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REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

Needs Of The U.S. Coast Guard In Developing An Effective Recreational Boating Safety Program

Department of Transportation

U. S. DEPARTMENT OF COMMERCE NOAA
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This report describes the Department of Transportation's actions to promote recreational boating safety. It discusses the need for the Coast Guard as the Federal agency responsible for recreational boating safety to provide greater leadership and the need for additional information to determine the effectiveness of programs being developed to accomplish safety objectives.

GAO supports Coast Guard efforts to improve its management and recommends certain additional actions be taken so that funds available for this program will be used more effectively.

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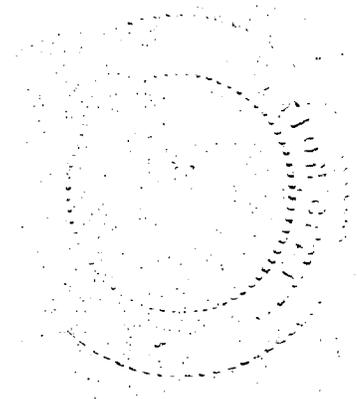
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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report describes the Department of Transportation's actions to promote recreational boating safety. It discusses the need for the Coast Guard, as the Federal agency responsible for recreational boating safety, to provide greater leadership and the need for additional information to determine the effectiveness of programs being developed to accomplish safety objectives.

This review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretary of Transportation.

Comptroller General
of the United States

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ABBREVIATIONS

BOSDETS boating safety detachments

GAO General Accounting Office

NASBLA National Association of State Boating Law Administrators

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

NEEDS OF THE U.S. COAST GUARD IN
DEVELOPING AN EFFECTIVE RECREATIONAL
BOATING SAFETY PROGRAM
Department of Transportation

D I G E S T

The Coast Guard wants to establish boat construction and performance standards to provide the U.S. public with safe boats and to increase safety consciousness of boat users through education and enforcement of laws and regulations. (See p. 3.)

Boat owners increased from about 15,000 at the beginning of the century to about 9 million in 1975. In 1975 recreational boating accidents resulted in 1,466 fatalities, 2,136 injuries, and about \$10.4 million in property damage. (See pp. 1 and 16.)

One of the purposes of the Federal Boat Safety Act of 1971--the basis of the Coast Guard's current boating safety program--was to reduce recreational boating fatalities and accidents and foster greater enjoyment of the Nation's waterways. This act gave the Coast Guard broad regulatory authority over boating safety and authorized a financial assistance grant program, which expires on September 30, 1979, to help States develop adequate boating safety programs. In the 5 fiscal years ended in 1976, the Congress appropriated about \$22.6 million for the grant program. The Coast Guard spends about \$11 million annually administering the program. (See pp. 1 and 2.)

State boating safety activities have increased. Additional information on State boating safety education and enforcement programs is needed so that the Coast Guard can evaluate existing programs, provide increased guidance to the States, and develop boat construction and performance standards. (See p. 4.)

Since the 1971 act became law, the Coast Guard has issued five regulations establishing minimum safety standards for boats and associated equipment. (See pp. 9 to 11.)

About 2,500 companies in the United States build about 600,000 recreational boats each year. Approximately 1,400 of these manufacturers produce 100 or fewer boats annually. To make sure that manufacturers are complying with its standards, the Coast Guard tests boats bought on the open market and Coast Guard personnel visit factories. As of September 30, 1976, the Coast Guard had tested 240 boats purchased on the open market; only 72 passed.

Because many manufacturers, especially those producing 100 or fewer boats annually, do not necessarily receive Coast Guard publications or the Federal Register--where proposed standards are published--the factory-visit program provides a means for making these manufacturers aware of their responsibilities under the act. (See pp. 11 to 13.)

Although many organizations offer boating safety courses, most people who go boating have not taken a basic boating course. Accident reports attribute about half of the reported recreational boating fatalities to operator error. In those cases for which such data is known, only about 12 percent of the operators involved in fatal accidents had received formal boating education, one of the most effective means of improving boating safety knowledge. (See p. 16.)

Not all States provide such courses to the public. The Coast Guard generally does not provide specific guidance to the States in developing their education programs. As a result, the States have programs which differ in the types of courses offered and people to which this education is directed. The Coast Guard is now working to establish minimum education criteria. (See pp. 17 and 20.)

Over a third of all recreational boating accidents and half of the fatalities occur on waters over which the Coast Guard does not have any jurisdiction. Since the 1971 legislation was enacted, the Coast Guard has been emphasizing the training of State and local law enforcement officials. However, all State and local enforcement officials are not

participating in this training and the Coast Guard has not as yet developed a successful method for evaluating the effectiveness of the States' enforcement efforts. The Coast Guard is currently refining an evaluation technique for this purpose. (See p. 22.)

RECOMMENDATIONS

GAO recommends that the Secretary of Transportation require the Commandant of the Coast Guard to:

- Obtain more comprehensive information on education programs developed and used by States and others, evaluate these programs, and determine areas where additional educational efforts are needed. (See p. 21.)
- Work with the States to establish goals for maximum participation in Coast Guard enforcement training courses within specified periods, assist the States in meeting these objectives, and increase joint patrols with State and local officials under a systematic nationwide program. (See p. 26.)
- Establish an effective factory-visit program in all Coast Guard districts. (See p. 14.)

AGENCY COMMENTS AND GAO EVALUATION

The Department of Transportation agreed that the Coast Guard needs more data to evaluate the recreational boating safety program. It also stated that budget limitations had restricted its ability to resolve many of the problem areas the report identified.

GAO did not analyze the Coast Guard's use of allocation of its resources; however, it did note that some districts use Coast Guard personnel not designated for boating safety to carry out certain program activities. Coast Guard officials in those districts in which current boating safety resources are limited should determine the feasibility of using other personnel to carry out temporarily some boating safety activities.

Early implementation of this report's recommendations and of program improvements initiated by the Coast Guard should allow for better evaluation of total program effectiveness before the State boating safety financial assistance program authorization expires. (See pp. 7, 14, 21, and 26.)

CHAPTER 1

INTRODUCTION

Recreational boating has become one of our Nation's favorite pastimes. Each year more and more people use our Nation's waterways for fun and recreation. The number of boat owners has increased from about 15,000 at the beginning of the 20th century to about 9 million in 1975. An estimated 48 million people now use our Nation's 25 million square miles of water for recreational boating.

Beginning in 1910 numerous laws affecting recreational boats and their operators were enacted. The Motorboat Act of 1940 (54 Stat. 165) was the first major recreational boating safety legislation. This act requires various items of equipment to be on motorboats when they are in use and authorizes the Coast Guard to establish manufacturing standards for lifesaving devices, fire extinguishers, and backfire flame arrestors and to approve equipment manufactured in accordance with these standards. Under this act, the boat owner or operator was made responsible for properly equipping his boat while boat manufacturers, distributors, or dealers had no responsibility for providing proper equipment.

The first legislation involving the States in boating safety was the Federal Boating Act of 1958 (72 Stat. 1754) which authorized and encouraged State participation in numbering motorboats. This act also authorized civil penalties for the reckless or negligent operation of motorboats and established a boating accident reporting requirement which provided the Coast Guard with its first major source of information on the actual occurrence of events which affect recreational boating safety. Although most of the 1958 act was repealed when the Federal Boat Safety Act of 1971 (85 Stat. 213) became law, similar provisions were included in the new legislation.

The most significant piece of boating safety legislation, and the foundation for the current boating safety program, is the Federal Boat Safety Act of 1971. The objectives of the 1971 act are to reduce recreational boating deaths and accidents, encourage boating safety, and foster greater enjoyment of our Nation's waterways. To achieve these objectives, the Congress:

- Granted the Coast Guard authority to establish (1) construction and performance standards for boats and their associated equipment and (2) procedures and tests required to measure conformance with such standards.

--Authorized a 5-year financial assistance grant program to encourage greater cooperation among the States and the Federal Government in developing and enforcing uniform boating safety laws and regulations and to encourage the States to assume greater responsibility for boating safety by developing their own boating safety programs.

In the 5 fiscal years between 1972 and 1976, the Congress appropriated about \$22.6 million for the boating safety financial assistance program. In addition, the Coast Guard currently spends about \$11 million annually to administer the boating safety program.

For the first 3 years of the grant program, any State indicating that it had, or intended to have, an adequate boating safety program was eligible to receive funds. After fiscal year 1974, however, a State was required to have a program acceptable to the Coast Guard to fully participate in the grant program. According to the act, an acceptable State program would include, among other things:

1. Patrol and other activity to insure enforcement of boating safety laws and regulations.
2. Boating safety education programs.
3. General conformity with the Model State Boat Act as approved by the National Association of State Boating Laws Administrators ^{1/} (NASBLA) in conjunction with the Council of State Governments.

The Model State Boat Act encourages the State to cooperate with the Federal Government, other States, and subdivisions of the State in developing a uniform boating safety program by providing a model for drafting State statutes which comply with the Federal Boat Safety Act of 1971. Its provisions include:

1. Establishing regulations or standards for boat numbering and marking, associated equipment requirements, operating requirements, boating safety education, and boating safety patrol and enforcement activities.

^{1/}An organization of boating law officials from States and territories which promotes safety by providing a medium for the exchange of views and experiences and by fostering interstate and Federal-State cooperation and coordination in boating problems.

2. Prescribing necessary rules and regulations for accident investigations and reporting.
3. Prohibiting the operation of noncomplying vessels or the operation of vessels in a negligent manner and establishing penalties for violation of the act.

The Coast Guard believes that a knowledgeable boating public, effective law enforcement, and safe boats and equipment result in safer boating. Therefore, to achieve the objectives of the 1971 act, the goal of the Coast Guard's recreational boating safety program is to establish minimum boat construction and performance standards to provide the public with safe boats and associated equipment and, in cooperation with the States, motivate the boating public to safety consciousness through education and enforcement of applicable laws and regulations.

At the Federal level, the U.S. Coast Guard plans and implements the recreational boating safety program. The Office of Boating Safety at Coast Guard headquarters is responsible for the overall boating safety program, including most of the program planning and monitoring.

Each of the Coast Guard's 12 district offices is responsible for administering the boating safety program according to headquarters' instructions and the applicable laws and regulations. District responsibilities include (1) coordinating the boating safety efforts of the various public service- or recreational boating-oriented groups, (2) enforcing Federal boating safety laws and regulations and assessing penalties for boating safety violations in the district, (3) establishing and maintaining close liaison with the States and other boating interests, such as yacht clubs, marine trade associations, and boat owners associations, and (4) administering the State boating financial assistance program.

CHAPTER 2

EVALUATING THE EFFECTIVENESS OF BOATING SAFETY EFFORTS

The Federal Boat Safety Act of 1971 gave the Coast Guard broad, new regulatory authority in the boating safety area and authorized a financial assistance grant program to help the States develop adequate boating safety programs. A large number of organizations are involved in boating safety--Federal, State, and local governments; the boating industry; and various voluntary groups. Consequently, a coordinated program is necessary to effectively use the available resources and to insure that requirements for persons participating in recreational boating on the Nation's waters are not conflicting. Such a program requires strong leadership from the Coast Guard as the Federal agency responsible for administering the provisions of the 1971 act.

The Coast Guard has made some progress in achieving the act's objectives. Among these are:

- States have adopted uniform safety laws. According to the Coast Guard, 51 of 55 States and territories eligible for funding under the act are in basic compliance with Federal laws and regulations.
- States which did not have boating safety programs before the act have initiated programs, and States which had boating programs have expanded their programs. State funding of boating safety programs increased from about \$21 million in fiscal year 1973 to about \$33 million in fiscal year 1975.
- Estimates of the total number of boats in existence indicate that the 1975 recreational boating fatality rate is about 15-percent lower than the average rate for the 3 years before the 1971 act (1969 to 1971).

This data indicates that State boating safety activities have increased and that these activities may have had some positive effects. We believe, however, that additional information on State boating safety education and enforcement programs is needed to enable the Coast Guard to evaluate existing programs, provide increased guidance to the States, and develop effective boat performance and construction standards.

The authorization for the State boating safety financial assistance program expired on June 30, 1976, and on July 6, 1976, Public Law 94-340 was enacted, extending the State grant program through fiscal year 1978. In its

testimony before the House Subcommittee on Coast Guard and Navigation in September 1975, the Coast Guard stated that it had not been able to adequately assess either the degree to which Federal assistance has improved State boating safety programs or the adverse effects which would result if Federal assistance were withdrawn. The legislative proposal the Department of Transportation submitted recommended extending the financial assistance program through fiscal year 1978 to provide additional time for the Coast Guard to evaluate the program's effectiveness. We believe that unless additional data becomes available, the Coast Guard will not be able to evaluate the effectiveness of State programs in meeting the objectives of the act.

Both Coast Guard and State officials have recognized the need for a better basis for evaluating their needs and directing their programs. States which have recognized the need for data to evaluate performance, identify weaknesses, and direct future programs, have developed their own systems for collecting and analyzing data on boating safety activities. Other than guidance for establishing accident reporting and boat numbering systems, a Coast Guard requirement for an acceptable State boating safety program, the Coast Guard has not provided guidance to the States in developing systems to evaluate their boating safety activities. As a result, the systems being developed differ in the amount, type, and purpose of data collected. Because the data is in different forms, it cannot be used to compare State programs or to measure program accomplishments on a nationwide basis.

Data the Coast Guard obtains on State boating safety activities has been primarily limited to the number of resources available to carry out boating safety activities and the number of persons receiving boating safety education instruction and materials which only indicates the level of activity. The Coast Guard needs to take the leadership in identifying, collecting, and analyzing data on the type, content, and result of boating safety activities. Such information is needed to evaluate the effectiveness of the boating safety program. The Coast Guard and the States could then use this information to pinpoint areas needing attention and set priorities for using limited funds effectively. Without such information, the Coast Guard and the States are forced to rely on past experience and intuitive feelings to administer their boating safety programs.

The Ninth Coast Guard District has developed and is testing a computer-based management information system that collects and analyzes recreational boating data. According to a district boating safety official, to insure uniformity of data and data collection methods, the data to be used in

this system initially will be largely limited to data collected by Coast Guard personnel while carrying out their normal duties. This official believes that this system will be able to measure program accomplishments, identify weaknesses, and project future trends in boating which can, in turn, be used to determine the effectiveness of boating safety education and enforcement programs. We believe that such a system could provide the Coast Guard with the type of data needed to adequately evaluate the effectiveness of the boating safety program. However, until the system results have been tested and can be feasibly expanded to include State data, we do not believe the information provided will be able to measure the overall impact of the various boating safety education and enforcement programs.

A Coast Guard official said that headquarters had provided one additional person to the ninth district to work on this project and that the headquarters staff is closely monitoring the project. He further stated that after the system has been evaluated and, if its methods are proven and its usefulness confirmed, then consideration may be given to extending it to the other districts as resources permit.

Although data is needed to evaluate the effectiveness of the boating safety program, we are aware that an information system which could provide all the data required to analyze programs could become costly and burdensome to the Coast Guard, the States, and the boating public. The need for information, therefore, must be carefully weighed against the burden imposed on the collecting unit.

The collection of data necessary to determine the effectiveness of the boating safety program has been improving. Data provided by 53 of the 55 eligible States and territories participating in the financial assistance program has expanded the data base. Better accident reporting is being encouraged. Population and usage data obtained in a 1973 nationwide boating survey provided much needed new data. Criteria as to what constitutes an acceptable State boating safety program for participation in the financial assistance program are being refined. Additional analysis of existing data and a method to measure program effectiveness, however, are still needed. Such data is needed to determine the continuing need for the financial assistance program and where to apply scarce resources to have the greatest impact on reducing the number and severity of boating accidents.

CONCLUSIONS

The boating safety program is a complex program in which many different variables affect boating safety. In addition, many different agencies and organizations are involved in boating safety. Avoiding duplication of effort and determining the most effective use of functions and resources requires strong leadership from the Coast Guard. We believe that the Coast Guard could increase its leadership by providing more specific guidance to the States on developing and administering their individual boating safety programs. More specific guidance would, in turn, result in developing more standardized and uniform programs as mandated by the Federal Boat Safety Act of 1971.

In September 1975 hearings before the House Subcommittee on the Coast Guard and Navigation, Coast Guard officials recommended that the State boating safety financial assistance program be extended for 2 additional fiscal years to allow time to measure the program's effectiveness. The Coast Guard has obtained data which shows the States generally have initiated or expanded their recreational boating safety programs. However, information on the type, content, or results of their programs, which we believe is needed to determine whether the State programs are effective, was not currently available. The Coast Guard will not be able to evaluate the effectiveness of the State programs or its own boating safety program unless it obtains more information from the States on their boating safety education and enforcement programs. Implementation of the recommendations made in the following chapters of this report and the successful completion of ongoing efforts by the Coast Guard should be helpful in making this evaluation.

AGENCY COMMENTS AND OUR EVALUATION

In a September 28, 1976, letter (see app. I), the Department of Transportation stated that the recreational boating safety program has gradually built in momentum in the States until all but three States and one territory have approved boating safety programs. The Department believes that the financial assistance program has aided in the establishment of acceptable State programs. The Department points out, however, that the State programs are different and suggests that part of the differences in the Coast Guard district recreational boating safety program efforts can be attributed to the diverse approaches and commitments to recreational boating safety by the States.

We recognize that individual State commitments and approaches to their recreational boating safety programs

vary. We believe that the differences in State programs is another reason more complete information on their programs is needed. Although we did not specifically address the Coast Guard's allocation of resources to its districts in this review, better evaluation of State programs would help to identify specific strengths and weaknesses and would enable the Coast Guard to better determine the level of Coast Guard resources needed in each district.

The Department agreed that a need for more data exists and pointed out that the Coast Guard is doing a feasibility study of the districts management information needs and a survey of their automatic data processing capabilities.

CHAPTER 3

DEVELOPING EFFECTIVE BOAT

CONSTRUCTION AND PERFORMANCE STANDARDS

The 1971 act authorizes the Coast Guard to issue regulations establishing minimum safety standards for boats and associated equipment and to establish the procedures and tests required to measure manufacturer conformance with such standards. The Coast Guard has issued five regulations under this authority through fiscal year 1976. The first standards for loading, powering, and flotation were based on existing industry standards.

The law requires that each standard promulgated must be reasonable; address a boating safety need; and be stated, as far as practicable, in terms of performance. In the initial stage of developing a boating safety regulation, the Coast Guard researches to identify the underlying causes of accidents, define the problem, and develop a justification of need. One of the primary sources of information used in this research is the boating accident report. This report, however, provides limited information because only 5 to 10 percent of the nonfatal accidents are being reported, and those reports submitted are often incomplete, incorrect, or do not provide sufficient detail to be useful. In addition, not all Coast Guard districts have implemented the factory-visit program to make manufacturers aware of existing standards and check the manufacturers' compliance with those standards.

MORE COMPLETE DATA FOR DEVELOPING STANDARDS NEEDED

The 1971 act requires a uniform vessel casualty reporting system for all recreational vessels. Under Coast Guard regulations, all accidents or casualties which result in one or more of the following must be reported:

- Loss of life.
- Injury resulting in loss of consciousness, disability for more than 24 hours, or necessity for medical treatment.
- Physical damage to property exceeding \$100.
- A person disappearing from a vessel under circumstances that indicate death or injury.

The Coast Guard's Office of Boating Safety collects the reports and analyzes the statistical data to determine program direction to recommend preventative measures designed to reduce or prevent the recurrence of boating accidents.

Not all reportable accidents, however, are being reported. Coast Guard contacts with insurance companies indicate that only 5 to 10 percent of the nonfatal accidents are being reported. The Coast Guard estimates that, because fatalities receive much more attention, over 95 percent of all fatal accidents are being reported. The Coast Guard is currently working with insurance companies and State and local officials to increase the boating public's awareness of the requirement for submitting boating accident reports.

Boating accident reports and a summary of them, which the Coast Guard publishes annually, if used and analyzed correctly provide a data base for which overall boating safety may be evaluated. The summary may be used to trace the effectiveness of regulations or to identify boating accident trends. On the other hand, a detailed review of individual reports allows identification of the specific hazards associated with each accident.

Two research projects done for the Coast Guard's Office of Research and Development attempted to evaluate the need for additional regulations. The 1975 reports on the projects indicated the limitations of the boating accident reports. One research report stated that the current data base needs improvement. This report stated that the lack of data was a problem in most of the boating accident reports and about 35 percent of the reports did not have sufficient data to be useful. The research report stated that, in many cases, the data blocks were not filled in or there was no narrative and, in other cases, the data was contradictory. The report also stated that great care must be taken in interpreting and drawing conclusions from this data concerning the extent of the boating safety problem and suggested that training programs for State and local officials might be valuable in providing better accident investigation and review of accident reports submitted to insure their completeness.

The second research report pointed out that identifying the problem area and specific causes of accidents was difficult because the boating accident reports lacked detail and were inaccurate. The research results showed that about one-third of the accidents were coded incorrectly for accident classification. The report also stated that the classification of boat types used in the boating accident report was

too broad and misleading and did not reflect current use within the boating industry.

The Coast Guard has recognized the need for improving its data base and has established a committee within the Office of Boating Safety to recommend appropriate changes in data being collected, including the boating accident report. On the basis of this committee's recommendation, the coding system for the boating accident report was revised in 1974 to account for the complexity of determining accident causes by placing emphasis on identifying the probable causes of the accident.

The Coast Guard recognizes that obtaining reports on all boating accidents would not provide all data needed. In addition to more complete and accurate accident reporting, good accident investigations are also needed. In 1974 the Coast Guard funded a project to develop a boating accident investigator's manual, designed for law enforcement officers without prior boating training, to improve the quality of the reports submitted for boating accidents occurring on waters not subject to Coast Guard jurisdiction. The manual was completed in March 1976. The Coast Guard also provided its district boating accident investigators with an investigator's manual in June 1976. In addition, the headquarters Office of Boating Safety is currently in the process of revising its instructions and developing other guidance and policy directives for boating accident investigations.

We believe that these actions are positive steps toward improving the Coast Guard's ability to accurately identify weaknesses in the boating safety program through more complete and accurate data on boating accidents.

ADDITIONAL COAST GUARD EFFORTS TO VERIFY MANUFACTURER COMPLIANCE NEEDED

About 2,500 companies in the United States build recreational boats. These manufacturers build approximately 600,000 boats--12,000 different models--each year. Approximately 1,400 of these manufacturers produce 100 or fewer boats a year.

The Coast Guard assigns primary responsibility for compliance with its construction and performance standards to the manufacturers. The manufacturer is required to certify to his customer that each boat and associated equipment item to which standards apply complies with the applicable requirements.

To insure that the manufacturer certification is valid the Coast Guard (1) purchases boats and associated equipment items on the open market and tests them for standards compliance and (2) makes factory visits to determine manufacturers' awareness of standards and whether their boats are complying with the applicable standards.

The Coast Guard's original goal was to purchase boats at random from the showroom floor for testing. Due to budget limitations, however, the Coast Guard believed the random selection was impractical and now selects boats for testing on the basis of reports on possible defects noted by Coast Guard personnel, accident reports, and consumer complaints. As of September 30, 1976, the Coast Guard had tested 240 boats purchased on the open market, of which only 72 had passed all tests.

When a defect is found, the Coast Guard can either require the manufacturer to correct future production or, if the defect presents a major risk of personal injury to the public, require the manufacturer to conduct a defect modification campaign and correct those defects at the manufacturer's expense. As of October 20, 1976, a total of 342 defect notification campaigns, affecting about 370,000 units, had been initiated under this section of the act. Out of these 342 defect notification campaigns, 178 were initiated by the manufacturers, 56 were initiated as a result of the compliance testing program, and 108 were initiated as a result of other direct Coast Guard actions.

The factory-visit program's purpose is to provide on-site industry education to make all manufacturers aware of their responsibilities and to inspect manufacturers' products to insure that they comply with the applicable standards. The 1971 act provides that a person will not be subject to any penalty if he establishes that he did not have reason to know, in the exercise of due care, that a boat or associated equipment item does not conform with applicable standards. If a manufacturer were provided with the standards information during the factory-visit program, there should be few cases where a manufacturer would not be aware of the safety standards.

Coast Guard headquarters has established standards for the factory-visit program which require district officials to personally contact annually all manufacturers in their district and advise them of the laws and regulations affecting them. In one-quarter of the visits, the Coast Guard personnel should also examine the manufacturers' products for compliance and provide technical advice. None of the

districts we visited was meeting this standard. One district had visited 70 percent of the manufacturers during 1975. In another district, a new position for carrying out this function had been filled for approximately 4 months, and less than 25 percent of the manufacturers in that district had been contacted in 1975. In the third district, less than 1 percent of the manufacturers in that district had been visited in 1975 because no personnel had been allocated to carry out this function.

Because many manufacturers, especially the smaller manufacturers producing 100 or fewer boats annually, do not receive Coast Guard publications or the Federal Register in which proposed standards are published, the factory-visit program provides a means for making these manufacturers aware of their responsibilities under the act. In addition, the Coast Guard periodically mails boating safety circulars and related publications which contain regulations and pertinent standards-related information directly to known manufacturers. We believe that because many manufacturers may not be aware of new standards and the compliance testing tests only a small number of boats, the Commandant should take appropriate steps to insure that each district has an effective program of onsite industry education and inspection. An expanded, effective factory-visit program will identify more small boat manufacturers and their names can be added to distribution lists for Coast Guard technical publications and regulations.

CONCLUSIONS

Boating accident reports are not providing the Coast Guard with the data needed to identify the individual hazard factors associated with boating casualties and to justify the need for specific boat construction and performance standards. The Coast Guard has taken steps to improve public compliance with the reporting requirements and the data provided by the boating accident reports. We believe the Coast Guard should continue these efforts until it is reasonably assured that (1) the boating public is being informed of the boating accident reporting requirements and (2) the data being provided can be reliably used for its intended purpose.

Because of funding limitations the Coast Guard can test only a small number of boats purchased from dealer showrooms. Through an effective factory-visit program, Coast Guard personnel in each district can insure that manufacturers are aware of the applicable standards and check some of the manufacturers' products for compliance. In the three districts we reviewed, however, factory visits made by

district standards personnel in 1975 ranged from less than 1 percent to 70 percent of the manufacturers in those districts.

RECOMMENDATION

We recommend that the Secretary of Transportation require the Commandant of the Coast Guard to establish an effective factory-visit program in all Coast Guard districts.

AGENCY COMMENTS AND OUR EVALUATION

In its comments the Department stated that the boating accident report is not the remedy to all of the data problems associated with developing recreational boat construction and performance standards. It stated that indepth information from accident investigations and population/usage information from nationwide surveys was also essential for meaningful analysis. We agree that there is a need to supplement the information obtained in the boating accident report with data from other sources, but we also believe, as supported by Coast Guard studies, that improvements in the boating accident report are needed to insure its usefulness.

The Department also stated that resources had been sought which would support the resolution of many of the problems identified in the report, but that budgetary limitations had reduced or eliminated many of these requests. Specifically, the Coast Guard stated that the factory-visit program had not been fully implemented by all Coast Guard districts due largely to resource constraints. The Department stated that the factory-visit program was considered beneficial and would be expanded as resources become available.

We did not analyze the Coast Guard's allocation or utilization of its boating safety resources during this review. However, two districts regularly use other boating safety personnel in their districts to make factory visits. In addition, one district boating safety official told us that he planned to use other boating safety personnel in his district on a limited basis to make manufacturers aware of boat construction standards until sufficient resources became available. According to certain district boating safety officials contacted, other personnel have not been used for the factory-visit program because they would not have the expertise or training needed to answer technical questions. We believe that other available resources could be used to identify and locate boat manufacturers and make them aware of their responsibilities if such personnel were instructed to refer any technical questions to appropriate district boating safety officials.

The Coast Guard's organization gives the district commanders substantial flexibility in using their resources to carry out their responsibilities. Some districts are using other resources, such as the Coast Guard Reserve, to carry out functions for which regular Coast Guard resources are limited or unavailable. In those districts which do not have sufficient resources, we believe that the Commandant should encourage the district commanders to study the feasibility of using other resources available to them, including members of the Coast Guard Reserve and Auxiliary, to supplement existing resources or to carry out the factory-visit program on a limited basis until sufficient resources become available.

CHAPTER 4

DEVELOPING EFFECTIVE BOATING

SAFETY EDUCATION PROGRAMS

An estimated 48 million Americans went boating in 1974. Along with the growth in popularity of recreational boating has come a rise in the number of accidents and fatalities. The majority of boating accidents have one cause in common-- a lack of knowledge of the basics of seamanship by the boat operator or, at times, the passengers.

Over the 6-year period ended in 1974, 8,987 people died in 26,147 boating accidents. In those cases for which such data is known, only about 12 percent of the operators involved in fatal accidents had received formal boating education. In 1975, 1,466 people died in 6,308 accidents. According to the accident reports received by the Coast Guard, these accidents also resulted in 2,136 personal injuries and about \$10.4 million in property damages; however, as previously noted only a small portion of the nonfatal accidents are being reported. Therefore, the injury and property damage statistics shown above may be conservative.

In its boating accident investigator's manual, the Coast Guard states that although boating accidents can be caused by mechanical or environmental factors, most accidents are caused or aggravated by some kind of human failure. In addition, boating accident statistics from 1970 to 1974, as reported by the Coast Guard, show that operator error contributed to more than half of the reported recreational boating fatalities which occurred during that period. Coast Guard and other boating safety officials believe that responsible boating behavior can best be carried out through increased education of the boating public and an effective law enforcement program. Most people who go boating, however, have not taken a basic boating safety education course.

The Coast Guard has not developed minimum education criteria and does not generally provide specific guidance to the States for developing education programs. As a result, the States have developed programs which differ in both the type of education programs offered and the specific segment of the population to which their programs are directed.

MORE BOAT USERS NEED TO BE EDUCATED

A Coast Guard-funded nationwide survey of boating activity in 1973 showed that only 26 percent of the primary boat

operators 1/ had taken a boating safety course. Other studies show, however, that in a majority of cases a boat is usually operated by more than one family member.

In 1974 the education committee of the National Association of State Boating Law Administrators estimated that only 5 to 10 percent of the boating public had participated in boating education programs. This estimate was supported by a State boating safety official who said that a survey in his State showed that education programs offered by all organizations within the State over the last 10 years had reached less than 10 percent of the persons operating boats in that State.

Although a large number of organizations--including the U.S. Coast Guard Auxiliary; the U.S. Power Squadrons; the American National Red Cross, on a national level; and concerned voluntary organizations, in specific geographical areas--offer boating safety courses, most boaters have not taken a basic boating education course.

Because so many people are not being reached by voluntary organizations, Coast Guard officials believe that greater State participation in providing boating education programs is needed. In addition, the Coast Guard needs to evaluate the methods the States and other organizations use to encourage boaters to take education courses.

MORE GUIDANCE AND EVALUATION OF BOATING EDUCATION PROGRAMS NEEDED

The Coast Guard has not provided specific guidance to the States in developing their educational programs, and as a result, the States have developed programs which differ in the types of education offered and the specific segment of the population to which the education is directed.

No States now require adults to take a boating safety course before operating a boat although the Federal Boat Safety Act allows States to require boat operators to have valid safety certificates. Some States, however, do have restrictions on young boat operators. Currently 20 States and the District of Columbia have restrictions, which vary between jurisdictions, but generally require that to operate a boat a young operator possess a certificate from an

1/A primary boat operator is defined by the study to be the operator of a boating household who had the most operating time during the year.

approved boating course or be chaperoned by an adult. The age requirements also vary, but there are no restrictions in any State on persons 16 years of age or older.

Formal education courses, when offered by the States, are generally directed toward the young boater, while many of these States continue to rely on the various voluntary organizations to provide formal education courses to adults. In 1975 the Coast Guard identified 34 States offering some form of boating safety education in the States' secondary schools. In other States formal education courses may be taught by State boating safety personnel at various locations or by home study courses in which information is presented in programmed-learning texts distributed by the State boating safety organization.

The boating safety education programs developed or being developed by the States generally include one or more of the following methods for educating the boating public

1. formal instruction or training,
2. presentations to schools and various organizations,
3. distribution of boating safety information usually in the form of pamphlets, brochures, and other publications, and
4. use of media, such as radio, television, and newspapers.

The following table shows the major type of boating safety education programs offered by the four States included in our review:

<u>State</u>	<u>Type of instruction</u>	<u>Audience</u>
Ohio	Presentations	Schools and organizations
Michigan	Classroom course with published text	Persons under 16 years old
Louisiana	Presentations	Schools and organizations
	Course at summer camps with on-the-water training	Primarily persons under 16 years old
California	Pilot classroom course with on-the-water training	High school students

State boating safety officials in Ohio and California are establishing programs in colleges to train boating safety instructors who will be qualified to teach boating safety in the schools. In Michigan and Louisiana, boating safety courses are taught by State or local boating safety personnel. All four States also use either the mass media and/or special publications, such as pamphlets and brochures, to distribute additional boating safety information to the general public.

A 1971 Coast Guard-funded study categorized boating safety education methods as follows:

- Direct formal contacts, including public education courses, law enforcement boardings, and boat examinations.
- Indirect formal contacts, including displays and presentations at boat shows, speaking engagements, and exposure to safety patrols.
- Mass media contacts, including films, radio and television announcements, poster displays, special publication distributions, trade publications, and newspaper articles.

The study concluded that the direct contact techniques were the most effective means of improving boating safety knowledge and fostering development of positive attitudes towards boating safety.

Another important factor noted in the study was that a large number of recreational boaters--42 percent of those interviewed--were unaware that boating safety courses were generally available. The report also noted that many of those persons who were aware of course availability had not been motivated to take a boating safety course. The study suggested that indirect formal and mass media contacts could be used to make the boating public aware of course availability or to motivate those boaters aware of availability to take a boating safety course.

Although data collected by the Coast Guard indicates the States have generally initiated or expanded their educational efforts since 1971, the Coast Guard has not evaluated the State education programs to determine if the information or instruction is complete or the kind needed for persons to become more knowledgeable about the safe operation of boats.

In 1974 the Coast Guard developed criteria for determining State eligibility to participate fully in the

financial assistance program. The Coast Guard collected data from the States to determine their eligibility, including data on State boating safety education programs. The data collected, however, was limited to the number of people educated through State-sponsored classroom or home study courses, number of boating safety materials distributed, and an estimate of the number of persons reached by State-sponsored media safety messages. Such data did not provide any information on the quality of the education being provided. We found that the number of persons educated, as reported by the States, could range from the number of persons participating in formal education courses offered by the State to an estimate of the number of persons reached by a short presentation made on a specific boating safety matter.

We believe that the Coast Guard needs to establish minimum standards for boating safety education courses and to evaluate the content as well as coverage of State education programs. In November 1974 the boating education committee of NASBLA--recognizing the importance of the States having complete information on boating safety education to measure the effectiveness of their educational programs, pinpoint areas needing special attention, and assure good coverage--requested the Coast Guard to provide the individual States with an annual analysis of education in the individual States. They also recognized a need for the Coast Guard to provide overall direction in boating safety education to promote uniformity between the various States by establishing principles of course content for State boating safety education programs.

The Coast Guard and NASBLA are currently cooperating to develop a national minimum standard for boating education courses to use as an aid in measuring the adequacy of boating courses. In March 1976 the Coast Guard hosted a boating safety seminar to (1) bring together all boating safety education organizations, (2) open communications between these organizations, and (3) inform all participants of the educational impetus of each organization. Development of a minimum education criteria was one of the subjects discussed at this seminar. Coast Guard officials believe that such cooperative exchanges will facilitate the development of a minimum education criteria acceptable to all boating safety education organizations. In addition, the Coast Guard has funded a project to develop a recreational boating education certificate program for teachers and secondary school students.

CONCLUSIONS

The Coast Guard has taken some positive steps in boating safety education. However, if the Coast Guard is to

increase its leadership and measure education impact, more information must be obtained. More information is needed to evaluate the various boating safety education programs being offered by the States and other organizations to identify such factors as program content, teaching techniques, target population, and cost-effectiveness of the various education methods used. In addition, the Coast Guard should evaluate the methods the States and other organizations use to encourage boat users to take education courses. The Coast Guard needs to (1) provide the educational groups with information on the more effective programs contents, methods, and techniques and on weaknesses in their programs and (2) work with these organizations to coordinate their programs to insure that a greater number of boat users receive basic boating safety education.

RECOMMENDATION

We recommend that the Secretary of Transportation require the Commandant of the Coast Guard to (1) obtain more comprehensive information on the educational programs being developed and used by States and others, (2) evaluate the adequacy of the programs, and (3) determine areas in which additional boating safety education is needed.

AGENCY COMMENTS AND OUR EVALUATION

In its comments on the draft report, the Department of Transportation stated that the Coast Guard is pursuing an effectiveness methodology or risk management program through its recreational boating safety research and development program. The goal of this research project is to develop the necessary methods and analytical tools to accurately predict and assess the benefits and costs associated with regulatory, education, and enforcement programs. The Department stated that these methods will permit better selection of new approaches as well as determining whether existing approaches are meeting projection.

We agree that this research approach can be useful in developing minimum education criteria, evaluating educational effectiveness, and providing increased guidance to the States. However, this project, which began in fiscal year 1976, addresses only the areas of safe loading and collisions and is not planned to be completed until fiscal year 1979, a year after the current authorization for the State boating safety assistance grant program expires. We believe that the Coast Guard, therefore, should continue to develop minimum education criteria based on existing knowledge, which can be used to both provide guidance to and evaluate State programs, as discussed on page 20, until the results of this research can be implemented.

CHAPTER 5

INSURING UNIFORM BOATING SAFETY LAW ENFORCEMENT

Enforcement of boating safety laws on the Nation's waterways can be under Federal, State, or joint Federal-State jurisdiction. The Coast Guard's jurisdiction is limited to waterways designated navigable by Federal law. The States have joint jurisdiction with the Federal Government over certain of these waterways and sole responsibility for all other waterways within their territorial limits.

Congressional reports on the 1971 legislation stated that, because over a third of all recreational boating accidents and half of the fatalities occur in waters under sole-State jurisdiction, greater participation by the States in boating safety programs was required. The Coast Guard supported this position because (1) resources needed to carry out such an expanded Coast Guard responsibility would substantially increase expenditures and (2) it lacked jurisdiction over waterways not designated as navigable by Federal laws.

The Commandant has stated in congressional hearings that Coast Guard training of State and local boating safety officers results in increased uniformity among the States as mandated by the Federal Boat Safety Act of 1971. Since the 1971 legislation was enacted, the Coast Guard's major enforcement objective has been to develop the State's capabilities to assume enforcement responsibility in areas where Coast Guard facilities are not readily available. By encouraging the States to assume more responsibility, the Coast Guard would be able to concentrate on providing training for State and local enforcement officials. All State and local enforcement agencies, however, are not participating in this training. In addition, the Coast Guard has not developed a successful method for evaluating the effectiveness of the State's enforcement activities.

INCREASED TRAINING OF STATE AND LOCAL ENFORCEMENT OFFICIALS NEEDED

The Coast Guard has developed various programs to educate and train State and local enforcement personnel. The purpose of this training is to achieve more uniform enforcement of boating safety laws. However, not all State and local boating safety enforcement officials are participating in this training.

The Coast Guard provides training to State and local enforcement officials through its National Boating Safety School at Yorktown, Virginia, and courses provided around

the Nation by special teams of Coast Guard personnel called boating safety detachments (BOSDETS). There are currently 52 BOSDETS nationwide consisting of 3 or 4 Coast Guard enlisted men under the command of a district unit.

The National Boating Safety School offers courses covering general law enforcement policy and techniques associated with boating safety. Although designed primarily to educate Coast Guard personnel, the courses are open to a limited number of other people with an interest in boating safety. In fiscal year 1976, of the 200 persons who received training at Yorktown, 65 were State or local enforcement officers.

BOSDETS also provide, on request, similar training for State and local officials nationwide. The length and content of this training can be modified to meet the needs and desires of the agency receiving the training. Although the Coast Guard encourages this training and has estimated that since the act was passed BOSDETS have trained several hundred State and local law enforcement personnel, not all States have requested such training. For example, in Michigan all 200 State enforcement officers and 83 percent of the 350 county enforcement officers have received some Coast Guard law enforcement training. In contrast, Louisiana enforcement officers had not participated in this training but planned to begin participating in 1976.

The Coast Guard supplements the formal training through a limited, informal program of joint patrols with State and local enforcement officials on waterways under joint jurisdiction. In a joint patrol, both Coast Guard and either State or local enforcement officers carry out safety patrols in the same boat. Coast Guard headquarters officials encourage BOSDETS to participate in joint patrols to provide additional on-the-water training. However, Coast Guard headquarters has not established any guidelines or procedures on the frequency or extent of such patrols. Coast Guard district officials indicated that they also encouraged joint patrols but have not collected any data on the extent of this activity. Coast Guard district officials estimated that the number of joint patrols ranged from "substantial" to "less than 10 percent" of the total patrols.

The Coast Guard believes that its training of State and local officials results in increased uniformity in law enforcement among the States. Not all State and local boating safety officials, however, are receiving Coast Guard training. To insure uniformity, we believe that the Coast Guard needs to work with the States to establish goals and time frames for State and local enforcement officials to complete basic Coast Guard recreational boating enforcement training courses and needs to assist them in meeting these objectives.

Coast Guard officials believe that providing training to all State and local boating safety officials would be a tremendous task and stated that they hoped to train key State personnel who would in turn develop training programs within their States. We agree that such an approach could be an effective way of training State and local enforcement officials.

EVALUATION OF ENFORCEMENT ACTIVITIES NEEDED

The Coast Guard does not have a formal program to evaluate State and local enforcement activities. Instead it relies on individual contacts with State and local officials and on the results of its independent patrols.

The district boating safety officer's duties include maintaining close liaison with State boating law administrators to encourage (1) greater and continued uniformity in boating laws, (2) a higher degree of reciprocity and agreement between jurisdictions, and (3) close cooperation between the States and the Federal Government in developing, administering, and enforcing Federal and State laws. Boating safety officials in the three districts we visited stated that they had frequent informal contacts, usually by telephone, with boating safety officials in each State for which the respective Coast Guard districts are responsible and generally arranged to have at least one formal meeting a year with boating safety officials in each State at which mutual problems and plans could be discussed. Although such contacts provide district boating officials with a basis for making subjective judgments about the quality of State enforcement activities, Coast Guard procedures do not provide for obtaining any specific information which could be used to evaluate objectively the State's programs when such contacts are made.

The other method used to evaluate State enforcement activities is independent safety patrols performed on joint-jurisdiction waters. In addition to evaluating the impact of State enforcement activities primarily on the basis of whether boat operators are complying with the boating safety laws, BOSDETS carry out these safety patrols to enforce the boating safety laws and educate the boat operator.

The Coast Guard's enforcement philosophy is to educate rather than penalize. It believes that safe boating is best enforced through education. For many boat operators the primary source of information on boating laws is the enforcement officer. Coast Guard instructions for safety patrols point out that these patrols are an excellent means of directing the boating public's attention to the safe boating educational courses various voluntary groups provide.

The instruction provides that primary enforcement effort be placed on boats operating in obvious violation of equipment requirements or in disregard for the safety of others. During the safety patrol, BOSDETS board such boats and inspect the boat and equipment to determine if they are in compliance with safety laws. When violations exist, BOSDETS issue a warning or notice of violation, some of which result in fines being assessed. During 1975 the Coast Guard boarded 30,000 boats, issued 38,000 warnings and violations, and assessed over \$10 million in penalties.

Although this activity enables Coast Guard to use its limited resources to concentrate on obvious violators, it does not provide for a systematic evaluation of the impact of State and local enforcement activities. We believe, however, that two Coast Guard activities carried out by BOSDETS have the potential to provide for a more systematic evaluation.

First, the Coast Guard implemented a procedure in 1974 for boarding a random sample of boats in each State to determine the boating public's rate of compliance with boating safety laws and regulations and to evaluate the effectiveness of State boating law enforcement activities. According to the headquarters instructions, the districts were to board 400 randomly selected boats in each State, the sample boardings to be apportioned according to the density of boating within various parts of the State. Because the boardings were to be random, the Coast Guard hoped to be able to evaluate not only operator compliance but also education program effectiveness within each State. After analyzing the information obtained from the districts, however, the Coast Guard found that no valid conclusions could be drawn. Coast Guard headquarters is currently in the process of revising the instructions to improve the quality of information the districts obtained and submitted.

Second, the informal program of joint patrols with State and local enforcement officials, if systematically carried out in all districts through a formal program, could serve not only as a supplement to formal training, as discussed on pages 22 and 23, but also as a basis for evaluating the quality of the existing enforcement activities. Such an evaluation could (1) provide feedback on the effectiveness of any prior formal or informal Coast Guard training and (2) identify areas where additional formal education or on-the-job training of enforcement officials is required.

CONCLUSIONS

Through the State boating safety assistance grants, the Coast Guard is attempting to maximize the States' role in

boating safety enforcement on waters of joint Federal-State jurisdiction. Short of massive and costly direct Federal involvement in these activities on all waters, active involvement on the part of the States will be necessary to achieve the objectives of the Federal Boat Safety Act. The State programs which have been or are being developed and implemented under the act, however, must be responsive to the objectives of the act.

The Coast Guard has made progress in training State and local law enforcement officers. Although this training can be provided locally upon request, not all agencies involved in boating safety enforcement have requested it. If the Coast Guard is to further increase uniformity in law enforcement among the States, it needs to take steps to insure that State and local enforcement officials are receiving basic Coast Guard recreational boating safety enforcement training.

In addition, the Coast Guard must continue to strive to develop methods for evaluating the effectiveness of State enforcement activities. Systematic programs for (1) the random boarding of boats in each State and (2) increased joint patrols throughout the Nation would help to provide the Coast Guard with more information on State enforcement activities to identify areas in both education and enforcement in which weaknesses exist and to direct future programs.

RECOMMENDATION

We recommend the Secretary of Transportation require the Commandant of the Coast Guard to work with the States to:

- Establish goals and time frames for State and local enforcement officials to receive basic Coast Guard recreational boating enforcement training courses and to assist the States in meeting these goals.
- Increase joint patrols with State and local officials under a systematic nationwide program.

AGENCY COMMENTS AND OUR EVALUATION

The Coast Guard stated in its comments that it strongly encourages the training of law enforcement officers at the State and local level and joint-patrol efforts but that attempting to force quotas on the States may be considered undue interference with State prerogatives. Although we agree that the Coast Guard should not force quotas on the States, we do believe that goals and time frames are necessary to have some measure of progress being made. We

believe that the Coast Guard should work with the States in establishing mutually agreeable goals and time frames and in establishing a method of measuring their accomplishment.

CHAPTER 6

SCOPE OF REVIEW

We reviewed the Coast Guard's recreational boating safety program to determine the effectiveness of its efforts to achieve the objectives of the Federal Boat Safety Act of 1971. We made our review at Coast Guard headquarters in Washington, D.C., and three Coast Guard district offices-- the Eighth District, in New Orleans, Louisiana; the Ninth District in Cleveland, Ohio; and the Twelfth District in San Francisco, California.

During this review, we (1) reviewed the recreational boating safety legislation and the Coast Guard regulations, policies, and procedures established to implement the legislation, (2) reviewed pertinent Coast Guard documents and records, and (3) had discussions with Coast Guard officials responsible for carrying out the recreational boating safety program. We also met with boating safety officials of the States of California, Louisiana, Michigan, and Ohio and representatives of State, county, and local agencies and organizations that provide boating safety education courses.

PRINCIPAL OFFICIALS
RESPONSIBLE FOR ADMINISTERING
ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF TRANSPORTATION</u>		
SECRETARY OF TRANSPORTATION:		
William T. Coleman, Jr.	Mar. 1975	Present
John W. Barnum (acting)	Feb. 1975	Mar. 1975
Claude S. Brinegar	Feb. 1973	Feb. 1975
John A. Volpe	Jan. 1969	Feb. 1973
<u>UNITED STATES COAST GUARD</u>		
COMMANDANT:		
Adm. Owen W. Siler	June 1974	Present
Adm. Chester R. Bender	June 1970	May 1974
CHIEF, OFFICE OF BOATING SAFETY:		
Rear Adm. David F. Lauth	July 1975	Present
Rear Adm. John F. Thompson	Aug. 1973	June 1975
Capt. James H. Durfee (acting)	June 1973	Aug. 1973
Rear Adm. Austin C. Wagner	July 1970	June 1973

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