVEL TIME
Deleted	RESEARCH	82-3	ONGOING	PREDATOR FOOD HABITS STUDY
		82-12	ONGOING	JOHN DAY RESERVOIR SQUAWFISH/WALLEYE ABUNDANCE
3.1	CONDUIT DESIGN	86-47	COMPLETED	CONDUIT BYPASS EVALUATION
4.1	ELLENSBURG SCREENS	87-47	ONGOING	ELLENSBURG SCREENS CONSTRUCTION
4.2	HABITAT AND PASSAGE IMPROVEMENT PROJECTS	81-108	ONGOING	DESCHUTES RIVER SUBBASIN
		83-7	ONGOING	IDAHO HABITAT EVALUATION/IMPROVEMENT PROJECTS
		83-359	ONGOING	SALMON RIVER HABITAT ENHANCEMENT
		83-415	ONGOING	ALTURAS LAKE
		83-436	ONGOING	THREE MILE DAM PASSAGE IMPROVEMENTS
		84-5	ONGOING	CLEARWATER RIVER SUBBASIN
		84-6	ONGOING	CLEARWATER HABITAT ENHANCEMENT
		84-8	ONGOING	JOHN DAY RIVER SUBBASIN
		84-9	ONGOING	GRANDE RONDE RIVER SUBBASIN
		84-11	ONGOING	WILLAMETTE/CLACKAMAS RIVER SUBBASIN
		84-21	ONGOING	MAINSTEM, MIDDLE FORK, JOHN DAY RIVER
		84-22	ONGOING	MIDDLE FORK & TRIBUTARIES, JOHN DAY RIVER
		84-23	ONGOING	CAMAS CREEK; IDAHO
		84-24	ONGOING	MARSH, ELK, UPPER SALMON RIVER, IDAHO

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
4.2	HABITAT AND PASSAGE IMPROVEMENT PROJECTS (cont.)	84-25	ONGOING	GRAND RONDE HABITAT IMPROVEMENT PROJECT
		84-28	DEFERRED	LEMHI RIVER REHABILITATION, IDAHO
		84-29	DEFERRED	PANTHER CREEK, IDAHO, HABITAT REHABILITATION
		84-62	ONGOING	TROUT CREEK HABITAT IMPROVEMENT
		85-71	DEFERRED	IZEE FALLS
		86-75	ONGOING	LITTLE NACHES RIVER PASSAGE
		86-78	COMPLETED	HABITAT EVALUATION AND MONITORING/COLUMBIA BASIN
		86-79	ONGOING	FIFTEENMILE CREEK BASIN HABITAT IMPROVEMENT
		86-124	ONGOING	LITTLE FALL CREEK PASSAGE FACILITIES MAINTENANCE
		87-100	ONGOING	UMATILLA HABITAT IMPROVEMENT - USFS
		87-100-1	ONGOING	UMATILLA HABITAT IMPROVEMENT - CTUIR
		87-100-2	ONGOING	UMATILLA HABITAT IMPROVEMENT - ODFW
		87-104	ONGOING	PASSAGE IMPROVEMENTS AT WESTLAND DIVERSION
		87-104-1	ONGOING	PASSAGE IMPROVEMENTS AT STANFIELD DIVERSION
		87-112	ONGOING	OROFINO CREEK PASSAGE
		87-113	DEFERRED	HABITAT EVALUATION AND MONITORING/OREGON
		87-114	DEFERRED	HABITAT EVALUATION AND MONITORING/WASHINGTON
		87-115	DEFERRED	GRANDE RONDE MONITORING
		87-409	COMPLETED	WEID MAIN CANAL PUMPING
		87-416	ONGOING	MAXWELL DIVERSION IMPROVEMENT
		87-416-1	ONGOING	COLD SPRINGS DIVERSION IMPROVEMENT
		88-22	ONGOING	UMATILLA BASIN TRAP AND HAUL
		88-50	ONGOING	WEID MAIN CANAL PUMPING
		88-116	ONGOING	TROUT CREEK O & M
		88-127	COMPLETED	JOHN DAY/JOSEPH CREEK AERIAL PHOTOGRAPHY
		88-128	COMPLETED	LOWER DESCHUTES AERIAL PHOTOGRAPHY
4.3	ROZA	NONE		
4.4	PROSSER	NONE		

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
4.5	YAKIMA PASSAGE	85-62	ONGOING	PASSAGE IMPROVEMENT EVALUATION
		86-65	DEFERRED	SNIPES/ALLEN SCREEN CONSTRUCTION
		86-91	ONGOING	PREDESIGN FOR YAKIMA BASIN FISH PASSAGE
		86-112	ONGOING	TOPPENISH/WESTSIDE/ELLENSBURG SCREEN FABRICATION
		87-108	COMPLETED	WESTSIDE DITCH SCREEN CONSTRUCTION
		86-109	COMPLETED	MARION DRAIN SCREEN CONSTRUCTION
		88-29	DEFERRED	OLD RESERVATION CANAL
		88-111	DEFERRED	STEVENS/NACHES/SELAH
4.6	UMATILLA RIVER WATER EXCHANGE	NONE		(SEE TABLE 2 FOR NEW PROJECT)
4.14.1	JOHN DAY ACCLIMATION	86-82	COMPLETED	JOHN DAY ACCLIMATION POND
		83-313	ONGOING	NET PEN REARING OF FALL CHINOOK SALMON
4.15.1	YAKIMA HATCHERY	86-45	ONGOING	YAKIMA HATCHERY - CLE ELUM PROJECT
		87-135	COMPLETED	YAKIMA HATCHERY - MASTER PLAN DEVELOPMENT
		87-136	ONGOING	YAKIMA HATCHERY - WAPATO CANAL PEN REARING
		88-123	ONGOING	YAKIMA HATCHERY COORDINATION - ROZA
		88-115	ONGOING	YAKIMA HATCHERY PREDESIGN
		88-120	ONGOING	YAKIMA AND KLICKITAT NATURAL/ARTIFICIAL PRODUCTION PROGRAM
		88-149	ONGOING	YAKIMA HATCHERY WATER ANALYSIS
Deleted	LOW-CAPITAL PRODUCTION FACILITIES	83-364	ONGOING	EVALUATION OF A LOW-CAPITAL SALMON PRODUCTION FACILITY
4.16.1-4.16.2	NORTHEAST OREGON SPRING CHINOOK	88-53	ONGOING	NORTHEASTERN OREGON ARTIFICIAL PRODUCTION FACILITIES

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
4.17.1	UMATILLA RELEASE AND COLLECTION	83-435	ONGOING	MINTHORN AND BONIFER SPRINGS ACCLIMATION FACILITIES
4.17.2	UMATILLA HATCHERY	84-33-1	COMPLETED	COST ESTIMATE PROPOSED FOR THE UMATILLA HATCHERY
		84-33-2	ONGOING	ANALYSIS OF O_2 MICHIGAN REARING STRATEGIES
		84-33-3	COMPLETED	ANALYSIS OF FINAL DESIGNS OF THE UMATILLA HATCHERY
		84-33	ONGOING	UMATILLA HATCHERY
		87-415	ONGOING	UMATILLA HATCHERY MASTER PLAN
		88-157	COMPLETED	UMATILLA HATCHERY DESIGN REVIEW
4.17.3	NEZ PERCE	83-350	ONGOING	NEZ PERCE LOW-CAPITAL PRODUCTION FACILITIES
		88-126	ONGOING	NEZ PERCE TECHNICAL SUPPORT
4.17.4	CLEARWATER	88-15	ONGOING	MAINSTEM CLEARWATER RIVER STUDY
Deleted	IMPROVED HATCHERY EFFECTIVENESS	83-312	ONGOING	EPIDEMIOLOGY AND CONTROL OF INFECTIOUS DISEASES
		83-363	ONGOING	DEVELOPMENT OF DIETS FOR ENHANCED SURVIVAL OF SALMON
		84-43	ONGOING	EVALUATION OF A SUBUNIT VACCINE AGAINST INFECTIOUS HEMATOPOIETIC NECROSIS
		84-45	ONGOING	EFFECT OF NUTRITION ON IMMUNE RESPONSES OF SALMON
		84-46	ONGOING	DEVELOPMENT OF A VACCINE FOR BACTERIAL KIDNEY DISEASE
		84-945	ONGOING	EFFECT OF NUTRITION ON IMMUNE RESPONSES OF SALMON
		87-403	ONGOING	WET LAB FOR DISEASE RESEARCH
4.17.5	WILLAMETTE RIVER SPRING CHINOOK	NONE		
4.17.6	PELTON DAM	NONE		(SEE TABLE 2 FOR NEW PROJECT)
4.21	UPPER COLUMBIA HATCHERY RELEASE	NONE		

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
5.1	KNOWN STOCK ELECTROPHORESIS	84-2	COMPLETED	PROTECTION OF UPPER SNAKE RIVER WILD ADULT STEELHEAD
6.1	TECHNICAL WORK GROUPS	87-307	ONGOING	AREA OF EMPHASIS TECHNICAL WORK GROUPS
6.2	FIVE-YEAR WORK PLANS	83-319	ONGOING	PIT TAG RESEARCH
		88-134	ONGOING	MCNARY COLLECTION EFFICIENCY
		88-141	ONGOING	DWORSHAK PHOTOPERIOD
		88-152	ONGOING 1/	INFECTIOUS HEMATOPOIETIC NECROSIS VIRUS RESEARCH
		88-155	ONGOING 1/	CONTROL OF BACTERIAL KIDNEY DISEASE
		88-159	ONGOING 1/	BEHAVIOR OF JUVENILE SALMONIDS
		88-160	ONGOING 1/	BIO-ENGINEERING EVALUATION OF OXYGEN SUPPLEMENTATION
		88-163	ONGOING 1/	EFFECTS OF CODED WIRE TAGGING ON SPRING CHINOOK
6.3	HATCHERY DATA BASE	86-13	ONGOING	FISH HEALTH MONITORING IN WASHINGTON - WDG
		86-54	ONGOING	FISH HEALTH MONITORING IN WASHINGTON - WDF
		87-117	ONGOING	FISH HEALTH MONITORING IN IDAHO
		87-118	ONGOING	FISH HEALTH MONITORING IN OREGON
		87-119	ONGOING	FISH HEALTH MONITORING - USFWS
6.4	NATURAL PRODUCTION DATA BASE	NONE		
6.5	HIGH PRIORITY PROJECTS	87-421	ONGOING	MALACHITE GREEN REMOVAL FROM HATCHERY EFFLUENT
6.7	SUPPLEMENTATION RESEARCH	88-100	ONGOING 1/	ANALYSIS OF PAST & PRESENT SALMON AND STEELHEAD SUPPLEMENTATION
6.10	SYSTEM MONITORING AND EVALUATION	88-108	ONGOING 1/	COORDINATED INFORMATION SYSTEM (CIS)

1/ Projected status, based on expected start date in September 1988.

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
6.12	COORDINATION AND CONSULTATION	NONE		
7.1	COLVILLE HATCHERY	85-38	ONGOING	COLVILLE HATCHERY
		85-38-1	ONGOING	COLVILLE FISH CULTURALIST TRAINING
7.2	COEUR D'ALENE	NONE		(SEE TABLE 2 FOR NEW PROJECT)
7.3	KOKANEE SALMON HATCHERIES	88-62	ONGOING	KOKANEE HATCHERIES
7.4	LAKE ROOSEVELT	88-63	ONGOING	LAKE ROOSEVELT MONITORING PROGRAM
7.5	KOOTENAI INDIAN RESERVATION	88-64	ONGOING 1/	DESIGN/CONSTRUCT/OPERATE STURGEON HATCHERY
7.6	KOOTENAI RIVER	88-65	ONGOING 1/	ASSESS IMPACTS OF WATER LEVEL FLUCTUATIONS
7.7	KALISPEL RESERVATION	88-66	ONGOING	ASSESS FISHERY IMPROVEMENT OPTIONS IN THE PEND OREILLE RIVER
7.10	FUND PROJECTS	88-156	ONGOING	DUCK VALLEY RESIDENT FISH PROJECT
7.11	MONTANA PROJECTS	81-105	ONGOING	KERR/HUNGRY HORSE EFFECTS ON FLATHEAD KOKANEE
		83-1	COMPLETED	LOWER FLATHEAD RIVER FISHERIES STUDY
		85-6	COMPLETED	KOOTENAI RIVER TRIBUTARIES INSTREAM FLOW STUDY
7.12	STURGEON	83-316	ONGOING	COLUMBIA RIVER WHITE STURGEON STUDY
		86-50	ONGOING	STURGEON STATUS AND HABITAT REQUIREMENTS
Deleted	PEND OREILLE HATCHERY	85-339	ONGOING	KOKANEE STOCK STATUS AND EVALUATION OF CABINET GORGE HATCHERY

1/ Projected status, based on expected start date in September 1988.

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
Deleted	CLARK FORK PROJECTS	NONE		
7.13	KOOTENAI RIVER MATERIALS REMOVAL	NONE		
7.14	DWORSHAK DAM IMPACTS ASSESSMENT	87-99	ONGOING	DWORSHAK DAM IMPACTS ASSESSMENT
		87-407	ONGOING	DWORSHAK IMPACTS ASSESSMENT/RAINBOW/SMALLMOUTH BASS
7.15	DRAWDOWN RECOMMENDATIONS	83-465	ONGOING	HUNGRY HORSE RESERVOIR LEVELS
		83-467	ONGOING	LIBBY RESERVOIR LEVELS
Deleted	MITIGATION STATUS REPORTS/ CONSULTATIONS	NONE		CONSULTATIONS AMONG AFFECTED PARTIES SHOULD BEGIN
8.1	LOSS STATEMENTS	83-2	COMPLETED	WATER LEVEL IMPACT ON CANADA GEESE
		87-110	COMPLETED 2/	BONNEVILLE WILDLIFE ASSESSMENT/MITIGATION PLAN - PHASE I
		87-111	COMPLETED	DWORSHAK WILDLIFE ASSESSMENT/MITIGATION PLAN - PHASE I (IDFG)
		87-406	COMPLETED	DWORSHAK WILDLIFE ASSESSMENT/MITIGATION PLAN - PHASE I (NPT)
		88-110	ONGOING	WILDLIFE HABITAT/LOSS MINIDOKA DAM
		88-12	ONGOING 1/	LOWER COLUMBIA WILDLIFE PROTECTION/ENHANCEMENT
8.2	LOSS STATEMENT CONSULTATIONS	NONE		
8.3	MITIGATION PLANS	87-43	COMPLETED	ALBENI FALLS WILDLIFE LOSS STUDY AND MITIGATION PLAN
		88-44	ONGOING	WILDLIFE PROTECTION/ENHANCEMENT OF CHIEF JOSEPH DAM
		88-154	ONGOING 1/	WILDLIFE PROTECTION/ENHANCEMENT OF DWORSHAK DAM

1/ Projected status, based on expected start date in September 1988.
2/ Projected status, based on expected completion date in September 1988.

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
8.4-	LIBBY DAM	84-38	ONGOING	URAL-TWEED BIGHORN SHEEP MITIGATION, HABITAT IMPROVEMENT
8.7	1987-1991	84-39	ONGOING	URAL-TWEED BIGHORN SHEEP MITIGATION
		87-55	ONGOING	NW MONTANA WILDLIFE HABITAT ENHANCEMENT
		88-43	ONGOING	LIBBY WILDLIFE HABITAT ENHANCEMENT
8.8-	HUNGRY HORSE	87-60	ONGOING	MONTANA EASEMENTS/LAND ACQUISITION
8.10	1987-1991	88-113	ONGOING 1/	HUNGRY HORSE WILDLIFE PROTECTION/ENHANCEMENT
		88-147	ONGOING	MONTANA CONSERVATION EASEMENT
----	WILDLIFE MITIGATION	NONE		(SEE TABLE 2 FOR NEW PROJECT)
8.11	TRUST FUND	NONE		
9.1	CONTINUE TO APPLY PROGRAM SECTIONS 1204 (a), (b), (c), AND (e) TO ALL NEW PROJECTS.			
9.3	CUMULATIVE EFFECTS	NONE		
Deleted	PROTECTED AREAS	NONE		
9.4	DEMO - TURBINE INTAKE SCREEN	NONE		
10.1-10.3	EXPENDITURE AND OBLIGATION PLANS AND PROGRAM WORK PLANS. SCHEDULES WITH KEY MILESTONES FOR THE SUBSEQUENT FISCAL YEAR.			

1/ Projected status, based on expected start date in September 1988.

TABLE 1 (cont.)
FY 1989 WORK PLAN PROJECTS

ONGOING, DEFERRED, AND COMPLETED PROJECTS

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	STATUS	TITLE
----	OTHER PROJECTS	78-1	COMPLETED	IMPRINTING HATCHERY-REARED SALMON AND STEELHEAD
		79-2	COMPLETED 2/	COLUMBIA RIVER HATCHERY CONTRIBUTIONS TO PACIFIC CHINOOK FISHERY
		81-1	ONGOING	JOHN DAY RESERVOIR REQUIREMENTS FOR CHINOOK SALMON
		82-2	ONGOING	BARGE TRANSPORTATION STUDY
		82-16	ONGOING	YAKIMA RIVER SPRING CHINOOK ENHANCEMENT STUDY
		85-35	COMPLETED	JUVENILE RADIO TAG STUDIES
		87-129	COMPLETED	LOWER GRANITE POOL SURVIVAL STUDIES
		87-130	ONGOING	FREEZE-BRAND RECOVERY DATA (MCNARY DAM)
----	PROJECT SUPPORT ACTIVITIES	82-13	ONGOING	CODED-WIRE TAG RECOVERY
		83-6	ONGOING	OPERATION/MAINTENANCE OF BPA FISH TAGGING TRAILER

2/ Projected status, based on expected completion date in September 1988.

TABLE 2
FY 1989 WORK PLAN PROJECTS

NEW PROJECTS IN FY 1989

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	TITLE
2.2	SMOLT MONITORING	89-20	SPILL MONITORING
4.2	SUBBASIN HABITAT AND PASSAGE	89-24	EVALUATE URB ENHANCEMENT PROJECTS
4.6	UMATILLA RIVER WATER EXCHANGE	89-27	PROVIDE POWER FOR USBR PUMPS
4.14.1	JOHN DAY ACCLIMATION	89-16	DESIGN, CONSTRUCT, EVALUATE JOHN DAY ACCLIMATION FACILITIES
4.17.6	PELTON DAM LADDER	89-29	PROPAGATION IN PELTON DAM LADDER
6.2	FIVE-YEAR WORK PLANS	89-28	JUVENILE FISH PASSAGE RESEARCH
		89-XXX	REVIEW AND SYTHESIZE HISTORICAL DATA
		89-XXX	COHORT METHOD AND ANALYSIS
		89-XXX	WORKSHOP - SMOLTIFICATION/TRAVEL TIME
		89-XXX	WORKSHOP - POOL SURVIVAL
		89-XXX	EVALUATION OF PRE-RELEASE TEMPERATURE ACCLIMATION
		89-XXX	REGISTRATION OF ERYTHROMYCIN
		89-XXX	ASSESS ANADROMOUS PRODUCTION CAPACITY IN COLUMBIA RIVER BASIN
		89-XXX	SPRING CHINOOK SMOLT QUALITY ASSESSMENT
7.2	COEUR D'ALENE RESERVATION	89-10	STREAM SURVEY, HATCHERY, AND HABITAT IMPROVEMENTS

TABLE 2
FY 1988 WORK PLAN PROJECTS

NEW PROJECTS IN FY 1989

ACTION ITEM 1987 PROGRAM	TECHNICAL SUBJECT	PROJECT NUMBER	TITLE
8.3	MITIGATION PLANS	89-15	BONNEVILLE DAM MITIGATION PLAN
		89-22	MINIDOKA DAM MITIGATION PLAN
8.4-8.7	LIBBY DAM 1987-1991	89-21	LIBBY DAM WHITE-TAILED DEER
8.8-8.10	HUNGRY HORSE 1987-1991	89-23	HUNGRY HORSE EASEMENT/ACQUISITION
---	WILDLIFE MITIGATION	89-14	WILDLIFE MITIGATION (Oregon, Washington, Idaho)

TABLE 3. ABBREVIATIONS USED IN THE WORK PLAN

Abbreviation	Complete Title
Act	Pacific Northwest Electric Power Planning and Conservation Act
AIWP	Annual Implementation Work Plan
BIA	Bureau of Indian Affairs
BKD	Bacterial Kidney Disease
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
CBFWA	Columbia Basin Fish and Wildlife Authority
CCT	Confederated Colville Tribes
CIS	Coordinated Information System
Council	Northwest Power Planning Council
CRITFC	Columbia River Inter-Tribal Fish Commission
CSKT	Confederated Salish-Kootenai Tribes
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CTWSIR	Confederated Tribes of the Warm Springs Indian Reservation
CY	Calendar Year
ELISA	Enzyme-Linked Immunosorbent Assay
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
FCRPS	Federal Columbia River Power System
FDA	Food and Drug Administration
FDTWG	Fish Disease Technical Work Group
FY	Fiscal Year
HETWG	Hatchery Effectiveness Technical Work Group
ICFWRU	Idaho Cooperative Fish and Wildlife Research Unit
IDFG	Idaho Department of Fish and Game
IHN	Infectious Hematopoietic Necrosis
IPN	Infectious Pancreatic Necrosis
IPP	Implementation Planning Process
IRB	Internal Review Budget
KCFS	Thousand cubic feet per second
KIT	Kalispel Indian Tribe
MAF	Million acre-feet
MDFWP	Montana Department of Fish, Wildlife and Parks
MEG	System Monitoring and Evaluation Work Group
NEPA	National Environmental Policy Act
NF	National Forest
NMFS	National Marine Fisheries Service
NPT	Nez Perce Tribe
ODFW	Oregon Department of Fish and Wildlife
OHSU	Oregon Health Sciences University
OSU	Oregon State University
PIT	Passive Integrated Transponder
PMFC	Pacific Marine Fisheries Commission
PMIS	Program Management Information System
PNUCC	Pacific Northwest Utilities Conference Committee
PNWFHPC	Pacific Northwest Fish Health Protection Committee
PRG	Program Policy Review Group

TABLE 3. ABBREVIATIONS USED IN THE WORK PLAN
(Continued)

Abbreviation	Complete Title
Program	Columbia River Basin Fish and Wildlife Program
M/WBTWG	Reservoir Mortality and Water Budget Effectiveness Technical Work Group
RPA	Request for Project Authorization
SCS	Soil Conservation Service
SPG	System and Subbasin Planning Group
SPOC	System Planning Oversight Committee
SPT	Shoshone Paiute Tribe
SRG	Scientific Review Group
STWG	Supplementation Technical Work Group
TWG	Technical Work Group
TWgG	Technical Working Group
UCUT	Upper Columbia United Tribes
URB	Umatilla River Basin
URBFC	Upriver Bright Fall Chinook
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UW	University of Washington
WDF	Washington Department of Fisheries
WDW	Washington Department of Wildlife
WEID	West Extension Irrigation District
Work Plan	Columbia River Basin Fish and Wildlife Program Work Plan
WSU	Washington State University
YIN	Yakima Indian Nation

II. FY 1989 BPA BUDGET ALLOCATION

BPA's FY 1989 Work Plan will continue to emphasize anadromous fish. Major areas of anadromous fish activities include: hydroelectric system operations; fish health, supplementation, and artificial production; Yakima River Basin enhancement, including the Yakima Hatchery construction; and habitat improvement projects located throughout the Columbia River Basin.

The 1987 Council amendments to the Program continue to influence ongoing projects and to add significant new activities for BPA implementation. These amendments range from specific activities which are ready for implementation to numerous planning activities. BPA has identified and plans to initiate 20 new projects during FY 1989 (see Table 2, p. 12). These "new start" activities include offsite enhancement, hatchery effectiveness, mainstem passage, wildlife, and resident fish projects.

BPA expects to start a total of five new wildlife projects involving mitigation planning and wildlife mitigation at a number of Federal Columbia River hydroelectric projects. One new Resident Fish project will involve stream survey, habitat enhancement, and monitoring on the Coeur D'Alene Reservation.

The amended Program will continue several planning programs that are expected to add new activities for BPA implementation. These include several Technical Work Groups which are continuing to produce and detail Five-Year Research Work Plans, as well as System and Subbasin Planning and System Monitoring and Evaluation.

III. DRAFT IMPLEMENTATION PLANNING PROCESS

September 15, 1988

As of the publication date of the FY 1989 Work Plan, BPA and the fish and wildlife agencies and Tribes were still revising the Implementation Planning Process (IPP). The IPP presented below is in draft form and therefore subject to change.

INTRODUCTION

As expressed in the Letter of Understanding (Attachment 1) between BPA and CBFWA signed in December 1987, BPA intends to consult with fish agencies and tribes as it implements the Fish and Wildlife Program. BPA will also solicit opinions from members of the public who choose to participate in the implementation planning process (IPP). To facilitate the ongoing provision of these opinions and exchange of information, BPA will form various types of groups in which interested persons can participate. When it identifies a particular group, the IPP identifies the minimum type and number of persons it wishes to join the group. The group will also be open to additional interested persons. Anyone who wishes to participate may do so.

BPA will use these groups as a forum for the exchange of opinions and discussion of implementation of the Fish and Wildlife Program. These opinions will help BPA to implement the Fish and Wildlife Program.

Use of the groups is part of a larger public involvement process respecting implementation of the Fish and Wildlife Program. The groups serve as a vehicle by which BPA can maintain contact with interested individuals. BPA seeks the opinions of each participant in these groups, as contrasted with group opinions. BPA encourages participants to discuss their differences and to reconcile conflicting opinions. However, BPA does not demand or always expect a consensus. A diversity of opinion ensures that BPA takes into consideration all facets of an issue and all implications of its implementation decisions.

The IPP document and its attachments often refer to a certain group or groups. References to groups constitute references to the individual participants in the groups.

PURPOSE

- Establish a Program implementation planning process which develops input to the BPA budget process and implementation plans in advance of the fiscal year;
- Establish time frames for each stage of process;
- Bridge the span from Program measures and action items to BPA procurement;
- Develop annual program work plan in a timely manner;
- Ensure objective, scientific, review, design, statistics;
- Ensure feedback of relevant Program progress to planning process;

- Ensure evaluation and monitoring at project and Program level;
- Define functions, products and responsibilities at each step; and
- Respond to all of the CBFWA/BPA Program Implementation Objectives;

PROGRAM IMPLEMENTATION PLANNING PHASE

STEP 1

Title: Program Policy Review

A key component of the annual Fish and Wildlife Program (Program) implementation planning process is the initiation of each iteration with clear and concise guidance regarding policy matters, identification of Programmatic technical areas to be addressed, and suggestions of the funding levels needed to support the prescribed activities. The product of this first step must reflect the knowledge gained through previous Program implementation (see Step 9), and ongoing research and planning, e.g., the research Areas of Emphasis, Monitoring and Evaluation, and System and Subbasin Planning. This initial step in the Program implementation planning process will generate two products. First, a general draft outline of the Annual Implementation Work Plan (Work Plan) for the upcoming fiscal year will be developed. Second, input to development of the BPA internal review budget (IRB) will be required. The funding recommendations will be required 20 months ahead of the implementation fiscal year. For example, the draft outline for the FY 90 Work Plan would be developed in August - September of CY 1988 and the IRB recommendation for FY 1991 would be developed the following December - January, CY 88-89. (See Figure 1)

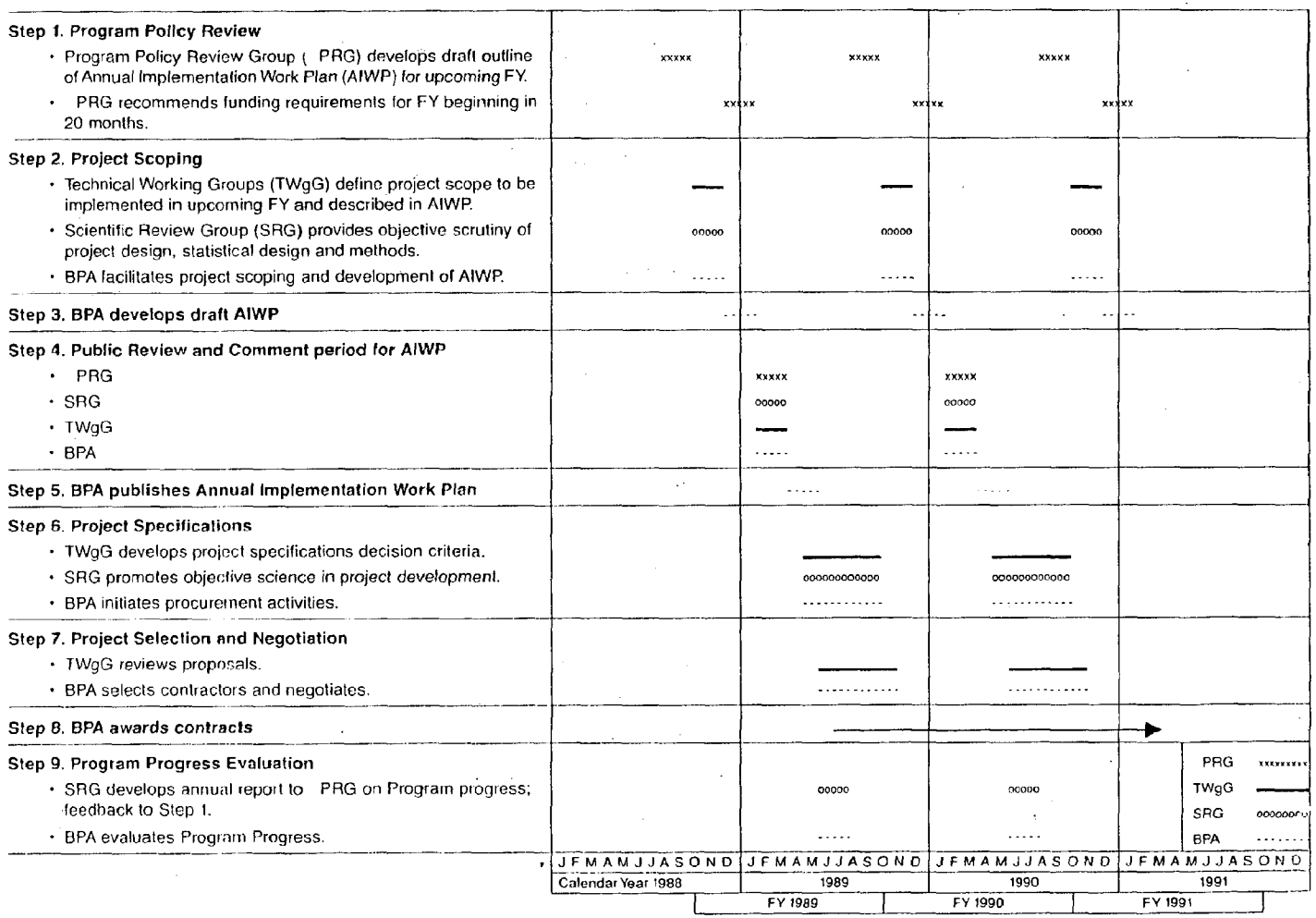
Participating in this first step of the Program planning process will be individuals comprising a Program Policy Review Group (PRG). The individuals will include senior level representatives of the agencies, Tribes, utilities, Corps of Engineers, Council, and BPA.

The PRG does not exist currently, but its formation and function is critical to the implementation planning process. The PRG is open to individuals desiring to provide input to BPA during the planning process. The individuals participating in this body should have a broad perspective of the Columbia River Basin fish and wildlife resource, the Program, and all policy and institutional relationships that affect the Program.

During Step 1 of this process PRG participants will facilitate progress toward several of the objectives developed recently by the CBFWA and BPA (see Attachment 2). Step 1 specifically addresses those objectives concerned with preparation of the Annual Implementation Work Plan, evaluation/accountability in achieving Work Plan objectives, and transfer of data and information.

Figure 1.

Schedule and Participants for the Fish and Wildlife Program Implementation Planning Process
(Two iterations of process for FY 1990 and FY 1991 are shown)



Products and Schedule for each participant:

- Draft outline of the Annual Implementation Work Plan for upcoming fiscal year, August - September
- Input to BPA Internal Review Budget (IRB) for fiscal year beginning in 20 months, December - January
- Estimate costs and productivity for Program/project components
- Establish priorities for Program activities
- Resolution of policy, political, or major technical conflicts

Participants BPA:

- PRG - group of representatives from BPA, Council, PNUCC, CBFWA, and Corps of Engineers and, in addition, individuals who wish to participate

STEP 2

Title: Project Scoping

This step will continue the interactive and collaborative process for planning implementation of the Council's Program. In Step 1 PRG participants produced a draft outline of the Annual Implementation Work Plan for the upcoming fiscal year. Step 2 continues further development of the Work Plan by defining the scope of projects to be implemented in the upcoming fiscal year. Participants in this step include BPA technical staff and their counterparts from the CBFWA, Council research planning, persons in Technical Work Groups, individuals in CBFWA technical committees, Council staff, PNUCC representatives, and interested individuals. This step is envisioned as the beginning of the process described in Program measure 206(b)(5). From this point forward, several process steps will rely heavily on individuals participating in these groups. References will be made to "technical working groups." These should not be confused with the Council's Technical Work Groups or TWG's, although the TWG's will be involved.

For each component of the draft outline Annual Implementation Work Plan BPA planners may need to define the technical scope, scientific

approach, research fish needs, cost estimates or budget requirements, fish management issues, and coordination requirements. Information developed must be of sufficient detail to enable BPA to complete the draft Work Plan and further define program funding levels for inclusion in BPA's budget submittal to the Department of Energy.

The Scientific Review Group (Step 9) will play an oversight, or feedback, role during Step 2 of the implementation planning process. The Scientific Review Group will be composed of senior research scientists representing a broad range of disciplines, e.g., fisheries science, statistics, and mathematical modeling, and other interested persons. This oversight function is appropriate at the initial step of Program measure implementation where particular and objective scrutiny should be given to project design, statistics, strategies and methodologies. The specific details of these activities must be generated by individuals in expert technical working groups. However, Scientific Review Group participants during Step 2 and throughout other steps of the Program implementation planning process will need to play an active role in evaluating the likelihood of success based on project or experimental design, statistics, strategies and methods chosen. This oversight role will be available also at Step 4, review of and comment on the Annual Implementation Work Plan Draft and Step 6, the initiation of the procurement process.

It is intended that during Step 2 the participants will be working towards several objectives developed by the CBFWA and BPA (Attachment 2). Step 2 specifically addresses preparation of the Annual Implementation Work Plan, participation by the fish and wildlife agency and Tribes, consideration of the input of the Council's Technical Work Groups (TWG's), consideration of the non-research area of the Program, resolution of technical problems prior to procurement, and provision for peer review and standardization of proposal format.

Products and Schedule:

- Definition and scoping of work plan activities for upcoming fiscal year, October - November

- Development and refinement of Program implementation cost and productivity estimates for upcoming fiscal year, October - November

- Establish priorities for project implementation

Participants:

- BPA Budget and Procurement Offices

  Based on the technical subject matter, participants in or from:

  -- Scientific Review Group
  -- BPA TWG representatives and COTR's
  -- Hatchery Effectiveness Technical Work Group

-- Supplementation Technical Work Group
-- Reservoir Mortality and Water Budget Effectiveness Technical Work Group
-- Fish Disease Technical Work Group
-- CBFWA technical committees
-- PNUCC
-- Council staff
-- Corps of Engineers
-- Monitoring and Evaluation Work Group
-- System and Subbasin Planning Work Groups
-- Ad hoc working groups

STEP 3

Title: Draft Annual Implementation Work Plan

When the participants in technical working groups complete the scoping efforts, BPA will consider their opinions when it assembles the draft Annual Implementation Work Plan. BPA will ensure that the scope, content, and format are consistent with the Program and take into consideration the technical guidance of the working groups. Based on the longer range projection associated with Step 1, appropriate indications of future implementation will also be covered in the draft Annual Implementation Work Plan. BPA Budget and Procurement Offices will remain involved in the planning process to monitor DOE approval and prepare for the procurement process.

Products and Schedule:

- Draft Annual Implementation Work Plan for the upcoming fiscal year, December - January

Participants:

- BPA

STEP 4

Title: Program Policy Review Group and Public Comment and Review

BPA will publish the draft Annual Implementation Work Plan for public comment and review. PRG and the Scientific Review Group participants will review the draft. A general public review and comment period will also be scheduled. Representatives from the technical working groups will assist BPA during the public review process in responding to comments received. Comments from Policy or Scientific Review Groups members or from the public process may require adjustments to the Annual Implementation Work Plan.

It is intended that during Step 4, the participants will be working towards several objectives developed by the CBFWA and BPA. Step 4

specifically addresses those objectives concerned with preparation of the Annual Implementation Work Plan, participation by the Fish and Wildlife agency and Tribes, consideration of the input of the TWG's, consideration of the non-research area of the Program, resolution of technical problems prior to procurement, and provision for peer review.

Products and Schedule:

- Comments on the draft Annual Implementation Work Plan from PRG and Scientific Review Group participants, and the interested public, February - March

- Technical assistance to BPA from the agencies, Tribes, and utilities during the public comment and review process

Participants:

- The PRG participants (Step 1)

- The Scientific Review Group participants (Step 9)

- Representatives for the agencies, Tribes, and utilities

- General public and special interest groups

- Technical working groups participants assisting in development of the Annual Implementation Work Plan

STEP 5

Title: BPA Annual Implementation Work Plan

BPA will take into consideration the comments generated during Step 4 and make appropriate modifications to the draft Annual Implementation Work Plan. The final Work Plan will then be published and presented to the Northwest Power Planning Council according to the Program Action Plan Item 10.2. It is intended that implementation planning and resulting Annual Implementation Work Plan will be completed by the April preceding the targeted fiscal year.

Participants:

- BPA

Products and Schedule:

- Annual Implementation Work Plan for the upcoming fiscal year, April

IMPLEMENTATION PHASE

STEP 6

Title: Initiate Project Implementation

BPA Program Implementation involves procurement[1] of the activities described by the Work Plan. In order for BPA procurement to proceed, specific requirements must be met. The purpose of this step is to satisfy those requirements. Most important among these is the development of project specifications sufficient to ensure that BPA is able to procure the desired product. Participants in the technical working groups discussed above will assist BPA in developing project specifications during Step 6. BPA will convene meetings of the cognizant technical working groups. The purpose of these meetings will be to discuss the next level of detail to individual projects in the Work Plan. These details may include work scope, recommended methodologies, scientific design, statistical criteria, hypotheses to be tested, research fish needs, etc. In addition to the technical working groups participants, Scientific Review Group participants will be asked how to promote objective and uniform application of sound scientific principles in project development and initiation. It should be recognized that Step 6 in the implementation process represents significant efforts by all involved. Commitment by all parties involved is essential to maintaining the schedule (Figure 1).

This first step of the implementation phase will also require significant decisions. The BPA Procurement Office will decide whether individual projects should proceed competitively or via sole-source methods. Decisions regarding competitive/noncompetitive procurement are the sole responsibility of the BPA Procurement Office. However, technical advisory committee participants may be helpful in recommending the criteria supporting the decision. Later in the procurement process a decision will be required regarding the selection of solicited proposals. Again a set of criteria will be required. The collaborative BPA technical working group process in Step 6 will be a source of recommendations to support both sets of the needed criteria.

Once the decision has been made to enter competitive procurement, or to use sole source, the BPA biologist can develop a procurement request taking into consideration project description recommendations by participants in technical working groups. Procurement can then develop an RFP or seek a proposal from the sole source.

[1] Throughout the discussion of procurement matters the terminology used assumes the use of contracts to accomplish Program purposes. However, BPA may determine that financial assistance is more appropriate for a given project or projects.

It is intended that during Step 6 the participants will be working towards several of the objectives developed by the CBFWA and BPA. Step 6 specifically addresses those objectives concerned with participation of the fish and wildlife agencies and Tribes, consideration of input from the TWG's, consideration of the non-research areas of the Program, and resolution of technical problems prior to procurement.

Products and Schedule:

The first step of the implementation phase involves multiple products and activities. The following will occur, May - September:

- Project specifications
- Competitive or sole source procurement decision
- Requests for Proposals (RFP) or Work Statements
- Council IGA Review
- Evaluation criteria for competitive/sole source decision
- Technical evaluation criteria for proposals

Participants:

- Scientific Review Group
- BPA COTR's, Procurement, TWG's, Council Staff, PNUCC

STEP 7

Title: Project Selection and Negotiation

The BPA procurement process can follow two routes, either through sole-source or through a competitive request for proposals (RFP). The RFP procedure requires approximately 6 months to complete. The sole-source process is shorter requiring about 3 months to complete. Both procedures produce proposals which will be evaluated using criteria developed in Step 6. An RFP may generate multiple proposals from which BPA must select the ones which will implement the project in the most cost effective manner. Taking into consideration recommendations by the agencies and tribes, the Council, PNUCC, and others, BPA will assemble competent technical review panels to assist BPA in evaluating the technical aspects of each proposal.

Regardless of the procurement process employed, i.e., competitive or sole-source, BPA will negotiate subsequently with the selected contractor to develop the contract. The procurement process described takes into consideration selection criteria recommended by participants in the technical working groups. Negotiation and evaluation of the final work statement takes into consideration the other set of criteria developed in Step 6.

It is intended that during Step 7 of this process the participants will be working towards several of the objectives developed recently by the CBFWA and BPA. Step 7 specifically addresses those objectives concerned with consideration of input from the TWG's, the CBFWA and others, evaluation, and achievement of work plan objectives, coordination of implementation activities, and the peer review of proposals.

Products and Schedules:

- Selection of proposals and negotiation of contracts in competitive procurement process, June - October
- Negotiate proposals in sole source procurement, June - October
- Council IGA review

Participants:

- BPA COTR's and Procurement
- Technical working groups
- Contractors
- Council staff

STEP 8

Title: Contracts Award

The final step in the Procurement process is the award of contracts. This step involves only BPA and the contracting parties. The final contract language will be developed, contracts awarded, and necessary funds obligated.

The Program Implementation Planning Process is presented in Figure 1 as sequential. However, it is neither practical nor feasible for BPA procurement staff to award all new contracts or modify all ongoing contracts at a single point in time. Therefore, the efforts leading to the annual work plan will need to consider technical and practical requirements that affect project timing. BPA will develop appropriate contract strategies and start-up/renewal schedules to process procurement actions and contract modifications throughout the fiscal year. Each procurement action will typically require 60-90 days to complete. Complex and/or competitive actions may require much longer lead times.

Product and Schedule:

- Signed contracts or agreements, occur throughout calendar year

Participants:

- BPA COTR's and Procurement
- Contractors

PROGRAM EVALUATION PHASE

STEP 9

Title: Scientific Review Group and Program Progress Evaluation

The Pacific Northwest Electric Power Planning and Conservation Act established "best available scientific knowledge" as a fundamental precept for the Program. The Council in 1984 adopted the concept of "Adaptive Management" as a strategy for implementing the Program. It is incumbent therefore, for BPA to continually monitor and evaluate the effectiveness of implementation activities. In addition, there should be assurance that subsequent implementation will be planned and pursued based objectively on sound science, the knowledge gained through implementation and progress achieved from prior results (both positive and negative).

It is the intent of this step that the process for evaluating and monitoring implementation be formalized and addressed. To achieve the necessary evaluation of Program progress and to provide scientific guidance to implementation and Program planning a Scientific Review Group should be formed. The Scientific Review Group participants will need to provide technical oversight throughout the planning and implementation annual cycle. The Scientific Review Group will be composed of senior research scientists representing a broad range of disciplines, e.g., fisheries science, statistics, and mathematical modeling, and other interested persons. The Group will include participants from CBFWA, PNUCC, Corps of Engineers, BPA, and the Council, as well as other individuals. Participants will provide technical, scientific guidance to PRG members prior to Step 1 of the Program Implementation Planning Process. This guidance will need to address the following:

-- Scientific, technical, policy and Program implementation suggestions guidance, and strategies

-- Individual project and Program measure evaluation and monitoring strategies

-- Suggestions and rationale for needed Fish and Wildlife Program Amendments

-- Selected Annual project reviews

-- Reviews of selected project annual and progress reports

-- Assessments of project specific reviews by working groups, e.g., TWG's, Mainstem Executive Committee, Monitoring and Evaluation Work Group and the System and Subbasin Planning groups

-- Evaluation of the Council's round table discussions, Program Measure 204(g)

As stated earlier the particpants in the PRG are considered pivotal to the overall process by providing policy guidance to Program implementation planning. In Step 1, the PRG participants develop annually draft outlines of the Annual Implementation Work Plan and provide input to the BPA budget planning process. However, these participants may need assistance in order to cope with the huge volume and complexity of results which will be generated by the Program. Therefore, Scientific Review Group participants will need to aid in the reduction and interpretation of this material into the form of reports that can be assimilated by the PRG participants. The need to incorporate the knowledge gained by past implementation into planning was recognized by CBFWA and BPA in the recently developed implementation objectives. Specifically, two objectives addressed evaluation and accountability in achieving objectives set out in the work plan and for the timely transfer of data and information.

The Scientific Review Group participants may be called on to serve other important technical oversight functions during the annual Implementation Planning Process cycle. In Step 2 the annual implementation Work Plan draft is addressed by individual technical working groups participants for the purpose of adding the details necessary for BPA implementation. It is important that during this formative step the Scientific Review Group participants be available to assure all planned activities are based on sound science. At Step 4, the review of the Annual Implementation Work Plan, the Scientific Review Group participants can provide a valuable technical review function.

Participation by the Scientific Review Group participants will also be appropriate in the initial phases of the procurement process, i.e., Step 6. The individual technical working groups participants will have major influence on project specifications and detail. However, the Scientific Review Group participants will provide oversight and promote objective and uniform application of sound science in project development and initiation. The Scientific Review Group participants may also identify appropriate application, composition, and membership of peer review panels.

Products and Schedules:

- Annual reports addressing scientific, technical, policy, and Program implementation feedback to the Policy Group, Step 1, June - July
- Project evaluation and monitoring results
- Review research results
- Possible Fish and Wildlife Program amendments
- Identification of future project actions required

Potential Additional Products:

- Annual project reviews
- Literature publications

Participants:

- Scientific Review Group - Scientists chosen for their expertise and knowledge of the Program and the Columbia River Basin, and other interested persons
- BPA biologists and management
- Technical working groups
- PNUCC
- Council
- Monitoring and Evaluation Work Group
- System and Subbasin Planners

Attachments

- CBFWA/BPA Letter of Understanding
- CBFWA/BPA Program Implementation Discussion and Objectives

COLUMBIA BASIN FISH AND WILDLIFE AUTHORITY
METRO CENTER • SUITE 170
2000 S.W. FIRST AVENUE
PORTLAND, OREGON 97201

ATTACHMENT 1

(503) 294-7031
FTS 423-7031

OFFICE OF
EXECUTIVE SECRETARY

RECEIVED BY:
GOVERNMENT AFFAIRS
LOG #: 12-17-2
RECEIPT DATE:
12-17-87
DUE DATE:
12-31-87

December 14, 1987

James J. Jura
Administrator
Bonneville Power Administration
p. O. Box 3621
Portland, Or. 97208-3621

Dear Jim:

Enclosed is the Letter of Understanding with both our signatures and the agreed to statement of objectives. Although we have agreed to the changes Bonneville Power Administration made in the Letter of Understanding and the objectives, there was considerable discussion among the members of the Authority over changing the words in concert and mutual involvement and substituting consultation. The enclosed letter from Rolf Wallenstrom best expressed the feelings of the members.

We look forward to culmination of the ongoing work of our joint staffs in evolving a workable process for the coordination and implementation of the Fish and Wildlife Program.

Sincerely,

S. Timothy Wapato

S. Timothy Wapato
Chairman

STW/je

LETTER OF UNDERSTANDING

At a meeting of policy level people from the Bonneville Power Administration (BPA) and the Columbia Basin Fish and Wildlife Authority (CBFWA) on January 14, 1987, a representative group was assigned to begin discussions to resolve real and/or perceived conflicts between their respective roles in carrying out the Fish and Wildlife Program of the Northwest Power Planning Council. The group identified their assignment as one of defining a participatory-planning and implementation process which would allow for consultation by BPA with the CBFWA and the fish and wildlife agencies and tribes as BPA develops its annual plan for implementation of the Fish and Wildlife Program. Attached to this Letter of Understanding is a goal and set of objectives to guide this participatory planning and implementation process. The goal and objectives are not and shall not be used as interpretations of the rights or obligations of CBFWA or BPA. They shall only be used to facilitate development of a more complete process by which CBFWA and BPA can consult with each other.

Agreement on these objectives represents a significant positive step toward BPA and the CBFWA working more harmoniously to implement the Fish and Wildlife Program. Because we desire to emplace a more interactive implementation process, we have agreed that staff representing BPA and CBFWA should meet at the earliest possible time to develop an outline and a schedule for completing the process which meets the agreed to objectives as rapidly as possible.

BPA Administrator	CBFWA Chairman
December 1, 1987	December 14, 1987
Date	Date

ATTACHMENT 2

CBFWA/BPA PROGRAM IMPLEMENTATION DISCUSSION

Problem Statement: Past efforts by BPA to plan for the implementation of the Power Planning Council's Fish and Wildlife Program (Program) have not provided the fish and wildlife agencies and tribes as much opportunity for participation as they desire. Consequently, implementation of many Program measures has been delayed due to both policy and technical problems/issues. A formal participatory planning and implementation process could resolve such problems, avoiding delays in implementation.

Goal for the Future: Develop a formal participatory process through which BPA in consultation with the fish and wildlife agencies and tribes develops an annual implementation work plan from which BPA subsequently implements the Program. This process should provide for the involvement of the region's fish and wildlife agencies and tribes at relevant decision-making points and improve coordination and consistency between BPA's implementation actions and the agencies' and tribes' existing and future activities.

OBJECTIVES

Develop a formal interactive and collaborative process between BPA and the fish and wildlife agencies and tribes for implementing the Council's Program, which:

1. Addresses the preparation and implementation of BPA's annual implementation work plan, and which begins prior to initial budget formulation and implementation planning, and extends through procurement.

2. Recognizes the Columbia Basin Fish and Wildlife Authority (CBFWA) as the focal point of involvement for the fish and wildlife agencies and tribes who are members of the CBFWA in the implementation process.

3. Fully considers the input of the Council's Technical Work Groups (TWG's) to facilitate project planning in research areas of emphasis.

4. Establishes mechanisms for the development, review, and prioritization of non-research projects. Non-research projects include, but may not be limited to, anadromous fish habitat rehabilitation projects, design and construction of fish passage and hatchery facilities, research areas not covered by the Technical Work Groups (adult fish passage and possibly others), resident fish and wildlife.

5. Fully considers the results of system and subbasin planning and the Council's Fish and Wildlife Program Action Plan to guide implementation.

6. Provides for the resolution of policy problems/issues at the earliest possible stage of planning, preferably before finalization of the annual work plan.

7. Establishes mechanisms for resolving technical problems/issues preferably before procurement begins.

8. Synchronizes development of the annual implementation work plan with the BPA budget planning cycle such that implementation can start at the beginning of the fiscal year.

9. Establishes procedures to ensure full and efficient utilization of BPA fish and wildlife funds to "protect, mitigate, and enhance fish and wildlife to the extent affected by the development and operation of any hydroelectric project of the Columbia River and its tributaries in a manner consistent with the Council's Fish and Wildlife Program".

10. Allows for the monitoring of BPA's funding progress so that a mechanism for activating projects can be implemented if BPA fish and wildlife program funds are not fully committed to planned/budgeted activities identified in the annual implementation work plan.

11. Provides for the coordination, review, and reprioritization of BPA implementation activities, if budget reductions become necessary.

12. Provides for written documentation of technical and policy concerns raised by BPA, the CBFWA, or the fish and wildlife agencies and tribes.

13. Describes how BPA will respond to individual project proposals within a reasonable set time period after submission of the proposal.

14. Provides for evaluation and accountability in achieving objectives set out in BPA's annual implementation work plan.

15. Establishes procedures for the coordination of BPA's implementation activities with related activities of the utilities, Corps of Engineers, Bureau of Reclamation, and land management agencies.

16. Provides for the timely transfer of appropriate data and related information between BPA and fish and wildlife agencies and tribes.

17. Provides for the development of a standardized format for project proposals and procedures for peer review of proposals being submitted to BPA for funding.

VS6-PJS-3483N

IV. SYSTEM PLANNING ACTIVITIES

BPA actively participates in two Council-managed system planning programs, System and Subbasin Planning and System Monitoring and Evaluation. These two programs will strongly influence future Program direction and will ultimately affect BPA's implementation of the Program, its evaluation and monitoring efforts, and its future Fish and Wildlife Program budget levels. The current status and plans of these two programs are presented below:

System and Subbasin Planning

Responsibilities: The Council's System and Subbasin Planning Group (SPG) is charged with developing 31 subbasin plans and then integrating them into a Final System Plan for the Columbia River Basin. The SPG Committee is responsible for developing the format for the plans, guiding the subbasin planners, reviewing the draft plans, and then completing the final integrated plan in 1990. The System Planning Oversight Committee (SPOC) addresses policy issues as they arise during the planning process.

Progress: The Council contracted to the Columbia Basin Fish and Wildlife Authority (CBFWA) through the Pacific Marine Fishery Commission (PMFC) to complete the 31 subbasin plans and the Final System Plan. The CBFWA began this task in August 1987 and will continue to July 1990. Progress to date includes the formation of 15 Subbasin Teams and a System Team. The Preliminary Information Report (PIR Data) has been completed. This report will be used to determine the potential fish production from all the subbasins and will relate to the Council's doubling goal. Draft plans for the 22 subbasins above Bonneville Dam are in progress and are scheduled for completion by October 31, 1988. Then, drafting of the 9 subbasin plans below Bonneville Dam and the final integration of subbasins into the Final System Plan is scheduled to begin.

Plans: The final integrated plan to be published by July 1990 will determine the alternatives or projects in the future Program to be implemented by BPA. BPA is participating in the process to assist the definition of projects and improve the implementation scheduling in fiscal years beyond 1990. BPA participation on the SPG and the SPOC will continue on a regular monthly basis through FY 1989.

System Monitoring and Evaluation

Responsibilities: The Council's Monitoring and Evaluation Group (MEG) is charged with: formulating a system monitoring and evaluation program, maintaining the system planning model, integrating subbasin plans, recommending formats for System and Subbasin Plan reports (including habitat capacity, genetic impacts, production, and cost of alternative strategies), developing a coordinated information system, and evaluating and disseminating research results.

Progress: A draft system monitoring and evaluation strategy has been completed for distillation to an issue paper for consideration by the Council. A revised system planning model is being used to compare the effectiveness of broad classes of mitigation measures. MEG developed and summarized the format for the preliminary planning information reports (focusing on habitat potential).

In the fall of 1988, the Council will consider a general approach for addressing genetic concerns. A proposed format for reporting production and the costs of alternative strategies is now being considered by the SPG and MEG. A work statement to guide preparation of a strategy for a coordinated information system is being reviewed by the CBFWA.

Plans: A genetic impact evaluation strategy will be reviewed by technical experts before submission to the Council. Formats for reporting production and cost of alternative strategies will be adopted by October 1988. MEG's system integration task will begin with completion of the first subbasin plans in October 1988 and will continue until April-May 1989. MEG will be focusing attention on implementing a "System Monitoring and Evaluation Program" during the year.

Long-Term Role: MEG functions will continue as a result of its role in measuring systemwide progress, monitoring compliance with Program policies, integrating system plans, maintaining the system planning model, guiding development and maintenance of the coordinated information system, and evaluating research results for application to Program actions.

V. FISH AND WILDLIFE DIVISION ORGANIZATION AND STAFF

The Division of Fish and Wildlife develops, coordinates, and manages BPA's Fish and Wildlife Program pursuant to the requirements of the Pacific Northwest Power Planning and Conservation Act (Act). The Division was reorganized under BPA's Most Efficient Organization concept in late 1987. As a result, the functions of the Division's branches and sections were redefined. Figure 2 contains a current organization chart for the Division. Branch and section titles and functions are as follows:

Fisheries Integration Branch

This Branch reviews and analyzes proposed BPA policies, programs, and plans for their consistency with BPA's fish and wildlife obligations under the Act and recommends standards, criteria, policy, or procedures necessary to ensure equitable treatment of fish and wildlife in BPA's decision making process; evaluates hydroelectric operations for fish and wildlife impacts and needs and recommends balanced operations; reviews and analyzes policies, programs, plans, and legislation of external entities to determine their impact on BPA's Fish and Wildlife Program; represents and integrates the biological and Fish and Wildlife Program requirements into the development of agency policy, programs, and plans; and develops and administers research and monitoring contracts directed at resolving fish passage problems at hydroelectric facilities.

Biological Planning Branch.

This Branch provides biological/technical expertise to the Division for planning for and implementing the Program. It prepares and monitors the Fish and Wildlife Program budget; develops and maintains the Division's Program Management Information System (PMIS); develops annual implementation work plans; provides cost-effectiveness analysis and determination for funding actions; develops and maintains the fish and wildlife mitigation accounting records; represents BPA on technical planning work groups established by the Council and the CBFWA; and manages BPA's implementation of major sections of the Program.

Program Planning Section.

The Program Planning Section oversees and provides BPA's representative to: Council TWG's addressing supplementation of wild fish with hatchery fish, System and Subbasin Planning, and System Monitoring and Evaluation. It oversees and develops annual Program implementation work plans and annual budget planning documents, and manages the PMIS. It oversees implementation of areas of the Program dealing with natural production of salmon and steelhead. It develops methods for and oversees the application of cost-effectiveness criteria in the selection of activities to be implemented by BPA and develops and maintains BPA's fish and wildlife mitigation accounting records.

FIGURE 2. ORGANIZATION CHART: DIVISION OF FISH AND WILDLIFE

OFFICE OF THE DIRECTOR

John Palensky - Director
Donna Fuller - Secretary
Terry Harty - Administrative Technician

FISHERIES INTEGRATION BRANCH - PJI

Steve Smith, Chief
Betty Lentz, Secretary

Jim Geiselman, Environmental Engineer
Dale Johnson, Fishery Biologist
Robyn MacKay, Hydraulic Engineer
Bill Maslen, Fishery Biologist
Jeff Osborn, Fishery Biologist
Pat Poe, Fishery Biologist
Jock Mills, Policy Development Analyst
Roger Rice, Computer Specialist
Brett Sherer, Environmental Engineer
Chris Stoffels, Computer Specialist

BIOLOGICAL PLANNING BRANCH - PJS

Greg Drais, Chief

Program Planning Section - PJSP

Mark Schneider, Chief

Stan Detering, Industry Economist
Larry Everson, Fishery Biologist
Jeff Gislason, Fishery Biologist
Martin Larson, Computer Specialist
Chuck Roller, Program Analyst
Tom Vogel, Fishery Biologist

Biological Research Section - PJSR

Jerry Bouck, Chief

Jerry Bauer, Fishery Biologist
Fred Holm, Fishery Biologist (Resident Fish PAM)
Jim Meyer, Wildlife Biologist (Wildlife PAM)
Ron Morinaka, Fishery Biologist (Artificial Production PAM)
Alan Ruger, Fishery Biologist
Bob Austin, Fishery Biologist

FISH AND WILDLIFE PROJECT MANAGEMENT BRANCH - PJW

Bob Beraud, Chief
Anne Klinkhammer, Secretary

Carolyn Bohan, Project Manager
Tom Clune, Project Manager (Yakima)
Steve Levy, Project Manager
Jay Marcotte, Project Manager
Rick Stoots, Project Manager

(5290N)

Biological Research Section.

This Section provides biological technical expertise necessary to assist the Division's development of the Program Annual Implementation Work Plan and annual budget planning documents, and to assist in the implementation of complex major projects; serves as BPA's representative to the Council's Hatchery Effectiveness Technical Work Group (HETWG) and Fish Disease Technical Work Group (FDTWG); develops scopes of works and oversees the procurement of projects identified in the annual Work Plan; and serves as COTR for subsequent contracts. It oversees areas of the Program addressing artificial production (including fish health) of salmon and steelhead, resident fish, and wildlife and develops and maintains the Division's official contract and project files.

Project Management Branch.

The Project Management Branch manages the implementation of fish and wildlife development projects of the Program; provides comprehensive oversight and management of such projects appropriate to their cost, policy precedents, political sensitivity, biological complexity, and associated controversy; formulates and directs the coordination efforts both within BPA and externally with Federal and State agencies, Tribes, utility groups, and the public, to define, develop, and implement proposals; manages the development of the comprehensive long-term operations and maintenance agreements attendant on such projects; and manages and directs the allocation of financial and personnel resources necessary to implement, operate, and maintain capital and expense projects.

This Work Plan refers to four different personnel titles. It is helpful for the reader to understand the responsibilities and authorities of these positions, should questions or comments arise about BPA procurement, projects, or implementation. The positions are:

PROJECT MANAGER

Individual assigned working responsibility for the coordinated and timely implementation of one or more "major" projects within the Program. All Project Managers are assigned to the Project Management Branch.

PROJECT BIOLOGIST

Biologist who serves as the lead for all biological activities related to a major project. During project implementation, the Project Biologist oversees all biological aspects of the project and provides biological information to the Project Manager.

PROGRAM AREA MANAGER (PAM)

Individual who, based on biological expertise and skill, is charged with ensuring the coordinated development and implementation of measures within (and among) specific Program areas: e.g., Resident Fish, Wildlife, and Artificial Production. The PAM is not necessarily the Project Officer or Contracting Officer's Technical Representative (COTR) for all projects in the respective Program area.

PROJECT OFFICER

Individual responsible for the management of "non-major" projects; often serves as the COTR for any contracts associated with the project. The Project Officer could also have PAM responsibilities.

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)

Individual responsible to BPA's Contracting Officer for the development, negotiation, and management of contracts for specific goods and services associated with fulfillment of Program measures.

VI. PROGRAM PLANS BY ACTION ITEMS

ANADROMOUS FISH ACTION ITEMS AND TECHNICAL SUBJECTS

2.1 WATER BUDGET MEASURES

303(a) The Federal project operators and regulators shall provide the fish and wildlife agencies and Tribes with a total Water Budget of 78 kcfs-months (4.64 Maf). It is to be divided into 58 kcfs-months (3.45 Maf) at Priest Rapids Dam and 20 kcfs-months (1.19 Maf) at Lower Granite Dam, and used during April 15 through June 15. [Abstract]

303(b) BPA shall fund the establishment and operation of a Fish Passage Center, including funds for two Fish Passage Manager positions and for technical and clerical support. This support will assist the Fish Passage Managers in: 1) planning and implementing the annual smolt monitoring program called for in Section 304(d)(2); 2) developing and implementing flow and spill requests; and 3) monitoring and analyzing research results to assist in implementing the Water Budget and spill planning. The Fish Passage Center will function as the primary program center for housing data and information regarding juvenile fish passage. [Abstract]

303(c) The Federal project operators, Fish Passage Managers, fish passage advisor, and power system operators will coordinate system operations for the current year and develop experimental use and accounting procedures for both the mid-Columbia and Snake River Water Budgets. Experimental Water Budget procedures shall be implemented for at least water years 1987 and 1988. This committee also shall evaluate alternative Water Budget implementation procedures and report to the Council. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide adequate flows for fish migrations, and to insure clear and timely integration of fish requirements and hydrosystem operational decisions.

Background and Progress to Date:

The Council recognized that the agencies and Tribes lacked the expertise to work with the owners and operators of the hydrosystem. The agencies and Tribes needed such expertise to assure that the Water Budget would be considered in all phases of hydro system planning and operation. The Council, therefore, specified that BPA fund two Fish Passage Managers, one for the Tribes and one for the agencies. BPA has funded the operation of the Fish Passage Center and the Fish Passage Data Information System since 1983.

Plans:

BPA plans to continue to fund the operation of the Fish Passage Center, the Fish Passage Managers and support staff, and the Fish Passage Data Information System to benefit the integration of fish and hydrosystem operational requirements, and to provide increased adult returns by using supplemental flows in a timely fashion.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-127	Smolt Monitoring and Water Budget Programs - PMFC and CRITFC Project Officer: D. Johnson Objectives: Fund the operation of the Fish Passage Center and provide Water Budget flows for shaping between April 15 and June 15 to reduce hydrosystem impacts on juvenile outmigrations. (See also Action Item 2.1)	Date initiated: February 1987 Results/Conclusions: BPA funded the operation of the Fish Passage Center and the Fish Passage Data Information System in FY 1988.	1. Continuing: BPA will continue to fund the operation of the Fish Passage Center and the Fish Passage Data Information System and to provide Water Budget flows for shaping annually. 2. Continuing: Contractors will guide the smolt monitoring program; they will provide an annual report by November 1 of each year and a smolt monitoring program by December 1 of each year.

III. NEW PROJECTS

None.

2.2 SMOLT MONITORING PROGRAM

303(d) BPA shall fund an annual smolt monitoring program to be conducted by the agencies and Tribes. The monitoring program will provide information on the migrating characteristics of the various salmon and steelhead stocks and will include:

1. Field monitoring of smolt movement to determine the best timing of storage releases;

2. Coordination of runoff forecasts with water budget usage and shaping;

3. Continuous monitoring of runoff conditions and fish movement at Lower Granite and Priest Rapids dams to provide information to allow changes in water budget usage if actual runoff conditions are inconsistent with runoff forecasts; and

4. Coordination of hatchery releases with water budget usage. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine where all major groups of hatchery and wild fish are in the hydrosystem and thus to implement the Water Budget and to communicate spill requests.

Background and Progress to Date:

Starting in the 1970's, spring flows in the Columbia River changed dramatically with the completion of major headwater storage projects. This change helped flood control and power generation, but slowed the travel time of the outmigration. This resulted in increased exposure to predation and increased mortality of the juvenile salmon and steelhead. The Council sought to reduce the mortality associated with the downstream migrations by increasing the spring flows. A Water Budget volume was derived from agencies' and Tribes' recommendations and was specified for the mid-Columbia and lower Snake rivers. To be able to implement the Water Budget effectively, the smolt monitoring program has evolved to sample the downstream juvenile migrations at numerous key locations throughout the hydrosystem.

Plans:

BPA plans to continue funding the smolt monitoring program to improve the timely integration of the juvenile salmon and steelhead outmigration with the operation of the hydrosystem.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
84-14	Smolt Monitoring at Federal Dams - NMFS Project Officer: D. Johnson Objectives: Monitor smolt migrations at Lower Granite, Lower Monumental, McNary, John Day, and Bonneville Dams as part of the smolt monitoring program.	Date initiated: 1984 Results/Conclusions: Monitoring was conducted at each facility to assist the Fish Passage Managers and project operators in integrating fisheries resources with the hydrosystem.	1. Continuing: BPA will continue to fund these activities. 2. The contractor will provide an annual operational report and recommend changes as needed to the smolt monitoring schedule and facilities.
83-323	Smolt Condition and Timing of Arrival at Lower Granite Dam - IDFG Project Officer: D. Johnson Objectives: Determine the condition and timing of arrival of all major Idaho and northeastern Oregon stocks to the head of Lower Granite pool. Calculate travel times from Lewiston to Lower Granite dam for salmon and steelhead.	Date initiated: 1983 Results/Conclusions: Whitebird trap was operated due to low flows; Lewiston trap was ineffective at lower flows; Clearwater trap was evaluated using the juvenile radio tag. PIT tags were used for travel time information to Lower Granite dam.	1. Continuing: BPA will fund the operation, maintenance, and evaluation of the Clearwater, Lewiston, and Whitebird traps. 2. Continuing: Contractor will provide an annual operational and evaluation report, and will operate and maintain the three traps.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-401	Correlation of Biological Characteristics of Smolts With Survival and Travel Time - USFWS Project Officer: D. Johnson Objectives: Collect stress, smoltification, and disease data on marked groups of fish to study assumptions and explain variations in results.	Date initiated: 1987 Results/Conclusions: Data has been collected and is being processed for analysis.	1. Continuing: BPA has funded the project through to completion with FY 1987 funds. 2. Continuing: Contractor will continue to process samples and analyze data and complete the final report in FY 1988. 3. Future funding of the type of work conducted under this project will be determined by the M/WBTWG. Project 87-401 may or may not be extended in FY 1989.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-20	Spill Monitoring Project Officer: To be assigned	If a spill agreement is negotiated with the fishery agencies and Tribes, monitoring of the juvenile salmonoid outmigrations will be conducted at Lower Monumental, Ice Harbor, John Day, and The Dalles dams to provide hourly and seasonal fish passage information on which the agencies and Tribes would base spill requests.	If negotiated, the agreement would begin in 1989 and be in effect for 10 years.

---- RESEARCH
(Former Action Item 39.1)

403(d)(1) BPA shall continue its existing study and shall fund any further studies necessary to investigate juvenile salmon and steelhead losses to predators while the fish are migrating through the Columbia and Snake river reservoirs. The use of Squoxin for control of squawfish shall be evaluated as part of this study.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To determine the losses to migrating salmonids in the Columbia River reservoirs caused by predation from squawfish, walleye, and smallmouth bass and to determine methods to reduce predation.

Background and Progress to Date:

Building dams and impounding water have changed the natural flows of the Columbia River. These flow changes have increased populations of resident fish, some of which prey on migrating juvenile salmon and steelhead. Although some research has been done on this problem, further studies are necessary to document the importance of predation as a cause of juvenile mortality.

Plans:

Final reports, to be completed in FY 1988, will include recommended predator control measures. The projects have been extended to 1990 to develop techniques to further assess the significance of predation in the Columbia River System.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
82-3	Feeding Activity, Rate of Consumption, Daily Ration, and Prey Selection of Major Predators in the John Day Reservoir - USFWS Project Officer: W. Maslen Objectives: Determine the importance of each of four major predatory fish (squawfish, walleye, smallmouth bass, and channel catfish) to the overall problem of predation on migrating juveniles.	Date initiated: 1983 Results/Conclusions: Food habits data for the major predators have now been analyzed and summarized for all years (1983-1986). Northern squawfish are the most significant predator on juvenile salmonids, followed by walleye, channel catfish, and smallmouth bass. The most intensive predation occurs by northern squawfish in the boat-restricted zone below McNary Dam in July, when up to 60% of all juvenile salmonids entering John Day Reservoir may be consumed by predators. Annual reports are available.	1. FY 1989: Final report will be available. A predator/prey model is being refined. Mechanical and/or biological alternatives for control of predation on salmonoid smolts are being evaluated. 2. FY 1989-1990: Project has been extended to 1) develop a predation index, 2) refine and expand predation/prey model, and 3) develop techniques to determine predator selection of healthy vs. unhealthy prey.
82-12	Distribution, Abundance, and Population Dynamics of Northern Squawfish, Walleye, Smallmouth Bass, and Channel Catfish In John Day Reservoir - ODFW Project Officer: W. Maslen Objectives: Estimate the populations of predators in the forebay, tailrace, and reservoir of John Day Dam.	Date initiated: 1983 Results/Conclusions: Distribution, abundance and population parameters of each species have been examined for the years 1983-1986. Squawfish are the most abundant predator, followed by smallmouth bass, channel catfish, and walleye. Annual reports are available.	1. FY 1989: Same as above (Reports will be combined)

III. NEW PROJECTS

None.

3.1 ALTERNATIVE CONDUIT SYSTEM FOR JUVENILE FISH
(Test and Evaluate: November 15, 1987; Report January 1988)

403(d)(2) Test and evaluate an alternative conduit system for efficiently conveying juvenile fish from hydroelectric powerhouse intakes to the tailwater. This study shall test a design with potential for broad application at dams where turbine intake deflectors are in use or under consideration.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To test and evaluate alternative conduit systems for bypassing juvenile salmon and steelhead around dams.

Background and Progress to Date:

As juvenile salmon and steelhead migrate downstream past dams, they may be injured by pressurized conduit bypass systems used at most dams. A past study performed by the USACE and Idaho Cooperative Fish and Wildlife Research Unit (ICFWRU) demonstrated that an open flume has potential for minimizing injury to fish. BPA contracted with these two agencies to design and test different types of flumes to help pass fish safely around dams. The project was completed in March 1988.

Plans:

BPA will publish the results of this study by the end of calendar year 1988. Results should generally apply to other hydroelectric facilities with similar fish passage problems.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
86-47	Conduit Bypass Evaluation - USACE/ICFWRU Objectives: Design, construct, and test alternative types of fish bypass flumes. Compare stress levels and descaling of chinook smolts among flume types.	March 1988	Results indicate that stress levels and descaling in chinook smolts are not significantly different among the three test flumes.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

None.

4.1 ELLENSBURG TOWN DIVERSION DAM FISHWAY AND BYPASS
(Design: October 1987)
(Construction Completed: October 1988)
(Consider Delay if Consolidation Suggests Benefits)

803(b)(6) Bonneville shall fund the design and construction of a low flow vertical slot fishway and replacement of obsolete, inefficient juvenile fish screening/bypass facilities at the Ellensburg Town Diversion Dam.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund construction of the Ellensburg Town Diversion Dam fish screens.

Background and Progress to Date:

BPA will fund the construction of the Ellensburg Town fish screens to improve the outmigration of juvenile salmon and steelhead from the Yakima River system. BPA will not fund the proposed fishway because no fishway presently exists, and the Ellensburg Water Company had a pre-Regional Act obligation to fund fishway construction. Final design of the fish screens is ongoing.

Plans:

See Project 87-47 in the following table.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-47	Ellensburg Screens Construction - USBR Project Officer: T. Clune Objectives: Improve fish screen facility on Ellensburg Water Company Canal.	Date initiated: June 1986 Results/Conclusions: Design completed.	1. Begin construction about August 1988. 2. FY 1989: Continue construction.

III. NEW PROJECTS

None.

4.2 HABITAT AND PASSAGE IMPROVEMENT PROJECTS
(Consult with Project Sponsors on Need; Complete by 1991)

703(c)(1) BPA shall fund habitat and tributary passage projects as provided in Action Item 4.2. Upon Council approval of system plans provided for in Section 205, System Planning, BPA shall fund habitat and passage restoration or improvement measures in those plans, including those measures identified in the plans that are listed in Appendix A Table: Planning Inventory of Enhancement Projects. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To consult with project sponsors to determine whether projects listed in Action Item 4.2 are needed in the immediate future; to complete them by 1991 if they are needed.

Background and Progress to Date:

On May 7, 1987, BPA sent a letter to all habitat and tributary passage project sponsors to determine whether the listed projects were needed in the immediate future. All project sponsors, except Washington Department of Fisheries (WDF), stated that their listed projects were needed in the immediate future. WDF (June 2, 1987) recommended the following actions:

Subbasin	Project		Recommendation
Yakima	----	Thorpe Mill Screen (USBR Project)	Hold
	87-57	Old Reservation Canal Screen	Delay
	86-65	Snipes/Allen Screen	Delay

A total of 41 BPA-funded habitat and tributary passage improvement projects are listed in Table 4, including 4 completed projects, 30 ongoing projects, 1 new project, and 6 deferred projects. Due to the large number of projects involved in the implementation of Program Measure 703(c)(1), the diversity of activities included, and BPA's continuous implementation support of habitat and passage projects, a table format was developed and used to review BPA implementation in the FY 1987 Work Plan. The same table format has been used in the current Work Plan.

Table 4 covers research projects, evaluation projects, and habitat and passage enhancement projects. The last group is listed by subbasin, beginning with the Willamette/Clackamas River subbasin and proceeding upriver to the Salmon River subbasin. Information presented in the Table includes: the project description, current project status, and contract-effective period.

In FY 1987, BPA developed an Implementation Plan outline for habitat and passage enhancement projects and asked Project Leaders to complete Implementation Plans in FY 1988. BPA funding in FY 1988 was contingent upon completion of plans for all ongoing and new projects. Plans were completed for ongoing projects funded in FY 1988.

These habitat and passage enhancement project Implementation Plans will improve planning and scheduling of implementation efforts and will clearly define the projects. The plans will also enable BPA to accurately determine the funding required for completion of a project. Each completed Implementation Plan contains: 1) background information, such as specific project location, existing conditions, fishery resources, land use activities, and limiting factors; 2) enhancement techniques and an implementation schedule; 3) expected increase in fish production due to the project; 4) methods for monitoring physical habitat changes resulting from the project; and 5) cost of the project, including total cost and cost by fiscal year. BPA expects projects to be implemented as planned and scheduled in the Implementation Plans.

Plans:

BPA will continue to implement the projects listed in Action Item 4.2 (if they are needed in the immediate future) and plans to complete them by 1991.

Table 4: Habitat Improvement and Passage Enhancement
Measure 703(c)(1)
Status Report

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
I. RESEARCH PROJECTS					
	None.				
II. EVALUATION AND MONITORING PROJECTS					
83-7	LBE	Evaluation of Idaho Habitat Improvement Projects - IDFG Objective: Evaluate the juvenile chinook and steelhead production benefits of habitat and passage improvement projects in the Clearwater and Salmon River basins in order to produce the offsite mitigation record for Idaho.	Field sampling in progress. Annual report completed. Project continuing.	8/15/83	7/1/88
87-113	LBE	Habitat Evaluation and Monitoring/Oregon Objective: Develop an agreement with the Fish and Wildlife agencies and/or Tribes to monitor the biological effectiveness of projects in Oregon.	FY 1988 implementation was deferred pending guidance from the MEG.	---	---

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
87-114	LBE	Habitat Evaluation and Monitoring/Washington Objective: Develop an agreement with the Fish and Wildlife agencies and/or Tribes to monitor the biological effectiveness of projects in Washington. Tucannon River implementation will require a monitoring program.	FY 1988 implementation deferred, pending guidance from the MEG.	FY 1990	---
86-78	LBE	Habitat Evaluation and Monitoring/Columbia Basin - Consultant Objective: Summarize and report the physical, biological, and cost effectiveness of projects being constructed throughout the Columbia River Basin.	Project completed.	9/10/86	---
84-11	RDS	Clackamas/Hood River Habitat Enhancement Program - USFS/Mt. Hood NF		4/1/84	3/31/92
		Fish Creek Evaluation Objective: To evaluate and quantify drainage-wide changes in habitat and smolt production as a result of habitat improvement.	Evaluation is ongoing.		
87-115	LBE	Grande Ronde Monitoring - NPT Objective: Monitor and evaluate habitat improvement projects in the Grande Ronde River Subbasin.	FY 1987 implementation deferred, pending guidance from the MEG.	---	---

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2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
III. PASSAGE AND HABITAT IMPROVEMENT						
Willamette River/Clackamas River Subbasin						
84-11	RDS		Clackamas/Hood River Habitat Enhancement - Mt. Hood NF		4/1/84	3/31/92
			Collawash River Falls Passage Subproject Objective: Construct a fishway to correct Collawash Falls passage problems. The falls prevent access to potential spawning and rearing habitat. Improvement: Structure and passage Habitat: 10 miles Species: Spring chinook, winter and summer steelhead, and coho Benefit: Increase of 100,546 smolts and 3,087 adults.	FY 1988 activities included completion of Phase I, excavation of the fishway channel in the bedrock at the falls. Implementation of Phase II, installation of concrete weirs in the fishway channel, will complete the project in September 1988. Final Modification and O & M in 1989.		
			Collawash River Drainage Habitat Improvement; Hot Springs Fork Subdrainages Subproject Objective: Install instream structures to improve spawning habitat and effective cover. Improvement: Instream structure Habitat: 10.6 miles Species: Winter and summer steelhead, spring chinook and coho salmon Benefit: 7,249 coho smolts; 2,616 chinook smolts; and 4,229 steelhead smolts.	Instream structure construction will continue from 1988 to 1992 to complete 10.6 miles of habitat enhancement projects.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-11 cont.		Lake Branch/West Fork Improvement Subproject Objective: Improve quality of spawning habitat and low-flow rearing habitat. Improvement: Instream structure Habitat: 10.0 miles Species: Summer and winter steelhead, chinook Benefit: 1,309 chinook smolts; 1,748 steelhead smolts.	FY 1988/1989 activities include falling and blasting of trees and anchoring in channel to increase habitat diversity in Lake Branch. Monitoring programs will measure the effectiveness of structures meeting habitat objectives in Lake Branch and West Fork/McGee Creeks. An implementation and environmental analysis will be developed for Laurel Creek.		
		Fish/Wash Creek Habitat Improvement Subproject Objective: Improve spawning and rearing habitat for salmon and steelhead through habitat improvement measures. Improvement: Instream structure Habitat: 4 miles Species: Spring chinook, coho, winter and summer steelhead. Benefit: 1,857 steelhead smolts; 1,317 coho smolt.	FY 1988/1989 activities include the construction of log/boulder complexes on 1.5 miles of Fish Creek. Monitoring and evaluation will continue, including the effects of a large rain-on-snow flood event on wood structures.		
		Lower Oak Grove Fork Habitat Improvement Subproject Objective: Improve fish rearing and spawning habitat in the lower 3.8 miles of stream. Improvement: Instream structure Habitat: 3.8 miles Species: Winter and summer steelhead, chinook and coho salmon Benefit: 680 steelhead smolts; 2,536 coho smolts.	FY 1988/1989 include development of 1365 feet of side channels and 2300 feet of mainstream structures to increase rearing habitat.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-11 cont.		Fifteenmile Creek Basin Habitat Improvement Subproject Objective: Improve adult and juvenile fish passage, spawning and rearing habitat, and water quality conditions. Improvement: Passage and instream structure Habitat: 120 miles (30 mi NFS lands) Species: Wild winter steelhead	FY 1988/1989 activities include baseline Basin-wide monitoring in coordination with ODFW. Ramsey Creek tasks include the installation of 70 instream structures and maintenance of existing structures. Fifteenmile Creek and Five mile Creek tasks include project planning and implementing approved habitat enhancement projects.		
86-124	RDS	Little Fall Creek Fish Passage - Facilities Maintenance Objective: Provide O & M funding for Fish Passage facilities. Improvement: Structure and passage Habitat: 14 miles Species: Salmon and steelhead Benefit: Potential of adults: Steelhead adults: 543 Spring chinook adults: 256	O&M activities for a 3-year period began in FY 1987.	7/22/86	9/30/90
Fifteenmile Creek Subbasin					
86-79	CAB	Fifteenmile Creek Habitat Improvement - ODFW Objective: Increase wild winter steelhead production to levels which approximate historic maximum run sizes. Improvement: Passage and instream structure Habitat: 120 miles Species: Wild winter steelhead Benefit: 11,715 smolts/year	Construction activities started in FY 1987 and will continue through FY 1989.	9/87	3/31/89

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
Deschutes River Subbasin						
81-108	JCG		Habitat Quality and Anadromous Fish Production Potential on the Warm Springs Indian Reservation - CTWSIR Objective: The project consists of three phases: I. Survey existing and potential fishery resources on the Reservation; II. Identify factors limiting anadromous fish production and design appropriate instream or riparian enhancement measures to correct limiting factors; and III. Implement measures and evaluate effectiveness. Species: Summer steelhead and spring chinook.	Phase I completed in 1982. Phase II completed in FY 1987. Phase III is ongoing: Implementation of habitat enhancement measures is expected to be completed in FY 1989. Evaluation and monitoring of project effectiveness will be completed by 1991.	9/30/81	12/31/88
			Beaver Creek Habitat Improvement Subproject Objective: Construct instream structures to provide juvenile salmon and steelhead rearing habitat in channelized sections of Beaver Creek. Fence riparian zone and rip-rap banks with juniper. Improvement: Instream and riparian Habitat: 2 miles Species: Wild spring chinook. Benefit: 6,750 spring chinook smolts.	Instream structures completed in FY 1986. Fencing and juniper rip-rap scheduled for completion in FY 1988.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
81-108 (cont.)			Mill Creek Habitat Improvement Subproject Objective: Construct instream structures to provide juvenile salmon and steelhead rearing habitat in the Potter's Pond section of Mill Creek. Fence riparian zone. Improvement: Instream and riparian Habitat: 1 mile Species: Wild spring chinook and summer steelhead Benefit: 1,020 spring chinook and 540 summer steelhead smolts.	Instream structures completed in FY 1987. Fencing scheduled for completion in FY 1988.		
			Shitike Creek Habitat Improvement Subproject Objective: Stabilize stream channel, create a low-flow passage channel, develop pool habitat, and provide shading. Improvement: Instream and riparian. Habitat: 3 miles Species: Wild spring chinook and summer steelhead. Benefit: 3,139 spring chinook smolts and 2,642 summer steelhead smolts.	Construction scheduled to begin summer 1988. Completion scheduled for FY 1989.		
84-62	DEJ		Trout Creek Riparian Enhancement - ODFW Objective: Construct instream and riparian structures to provide juvenile salmon and steelhead rearing habitat and adult spawning habitat. Improvement: Instream and riparian. Habitat: 90 miles Species: Steelhead and spring chinook. Benefit: 3000 - 4000 adult steelhead.	Construction is ongoing and expected to be completed in FY 1989.	9/1/84	9/30/88

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
88-116	DEJ		Trout Creek O&M Objective: To maintain fences and instream structures constructed under Project 84-62.	BPA will begin funding maintenance of Trout Creek habitat improvement structures in FY 1988.	9/88	9/89
88-128	RDS		Lower Deschutes Aerial Photography Objective: Aerial photography of Lower Deschutes Basin for use in habitat enhancement planning for Projects 84-11 and 86-79.	Completed	---	---
John Day River Subbasin						
84-8	RDS		N. Fork John Day River Habitat Enhancement - USFS/Umatilla NF Desolation Creek Subproject Objective: Increase the production potential of summer steelhead and spring chinook by improving pool:riffle ratio, constructing adult salmon resting pools, increasing quality and quantity of spawning habitat, and controlling bank erosion. Improvement: Instream structure Habitat: 42 miles Species: Spring chinook, summer steelhead Benefit: Spring chinook - 4950 smolts Summer steelhead - 2475 smolts	FY 1988/1989 activities include construction of pool structures, gravel-retaining sills, and rock deflectors. Completion expected by 1990.	4/1/84	3/31/92

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-8 (cont.)		North Fork John Day River Habitat Improvement Subproject Objective: Increase production of spring chinook through side-channel modification, improve juvenile rearing area, improve bank stabilization, increase adult resting areas, and increase amount of riparian vegetation. Improvement: Instream structure Species: Spring chinook Benefit: 5,000 smolts/yr	FY 1988/1989 activities include weir construction, boulder placement, bank stabilization, and riparian vegetation planting. Construction will be completed in 1990.		
		Wilson Creek Subproject Objective: Improve quality and quantity of juvenile salmonid rearing area and adult spawning area; control bank erosion; increase amount of riparian vegetation. Improvement: Instream structures. Habitat: 6 miles Species: Summer steelhead. Benefit: 10,000 summer steelhead smolts.	FY 1988/1989 activities include installation of weirs, adult resting pools, alcove pools, streambank stabilization structures, and riparian vegetation planting. Construction will be completed by 1990.		
		Five mile Creek Subproject Objective: Increase production of summer steelhead Improvement: Instream structure Habitat: Species: Summer Steelhead Benefit: 375 steelhead smolts	FY 1988/1989 activities include construction of pool-creating structures and placement of instream boulders and woody material. Completion expected by 1990.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-8 (cont.)			Clear/Granite Creeks Subproject Objective: Increase the potential of spawning salmon through habitat improvement measures. Improvement: Decrease mine waste water pollution. Habitat: 12 miles Species: Spring chinook	FY 1988/1989 activities include plugging the Red Boy Mine portal and piping the toxic water discharge to a closed channel settling pond out of the Clear Cheek high water zone.		
84-21	RDS		Mainstem, Middle Fork/John Day River - ODFW		6/30/85	3/31/92
			Mainstem John Day River Subproject Objective: Provide additional rearing habitat for juvenile salmon and steelhead. Improvement: Instream structure Habitat: 23 miles Species: Spring chinook and Summer steelhead Benefit: Steelhead smolt increase - 344,000; chinook smolt increase - 371,000 to 996,000	FY 1988/1989 activities include construction of instream structures, riparian vegetation planting, fencing, and fish passage projects. Completion expected by 1991.		
			Middle Fork John Day River Subproject Objective: Provide additional holding areas for adult chinook and steelhead; improve rearing area for juveniles of both species. Improvement: Instream structure Habitat: 30 miles Species: Spring chinook, summer steelhead Benefit: Included in benefits for the Mainstem John Day River.	FY 1988/1989 activities include physical surveys on private lands and the obtaining of 15-year lease agreements by ODFW. Assuming land-owner acceptance, proposed activities are riparian fencing and planting along with the construction of in-stream structures.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-21 (cont.)		North Fork John Day River Subproject, including Fox Creek Objective: Fox Creek - improve steelhead spawning and rearing conditions through increasing riparian vegetation, reducing erosion and sedimentation, and increasing pool areas. Improvement: Instream structure Habitat: 42 miles Species: Spring chinook and steelhead Benefit: Included in benefits for the Mainstem John Day River.	FY 1988/1989 activities include construction of instream structures, riparian vegetation planting and fencing. Completion expected by 1991.		
88-127	RDS	John Day/Joseph Creek Drainage Aerial Photography Objective: Aerial photography of the John Day and Joseph Creek drainages for use in habitat enhancement planning for Projects 84-8, 84-9, 84-21, 84-22, and 84-25.	Completed	---	---
84-22	RDS	Middle Fork and Tributaries, John Day River-USFS/Malheur NF Objective: Increase the quantity, quality, and diversity of pool habitat for juvenile steelhead and chinook salmon. Improvement: Instream structure Species: Chinook and Steelhead Habitat: 6 miles	FY 1988/1989 activities include construction of instream structures, riparian vegetation, planting, and fencing. Completion expected by 1991.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
85-71	RDS	South Fork John Day River Habitat Enhancement/Izee Falls Fish Passage - BLM		9/1/85	3/31/91
		Izee Falls Subproject Objective: Provide fish access to 81 miles of spawning and rearing habitat by providing passage over 56-foot falls. Improvement: Passage Species: Wild Summer Steelhead Benefit: Benefit:Cost ratio is 5.4:1 Habitat: 81 miles	BPA will seek formal endorsement from Federal and State agencies exercising significant control over project feasibility. BPA will fund a feasibility study with appropriate endorsements. If the results of the study show the project to be feasible, BPA will fund project construction.		
Umatilla River Subbasin					
83-436	JGM	Three Mile Dam Passage Improvements - USBR Objective: Design and construct facilities, including ladders and canal screens, to enhance fish passage at Three Mile Dam and WEID canal screens. Design and build trapping and counting facilities. Improvement: Passage Species: Summer steelhead, spring and fall chinook	Construction of right bank ladder and trap completed winter-fall 1988. Operational shakeout period continued through 1988. Construction of left bank facilities began October 1987. WEID screens and bypass were in place in April 1988. Left bank construction to be complete by July 1988. Operational shake-out period for left bank to begin July 1988. Also, on part of this project, an additional weir is to be constructed 1 mile downstream to fix a passage problem remaining from earlier channel modification work. Project-specific monitoring and evaluations are planned to begin FY 1989.	5/1/84	1/31/89

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
87-104 & 87-104-1	JGM	Westland (87-104) and Stanfield (87-104-1) Diversion Improvements: - ODFW Objective: Improve passage up and downstream at Westland, and Stanfield irrigation diversion dams by ladder and screen improvements. Improvement: Passage Species: Summer steelhead, spring and fall chinook	Predesign work completed. Schedule: Predesign complete for Westland - May 1988. Final design, start June complete for Westland - April 1988. Start construction, screen/trap - October 1989. All construction complete, Westland - October 1990. All construction complete, Stanfield - October 1990.	1/87	9/30/87
87-100	JCG	Umatilla River Basin Fish Habitat Enhancement - USFS/Umatilla NF Objective: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on the Umatilla National Forest. Improvement: Instream structures. Habitat: 18 miles Species: Summer steelhead and spring chinook. Benefit: (Entire basin) 21,700 summer steelhead and 21,100 spring chinook smolts.	FY 1988: Construction completed on Thomas Creek and begun on South Fork Umatilla River. FY 1989: Complete South Fork Umatilla and mainstem Umatilla River. FY 1990: Treat 6-mile section of Mecham Creek. FY 1991: Complete North Fork Meacham Creek and Pearson Creek.	4/87	3/91

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
87-100-1	JCG		Umatilla River Basin Fish Habitat Enhancement - CTUIR Objective: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on the Umatilla Reservation. Improvement: Fencing, riparian revegation, instream structures. Habitat: 18 miles Species: Summer steelhead and spring chinook. Benefit: See Project 87-100.	FY 1988: Begin construction on Lower Meacham Creek. FY 1989: Complete Lower Meacham Creek construction. FY 1990: Complete 2 miles at Umatilla River and begin construction on Squaw Creek. FY 1991: Complete construction at Squaw Creek.	7/87	3/91
87-100-2	JCG		Umatilla River Basin Fish Habitat Enhancement - ODFW Objectives: Instream and riparian habitat improvement for portions of the Umatilla River and tributaries on privately owned land. Improvement: Fencing, riparian revegation, instream structures. Habitat: 18 miles Species: Summer steelhead. Benefit: See Project 87-100	FY 1988: Begin construction on East Birch Creek. FY 1989: Continue work on East Birch Creek and begin work on Meacham Creek. FY 1990: Complete work on East Birch Creek, continue on Meacham Creek, and begin work on West Birch Creek. FY 1991: Complete work at Meacham Creek, continue on West Birch Creek, and start on North Fork Meacham Creek.	7/87	3/91
88-22	JGM		Umatilla River Basin Trap and Haul Objective: To provide for passage of adults and smolts under low-flow river conditions Improvement: Passage Species: Summer steelhead, spring and fall chinook	Design and acquire equipment (trucks, trailers, etc.) to be completed September 1988. Trap at Three Mile Dam right bank ladder operational - November 1987. Westland smolt trap operational - Spring 1990. Trap and haul operational program to be developed by fall 1988.	10/87	---

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
89-24	JGM	Evaluate Umatilla River Basin (URB) Enhancement Projects Objectives: Conduct project-specific monitoring and evaluation of URB projects, to determine the extent to which individual projects meet design criteria. Species: Summer steelhead, spring and fall chinook	New project: Discussions are continuing among ODFW, Tribes, and BPA to define scope and schedule for project. Intent is to conduct evaluations as planned basin facilities are completed.	10/88	---
87-409	JGM	WEID Main Canal Pumping - (Grant to ODFW) Objectives: To increase downstream survival of migrating juvenile salmon during spring 1987 below Three Mile Dam and to enhance upstream passage of adults returning to Three Mile during fall 1987. Improvement: Passage Species: Chinook	WEID pumps were operated in Spring 1987 and Fall 1988. The pumps allowed additional flow past the dam to enhance juvenile survival and adult passage.	5/87	---
87-416 & 87-416-1	JGM	Cold Springs (87-416-1) and Maxwell (87-416) Diversion Improvements: - BOR Objectives: Improve passage up and downstream at Cold Springs and Maxwell diversions. Improvements include fishways and canal screens. Improvement: Passage Species: Summer steelhead, spring and fall chinook.	Maxwell predesign complete and approved by agencies spring 1988. Final design underway. Construction schedule moved up to fall 1988. Protect-specific evaluations to begin in 1989. Cold Springs predesign to be finalized summer of 1988. Schedule: Final design complete, Maxwell - July 1988. Start construction - November 1988. Start construction Cold Springs screens - May 1989. All construction complete, Cold Springs and Maxwell - September 1990.	7/87	7/15/88

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PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
88-50	JGM	WEID Main Canal Pumping (Grant to ODFW) Objectives: To measure downstream survival of migrating juvenile salmon and to enhance projects for incoming adult spring chinook during spring 1988. Improvement: Passage Species: Chinook	WEID pumps were operated in spring 1988.	5/88	---
Grande Ronde River Subbasin					
84-9	RDS	Grande Ronde Habitat Improvement Project - USFS/Wallowa-Whitman NF		7/1/84	3/31/92
		Upper Grande Ronde Basin Subproject Objective: Improve spawning and rearing habitat in the Upper Grande Ronde River. Improvement: Instream structures Habitat: 53 miles	FY 1988/1989 activities include the development of project plans, construction of instream structures, riparian vegetation planting and monitoring. Completion expected by 1991.		
		Upper North Fork John Day Basin Subproject Objective: Begin enhancement work on North Fork John Day in the Wallowa-Whitman NF Habitat: 49 miles Species: Wild spring chinook and steelhead	FY 1988/1989 activities include the development of project designs and environmental analysis. Construction of instream structures will begin along with riparian fencing. Completion expected by 1992.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-9 (cont.)		Lower Grand Ronde Basin Subproject Objective: Design phase will be implemented for a system of habitat improvement measures to improve spawning and rearing habitat for anadromous fish. Habitat: 30 miles Species: Spring chinook and summer steelhead	FY 1988/1989 activities include the development of project plans, riparian fencing, construction of instream structuring, riparian vegetation planting, and monitoring. Completion expected by 1991.		
84-25	RDS	Grande Ronde Habitat Improvement Project - ODFW		7/1/84	3/31/92
		Upper Grande Ronde Subbasin Subproject Objective: Prework activities will be conducted. Activities will include physical stream surveys, project planning, onsite preparation, and easement/cooperative agreement procurement.	FY 1988/1989 activities include in-stream structure/streambank stabilization, riparian fencing and planting. Completion expected by 1992.		
		Joseph Creek Subbasin Subproject Objective: Improve the quality and quantity of spawning and rearing habitat for salmon and steelhead through habitat improvement activities.	FY 1988/1989 activities include in-stream structure/streambank stabilization, riparian fencing, and planting. Completion expected by 1992.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
Yakima River Subbasin						
86-75	JCG		Little Naches River Passage - USFS/Wenatchee NF Objective: Construct fish passage facility to correct passage problems resulting from Salmon Falls. Rehabilitate flood-damaged reach below falls to provide an adequate passage corridor to the fish passage facility. Improvement: Passage, instream channel modification, and riparian revegetation Habitat: 18 to 24 miles, depending on species Species: Spring chinook, coho, and steelhead Benefit: Species / # Smolts Spring chinook 30,300 Coho 39,600 Steelhead 6,500	Construction of fishway and channel rehabilitation completed fall 1987. BPA will continue to fund operation and maintenance activities.	10/30/85	12/31/88
Clearwater River Subbasin						
84-5	LBE		South Fork Clearwater River - USFS Red River Subproject Objective: Increase the quantity and improve the quality of spawning and rearing habitat for anadromous fish. Improvement: Instream structure Habitat: Approximately 20 miles Species: Spring chinook Benefit: Benefit:Cost ratio is 15:1	USFS has completed construction on Federal land. Construction of fences is in progress on four private ranches. Completion scheduled for 1990. O&M agreement will be required beyond 1990 to protect investments. Project funded to completion with FY 1987 funds. Final report will summarize project completion.	1/1/84	1990

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-5 cont.			Crooked River Subproject Objective: To increase natural smolt production potential of salmon and steelhead. Improvement: Structures Habitat: 17 miles Species: Chinook and steelhead Benefit: Benefit:Cost ratio is 6.22:1	Instream structures and offsite pond construction will continue into FY 1988. Completion scheduled for 1990. Project has been funded to completion with FY 1987 funds. Evaluation and O&M scheduled for 1988-1990.		
84-6	LBE		Clearwater River Habitat Enhancement Improvements - USFS/Clearwater NF		4/1/84	1990
			Lolo Creek Subproject Objective: Increase the quantity and improve the quality of spawning and rearing habitat for anadromous fish. Improvement: Instream structure Habitat: 12 miles Species: Spring chinook and steelhead Benefit: Benefit:Cost ratio is 40:1	Riparian planting on Lolo Creek will be completed by 1988. Evaluation and monitoring of physical structures will be done in 1988 and 1989. O&M will continue from 1988 to 1990. Final report on all Clearwater NF projects will be completed in 1990. Project has been funded to completion with FY 1987 funds.		
			Eldorado Creek Subproject Objective: Remove rock barriers to correct passage problems resulting from basalt falls and associated high-velocity chutes which prevent access to spawning and rearing habitat above the site. Improvement: Instream structure and blasting Habitat: 10 miles Species: Steelhead and chinook Benefit: 24,000 chinook and 12,500 steelhead smolts	Project completed.		

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-6 (cont.)			Crooked Fork Subproject Objective: Remove rock barriers to correct passage problems resulting from rock chutes and waterfalls which prevent access to spawning and rearing habitat above the site. Improvement: Instream structure Habitat: 5.65 miles Species: Spring chinook and summer steelhead Benefit: 36,000 chinook and 21,000 steelhead smolts	Project completed.		
87-112	JCG		Orofino Creek Passage - Consultant Objective: Construct fish passage facility to correct passage problems resulting from Orofino Falls. Improvement: Passage Habitat: 62 miles Species: Summer steelhead Benefit: 12,718 steelhead smolts	A biological/engineering feasibility study is ongoing: January 1988: Biological feasibility report completed. September 1988: Conceptual design and engineering feasibility report scheduled for completion. If the the project is feasible, BPA will proceed with alternative selection, NEPA compliance, design, construction, and evaluation and monitoring, beginning in October 1988.	6/24/87	9/30/88

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO - 2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	RENEWAL DATE
Salmon River Subbasin					
84-23	JCG	Camas Creek, Idaho - USFS/Salmon NF Objective: Improve riparian conditions to increase salmon and steelhead spawning and rearing potential. Improvement: Fencing and riparian revegetation Habitat: 3 miles Species: Spring chinook and steelhead Benefit: Smolt / Adults Steelhead 4,586 / 76 Chinook 24,570 / 128	Fencing and revegetation to continue through FY 1988 and be completed in FY 1989.	6/29/84	8/31/89
83-359	LBE	Salmon River Habitat Enhancement - Shoshone/Bannock Tribe		10/1/83	3/31/89
		Bear Valley Creek Habitat Improvement Subproject Objective: Enhance habitat degraded by historic mining and dredging operations. Improvement: Instream structure and riparian enhancement Species: Wild chinook salmon and summer steelhead	Construction in progress to FY 1988. Project has been funded through FY 1988 with FY 1987 funds. Project construction will be complete in FY 1988. Monitoring will continue beyond FY 1988.		
		Yankee Fork/Jordan Creek/East Fork Salmon River Subproject Objective: Enhance habitat degraded by historic mining and dredging operations. Improvement: Instream structure Habitat: 152 miles Species: Salmon and steelhead	Plan/design and NEPA compliance in progress. Construction began in 1987 and scheduled for completion in FY 1988. Monitoring will continue beyond FY 1988.	1/1/83	3/31/89

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
83-415	CAB		Alturus Lake Creek and Upper Salmon River Flow Augmentation - USFS/Sawtooth NF Objective: Enhance natural production of chinook salmon and reestablish sockeye salmon production through increased streamflow. Improvement: Instream structure Species: Chinook and sockeye Benefit: Flow augmentation alternative = benefit:cost ratio of 15.5:1 to 23.4:1; Water right acquisition alternative = 18.5:1.	BPA General Counsel is reviewing water rights. Legal issues have been resolved; approach to Federal water right acquisition being explored.	---	---
84-24	LBE		Marsh/Elk/Valley/Upper Salmon River, Idaho - USFS/Region 4 Objective: Identify specific reaches of the Upper Salmon River, Marsh and Elk creeks where habitat improvements could lead to increased salmon and steelhead habitat; recommend, for future implementation, measures to improve habitat (e.g., fencing, streambank stabilization and instream structures). Develop a cost-sharing agreement (BPA/USFS) for implementation. Improvement: Instream structure Habitat: 150 miles Species: Steelhead, spring and summer chinook	Plan/inventory phase has been completed. Construction began in 1987. Elk and Lower Bear Valley creeks were given high priority for completion. Upper Salmon River projects are in design phase. USFS completed an implementation plan early in FY 1988 for completion of all projects. Construction proceeding on Lower Bear Valley Creek and Elk Creek.	6/29/84	3/31/89
84-28	SML		Lemhi River Rehabilitation - Consultant Objective: Identify problems, evaluate fishery potential, and recommend alternative methods for rehabilitating salmon and steelhead production in the Lemhi River. Improvement: Passage and flow enhancement Habitat: 62 miles Species: Salmon and steelhead	BPA consulted with IDFG and the Shoshone-Bannock Tribes for selection of the preferred alternative in FY 1988. They selected an alternative for implementation. BPA will develop a funding and implementation plan in FY 1988-1989.	9/84	---

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2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

PROJECT NUMBER	1/ PO	2/ PM	TITLE/OBJECTIVE	PROJECT STATUS	CONTRACT TERM START DATE	CONTRACT TERM RENEWAL DATE
84-29	LBE		Panther Creek - Consultant Objective: Conduct engineering feasibility and cost analysis for historic mining reclamation to remove toxicity problem for fish passage. Evaluate potential spawning and rearing habitat for anadromous fish and recommend alternatives for habitat improvement measures. Improvement: Passage Habitat: 100 miles Species: Spring chinook and steelhead	BPA funding was deferred pending resolution of legal issues. Private landowner and the Idaho State Attorney General are engaged in a lawsuit over historic mining impact on Panther Creek. The private landowner will not authorize any easement to BPA until the lawsuit is settled with the State. BPA and the agencies/Tribes have consulted with the Idaho State Attorney General's office in FY 1988. Progress is being made toward a legal resolution. Implementation may be reactivated in FY 1989.	8/27/84	---

1/PO = Project Officer: LBE/L. Everson, JCG/J. Gislason, DEJ/D. Johnson
2/PM = Project Manager: CAB/C. Bohan, TJC/T. Clune, SML/S. Levy, JGM/J. Marcotte, RDS/R. Stoots

4.3 ROZA DAM FISH PASSAGE FACILITIES
(Juvenile Facilities Completion: March 1, 1987)
(Adult Facilities Completion: March 1, 1988)

803(b)(2) BPA shall fund the U.S. Bureau of Reclamation (USBR) to renovate and repair adult and juvenile fish passage facilities at Roza Dam. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the USBR to renovate and repair adult and juvenile fish passage facilities at Roza Dam.

Background and Progress to Date:

The USBR owns Roza Dam; fish passage facilities are being constructed through Congressional appropriations. The project is one of 20 such passage improvement projects in the Yakima River Basin. Fish screen and ladder improvements are required to protect juvenile fish from being lost in irrigation canals and to enable adult salmon and steelhead to migrate upstream to spawn. The project will provide adequate upstream and downstream fish passage, including adequate passage during periods of reservoir drawndown.

USBR began screen construction in December 1985; facilities and ladder modification construction bids were opened in August 1986. Construction of the facilities is ongoing and scheduled for completion in FY 1988.

Plans:

Construction schedule:

Item	Begin Design	Begin Construction	Completion
Screen Structure	12/84	12/85	Completed
Screens	10/84	6/84	Completed
Pumpback	6/85	9/86	Completed
Ladders	6/85	9/86	Completed
Wasteway Barrier	12/84	7/86	Completed

Projects:

No BPA-funded projects.

4.4 PROSSER DAM FISH PASSAGE FACILITIES
(Juvenile Facilities Completion: March 1, 1987)
(Adult Facilities Completion: December 1, 1987)

803(b)(3) BPA shall provide funds to the USBR for construction of improvements and additions to Prosser Dam necessary to provide safe, efficient, and timely passage of adult and juvenile fish. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Provide funds to the USBR for construction of Prosser Dam improvements and additions necessary to provide safe, efficient, and timely passage of adult and juvenile fish.

Background and Progress to Date:

The USBR owns Prosser Dam; fish passage facilities are being constructed through Congressional appropriations. The project is one of 20 such passage improvement projects in the Yakima River Basin. Fish screen and ladder improvements are required to protect juvenile fish adequately from being lost in irrigation canals and to enable adult fish to migrate upstream to spawn.

USBR began screen construction in May 1986. Right bank ladder was completed in May 1986. Left and center ladders are scheduled for completion in FY 1989.

Plans:

Construction schedule:

Item	Begin Design	Begin Construction	Completion
Screen Structure	10/84	5/86	Completed
Right Ladder	10/85	10/85	Completed
Left Ladder	6/86	6/87	12/88
Center Ladder	5/85	6/87	12/88
Fish Trap	4/85	9/86	10/88

Projects:

No BPA-funded projects.

4.5 YAKIMA RIVER FISH PASSAGE IMPROVEMENTS
(Completion of Elements in Table 3 of 803(b)(5): December 1, 1988)
(Post-Construction Evaluations)

803(b)(5) Upon approval by the Council, BPA shall fund the design and construction of the improvements listed in Table 2. All fish screening facilities shall meet current screening design standards.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To construct Yakima River fish passage improvements.

Background and Progress to Date:

A network of irrigation canals diverts water from the Yakima and Naches rivers for use by various agricultural interests in the Yakima River Basin of Central Washington. Juvenile salmon and steelhead often stray into these canals during their outmigration to the sea. The BPA, USBR, Bureau of Indian Affairs (BIA), and Washington State are constructing fish screens to direct the young salmon and steelhead back to the Yakima and Naches rivers.

The Yakima Project entities will fund the construction of fish ladders at various projects to facilitate the normal upstream migration of adult salmon and steelhead.

Plans:

BPA plans to fund construction through to completion and to evaluate projects as they are completed.

See project summaries on following table.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
87-108	Westside Screen Construction - USBR Objectives: Construction of fish screening facility.	April 1988	Construction is completed.
86-109	Marion Drain Ladder Construction - USBR Objectives: Fish ladder construction.	April 1988	Construction completed. Construction deficiencies corrected in FY 88.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-91	Yakima Fish Passage Predesign - USBR Project Officer: T. Clune Objectives: Perform predesign activities for Yakima Basin fish passage facilities.	Date initiated: FY 1986 Results/Conclusions: Predesign evaluations and preliminary engineering have been completed for several passage facilities.	October 1988: Project will be completed.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-112	Toppenish/Westside/Ellensburg Screen Fabrication - WDF Project Officer: T. Clune Objectives: Fabricate screens for the three projects listed in the title.	Date initiated: October 1985 Results/Conclusions: Screen fabrication in progress.	June 1989: Project will be completed.
85-62	Passage Improvement Evaluations - Battelle Northwest Laboratories Project Officer: T. Clune Objectives: Evaluate effectiveness of passage improvement projects.	Date initiated: March 1985 Results/Conclusions: Evaluation is ongoing; results published in BPA annual reports.	Continuing: Evaluation will continue as projects are completed and go on line.

III. DEFERRED PROJECTS

PROJECT NUMBER	TITLE	ANTICIPATED START DATE	REASON FOR DEFERRAL
88-111	Stevens/Naches/Selah - USBR Project Officer: T. Clune Objective: Construct fish screening facility.	FY 1990	Deferred to Phase II of Yakima Facilities Screen Construction. Screen Construction to start about FY 1990.

PROJECT NUMBER	TITLE	ANTICIPATED START DATE	REASON FOR DEFERRAL
86-65	Snipes/Allen Screen Construction - USBR Project Officer: T. Clune Objective: Construct fish screening facility.	FY 1990	Consolidation found unfeasible - project deferred into Phase II of Yakima Screen Facilities Construction. Screen Construction to start about FY 1990.

IV. NEW PROJECTS

None.

4.6 WATER EXCHANGE FOR UMATILLA RIVER
(Support Beginning Spring 1987)
(Report Evaluations: Annually)

703(a)(17) BPA shall provide power or reimbursement for operation and maintenance costs associated with provision of power to USBR pumping plants designed to exchange Columbia River water for Umatilla River water. The USBR must obtain consent from all affected water users and regulators and provide assurance to the Council that water exchanged to augment streamflows will be used to meet annual flow objectives established by the ODFW and the CTUIR. The Oregon Water Resources Department will certify annually to the Council that the exchanged water will improve instream flows and will benefit fish. The USBR shall fund state and tribal fish and wildlife agency monitoring and evaluation studies to determine the biological effectiveness of this measure. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To support instream flow enhancement efforts, which will increase Umatilla anadromous fish production by improving passage and rearing conditions.

Background and Progress to Date:

Because the USBR pumping plants are still in the planning/design stage, no water exchanges under this Action Item have taken place. Through passage-assistance projects (Projects 87-409 and 88-50) under Action Item 4.2, BPA has provided for pumping power to operate existing West Extension Irrigation District (WEID) pumps to increase flows below Three Mile Dam during spring and fall 1987 and during spring 1988.

Federal authorizing legislation prepared by project sponsors was introduced in summer 1987. Two bills which help to bring about water exchanges and protect instream flows became law in Oregon during 1987.

Plans:

Entities involved in Umatilla fish rehabilitation efforts have agreed that the Fish and Wildlife Program language on this project needs to be clarified. Such clarification may require a program amendment. This process will take place during summer/fall 1988 and will be concluded by November 1988.

There are no BPA-funded projects under Action Item 4.6 in FY 1988. Funds are available to implement this Action Item in FY 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-27	Provide Power for USBR Columbia River Pumps Project Officer: J. Marcotte	Enhance instream flows in the River water in exchange for Umatilla River water.	FY 1989: Provide power to Phase I-West Extension pumps. FY 1993: Provide power to completed Columbia River pumps.

4.14.1 TEMPORARY JOHN DAY ACCLIMATION FACILITY
(Upon Council Approval, Complete Construction by Spring 1988)

703(f)(2)(B) Upon approval by the Council of the plan, Bonneville shall fund design, construction, and evaluation of the temporary facilities.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To build and test the effectiveness of acclimation ponds for upriver bright fall chinook salmon from John Day Mitigation Facilities.

Background and Progress to Date:

Acclimation facilities reduce the transportation stress of upriver bright fall chinook transported from John Day Mitigation facilities for release above John Day Dam.

During the first 2 years of the Fish and Wildlife Program, disagreements among affected parties over the location of the acclimation ponds made it difficult for BPA to implement this Measure. When the Council amended the Program in 1984, it provided for: (1) an agency and Tribal plan to be approved before any construction, and (2) an evaluation of temporary acclimation ponds.

In FY 1986, BPA initiated a site survey of 10 candidate acclimation facility sites (Project 86-82) to assist the agencies and Tribes in developing their plan. The joint agency-Tribal work group and the Council have been provided the completion report for the site study completed under Project 86-82. They will select the final site(s) to be used for acclimation.

Plans:

BPA plans to fund the design, construction, and evaluation of the John Day Temporary Acclimation ponds, once the Fish and Wildlife agencies and Tribes have developed the acclimation pond plan and the plan has been approved by the Council. BPA will also continue to fund Project 83-313 through completion.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-82	John Day Acclimation Pond Study - USFWS Objectives: Collect and compile information on the potential sites for the temporary John Day Acclimation Ponds.	October 1987	Potential sites were analyzed, and the completion report was submitted to the fishery agencies, Tribes, and Council for final site selection.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-313	Pen Rearing of Upriver Fall Chinook Salmon - USFWS Project Officer: J. Gislason Objectives: To evaluate the effectiveness of rearing Upriver Bright Fall Chinook (URBFC) salmon in net pens.	Date initiated: FY 1983 Results/Conclusions: URBFC salmon can effectively be reared in Columbia River backwaters with net pens, but the actual evaluation of ocean and freshwater contribution and escapement has yet to be completed. This project may provide information to help complete Program measures 703(f)(2)(B) and 703(g) (low-capital facilities).	1. Continuing: Contractor will collect and analyze adult return data; BPA will publish preliminary results in the Annual Report. 2. 1991: Contractor will collect and analyze adult return data, and prepare Final Report. BPA will publish Final Report.

III. NEW PROJECTS

(see next page)

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-16	Design, Construction, and Evaluation of Temporary John Day Acclimation Facilities. Project Officer: J. Gislason	Design, construct, and evaluate temporary John Day acclimation facilities.	1. FY 1989: Begin NEPA compliance activities and preliminary design, once the fishery agency and Tribal acclimation pond plan has been completed and the plan has been approved by the Council. 2. The acclimation pond plan is expected to contain a schedule for design, construction and evaluation of the facilities.

4.15.1 DESIGN AND CONSTRUCTION OF YAKIMA HATCHERY
(Upon Council Approval, Fund Beginning in FY 1988)

803(d) BPA shall fund the design and construction of a hatchery for salmon and steelhead enhancement in the Yakima River Basin and elsewhere as described in Section 503(c)(2) and 703(f)(3). [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To construct a hatchery to protect wild stocks and to enhance depressed stocks by using hatchery-reared fish to reseed underutilized habitat.

Background and Progress to Date:

BPA will fund the design, construction, operation, and maintenance of the Yakima outplanting facility. The facility will enhance the fishery for the Yakima Indian Nation and for other harvesters by supplementing natural runs. In November 1987, the Council completed the hatchery master plan, and BPA began predesign in November 1987. Predesign is scheduled for completion in April 1990.

BPA will also fund several other related studies, including a study to determine the feasibility of establishing anadromous fish runs above Cle Elum Dam (Project 86-45). The results of this project will directly influence the size and production profile of the Yakima outplanting facility. Another study (Project 87-136) will determine the applicability of acclimating fall chinook salmon in irrigation canals prior to release.

Plans:

1. National Environmental Policy Act (NEPA) compliance for hatchery construction is scheduled to be completed in June 1989.

2. BPA will fund design, construction, operation, and maintenance of the hatchery:

   Predesign: 11/87 - 3/90
   Final design: 3/90 - 10/91
   Construction: 10/91 - 6/95
   O & M: Begin 3/92 and continue

3. Operation of the facility is scheduled to begin in FY 1992.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
87-135	Yakima Hatchery Master Plan Development - YIN Objectives: Assist YIN participation in Master Plan development.	November 1987	Replaced by Hatchery Coordination Agreement (Project 88-120).

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-45	Yakima Hatchery: Cle Elum Study - NMFS Project Officer: T. Clune Objectives: Determine the feasibility of establishing sockeye salmon above Cle Elum Dam.	Date initiated: October 1986 Results/Conclusions: Eggs were collected in July 1987. Fingerlings being reared. Tests indicate all fish are IHN-negative.	1. FY 1989: Tag and release juveniles from 1987 brood-year. Collect 1988 brood-year adults and take eggs; raise juveniles in quarantine facility. 2. Continuing: Evaluate survival of tagged fish.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-136	Yakima Hatchery: Wapato Canal - YIN Project Officer: T. Clune Project Biologist: T. Vogel Objectives: Determine applicability of acclimating fall chinook salmon in irrigation canals before release.	Date initiated: May 1987 Results/Conclusions: Net pens in operation. Releases of fall chinook indicate good juvenile survival.	FY 1989: Continue evaluation of net pen rearing in Wapato Canal. Contractor (YIN) to provide annual report.
88-123	Yakima Hatchery Coordination-Roza Irrigation District. Project Officer: T. Clune Objectives: Provide for technical assistance from Roza Irrigation District on hatchery project.	Date initiated: February 1988 Results/Conclusions: Good participation and input from irrigation entities.	FY 1989: Participate in public involvement, TWG, and Water analysis.
88-115	Yakima Hatchery Predesign Project Officer: T. Clune Objectives: Complete predesign for Yakima Hatchery.	Date Initiated: FY 1988 Results/Conclusions: Project is progressing satisfactorily.	FY 1990: Predesign completed.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-120	Yakima and Klickitat Basin Artificial and Natural Production Enhancement Program - YIN Project Officer: T. Clune Objectives : Provide for participation of YIN, WDF, and WDW in development of a natural and artificial production program.	Date Initiated: October 1987 Results/Conclusions: Agreement executed; participation in hatchery TWG and public involvement.	1. FY 1989: Fund Project Leader to obtain agreement from YIN, WDF, WDW. Participate in TWG and public involvement activities. 2. Continue through hatchery construction.
88-149	Yakima Hatchery: Water Analysis - USBR Project Officer: T. Clune Objectives: To determine water availability, by species and lifestage, for hatchery production.	Date Initiated: May 1988 Results: Begin data collection for water analysis study.	1. FY 1989: Continue water analysis data collection through summer 1989. 2. FY 1989-1990: Compile data, perform analysis, and complete report by October 1989.

----- LOW-CAPITAL PROPAGATION FACILITIES

703(g)(1) BPA shall provide funds to develop and test low-cost, small scale propagation facilities adaptable to the Columbia Basin locales. [Abstract]

ACTION ITEM ACTIVITY SUMMARY

Objectives:

To define, evaluate, and access low-capital production facilities.

Background and Progress to Date:

Low-capital propagation facilities require a smaller water supply than large hatcheries and are readily adaptable to individual drainages, enabling the conservation of gene pools. A low-capital facility evaluation project was begun in 1983 and is currently ongoing.

Criteria for identifying and defining low-capital facilities were drafted into the FY 1986 Work Plan. Comments on that plan criticized BPA's definition as being too limited. Confusion arose over the definition of "low cost." In FY 1986, BPA sought the assistance of the Council staff to clarify the definition of low-capital production facilities. To date, the Council has not responded.

Plans:

BPA will use the expertise of the HETWG (HETWG workload permitting) to develop criteria for low-capital production facilities. At that time, BPA can seek and compare the usefulness of the other candidate sites. BPA will continue the ongoing evaluation project (Project 83-364) through completion.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-364	Evaluation of a Low-Cost Salmon Production Facility - Clatsop Economic Development Committee Fisheries Project Project Officer: T. Clune Objectives: Evaluate the effectiveness of a low-cost, small-scale salmon propagation facility and a known-stock terminal fishery.	Date initiated: 1983 Results/Conclusions: The project continued effectively to rear and release salmon that contributed to various fisheries from California to Alaska. The local community continued to be a major provider of funds, services, and equipment to the project.	1. December 1988: Project will be completed and evaluation results will be available.

III. NEW PROJECTS

None.

4.16.1- NORTHEASTERN OREGON SPRING CHINOOK OUTPLANTING FACILITY
4.16.2 (Fund Development of Master Plan in FY 1988 or Earlier; Upon Council Approval, Fund Design and Construction)

703(f)(5) BPA shall fund planning, design, construction, operation and maintenance, and evaluation of artificial production facilities to raise chinook salmon and steelhead for enhancement in the Hood, Umatilla, Walla Walla, Grande Ronde, and Imnaha rivers in Oregon and elsewhere. The artificial production facilities shall be used to supplement natural production in these rivers.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund master plan, design, and construction of the Northeastern Oregon salmon and steelhead facilities.

Background and Progress to Date:

The fish and wildlife agencies and Tribes expect this facility to provide for outplanting of about 2.3 million to 3.0 million spring chinook juveniles in the five Oregon rivers identified in the measure. The TWG has been organized and is assisting in the developments of the hatchery master plan. BPA has budgeted for implementation.

Plans:

The master plan is scheduled to be completed in 1990. When the Council approves the master plan, BPA will proceed with design.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-53	Northeastern Oregon Artificial Production Facilities-Consultant Project Officer: J. Bauer Objectives: Fund planning, design,construction, operation, maintenance, and evaluation of artificial production facilities to raise chinook and steelhead for enhancement in the Hood, Umatilla, Walla Walla, Grande Ronde, and Imnaha rivers and elsewhere. The artificial production facilities shall be used to supplement natural production in these rivers.	Date Initiated: Planning began in FY 1988. Results/Conclusions: None at this time.	1. The Fish and Wildlife agencies and Tribes expect these facilities to provide for outplanting 2.3 to 3.0 million juveniles in the five rivers identified. The TWG has been organized and is assisting in the development of the hatchery master plan. 2. FY 1989: Implement Intergovenmental Agreement and start and complete site evaluation portion of master plan. Coordinate site selection to production profile needs from subbasin plan. Initiate beginning of genetic impact assessment, harvest plan, and monitoring and evaluation portions of plan. 3. FY 1990: Complete facilities master plan with production objectives, facility siting, and preliminary cost estimates.

III. NEW PROJECTS

None.

4.17.1 JUVENILE RELEASE/ADULT COLLECTION AND HOLDING FACILITIES ON UMATILLA RESERVATION
(Operate, Maintain)

703(f)(1) BPA shall fund the Confederated Tribes of the Umatilla Reservation (CTUIR) to operate and maintain the Bonifer and Minthorn juvenile release and adult collection and holding facilities on the reservation. [Abstract]

ACTION ITEM ACTIVITY SUMMARY

Objectives:

To fund operation, maintenance, and evaluation of the Bonifer and Minthorn facilities.

Background and Progress to Date:

The facilities are to acclimate and imprint juvenile salmon and steelhead before release into the Umatilla River, thereby increasing survival of juveniles and the homing ability of adults. The facilities are also used to hold adults before artificial spawning. When constructed, the Umatilla Hatchery (Project 84-33; Action Item 4.17.2) will rear juveniles for acclimation at the Minthorn and Bonifer facilities. Currently, juveniles from other hatcheries are acclimated at the facilities.

BPA has funded the operation and maintenance of the Bonifer and Minthorn facilities since construction in 1983 and 1985, respectively. During this time, about 900,000 fall chinook, 500,000 spring chinook, 150,000 coho salmon, and 140,000 steelhead juveniles have been acclimated and released. A study to evaluate the fishery benefits and operation of the acclimation facilities was begun in FY 1987.

Plans:

BPA will continue funding operation, maintenance, and evaluation of the facilities through an Intergovernmental Agreement with the CTUIR as long as there is an Action Item calling for BPA funding. BPA expects that results of the evaluation study will be used by the CTUIR to determine the actual fishery benefits of acclimation, to select effective juvenile release strategies, and to improve operational efficiency.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-435	Minthorn and Bonifer Springs Summer Steelhead Juvenile Release and Adult Collection Facilities - CTUIR Project Officer: J. Gislason Objectives: To operate, maintain, and evaluate the Minthorn and Bonifer facilities for the acclimation and imprinting of juvenile anadromous salmonids and the collection and holding of adults.	Date initiated: FY 1983 Results/Conclusions: Approximately 275,000 fall chinook, 175,000 spring chinook, 150,000 coho, and 40,000 steelhead juveniles were acclimated and released during FY 1988. No results of the facility evaluation study are available yet.	1. Continuing: BPA will fund operation, maintenance, and evaluation of the facilities. 2. Continuing: Contractor will provide an annual operational report and preliminary results of the evaluation study in the Project's annual report. 3. FY 1993: BPA will publish the final results of the evaluation study in a final report.

III. NEW PROJECTS

None.

4.17.2 EXPANDED UMATILLA HATCHERY
(Fund, upon Council Approval)

703(f)(1)(A) BPA shall fund the construction of a facility to test the efficacy of oxygen supplementation hatchery techniques to produce up to 290,000 pounds of summer steelhead and chinook salmon smolts. These smolts shall be for release in the Umatilla juvenile release and adult collection holding facilities and for outplanting in the upper Umatilla River to enhance natural and hatchery production. Prior to construction of this facility, the ODFW and the CTUIR will develop a facility master plan for Council approval.[Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide an improved contribution of anadromous fish production from the Umatilla River to the Columbia River Basin.

Background and Progress to Date:

The facilities are to produce 290,000 lbs. of salmon and steelhead juveniles for release in the Umatilla Subbasin to enhance natural and hatchery production. Hatchery production may also be used in other subbasins. A secondary purpose of the hatchery is to demonstrate oxygen supplementation technology. BPA began funding hatchery design in FY 1986 and hatchery master planning in FY 1987. The CTUIR and ODFW have been conducting a release program using fish from other hatcheries since 1982, and intend to continue until this hatchery is operational. The final design was completed during 1988 and the master plan is expected to be approved by year's end. Agreement was reached in 1988 that the hatchery will be operated by ODFW as a joint facility with Irrigon hatchery and that the Umatilla Tribes will be responsible for preparing the annual operating plan.

Plans:

In FY 1989, BPA plans to fund construction of the hatchery. When the hatchery is completed in 1990, BPA will fund its operation and maintenance. After completion, BPA also expects to evaluate hatchery effectiveness.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
84-33-1	Cost Estimate Analysis of Proposed Umatilla Hatchery Expansion - Consultant Objectives: To verify accuracy and appropriateness of hatchery engineering cost estimates and to conduct a conceptual design review to identify potential cost-saving measures.	July 1987	Objectives were met. Cost-saving measures were incorporated into final design, and hatchery cost estimates were refined.
84-33-3	Analysis of Final Designs for Umatilla Hatchery-Consultant Objectives: To confirm that the hatchery as designed meets accepted standards for Western- and Michigan-style rearing and for O_2 supplementation. To identify potential inadequacies either in hatchery designs or in production scenarios. This project constitutes the Umatilla Tribes' technical review of and input to the final design process.	August 1988	Objectives were met. The Tribes submitted a letter to BPA supporting construction of the hatchery as designed.
88-157	Umatilla Hatchery Design Review - CTUIR (Grant) Objectives: To provide CTUIR with technical capability to review and evaluate Umatilla Hatchery final design.	September 1988	The CTUIR hired a consultant who completed a review of the final design.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
84-033	Umatilla Hatchery - USACE Project Officer: J. Marcotte Objectives: Design and construct the Umatilla Hatchery.	Date initiated: FY 1986 Results/Conclusions: Council approved hatchery predesign in October 1986. Hatchery site next to existing Irrigon Hatchery was selected in cooperation with Morrow County. Umatilla Hatchery Environmental Assessment was issued February 1987. FONSI issued April 1987. Council amended program to expand hatchery production to 160,000 and added salmon to production. Council amended program to expand production to 290,000 and test efficiency of O_2 supplementation. Final designs completed.	1. Spring 1989: Start construction. 2. Summer 1990: Hatchery operational.
84-033-02	Analysis of O_2 and Michigan Rearing Strategies -Consultant. Project Officer: J. Marcotte Objectives: To ensure that final designs incorporate accepted standards for Michigan-style oxygen supplementation and rearing techniques and to ensure that proposed operational strategies reflect the capabilities of the hatchery design.	Date initiated: FY 1987 Results/Conclusions: Objectives were met. Consultant's input will allow final designs and production scenarios to be fine-tuned.	December 1988: Project to be completed.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-415	Umatilla Hatchery Master Plan - ODFW Project Officer: J. Marcotte Objectives: Develop a master plan to guide hatchery production, management policies, and monitoring and evaluation.	Date initiated: June 1987 Results/Conclusions: The master plan technical work group has revised the draft plan. This process is being coordinated with regional fishery interests and appropriate Council Technical Work Groups. Final plan is expected to be submitted to Council for issue paper development in September 1988.	1. September 1988: Completion of hatchery master plan. 2. December 1988: Council action on master plan.

III. NEW PROJECTS

None.

4.17.3 LOW-CAPITAL PROPAGATION FACILITY ON NEZ PERCE RESERVATION (Design/Begin Construction by May 1989)

703(g)(2) Upon approval by the Council of design and construction plans for low-capital propagation facilities on the Nez Perce Reservation, Bonneville shall fund the construction, operation, and maintenance of those facilities. The Nez Perce Tribe will develop the facility plan and will incorporate the information provided under Section 703(g)(1).

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design and construct a low-capital production facility to enhance fisheries on Nez Perce Reservation.

Background and Progress to Date:

Through construction of facilities for spawning, incubation, and rearing of chinook salmon and steelhead trout, the Nez Perce Tribe (NPT) seeks to re-establish its salmon and steelhead fishery. This fishery has nearly been destroyed through construction and operation of dams and poor land use practices, including agriculture, logging, road construction, and mining.

Work began on this measure in September 1983. The initial phase of the project, which developed an artificial propagation facility feasibility study, was completed in January 1985. Site investigations were conducted in FY 1988.

Plans:

Preliminary design scheduled to begin in FY 1988, followed by final design and construction. Project completion scheduled for FY 1991.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-350	Nez Perce Low-Capital Production Facility - NPT Project Officer: S. Levy Objectives: Design and construct a low-cost salmon propagation facility on the Nez Perce Reservation.	Date initiated: FY 1983 Results/Conclusions: None.	1. FY 1989: Complete preliminary design, including NEPA assessment. Begin final design. 2. FY 1990: Begin construction. 3. FY 1991: Complete project, and begin operation and maintenance. Evaluation and monitoring.
88-126	Nez Perce Technical Support - IDFG Project Officer: S. Levy Objectives: To provide technical support on planning for Nez Perce Hatchery project.	Date Initiated: January 1988 Results/Conclusions: None.	On-going technical support will continue through FY 1992.

III. NEW PROJECTS

None.

4.17.4 HABITAT SURVEY ASSOCIATED WITH ACTION ITEM 4.17.3
(Fund)

703(c)(3) Bonneville shall fund an evaluation of the lower mainstem Clearwater River to study existing habitat and temperature regimes for spawning, incubation, and rearing for salmon and steelhead. Proposals for outplanting from the Nez Perce low-capital propagation facilities [703(g)(2)] will be based on the evaluation. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To implement an evaluation of the habitat and temperature regimes in the lower mainstem Clearwater River; the evaluation will determine the feasibility of establishing a run of anadromous fish.

Background and Progress to Date:

When constructed, a low-capital salmon and steelhead propagation facility (Action Item 4.17.3) on the Nez Perce Reservation will produce fish for outplanting in reservation streams. The mainstem Clearwater River habitat study will try to determine what species can successfully be outplanted in the mainstem Clearwater River and to identify opportunities to enhance existing steelhead production. BPA expects that the NPT will use study information to plan production and outplanting strategies for the low-capital facility.

BPA began funding a mainstem Clearwater River habitat study (Project 88-15) in October 1987. The study is progressing satisfactorily.

Plans:

BPA will continue with implementation of Project 88-15 (see following table). Upon completion of Project 88-15, the Action Item and measure will be completed; no additional projects are planned.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-15	Mainstem Clearwater River Study: Assessment for Salmonid Spawning, Incubation, and Rearing - NPT Project Officer: J. Gislason Objectives: Evaluate the existing anadromous fish habitat and the temperature regime in the lower Clearwater River to determine 1) the feasibility of establishing a run of anadromous species in the lower river, and 2) opportunities for enhancing steelhead production.	Date Initiated: October 1987 Results/Conclusions: Preliminary results will be available in October 1988.	1. FY 1989: NPT will complete Phase I of the project, a literature review. After the project TWG has reviewed the NPT study plan for Phase II field studies, BPA plans to fund Phase II. The completion date for Phase II is unknown at this time. 2. The NPT will coordinate any outplanting plans with the STWG, MEG, and SPG Planning Group.

III. NEW PROJECTS

None.

----- IMPROVED HATCHERY EFFECTIVENESS
(Former Action Item 34.23)

703(e) Measure 703(e) concerns "Improved Propagation at Existing Facilities" and gives priority to improving and reprogramming propagation at existing facilities, over construction of new facilities. The measure includes: (1) research, development, and demonstration of improved husbandry practices; (2) strategies for and rearing operations aimed at improved operating efficiencies of hatcheries and increased adult returns; (3) genetic stock assessment; (4) improved fish health protection; and (5) developing sensitive and reliable indices of smolt quality and readiness to migrate. [Abstract]

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To identify and fund research, demonstration, or other projects necessary to accomplish improvements in the effectiveness of existing hatcheries.

Background and Progress to Date:

The Columbia River Basin has about 54 main hatcheries and about 40 satellite facilities, representing a capital investment worth over $600 million. These facilities are estimated to produce over 75 percent of the total salmon and steelhead in the basin. Improving hatchery effectiveness will increase total adult fish production and will protect very large public investments. More hatcheries may be needed to achieve Program goals, but their numbers, adverse impacts, and costs will be much lower if the existing hatchery production provides more adults via higher smolt survival, a goal requiring that hatchery fish quality be improved.

Most of the currently funded projects under former Action Item 34.23 continue to concern research on bacterial kidney disease (BKD) or infectious hematopoietic necrosis (IHN) virus. These diseases were rated as the most important disease problems by the FDTWG in its Work Plan. Additional projects are pursuing the identification of the *Ceratomyxa shasta* life cycle and the role of nutrition in the growth, survival, and immune response of salmon.

In accordance with the 1987 Program, a Hatchery Effectiveness Technical Work Group (HETWG) was formed. The group, composed of experts in hatchery effectiveness, developed a Five-Year Research Work Plan to address the technical needs of this Area of Emphasis, Section 206(b)(1)(c), and Program Measure 703(e). This plan is discussed under Action Item 6.1 in the Work Plan.

Plans:

BPA plans to continue funding ongoing multiple-year projects begun under former Action Item 34.23, after reviewing their progress. BPA expects to use TWgG's to conduct onsite evaluations of existing projects. BPA will continue to participate in the HETWG process and to rely on the group for expert opinion and collaboration in implementation. (Projects from the HETWG and FDTWG Five-Year Work Plans can be found under Action Item 6.2 in the Work Plan.)

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
84-43	Evaluation of a Subunit Vaccine Against IHN Virus - OSU Project Officer: R. Morinaka Objectives: Develop and test a subunit vaccine against IHN virus.	Date initiated: July 1984 Results/Conclusions: A recombinant DNA vaccine for IHN virus has been prepared and laboratory tested and found to be effective. Large quantities of vaccine have been completed. The USFWS will continue to field test the vaccine in 1988-89.	1. 1989: Field trials Kooskia/Dworshak NFH. 2. 1990: Evaluate vaccine in sentinel fish.
84-45	Effects of Vitamin Nutrition on the Immune Response of Hatchery-Reared Salmonids-USFWS Project Officer: J. Gislason Objectives: Determine the amounts of selected vitamins required for peak functioning of the immune systems in chinook salmon and for high resistance to infectious diseases. (Vitamins selected: pyridoxine, folic acid, pantothenic acid, riboflavin, vitamin E, and ascorbic acid.)	Date initiated: August 1984 Results/Conclusions: (Preliminary) There are marginal differences in the immunological parameters tested with respect to the vitamin concentrations incorporated into the diets. However, the Abernathy diet can provide greater enhancement of the development of immune responsiveness over that seen with the semi-purified diet (Oregon Test Diet).	1. 1989: Project to be completed; BPA will issue final report. 2. Project is funded to completion with FY 1987 funds.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-363	Development of Diets for Enhanced Survival of Salmon - ODFW Project Officer: J. Gislason Objectives: Develop a high-quality animal protein fish diet and evaluate the effect of the diet on survival and return of coho and chinook salmon.	Date initiated: 1983 Results/Conclusions: Cold-processed salmon meal would greatly enhance growth (and survival) of tule fall chinook.	1. Continuing: Contractor will evaluate the effect of diet on survival and return rate of coded wire-tagged coho and chinook salmon. 2. 1991: Recommendations for diet components for enhanced survival will be available; BPA will publish final report.
84-945	Effects of Vitamin Nutrition on the Immune Response of Hatchery-Reared Salmonids - OSU Project Officer: J. Gislason Objectives: See Project 84-45	Date initiated: August 1984 Results/Conclusions: See Project 84-45.	1. 1989: Project to be completed; BPA will issue final report. 2. Project is funded to completion with FY 1987 funds.
83-312	Epidemiology and Control of Infectious Diseases of Salmonids in the Columbia River Basin - OSU Project Officer: A. Ruger Objectives: Collect epidemiological information on IHN disease, BKD, and ceratomyxosis relative to Columbia River salmon; investigate ways and means of controlling diseases.	Date initiated: May 1983 Results/Conclusions: Freshwater clams convey the infectious lifestage of *Ceratomyxa shasta*. This disease is spreading in the Basin. BKD is highly prevalent in the ocean as well as in freshwater. First sign of infection of *C. shasta* was 7 days post-exposure in the posterior intestine.	1. 1989: Determine the role of freshwater clams in the life cycle of *C. shasta*. 2. 1989: Test a suite of drugs against BKD. 3. 1989: Determine whether *Renibacterium salmoninarum* can be diagnosed by the presence of N-acetylfucosamine. 4. Project is funded to completion with FY 1987 funds.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
84-46	Development of a Vaccine Against BKD in Salmon - OSU Project Officer: A. Ruger Objectives: Collect and treat fractions of *Renibacterium salmoninarum* with various agents to promote immune responses. Vaccinate fish with these fractions and challenge with live BKD to determine whether immunity was conveyed.	Date initiated: July 1, 1984 Results/Conclusions: Some fractions have conveyed protection. Most promising prototype vaccine protected about 30% of the fish. Species-related differences in sensitivity to BKD challenge were identified.	1. June 1989: Final report will be completed. 2. Project is funded to completion with FY 1987 funds.
87-403	Development of a Wet Lab for Infectious Fish Disease Research - OSU Project Officer: A. Ruger Objectives: Design and construct an expanded facility for research on various aspects of infectious diseases, for testing of anti-microbial agents, for developing and testing of vaccine, for providing biologicals, for improving diagnostic tests, and for providing professional training to fishery scientists.	Date initiated: August 1987 Results/Conclusions: Preliminary design complete.	1. August 1988: Design to be completed. 2. May 1989: Construction completed. 3. Project is funded to completion with FY 1987 funds.

III. NEW PROJECTS

Hatchery Effectiveness research projects in the Five-Year Work Plan of the HETWG are listed under Action Item 6.2.

4.17.5 WILLAMETTE BASIN STUDY PLAN
(Fund; Coordinate with Supplementation Work Plan)

703(h)(2) BPA shall provide funds to study the best method of supplementing natural stocks of spring chinook with hatchery stocks in the Willamette River. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund a study to supplement the Willamette spring chinook runs without adversely affecting natural runs of resident fishery or the genetic integrity of the Columbia Basin fish populations.

Background and Progress to Date:

Supplementation, or outplanting, has been identified by the agencies, Tribes, and the Council as one of the main ways to increase Columbia River salmon and steelhead runs. This project aims to develop the best methods for supplementing spring chinook in the Willamette Basin, in order to develop and maintain maximum sustained yield and to maintain genetic diversity.

Phase I, completed during September 1985, surveyed the literature of outplanting efforts and developed a detailed study design for evaluating possible Willamette Basin strategies. Phase II proposed planting fry, presmolts, and adults in areas with different production potential. The 9-year evaluation would determine which life stage of spring chinook to outplant for maximum survival.

A major review included the study design and the relationship to Section 703(h)(1), the overall work plan for supplementation. Section 703(h)(2) concerns only Willamette Basin spring chinook. The review, completed in FY 1986, concluded that the initial study design viewed outplanting as a potential continuing effort to supplement hatchery production by using hatchery surpluses. However, both Measures 703(h)(1) and 703(h)(2) view outplanting as a temporary means of enhancing natural production or re-establishing natural runs. Rebuilding natural runs was not addressed in the study plan, though it is one of the highest priorities of the Program.

The impacts of outplanting on resident fish will not be answered by this study design. BPA believes, however, that these impacts should be addressed in supplementation research.

Plans:

BPA will submit the study plan to the STWG for review, realizing the close ties to 703(h)(1) that this study should address. If Measure 703(h)(2) is a high priority in the STWG Five-Year Work Plan, BPA will work with ODFW and the STWG to develop a work plan and initiate research.

4.17.6 PROPAGATION OF SALMON/STEELHEAD IN PELTON DAM FISH LADDER
(Fund, upon Council approval of Master Plan)

703(g)(3) BPA shall fund propagation of salmon and/or steelhead smolts in the 2.8-mile-long fish ladder located at Pelton Dam on the Deschutes River in Oregon. This production shall be in addition to the fish propagated in the ladder by Portland General Electric to mitigate the effects of Pelton and Round Butte dams and will not affect the mitigation responsibilities of that company. The Oregon Department of Fish and Wildlife and the Confederated Tribes of Warm Springs will develop a master plan for Council approval prior to BPA funding of design and construction. The master plan should contain the same type of information as in other hatchery master plans for Yakima, Umatilla, and northeastern Oregon facilities.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Fund the design and construction of propagation facilities at the Pelton Dam ladder; fund the propagation of salmon and/or steelhead.

Background and Progress to Date:

BPA is awaiting development of the master plan by the fisheries agencies and Tribes.

Plans:

When the Council approves the agency and Tribal joint master plan for the Pelton Dam ladder rearing, BPA will form a TWgG to assist in the completion of this Action Item. The design and construction will follow the recommendation of this TWG. When the facility is constructed, an operation and maintenance agreement with the operator will be established.

BPA has budgeted funds for implementation in FY 1989. When the Council approves the master plan, BPA will proceed with implementation.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX	Propagation in Pelton Dam Ladder Project Officer: J. Bauer	1. To rear fish in the Pelton Dam ladder. 2. To evaluate cost relative to normal hatchery costs. 3. To determine contribution of reared fish to the fishery.	FY 1989: After Council approval of the ODFW-CTWSIR master plan, BPA will fund rearing of fish in the Pelton Dam fish ladder.

4.21 HATCHERY RELEASES IN UPPER COLUMBIA
(Upon Council Review of Reprogramming Plan, Fund Releases)

703(d)(2) After Council review of the reprogramming plan developed by the fish and wildlife agencies and Indian Tribes, BPA shall provide funds to transfer a portion of the fish from existing lower Columbia River hatcheries to release sites in the upper Columbia River system to assist in restoring naturally spawning stocks, as provided in that plan.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To implement the reprogramming plan (approved by the Council) to assist in the rebuilding of upriver fish runs.

Background and Progress to Date:

BPA understands that the fishery agencies and Tribes have not submitted the plan to the Council. When the Council has reviewed the plan, BPA will proceed with funding of hatchery releases in the upper Columbia River. BPA still awaits Council review and approval of the plan.

Plans:

Future projects and required funding will be identified after the Council approves the reprogramming plan.

Projects:

No defined projects for FY 1989.

5.1 KNOWN STOCK FISHERIES FIVE-YEAR DEMONSTRATION PROGRAM
(Co-Fund to Test Electrophoresis: Begin 1985 Ocean Fishing Season or Subsequent Seasons)

503(b)(1) The Council supports inseason management of mixed-stock fisheries using electrophoresis to profile the contribution of the different upriver stocks. BPA shall share funding with the fishery management agencies of a five-year program that demonstrates the effectiveness of this technique in profiling the ocean fisheries more accurately and in refining harvest regulations to protect Columbia River stocks. At the conclusion of the five-year program, the fishery management agencies will propose a plan for further action.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To implement known-stock fishery demonstration projects to protect wild steelhead.

Background and Progress to Date:

BPA contributed funds to a study to perfect the electrophoresis technique to differentiate fish stocks and to demonstrate its applicability in the Columbia River Basin (Project 79-1). BPA funded further application of this technique (Project 83-451) to determine separate stocks of Columbia Basin anadromous fish. These efforts and those of the fishery management entities have produced a proven electrophoresis technique now applied widely in fisheries management. The technique may also soon be used to determine whether sturgeon populations in the United States stretches of the Kootenai River are different from those in Canadian waters. BPA therefore believes that further research to improve stock identification methods as part of a hydroelectric mitigation program is unnecessary. Stock identification is now a matter of prescriptive application.

BPA has funded a known-stock fishery demonstration project (Project 84-2) to protect wild steelhead. Results indicate that the project was successful.

Plans:

BPA has no further plans for this Action Item.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
84-2	Protection of Snake River Adult Steelhead with the Use of an Adipose Fin Clip - IDFG Objectives: Mark steelhead with an adipose fin mark to differentiate the hatchery and wild component of the various runs.	June 1988	The adipose fin mark was used to enhance the protection of wild adult steelhead. While no direct correlation can be made with the recent increase of wild steelhead populations during the term of this project, without this project any harvest in Idaho would have decreased the existing populations.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

None.

6.1 TECHNICAL WORK GROUPS
(Begin to Fund in FY 1987)

206(b)(1) and (2) BPA shall focus its funding of salmon and steelhead research in the next five years in the following areas of emphasis:

1. Studying water budget effectiveness and reservoir mortality;

2. Solving disease problems affecting spring and summer chinook;

3. Exploring methods for substantially increasing and improving hatchery production at existing hatcheries within the next 10 years; and

4. Improving supplementation techniques.

BPA shall fund technical work groups composed of representatives of the Fish and Wildlife agencies, tribes, hydropower project operators, and BPA, with technical input from other experts, to develop Five-Year Work Plans for each of the areas listed above. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the establishment of a TWG in each of the four areas of research emphasis and to fund the development of Five-Year Work Plans.

Background and Progress to Date

BPA funded the establishment of TWG's in FY 1987. Each made progress in its tasks:

1. Reservoir Mortality and Water Budget Effectiveness Technical Work Group (M/WBTWG):

The M/WBTWG agreed on three areas of emphasis: survival and flow relationships, predation, and dam operations. As opinion was distinctly divided on the focus of survival and flow relationships, two Work Plans were submitted to the Council in September 1987. The fishery agencies/Tribes plan emphasized long-term monitoring to determine the effectiveness of the Water Budget and examination of the mechanisms of reservoir mortality. The BPA/USACE/PNUCC plan emphasized shorter-term survival research and simultaneous research on both the extent and mechanisms involved in reservoir mortality. This latter plan also maintains a basal monitoring program. To date, BPA negotiates and funds research and monitoring projects.

2. Fish Disease Technical Work Group (FDTWG):

The FDTWG submitted a work plan to the Council in September 1987. The plan focused on eight major diseases/pathogens and their biological, economic, and programmatic impact on the Columbia River anadromous fishery resource. Basic information needs were identified and categorized by the level of urgency in relationship to the Fish and Wilclife Program. During 1988, the Council approved the FDTWG's workplan. In March 1988, five projects were submitted to BPA for funding; however due to the competitive nature of 4 out of 5 submitted projects, only 3 of the 5 actually were sent to BPA Procurement Branch. BPA is implementing these projects in the order prioritized by the FDTWG.

3. Hatchery Effectiveness Technical Work Group (HETWG):

The HETWG developed evaluation criteria and their weighting factors for research and demonstration projects. They ranged from increasing survival of salmon and steelhead (5.7 weight) and increasing production (5.2) down to improving evaluation methods (2.4) and basic research (1.0). These criteria were used to prioritize research topics, ranging from husbandry practices to improve survival or production (ranked No. 1) and the meeting of future nutritional needs (No. 2) down to the water quality standards' potential to limit artificial propagation (No. 10) and potential for modifying fish behavior to increase survival (No. 11). Plans were drafted for each topic. The HETWG Work Plan was submitted to the Council in September 1987. The Council adopted this plan in January 1988 and the HETWG began developing detailed statements of work for six research projects.

These projects were:

1. Impact of coded-wire tags on salmon survival;
2. Evaluation of pre-release temperature acclimation at groundwater hatcheries;
3. Estimated potential for increasing production capacity of existing hatcheries;
4. Bioengineering evaluation of retrofitted supplemental oxygen using surface water in salmon culture;
5. Evaluation of smolt quality indices;
6. Scoping of a project on the evaluation of environmental conditions during smolt migration.

At this writing, the projects are under development and lack identification numbers or statements of work.

4. Supplementation Technical Work Group (STWG):

The STWG identifed two major types of questions on supplementation of natural runs with hatchery production: the conditions for successful supplementation and the impacts of supplementation on indigenous stocks. The STWG identified six specific questions to define research activities. The work plan identified a

prioritized list of research activities, test fish requirements, and rough cost estimates. It included criteria and justifications for recommendations. The STWG Work Plan was submitted to the Council in September 1987.

Plans:

BPA will continue to fund the TWG's through completion of all tasks identified in Section 206(b).

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-307	Areas of Emphasis, Technical Work Groups - PMFC Project Officer: M. Schneider Objectives: To fund Technical Work Groups to develop five-year work plans and perform other tasks listed in Measure 206(b).	Date Initiated: FY 1987 Results/Conclusions: BPA funded the establishment of four Technical Work Groups (TWG's) in FY 1987 The TWG's submitted five-year research work plans to the Council in 1987 and 1988.	The TWG's will assist BPA in the development, evaluation, and review of RFP's, project work statements, and related documents.

III. NEW PROJECTS

None.

6.2 RESEARCH IN THE FIVE-YEAR WORK PLANS
(Begin to Fund in FY 1988)

404
703 (e)
703(h)
206(b)

These measures address BPA funding of research, development, and testing of improved fish husbandry practices, rearing operations, release strategies, stock assessment, fish health protection, indices of smolt quality, and hatchery supplementation. Measure 206(b) in the Program directs BPA to focus its funding of salmon and steelhead research in the next five years in the four areas of emphasis described under Action Item 6.1 in BPA's Work Plan. Technical Work Groups in each of the areas of emphasis will develop a Five-Year Research Work Plan for Council approval and BPA funding beginning in FY 1988. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

The Council Technical Work Group (TWG) process was instituted to focus research planning in four areas of technical emphasis considered fundamental to the success of the Fish and Wildlife Program. BPA will incorporate the results of the TWG planning into the annual work planning process and will pursue implementation of the research identified and prioritized by the TWG's and approved by the Council.

Background and Progress to Date:

The four TWG's (Reservoir Mortality and Water Budget Effectiveness, Fish Disease, Hatchery Effectiveness, and Supplementation) submitted Five-Year Research Work Plans in 1987 or early 1988, for Council review and approval.

Plans:

BPA plans to begin funding projects from the TWG Five-Year Work Plans in late FY 1988 and continue in FY 1989. (BPA-funded projects from the M/WBTWG, FDTWG, and HETWG Five-Year Work Plans can be found under this Action Item. STWG Five-Year Work Plan projects are under Action Item 6.7).

1. RESERVOIR MORTALITY AND WATER BUDGET EFFECTIVENESS

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-134	McNary Collection Efficiency Project Officer: D. Johnson Objectives: Assess potential sources of error and improve techniques associated with estimating collection efficiency at McNary Dam. Study will use PIT tags to evaluate effects of origin, time of day of release, and use of guided fish for test fish on collection efficiency results.	Date Initiated: May 1988 Results/Conclusions: None at this time.	1. Project anticipated as a multi-year study. 2. Summer 1989: Final completion report will be available.
88-141	Dworshak Photoperiod - NMFS Project Officer: W. Maslen Objectives: Assess (1) the use of advanced photoperiod to speed up smoltification in yearling chinook and (2) its effect on migration and recovery rate at Lower Granite Dam.	Date Initiated: May 1988 Results/Conclusions: Preliminary results suggest that photoperiod treatment can accelerate and reduce travel time.	June 30, 1989: Project is scheduled for completion.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-319	PIT Tag Research - NMFS Project Officer: D. Johnson Objectives: Determine the biological feasibility of injecting salmon and steelhead with PIT tags for passage and monitoring research activities.	Date initiated: 1983 Results/Conclusions: All data to date show that there are no biological problems with the PIT tag. The detection systems and monitorings continue to be improved and are working extremely well. Adult chinook salmon with PIT tags have been detected at Lower Granite Dam.	1. Continuing: BPA will fund the project through to completion. Biological studies are essentially complete, and monitoring hardware continues to be developed. 2. Continuing: Contractor will finalize biological studies and equipment development and provide evaluation reports annually.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-28	Juvenile Fish Passage Research Project Officer: D. Johnson	To conduct research related to juvenile survival in the mainstem Columbia and Snake Rivers.	Milestones and schedule will be set by the Water Budget Effectiveness and Reservoir Mortality Technical Workgroup.
89-XXX	Cohort Method and Analysis Project Officer: W. Maslen	Assess the viability of cohort analysis to evaluate Water Budget effectiveness.	1989: Issue request for proposal for contracting to private sector.
89-XXX	Workshop - Smoltification/ Travel Time Research Methods Development Project Officer: D. Johnson	The workshop aims to determine needs for Columbia and Snake River reservoir mortality studies and to review and develop methods for these studies.	November 1988: Conduct workshop.

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX	Workshop - Pool Survival Research Method Development Project Officer: D. Johnson	The workshop aims to identify needs for Columbia and Snake River smoltification/travel time-related studies and to develop methods for use in these studies.	November 1988: Conduct workshop
89-XXX	Review and Sythesize Historical Data Project Officer: W. Maslen	Synthesize and assess the existing data base related to reservoir mortality. Data will then be used to evaluate the effectiveness of the Water Budget.	1989: Issue request for proposal for contracting to private sector.

2. FISH DISEASE

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-152	Infectious Hematopoietic Necrosis (IHN) Virus Research Project Officer: R. Morinaka Objectives: 1. To investigate and determine the pathogenicity of IHN virus strains in the Columbia River. 2. To determine the mechanism of the location of IHN virus throughout the life cycle of rainbow trout and Kokanee Salmon.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. Year 1: Determine the life cycle of IHN virus. 2. Year 2: Identify sources and reservoirs of IHN virus. 3. Year 3: Compare pathogenicity of 10 strains of IHN virus. 4. Year 4: Test sediment and non-salmonoid fish for sources of horizontal transmission.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-155	Control of Bacterial Kidney Disease (BKD) via Segregation of Adult Spring Chinook and Summer Chinook Salmon with Enzyme-Linked Immunosorbent Assay (ELISA). Project Officer: R. Morinaka Objectives: 1. Standardize reagents: a) antigen b) monoclonal antibodies 2. Sample experimental fish and quantify BKD levels in experimental and production samples. 3. Determine whether progeny BKD levels are influenced by the parental BKD level.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. Year 1: Standardize reagents for ELISA and Western Blot tests. 2. Year 2,3,4: Assay juvenile and adult salmon for levels of BKD. Segregate the gametes based upon BKD level. Determine quantitatively the levels of BKD relative to progeny levels.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX	Registration of Erythromycin Project Officer: R. Morinaka	1. Collect existing data on erythromycin. 2. Develop additional analytical data required by the Food and Drug Administration (FDA) for drug registration. 3. Work with appropriate sponsor for erythromycin registration. 4. Conduct field studies to develop data to support the registration application.	1. FY 1989: Complete background data collection, analytical methods, and formulation. 2. FY 1990: Start field trials and dose duration tests. 3. FY 1991: Complete tissue residue studies and clinical field trials. 4. FY 1992: Complete field trials and determine

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX (cont.)		5. Determine levels and dosage for oral and injectable forms of erythromycin. 6. Determine tissue residues. 7. Complete registration package for FDA.	environmental fate. 5. FY 1993: Submit to FDA.

3. HATCHERY EFFECTIVENESS

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-159	Quality and Behavior of Juvenile Salmonoids in the Columbia River Estuary and Nearshore Ocean - NMFS. Project Officer: J. Bauer Objectives: This project will use parameters established in previous work and delineate new parameters to prepare (scope) a project plan to investigate the Columbia River estuary and nearshore ocean area to determine the best hatchery production and release strategy according to predicted environmental and "intrinsic" conditions.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. September 1988: Start project. 2. April 1989: Project will be completed.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-160	Bioengineering Evaluation of Retrofitted Supplemental Oxygen for Rearing Spring Chinook - ODFW. Project Officer: G. Bouck Objectives: 1. Retrofit the facility. 2. Rear spring chinook under experimental conditions; tag fish; monitor fish health/quality. 3. Monitor downstream migration behavior each year. 4. Recover and decode tags for returning adults. 5. Analyze and summarize all data. 6. Transfer technology to user groups. 7. Write final report.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. July 1989: Complete construction. 2. March 1990: Complete operational tests. 3. 1991: Begin recovering and decoding tags from returning adults. 4. June 2000: Complete data analysis. Complete final report.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-163	Effects of Coded-Wire Tagging on the Survival of Spring Chinook Salmon. Project Officer: A. Ruger Objectives: 1. Mark entire production of each of three hatcheries with otolith marks and mark a portion of the production with coded-wire tags. 2. Repeat procedure for three brood-years at each facility. 3. Determine difference in survival rates between coded-wire tagged and untagged groups.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. September 1988: Start project. 2. December 1988: Begin otolith marking. 3. September 1992: Begin sampling otoliths from adults and coded-wire tags. 4. June 1996: End of project; final report completed.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX	Evaluation of Pre-Release Temperature Acclimation at "Groundwater" Hatcheries. Project Officer: A. Ruger	1. To provide Klickitat River acclimation water to the Klickitat Hatchery site. 2. Assess possibilities for habitat improvement. 3. Construct hatchery, if needed. 4. Monitor projects and hatchery supplementation.	1. January 1989 - September 1989: Feasibility and engineering studies, and construction to provide river water to the hatchery site. 2. Remainder of project schedule and milestones are being planned at this writing.

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-XXX	Spring Chinook Smolt Quality Assessment Project Officer: G. Bouck	1. Select and monitor fish quality at six hatcheries; correlate these with performanceand environmental indications, including migration rates and survival to adult stages. 2. Determine the suitability of fish quality indices as biological probes to evaluate methodologies for increasing production.	1. December 1988: Select hatcheries. 2. January 1989: Begin monitoring. 3. August 1989: Complete 1989 brood. 4. August 1989: Complete 1990 brood. 5. December 1990: Write final report.
89-XXX	Assess Present Anadromous Production Facilities in the Columbia River Drainage -NMFS. Project Officer: J. Bauer	This project will combine with completed project 84-51 to provide accurate existing hatchery capacities, theoretical capacities, and expansion potentials for Columbia River hatcheries.	1. October 1988: Start project. 2. FY 1989: Complete project by end of FY.

6.3 DATA COLLECTION FOR HATCHERY DATA BASE
(Fund in Response to System Monitoring and Evaluation Work Group Proposals)

206(e)(1) Hatchery Data Base. BPA shall fund collection of Columbia River Basin hatchery data for anadromous fish. Data to be collected, format, and schedules shall be determined by the work group on improving hatchery production (described above), working in conjunction with the work group on system monitoring and evaluation (described above). These data shall include, at a minimum: numbers of returning adults; disposition of returning adults; source and description of brood stock; actions taken to maintain genetic diversity; and size, location, and time of release of juvenile fish. Data collected shall be stored in the Council's anadromous fish data base.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop and implement the Hatchery Data Base.

Background and Progress to Date:

The MEG began developing a Coordinated Information System (CIS) in FY 1988 (Project 88-108, Action Item 6.10). BPA has already funded six related projects from FY 1984 to FY 1987.

Plans:

The scoping of the CIS in FY 1988 and 1989 will provide overall guidance for development of the Hatchery Data Base, as well as the Natural Production Data Base. The ongoing fish health monitoring projects will continue in FY 1989; these activities will be coordinated with the MEG to make the gathered fish health data most useful to the Hatchery Data Base. No additional BPA-funded projects are planned under Action Item 6.3 because Project 88-108 will implement the Hatchery Data Base.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-13	Augmented Fish Health Monitoring in Washington - WDW	Date initiated: 87-13: August 1986 87-54: July 1986 87-117: June 1987 87-118: June 1987 87-119: July 1987 Results/Conclusions: BPA sponsored a technical workshop on Erythrocytic Inclusion Body Syndrome to standardize the identification and reporting of this disease. Methodology and identification of the various stages of this disease were inconsistent. Coordination with the Council's MEG and with the SPOC was begun and is continuing.	1. 1989: Continue to fund a comprehensive fish health management system through standardized monitoring. 2. 1989: Define fish culture impediments in the Columbia Basin hatcheries. 3. Continuing: Ensure compatibility of the data generated by these projects with that of the Artificial and Natural Production Data Bases (Program Measure 204).
86-54	Augmented Fish Health Monitoring in Washington - WDF		
87-117	Augmented Fish Health Monitoring in Idaho - IDFG		
87-118	Augmented Fish Health Monitoring in Oregon - ODFW		
87-119	Augmented Fish Health Monitoring - USFWS Project Officer: R. Morinaka Objectives: Collect, in a systematic standardized manner, and provide a system of rapid storage and retrieval of fish health/production information in the anadromous fish hatcheries of the Columbia River Basin. Begin to develop a documentation and data retrieval system that can be used by persons who are not fish diagnosticians.		

III. NEW PROJECTS

None.

6.4 DATA COLLECTION FOR NATURAL PRODUCTION DATA BASE
(Fund in Response to System Monitoring and Evaluation Work Group Proposals)

206(e)(2) Natural Production Data Base. BPA shall fund collection of information on the natural production of anadromous fish in the Columbia River Basin. Data to be collected shall include, at a minimum: adult escapement, redd counts, and juvenile migration for key index streams in the Columbia River Basin. The key index streams shall be consistent with any key index streams identified through the U.S./Canada Pacific Salmon Treaty and other planning processes. Data collected shall be stored in the Council's anadromous fish data base.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop and implement the Natural Production Data Base.

Background and Progress to Date:

The MEG began development of a CIS in FY 1988 (Project 88-108, Action Item 6.10).

Plans:

The scoping of the CIS in FY 1988 and 1989 will provide overall guidance for development of the Natural Production Data Base, as well as the Hatchery Production Data Base.

Projects:

No BPA-funded projects are planned under Action Item 6.4 because Project 88-108 (Action Item 6.10) will implement the Natural Production Data Base.

6.5 HIGH PRIORITY PROJECTS IN AREAS OF EMPHASIS
(Fund Only These in FY 1987)

206(b) This measure directs BPA to focus its funding of salmon and steelhead research in the next five years in the four areas of emphasis. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund only high priority projects in the areas of emphasis during FY 1987.

Background and Progress to Date:

One project, a demonstration of a system for removing malachite green from hatchery effluent, was identified by the agencies and Tribes as sufficiently important to merit priority funding in FY 1987. The FDTWG strongly supported this project and requested that it be funded immediately.

Plans:

BPA has funded the project to completion with FY 1987 funds.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-421	Malachite Green Removal From Hatchery Effluents - USFWS Project Officer: R. Morinaka Objectives: Demonstrate (in full scale) the removal of malachite green from hatchery effluent; assess the need for it in the Basin; evaluate ways and means to reduce the need for malachite green treatments.	Date Initiated: FY 1987 Results/Conclusions: Actual field testing continuing through FY 1988. Capacity of each filter was determined through microsimulation.	FY 1989: Project scheduled for completion; BPA will publish Final Report.

III. NEW PROJECTS

None.

6.7 SUPPLEMENTATION RESEARCH
(Fund)

703(h)(1) BPA shall fund research to determine the best methods of supplementing naturally spawning stocks with hatchery fish, particularly in the upper mainstem Snake and Columbia Rivers.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the research necessary to determine the most effective means to supplement the anadromous Columbia River runs.

Background and Progress to Date:

During FY 1985, BPA convened a technical work group to develop a 704(k)(1) work plan for supplementation research. The work plan was submitted to the Council in October 1985. However, 1984 Program Action Item 39.1 (research moratorium) prevented BPA from pursuing new work in the supplementation research area.

During FY 1987, the STWG was formed in accordance with Sections 206(b)(1) and (2) of the Program. The STWG has developed a Five-Year Research Work Plan addressing stock selection, time of release, and other factors affecting the success of supplementation activities. The Five-Year Work Plan was submitted to the Council in June 1988. Based on a Council recommendation (March 1988 meeting), BPA has begun Project 88-100 entitled "Analysis of Past and Present Salmon and Steelhead Supplementation in the Northwest United States." This project should be completed in September 1989.

Plans:

Upon Council approval of the Supplementation Five-Year Research Work Plan, BPA intends to begin developing Supplementation Research Project(s) consistent with the Work Plan and results of Project 88-100.

Projects:

BPA funded project 88-100 in FY 1988. Funds are available to implement research projects in FY 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-100	Analysis of Past and Present Salmon and Steelhead Supplementation in the Northwest United States Project Officer: T. Vogel Objectives: 1. Summarize and evaluate past and current supplementation of salmon and steelhead. 2. Develop a qualitative "model" of factors affecting the results of supplementation. 3. Develop recommendations for future supplementation needs and future opportunities.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	1. June 1989: Draft report available. 2. September 1989: Final Completion Report available.

III. NEW PROJECTS

None.

6.10 SYSTEM MONITORING AND EVALUATION (Coordinated Information System)

206(d)(2)(c) The Council's system monitoring and evaluation program will include development of a coordinated information system designed to facilitate effective exchange and dissemination of fisheries data. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund development of the CIS.

Background and Progress to Date:

In FY 1988, BPA began funding Project 88-108 to develop the CIS.

Plans:

BPA will continue to fund Project 88-108 through completion.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-108	Coordinated Information System (CIS) Project Officer: L. Everson Objectives: 1. Select project team 2. Conduct project orientation 3. Complete scoping for CIS development (Phase I of the project) 4. Complete CIS application and prototype development and watershed classification and stock analysis (Phase II of the project) 5. Complete CIS Final Report, Watershed Classification Final Report, and Stock Analysis Report (Phase III of the project)	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	FY 1989: Complete Phase I. FY 1990: Complete Phase II. FY 1991: Complete Phase III.

III. NEW PROJECTS

None.

COORDINATION ACTION ITEMS

6.12 CONTINUING COORDINATION AND CONSULTATION
(By All Federal Project Operators/Regulators)

1203(c) The Federal project operators and regulators shall work with the agencies and Tribes to comply with the consultation/coordination requirements of the Act. The Council expects research planning consultation to occur between the agencies, Tribes, and project operators and regulators. The Council will encourage improved coordination of fish and wildlife efforts by consulting with the fish and wildlife agencies, Tribes, project operators and regulators, BPA customers, Federal and state water and land management agencies, irrigation districts, academic experts, and interested citizens groups. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

In conjunction with the Council and the Ad-Hoc Roles Committee of CBFWA, BPA is participating in the development of a formal process through which BPA and the Fish and Wildlife agencies and Tribes jointly plan, and BPA subsequently implements, the Fish and Wildlife Program. This process should provide for the involvement of the region's Fish and Wildlife agencies and Tribes at relevant decision-making points and should improve coordination and consistency between BPA's implementation actions and the agencies' and Tribes' existing and future management activities.

Background and Progress to Date:

The agencies and Tribes have characterized the BPA implementation process as largely internal to BPA, led by the efforts of BPA's Fish and Wildlife PAM's and COTR's. The Fish and Wildlife agencies and Tribes have also stated that the process has not provided an opportunity for them to participate.

In early April 1987, BPA staff began meeting with Council staff and an ad-hoc committee of CBFWA. The meetings focused on explaining BPA's process for implementing the Program, from inception through completion. Participants agreed to continue discussion, with a goal of developing a collaborative and cooperative process through which BPA would plan and implement the Program. As a result of these discussions, a draft Implementation Planning Process (p. 17) was developed.

Plans:

BPA anticipates that the final process will be completed in time to be used by BPA in development of its FY 1990 Work Plan.

RESIDENT FISH ACTION ITEMS AND TECHNICAL SUBJECTS

7.1 COLVILLE HATCHERY
(Complete Construction: March 1989)
(Fund Operation and Maintenance)

903(g)(1)(A) Design, construction, operation and maintenance of a resident trout hatchery on the Colville Indian Reservation. The Council expects that state-of-the-art technologies will be used in the design of the hatchery. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design and construct a resident trout hatchery on the Colville Indian Reservation to mitigate partially for anadromous fish losses from hydroelectric development and operation.

Background and Progress to Date:

The primary purpose of the hatchery is to produce trout to stock lakes and streams on the Reservation. The Colville Confederated Tribes (CCT) received the construction contract for the hatchery. The final design for the hatchery was completed in October 1987. Construction began in July 1988.

Plans:

Construction is scheduled to be completed in fall 1989. BPA will fund the operation and maintenance of the facility by the CCT.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
85-38	Colville Hatchery - CCT Project Officer: C. Bohan Objectives: Design and construct a resident trout hatchery on the Colville Indian Reservation.	Date initiated: 1985 Results/Conclusions: Design completed in FY 1987. Construction contract initiated July 1988.	1. FY 1990: Complete construction. Begin funding operation and maintenance.
85-38-1	Colville Tribal Fish Culturist Training Program- CCT Project Officer: C. Bohan Objectives: Six individuals will be trained in the field of fish culture to operate the Colville Tribal Hatchery under the direction of a hatchery manager.	Date Initiated: January 1988 Results/Conclusions: Training program is progressing satisfactorily.	December 1988: Training will be complete.

III. NEW PROJECTS

None.

7.2 COEUR D'ALENE RESERVATION ACTIONS
(Fund Stream Survey; Design, Construction, Operation, and Maintenance of Cutthroat/Bull Trout Hatchery; Habitat Improvement Projects; 3-Year Monitoring Program)

903(g)(1)(B) BPA shall fund a baseline stream survey of tributaries located on the Coeur d'Alene Indian Reservation to compile information on improving spawning habitat, rearing habitat, and access to spawning tributaries for cutthroat and bull trout, and to evaluate the existing fisheries. If justified by the results of the survey, fund the design, construction, and operation of a cutthroat and bull trout hatchery on the Coeur d'Alene Reservation; necessary habitat improvement projects; and a three-year monitoring program to evaluate the effectiveness of the hatchery and habitat improvement projects. If the baseline survey indicates a better alternative than construction of a fish hatchery, the Coeur d'Alene Tribe will submit an alternative plan for consideration in program amendment proceedings. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Survey the streams on the Coeur d'Alene Indian Reservation for status of stocks and the possibility of improving habitat. If feasible, construct habitat improvement projects. Determine need for stock supplementation and, if needed, fund design, construction, and operation of a cutthroat and bull trout hatchery.

Background and Progress to Date:

Not applicable.

Plans:

BPA plans to fund this Action Item, beginning in FY 1989 with a project to conduct the stream surveys.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-10	Stream Survey, Hatchery, Improvements, and Monitoring on the Coeur D'Alene Reservation Project Officer: F. Holm	1. Survey streams and determine stock status. 2. Assess possibilities for habitat improvement. 3. Construct hatchery, if needed. 4. Monitor results of habitat improvement projects and hatchery supplementation.	1. FY 1989: Begin stream surveys and determine stock status. 2. FY 1990 and beyond: Identify projects to meet objectives 2, 3, and 4.

7.3 KOKANEE SALMON HATCHERIES
(Fund Design, Construction, Operation, Maintenance of Hatcheries at Galbraith Springs and Sherman Creek: Begin FY 1988.)
(Fund Monitoring Programs)

903(g)(1)(C) BPA shall fund design, construction, operation, and maintenance of two kokanee salmon hatcheries: one at Galbraith Springs and one at Sherman Creek. The Sherman Creek hatchery will be used as an imprinting site and egg collection facility to provide a source of kokanee fry for: i) stocking into Banks Lake and ii) transferring to Galbraith Springs hatchery for rearing to fingerling size before planting into Lake Roosevelt. Decisions on hatchery production, stocking, and outplanting locations will be coordinated by a three-member committee consisting of one representative each appointed by the Colville Confederated Tribes, Spokane Tribe, and the Washington Department of Wildlife. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To fund the design, construction, operation, and maintenance of two kokanee salmon hatcheries.

Background and Progress to Date:

Preliminary design began in FY 1988.

Plans:

BPA will proceed with the final design of the hatcheries in FY 1989. Construction will begin in FY 1990.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-62	Kokanee Hatcheries - Galbraith Springs and Sherman Creek Project Officer: S. Levy Objectives: Design, construct, and operate kokanee hatcheries.	Date Initiated: FY 1988 Results/Conclusions: None.	1. FY 1989: Complete NEPA process, preliminary and final design. 2. FY 1990: Complete hatchery construction.

III. NEW PROJECTS

None.

7.4 HABITAT AND PASSAGE IMPROVEMENTS ON LAKE ROOSEVELT TRIBUTARY STREAMS
(Fund Design, Construction, Operation, Maintenance of Projects: Begin FY 1989)
(Fund Monitoring Programs).

903(g)(1)(D) Capital, operation, and maintenance of pilot projects for improving habitat and passage into and out of Lake Roosevelt tributary streams for rainbow trout. The aim of this measure is to emphasize natural production by: i) facilitating passage of migratory rainbow trout between Lake Roosevelt and its tributary streams, and ii) improving fry and fingerling rearing habitat in these streams. [Abstract]

903(g)(1)(E) Monitoring to evaluate the effectiveness of the measures above. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To improve stream habitat and passage into and out of Lake Roosevelt tributary streams for rainbow trout. Determine status of fish stocks in Lake Roosevelt before habitat improvements and hatchery construction. Evaluate the contribution of the hatcheries and habitat improvement projects of stocks in Lake Roosevelt.

Background and Progress to Date:

Monitoring program started in summer of 1988. No data available as yet.

Plans:

BPA funded a stock assessment study in FY 1988 and will fund habitat improvement projects in FY 1990.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-63	Lake Roosevelt Monitoring Program - Spokane Tribe Project Officer: F. Holm Objectives: 1. Determine status of fish stocks in Lake Roosevelt before construction of habitat improvement projects and hatcheries. 2. Evaluate contribution of these projects and hatcheries to Lake Roosevelt.	Date Initiated: July 1988 Results/Conclusions: None at this time.	1. Project to assess status of stocks in Lake Roosevelt begun in FY 1988. Project is scheduled for 4 years, enabling measurement of success of habitat improvement projects and hatcheries.

III. NEW PROJECTS

None.

7.5 KOOTENAI INDIAN RESERVATION STURGEON HATCHERY
(Fund Design, Construction, Operation, Maintenance of Hatchery: Begin FY 1988)
(Fund Evaluation Study)

903(g)(1)(H) BPA shall fund design, construction, operation and maintenance of a low-capital sturgeon hatchery on the Kootenai Indian Reservation. BPA and the Kootenai Tribe also shall explore alternative ways to make effective use of the hatchery facility year-round. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To design, construct, and operate a low-cost experimental sturgeon hatchery on the Kootenai Reservation in Idaho.

Background and Progress to Date:

Project is funded to develop a water supply, design a hatchery, and train personnel in sturgeon culture. Project began in late FY 1988. No progress to report as yet.

Plans:

BPA has funded project as stated above. Hatchery will be constructed only if Kootenai River broodstock are available, as indicated by Project 88-65 (Action Item 7.6).

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-64	Design, Construct, and Operate a Sturgeon Hatchery on the Kootenai Reservation, Idaho - Kootenai Tribe Project Officer: F. Holm Objectives: Same as title.	Date Initiated: September 1988 (projected) Results/Conclusions: None at this time.	BPA contracted with Tribe to drill well for water and to design low-cost facility. Construction will follow in 1989 if egg source is guaranteed.

III. NEW PROJECTS

None.

7.6 STURGEON AND WATER LEVEL FLUCTUATIONS: IDAHO PORTION OF KOOTENAI RIVER
(Fund Study to Assess Impacts: Begin FY 1989)

903(g)(1)(I) BPA shall fund a survey of the Kootenai River downstream from Bonners Ferry, Idaho, to the Canadian border to: i) evaluate the effectiveness of the hatchery, and ii) assess the impact of water level fluctuations caused by Libby Dam on hatchery operation for outplanting of sturgeon in the Idaho portion of the Kootenai River. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To assess the status of sturgeon stocks in the Kootenai River; obtain brood fish for hatchery; assess the impact of water level fluctuations caused by Libby Dam.

Background and Progress to Date:

BPA has funded a project with IDFG to begin looking for broodstock and train hatchery personnel. Project began in late FY 1988. No progress to report as yet.

Plans:

BPA funded this study in FY 1988, with emphasis directed toward obtaining brood fish for the proposed hatchery.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-65	Assess Impacts of Water Level Fluctuations on Sturgeon in the Kootenai River - IDFG Project Officer: F. Holm Objectives: Assess status of sturgeon stocks in the Kootenai River and effects of water fluctuations on these stocks. Obtain brood fish for hatchery.	Date Initiated: September 1988 (projected) Results/Conclusions: BPA contracted with IDFG to conduct this study beginning in 1988.	Study will continue for 4 years, to meet all objectives if sturgeon broodstock are found.

II. NEW PROJECTS

None.

7.7 PEND OREILLE RIVER FISHERY IMPROVEMENTS ON KALISPEL RESERVATION
(After Council Consultation, Fund Assessment of Improvement Opportunities: Begin FY 1988)

903(g)(1)(G) BPA shall fund an assessment of fishery improvement opportunities in the Pend Oreille River within the boundaries of the Kalispel Indian Reservation. This survey will provide: i) baseline information about existing fish populations and habitat and ii) information on possible means of improving fisheries. Upon completion of the assessments, recommendations for fisheries projects will be submitted to the Council. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To survey the fish populations in the Pend Oreille River within the boundaries of the Kalispel Reservation. Develop recommendations to improve the fisheries.

Background and Progress to Date:

Project began in February 1988. Baseline data of fish stocks and angler use will be in annual report in February 1989.

Plans:

BPA funded initiation of this project in February 1988. It is scheduled to last 3 years. At that time, recommendations will be submitted to the Council for fisheries improvement alternatives.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-66	Assess Fishery Improvement Options in the Pend Oreille River - KIT Project Officer: F. Holm Objectives: Survey fisheries in the Pend Oreille River. Develop recommendations to improve the fisheries.	Date Initiated: February 1988 Results/Conclusions: None at this time.	BPA worked with the Upper Columbia United Tribes and the Kalispel Tribe to implement this study in 1988. After 3 years' study, recommendations will be made to the Council for fisheries improvement alternatives.

III. NEW PROJECTS

None.

7.10 FUND PROJECTS AS PROVIDED IN SECTION 903(g)(2) AND ACTION ITEM 7.8.

903(g)(2)(A)(i) The appropriate party or parties shall fund resident fish projects at the Duck Valley Indian Reservation, as off-site enhancement, to include: (i) annual stocking of catchable and fingerling trout of the appropriate stocks in reservation lakes and streams. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

Develop funding mechanisms and scheduling for resident fish substitution projects above Hells Canyon Dam.

Background and Progress to Date:

BPA has agreed to fund this portion of the Duck Valley measure, at least for FY 1988. Trout were purchased from private growers and stocked in FY 1988.

Plans:

BPA may fund a study to develop alternative means to annual fish stocking to enhance the fisheries of the Reservation in FY 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-156	Duck Valley Resident Fish Project - SPT Project Officer: F. Holm Objective: Purchase rainbow trout to stock waters on Duck Valley Reservation.	Date Initiated: FY 1988 Results/Conclusions: The project funded the purchase of fingerling and catchable rainbow trout for stocking in waters on on the Duck Valley Reservation.	Alternatives to measures other than annual stocking may be investigated in FY 1989.

III. NEW PROJECTS

None.

7.11 ONGOING STUDIES IN MONTANA
(Continue Cooperative Studies; Present Results to Council. Submit Recommendations by October 1, 1989.)

903 The measures referenced in the Action Item are concerned with the operations of Hungry Horse and Kerr dams and how their operations affect the game fish populations in the Flathead Basin. They also concern the reservoir levels of Hungry Horse and Libby and how these levels affect the game fish population in the reservoirs themselves. Operation procedures are to be recommended and mitigation levels for fish losses determined for effects of the hydroelectric system. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine the effects of reservoir drawdown and flows on resident fish in the Flathead River Basin in order to determine how various reservoir levels affect the fish in Libby and Hungry Horse Reservoirs.

Background and Progress to Date:

These projects have been implemented because the resident fish resources of the Flathead Basin have been severely affected by the construction and operation of Hungry Horse and Kerr dams. In the Kootenai Basin, the resident fish resources have been similarly affected by the construction and operation of Libby Dam. The effects of reservoir drawdown and flows on the kokanee and other game fish are being determined. When projects have been completed, recommendations will be made for hydro operations and seasonal drawdown levels compatible with the needs of the fish. Mitigation plans will be developed for losses that have occurred.

Plans:

The final reports for the projects will be completed in 1988 and 1989; BPA will submit the project results to the Council. Recommendations for future action will be submitted to the Council by October 1, 1989, as called for in the Action Item.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
83-1	Lower Flathead System Fisheries Study - CSKT Objectives: To identify impacts of hydroelectric development on aquatic habitat and resident fish in the lower Flathead River system. Detailed objectives are provided in the Project's annual reports.	December 1987	The study identified mitigable impacts associated with hydroelectric operations, irrigation project development and operation, and agriculture practices in the lower Flathead River and its tributaries. Hydroelectric operations could not be identified as affecting the populations of target fish species. The study developed a wide range of fisheries management strategies. BPA expects the responsible management entities to review the study results and integrate appropriate strategies into a basin-wide aquatic resource management plan.
85-6	Determination of Instream Flows Needed for Successful Migration, Spawning and Rearing of Rainbow and Cutthroat in Selected Kootenai River Drainage Tributaries - MDFWP Objectives: 1. Determine instream flow needs for fisheries, using wetted perimeter and IFG-1 methods. 2. Determine the existing trout population in the affected reaches of the tributaries and evaluate potential fish passage problems.	May 1988	Instream flow requirements have been determined for 25 tributaries. The minimum flow recommendations from this study will be filled for reservation under the Montana Water Use Act of 1973.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
81-105	Effects of Operation of Kerr and Hungry Horse Dams on the Reproductive Success of Kokanee in the Flathead System - MDFWP Project Officer: F. Holm Objectives: To evaluate the operational effects of Kerr and Hungry Horse dams on the reproductive success of kokanee in the Flathead System. Detailed objectives are provided in the Project's annual reports.	Date initiated: September 1981 Results/Conclusions: Recommended flows have been implemented below Hungry Horse Dam to enhance success of kokanee reproduction; they are being evaluated. However, recent investigations of mysid shrimp interactions suggest factors other than river flows will affect kokanee production. For more detailed information, refer to the Project's annual reports: DOE/BP 200, 204, 383, 39641-1, 39641-2, 39641-3, and 39641-4.	1. 1989: The contractor will complete field work in late 1989, analyze data, and prepare report. 2. Project is funded through completion in September 1989 with FY 1987 funds.

III. NEW PROJECTS

None.

7.12 STURGEON STUDIES
(Fund Ongoing Studies)

903(e)(1) BPA shall fund research to determine the impacts of development and operation of the hydroelectric power system on sturgeon in the Columbia River Basin. These studies may include: 1) habitat requirements; 2) maintenance of genetic integrity; 3) stock assessment; 4) potential for artificial propagation; and, 5) migrating potential. Specific recommendations for the protection, mitigation and enhancement of sturgeon may be submitted to the Council upon completion of these studies.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine the impacts on white sturgeon from the development and operation of the hydropower system. Develop recommendations for the protection, mitigation, and enhancement of white sturgeon.

Background and Progress to Date:

Impacts on white sturgeon from the development and operation of hydropower have not been determined, but there is evidence that the impacts have been substantial. From a series of workshops funded by BPA, a work plan for sturgeon research was developed, followed by a sturgeon research program implementation plan. These were submitted to the Council, as called for by Action Item 7.12. Two projects are currently being funded by BPA. The University of Washington (UW) study will determine early life history requirements and the genetic makeup of the stocks throughout the Basin. The other study, a four-agency project to determine the habitat requirements and status of stocks downstream from McNary Dam, is in its second field season.

Plans:

The genetic identification study is being expanded into the Upper Columbia Basin and the Kootenai River areas, where a sturgeon hatchery is proposed. The habitat requirements and stock assessment study has been designed as a 6-year project because of the large study area and the multiple objectives involved.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-316	White Sturgeon Early Life History Requirements and Genetics Study - UW Project Officer: F. Holm Objectives: 1. Determine whether white sturgeon are represented by genetically distinct stocks. 2. Determine the early life habitat requirements and effects of the hydropower system on the system on the sturgeon habitat.	Date initiated: 1984 Results/Conclusions: Allelic differences have been identified in fish from Lake Roosevelt and the Kootenai River. Additional samples will be taken to verify these differences. Stocks from the lower Columbia appear to be genetically similar. Behavioral patterns and food requirements for young sturgeon have been documented. Annual reports are available.	1. 1989: The genetic study will be extended to the upper Columbia River Basin. Sonic-tagged sturgeon will be monitored in Lake Roosevelt to determine habitat preference. 2. 1990: Project scheduled for completion.
86-50	Determine the Status and Habitat Requirements of White Sturgeon Populations in the Columbia River Downstream from McNary Dam - ODFW (WDF, USFWS, and NMFS are subcontractors) Project Officer: F. Holm	Date initiated: 1986 Results/Conclusions: Collection of all age groups of sturgeon has been successful, with even larval sturgeon and eggs being collected in the Dalles pool. Coordination with the work ongoing below Bonneville Dam is excellent.	1. 1989: Study will continue in The Dalles pool, with some expansion into the Bonneville pool. Model development will continue to identify effects of hydropower on population status and habitat. 2. 1992: Project is scheduled for completion.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
86-50 cont.	Objectives: Determine the status and habitat requirements of white sturgeon in the Columbia River downstream from McNary Dam. Detailed objectives and results are described in the Project's annual reports.		

III. NEW PROJECTS

None.

----- PEND OREILLE HATCHERY (FORMER ACTION ITEM 41.4)

MEASURE LANGUAGE:

Not applicable. Council deleted measure in amended Program.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To design, construct, and evaluate the Pend Oreille (Cabinet Gorge) Hatchery. Evaluate the degree to which the Albeni Falls and Cabinet Gorge projects are responsible for the decline of the Lake Pend Oreille fishery, and the level of mitigation necessary to restore a reasonable number of fish in Lake Pend Oreille.

Background and Progress to Date:

The Pend Oreille (Cabinet Gorge) Hatchery was completed in 1985. The hatchery produces 20 million kokanee fry annually to enhance the fishing of Lake Pend Oreille, which has been adversely affected by Cabinet Gorge and Albeni Falls dams and the introduction of mysis shrimp. BPA and the Washington Water Power Company shared the costs of constructing the facility. The IDFG funds the operation and maintenance of the hatchery. Evaluation activities are continuing.

Plans:

Fund evaluation activities through completion.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
85-339	Kokanee Stock Status and Contribution of Cabinet Gorge Hatchery, Lake Pend Oreille, Idaho - IDFG Project Officer: F. Holm Objectives: Determine the contribution of the Cabinet Gorge Hatchery to the kokanee fishery in Lake Pend Oreille. Detailed objectives are described in the Project's annual reports.	Date initiated: 1985 Results/Conclusions: Kokanee egg takes for the hatchery have been increasing each year. 18.5 million eggs were taken in 1988. Hatchery water problems are being solved; flushing flows from Cabinet Gorge Dam are required to get fingerlings down the Clark Fork River into Lake Pend Oreille. IDFG continues to work with Washington Water Power on this.	1. 1989: Additional techniques will be tried to mark kokanee before releases. Water will be requested for flushing flows in July 1989. Zooplankton data will be analyzed and results compared to previous years' data and related changes in kokanee densities and growth rates in order to define carrying capacity better. Some plants will be made, using a US Navy barge. 2. Project will continue through 1990.

III. NEW PROJECTS

None.

----- CLARK FORK PROJECTS (FORMER ACTION ITEM 41.5)

MEASURE LANGUAGE:

Not applicable. Council deleted measure in amended Program.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To develop a water management plan for the supplemental water releases from Painted Rocks Reservoir to best enhance the fishery in the Bitterroot River.

Background and Progress to Date:

The work plan for Clark Fork fishery loss was combined with the work plan called for in Action Item 7.11. BPA has taken the position that it is not obligated to carry out the research or the water purchase called for in former Action Item 41.5 because all of the hydro projects on the Clark Fork River are privately owned. BPA did agree to fund a study (Project 83-463) to develop the water management plan for water releases from Painted Rocks Reservoir. Montana Power Company has agreed to purchase water from Painted Rocks Reservoir for flow augmentation in the Bitterroot River. This purchase will be made in perpetuity as mitigation for the Thompson Falls project on the Clark Fork River.

Plans:

BPA plans no further involvement in this or related projects.

Projects:

None.

7.13 ACCUMULATED MATERIALS IN KOOTENAI RIVER
(Initiate Removal)

903(d)(1) BPA shall fund the removal of materials which have accumulated in Kootenai River tributary deltas below Libby Dam as a result of the dam's construction and operation and which interfere with the migration of spawning fish.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

When necessary, remove materials which have accumulated in Kootenai River tributary deltas and which interfere with fish migration.

Background and Progress to Date:

Not applicable.

Plans:

None at this time.

7.14 IMPACTS OF DWORSHAK DAM
(Begin Assessment of Construction and Current Operation Impacts)

903(e)(4) BPA shall fund a study to assess the impacts of the original construction and current operation of Dworshak Dam on the resident fishery. This study will include the following research concerns of the Nez Perce Tribe: 1) population dynamics of kokanee; 2) reservoir productivity; 3) food habits of rainbow trout; 4) population dynamics and habitat preferences of small mouth bass; and, 5) the status of forage species. This study effort will be coordinated with the Corps. Recommendations detailing specific protection, mitigation and enhancement opportunities, consistent with the requirements of 804(e)(16), may be submitted to the Council.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To assess the status of resident fish stocks, particularly kokanee; to compare data to that obtained when reservoir was first filled; to determine whether changes are caused by operation of Dworshak Dam.

Background and Progress to Date:

Two projects have been funded to cover the five concerns listed in the Program Measure. IDFG and the NPT are the contractors for the projects. The projects started July 1, 1987.

Plans:

The projects will run for 4 years, at which time IDFG and the NPT may submit recommendations detailing specific protection, mitigation and enhancement plans to the Council.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-99	Dworshak Dam Impacts Assessment and Fisheries Investigation - IDFG Project Officer: F. Holm Objectives: 1. Assess the status of kokanee stocks in the reservoir. 2. Document losses of kokanee through turbines at Dworshak Dam. 3. Assess limnological parameters and evaluate impacts of reservoir management on the zooplankton community and kokanee production.	Date initiated: July 1987 Results/Conclusions: Results are in first annual report dated June 1988. Results are preliminary.	1. FY 1989: Continue baseline data collection. 2. Project will last 4 years. Afterward, recommendations will be made to the Council for measures to protect, mitigate, and enhance resident fish in Dworshak Reservoir.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-407	Dworshak Reservoir Investigation Trout, Bass and Forage Species - NPT Project Officer: F. Holm	Date initiated: July 1987 Results/Conclusions: Results are in first annual report dated June 1988. Results are preliminary.	1. FY 1989: Continue baseline data collection. 2. Project will last 4 years. Afterward, recommendation will be made to the Council for measures to protect, mitigate, and enhance resident fish in Dworshak Reservoir.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-407 cont.	Objectives: 1. Assess the status of rainbow trout, small mouth bass, and forage species in the reservoir. 2. Assess changes in these populations in relation to reservoir management.		

III. NEW PROJECTS

None.

7.15 ONGOING DRAWDOWN STUDIES
(Continue Cooperative Studies; Present Results to Council. Submit Recommendations by March 1, 1988.)

903(b)(3-4) BPA shall fund research to develop operating procedures for Libby and Hungry Horse, including establishment of reservoir levels to protect resident fish and development of alternative means to resolve conflicts between drawdown limits and requirements for fish flows via the water budget. BPA shall submit results to the Council by March 1, 1988. Mitigation projects shall be identified in the Flathead Basin in relation to construction and operation of Hungry Horse. Results will be submitted to the Council by November 15, 1987. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To determine the effects of reservoir operations on fish in Libby and Hungry Horse Reservoirs. Identify mitigation projects in the Flathead Basin in relation to construction and operation of the Hungry Horse hydroproject.

Background and Progress to Date:

Projects at Libby and Hungry Horse Reservoirs have been funded since 1983. Both projects were designed to document the effects of water level fluctuations on game fish. The fluctuations reduce primary production in the reservoirs, hence have a direct impact on fish production. Annual reports from 1983 through 1987 document these effects. Mitigation alternatives for losses from the construction and operation of Hungry Horse Dam are described in the final report for BPA-funded Project 85-23.

Plans:

Recommendations for further action submitted to the Council in August 1988. The projects will be completed in 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
83-465	Quantification of Hungry Horse Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries - MDFWP Project Officer: D. Johnson Objectives: 1. To study the effects of reservoir drawdown. 2. To develop a predictive model of hydro operations on resident fisheries, and recommend seasonal drawdown levels compatible with the needs of the fish.	Date initiated: April 1, 1983 Results/Conclusions: Reservoir drawdown has adverse effects on benthic macro-invertebrates and zooplankton, can increase competition between fish, and makes juveniles more accessible to predators.	1. Continuing: Collect data and develop quantitative model to predict the impact of reservoir operation upon habitat, primary production, secondary production, and gamefish populations. 2. April - September 1989: Field studies will continue. 3. August 1, 1988: Tertiary (fish) component of model results will be completed.
83-467	Quantification of Libby Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries - MDFWP Project Officer: D. Johnson Objectives: 1. To study the effects of reservoir drawdown. 2. To develop a predictive model of hydro operations on resident fisheries, and recommend seasonal drawdown levels compatible with the needs of the fish.	Date Initiated: April 1, 1983 Results/Conclusions: Gill net sampling indicates continued increase in Kokanee numbers. Water temperature is considered the major influence in fish distribution patterns. Habitat enhancement has been largely unsuccessful.	See Project 83-465 (same).

III. NEW PROJECTS

None.

WILDLIFE ACTION ITEMS AND TECHNICAL SUBJECTS

The wildlife section of the Program establishes a process with two objectives: wildlife protection, mitigation, and enhancement planning; and implementation of actions to protect, mitigate, and enhance wildlife affected by development and operation of hydroelectric facilities in the Columbia River Basin. The Council's wildlife mitigation planning and implementation process is outlined in Table 6. This sequential process begins with the review of the status of wildlife mitigation at Columbia River Basin hydroelectric facilities [Measure 1003(b)(1)], proceeds to the development of estimates of wildlife losses, and then to development of recommended actions for the protection, mitigation, or enhancement of wildlife [Measure 1003(b)(3), Mitigation Plans]. Finally, implementation of wildlife protection, mitigation, and enhancement occurs upon amendment of wildlife actions into the Program by the Council

TABLE 5

WILDLIFE MITIGATION PLANNING AND IMPLEMENTATION PROCESS

	Action Item	Description	Measure
Step 1	None	Status Reports	1003(b)(1)
Step 2	None	Consultation to discuss need for and direction of further studies.	1003(b)(2)
Step 3	8.1	Fund loss statements when needs are identified.	1003(b)(2), Table 3
Step 4	8.2	Consultations begun on completed loss statements.	1003(b)(3) and (5)
Step 5	8.3	Funding of development of mitigation plans and submission to Council for review and approval.	1003(b)(3) and (5), (d)(1)-(2)
Step 6	8.16	Council review of mitigation plans and amendment of mitigation actions into Program.	1003(b)(3)-(5), (d)(1)-(2)
Step 7	8.5-8.11	Implementation of mitigation actions amended into Program.	1003(b)(4), Table 4

---- CONSULTATION ON PRIORITY MITIGATION PROJECTS
(Consult with Fish and Wildlife Agencies and Tribes on Need for Loss Estimates or Actual Mitigation Projects on Identified Priority Projects).

1003(b)(2) Begin consultations on each hydroelectric project or series of projects, among the appropriate fish and wildlife agencies, Tribes, Federal project operators and regulators, and BPA customers to discuss the need for and direction of further studies. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To use these consultations to scope the need for and direction of wildlife protection, mitigation, and enhancement planning for the FCRPS hydroelectric facilities. No projects/contracts will be funded by BPA under this Action Item.

Background and Progress to Date:

The wildlife section of the Program establishes a stepped planning process intended to develop protection, mitigation, and enhancement actions for wildlife affected by the development and operation of hydroelectric facilities in the Columbia River Basin. The purpose of Measure 1003(b)(2) consultations was to assist in identifying the need for and direction of studies to estimate the net hydropower impacts on wildlife and wildlife habitat.

Table 7 outlines the status of these consultations for FCRPS facilities. Consultations have been held on 23 of the 29 FCRPS facilities. Six facilities do not require consultations. Chandler and Roza do not require consultations, as the Washington Department of Wildlife (WDW) and U.S. Fish and Wildlife Service (USFWS) indicated during the status review of these facilities that impacts on wildlife were minor and that further action under the Program was not recommended. The Lower Snake Facilities (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite) do not require consultations to determine the need to fund wildlife impact studies, as these studies have been funded by the USACE.

Plans:

No 1003(b)(2) consultations proposed in FY 1989.

TABLE 6
STATUS MEASURE 1003(b)(2) WILDLIFE CONSULTATIONS
AT FCRPS FACILITIES

Hydro Facility	Status	Outcome
Montana		
Hungry Horse	Held - June 1983	Mitigation planning for this facility was begun before the Program required consultations.
Libby	Held - July 1983	Mitigation planning for this facility was begun before the Program required consultations.
Idaho		
Palisades	Held - June 1984	
Anderson Ranch	Held - January 1985	
Black Canyon	Held - January 1985	Loss assessment was funded.
Boise Diversion	Held - January 1985	
Dworshak	Held - March 1985	
Albeni Falls	Held - April 1987	Combined loss assessment and mitigation plan was funded.
Minidoka	Held - February 1987	Loss assessment was funded.
Washington		
Grand Coulee	Held - April 1985	Loss assessment/mitigation plan was funded.
Chief Joseph	Held - February 1987	Combined loss assessment and mitigation plan was funded.
Lower Snake (Ice Harbor, Lower Monumental, Little Goose, Lower Granite)	None proposed	Loss assessments funded by USACE.
Chandler	None Proposed	
Roza	None Proposed	

Hydro Facility	Status	Outcome
Oregon		
Willamette		Loss assessments were funded for Willamette facilities.
Cougar	Held - May 1984	
Lookout Point	Held - May 1984	
Dexter	Held - May 1984	
Hills Creek	Held - May 1984	
Green Peter	Held - March 1985	
Foster	Held - March 1985	
Detroit	Held - March 1985	
Big Cliff	Held - March 1985	
Oregon/Washington		
Bonneville	Held - March 1985 - June 1985	Loss assessment was funded.
The Dalles	Held - March 1985 - June 1985	
John Day	Held - March 1985 - June 1985	Loss asssessment was funded.
McNary	Held - March 1985 - June 1985	

8.1 LOSS STATEMENTS
(Fund as Needs are Identified.)

1003(b)(2) If BPA and the Council's wildlife coordinator determine that loss statements would be appropriate, then BPA shall fund studies to develop statements of wildlife and/or habitat losses. These statements shall take into account all existing information pertinent to the project area and shall address both realized and potential positive and negative effects. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To obtain an estimate of the net impacts on wildlife and habitat from development and operation of Columbia River Basin Federal hydroelectric facilities. This information will be used in developing recommendations to protect, mitigate, and enhance wildlife affected by hydro development and operation.

Background and Progress to Date:

The development of the hydroelectric system has caused both adverse and beneficial effects on wildlife and habitat. Action Item 8.1 calls for the funding of studies to identify net impacts on wildlife and wildlife habitat from hydroelectric development and operation. Study information will be used to develop Action Item 8.3: wildlife protection, mitigation, and enhancement plans.

Table 8 outlines the status of loss assessments at FCRPS facilities. Loss assessments have been completed for 17 of the 29 FCRPS facilities. Six facilities (Roza, Chandler, Ice Harbor, Lower Montumental, Little Goose, and Lower Granite) do not require loss assessments. Consultations have yet to be held for six facilities.

Plans:

Loss assessments for six facilities initiated in FY 1988 will continue in FY 1989. Completion of these ongoing projects will complete action item 8.1 for FCRPS facilities.

TABLE 7
STATUS OF ACTION ITEM 8.1 WILDLIFE LOSS STATEMENTS
AT FCRPS FACILITIES

Hydro Facility	Outcome
Montana	
Hungry Horse	Completed - December 1983
Libby	Completed - December 1983
Idaho	
Palisades	Completed - January 1985
Anderson Ranch	Completed - May 1986
Black Canyon	Completed - May 1986
Boise Diversion	Completed - May 1986
Dworshak	Initiated - June 1987
Minidoka	Initiated - August 1988
Albeni Falls	Completed - August 1988
Washington	
Grand Coulee	Completed - August 1986
Chief Joseph	Initiated - September 1988
Ice Harbor	None Proposed
Lower Monumental	None Proposed
Little Goose	None Proposed
Lower Granite	None Proposed
Chandler	None Proposed
Roza	None Proposed
Oregon	
Cougar	Completed - July 1985
Lookout Point	Completed - July 1985
Dexter	Completed - July 1985
Hills Creek	Completed - July 1985
Green Peter	Completed - January 1986
Foster	Completed - January 1986
Detroit	Completed - January 1986
Big Cliff	Completed - January 1986
Oregon/Washington	
Bonneville	Completed - August 1988
The Dalles	Initiated - September 1988
John Day	Initiated - September 1988
McNary	Initiated - September 1988

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
83-2	Impacts of Water Levels on Canada Geese - Confederated Salish and Kootenai Tribes Objectives: 1. Identify effects of water level fluctuations on goose nesting success and nesting habitat. 2. Identify effects of water level fluctuations on gosling survival and brooding habitat. 3. Develop recommendations to protect and/or enhance Canada goose production.	October 1987	The Salish and Kootenai Tribes investigated the effects of Kerr Dam on Canada Goose populations and habitat on the south half of Flathead Lake and on the Lower Flathead River. The population of nesting geese on the river appears to be limited by the number of secure nest sites. The number of nesting geese increased with the placement of artificial nest structures. Brood habitat was found to be limited on the lake. Gosling survival was low on the lake, possibly because extensive mudflats formed during reservoir drawdown. The Tribe identified management/mitigation alternatives for Canada Geese in the Lower Flathead system. For more information, see the Final Project report (publication number DOE/BP-10062-3).
87-110	Wildlife Protection, Mitigation and Enhancement Planning for Bonneville Dam - USFWS Objectives: 1. Estimate net effects on wildlife resulting from hydroelectric development and operation. 2. Identify current status and management goals/plans for target wildlife. 3. Recommend wildlife protection mitigation and enhancement goals.	September 1988 (projected)	Not available at this time.

PROJECT NUMBER	TITLE	DATE COMPLETED	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-111	Wildlife Protection, Mitigation, and Enhancement Planning for Dworshak Reservoir - IDFG Objectives: 1. Summarize the net effects on wildlife from development and operation of Dworshak Reservoir. 2. Identify current status and management goals/plans for target wildlife. 3. Recommend wildlife protection, mitigation, and enhancement goals for Dworshak Reservoir area.		IDFG estimated, from existing information, that approximately 16,970 acres of wildlife habitat were lost from Dworshak Reservoir. Losses identified in the report included 15,316 acres of elk habitat, 15,286 acres of white-tailed deer habitat, 16,986 acres of Black Bear habitat, 14,776 acres of ruffed grouse habitat, 13,616 acres of pileated woodpecker habitat, and 66 acres of yellow wander habitat. The project recommended further quantification of wildlife impacts using a habitat evaluation procedure, along with development of a mitigation plan. (See Action Item 8.3, Project 88-154.) For more detailed information, see the Final Project Report (publication number DOE/BP-35332-1).
87-406	Wildlife Protection, Mitigation and Enhancement Planning for Dworshak Dam - NPT Objectives: 1. Summarize the net effects on wildlife in the Clearwater River area from development and operation of Dworshak Reservoir. 2. Identify current status and management goals/plans for target wildlife. 3. Recommend wildlife protection, mitigation, and enhancement goals for the Clearwater River area.	April 1988	The Nez Perce Tribe reviewed existing information to identify effects on wildlife in the Clearwater River from the development and operation of Dworshak Dam. The report indicated that there has been a change in riparian habitat along the river. No impacts were quantified; the report recommended further quantification of wildlife impacts using a habitat evaluation procedure (see Action Item 8.3, Project 88-154). For more detailed information, see the Final Project Report (in printing).

II. ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-110	Wildlife and Wildlife Habitat Loss Assessment for Minidoka Dam in Idaho - IDFG Project Officer: J. Meyer Objectives: 1. Estimate net effects on wildlife from hydroelectric development and operation. 2. Identify current status and management goals/plans for target wildlife. 3. Recommend wildlife protection, mitigation, and enhancement goals.	Date Initiated: August 1988 Results/Conclusions: Not available at this time.	1. December 1988: Draft Report for Wildlife Assessment. 2. January 1989: Formal consultation on project findings. 3. February 1989: Final Report.
88-12	Lower Columbia (The Dalles John Day, McNary) Wildlife Protection, Mitigation, and Enhancement Planning - Wildlife Assessment Phase - USFWS Project Officer: J. Meyer	Date Initiated: September 1988 Results/Conclusions: None at this time.	1. September 1989: Draft wildlife assessment report. 2. November 1989: Formal consultation on project findings. 3. December 1989: Final Report.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-12 (cont.)	Objectives: 1. Estimate net effects on wildlife from hydroelectric development and operation. 2. Identify current status and management plans/goals for target wildlife. 3. Recommend wildlife protection, mitigation, and enhancement goals.		

III. NEW PROJECTS

None.

8.2 LOSS STATEMENT CONSULTATIONS
(Begin Consultation)

1003(b)(3) Upon completion of the 1003(b)(2) studies, the appropriate fish and wildlife agencies, Tribes, BPA, and project operators for each project shall review the results and discuss the options available to provide wildlife protection, mitigation, and enhancement in accordance with the Northwest Power Act. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To provide a review of Action Item 8.1 loss assessments and to assist in defining the scope and direction for the development of Action Item 8.3 wildlife protection, mitigation, and enhancement plans. No projects/contracts will be funded by BPA in implementing this Action Item.

Background and Progress to Date:

Consultations have been held on 18 of the 29 FCRPS facilities. Two facilities (Chandler and Roza) do not require consultations. Consultations have yet to be held for nine facilities. Table 9 outlines the status of these consultations.

Plans:

Consultations will be held on six FCRPS facilities in FY 1989. These facilities include Minidoka Dam, Bonneville Dam, and the Lower Snake facilities (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite).

TABLE 8
STATUS OF ACTION ITEM 8.2 WILDLIFE CONSULTATIONS
AT FCRPS FACILITIES

Hydro Facility	Status	Outcome
Montana		
Hungry Horse	Held	Mitigation planning was begun before the Program required 8.2 consultations. See Action Item 8.3.
Libby	Held	
Idaho		
Palisades	Held - January 1985	Mitigation plan was funded. See Action Item 8.3.
Anderson Ranch	Held - August 1986	
Black Canyon	Held - August 1986	
Boise Diversion	Held - August 1986	Determined it was not effective to fund development of a mitigation plan.
Dworshak	Held - February 1988	Mitigation plan was funded.
Albeni Falls	Held - February 1988	Combined loss assessment and mitigation plan funded.
Minidoka	Proposed for FY 1989	
Washington		
Grand Coulee	Held - April 1985	Mitigation plan was funded.
Chief Joseph	Held - February 1987	Combined loss assessment and mitigation plan funded.
Lower Snake (Ice Harbor, Lower Monumental, Little Goose, Lower Granite)	Proposed for FY 1989	
Chandler	None Proposed	
Roza	None Proposed	

Hydro Facility	Status	Outcome
Oregon		
Willamette		Mitigation plan was funded.
Cougar	Held - May 1984	
Lookout Point	Held - May 1984	
Dexter	Held - May 1984	
Hills Creek	Held - May 1984	
Green Peter	Held - March 1985	
Foster	Held - March 1985	
Detroit	Held - March 1985	
Big Cliff	Held - March 1985	
Oregon/Washington		
Bonneville	Proposed for FY 1989	
The Dalles	Not held	
John Day	Not held	
McNary	Not held	

8.3 MITIGATION PLANS
(Fund Development)

1003(b)(3) Based upon these discussions [1003(b)(3) consultations], BPA shall fund the development of mitigation plans for each of these projects. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To identify target wildlife species for protection, mitigation, and enhancement; to develop protection, mitigation, and enhancement goals; and to recommend actions to achieve these goals for Federal hydroelectric facilities.

Background and Progress to Date:

Action Item 8.3 pertains to the development of wildlife protection, mitigation, and enhancement plans. These plans are to take into account the wildlife impacts identified under Action Item 8.1, and are to complement existing wildlife management plans and goals. Information from Action Item 8.2 consultations is used to develop the scope of these plans. Wildlife protection, mitigation, and enhancement recommendations developed in these plans are submitted to the Council for their consideration for amendment into the Program.

Table 10 outlines the status of mitigation plans at FCRPS facilities. Mitigation plans have been completed for 15 of the 29 FCRPS facilities. Mitigation plans will not be undertaken for three FCRPS facilities (Roza, Chandler, and Boise Diversion).

Plans:

Mitigation plans are proposed to be initiated for two facilities in FY 1989. Mitigation planning for two facilities is ongoing and will be completed by FY 1990. The need to develop mitigation plans for the other FCRPS facilities depends upon the outcome of loss assessments (Action Item 8.1) and Action Item 8.2 consultations.

TABLE 9
STATUS OF ACTION ITEM 8.3 WILDLIFE MITIGATION PLANS
AT FCRPS FACILITIES

Hydro Facility	Outcome
Montana	
Hungry Horse	Completed - January 1985
Libby	Completed - January 1985
Idaho	
Palisades	Completed - November 1986
Anderson Ranch	Completed - June 1987
Black Canyon	Completed - June 1987
Boise Diversion	None proposed
Dworshak	Initiated - September 1988
Minidoka	Proposed for FY 1989
Albeni Falls	Completed - August 1988
Washington	
Grand Coulee	Completed - August 1986
Chief Joseph	Initiated - September 1988
Ice Harbor	Not started
Lower Monumental	Not started
Little Goose	Not started
Lower Granite	Not started
Chandler	None proposed
Roza	None proposed
Oregon	
Cougar	
Lookout Point	
Dexter	
Hills Creek	All completed - April 1987
Green Peter	
Foster	
Detroit	
Big Cliff	
Oregon/Washington	
Bonneville	Proposed for FY 1989
The Dalles	Not started
John Day	Not started
McNary	Not started

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
87-43	Wildlife Protection, Mitigation and Enhancement Planning for Albeni Falls Dam - IDFG Objectives: 1. Estimate the net effects on wildlife resulting from hydroelectric development and operation. 2. Identify current status and management goals/plans for target wildlife. 3. Recommend protection, mitigation, and enhancement goals for target wildlife. 4. Recommend wildlife protection, mitigation, and enhancement actions.	August 1988	IDFG completed an assessment of wildlife losses and developed mitigation recommendations for Albeni Falls Dam. The report estimates that 6,600 acres of wetlands were lost due to the reservoir, affecting waterfowl, big game, bald eagles, and aquatic furbearers. Mitigation projects for these species were developed by an interagency workgroup. The estimated cost of the mitigation plan is about $16 million. For more information, see the Final Project Report: Albeni Falls Wildlife Protection, Mitigation, and Enhancement Plan (in printing).

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-44	Wildlife Protection, Mitigation and Enhancement Plan for Chief Joseph Dam - WDW Project Officer: J. Meyer Objectives: Project implements Action Items 8.1 and 8.3. 1. Identify pre-construction and current status of wildlife in project area. 2. Estimate net effects on wildlife resulting from hydroelectric development operation. 3. Develop protection, mitigation, and enhancement goals. 4. Recommend protection, mitigation, and enhancement actions.	Date Initiated: September 1988 Results/Conclusions: Not available at this time.	1. October 1988: Consultation Meeting 2. July 1989: Consultation Meeting. 3. October 1989: Draft Report. 4. December 1989: Consultation Meeting. 5. January 1990: Final Report.
88-154	Wildlife Protection, Mitigation, and Enhancement Plan for Dworshak Dam - IDFG Project Officer: J. Meyer Objectives: 1. Quantify net impacts on target wildlife species from hydroelectric development and operation. 2. Develop protection, mitigation, and enhancement goals. 3. Recommend protection, mitigation, and enhancement actions.	Date Initiated: September 1988 (Proposed) Results/Conclusions: Not available at this time.	1. October 1988: Consultation Meeting. 2. June 1989: Consultation Meeting. 3. August 1989: Draft Report. 4. October 1989: Consultation Meeting. 5. November 1989: Final Report.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-15	Bonneville Dam Wildlife Mitigation Plan Project Office: J. Meyer	Develop recommendations for the protection, mitigation, and enhancement of wildlife affected by hydroelectric development and operation (e.g. Wildlife Mitigation Plan).	December 1988: Begin development of and negotiations for the project. Project schedule will be developed as part of this activity.
89-22	Minidoka Dam Wildlife Mitigation Plan Project Officer: J. Meyer	Develop recommendations for the protection, mitigation, and enhancement of wildlife affected by hydroelectric development and operation (e.g. Wildlife Mitigation Plan). The scope of the project will depend upon results of project 88-110 (see Action Item 8.1)	April 1989: Begin development of and negotiations for the project. Project schedule will be developed as part of this activity.

8.4 LIBBY DAM MITIGATION
(Initiate Advance Design for White-Tailed Deer, Mule Deer, Columbia Sharp-Tailed Grouse, and Waterfowl Projects; Continue Implementation and Monitoring of Big Horn Sheep Project: 1987)

8.5 LIBBY DAM MITIGATION
(Continue Advance Design for Deer, Waterfowl, Grouse Projects; Begin Implementation and Monitoring for Mule Deer Project; Continue Implementation and Monitoring of Bighorn Sheep Project: 1988)

8.6 LIBBY DAM MITIGATION
(Begin Implementation and Monitoring for White-Tailed Deer and Waterfowl Projects; Begin Acquisition of Easements for Grouse; Continue Implementation and Monitoring of Mule Deer and Bighorn Sheep Projects: 1989)

8.7 LIBBY DAM MITIGATION
(Continue Implementation and Monitoring for White-Tailed Deer, Mule Deer, Bighorn Sheep, and Waterfowl Projects; Continue Acquisition of Easements for Grouse: 1990, 1991)

1003(b)(4) Upon Council review of the mitigation plans developed pursuant to Sections 1003(b)(3) or (5), the Council will amend appropriate portions of the mitigation plans into the Columbia River Basin Fish and Wildlife Program in accordance with Section 1400 of the program. After mitigation plans are amended into the program, BPA or the appropriate project operator shall fund implementation as specified in Table 4.

Table 4 calls for BPA to undertake projects to enhance winter range in Northwest Montana to support a target carrying capicity of an additional 1,340 white-tailed deer, 485 mule deer, and 66 bighorn sheep. Table 4 also calls for the protection of 2,462 acres of prairie habitat for Columbia sharp-tailed grouse, and 3,418 acres of wetland habitat in the Flathead Valley. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To undertake advance design and then begin implementation of the wildlife mitigation projects for Libby Dam.

Background and Progress to Date:

Action Items 8.4-8.7 pertain to the advance design and implementation of wildlife mitigation projects for Libby Dam.

In FY 1987, BPA began advance design for the wildlife habitat improvement and protection projects. In FY 1988, BPA continued advance design and began big game habitat improvement projects.

Plans:

BPA plans to complete the advance design for easements/acquisitions (habitat protection) projects in FY 1989. Advance design for white-tailed deer habitat enhancement will begin in FY 1989. Advance design for a 10-year habitat improvement program on Kootenai National Forest lands will continue in FY 1989, with completion scheduled for FY 1990. Enhancement of key big game winter range (mule, deer, and bighorn sheep) will also continue in FY 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-55	Northwest Montana Wildlife Habitat Enhancement - MDFWP Project Officer: J. Meyer Objectives: This project undertakes advance design of the habitat enhancement actions for Libby and Hungry Horse Dams. 1. Develop a habitat enhancement plan for elk/mule deer on Flathead National Forest lands. 2. Develop a habitat enhancement plan for mule deer/bighorn sheep on Kootenai National Forest lands.	Date Initiated: September 1987 Results/Conclusions: Not available at this time.	1. October 1989: Draft 10-year enhancement plans. 2. December 1989: Final 10-year enhancement plans.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
84-38	Ural-Tweed Bighorn Sheep Enhancement - USFS Project Officer: J. Meyer Objectives: Enhance approximately 1,300 acres of sheep range on Kootenai National Forest lands.	Date initiated: September 1984 Results/Conclusions: Final results/ conclusions are not available at this time. Preliminary information is available in annual reports: publication numbers DOE/BP 18966-1 and DOE/BP 18966-2.	1. October 1988: Draft completion report. 2. December 1988: Final completion report. 3. Project has been funded to completion with FY 1987 funds.
84-39	Ural-Tweed Bighorn Sheep Mitigation - MDFWP Project Officer: J. Meyer Objectives: 1. Evaluate the effectiveness of the habitat improvements done under Project 84-38. 2. Outline a program to maintain a viable bighorn sheep population.	Date initiated: September 1984 Results/Conclusions: Final results/ conclusions are not available at this time. Preliminary information can be found in annual reports: publication numbers DOE/BP 18966-1 and DOE/BP 18966-2.	1. October 1989: Draft report. 2. December 1989: Final report. 3. Project has been funded to completion with FY 1987 funds.

PROJECT NUMBER	TITLE	RESULTS/CONCLUSIONS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-43	Libby Wildlife Habitat Enhancement - USFS Project Officer: J. Meyer Objectives: Initiate habitat improvement activities on Kootenai National Forest lands for mule, deer, and big horn sheep. Treat approximately 1000 acres of key winter range by slashing and prescribed burning.	Not available at this time.	1. October 1988: Begin treatment activities. 2. December 1990: Treatments completed.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-21	Libby Dam White-tailed Deer Project Project Officer: J. Meyer	1. Undertake advanced design activities for white-tailed deer habitat enhancement. 2. Gather baseline data on populations and habitat use. 3. Undertake habitat enhancement actions on sites to facilitate development of a habitat improvement plans.	November 1989: Begin development of project activities and schedule.

8.8 HUNGRY HORSE DAM MITIGATION
(Initiate Advance Design/Begin to Implement Elk/Mule Deer Project; Begin Advanced Design, Interagency Coordination, Site Prioritization, and Appraisals for Black Bear/Grizzly Bear, Waterfowl, Terrestrial Furbearer Projects: 1987.)

8.9 HUNGRY HORSE DAM MITIGATION
(Continue Advance Design Waterfowl, Terrestrial Furbearer, Black Bear/Grizzly Bear Projects; Continue Implementation/Monitoring of Elk/Mule Deer Project: 1988.)

8.10 HUNGRY HORSE DAM MITIGATION
(Begin/Continue Implementation of Waterfowl, Elk/Mule Deer, Black Bear/Grizzly Bear Projects: 1989-1991.)

1003(b)(4) Upon Council review of the mitigation plans developed pursuant to Sections 1003(b)(3) or (5), the Council will amend appropriate portions of the mitigation plans into the Columbia River Basin Fish and Wildlife Program in accordance with Section 1400 of the program. After mitigation plans are amended into the program, BPA or the appropriate project operator shall fund implementation as specified in Table 4. [1004(b)(4)]

Table 4 calls for BPA to undertake projects to enhance winter range in Northwest Montana to support a target carrying capacity of additional 133 elk. Table 4 also calls for the protection of 8,590 acres of riparian habitat for grizzly bears and 1,146 acres of wetland habitat, along with determining the feasibility of protecting 11,050 acres of old-growth timber for terrestrial furbearers. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To undertake advance design and then begin implementation of the wildlife mitigation projects at Hungry Horse Dam.

Background and Progress to Date:

Action Items 8.8-8.10 pertain to the advance design and implementation of wildlife mitigation for Hungry Horse Dam.

In FY 1987, BPA initiated advance design for the wildlife habitat improvement and protection projects. In FY 1988, BPA continued advance design and began habitat improvement and protection projects.

Plans:

BPA plans to complete the advance design for easement/acquisitions (habitat protection) projects in FY 1989, along with implementing a pilot acquisition. Advance design for a 10-year habitat improvement program on Flathead National Forest lands will continue in FY 1989 with completion scheduled for FY 1990. Enhancement of key big game winter range (elk) will also continue in FY 1989.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-60	Montana Wildlife Easements/Land Acquisitions - MDFWP Project Officer: J. Meyer Objectives: This project undertakes advance design for the Libby and Hungry Horse wildlife habitat protection actions. 1. Develop habitat protection plans for the bear, waterfowl, and grouse projects. 2. Develop a feasibility plan for protection of terrestrial furbearer habitat.	Date initiated: September 1987 Results/Conclusions: Not available at this time.	1. August 1989: Draft report. 2. October 1989: Final report.
88-113	Hungry Horse Wildlife Habitat/Enhancement - USFS Project Officer: J. Meyer Objectives: Begin habitat improvement activities on Flathead National Forest lands for elk and mule deer. Treat approximately 500 acres of key winter range by slashing and prescribed burning.	Date Initiated: September 1988 Results/Conclusions: Not available at this time.	1. October 1988: Begin treatment activities. 2. December 1990: Treatments completed.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
88-147	Montana Conservation Easement - USFS Project Officer: J. Meyer Objectives: Acquire a joint conservation easement with the Flathead National Forest on approximately 500 acres of grizzly bear and big game habitat on the North Fork at the Flathead River.	Date Initiated: August 1988 Results/Conclusions: Not available at this time.	1. September 1988: Acquisition of a conservation easement. 2. January 1989: Management/oversight plan for the conservation easement.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-23	Hungry Horse Easement/Acquisition Project Officer: J. Meyer	1. Undertake a pilot acquisition (fee title or conservation easement) of waterfowl or bear habitat. (To be determined in consultation with Montana Department of Fish, Wildlife and Parks.)	November 1988: Begin development of and negotiations for the project. Project schedule will be developed as part of this activity.

8.11 INNOVATIVE FUNDING OF HUNGRY HORSE/LIBBY MITIGATION
(Seek Out Methods, Report to Council by May 1987)

1003(b)(4) Upon Council review of the mitigation plans developed pursuant to Section 1003(b)(3) or (5), the Council will amend appropriate portions of the mitigation plans into the Columbia River Basin Fish and Wildlife Program in accordance with Section 1400 of the Program. After mitigation plans are amended into the Program, BPA or the appropriate project operator shall fund implementation as specified in Table 4.

Table 4 calls for BPA to consult with the Montana Department of Fish, Wildlife, and Parks (MDFWP), the USACE, the USBR, and BPA customers to explore alternative methods, including a trust fund, for financing wildlife mitigation measures at Hungry Horse and Libby dams. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To explore the trust fund concept as an alternative (cost-effective) method for funding wildlife mitigation for Libby and Hungry Horse dams.

Background and Progress to Date:

The trust fund concept involves BPA making annual payments, over a period of years and up to an agreed-upon limit, to the State of Montana. These funds would be placed into an interest-bearing account; the funds generated by the account would be used by Montana to undertake wildlife mitigation. In return, Montana would release BPA from wildlife mitigation responsibilities for Libby and Hungry Horse dams.

A BPA review of the trust concept (completed May 1987) indicated that the concept is viable. In order to comply with Treasury regulations, however, BPA must receive performance of comparable value at the time it makes such payments. Performance of comparable value has been proposed as a settlement/hold-harmless agreement with the State of Montana.

In April 1988, BPA initiated negotiations with Montana to develop a wildlife negotiation agreement for Libby and Hungry Horse Dams.

Plans:

In FY 1989, BPA will continue negotiations with Montana on a wildlife mitigation agreement for Libby and Hungry Horse Dams. Objective is to complete a final mitigation agreement by December 1988.

If a satisfactory agreement can be developed, then future mitigation actions for Libby and Hungry Horse Dams will be funded through this arrangement.

Projects:

No BPA-funded projects.

----- WILDLIFE MITIGATION
(Oregon, Washington, Idaho)

1003(b)(4) Upon Council review of the mitigation plans developed pursuant to Sections 1003(b)(3) or (5), the Council will amend appropriate portions of the mitigation plans into the Columbia River Basin Fish and Wildlife Program in accordance with Section 1400 of the program. After mitigation plans are amended into the program, BPA or the appropriate project operator shall fund implementation as specified in Table 4.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To begin advanced design and implementation of wildlife mitigation projects for Federal hydroelectric facilities in the states of Oregon, Washington, and Idaho.

Background and Progress to Date:

No wildlife mitigation has been implemented in the states of Oregon, Washington, or Idaho. Efforts to date have been directed towards mitigation planning (Action Items 8.1 and 8.3).

The Council is currently considering the adoption of wildlife mitigation actions for Grand Coulee Dam in Washington; for Palisades, Black Canyon, and Anderson Ranch Dams in Idaho; and for the Willamette facilities in Oregon.

Plans:

BPA will begin wildlife mitigation projects for Federal hydroelectric facililties in Oregon, Washington, and Idaho once the Council amends actions into the Program. Initiation in FY 1989 will depend upon Council action.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

None.

III. NEW PROJECTS

PROJECT NUMBER	TITLE	OBJECTIVES	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
89-14	Wildlife Mitigation (Oregon, Washington, Idaho) Project Officer: J. Meyer	Begin advanced design and implementation of wildlife mitigation projects amended into the program for Federal hydroelectric facilities in Oregon, Washington, and Idaho.	Initiation in FY 1989 depends upon Council amending Actions into the Program.

FUTURE HYDROELECTRIC DEVELOPMENT
ACTION ITEMS AND TECHNICAL SUBJECTS

9.1 APPLICATION OF PROGRAM SECTIONS 1204(a), (b), (c), AND (e) TO NEW PROJECTS

1103 (a-c, e) These measures direct BPA and the hydroelectric project operators and regulators not to license, exempt from license, relicense, propose, recommend, agree to aquire power from, grant billing credits for, or otherwise support any hydroelectric development in the Columbia River Basin without providing for numerous development conditions related to protection of fish and wildlife resources. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To apply Program Section 1103(a-c, e) to all new hydro projects.

Background and Progress to Date:

BPA is applying these Program sections to the BPA Hydro Options Program.

Plans:

BPA will continue to apply these program sections to the BPA Hydro Options Program and any future hydro development.

Projects:

No BPA-funded projects.

9.3 ASSESSMENT OF CUMULATIVE EFFECTS
(Complete Study; Develop Methods: June 1987)

1103(b)(2) Develop methods for assessing the cumulative effects of hyroelectric development upon fish and wildlife in the Columbia River Basin.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To review all pertinent literature on potential cumulative hydroelectric effects, for specific key fish and wildlife species; to analyze existing techniques for assessment of identified cumulative effects; to develop an array of recommended pertinent assessment techniques for a cumulative effects method; and to develop a hypothetical example of a cumulative assessment using the method.

Background and Progress to Date:

Development of a cumulative effects method supported the Council's desire to have all applications or proposals for hydroelectric development reviewed in a consolidated manner. Project 84-41 (completed in 1987) developed a methodology to assess potential cumulative effects. The results will be used to illustrate the strengths and weaknesses of the method. The final report is being reviewed by BPA.

Plans:

BPA has no plans for further funding.

Projects:

No BPA-funded projects.

----- PROTECTED AREAS
(Former Action Item 35.5)

1103(c)(1) Conduct a study of alternative means for classifying and designating certain streams and wildlife habitat, which should be protected from all future hydroelectric development. The study shall draw from existing information on the hydroelectric potential of such streams, as well as the value of the fish and wildlife resources.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

Objectives:

To assess and document the significance of the region's river resources, such as resident fish, wildlife, natural features, cultural features, recreation,and institutional constraints. Findings will form a resource information base for use in Council, BPA, and state hydropower planning.

Background and Progress to Date:

Recent interest in hydropower energy has intensified public awareness of the potential conflict between hydroelectric development and other river values. This Action Item was to develop a method to evaluate rivers objectively and to establish areas for fish and wildlife protected from hydroelectric development. The Council will designate stream reaches to be protected. The designations will be based on the results of this study and other requirements of the Northwest Power Act. The River Study will also help BPA to forecast power needs reliably and to acquire cost-effective hydropower.

In order to ensure that all relevant river values were considered, BPA assisted the states, Tribes, Federal resource and land management agencies, energy development interests, and interested publics to identify significant river values throughout the region. Additional Council studies complemented the Rivers Study, by compiling information in the areas of Native American cultural sites and anadromous fish.

As in indicated by the inclusion of protected areas in BPA's Long Term Intertie Access Policy, BPA will continue to support database maintenance.

Plans:

Action Item has been completed.

Projects:

No BPA-funded projects.

9.4 TURBINE INTAKE SCREENS

(Develop New Designs, Complete Tests, Report to Council: January 1989)

1103(d) Bonneville shall fund studies to determine the effectiveness of new designs for turbine intake screens and their suitability for application at small hydroelectric projects.

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

To develop a new standard fish screen which is biologically efficient and cost-effective for hydro developers.

Background and Progress to Date:

Installation and maintenance of currently available screening systems are expensive and must be tailored to the site. Most present screen systems have not been tested sufficiently to be characterized as proven. Existing designs and new designs must be evaluated to determine which designs are biologically and economically efficient. The suitability of screen designs for application at small hydroelectric facilities must also be determined. The intent is to provide acceptable fish screen designs with general applicability for regional hydropower developers.

Plans:

BPA does not plan to fund the development of this concept. BPA has met with opposition in integrating meetings where the need is in question. The Council needs to define this measure further with the agencies and Tribes.

Projects

No BPA-funded projects.

WORK AND EXPENDITURE PLAN
ACTION ITEMS

10.1- 10.3 EXPENDITURE AND OBLIGATION PLANS
(Submit to Council by September 15 of Each Year. Update and Submit Information Quarterly. Submit Review of Previous Year. Report Expenditures by Measure.)

1203(a,c,d) These measures describe Program implementation by Federal project operation and regulators and BPA, consultation and coordination, and BPA funding of the Program. [Abstract]

ACTION ITEM ACTIVITY SUMMARY:

Objectives:

The Work Plan for fiscal year 1989 describes BPA plans for implementation of the Council's Program and, in particular, the Action Plan. The Work Plan is intended to contain:

1. A report on progress to date on each Action Item.

2. A description of the activities to be undertaken under each Action Item, including;
   a. the objective of each activity, and
   b. the schedule for each activity, including key decision points and major milestones.

Background and Progress to Date:

Annually since FY 1986, BPA has completed a Program Work Plan and submitted this plan to the Council.

In 1987, BPA began developing a Program Implementation Planning Process that will provide an opportunity for the agencies and Tribes to become more involved in planning the implementation of the Program. Development of this process is now nearly completed.

Plans:

BPA expects that the Implementation Planning Process (see Section III, p. 17) will be finalized in time to be used by BPA in the development of its FY 1990 Work Plan.

NONMEASURE ACTIVITIES

----- OTHER PROJECTS

MEASURE LANGUAGE:

Not applicable. These are nonmeasure projects.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

See individual projects in the following table.

I. COMPLETED PROJECTS

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
78-1	Imprinting Hatchery-Reared Salmon and Steelhead Trout for Homing, 1978-1983 Objectives: 1. Develop the techniques for imprinting homing cues while increasing survival of hatchery reared salmonids. 2. Provide fishery managers with the information necessary to increase the returns of salmon and steelhead to the Columbia River system and to effectively distribute these fish to the various user groups.	February 1988	The sequential imprint concept was most successful in imprinting fish. The natural migration imprint method was generally effective in imprinting but not uniformly successful in returning fish to a homing site. The effects of imprint strategies on the homing behavior of adult salmonid migrations plus the enhanced survival produced by transportation provide a tool that can be used to provide more fish to the various user groups.
79-2	An Evaluation of the Contribution of Chinook Salmon Reared at Columbia River Hatcheries to the Pacific Salmon Fisheries - NMFS Objectives: Determine the distribution, contribution, and value of artificially reared chinook salmon to the Pacific salmon fisheries.	September 1988 (projected)	The project documented variation in the contribution of fall chinook salmon from hatcheries throughout the Columbia Basin. Some hatcheries are contributing less than 0.01% total recoveries, i.e. less than 1 fish/10,000 releases. Final Report delayed until September 1988 due to incomplete 1987 returns from Alaska and California.
85-35	Juvenile Radio Tag Studies - NMFS Objectives: Develop the concept and hardware needed to use mass releases of radio-tagged juveniles to resolve passage problems at dams.	February 1988	Radio tags can be used on yearling chinook and steelhead to determine passage issues without biologically affecting or biasing the test results.

PROJECT NUMBER	TITLE	DATE COMPLETED	RESULTS/CONCLUSIONS
87-129	Lower Granite Pool Survival Study - NMFS Objectives: Estimate the survival rate of juvenile yearling chinook salmon traversing the Lower Granite reservoir, and determine the feasibility of using the PIT tag to conduct survival studies.	May 1988 Results/Conclusions: Field data have been collected and are being analyzed.	Estimates of pool survival were considered unreliable because key assumptions were not satisfied. Estimates of turbine survival at Little Granite Dam were based on recovery of PIT tagged fish at Little Goose Dam and averaged 83.1% (95% confidence interval 74.1 - 92.2%).

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
81-1	Flow and Spill Requirements for Juvenile Fall and Summer Chinook Salmon in John Day Reservoir - NMFS Project Officer: T. Vogel Objectives: Develop instream summer flow recommendations for subyearling summer migrating chinook.	Date initiated: 1981 Results/Conclusions: Subyearling chinook do not migrate as actively as yearling chinook and do not respond to flow augmentation up to 380 kcfs in the John Day reservoir.	1. Continuing: BPA will continue to fund the project through to completion in 1989. 2. Continuing: Contractor will continue to compile and analyze adult return data and complete the final completion report early in FY 1989.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
87-130	An Assessment of the Freeze Brand Recovery Data for Yearling Chinook Salmon at McNary Dam - NMFS Project Officer: D. Johnson Objectives: Determine whether PIT-tagged and freeze-branded yearling chinook and steelhead are recovered at different rates and identify the sources of sampling error.	Date initiated: 1987 Results/Conclusions: Field data have been collected and are being analyzed.	1. Continuing: BPA has funded the project through to completion. 2. Continuing: Contractor will continue to analyze the recapture data and complete the final report by the end of 1988.
82-16	Yakima River Spring Chinook Enhancement Study - YIN Project Officer: T. Vogel Objectives: Establish methods to rebuild spring chinook salmon runs in the Yakima River while maintaining the genetic components of the naturally reproducing stocks.	Date Initiated: FY 1982 Results/Conclusions: Information has been collected on survival and emergence from redds, survival from fry to smolt, and downstream movement of fry. Project annual reports are available.	1. Continuing: BPA has funded the project to completion. 2. March 1991: Project is scheduled for completion; final report will be available.

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
82-2	Use of a Fish Transportation Barge for Increasing Returns of Steelhead Imprinted for Homing Project Officer: T. Vogel Objectives: 1. Determine whether steelhead reared and imprinted at Dworshak NFH; transported by truck to a transfer site near Lewiston, Idaho; transferred into a barge; and transported to a release site in the Columbia River below Bonneville Dam and released will return as adults to the hatchery and to the various fisheries in greater numbers than fish released directly into the river at the hatchery. 2. Determine the proportion of fish in each test release that has accepted a homing imprint. 3. Determine the relationship between the physiological condition of steelhead and their ability to imprint.	Date Initiated: 1982 Results/Conclusions: Data suggest that survival of Dworshak NFH steelhead is highest when releases are made between late April and early May and that direct barging from the Hatchery has the potential for substantially increasing returns of Dworshak NFH steelhead to all recovery sites. Annual Reports through FY 1986 are available.	Project Final Report available early FY 1989.

III. NEW PROJECTS

None.

----- PROJECT SUPPORT ACTIVITIES

MEASURE LANGUAGE:

Not applicable. These are nonmeasure projects that provide support for Program-measure projects.

TECHNICAL SUBJECT ACTIVITY SUMMARY:

See individual projects in the following table.

I. COMPLETED PROJECTS

None.

II. FY 1988 ONGOING PROJECTS

PROJECT NUMBER	TITLE	PROJECT STATUS	SCHEDULE AND MILESTONES FOR FY 1989 AND BEYOND
82-13	Coded Wire Tag Recovery - PMFC Project Officer: W. Maslen Objectives: Support WDF, WDW, and ODFW recoveries of coded wire tags for salmon and steelhead.	Date initiated: 1982 Results/Conclusions: A variety of sport, commercial, and hatchery recoveries was made, decoded, and documented.	1. Continuing: BPA will fund the collection of coded wire tag data. 2. Continuing: Contractor will provide an annual report of tag recovery activities and data.
83-6	Operation/Maintenance of BPA Fish Tagging Trailer - USFWS Project Officer: W. Maslen Objectives: Using a mobile fish marking unit, conduct marking programs at hatcheries throughout the region for BPA funded activities, including the smolt monitoring program.	Date initiated: 1983 Results/Conclusions: New marking trailers are being outfitted and a total of 2.3 million fish have been marked.	1. Continuing: BPA will fund the marking of various smolt monitoring, freeze-branded, and PIT-tagged groups. 2. Continuing: Contractor will provide an annual report on tagging operations and maintain the tagging trailers and equipment.

III. NEW PROJECTS

None.

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