



COAST GUARD

PROCEEDINGS OF THE MARINE SAFETY COUNCIL



BOATING SAFETY ISSUE

NATIONAL SAFE BOATING WEEK, 1971

By the President of the United States of America

A Proclamation

More Americans each year are choosing boating as the ideal way to relax with their families and friends. All too often, however, what starts out as a pleasant cruise ends in tragedy because boatmen fail to teach their families to swim, fail to properly equip their craft with life preservers and other protective devices, or fail to instruct their passengers on the use of such devices prior to a boating cruise.

Every year, about 1,300 lives are lost in boating accidents. These fatalities can be reduced and boating made more pleasurable if those who engage in it will emphasize boating safety rules.

Recognizing the need for that emphasis, the Congress, by a joint resolution approved June 4, 1958 (72 Stat. 179), has requested the President to proclaim annually the week which includes July 4 as National Safe Boating Week.

NOW, THEREFORE, I, RICHARD NIXON, President of the United States of America, do hereby designate the week beginning July 4, 1971, as National Safe Boating Week.

I urge all who use our waterways to acquire those skills essential to their own safety and that of others and to apply them carefully.

I also invite the Governors of the States and the Commonwealth of Puerto Rico to provide for the observance of this week.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of January, in the year of our Lord nineteen hundred and seventy-one, and of the Independence of the United States of America the one hundred and ninety-fifth.

RICHARD NIXON.

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Admiral C. R. Bender, USCG
Commandant

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COVERS

FRONT COVER: A Coast Guard boating safety detachment (BOSDET) is on the alert to prevent unsafe operation of pleasure boats.

BACK COVER: Flipper the Skipper offers a timely message for the boating season.

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The membership may be expanded by the Commandant or Chairman, Marine Safety Council to deal with special problems or circumstances.

T. A. DeNardo, Acting Editor

RECREATIONAL BOATING AND THE COAST GUARD

ADM A. C. WAGNER, USCG

Chief, Office of Boating Safety, Headquarters

The Coast Guard's Office of Boating Safety has been through an exciting year of progress and change.

Many of these changes have been the direct result of the continually rising death rate and the impending passage of the Federal Boat Safety Act of 1971.

The unfortunate number of fatalities of boatmen is the very basis for the Office's existence. Although the accident and injury rates were lower last year, deaths and property damage again increased. The efforts of the Office must be concentrated to reverse this trend.

Some steps have already been taken in order to reduce these figures.

One of the tools that will aid in this effort is the Federal Boat Safety Act. When the bill becomes law, the Coast Guard will be authorized to establish safety performance standards in the manufacture of recreational boats and accessory equipment.

In addition, two studies have been completed to aid in the resolution of inherent problems of boating safety. One study deals with defining our "customer" i.e., who and where the boatmen are and the other study suggests the best techniques to use to educate the boating population.

In the field of promotion, exhibits and films have been produced for national distribution and a contract has been let to provide us with professional assistance and advice for future safe boating promotional efforts.

We have increased the number of Coast Guard boating safety detachments which patrol the Nation's waterways. To train these men and the increasing number of State personnel interested in our program, we have increased the length of our safe boating course and the number of locations of boating safety instructor schools, and in the future, it is planned to establish a permanent year-round school to teach the precepts of boating safety.

The Coast Guard Auxiliary, an organization dedicated to the concepts of boating safety and closely allied with the Coast Guard, has passed the 31,000 mark in membership. More boating safety courses, and courtesy motorboat examinations than ever before were performed by this group. They are updating their courses to better accommodate today's boatmen, and increasing their efforts to reach a larger percentage of the some 45 million persons who use recreational boats each year.



Other Offices within the Coast Guard and other Federal and civilian organizations are also working on projects to make boating a safer sport. Studies designed to improve the wearability and efficiency of lifesaving devices, better and more reliable radio communication and weather dissemination are also being undertaken.

The field of boating safety is challenging and many faceted. We feel that we have the tools to make boating safer while still allowing it to retain its many pleasurable characteristics. †

BOAT SAFETY STANDARDS UNDER THE FEDERAL BOAT SAFETY ACT OF 1971

Boat safety standards developed under the authority of the proposed Federal Boat Safety Act of 1971 will establish a minimum baseline of safety. Since 90 percent of the recreational boating fatalities are a result of drowning and fire and explosion, standards for fuel and electrical systems, ventilation, weight and horsepower capacity, and flotation will be the first ones to be considered.

These will be performance standards whenever possible which is in contrast to many of the construction type standards and regulations promulgated by the Coast Guard for the merchant marine industry.

The USCG standard lifeboats for merchant vessels (46 CFR 160.035) provides a good parallel with the recreational boat standards we expect to promulgate.

For example, the performance requirements specified in the general requirements for lifeboats deal with maneuverability, stability in a seaway, weight capacity, and flotation. In one form or another, most of these performance requirements will be found in the new recreational boating standards.

The lifeboat standard, however, goes much further than the performance standard. Such things as plating thickness, riveting, welding practices, and "construction" requirements are all detailed. Boating safety

standards are not likely to require such practices. They will leave such details to the designer and manufacturer so long as the finished product meets the performance standard.

Each boat standard will include a detailed set of test procedures which will inform the manufacturer how the Coast Guard will test the product for compliance with the standard. These test procedures are merely an extension of the performance standards and ideally will include no specific construction requirements.

In some cases, through our testing program or engineering judgment, we might find that certain construction details (e.g., placement of flotation material) will meet the performance standard. This fact would be published as a design guideline serving to inform the manufacturer that this is one of several possible ways of meeting the performance standard. It does not, therefore, restrict him from using other satisfactory methods of construction.

One final difference in the boat standards program. The Coast Guard will not be "approving" recreational craft. Compliance with the standard will be the manufacturer's responsibility and he must, by the law, certify his compliance to the consumer. The Coast Guard will detect possible violations of the standard by purchasing boats and associated equipment in the open market and

actually testing them against the criteria. The "approval" system, however, will be continued for a time being, in cases where we presently approve equipment (fire extinguishers, lifesaving devices, and boat fire flame control).

SECTION 16-16A OF BILL

One of the sections in the Federal Boat Safety Act of 1971 that is of particular interest to the Merchant Marine is the one regarding the rendering of assistance.

Under the provisions of this section, the operator of a vessel involved in an accident is required to render all practical and necessary assistance to other persons involved in the accident provided that such assistance will not further endanger his own vessel.

Persons who do render assistance, moreover, without objection of the person assisted may not be held liable for civil damages in instances where they provided aid in a reasonable and prudent manner. Such aid includes assistance which provides or arranges for salvage, towage, or medical treatment.

¹ "Vessel" includes every description of watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation on the water.



SAFE BOATING IS NO ACCIDENT

PREVENTION AND CURE

Capt. J. B. Hayes USCG

THE HUMANITARIAN cornerstone of our collective endeavor is saving life and property at sea. Nothing can be more dramatic and satisfying than rescue of a foundering ship's crew from the storm-tossed sea. We all pride ourselves on being the hardiest of men with the stoutest boats ready to face the angriest seas. We bring some back who are certain they will never see land again. We are a success.

But are we really? Are we using our resources to save the maximum number of lives? Or can some resources be more effectively applied in preventing the search and rescue incident or accident rather than to the more costly effort of rescuing life and property at sea? Is keeping a boatman from getting into trouble as important as rescuing him after he gets into trouble?

THE CHANGING SCENE

When most rescue organizations were being established, the principal customers for rescues were crews of all merchant ships and fishing boats. Few people went to sea in boats for pleasure, and these few were, in general, knowledgeable yachtsmen. In recent years, several factors have increased the number of commercial vessels requiring assistance. Improved communications and coordination of effort, such as the Automated Merchant Vessel Report (AMVER) System, have reduced the SAR problem for merchant vessels. The truck and the train have eliminated many coastal voyages for freight. Pollution and over-fishing have forced fishing fleets to deeper waters in more remote parts of the world. Technological advances have helped to convert seamanship from an art into a science for the professional operator. These operators don't often get in trouble or

A paper presented at the XIth International Life-Boat Conference May 17-20, 1971.

they get into trouble on such a grand scale that the assistance cases tax the immediate capability and range of rescue forces.

This is not the case for recreational boatmen. They are now much more numerous in the United States than professional operators and widening the gap every minute. Other nations are experiencing a similar trend. Many of these boatmen are untrained, ill-equipped and underfinanced. They go to sea because it is fun. While some of these amateurs are as capable as the most qualified professionals, most are not. They want to have fun and be safe if someone would just show them how.

INTERNATIONAL CONCERN

What role does prevention play then, in mankind's constant struggle to aid mariners in distress? At the recent International North Atlantic Air and Surface Search and Rescue Seminar held in New York, during October 1970, a Search and Rescue Safety Programs workshop was undertaken. This was the first time that an international conference had explored the potential impact of preventive safety programs on recreational craft search and rescue demands. Equally important was their recognition that effective preventive measures could substantially reduce boating accidents. Certain of the conclusions and recommendations of that conference provide an interesting background for further discussion of the questions posed.

The scope of safety programs dealing with recreational craft differed markedly among nations present. However, it was found that recreational boat search and rescue is a

major problem requiring preventive measures to reduce some of the demand on search and rescue forces. Voluntary measures are presently being undertaken by many countries, but direct government regulatory action is rarely employed. A number of government representatives indicated that some study is being given to this problem with a view to possible government action. It was generally concluded that any search and rescue effort represents a preventive safety program failure.

There was general agreement that a need definitely exists now and in the future to exchange safety information. In that regard, the workshop recommended that measures be taken to coordinate safety programs on a more formal and regular basis than the infrequent SAR seminar. It also recommended that consideration be given to conducting such international coordination through the existing United Nations Intergovernmental Maritime Consultative Organization (IMCO).

It was brought to the attention of members of the workshop that the old international signal "MIK" had been discontinued as an emergency signal in the International Code of Signals. This was discussed briefly with the conclusion that there is a need for recreational craft on ocean voyages to be included somehow in the overall safety reporting system. The workshop recommended that a new international signal be proposed through IMCO for use by recreational craft on ocean voyages. This signal would request the sighting vessel to report the position of the recreational craft to the AMVER System. Although the situation would not be of an emergency nature, the mere fact that the recreational craft were on an ocean voyage could lead to such an emergency, and reporting on a routine

basis would aid in reducing the extent of the required search phase.

The workshop discussed emergency position indicating radio beacons. It concluded that with respect to recreational craft, these devices are expensive and have certain frequency problems. A strong research effort to resolve these difficulties was recommended, with consideration to be given to making their use mandatory on ocean voyages.

Survival equipment and safety equipment on recreational craft were also discussed at length. Consideration was given to encouraging the use of rental radio and navigational equipment on ocean voyages. Other devices, some of which are quite simple—such as distress flags and other visual identification aids—could be carried by all recreational boats. It was pointed out that there are some modern techniques in fabric design and color whose application could be most useful in identifying a distressed unit.

No nation present at the workshop required the submission of voyage plans to any formal governmental group. However, it was agreed unanimously that they are desirable on a voluntary basis and should be encouraged to a maximum degree. Some countries indicated that governmental agencies within their country accepted voyage plans. Closeout of plans was clearly important and did not appear to cause too great a problem among those who accepted them.

The final topic discussed by the Workshop was safety standards. No country present had a satisfactory standards program. Many are working on various aspects of the safety standards problem. In the future, effective safety standards programs could have a significant impact on boating safety.

In general, it was agreed by those nations participating in the workshop that as the recreational craft assistance problem increased in scope, a combination of voluntary and mandatory preventive measures would become necessary.

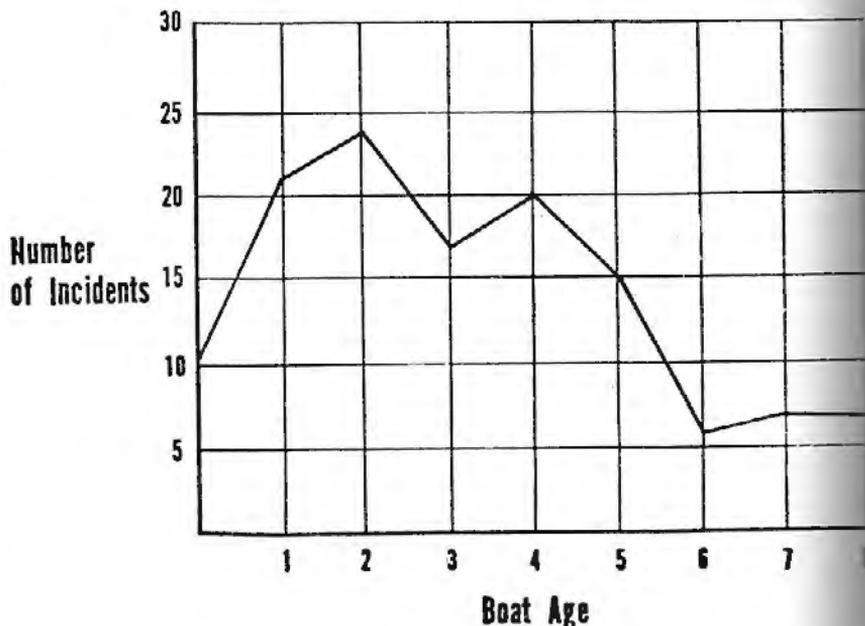


Figure 1.

BREAKDOWN

"Short Beach Coast Guard, this is the boat Sad Sack—over". "Sad Sack, this is Short Beach Coast Guard—over". "This is the Sad Sack. I'm broken down about three miles east of the sea buoy. Will you send assistance?" "Sad Sack, this is Short Beach Coast Guard—". This type call from recreational boatmen occurs in varying degrees of emotion, danger and ineptitude more than 30,000 times a year in the United States—not always from those so fortunate as to have radio communications. Analysis of these assistance cases shows that about one-half occur because of some system breakdown—engine, steering, electrical, fuel, for example.

In order to explore this problem further, the U.S. Coast Guard recently undertook a study of these incidents in the Seventh Coast Guard District, centered in Miami, Fla. Responses were received from 230 boatmen assisted whose boat had "broken down." They reported 361 mechanical and structural failures, of which 314, or 87 percent, involved the craft's machinery or electrical system.

Analysis of reported data shows that:

a. Boats and engines involved in the mishaps were for the most part less than 6 years old (see fig. 1).

b. Cooling system and shaft problems accounted for almost one-third of the machinery casualties.

c. Coil and starter failures accounted for 37 percent of the electrical casualties.

d. Only 4 percent of the cases involved sail or auxiliary sail boats.

e. Hull failure was not a major problem.

f. Steering system failures were responsible for but 10 percent of the casualties.

Clearly, preventive measures could be taken which might improve reliability of boat systems. Secretary Volpe of the U.S. Department of Transportation said in support of a proposed Federal Boat Safety Act which would authorize mandatory Federal minimum safety standards:

I can perceive two distinct cost benefits from the Department's legislative proposal: An eventual reduction in search and rescue demand resulting from safer, more reliable boats; and an avoidance of substantial marine law enforcement

costs for Federal marine police activity. Neither of these can be specifically quantified but successful preventive measures tend to reduce the need for costly curative action in safety programs.

Minimum safety standards will improve system reliability and thus substantially reduce the demand for additional search and rescue resources. This could then provide us with the capability to absorb a steadily rising SAR workload, which increased 8 percent from 1967 to 1968. Substantial additional benefits would also occur from reduction in accidents.

SAR workload has continued to increase in the 2 subsequent years, rising to an estimated 50,000 cases in 1970.

ACCIDENTS

There is growing evidence that the relatively constant 4,000-plus boating accidents reported in each of the last few years is a small fraction of the total number occurring. For example, a recent survey to develop a boating population data base disclosed that only an estimated 5 to 10 percent of property damage accidents involving more than \$100 damage were being reported in the survey area. If this is true nationwide, property damage in 1969 would have greatly exceeded the reported \$6.2 million.

This appreciable volume of accidents naturally gives rise to questions concerning means to reduce or mitigate their impact on human life and the economy. Two specific solutions are apparent: Prevent the accident from occurring, or rescue the victim before he becomes a statistic. With respect to the latter approach, Figure 2 is a classic appraisal of the

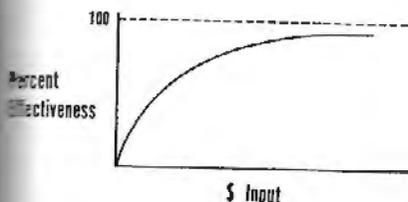


Figure 2.

effectiveness of search and rescue programs versus resource inputs. Clearly, at some point of investment, there is no longer sufficient increase in effective-

tiveness to warrant additional expenditures.

Recognizing this problem, the Coast Guard in 1969 conducted a detailed analysis of reported recreational boating fatalities to determine where on this curve of effectiveness our search and rescue program might be. Table 1 examines the fatalities which were reported on navigable waters of the United States.

TABLE 1. *Recreational boating fatalities—1967*

Recreational boating deaths with investigations complete.....	743
Suicide or homicides.....	5
Natural causes.....	16
Refuses assistance.....	5
Tried to swim ashore when those remaining with the boat survived.....	20
On scene reaction where accident was sighted by personnel in a boat which responded immediately but was unable to effect the rescue.....	233
Remote areas where the existence of the emergency was not known prior to death.....	218
Witness notified rescue agency, but death occurred before rescue force arrived.....	185
Miscellaneous or unknown.....	61

The conclusions of the SAR Criteria and Force Analysis study are illuminating:

Given current technology in alerting devices and given the reluctance of persons to continuously wear presently available life support devices, it was evident that essentially all of the deaths occurred in incidents where an after the fact reaction could not effect their rescue. Either the persons succumbed at the moment of the accident, the death process was irreversibly started in the accident, or death occurred prior to a knowledge of the incident by anyone. Since the evaluation was somewhat subjective, it was verified by two independent reviews of the files.

The thrust of this analysis was to show that the existing level of SAR readiness was producing as high an effectiveness as could be expected. Until changes in technology occur, new resources should largely be directed toward causing these changes, and toward accident prevention programs rather than toward increasing SAR forces (except to compensate for growth in demand).

Since further investment of SAR resources to reduce accidents is of de-

creasing cost-benefit, our attention turns naturally to preventive measures.

SAFETY PROBLEM

There are numerous problems that hinder safe recreation by boats. They include the lack of adequate:

1. Safety standards for boats and associated equipment, and of educated boatmen knowledgeable in the ways of the sea. In many cases, the lives of search and rescue forces are risked to save those who never even thought of the danger to them.

2. Equipment with which to transmit distress messages, such as radio and electronic locating devices, resulting in delayed search and rescue efforts until the boat is reported overdue at its destination.

3. Survival equipment to keep the occupants of the boat alive after a casualty until search and rescue forces have had a reasonable chance to assist.

4. Voyage plans (itinerary) left with a responsible individual or organization who can alert search and rescue forces when appropriate.

5. Adherence to the voyage plan or the inability or unwillingness to notify the voyage plan holder of changes.

6. Environmental safety information, most notably existing weather conditions.

Preventive programs to correct these inadequacies are basically aimed at improving safety of the boat and its associated equipment, safety consciousness of the operator and passengers, and a greater awareness of dangers inherent in the environment. Every search and rescue case can be regarded as a failure to apply these preventive measures adequately.

ENGINEERING STANDARDS

There is a growing awareness that the boatman, who is so often listed as the cause of SAR incidents (the aircraft "pilot error" concept), is often only the last link in a chain of circumstances leading to the accident.

The need for good safety standards for boats and equipment to break this chain and prevent the accident or reduce its consequences is well established. Governments are interested. The United States' proposed Federal Boat Safety Act previously mentioned will provide broad standards-making authority. What do we plan to do with this new authority?

Analysis of our boating statistics reveals several areas where improved safety standards can materially reduce accidents. For example, in 1969 falls overboard and capsizings were a major factor in 69 percent of all reported boating fatalities. As one might expect, drowning was the immediate cause of death in most instances.

Safety standards to deal with this problem fall into two broad categories: Those acting to prevent the accident; and those whose purpose is to mitigate the results once the casualty has occurred. In the former category, load capacity and stability standards would tend to reduce capsizing and falls overboard, while in the latter category positive boat flotation and lifesaving device standards would mitigate the effects of an accident. At the same time, effective preventive standards would directly reduce demands on SAR resources; effective mitigating regulations would increase the likelihood of rescue before death, and correspondingly improve SAR effectiveness.

These same principles can be applied to another major factor in boating accidents—fuel fires and explosions. Again in 1969, this type of casualty was responsible for about 30 percent of all reported property damage, and was second only to collisions in causing injuries. Safety standards for fuel, electrical, and ventilation systems promise to greatly reduce this problem, while firefighting equipment requirements can mitigate the results of the casualty.

Although governments are not yet working directly to develop international safety standards; industry, through the International Council of

Marine Industry Associations (ICOMIA), is working toward a set of advisory safety recommendations which its members can both use and later present to their respective governmental administrations. Organized yachtsmen are working toward consistent safety equipment requirements for offshore racing. A special subcommittee of the Offshore Rating Council is especially active in this regard. It has active representation from the major yacht racing organizations including the Royal Ocean Racing Club and the North American Yacht Racing Union. With this high degree of interest from many sources, both private and governmental, it is obvious that some degree of overall coordination of effort will be necessary in the future. The recommendation of the International SAR Seminar is likely to bear fruit.

EDUCATION AND ENFORCEMENT

While it is possible to deliver a safer boat to the boatman, this is only part of the solution to accident prevention and SAR reduction. The United States has a most effective organization—the Coast Guard Auxiliary—whose purposes, activities, and programs were described in a paper presented to the 10th International Life-Boat Conference in 1967. Suffice it to say here that this voluntary organization is a major asset to the Coast Guard's prevention and cure operations. Through courtesy motorboat examinations and public education courses, Auxiliarists make a major contribution to improving safety of the boatman. Yet in 1970, they also saved over 500 lives and assisted about 12,000 boatmen.

A similar organization in other nations could become a close ally of voluntary rescue organizations or a principal adjunct of governmental departments responsible for boating safety or search and rescue. Such a voluntary group could assist in fundraising for voluntary rescue services, conduct preventive education programs and otherwise assist the

boatman beset by wind and sea. Alternatively, existing volunteer institutions and societies might well expand their functions to include preventive measures that could reduce demand on overworked rescue forces.

A recently completed study of the relative effectiveness of various education programs points out that a boatman's attitude is a crucial factor in the extent to which he may be motivated by safety education, or may respond to safety regulations. In order to influence him to operate his boat safely, education courses must therefore, impart a positive attitude toward safe operation. Hence voluntary education programs are more likely to evoke such a response than are mandatory ones, such as licensing.

Unfortunately, there are the boatmen who endanger the lives of others and themselves in spite of safety boats and safety education. Strict enforcement of safety laws and adequate punishment may be the only preventive solution for this group. In this regard, the Coast Guard is conducting a pilot project to evaluate whether compulsory education requirements have a positive impact on boatmen cited for unsafe practices. In one Coast Guard District, some boatmen are being offered a Coast Guard Auxiliary education course in mitigation of a boating violation penalty assessment.

CONCLUSIONS

The need to search for and rescue mariners in distress will always be a public charge, whether governmental or private organizations respond to the challenge. Indeed, the high value placed on human life and the well-being of the individual is nowhere better expressed than in the private public investment of time and resources to effect rescues at sea. It is a central theme which motivates all of all rescue agencies. Coordination of resources in large sea areas is essential under pressure of limited assets.

Recreational craft are increasing in such numbers, though, that

rescue organizations are already taxed beyond their capability to absorb the burden of boatmen in need of assistance, many of whom it is found later are in no immediate danger. Additional capital plant and personnel to respond to this problem are both costly and increasingly ineffective as reaction time becomes crucial. At least part of the solution lies in improved preventive measures directed toward making the boat, boatman and the environment safer.

With respect to boating accidents,

at some level of operation it is no longer practical or possible to reduce fatal accidents further through rescue efforts. Rather, preventive safety programs again offer the greatest potential for improved safety. Effective safety standards for boats and their associated equipment can aid in reducing the number of accidents and can mitigate the results of those which do occur. Enforcement can be reserved for the flagrant violator of the law. Finally, education of the boatman is a vital element, particularly as manifest in such voluntary

organizations as the Coast Guard Auxiliary. He must be made aware of the potential hostility of the marine environment. He must be motivated to insure that his boat and his passengers are not placed in jeopardy. In addition, he must be provided with a safe boat and equipment. In many instances this would tend to override human error or an unexpected change in environment, and thereby prevent a casualty. At the same time, care must be taken not to infringe on the freedom and fun that only open water can afford. ‡

EDUCATION STUDY OF THE RECREATIONAL BOATMEN

A study has just been completed on the effectiveness of boating education programs.

The Southwest Research Institute, of San Antonio, Tex., used a variety of techniques in analyzing the Coast Guard's educational program. Questionnaires and face-to-face interviews were given to a statistical sample of Texas boatmen provided by the Texas Department of Parks and Wildlife. Also tested was the effectiveness of Auxiliary Boating Safety Courses, a boating safety detachment (BOS-DET) presentation, a single concept boating safety film, and a programed learning text.

This statistical sample was divided into inland and coastal target areas. Each received an input of boating safety messages from a specific media (TV, radio, newspaper, or pamphlets). Each area was pretested and post-tested in order to discover if any learning took place after the Boating Safety messages were disseminated.

A personality test was also given to a group of boatmen to discover if the personality makeup of the boating population is any different from the nonboating population. All these tests were given in the fall of 1970. Texas was chosen for the sample area

since it has a large boating population where both inland and coastal boating takes place.

Results were presented to the Coast Guard's Office of Boating Safety, in draft form, on January 31, 1971. Preliminary review of the findings of the report indicate the following:

It appears that mass media is not the approach to use to educate boatmen. The learning factor is very low, in respect to the cost involved.

Coast Guard Auxiliary courses were found to be the most cost-effective method to teach boatmen safety rules, mainly due to the donated time of the instructors. The programed learning text was also quite successful in teaching high school students boating safety. Whether it would work for the general boatmen cannot be determined without further research. The BOS-DET presentation was found to be effective, but not to the extent of the classroom and programed text learning situations. The single concept safety film was not found to be effective.

Further information gleaned from the study was: (1) 42 percent of the sample of Texas boatmen were not aware that boating safety courses

were available; (2) 60 percent of the boatmen who knew of the availability of the courses did not take advantage of them; (3) the personality of the average boatmen is generally the same as the nonboater's; (4) boatmen want and need better weather information; (5) 58 percent of the sample felt boatmen should have an operator license; (6) the average boatman needs to be educated due to his lack of knowledge of even the most basic safety rules and regulations; and (7) generally, boatmen are safety conscious, yet unaware of the proper boating procedures.

The study provides the Coast Guard a much better insight into what is the best way to educate the boatmen. Still to be determined, however, is how to get the boatmen to take a boating safety course or read a programed learning text.

It appears necessary to use mass media to inform boatmen of the availability of educational programs and to motivate them to partake in these programs.

In summary, to be at all effective with mass media, a multimedia approach must be used, along with the availability of high quality promotional material. ‡



AUXILIARISTS ARE always willing to donate their time and facilities to aid fellow boaters in any way possible.

THE 1970 AUXILIARY STORY

For the U.S. Coast Guard Auxiliary, 1970 was a year marked by an increase in membership and operational activities. A short look at the Auxiliary and its accomplishments will serve to illustrate the fact that the organization has moved ahead on all fronts.

As a member of a volunteer organization dedicated to recreational boating safety, the Auxiliarist devotes much time and effort to helping the Coast Guard carry out its mission of promoting boating safety and fostering a wider knowledge of the laws, rules, and regulations pertaining to pleasure boating.

Membership growth was accompanied by an expansion and intensification of Auxiliary activity. The three basic programs—Public Education; Courtesy Motorboat Examination (CME); and Operations—were marked by important advances in 1970. Public education courses familiarize boaters with, among other things, recommended safety procedures and Federal requirements for pleasure boats. The Courtesy Motorboat Examination attempts to insure that the operator's boat is free of obvious hazards to safety. Operations serve as an aid to boatmen in distress, and take the form of safety patrols and search and rescue missions.

The public education courses experienced, with respect to number of students enrolled, a growth of approximately 6 percent. Over 212,600 people attended an Auxiliary boating class in 1970. These courses, taught by Auxiliarists who are qualified instructors, cover the basics of boating and, in the eight-lesson course, deal with aids to navigation, marlinspike seamanship, legal requirements, maneuvering and charting.

A new 12-lesson Boating Safety and Seamanship course is in the final stages of development as of April 1971. In addition, a six-lesson course will be offered to the public in the fall of 1971.



PUBLIC EDUCATION classes are an integral part of the Auxiliary's boating safety program.



ANCHOR EQUIPMENT is one of many safety items checked during a courtesy examination.

The Courtesy Motorboat Examination, another cornerstone of Auxiliary activity, is conducted only upon the request of a boatowner. No report of observed deficiencies or violations is submitted to any law enforcement agency. The respected "Seal of Safety" decal is awarded to boats which have met not only Federal requirements but also certain additional requirements specified by the Auxiliary.

The courtesy examination is free and checks such items as lifesaving devices, fire extinguishers, distress equipment, lines, fuel tanks, backfire flame arresters, and ventilation. In 1970, over 221,600 examinations were performed, marking a 15 percent increase over Auxiliary effort in 1969.

While no examination can "guarantee" a safe boat, the Courtesy Motorboat Examination is of great value in eliminating many major hazards to safety. In addition, it illustrates to the boatowner the fact that boating safety depends on a well-found boat as well as upon a safe operator.

When public education and safety checks are not enough to protect against an emergency situation, the "corrective" function of the Auxiliary comes into play—Operations. Through operational activities, the Auxiliary is increasingly capable of rendering assistance to boatmen in distress. In 1970, 11,862 assistance missions and 22,506 regatta/safety patrols were performed by Auxilia-

rists. Thanks to quick thinking and courage on the part of hundreds of Auxiliary members 527 lives and \$78,500,000 of property were saved during the past year.

The 1970 Auxiliary Story was one of increased activity in all areas of endeavor. If the first few months of 1971 are an accurate indicator, the Auxiliary will continue to expand in all program areas. ‡

AUXILIARY ACTIVITIES

	1970	1969
Membership.....	30,221	28,479
Courtesy motorboat examination.....	221,678	192,011
Enrollees, 8-lesson public education course.....	47,626	42,569
Enrollees, 3-lesson public education course.....	23,753	21,837
Enrollees, 1-lesson public education course.....	138,142	¹ 354,044
Enrollees, hunter-fisherman education course.....	3,104	(²)
Total patrols (regatta and safety).....	22,506	15,882
Assistance missions.....	11,862	9,715
Support missions.....	4,894	4,651

¹ The large difference in the number of 1-lesson courses is due to the fact that in 1969, Auxiliary members gave the course to well over 200,000 people at the Chicago Boat Show.

² Hunter-fisherman course introduced in 1970.

BOAT FIRES AND EXPLOSIONS

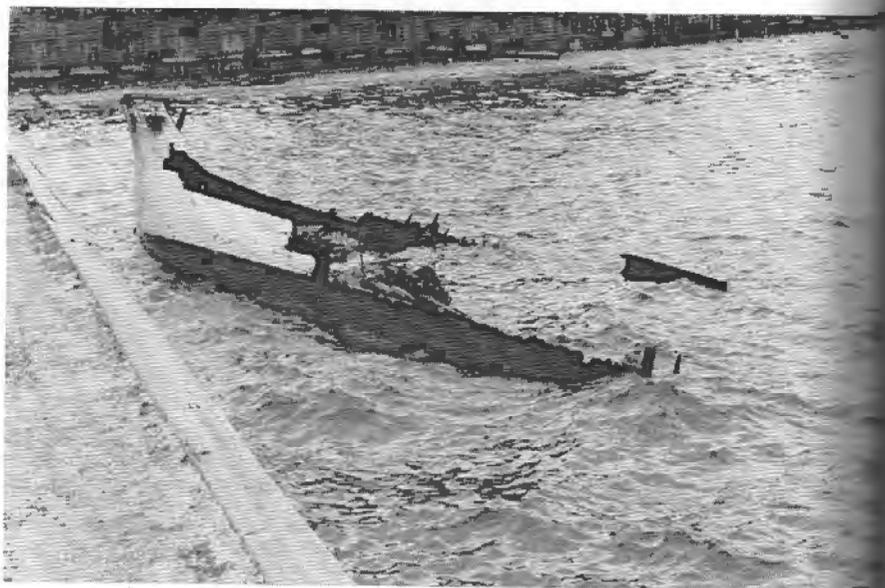


THIS IS A CLASSIC case of a boat fire. Performance of the engine had been poor earlier in the day, and the accident occurred shortly after leaving the fuel dock. Investigation indicated the probable cause as a leaky fuel gage on the top of the gas tank installed in the bow. The fire started in the engine compartment and quickly spread to the source of vapor in the bow.

Boating statistics each year attribute many fires and explosions on recreational craft to fault of operator. It cannot be disputed—human beings make mistakes and cause accidents. But in most accidents, the machine and environment also contribute and in some cases are the prime cause of the accident.

Because of a lack of information on the engineering cause of boat fires and explosions, a special indepth study of this hazard was conducted by the Boating Standards Division last summer. A major task was to identify which components or systems of the boats contributed to or caused the accident. Initial emphasis was on the fuel and electrical systems but as the actual accidents were being investigated, it became evident that liquified petroleum gas systems were very much a part of the problem.

When a fuel storage system (the tank and its attachments) is considered, the study indicates that this may be a major problem area. A possible reason for this is that fuel tanks, fill pipes, vent lines, and sending units are generally installed in places that are not accessible. The old proverb, "out of sight, out of mind," applies. The average boatman does not think of periodic inspections in this area and sometimes cannot make the inspections because the tank is installed by the builder in a totally inaccessible location. Inaccessible installations are clear violations of the American Boat and Yacht Council (ABYC) and the National Fire Protection Association (NFPA-302) standards. Future mandatory Coast Guard standards under the authority of the proposed Federal Boat Safety Act of 1971 will almost certainly cover the inaccessibility problem.



THIS 38-FOOT, twin-engine cruiser had just completed fueling and the operator was attempting to start the starboard engine for the *fourth* or *fifth* time when the explosion occurred. The engines would start and run for a short time, and then die out. After fueling, there was no check for fumes in the engine compartment. The cause was estimated as a failure of the fuel lines or the fuel tank vent line.

The objective of pinpointing the electrical sources of ignition was not successful. The fact that gasoline vapors and liquid released from a fuel system failure may spread throughout the entire compartment, and in some cases, the entire boat bilge, makes it impossible to associate the spark source with the location of the fuel system failure. The spark only has to occur once to start a fire and rarely leaves evidence of where it came from. Attempts to measure the relative hazard of common boat electrical components will be made through a research and development project.

SAFETY HINTS

LP gas refrigerators were the sources of ignition in two of the cases.

These appliances, as well as LP gas heaters and stoves have open pilot lights. In both cases, the proper safety precautions were observed by the operators when refueling. However, the pilot lights were forgotten—again the proverb, “out of sight, out of mind.” The pilot lights are small and generally under the appliance and out of sight.

Many fires and explosions occur during or immediately after a fueling operation. Of the cases studied, there was a 19-percent probability of failure of vent lines. In light of this, the common practice of filling the tank up until fuel comes out the vent lines becomes foolhardy. The same practice recommended by NFPA-302 of never filling tanks thereby leaving room for expansion during warm

weather would certainly prevent or at least mitigate some accidents.

Many times there was some indication of possible malfunction available to an operator which went unnoticed or was ignored. When a boat is refueled and then an engine which had operated properly before the fueling does not start, misses, runs rough or repeatedly loses power and stalls, it could very well mean that engine compartment contains a large amount of liquid or vapor. In other words, the vapor/air mixture entering the carburetor is too rich for the engine to run properly. Continuing attempts to start, restart or run engines in this situation is an invitation to disaster. The proper procedure would be to stop everything and find out WHY the engine is malfunctioning. ‡

BOATING SAFETY PROMOTIONAL EFFORTS

In 1970, the Coast Guard has moved ahead in many areas in promoting boating safety.

A 6-minute color film has been completed which deals with capsizings and falls-overboard situations. It includes the use and importance of various types of approved lifesaving devices.

A boating safety exhibit for each of the Coast Guard's 12 districts has been provided for use at boat shows, shopping centers, and fairs. These exhibits will supplement the present exhibits available through the Coast Guard's exhibit center.

Two TV spots on lifesaving devices

were completed in 1970, one specifically for National Safe Boating Week (NSBW). A radio disc with NSBW spots and general boating safety spots was also produced. This material was distributed to the top 50 markets in the country and to the Coast Guard's boating safety detachments for local presentation. ‡

COAST GUARD PUBLICATIONS

CG-151 “Emergency Repairs Afloat”—Because almost half of the search and rescue cases involve mechanical breakdowns, this publication was created in an effort to help the boatman to help himself. The pamphlet does not try to replace owner's manuals, but rather offers basic advice on how to handle simple problems aboard boats before they turn into major distress situations.¹

¹ Available from local Coast Guard sources.

CG-290 “Pleasure Craft”—This pamphlet explains the Federal laws pertaining to recreational boats and offers a variety of safety and related information.¹

CG-340 “Recreational Boating Guide”—This 93-page booklet also details the Federal laws, but much more extensively. In addition, it offers comprehensive information on boating safety and related items, such as emergencies, rules of the road, the Coast Guard Auxiliary, etc. Available for 60 cents from the Superintendent of Documents, Government

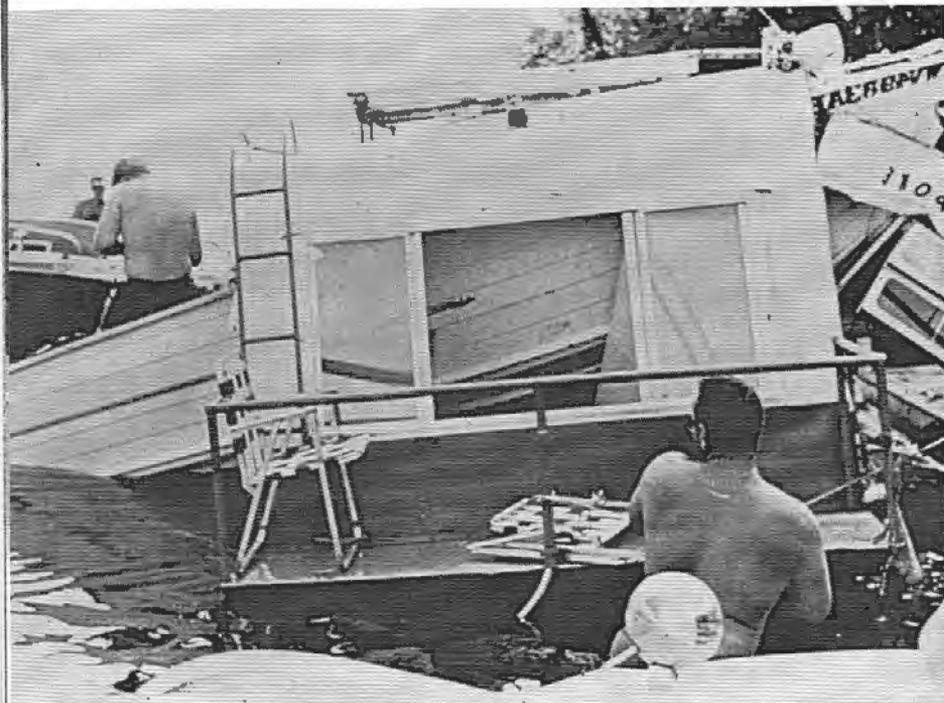
Printing Office, Washington, D.C. 20402.

CG-357 “Boating Statistics”—This is the annual report by the Coast Guard on boating accidents. The information is broken down in several different ways.²

“Overloading and improper loading”—A flier emphasizing such dangers and offering preventative actions.¹

² Available from Commandant (BD-2), U.S. Coast Guard, 400 7th Street SW., Washington, D.C. 20591. ‡

BOATING ACCIDENTS



RUNNING without lights at night may have dire consequences.

For calendar year 1970, 4,762 vessels were involved in 3,803 recreational boating accidents. These accidents resulted in 1,418 deaths (an historic high), 780 injuries and \$8,173,000 in property damage. The accompanying table details the results of boating accidents for the last 5 years.

LOSS OF LIFE

Vessel capsizings continue to account for more of the lives lost in boating accidents than any other type of casualty; 592 vessels capsized in 1970, causing 569 fatalities. The vast majority of capsizings seem to be caused by some fault of the operator in his handling of the vessel. Foremost among these faults are: Overloading

or improper loading of the boat; lack of operating experience; ignoring weather warnings; and boating in adverse weather.

PERSONAL INJURIES

Collisions with other boats or with a fixed object continue to account for more of the personal injuries than any other type of vessel casualty. A total of 2,326 vessels were involved in collisions, causing 331 injuries. The principal cause of these collisions was the failure of the operator to maintain a proper lookout. The increasing popularity of water skiing has contributed to this safety problem. Also 407 fires or explosions of vessels resulted in the second largest number of personal injuries, 171.

PROPERTY DAMAGE

Fires/explosions continue to account for the greatest amount of property damage, with vessel collisions responsible for the second largest amount; \$4,009,000 was lost due to fires or explosions while \$1,834,000 worth of property damage was caused by collisions with other vessels or fixed objects. The majority of the cases of fires or explosions, where the cause of the accident could be determined, were due to: Operator negligence, such as improper installation or maintenance of engine or equipment; disregard of safe fueling practices; and lack of operating experience.

LIFESAVING DEVICES

There were 1,305 drowning victims for 1970. Of these, 47.2 percent were known to have had lifesaving devices available. Of those that had lifesaving devices available, 81.7 percent did not use them or used the devices improperly. No conclusive data are available concerning the number of persons who, by their use of a lifesaving device, prevented a boating "mishap" from becoming a reportable boating accident.

WEATHER AND WATER CONDITIONS

The type of waters vessels were on at the time of a reportable accident were: 55.9 percent were on nontidal waters; 31.7 percent were on tidal waters; 4.2 percent were on the Great Lakes; and 8.2 percent were on the oceans or the Gulf of Mexico.

The weather and water conditions at the time vessels became involved in accidents show that: In 56.8 percent of the cases the water was calm; in 76.8 percent of the cases the weather was clear; in 58.6 percent of the cases there was little or no

TYPES OF CASUALTY	RESULTS OF BOATING ACCIDENTS														
	FATALITIES					INJURIES					AMOUNT OF DAMAGE (DOLLARS)				
	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970
Grounding	19	7	6	22	7	84	50	46	38	28	860,700	649,500	597,100	855,700	590,000
Capsizing	621	621	610	562	569	87	79	97	64	52	213,400	256,100	367,800	324,900	348,000
Flooding	41	35	37	66	128	4	13	7	9	7	113,000	171,300	137,900	249,000	419,000
Sinking	101	91	108	50	60	9	9	26	19	6	955,900	421,200	514,800	475,300	260,000
Fire or Explosion of Fuel	23	14	17	14	21	295	206	206	155	160	1,689,800	1,269,800	2,047,700	1,885,300	3,044,000
Other Fire or Explosion	2	5		2	5	24	20	13	5	11	1,337,600	948,900	985,000	239,800	965,000
Collision with Another Vessel	65	24	59	45	55	571	465	413	310	232	1,210,100	1,037,400	1,147,800	1,082,900	1,148,000
Collision with Fixed Object	32	38	58	47	62	107	182	143	156	99	474,900	669,700	535,000	804,700	686,000
Striking Floating Object	10	13	22	23	25	12	34	26	29	24	269,900	416,500	160,700	321,700	505,000
Other Casually to Vessel	37	43	58	23	24	21	26	20	24	9	177,200	198,000	135,000	104,800	177,000
Falls Overboard	315	338	315	351	348	39	60	87	46	36	30,700	9,300	2,000	16,100	25,000
Falls Within Boat	2	2	2			24	15	15	7	9		500			
Struck by Boat or Propeller	21	16	14	10	12	168	85	83	47	46	1,200	200	100	500	
Other Personnel Casualty	29	65	56	135	102	110	121	102	95	61	100	5,700	700	11,200	6,000
TOTAL	1318	1312	1342	1350	1418	1555	1365	1284	1004	780	7,334,500	6,054,100	6,631,600	6,371,900	8,173,000

wind; in 74.5 percent of the cases the visibility was good.

TIME, DAY OF THE WEEK, AND MONTH

A larger percentage of vessels, 19.5 percent were involved in accidents between the hours of 2 to 4 p.m. than in any other 2-hour interval. The highest percentage of fatalities also occurred between 2 to 4 p.m., 16.5 percent.

The highest percentage of vessels

involved in accidents, 30.4 percent occurred on Sundays, followed closely by the 28 percent of vessels involved in accidents that occurred on Saturdays. Saturdays also accounted for the highest percentage of fatalities, 30.3 percent, compared to Sundays, 24.8 percent.

Most boating accidents occurred in the months of July and August, with 20.9 and 18.3 percent, respectively, of the vessels involved. The largest

percentage of fatalities occurred in the month of May, with 16.0 percent. July had 14.7 percent of the fatalities and August 13.7 percent.

For more detailed information on recreational boating accidents, copies of "Boating Statistics—1970" CG-357, are available to all interested parties. Write Commandant (BD-2) U.S. Coast Guard, Washington, D.C. 20591. ⚓

BOATING SAFETY INSTRUCTOR SCHOOLS (BSIS)

A significant part of the boating safety effort is centered around law enforcement and the training of enforcement personnel. This year the Coast Guard hopes to improve its enforcement procedures in terms of both quality and quantity.

The number of Boating Safety Detachments has been increased by 13 new teams for a total of 54 of the three-man units.

Last year's Boating Safety Instructor Schools saw 174 representatives in attendance. This is an increase of students over the 1969-70 schools.

Those attending included 126 Coast Guard personnel, 40 water safety officials representing 21 States, four U.S. Navy personnel, and four representatives of other Federal agencies. These figures are up 100 percent in each category over last year.

One week in length, the schools were conducted at four locations: Alameda, Calif., and New Orleans in December; Governors Island, N.Y., and Great Lakes, Ill., in January. Prior to this year schools were held at only two sites.

In addition to the four school expansion the 1970-71 program was enhanced by a number of panels and workshops. These covered such subjects as recreational boating in multi-use areas, relations with news media, and general field problems.

Lectures were presented in basic boarding and law enforcement procedures. The FBI, CG investigating officers and local boating safety officials also gave lectures at each school. Briefings on the pending boat safety legislation and new construction standards were also made. ⚓

BOATING LAW VIOLATIONS

During calendar year 1970, Boating Safety Detachments and other Coast Guard units conducted 19,296 boardings and issued 10,493 Notices of Violations and 5,707 written warnings to boatmen. The number of boardings decreased 8 percent from last year's 20,904. This decrease in boardings should not be interpreted as a reduction in unit effort or an

indication that boarding activity should be increased. Safety Patrol effectiveness is not measured in terms of boardings.

In mid-1969, the Boating Law Violations report was changed. Because of this change, only the last 6 months of calendar years 1969 and 1970 can be compared. The top 10 violations during these 6-month periods follow:

	Last 6 months of 1969	Last 6 months of 1970
Number of Vessels Boarded.....	10,922	12,510
Issued notices of violations.....	6,025	6,922
Top-10 Violations		
1. Number—improper display.....	1,717	2,086
2. Certificate of number not on board.....	1,787	1,888
3. L/SD—insufficient number.....	1,232	1,392
4. Horn or whistle—none.....	834	1,029
5. Certificate of number—none.....	374	761
6. Fire extinguisher—none.....	653	637
7. L/SD—unserviceable.....	370	499
8. Number—none.....	312	477
9. Fire extinguisher—unserviceable.....	400	449
10. Reckless or negligent operation.....	389	334
		↓



INSPECTION OF a recreational boat by a Boating Safety Detachment on a routine patrol.

MERRIMAC RIVER LIGHT

The Coast Guard, working in conjunction with the State of Massachusetts Division of Motorboats and the city of Newburyport, has established a new aid to boatmen in that area. The aid is in the form of a warning sign intended to warn boaters of dangerous conditions which can exist near the sand bar at the end of the Merrimac River. Six persons lost their lives in 1969 when their boats capsized in rough water near the bar.

Last May, the Coast Guard installed a yellow diamond-shaped advisory sign to advise mariners when the bar has breaking seas 2 feet high or greater. When these conditions exist, lights on the sign flash alternately. According to a Coast Guard official in the immediate area, most area boatmen are aware of the sign and heed its warning. The aid is given a great deal of credit for reducing fatalities at the sand bar to zero in 1970.

Some improvements are planned for the aid prior to the beginning of this boating season. Strobe lighting will be used instead of the present system of house-type lights. This is due to complaints from some boatmen that the lights could not be seen at times due to the glare of the sun.

The success of this aid has prompted the Coast Guard to examine other areas where it might be successfully employed. In addition, experimentation with signs which read "Keep Right" or "Keep Left," "Shallow Water," "Sand Bar," etc. is underway.



WHO IS OUR CUSTOMER?

For some time, the Coast Guard has recognized that better allocation of our boating safety resources depends on an improved knowledge of the characteristics of recreational boaters, the boats they use and the various kinds of recreational boating activity they engage in. Accordingly, we contracted with a private research company to provide the data we required. This company surveyed the 5th district area by a telephone survey method which included 13,020 randomly selected households in that area.

The data collected came from 1883 detailed telephone interviews. This consisted of contacting the 13,020 households and asking "have you or any member of your household operated any type of boat in the past 18 months?" This phase produced a list of 3,381 persons alleged to be recreational boat operators.

These 3,381 persons were then recalled and asked to answer a detailed questionnaire concerning their boating experiences. This phase resulted in 1,883 replies, the remainder of the 3,381 group being disqualified as commercial operators, not in fact having operated a boat during the preceding 18 months, or simply not contactable.

Some interesting results concerning "our customers" were obtained. In citing these results, you must remember that this is for the 5th district only, but since that district includes 3 states and the District of Columbia, it appears reasonable to project it on a nationwide basis. In this regard, we are planning to do just that by means of additional surveys so that a data baseline may be established. Such a baseline is entirely feasible and can be quite accurate.

RESULTS

1. Five point one percent of the total population of the area over 18

years of age are boat operators. Thus, nationwide we may assume there are about 10½ million boat operators.

2. Seventeen percent of the total population of the area were on the water in recreational boats last year. Nationwide this would come to some 36 million persons. This figure is very close to our estimate of 40 million persons being afloat each year on recreational boats.

3. As regards use of the boat, 45 percent primarily use boats for fishing, 38 percent cruised primarily, and 17 percent used the boat for skiing primarily. Only one-half percent used boats primarily for hunting and 1½ percent used boats for racing.

4. As could be expected pleasure cruising is heavily concentrated in the 16-foot length or over category, while with fishing the size of the boat used is almost evenly divided by the 16-foot length.

5. An estimated 79 percent of all the operators used a motorboat most, and another 10½ percent used sailboats most. All other types of watercraft accounted for the remaining 10½ percent.

6. Even though rowboats account for only 7.7 percent of the operators, they were involved in 12.7 percent of all the deaths reported.

7. On age distribution of recreational boat operators, 11.5 percent were in age group 11-18; 13.5 percent in age group 19-25; 62.3 percent in age group 26-50 and 12.7 percent in the over-50 category.

8. There is a remarkable correlation between the number of operators and total population figures in age group 14-50. In the over-50 group, there are twice as many people percentagewise, than there are boat operators percentagewise.

9. As regards schooling completed, 29 percent had less than a high school education; 30 percent had completed high school, 33 per-

cent had some, or completed, college and 9 percent had postgraduate work. The implication of these results indicate that boating safety education courses must be prepared so as to appeal to a wide range of educational levels. This may require a series of separate programs, each aimed at a particular segment of the boating population.

10. Overwhelmingly, males do the most operating by a 3-1 ratio.

11. The average income of the boat operators family is in the \$10,000 to \$15,000 bracket—some 100 percent higher than the median level of households in the general population.

12. Overall, 20½ percent of the operators reported having completed at least one formal boating safety course. Of these persons 26 percent reporting having taken the auxiliary course; 26 percent took power squadrons courses; 10 percent Red Cross; 8 percent local courses; 10 percent military service experience in boating, 8 percent by means of youth groups (BSA, Sea Scouts, etc.); and 12 percent completed other types of courses or education such as films, wildlife commissions, chambers of commerce, etc.

Of particular interest to us is the great proliferation of courses offered and the large military contribution to safety courses. Clearly we have to take this facet into consideration in devising overall education policies.

13. The largest number of persons who took a boating safety course engage mostly in pleasure cruising. Fishing is second in this category.

14. Surprisingly, 62 percent of the operators admitted to obtaining some kind of weather report before venturing on the water. In this respect, 40 percent listened to radio and TV weather reports while a surprising number (22 percent) actually called the Weather Bureau or the

Coast Guard. We will explore the possibility of getting the National Weather Service to include boating conditions or specific boating weather reports on their taped forecasts.

15. Boat operators travel 25.1 miles on the average from their home to the place where boating begins; 20 percent of these travel a mile or less, but also 20 percent travel over 50 miles. The largest category traveled between 6 and 20 miles to the place of boating.

16. Over 90 percent of boat operators operate within 5 miles of shore; 6 percent boat 6 to 10 miles away and only 4 percent operate beyond 10 miles from shore. Sailboats over 16 feet operate farthest from shore. Sailboats under 16 feet operate closest to shore. Motorboats operate in between regardless of size. This information will be very valuable to our own SAR forces in making the best prediction of location in which to search, dependent on the size and type of boat used by the operator.

17. Of the total powered boats, 72 percent had a certificate of number. Thus, we can expect that numbering all boats propelled by machinery will raise the number of boats to be numbered by 28 percent.

18. Twenty-one percent of motorboats under 16 feet had a CME, while 41 percent of motorboats over 16 feet had a CME Coast Guard Auxiliary Courtesy Motorboat Examination.

19. Approximately 20 percent of the total number of boats had marine toilets. Thus, there are probably some 1 million small boats in the United States equipped with sanitation devices. In this connection some 77 percent reported that their discharge was a direct discharge, one with no treatment utilized before discharge.

20. Of greatest import was the conclusion that only some 10 percent of reportable accidents (72-hour incapacity, death, or over \$100 property damage) are actually reported to the Coast Guard or the States. Thus, al-

though there were 4,400 accidents reported last calendar year, it is probable that there were actually some 45,000 accidents occurring.

Of particular interest, except for the figures themselves, is the direct relationship which was established by information concepts incorporated (1) between total population of a given area and the number of boats and operators to be expected in that

population group; and (2) the income level of a particular area as it relates to the income levels of boaters. In this correlation, therefore, a data base may be established which may easily be updated annually as population and income levels change. We intend, therefore, to establish data bases for each boating area and thus materially improve the validity of our statistics.

NATIONAL SAFE BOATING WEEK

JULY 4-10, 1971

WHAT IS IT?

National Safe Boating Week (NSBW) is a concentration of boating safety efforts to bring home to the boatman the need for safety during a prime boating time. The idea was first supported, on a local basis, primarily by Coast Guard Auxiliarists in 1956. Out of this grew a Public Law authorizing the President of the United States to proclaim the week including the Fourth of July as National Safe Boating Week.

The week runs from the Sunday before the 4th to the Saturday after. This year it is July 4-10. Although the week on a national basis is defined by law, many organizations hold their observances at different times. There is no objection to this practice.

WHO PARTICIPATES?

The National Safe Boating Committee provides promotional assistance on a national scale for NSBW. The members of the committee are: American Boat and Yacht Council, Inc.; American National Red Cross; American Power Boat Association; American Water Ski Association; Boat Owners Association of the United States; Boat Owners Council of America, Boy Scouts of America; National Oceanic and Atmospheric Administration; Corps of Engineers, Department of the Army; National

Association of Engine and Boat Manufacturers, Inc.; National Association of State Boating Administrators; National Boating Federation; National Fire Protection Association; National Safe Boating Association; National Safety Council; Outboard Boating Club of America; U.S. Coast Guard; U.S. Coast Guard Auxiliary; United States Power Squadrons; Underwriters Laboratories, Inc.; and Young Men's Christian Association. The present Chairman is Rear Adm. A. C. Wagner, U.S.C.G., Chief of the Office of Boating Safety.

Each member, through his own organization encourages local NSBW participation. In addition, the national committee provides promotional kits and radio/TV material to the media.

CAN I PARTICIPATE?

Any organization can help, be it a Federal, State, or private one. The best way to start is by contacting other local organizations also interested in boating safety and determine if they already have any plans for observing the Week. If they do, join in. If they don't perhaps you can get together and get your own observance organized. Contact the U.S. Coast Guard, 400 7th Street SW, Washington, D.C. for free promotional material.

nautical queries

Q. The following symbol indicates what type of aid to navigation?



- (a) Nun buoy.
 - (b) Unlighted bell buoy.
 - (c) Can buoy.
 - (d) Spar buoy.
- A. (d) Spar buoy.

Q. Range lights can be identified by their:

- (a) color.
 - (b) characteristic.
 - (c) line of bearing.
 - (d) all of the above.
- A. (d) all of the above.

Q. At night, proceeding in a buoyed channel, you see a buoy that is supposed to be lighted but is now extinguished. You should report this fact to:

- (a) The U.S. Coast and Geodetic Survey Office.
 - (b) The U.S. Hydrographic Office.
 - (c) The State Game and Fisheries Commission.
 - (d) The U.S. Coast Guard.
- A. (d) The U.S. Coast Guard.

Q. When you are entering a harbor from sea, the buoys to your port should be:

- (a) lettered.
 - (b) even numbered.
 - (c) odd numbered.
 - (d) without designation.
- A. (c) odd numbered.

Q. A vessel which has lost her means of propulsion in a rough sea will most likely:

- (a) "Yaw".
- (b) Stay bow to the sea.
- (c) "Broach to".

- (d) Stay stern to the sea.
- A. (c) "Broach to".

Q. What should be done to a towline to prevent fraying where it passes over the bow or stern?

- (a) Apply a devil's claw.
- (b) Install a padeye.
- (c) Cover with chafing gear.
- (d) Worm that part of the line.

A. (c) Cover with chafing gear.

Q. What is the deviation of a compass for a 235° compass course, 232° true course with 4° Easterly variation?

- (a) 004° West.
- (b) 017° East.
- (c) 007° West.
- (d) 003° East.

A. (c) 007° West.

Q. A vessel displaying the day signal shown is:



- (a) engaged in underwater operations.
 - (b) at anchor.
 - (c) towing a submerged object.
 - (d) aground.
- A. (d) aground.

Q. What does the chart symbol illustrated below illustrate?



- (a) A submarine volcano.
 - (b) Discolored water.
 - (c) Submerged snags or stumps.
 - (d) Sunken rock.
- A. (d) sunken rock.

Q. A lighthouse was sighted 4 points on the bow, and after a 4 mile run it was abeam. How far off the lighthouse were you when it was abeam?

- (a) 2 miles.
 - (b) 4 miles.
 - (c) 6 miles.
 - (d) 8 miles.
- A. (b) 4 miles.

Q. The best location for batteries on a gasoline driven vessel is:

- (a) the engine space.
 - (b) a closed compartment separate from the engine or tank space.
 - (c) a ventilated compartment separate from the engine or tank space.
 - (d) next to the generator.
- A. (c) a ventilated compartment separate from the engine or tank space.

Q. The type of extinguishers which should be used for an electric fire is:

- (a) CO₂ or foam.
 - (b) foam or soda acid.
 - (c) dry chemical or foam.
 - (d) CO₂ or dry chemical.
- A. (d) CO₂ or dry chemical.



flipper says
**Safe
Boating Is
No Accident**

**NATIONAL
SAFE BOATING WEEK**

JULY 4-10, 1971