



Log M-3836

# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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In reply refer to: M-93-10 through -14

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Recreational boating accidents currently result in the greatest number of transportation fatalities annually after highway accidents. Although the number of fatal recreational boating accidents and fatalities decreased each year from 1985 to 1990, the U.S. Coast Guard indicates that in 1991, the number of fatalities from recreational boating accidents increased to 924 from the 865 fatalities reported in 1990. According to the Coast Guard, the fatality rate--the number of fatalities per 100,000 estimated boats--also increased slightly during the same period. Information from the American Red Cross indicates that about 355,000 persons are injured from recreational boating accidents annually and that more than 40 percent of these injuries require medical treatment beyond first aid. The U.S. Coast Guard estimates that in 1991 there were about 20 million recreational boats on the Nation's waterways, with the number increasing steadily each year. Not only has the number of recreational boats increased, but the speed at which many of these recreational boats operate has also increased. Because of the number of fatalities and injuries and because recreational boating activities can be expected to continue to increase, the Safety Board believes that efforts to improve safety are needed in recreational boating. The Safety Board, therefore, initiated a safety study of recreational boating accidents to determine the circumstances of these accidents and the countermeasures needed to prevent or reduce their number and severity.<sup>1</sup>

For the study, the Safety Board reviewed U.S. Coast Guard data on recreational boating accidents that occurred between 1986 and 1991. The Safety Board also asked 18 States to provide copies of their 1991 fatal accident investigation reports, including witness statements, local investigation reports, and written narratives of the accidents. The Safety Board received 407 fatal accident reports,

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<sup>1</sup> National Transportation Safety Board. 1993. Recreational boating safety. Safety Study NTSB/SS-93/01. Washington, DC.

about 52 percent of the 779 fatal boating accidents that occurred nationally in 1991; 478 persons died in these accidents, about 52 percent of the 924 persons who died in boating accidents nationally in 1991.

### **Limitations to the Existing Reporting System**

Although the Coast Guard probably receives some information on most fatal accidents, critical information about these accidents is not often recorded or documented. Further, the quality of the information that is recorded is often deficient. As a result, many of the data are categorized as "unknown" in the reporting system. Shortcomings in the data set restrict its usefulness for safety analyses and evaluations.

The Coast Guard acknowledges that there are many limitations to the accident reporting system because the system relies largely on self-reported data. Some of the problems include deliberate nonreporting, ignorance by the boating public of the reporting requirements, reluctance by boaters to provide all pertinent information, and the lack of an effective mechanism to enforce the reporting requirements.

In many of the accident reports provided by the 18 States, pertinent information on the operators and occupants was not documented, including date of birth and the nature and extent of personal injuries that may have occurred. Further, the information documented is often limited to the operator of the vessel and the fatally injured occupants. Information on all occupants is often not reported. The effectiveness of safety programs targeted for specific age groups, such as personal flotation devices (PFD) usage for children, cannot be adequately evaluated if data on all occupants are not recorded. For example, because the Safety Board requested that the States provide additional information on a supplemental data form, the Board identified 51 children involved in the 407 accidents. The State accident reports, however, included information only on 32 children. Thus, information on 37 percent of the children involved in these accidents was missing from the State reports. Other information on the vessel occupants may be pivotal to understanding how the accident occurred or if operator error was a factor. In 47 percent of the cases, information regarding the operator's experience in the type of vessel involved was not provided. In almost half of the cases, it was not indicated if the operator had taken a safety course.

Other information regarding the accident and the vessel and its associated equipment may be critical in understanding the nature of the accident and specifically the survivability of the accident. For example, accidents that occur at night may involve different factors, such as alcohol or speed, than accidents that occur in daylight. States, however, do not explicitly report the lighting conditions to the Coast Guard. Further, the water temperature is needed to determine, in the event of a drowning, if cold water exposure contributed to the cause of death.

However, in 24 percent of the accidents, information on the water temperature was missing. In addition to water temperature, other variables affect a comprehensive assessment of survivability. In 14 percent of the accidents, information was missing regarding PFD usage. In 23 percent of the cases, information regarding the accessibility of PFDs was missing. In 58 percent of the accidents, information on the proper use of PFDs was not reported. Further, for the documented occupants on board the vessels, information on whether the person could swim was missing for 47 percent of the occupants who died.

Only 24 percent of the operators involved in the fatal accidents were tested for alcohol. Although States are required to report alcohol involvement in boating accidents, such information is not consistently reported. As this study indicates, some States with laws that define an illegal blood alcohol concentration (BAC) and allow for a chemical test in the event the operator is suspected of being intoxicated do not always obtain BAC information. In an effort to address this problem and the general quality of data being reported, the Coast Guard, with the guidance of the Boating Accident Investigation Reporting Advisory Committee of the National Association of State Boating Law Administrators (NASBLA), has funded a boating accident investigation training seminar for law enforcement/marine police officers. To date, 1,073 law enforcement/marine police officers have completed the training seminar since its inception in 1988. In 1993, a series of eight accident investigation training seminars is scheduled. The Safety Board commends the Coast Guard and the NASBLA for their efforts to improve State accident investigations and believes that more comprehensive investigations could result in the reporting of more reliable data by the States.

The Safety Board believes, however, that additional measures, beyond better State accident investigations, may be needed to improve the quality and usefulness of the Coast Guard data base. The extent of unreported data and the lack of comprehensive data may be due, in part, to the variety of accident report forms used by the States and to the various local law enforcement officials who fill out the forms and submit them, but who may not be familiar with the forms or may not have been trained on filling out the forms. Further, the State accident reports include a "cause" determination that the States use to identify the types of errors that recreational boaters make. Although the Safety Board made no conclusion regarding the accuracy of the State-determined causes, the Safety Board is concerned that because they are not well defined and mutually exclusive, States may interpret and use the cause categories differently.

The existing problems associated with the submission of fatal accident data suggest that the Coast Guard should revamp and standardize the accident reporting system. A standardized system, similar to the National Highway Traffic Safety Administration's (NHTSA) Fatal Accident Reporting System (FARS), would improve the quality of data that are reported. As the NHTSA has done in the FARS system,

the Coast Guard should develop a three-level report form and corresponding data files that address the accident, the vessel(s), and the occupants. All three levels are just as important in understanding fatal recreational boating accidents as they are in fatal motor vehicle accidents. In addition to developing a new standardized accident investigation report form, the Coast Guard should provide guidelines for the submission of data and standardization of cause codes. The Coast Guard, as the NHTSA does, should develop a program to establish uniform data entry at the State level. This can be accomplished by training individuals in each State on the proper completion of the data forms. Comprehensive information in a three-level reporting system will enable statistical analyses of important safety issues that currently cannot be conducted.

Although the Coast Guard believes that it receives some information on most fatal recreational boat accidents, it estimates, based on the 1991 national boating survey of the American Red Cross, that it receives only about 3 percent of all nonfatal reportable accidents. For example, the American Red Cross survey estimated that for the 1988-89 boating season, about 355,000 boaters were injured and that about 152,000 of these boaters (more than 40 percent) received medical treatment beyond first aid. The Coast Guard, on the other hand, received reports on only 3,563 injuries during this same interval.

Because of its concern about the lack of nonfatal boating accident data, in 1992 the Coast Guard contracted with the Marine Index Bureau Foundation, Inc., and implemented a nationwide data collection program involving 15 insurance companies. The Coast Guard believes that a more representative sample of nonfatal boating accident data can be collected through this program that involves reviewing insurance claims for damage incurred during recreational boating accidents. The Safety Board has reviewed the data elements being collected in this program and encourages the Coast Guard to require the collection of complete information on alcohol use, PFD use, and operator education, in addition to the data elements currently being collected by the Marine Index Bureau.

### **Alcohol Involvement in Fatal Recreational Boating Accidents**

A review of the accident data provided by the 18 States indicated that 107 boat operators (76 of whom were fatally injured) were tested for alcohol; that is, 24 percent of the 451 boat operators were tested. Test results were negative for 21 operators, not available for 19 operators, and positive for 67 of the operators. Thus, 76 percent of those tested and for whom test results were available had positive test results.

Notwithstanding the concern about the high number of recreational boat operators involved in fatal accidents that are not tested for alcohol, the Safety Board recognizes that there has been an increased awareness of alcohol involvement in recreational boating in the last several years by the boating public and public officials

responding to recreational boating accidents. Thus, better reporting in the 10 years since the Safety Board addressed this issue may account for the steady increase in the percent of recreational boating fatalities that are reported to be alcohol-involved during the same period when the number of recreational boating fatalities has been decreasing. The accident data provided by the 18 States confirm that alcohol involvement in fatal accidents remains high. A total of 67 of the 451 operators (14.9 percent) tested positive for alcohol, and an additional 101 operators (22.4 percent) were reported to have been drinking. That is, 37 percent of the 451 operators involved in fatal accidents were known or strongly suspected to have consumed alcohol prior to their accidents. Because toxicological tests are more likely to be taken from fatally injured operators (and may not fully account for surviving operators who may also have been drinking) and because marine safety officers were unlikely to indicate that an operator had been drinking without substantial evidence of alcohol use, the Safety Board concludes that 37 percent probably underestimates the extent of alcohol use by the 451 operators. Although the incidence of alcohol use could be estimated to be 76 percent (the percentage of conclusive test results that were positive), it is recognized that toxicological testing is most likely to be requested only for those operators suspected of drinking; thus 76 percent would be an inflated estimate of the incidence of alcohol use. Given that the sample of 451 operators was determined to be representative of all operators involved in U.S. fatal boating accidents during 1991, the Safety Board believes that the actual incidence of alcohol involvement is more than 37 percent but less than 76 percent of operators involved in fatal recreational boating accidents. Moreover, the Safety Board points out that even an estimate of 37 percent indicates that alcohol involvement is underreported to the Coast Guard, given that the highest level reported to the Coast Guard was 20 percent in 1991.

A 1990 study by the Law Enforcement Committee of the NASBLA<sup>2</sup> concluded that there was a higher percentage of decline in accident fatalities in those States with "significant" boating-while-intoxicated (BWI) legislation and enforcement practices.<sup>3</sup> In the past, States have pointed to the decrease in the overall number of fatalities as proof that BWI legislative and enforcement initiatives have been effective. However, Maryland and Michigan, two States considered to have significant boating-while-intoxicated (BWI) legislation and enforcement activities, have experienced increases in the number of fatalities from 15 to 26 and 32 to 56,

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<sup>2</sup> National Association of State Boating Law Administrators, Law Enforcement Committee. 1990. The effects of OWI/OUI [operating while intoxicated/operating under the influence of alcohol] laws on boat accidents.

<sup>3</sup> The study established a set of criteria for legislative provisions--including BAC standard, BAC standard less than 0.10, behavioral standards, open container law, testing for drugs, jail time, etc.--and a set of criteria for enforcement efforts. Point values were assigned to each criterion. Those States receiving the higher number of points were considered to have the more "significant" BWI laws.

respectively, in the last 2 years. As a Michigan State representative pointed out, one nonalcohol-involved accident with multiple fatalities can skew the numbers dramatically. Therefore, an evaluation of BWI programs based on fatality counts can be misleading. The Safety Board believes that because the number of recreational boating fatalities in most States is small, other quantitative information should be examined, including the number of newly registered boats, the number of boats stopped, the number of alcohol tests conducted, the number of intoxicated boaters identified, the time of day when the boats were stopped, locations where intoxicated boaters were stopped, and accident rates in those areas.

Moreover, the Board believes that the Coast Guard, as the Federal agency administering the boat safety account of the Aquatic Resources Trust Fund, has a responsibility to determine if programs implemented using these funds are achieving their intended results. The Safety Board, therefore, believes that the Coast Guard should undertake a study to evaluate the effectiveness of individual State programs aimed at curbing alcohol use in recreational boating. The study should include a detailed accounting of various enforcement efforts; that is, do they take into account the fact that alcohol is overrepresented in accidents that occur at night, do they result in apprehension of intoxicated boaters, and do the programs reduce the number of persons who drink while boating. A quantitative evaluation, as described above, should be conducted. The study should also determine if the actual percentage of alcohol-involved fatalities is increasing or if the change seen is due to better reporting. The Safety Board further believes that in conjunction with this evaluation, the Coast Guard should use its funding authority to encourage States to use those programs that are most effective.

### **Use of Personal Flotation Devices**

Of the 478 fatalities that occurred in the accidents, 351 were reported by the States to be the result of drowning and 89 were due to traumatic injuries.<sup>4</sup> Of the 351 persons who drowned, use/nonuse of PFDs was known for 331 persons; 50 (15 percent) of these persons wore PFDs; 281 (85 percent) did not wear PFDs. Of the 351 persons who drowned, 338 persons drowned in single vessel accidents. Of these 338 drownings, 97 victims (28 percent) were alone in the vessel at the time of the accident.

A detailed review of the 50 State-reported "drownings" in which the victims were wearing a PFD suggests that cold water exposure (hypothermia) may have been a factor in the cause of death in 23 cases. The review further revealed that in 10

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<sup>4</sup> Subsequent information obtained from the States indicates that for the remaining 38 fatalities, 35 bodies were never recovered and the cause of death could not be accurately determined; 1 fatality was believed to have been caused by a pre-existing medical condition; and 2 fatalities were thought to have been the result of exposure to cold water.

cases, the victims were caught under water; in 4 cases, the victims were probably unconscious; in 1 case, the PFD was ripped off the victim; in 4 cases, the PFDs were not being worn properly; and in 8 cases, the circumstances of the drowning and the role of the PFD were not known or not documented. Thus, in at least 84 percent of the drownings in which the victim was wearing a PFD, there is a reason for the victim drowning that is not attributed to the failure of the PFD.

A review of the 281 State-reported "drownings" in which the victims were not wearing a PFD suggests that in 15 percent of the drownings (43 drownings) there were factors involved that may not have been influenced by the wearing of a PFD. The cause of death in 32 of the 43 drownings was probably exposure to cold water (hypothermia) rather than drowning; in 9 of the drownings, the victims were caught under water; and in 2 of the drownings, the victims were probably unconscious. Therefore, as many as 238 persons (85 percent of the drownings) may have survived had they been wearing a PFD.

There were 51 children under the age of 12 on board the accident vessels.<sup>5</sup> Fifteen of these 51 children were fatally injured: 2 died from traumatic injuries, 12 drowned, and the cause of death for 1 victim was not known because the body was never recovered. Of the 12 children who drowned, it was documented that 5 were wearing a PFD and 7 were not.<sup>6</sup> Information provided by the officers who responded to the accidents indicates that of the 36 children who survived the accidents, 15 lives were saved because they were wearing a PFD.

The above data raise concern about the adequacy of current requirements regarding the carriage and use of personal flotation devices on recreational boats.

The Safety Board supports the Coast Guard's recent notice of proposed rulemaking (NPRM) to change several Federal requirements and exemptions for carriage of PFDs on recreational vessels. In its letter dated February 1, 1993, commenting on the NPRM, the Safety Board strongly urged the elimination of Type IV (throwable) PFDs as primary personal flotation devices aboard recreational boats less than 16 feet in length. The change is needed because persons accidentally falling overboard may panic and be unable to get to this type of PFD, usually a boat cushion thrown to them by persons on the boat. Further, grasping for and holding onto a Type IV PFD in an emergency situation, particularly in rough waters, high winds,

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<sup>5</sup> The States' data provided information only on 32 children, including all 15 who were fatally injured. Information on the additional 19 nonfatally injured children was obtained from the Board's supplemental data form to the States.

<sup>6</sup> Of the five children who drowned and were wearing a PFD, three died from exposure to cold water (hypothermia), one was caught under water, and one slipped out of the PFD in cold water.

or cold water, may be difficult, and sometimes impossible. The Type IV PFD is not designed to be worn.

Further, the rulemaking would eliminate Federal preemption of State boating safety laws related to PFD wearing or PFD carriage. Because current PFD carriage regulations allow use of a nonwearable Type IV PFD to meet carriage requirements for vessels under 16 feet in length, a State requirement to wear a PFD is preempted by Federal regulations because it implies a wearable PFD that is in conflict with Federal regulations. Under the rulemaking, a State would no longer be preempted from requiring that PFDs be worn. The proposed rulemaking would also remove the exemption from PFD carriage requirements for racing shells, rowing sculls, canoes and kayaks, sailboards, and personal watercraft. The Safety Board supports the NPRM.

Despite the fact that States are preempted from requiring that PFDs be worn on boats less than 16 feet in length, some States have enacted such laws. One of the typical requirements is that children of certain ages wear PFDs. The age requirements, however, vary from State to State and sometimes are linked to the size of vessel. The lack of age uniformity in the requirements may be confusing to recreational boaters traveling throughout the States with children. More importantly, however, the requirements do not appear to be based on accident data or scientific research. According to the State boating law administrator in Florida, who favors a requirement for 12-year-olds and younger, the age of 6 was arbitrarily chosen by the State legislature, he believed, because it was close to 5, the age at which children are required to wear seatbelts. According to the boating law administrator in North Dakota, the age of 10 was a compromise between those who opposed any requirement and those who favored the age of 12. The NASBLA, on the other hand, supports its resolution to require children 12 years old and younger to wear PFDs by the fact that the age of 12 has repeatedly been linked to operator maturity by the marine community. It also references work by Ballestreri Consulting, Inc., that researched the physiological, emotional, and motor skill changes that occur around the age of 12.<sup>7</sup> The American Academy of Pediatrics (AAP) recommends that "your children should wear life jackets at all times when on or near the water."<sup>8</sup> The AAP embarked on a water safety campaign as a result of the high incidence of drownings among children. A policy statement on drowning is due this summer. The AAP does not, however, define "children" nor does it identify the specific ages at which a child needs to wear a "life jacket."

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<sup>7</sup> Letter dated January 19, 1993, from S. Ballestreri to Safety Board staff.

<sup>8</sup> American Academy of Pediatrics. 1992. Life jackets and life preservers [pamphlet]. TIPP HEO 133. August.



The enactment of laws to require children to wear PFDs has been somewhat successful, in part, the Safety Board believes, because the boating public can readily accept that it is dangerous for children not to wear PFDs. However, the accident data provided by the States forcefully points out that boating without a PFD is dangerous for boaters of all ages. The data indicate that of the 281 people who drowned in recreational boating accidents and were not wearing a PFD, as many as 85 percent (238 people) may have survived had they been wearing a PFD.<sup>9</sup> Requiring the use of PFDs for all recreational boaters, therefore, would appear to be the proper course of action for all States to take. The Centers for Disease Control, in an effort to reduce the number of drownings associated with recreational boating, has urged the States to require the wearing of PFDs. The Safety Board recognizes, however, that there would be strong opposition to an across-the-board law, that such a law would be difficult to enforce, and that PFDs may indeed not be necessary at all times, such as in certain areas of large recreational vessels.

Nevertheless, given the number of lives that could have been saved in the accidents examined for the Safety Board study had PFDs been worn, the Board believes that it is incumbent on the States to increase the level of PFD usage. Based on the NPRM issued on November 9, 1992, it is clearly the intent of the Coast Guard to allow States to enact legislation that would require boaters to wear PFDs. Thus, the Coast Guard has recognized the safety benefits that would be derived from revising current regulations that preempt States from requiring the wearing of PFDs. The Safety Board looks forward to the Coast Guard's completion of this rulemaking process.<sup>10</sup> In the interim, the Safety Board believes that the States can begin the legislative process to increase the level of PFD usage. One approach to increase PFD usage is to mandate PFD usage for persons involved in recreational boating activities or situations that are perceived by the boating public to be dangerous, similarly to how the public has accepted that it is dangerous for children not to wear PFDs. Examples include water skiers, operators of personal watercraft, and persons operating in hazardous waters or operating a vessel alone. Of the 351 persons who drowned in the 407 fatal accidents, 338 persons drowned in single-vessel accidents. Of the 338 drownings, 96 victims (28 percent) were alone in their vessel at the time of the accident.

Other factors that States may need to consider include the types and conditions of recreational waters within the States' respective boundaries, such as cold recreational waters (waters with a temperature of 70 °F or less). Fifty-four percent of the accidents for which water temperature was recorded occurred in water

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<sup>9</sup> Although this estimate excludes the fatalities attributed to the possible effects of cold water exposure (hypothermia), being caught under water, or unconsciousness, it may be a liberal estimate of the number of lives saved by PFDs.

<sup>10</sup> At the time of this letter, it was anticipated that the final rule was imminent.

temperatures of 70 °F or less. A person entering cold water experiences a sudden cold water shock reflex. This reflex causes a person to immediately gasp for air, which can result in water entering the lungs, reduced underwater breath-holding times, and hyperventilation with subsequent confusion and increased muscle tetany.<sup>11</sup>

Consideration should also be given to such factors as the types of recreational activities and the length and size of vessels. The States should study in detail existing accident data to determine where, when, and by whom PFD usage should be required. States need to consider that on certain sizes of vessels and during certain types of recreational activities, PFD usage may not be necessary and that there is a level of risk associated with many sporting activities, including recreational boating. For example, some people jump off their boats in warm waters and swim safely without wearing a PFD.

At a minimum, however, the Safety Board believes that children should be required to wear PFDs. The Safety Board also believes that requiring children to wear PFDs will eventually result in more adults wearing PFDs, as occurred with the use of child safety seats and seatbelts for children.<sup>12</sup> However, given the various age limits that have been enacted by some of the States and apparently the lack of any scientific research to support the age limits chosen, the Safety Board believes that the Coast Guard and the NASBLA, in consultation with the American Academy of Pediatrics, should establish an age at or below which all children should be required by all States to wear PFDs while in recreational boats. The Safety Board further believes that the NASBLA members should then seek legislative action in their respective States that would require the wearing of PFDs, under conditions determined to be appropriate by the State, with a minimum requirement that all children wear PFDs.

The Safety Board acknowledges that enforcement of PFD usage has been and will continue to be difficult primarily because of the availability and accessibility of law enforcement officials and the number of these officials compared to the number of boaters. Programs similar to the BWI enforcement initiatives such as "Boat Block" and "SWAMP" may need to be implemented to target specific waterways. The

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<sup>11</sup> Steinmen, Alan M.; Haywood, John S. 1989. Cold water immersion. In: *Management of wilderness and environmental emergencies*. St. Louis, MO: Mosbey Publishing Company.

<sup>12</sup> According to data from a National Highway Traffic Safety Administration (NHTSA) 19-city survey, seatbelt use has increased from about 16 percent for teenage drivers in 1985 to about 44 percent for teenage drivers in 1991. Also, use of seatbelts by subteens (5- to 12-year-olds) is increasing steadily. The NHTSA suggests that this is likely a function of the fact that many of these persons used child safety seats and seatbelts when they were younger and have developed the habit of buckling up. They may also have been influenced by public education efforts to promote seatbelt use. Further, the "follow the leader" effect has been evident in the child restraint area, where parents use seatbelts to serve as a role model for children who were in child safety seats.

NASBLA can play a role by working with the individual States to develop enforcement activities appropriate to the type of PFD requirements to be implemented by the States.

The Coast Guard has promoted the need for increased voluntary wearing of PFDs by recreational boaters through the development and distribution of numerous public service announcements and brochures. The Safety Board believes, however, that the Coast Guard can play a more active role by using its funding authority to increase PFD usage, as it now does with the States regarding funds expended for educational programs. For example, the Coast Guard should require that the memorandum of understanding signed by the States with the Coast Guard biennially outline specifically the State's plan to increase PFD use. The annual narratives submitted by the States and used by the Coast Guard to determine funding levels should be reviewed for compliance with the proposed activities. The Coast Guard could redistribute funds based on the level of need and/or compliance with the State's activities in this area.

### **Boat Operating Skills and Knowledge**

Of the 451 operators involved in the 407 fatal accidents reported by the 18 States, information on whether the operators had attended any boating safety courses was provided for 230 of the operators. According to the data, 43 (19 percent) of the 230 operators had taken some type of boating safety course; 187 (81 percent) of the 230 operators had not. Operators of powered vessels represented 37 of the 43 operators (86 percent) reported to have taken a boating safety course.

Experience level information for the accident vessel type was available for 239 operators; 126 operators (53 percent) had over 100 hours experience and 40 operators (17 percent) had less than 20 hours.<sup>13</sup>

The accident data and case studies presented in the Safety Board's study strongly suggest that the individuals involved in fatal boating accidents operated their vessels in a manner that suggested a lack of basic knowledge of the rules of the road (that is, collisions, speed); a lack of understanding of safe boating practices (speed, alcohol, improper loading, inclement weather); and a lack of proficiency in operating skills (capsizings, collisions, weather).

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<sup>13</sup> Twenty-seven persons were operating the type of vessel involved in the accident for the first time. It was unknown in 22 of the 27 cases whether the operator had any experience in other types of vessels. Of the 5 for whom experience level was known, one had never operated a boat; 3 had less than 20 hours experience operating boats; and one had more than 100 hours experience operating boats.

Unlike general aviation and motor vehicle operations, an operator of a recreational boat is not required to demonstrate an understanding of the rules of the road or an ability to operate the vehicle. Further, the data do not show that recreational boating is a safer form of transportation than any other mode of transportation for which a demonstration of knowledge, skills, and ability is required prior to operating the equipment. However, no comprehensive program exists to determine that a boat operator has adequate knowledge and skills to safely operate a recreational vessel. Further, perhaps as few as 7 percent, and certainly no more than 22 percent, of first time boat operators will have taken some type of voluntary boating safety course. Moreover, successful completion of these courses indicates only that the persons who have taken them have a knowledge of basic boating safety rules; it does not indicate that these persons have demonstrated an ability to operate the vessel.

With the one exception of New Jersey, there is no requirement in the United States that a boat operator be licensed. A motor vehicle driver, for example, must obtain a license to operate the vehicle and to obtain the license must pass both a road test and a written test. Even motorcyclists must demonstrate, through testing, a knowledge of the rules of the road and the ability to operate the vehicle before receiving an endorsement to the motor vehicle license to operate a motorcycle. A boat operator, on the other hand, can rent or buy a vessel that can operate at speeds of 100 mph without demonstrating a knowledge of basic safety rules or skills in operating these sophisticated vessels. Although there are some boating advocates who would argue that most boaters would not attempt to operate such high-powered vessels without having received proper training and demonstrated an ability to operate these vessels, the Safety Board is concerned that this option exists. In fact, over 900 persons are killed each year in recreational boating accidents, more than are killed in any other type of marine accident or more than in rail and aviation accidents. Therefore, the Safety Board believes, as a minimum, that the States and the Territories should implement a program of minimum boating safety standards to reduce the number and severity of accidents. In addition to the PFD requirements addressed earlier in this letter, such a program should consider requirements for recreational boat operators to demonstrate a knowledge of safe boating rules and an ability to operate the vessel. The requirement to possess a certificate of completion or an operator's license should also be considered as part of a comprehensive program.

The Safety Board further believes that the Coast Guard, in consultation with the NASBLA, should develop guidelines that would be used by the States to implement the minimum recreational boating safety standards. The guidelines could address, for example, the skills and knowledge necessary to demonstrate competency in operating different types of recreational boats. The Safety Board recognizes, if a State adopts such a requirement, the State may not want to require such demonstrations for some boats that fall under the category of recreational boats on

some waterways. For example, high performance boats that operate at high speeds and larger vessels should probably require demonstration of knowledge and skills. However, small unpowered boats (or boats with low horsepower) may not warrant such a demonstration. Further, the level of competency needed may vary depending on the intended use of the vessel. For example, operating a canoe or kayak in white water may require a higher level of competency than operating the same vessel on warm, placid lakes. The Coast Guard and NASBLA should determine for which vessels and under what conditions it would be necessary to demonstrate an ability to operate the vessel. Because States may opt to require that boat operators demonstrate proficiency in boat handling skills and knowledge of boating rules, the Coast Guard and the NASBLA guidelines should address the methods by which this can be accomplished, such as through existing formal boating safety courses or self-teaching methods. Because testing may become an important component of the minimum boating safety standards, the Coast Guard and the NASBLA should address the issue of how and where tests could be conducted. Finally, if the States opt to require a boat operator's license, the guidelines should address how the license could be issued and the period for which the license is valid. For example, an endorsement to the motor vehicle drivers license, for those boaters who have one, could be considered; such procedure would have the advantage of using an existing administrative structure.

The Safety Board recognizes that implementation of minimum boating safety standards will be a significant change in how the recreational boating industry has operated in the past and that extensive planning, organization, and public education will be needed to successfully implement such a program. The Safety Board believes, however, that an extensive new bureaucracy may not be necessary to implement this program. Every State, with the exception of Alaska, already has a centralized boat titling and registration authority. Currently, 19 States title and register recreational boats through a department of motor vehicles or other State taxing unit. Thirty States title and register boats through a marine law enforcement organization, such a department of natural resources, a parks and recreation division, or a fish and game commission. Administration of records and fees related to certification or licensing and notification of the new requirements related to the minimum boating safety standards could be accomplished through these existing organizations. Further, the NASBLA could serve the role of administering such a program.

Perhaps more importantly, the Safety Board believes that if States implement a boat operator licensing program, such a program will provide a more effective means of enforcing boating laws, so that those who have been operating boats unsafely can be identified, and steps taken to either improve their behavior or withdraw the boating privilege. Currently, marine law enforcement officials can suspend operating privileges; however, without a license, there is no mechanism to monitor boaters who have violated boating laws. The available data from the National Highway Traffic Safety Administration indicates that the suspension or

revocation of a person's driving license, if found to be driving under the influence of alcohol or drugs, has proven to be a successful deterrent to this behavior. It is reasonable to believe that the suspension or revocation of a boating license would be an effective deterrent to boating while under the influence. Suspending or revoking a boating license could also prove effective in enforcing existing and future PFD laws. Suspending or revoking a boating certificate or license could also prove effective in enforcing existing and future PFD laws.

Therefore, as a result of the safety study, the National Transportation Safety Board recommends that the U.S. Coast Guard:

Implement a fatal accident reporting system, comparable to the National Highway Traffic Safety Administration's Fatal Accident Reporting system, and develop a three-level report form and corresponding data files that address the accident, the vessel(s), and the occupants. Develop guidelines for submission of the data and standardization of cause codes and develop uniform data entry at the State level. (Class II, Priority Action) (M-93-10)

Evaluate the effectiveness of State programs aimed at curbing alcohol use in recreational boating, and use funding to encourage States to use those programs that are most effective. (Class II, Priority Action) (M-93-11)


Develop, in consultation with the National Association of State Boating Law Administrators and the American Academy of Pediatrics, a uniform component of standards that establishes an age at or below which all children should be required by all States to wear personal flotation devices while on recreational boats. (Class II, Priority Action) (M-93-12)

Use Coast Guard funding authority to increase personal flotation device (PFD) usage by requiring that the memorandum of understanding signed biennially by the States with the Coast Guard outline specifically the States' plans to increase PFD usage. Review annual narratives submitted by the States to determine compliance with proposed plans and activities. (Class II, Priority Action) (M-93-13)

Develop, in cooperation with the National Association of State Boating Law Administrators, guidelines that would be used by the States to implement minimum recreational boating safety standards to reduce the number and severity of accidents; consider requirements such as mandatory use of personal flotation devices for children, demonstration of operator knowledge of safe boating rules and skills, and operator licensing. (Class II, Priority Action) (M-93-14)

Also as a result of the study, the Safety Board issued safety recommendations to the Governors of the 50 States, U.S. Virgin Islands, Puerto Rico; the Mayor of the District of Columbia; the National Association of State Boating Law Administrators; the U.S. Department of the Army, Corps of Engineers; and the American Academy of Pediatrics.

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HART, and HAMMERSCHMIDT concurred in these recommendations.

By:   
Carl W. Vogt  
Chairman