

U.S. Department
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United States
Coast Guard



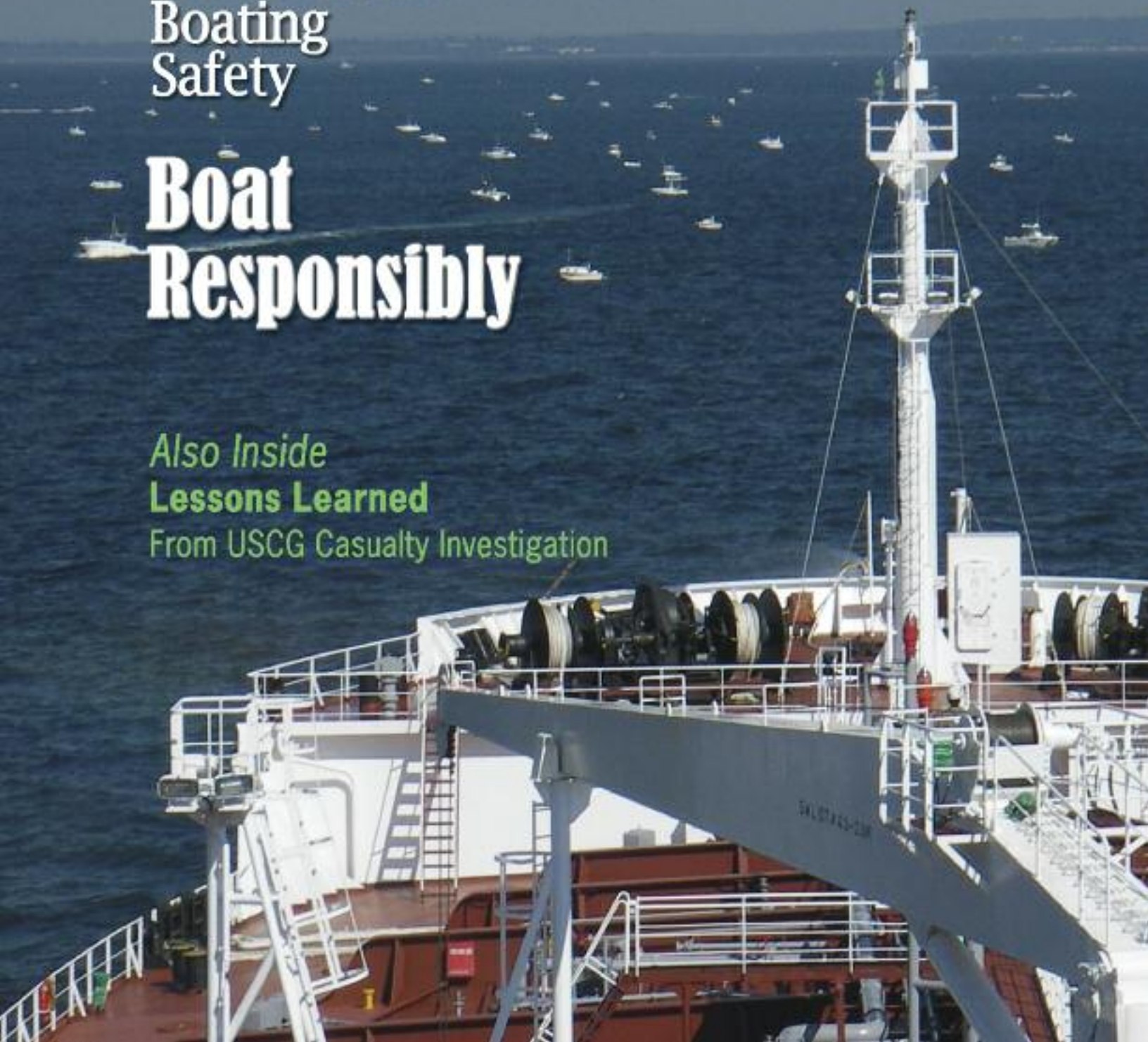
The **COAST GUARD** Journal of Safety
& Security at Sea
PROCEEDINGS
of the Marine Safety & Security Council

Fall 2010

Recreational
Boating
Safety

**Boat
Responsibly**

Also Inside
Lessons Learned
From USCG Casualty Investigation



PROCEEDINGS

Fall 2010

Vol. 67, Number 3



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Assistant Commandant's Perspective

By RADM PAUL ZUKUNFT

U.S. Coast Guard Assistant Commandant for Marine Safety, Security and Stewardship

Many readers of *Proceedings* are well informed about the Coast Guard's marine safety mission, particularly as it relates to the commercial vessel community—a community that provides critical resources and maritime transportation to our nation.

Some of you may be less familiar with the recreational boating component of our marine safety mission. The Coast Guard works with this very large and diverse community to improve safety and enjoyment of recreational boating on our nation's oceans, gulf waters and bays, inland lakes, and flat and whitewater rivers.

The Coast Guard has a long history of working with the recreational boating community, dating to the early days of our country, when laws were enacted concerning yachts and their movement from port to port. The Motorboat Act of 1910 established standards for navigation lights, machinery, and life preservers aboard recreational vessels propelled by machinery other than steam. Thirty years later, the 1910 Act was amended by the Motorboat Act of 1940, which provided for other regulatory controls, mostly intended to prevent or mitigate accidents aboard the growing number of gasoline-powered recreational boats. Since then, we've witnessed unparalleled growth in the volume and diversity of recreational boating activity.

The results of our collective safety efforts have been impressive, to say the least. In the last 40 years alone, the number of boating participants has grown exponentially, yet the number of boating incidents and deaths continue to come down. This success is attributable to the cooperative partnerships that have been forged among federal, state, and local governments; the boating industry; boating safety organizations; and recreational boaters. The collective partnership that exists in the recreational boating community is an exceptional example of what can be accomplished when the unique talents and dedication of the entire community are brought together to work toward a common goal.

Yet, the story is not finished. There is more that needs to be done. While we've brought the number of deaths down significantly, there are still over 700 recreational boating fatalities each year. We can—and *will*—do better. But that can only happen through your active participation. If you are already an active partner in the National Recreational Boating Safety Program, I sincerely thank you for your commitment. Please continue to work with us to improve this program even further. If you are not already an active partner in this program, then please consider coming aboard.

Together, we are making a difference that has a positive impact on tens of millions of Americans each and every year. Join the Coast Guard and our many boating safety partners in being *Semper Paratus!*

ADM Robert J. Papp Jr.
Commandant
U.S. Coast Guard

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Champion's Point of View



By RADM KEVIN S. COOK
U.S. Coast Guard Director of Prevention Policy

It has been my pleasure to “champion” this issue of *Proceedings* devoted to recreational boating safety. I am proud of the accomplishments of the Coast Guard and the many partners you will “hear” from throughout the issue. I am indebted to the large number of partners who have provided their input to assist all of us in understanding the many related facets of recreational boating safety. It is a measure of their commitment that so many have stepped forward to share their perspectives.

For you, the typical *Proceedings* readers, this issue is intended to capture both your professional and personal interests. It’s likely that you are one of the 82 million adults we estimate enjoy some type of recreational boating throughout the year. I would encourage you to bring this issue to the attention of your friends and colleagues who also enjoy boating.

Today, the number of boats and other watercraft is staggering. Since the enactment of the Federal Boat Safety Act in 1971, the number of registered boats has doubled to nearly 13 million. And with the relative explosion of unregistered “paddle craft” (kayaks, canoes, etc.), the true number of boats cannot be known for sure. But what is known—and what the Coast Guard and its partners are so proud of—is that since the 1971 act, the number of fatalities has plummeted from a record high of 1,754 deaths in 1973 to 736 deaths in 2009.

Unfortunately, despite the overall outstanding impact, the last few years have seen little progress in the effort to further reduce recreational boating deaths; in fact, this last year has shown a four percent rise in the number of deaths. We collectively in government, industry, non-profits, and advocacy groups must do better. And, together we can! Ultimately, we must depend on those out on the water to boat responsibly, and data analysis can point the way to safer boating. For example, digging deeper into the data reveals that 70 percent of all deaths resulted from drowning, and 90 percent of those who drowned were not wearing a life jacket.

I invite you to read and enjoy this issue of *Proceedings*. I hope it will enlighten you as to the diverse partners involved in the National Recreational Boating Safety Program and challenge you to think about what we can all do to make boating safer.





A Century of Recreational Boating Safety

by CAPT MARK D. RIZZO
Chief

U.S. Coast Guard Office of Auxiliary and Boating Safety

MR. JEFF HOEDT

Chief, Boating Safety Division

U.S. Coast Guard Office of Auxiliary and Boating Safety

Recreational boating in America has a fascinating history, which began even before our nation became a country. While boats were used as a means of transportation for migration, survival, and commercial purposes in those earliest of times, use of boats for pleasure was not uncommon.

Vessels played a major role in our nation's evolution, and they abounded in use. Harbors became crowded and accidents occurred, which led to laws, policies, and aids to navigation that helped to guide the masters of the vessels. In fact, such laws were enacted by our first Congress in 1789, the same year the U.S. Lighthouse Establishment (later known as the U.S. Lighthouse Service) was created.

More Vessels = More Safety Issues

In the 1800s, as technology evolved and motors were developed to propel vessels, there was a significant growth in commercial and recreational vessels. This led to another rise in accidents and a heightened concern for safety. Life-saving stations were established in 1848 and the U.S. Life Saving Service was organized in 1878.

In the later 1800s and early 1900s, which had a healthy economy, a growing amount of leisure time for many citizens, and the production of smaller motorboats, there was a huge step in the evolution of recreational boating. The unfortunate number of deaths and injuries

involved with recreational boating at this time drew the attention of our nation's lawmakers again.

A Century of Safety Begins

One hundred years ago, Congress enacted the Motorboat Act of 1910, establishing the first federal laws requiring lights, whistles, life preservers, and a way to extinguish fires aboard motorboats up to 65 feet in length.

While these early regulations were helpful, they couldn't keep up with the growth in recreational boating. The sale of motorboats soared with the development of the outboard motor. Other participants favored smaller sailboats, and those who couldn't afford either took to the water in canoes. Smaller boats at a lower cost and increasing leisure time for larger segments of the population also spurred the continuing growth in recreational boating.

By 1940, lawmakers again saw a need to address the growing number of accidents occurring with this increase in recreational boating, and enacted several amendments to the Motorboat Act of 1910. For the first time, Congress initiated federal requirements for motorboat construction, including requiring backfire flame arrestors and engine compartment and bilge ventilation. Reckless or negligent vessel operation was also outlawed.

State Participation

As the 1900s progressed, the number of recreational boats appeared to be growing even faster, as did the perception that too many boaters were being injured or killed. Unfortunately there was no system to accurately capture incident data for analysis.

To further enhance safety and to address the lack of incident data, Congress enacted the Federal Boating Act of 1958, which enhanced federal and state boating law uniformity. In a 1958 letter from the Secretary of the Treasury to Congress, the secretary stated the "primary purpose of this bill is:

- to require that all undocumented vessels propelled by machinery be systematically numbered for identification purposes,
- to authorize states to number boats within their jurisdiction in lieu of federal numbering provided standards prescribed by this legislation,
- to provide for some uniformity in numbering between participating states and the federal government,
- to establish reciprocity between participating states,
- to amend the Motorboat Act of 1940 to ... impose a duty on operators involved in accidents to render assistance on the scene and to report the accidents to designated officials."

Among other benefits, this act made states essential partners in this cooperative effort. Most of the states quickly enacted boating safety laws involving boat numbering, equipment, and operation. These laws were typically uniform, making it easier for boaters to be in compliance when traveling from one state to the next. Further, many states initiated boating safety programs to implement their new laws, increasing the number of officers on the water for enforcement and rescue. Several boating safety organizations were also formed during this time period and have become an indispensable part of the boating safety team.

Mixed Statistics

Also as a result of this 1958 act, the Coast Guard was tasked with collecting information on numbered boats and analyzing boating accident reports. In 1961 the Coast Guard published the first annual statistical report, which showed that there were 2.4 million "numbered" boats and that 819 people lost their lives in recreational boating accidents in 1960.

Invaluable Partners

Over the years many boating safety organizations have worked with the Coast Guard to collectively make boating safer and more enjoyable. These invaluable partners include:

The National Water Safety Congress

The American Boat and Yacht Council

The National Safe Boating Council

The National Association of State Boating Law Administrators

The U.S. Coast Guard Auxiliary

The U.S. Power Squadrons

BoatU.S.

U.S. Sailing

The National Boating Federation

The American Canoe Association

The Boy Scouts of America

The American Red Cross

The U.S. Army Corps of Engineers

The National Marine Manufacturers Association

The National Boating Safety Advisory Council

The Water Sports Industry Association

The Personal Watercraft Industry Association

The Personal Flotation Device Manufacturers Association

United Safe Boating Institute

By 1968, there were 4.7 million numbered boats and, unfortunately, the number of deaths for that year had grown to 1,342. While, lamentably, the number of deaths had grown substantially, this represented a slower rate of growth than the number of boats used. In other words, the ratio of deaths to numbered boats was actually lower in 1968 than it was in 1960.

Despite the decreasing ratio, Congress was still concerned with the growing number of boating deaths, and studied the statistics to discover the way ahead. This review went on for a few years. In 1971, when the number of registered boats reached 5.5 million and the number of recreational boating deaths reached 1,582 in a single year, Congress enacted the Federal Boat Safety Act. This was by far the most comprehensive legisla-



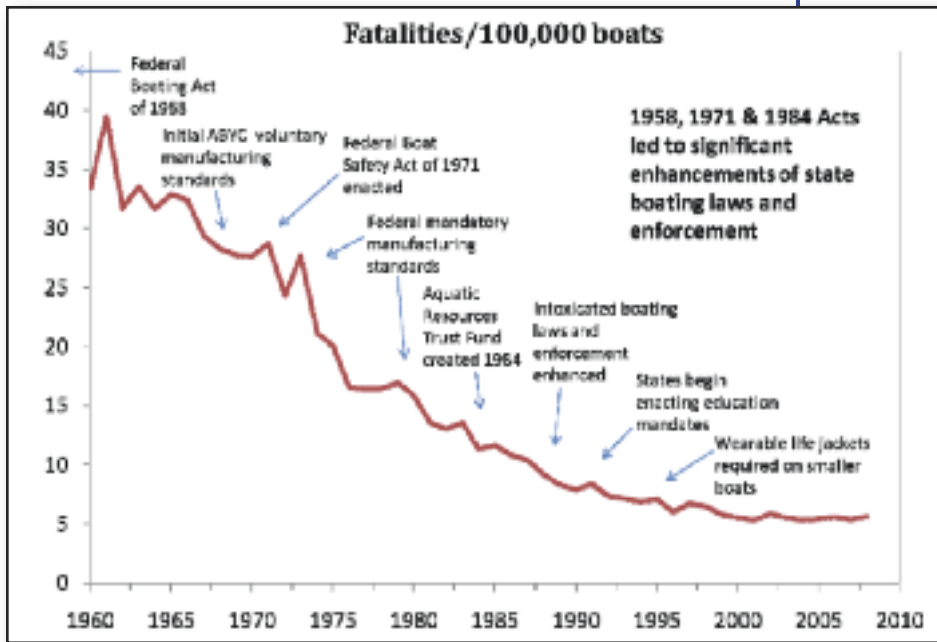
tion ever enacted to enhance boating safety. The American Boat and Yacht Council developed its first voluntary standards for the manufacturing of recreational boats during this time frame.

The Federal Boat Safety Act of 1971

In addition to formally establishing the National Recreational Boating Safety Program, a key component of

ically less than \$30 million a year. In fact, no funding was made available to the partners in the early 1980s even though the success of the program was obvious: The number of “numbered” boats increased to 9.1 million in 1982, while the number of boating deaths had dropped to 1,178—a small fraction of the 1971 ratio.

In the early 1980s the recreational boating community, recreational fishing community, federal agencies, and Congress took a hard look at the funding situation. Two members of Congress, Sen. Malcolm Wallop from Wyoming and Rep. John Breaux from Louisiana, led the way to formulate a plan to provide user-based funding to support boating and fishing programs on a more consistent and ongoing basis, and at much more appropriate funding levels. These collective efforts led to the Aquatic Resources Trust Fund in 1984, a dedicated revenue source funded by user taxes. The fund provides grants to states and vital non-profit safety organization partners.



this act gave the Coast Guard the authority to establish mandatory boat manufacturing and other standards, which have reduced boating accidents, property damage, injuries, and deaths.

The act also provided for grants that states could use to fund their boating safety law enforcement, public education, vessel numbering, and other related safety efforts. Over the first 13 years of this grant program, the funding level remained unstable and relatively low, typ-

ically less than \$30 million a year. At the same time, the states enacted mandatory education requirements for motorboat operators, and today the vast majority of U.S. states and territories require at least some motorboat operators to pass a course or exam. In the mid-1990s, the Coast Guard required that smaller boats carry wearable life jackets on board for each person, as opposed to the prior requirement that accepted a cushion or ring buoy in lieu of a wearable life jacket.

By the year 2000, the number of registered boats climbed to nearly 12.8 million, while the number of deaths dropped to approximately 700, bringing the ratio of deaths compared to the number of registered boats to a record low.

Recreational Boating Statistics

Recent reports from the National Survey on Recreation and the Environment indicate that more than 82 million American adults participate in recreational boating each year, along with millions more youth.

Further, information from the Recreational Marine Research Center at Michigan State University indicates that in 2008 nearly 700,000 jobs in America were directly and indirectly related to recreational boating. Sales related to boating exceeded \$81 billion and the total impact on labor income exceeded \$26 billion.

Are We There Yet?

Is the number of deaths down to an acceptable level, whereby no further actions beyond maintaining the current programs are needed? That’s the question the Coast Guard has asked its partners as well as its federal advisory committee, the National Boating Safety Advisory Council. It’s a difficult one.

Some people perceive that current laws and programs have brought down the number of deaths to a level where they cannot be further reduced without enacting new laws and implementing additional programs that could be costly, controversial, or difficult to implement. The reason for this perception: The number of deaths has remained at approximately 700 per year for the past 10 years. The ratio of deaths to the number of registered boats has also not decreased, since the number of registered boats has remained relatively constant.

For the Coast Guard and its many partners, though, even one death is unacceptable. In 2004 the National Boating Safety Advisory Council and representatives of various components of the recreational boating community (including users, manufacturers, retailers, safety organizations, and state and federal government officials) worked tirelessly to identify strategies that would reduce boating accidents.

The Strategic Plan of the National Recreational Boating Safety Program

In the spring of 2007 at the annual International Boating and Water Safety Summit, 20 organizations signed this plan. These partners helped identify a plethora of strategies to achieve the goal of reducing deaths and injuries related to recreational boating accidents. These strategies include:

- improving accident reporting through regulatory and policy amendments,
- enhancing training for investigators,
- creating better measures to determine the effectiveness of the strategies,
- focusing on measures that will increase life jacket wear (given that most boating deaths are drownings),
- enhancing the education and skill levels of boat operators.

Looking Ahead

The National Recreational Boating Safety Program has been tremendously successful to date, greatly reducing the number of injuries and deaths associated with recreational boating. However, the story does not end here.

With projections showing that recreational boating can anticipate a long future, and with ingenious American inventors who continue to develop new boat designs, we will continue our efforts to improve safety for all recreational boaters.

FOR MORE INFORMATION:

For more information about the strategic plan, go to www.uscgboating.org and click on the link to the "Strategic Plan" of the National Recreational Boating Safety Program.

About the authors:

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Mr. Jeff Hoedt is the Chief of the Boating Safety Division within the Coast Guard's Office of Auxiliary and Boating Safety. He manages the Coast Guard's programs related to recreational boating safety, including legislative and regulatory efforts, data collection and analysis, strategic planning, budgeting, grants, operations, and product assurance.

The National Recreational Boating Survey

While the National Recreational Boating Safety Program is responsible for all forms of recreational boats and their safety, the current data is limited. For example, we know how many motorboats are in the U.S. because they have to be registered, but we don't really know how many canoes and kayaks there are. Federal law does not require them to be numbered, and only a handful of states require registration.

This skews the ratio that compares the number of recreational boating deaths to the number of registered boats because deaths associated with canoes and kayaks are counted in the total number of deaths, but the number of canoes and kayaks are not known and are not counted in the number of registered boats. Additionally, while most boat sales have slowed over the past decade, the number of kayaks sold has grown and remains high.

To resolve this situation, the Coast Guard has developed a new National Recreational Boating Survey that will be implemented in 2011. It has been designed to provide a wealth of vital data about the boats and boaters of our nation, including the number of canoes and kayaks as well as information about their users.

With this data, we will be able to develop more targeted and effective programs.





The National Boating Safety Advisory Council

by MR. JAMES P. MULDOON
Chairman, National Boating Safety Advisory Council

In the 1960s, recreational boating safety casualties were increasing at an alarming rate. To address this, Congress enacted the Federal Boat Safety Act of 1971. This landmark legislation provided the Coast Guard with the authority to develop standards and regulations pertaining to the construction of recreational boats and established the National Boating Safety Advisory Council (NBSAC) to advise the Coast Guard on developing and promulgating these standards and regulations. NBSAC operates as an advisory committee under the Federal Advisory Committee Act.

Since its inception in 1971, there have been five chairmen and approximately 200 other council members. The Secretary of the Department of Homeland Security appoints NBSAC members; solicitations for applications for membership council are also published in the *Federal Register* each spring. The Coast Guard Director of Prevention Policy, currently RADM Kevin Cook, is the council's sponsor.

Membership and Meetings

The council consists of 21 members:

- seven representatives of state officials responsible for state boating safety programs,
- seven representatives of recreational vessel manufacturers and associated equipment manufacturers,

- a combination of representatives of national recreational boating organizations (at least five) and members of the general public.

The council acts as a collaborative body, with all members contributing expertise to council discussions. Members serve a three-year appointment, with seven positions open for appointment each year and vacancies evenly distributed among the three membership categories. Because some members are reappointed, NBSAC currently averages three “new” appointments each year—usually one per category.

The council typically holds two meetings a year, usually in the spring and fall. Meeting times, location, and agenda are published in the *Federal Register* and on the NBSAC website. Meetings are open to the public, and attendance and participation is encouraged.

Subcommittees

The council has consistently provided invaluable advice to the Coast Guard on a broad range of boating safety matters by using a subcommittee system. Subcommittees examine issues in depth and present recommendations to the full council. Though NBSAC may convene additional subcommittees as needed, it currently has three:

- Boats and Associated Equipment,
- Prevention Through People,
- Strategic Planning.

Boats and Associated Equipment Subcommittee

The Boats and Associated Equipment subcommittee covers technical issues related to the design and construction standards of recreational boats and associated equipment such as navigation lights, life jackets and other lifesaving equipment, EPIRBs, fire extinguishers, backfire flame controls, ventilation, cooking, heating, and lighting systems.

Recent subcommittee meetings have covered the effects of ethanol on marine fuel systems, developing proposed regulation to require the use of engine cut-off switches, and developing test protocols and validation of testing on propeller guards.

Prevention Through People Subcommittee

Human factors play a significant role in recreational marine casualties, and are often easily addressable through better training, improved signage, or increased awareness of recreational boaters. As such, the Prevention Through People subcommittee considers issues related to preventing boating accidents through outreach and education.

Issues recently covered include:

- improving the testing and approval process for USCG-approved life jackets,
- the "Wear-It!" voluntary life jacket use campaign,
- developing standards for advanced boating education, including hands-on training.

Strategic Planning Subcommittee

The Strategic Planning subcommittee is at work to implement the current National Recreational Boating Safety Program five-year strategic plan (2007-2011) and concurrently develop the subsequent five-year strategic plan. Much of this work is data-driven, using information derived from the boating accident report database and other sources, and substantial time is spent analyzing this data.

The strategic plan, which has been signed by national boating organizations representing hundreds of thousands of recreational boaters and boating safety professionals, provides goals, objectives, and strategies for USCG implementation. The first of its kind in boating



The Strategic Planning subcommittee of the National Boating Safety Advisory Committee, from left: Major John Fetterman, Ms. Cecilia Duer, Mr. Fred Messman, Mr. Randy Edwards, Mr. Bruce Rowe. Photos courtesy of Mr. Jeff Ludwig, Executive Secretary, NBSAC.

safety, this comprehensive blueprint offers a common framework to the USCG and its boating partners seeking to advance safe, fun boating opportunities for our nation's recreational boaters.

Task Forces

In addition to the standing subcommittees, additional ones can be established as needed to address issues out-

Focus on Safety

NSBAC plays a vital role in the National Recreational Boating Safety Program. It provides the Coast Guard with an extremely cost-effective and transparent source of recreational boating safety subject matter expertise. The council also provides a forum for the public to participate in recreational safety discussions and deliberations that may lead to regulations that impact recreational boaters.

Much of NBSAC's current work is focused on the strategic planning process because the process drives the direction of the National Recreational Boating Safety Program.

The performance goal of the strategic plan is to reduce casualties, and most (if not all) of the program efforts include an analysis of how that effort will affect the program's performance as measured by the strategic plan.

One example is the council's recommendation that the USCG propose a rule requiring recreational boat manufacturers to install engine cut-off switches and operators of those recreational boats to be required to use them. If this proposal is adopted, it is expected that it will save lives and reduce catastrophic propeller strike-related injuries.





Ms. Brenda Warren, U.S. Army Corps of Engineers (Ret.), addresses the Strategic Planning subcommittee of the National Boating Safety Advisory Committee.

side the standing subcommittees' scope. Two recent examples are the boating education and accident reporting task forces.

Both groups were convened to address specific issues: The boating education task force made recommendations on the type of legislative authority the USCG should seek to require boater education, and the accident reporting task force made recommendations on ways to improve the recreational boating accident reporting system so that a higher incidence of accidents would be reported and the quality of the data would improve. Once the subcommittees completed their work and forwarded their recommendations to NBSAC, they were inactivated.

Liaisons

In addition to subcommittees, NBSAC has also established liaisons to two other USCG-sponsored groups—the Navigation Safety Advisory Council and the Towing Safety Advisory Committee. These liaisons, which facilitate sharing information between the commercial and recreational boating communities, have been invaluable in advancing communication among constituencies with different needs and perspectives operating on shared waterways.

Successes

NBSAC has been instrumental in enhancing the effectiveness of the USCG federal grants program, established under the Federal Boat Safety Act to promote cooperative efforts among the USCG and states' boating safety programs. Under the provisions, up to five percent of the total state financial assistance available each year may be set aside for awards to eligible na-

tional non-profit public service organizations to support National Recreational Boating Safety Program activities.

The National Boating Safety Advisory Council has

been the driving force behind restructuring grant requirements to provide for greater accountability of success by mandating clearly defined and measurable goals.

Participation

The National Boating Safety Advisory Council would not be such an effective body without the dedicated volunteers that commit at least three years (some many more) to serve on the council. The expertise gained from council members of different membership cate-

FOR MORE INFORMATION:

**The National
Boating Safety
Advisory Council**

<http://homeport.uscg.mil/NBSAC>

gories and from different geographic areas of the country is invaluable and irreplaceable.

I strongly encourage anybody with an interest in recreational boating safety to consider applying for membership on the council.

About the author:

Mr. Muldoon, a former president of U.S. Sailing with more than 75,000 miles of blue water racing experience, has been involved in international sailing/boating organizations for 25 years. He is a former Air Force intelligence officer and assistant to a U.S. Senator. He serves as Chairman of the Board of Trustees of St. Mary's College of Maryland and is a founding member of the board of Washington First Bank.

Strategic Planning

Plotting a course for change.



by MR. JAMES P. MULDOON
Chairman, National Boating Safety Advisory Council

MR. FRED F. MESSMANN
Deputy Director, National Safe Boating Council

Recreational boating is a fun and generally safe activity, but every year hundreds die in accidents and thousands more are injured.

Considering that approximately 77 million Americans participate in recreational boating, these numbers are statistically low. However, these deaths and injuries are preventable.

Although the National Recreational Boating Safety (RBS) Program has contributed to a significant decrease in deaths, there is still room for improvement. To focus the resources of the program, the National Boating Safety Advisory Council (the federally mandated council that advises the Coast Guard on boating safety matters) recommended creating a strategic plan.

to minimize loss of life, personal injury, and property damage and to ensure the public has a safe, secure, and enjoyable recreational boating experience.¹ The panel includes members of the Coast Guard, the states, industry, and the public, who meet regularly to determine how we can prevent the injuries and deaths of recreational boaters.

After three years of hard work and collaboration, the panel produced the National Recreational Boating Safety Program Strategic Plan for 2007-2011, which describes the goals, objectives, and strategies to reduce recreational boating injuries and deaths. It now serves as the primary framework for programmatic decision making, budgeting, and program evaluation.

Strategic planning—AARRGHHH! Shiver me timbers and scuttle this article! That can't be any fun at all. However, if you believe in camaraderie, friendly debate, and learning from other points of view, you might actually volunteer, as the majority of this working group did.

The National Boating Safety Advisory Council (NBSAC) created the strategic planning panel to develop the most effective goals, objectives, and strategies

Plan the Plan

How did we get here? Panel members traveled across the country to meet and deliberated over the Internet to define and develop goals, objectives, and strategies. The panel considered the following questions:

- How can we reduce risks?



- What variables can we influence?
- How can we measure our progress?

To ensure the panel addressed actual problems, not just perceived ones, members studied data from the U.S. Coast Guard Boating Accident Report Database, which is focused on the most frequent types of boating accidents and their underlying causes. Members also determined that the panel needed to improve and incorporate measurements into the plan.

The result? The panel determined the most frequent causes of accidents and what behaviors and conditions led to them, as follows:

- **Drowning.** Causes: lack of boating safety knowledge, lack of life jackets, life jackets not worn, inability to swim, operating in heavy weather, alcohol or drug abuse.
- **Falls Overboard.** Causes: overloading, lack of safety knowledge, operator inattention, boat design, weather, alcohol or drug abuse.
- **Collision with Vessel/Collision with Fixed Object (allision).** Causes: lack of boating safety knowledge, operator inattention, no proper lookout, disregard of navigation rules.

The panel drafted a list of objectives to address these risks, prioritized the objectives, coordinated its calculations for consistency with the Coast Guard's efforts, and completed a working set of objectives.

The Process

Plan Developers

The National Boating Safety Advisory Council created a strategic planning panel comprised of representatives of the boating community. To provide as broad a representation of the boating community as possible, the council invited members of the public, industry, boating organizations and associations, boating law administrators, and federal agency partners to participate. NBSAC selected the participants based on their expertise on boating safety, their experience within the boating community, and their willingness to share their knowledge.

Transparency and Accountability

The NBSAC and its strategic planning panel created the plan so everyone could understand how RBS partners can achieve the ambitious goals, objectives, and strategies of the National RBS Program. As a federally funded program, the National RBS Program is subject to review under the Government Performance and Results Act, which requires governmental programs to be measurable and accountable. The program's performance is reviewed by the Office of Management and Budget and the Government Accountability Office. This allows anyone to measure our successes and challenges.

Definitions

The panel defined the following terms to focus and structure its efforts:

Goals: the final outcomes desired. Goals must be measurable.

Objectives: the interim outcomes desired to achieve the goals. Objectives must be measurable.

Strategies: the programs implemented to accomplish the objectives.

Focus Areas

The panel developed a list of 95 subject areas. Staff from the USCG Boating Safety Division developed a "strategy prioritizer," where each panel member could rank the strategies by what would most effectively reduce casualties.

They then reviewed the list of prioritized strategies, merged overlapping concepts, and focused on a working list of 59 strategies. Once this framework was in place, members reviewed, reorganized, and honed the language to ensure the goals, objectives, and strategies were clear and logically organized. In October 2006, Chairman Fred Messmann presented the plan to the full council, who voted unanimously in support.

Work the Plan

Next the panel developed strategies to increase the general awareness of boating safety by promoting a simple and consistent message similar to the "Smokey the Bear" forest fire prevention campaign. The focus: Increasing life jacket wear rates, interventions for boating under the influence, ensuring manufacturer compliance with federal regulations, and increasing frequency and accuracy in reporting of boating accidents.

As with any plan, this one presented “opportunities” to find gaps and learn from them. For example, we revised our calculations to be consistent with Coast Guard reporting requirements. From 2009 forward, we calculated the number of casualties using a five-year average based on the federal fiscal year.

Our expectation to establish meaningful measurements was also challenged. We needed to do a better job of getting strategic partners involved in implementation and then analyze what we had strategized against what was working and what was stalling.

Improve the Plan

That said, we are taking various steps to support a continuous strategic planning process.

New Strategic Planning Subcommittee

NBSAC created a strategic planning subcommittee that will carry on the work started by the strategic planning panel. The subcommittee will rely on several tools to measure its progress, including a performance report from each state, reports on the grants of national non-profit public service organizations, the National Recreational Boating Survey, and the Boating Accident Report Database.

Grants for National Non-profit Public Service Organizations

The Coast Guard’s Boating Safety Division has evolved the grant evaluation process for national non-profit public service organizations. Grant applicants are strongly encouraged to tie their projects to specific objectives or strategies of the strategic plan and to measure the effectiveness for each project.

Implementation Plan

For each objective, NBSAC’s chairman established working groups comprised of a chairperson and two members. The USCG Boating Safety Division also assigned a staff contact for each working group. The members will connect with partners to implement each of the objectives and strategies and will develop performance measures.

National Recreational Boating Survey

The Boating Safety Division is working with two panels of boating safety experts to develop the National Recreational Boating Survey, which will provide scientific information about boaters’ behavior to compare to fatality and injury data to identify the greatest risks. The survey will be administered every two years.



Mr. James P. Muldoon, Chairman of the National Boating Safety Advisory Council, signs the Strategic Plan of the National Recreational Boating Safety Program. USCG photo by Ms. Rachel Warner.

Organizations That Signed the Strategic Plan

- American Canoe Association
- Association of Marina Industries
- BoatU.S. Foundation
- Boy Scouts of America
- Marine Retailers Association of America
- National Association of State Boating Law Administrators
- National Boating Federation
- National Boating Safety Advisory Council
- National Marine Manufacturers Association
- National Safe Boating Council
- National Water Safety Congress
- Personal Flotation Device Manufacturers Association
- Personal Watercraft Industry Association
- United Safe Boating Institute
- United States Army Corps of Engineers
- United States Coast Guard
- United States Coast Guard Auxiliary
- United States Power Squadrons
- U.S. Sailing
- Water Sports Industry Association





Supporters of the Strategic Plan of the National Boating Safety Program meet at the 2007 International Boating and Water Safety Summit. From left to right: Rear Admiral Craig Bone, U.S. Coast Guard; Ruth Wood, BoatU.S. Foundation; Buzz Watkins, Water Sports Industry Association; Cecilia Duer, National Water Safety Congress; Jeffrey Johnson, NASBLA; Maureen Healey, Personal Watercraft Industry Association; Commodore Warren McAdams, U.S. Coast Guard Auxiliary; Ernest Marshburn, U.S. Power Squadrons; Fred Messmann, NBSAC; Margot Brown, National Boating Federation; Pamela Dillon, American Canoe Association; James Muldoon, NBSAC; Jeffrey Hoedt, U.S. Coast Guard. USCG photo by Ms. Rachel Warner.

Assess and Update Plan Every Five Years

The strategic plan will be reviewed every five years to:

- Determine our progress.
- Analyze our measurements.
- Consider new strategies.

For the Future

The plan review is currently underway. We are working closely with our counterparts under different areas of command within the Coast Guard and the Department of Homeland Security, reaching out to more stakehold-

FOR MORE INFORMATION:

We invite you to study our plan, process, and progress at www.uscgboating.org.

We are currently finalizing the next iteration of the plan for the years 2012-2017 and we invite you and your organization to help us implement it to save lives.

ers, and reaffirming commitments from other strategic partners to ensure successful implementation.

About the authors:

Mr. Muldoon, a former president of U.S. Sailing with more than 75,000 miles of blue water racing experience, has been involved in international sailing/boating organizations for 25 years. He is a former Air Force intelligence officer and also a former assistant to a U.S. Senator. He serves as Chairman of the Board of Trustees of St. Mary's College of Maryland and is a founding member of the board of Washington First Bank.

Mr. Messmann is a U.S. Navy Vietnam veteran and retired (2009) Nevada Department of Wildlife game warden captain who currently serves as the Deputy Director of the National Safe Boating Council. Captain Messmann was appointed to the National Boating Safety Advisory Council (NBSAC) in 2002, with reappointments in 2003, 2005 and 2009, and chairs the NBSAC Strategic Planning subcommittee. For more than 20 years he has served on the boards and chaired committees of numerous boating safety organizations, including time as President of the National Association of State Boating Law Administrators, where he received the NASBLA Lifetime Achievement Award. He has earned numerous other awards, including the U.S. Coast Guard's prestigious "Partnering with Pride" award, which recognizes the power, imagination, creativity, and vision of partner leadership.

Endnote:

¹ The National Recreational Boating Safety Program was established by the Federal Boat Safety Act of 1971, which amended title 46 of the United States Code. In 1983, Congress revised, reorganized, and codified title 46. Through this process, the Federal Boat Safety Act of 1971 was repealed and its provisions dispersed throughout the title. The Coast Guard's authority to carry out the National RBS Program is contained in section 13102 of title 46.



Recreational Boating Accident Statistics and Trends

Clear progress, but work remains.

by Ms. SUSAN TOMCZUK
U.S. Coast Guard Office of Auxiliary and Boating Safety

DR. L. DANIEL MAXIM
U.S. Coast Guard Auxiliary



In 1960, as part of a Federal Boating Act of 1958 mandate, the Coast Guard began publishing relevant statistical data on recreational boating accidents, injuries, and fatalities. Analysis of this information helps shape the strategic plan for the USCG National Recreational Boating Safety Program.

The Process

Under federal regulation, the owner or operator of any uninspected numbered vessel or an uninspected vessel used for recreational purposes is required to file a boating accident report for any incident in which a person dies, a person disappears from the vessel under circumstances that indicate death or injury, a person is injured and requires medical treatment, damage to vessels and other property totals \$2,000 or more, and/or there is a complete loss of any vessel. Once the state reporting authority receives a report form or information, state officials review it, determine the overall cause of the accident, and enter the data into the Coast Guard's Boating Accident Report Database (BARD).

The Coast Guard then screens each accident report to determine its accuracy and completeness and ensures that standard terminology is used for coding purposes. The Coast Guard's annual publication, *Recreational Boating Statistics*, summarizes the information.

The Coast Guard uses the data for regulatory purposes, to develop the USCG National Recreational Boating Safety Program Strategic Plan, to provide projections for other Coast Guard units and the Department of Homeland Security, and in response to Freedom of Information Act requests. Many others use this information as well, including research groups, non-governmental organizations, the media, and other federal agencies.

Improving Data Quality and Coverage

Over the years, the Coast Guard has worked with its state partners to improve the quality and coverage of recreational boating accident data, since some boaters are either unaware of their legal obligations or reluctant to report accidents. Incomplete accident reporting leads to an understatement of the social costs of recreational boating accidents.

The Coast Guard and state partners have worked to simplify accident reporting, use surrogate data sources to identify accidents that should be reported, and sponsor outreach efforts to inform boaters of their legal requirements.

At present nearly all accidents resulting in fatalities are included in the database, with fewer but a proportionately high percentage of accidents resulting in injuries



that lead to hospital admission. The coverage is much less complete for accidents resulting in non-hospital admitted injuries or property damage only. Much the same pattern is found with vehicle accident reporting.

Time Trends in Fatality Rates

Fatality rates for recreational boating accidents have historically been expressed as fatalities per 100,000 registered boats. For certain risk calculations it would be preferable to express rates relative to exposure (per boating day or hour) rather than normalizing by the number of registered boats.

In 2008, the total number of recreational boating fatalities in the United States was 709. This amounts to a fatality rate of 5.6 deaths per 100,000 registered boats. This fatality rate has declined over the years—more than 83 percent since the 1960 fatality rate of 33.4 per 100,000 boats, when these statistics were first collected and analyzed.

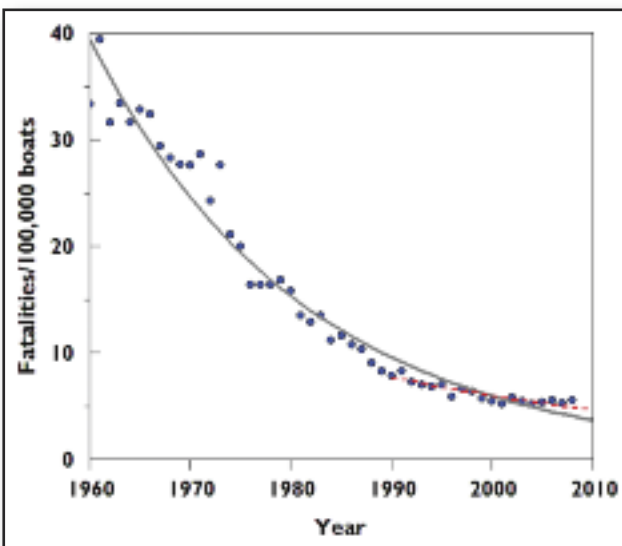


Figure 1. Fatality rates (per 100,000 registered boats) have decreased substantially over the years since 1960, indicative of substantial progress. However, the rate of improvement has decreased in recent years to just 2.5 percent, as noted by the red dashed line. All graphics USCG.

Not only have the fatality rates declined, but over this entire period fatality rates have decreased by an average of 4.6 percent annually,¹ indicating that many lives have been saved since 1960.

This can be calculated by analyzing the number of annual fatalities (based on the growth of the number of boats in use) that would have resulted if that fatality rate had not decreased from earlier levels, compared to the actual annual fatalities. Using 1960 as the base year, we can estimate

that more than 93,000 lives were saved on a cumulative basis—roughly the population of a mid-size city.²

Clear Progress, but Is it Time to Do Things Differently?

This progress is gratifying, but upon closer inspection, the time trend in fatality rates seems to be flattening out. From 1990 on, the average annual decrease in fatality rate was only 2.5 percent per year (denoted by the dashed red line in figure 1), and annual fatalities appear to be “stuck” at around 700.

It’s interesting to note that this situation is not unique to recreational boating accidents—similar diminishing returns have been observed for commercial aircraft fatality rates,³ “Class A” mishap rates for naval aviation,⁴ and highway fatalities.⁵ Perhaps it is unrealistic to expect that fatality rates will continue to decrease indefinitely.

Is it time to think about the present emphasis on voluntary initiatives and boater outreach—is it adequate to reduce fatality rates further, or is some alternative strategy appropriate? Further statistical analysis may help point the way.

For example, the Coast Guard Boating Accident Report Database (BARD) contains a wealth of data on accidents. Data fields include (among other things) the

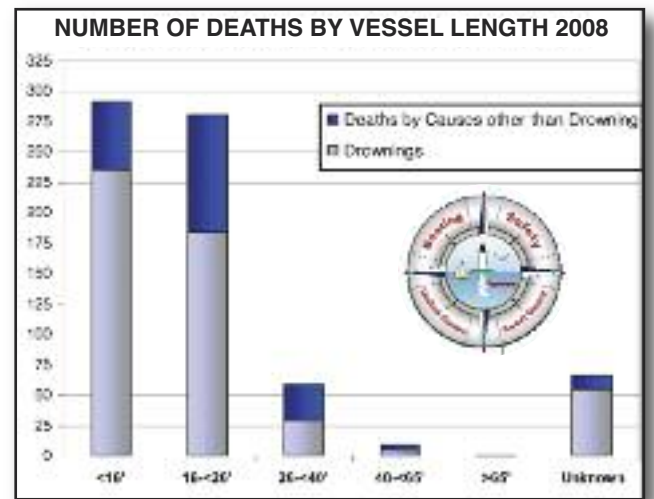


Table 15 • NUMBER & PERCENTAGE OF DEATHS BY VESSEL LENGTH				
Length	Drownings	Deaths by Causes other than Drowning	Total Deaths	Percent of Deaths from Drowning
<16'	238	56	292	81%
16-26'	185	96	281	66%
26-40'	29	30	59	49%
40-66'	5	4	9	56%
>66'	0	1	1	0%
Unknown	55	12	67	82%
Total	510	199	709	72%

Figure 2. Fatalities (drowning and deaths from other causes) by length of vessel in 2008. Note that larger boats have fewer deaths and a smaller fraction of drowning fatalities.

types and lengths of boats involved, location, time of day/day of week, month, prevailing environmental conditions, fatalities (and causes) and injuries, and factors contributing to the accident. We can study this information to learn more about how and why accidents/injuries/fatalities occur, and therefore what might be done to prevent or mitigate them. This information is then used to shape the strategic plan for the USCG National Recreational Boating Safety Program.

Most Boating Fatalities Are Drownings

Statistics show that smaller boats account for the majority of fatalities. Note also that drowning accounts for the majority of fatalities, particularly on smaller boats.

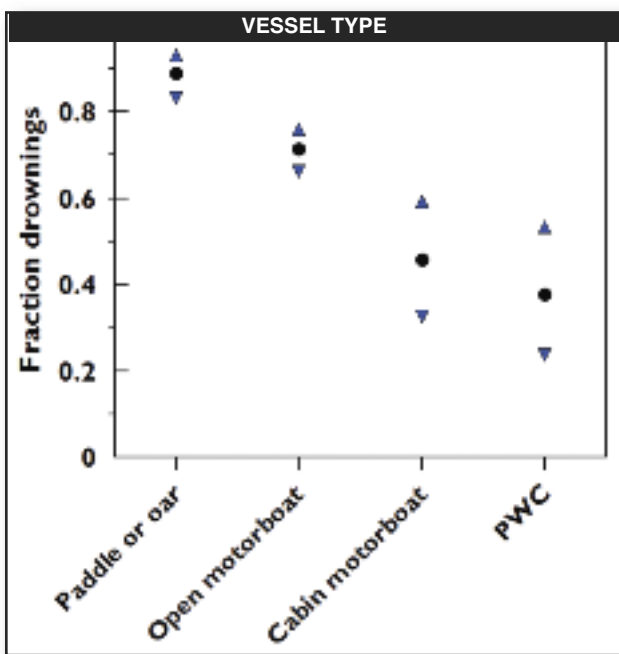


Figure 3. Fraction of fatalities caused by drowning by type of boat in 2008. Boat types shown account for nearly 90 percent of the total fatalities in 2008. The exact lower and upper 95 percent confidence bounds on these fractions are shown by the down- and up-facing triangles, respectively.

(The data shown in figure 2 relate to frequency, not risk, but are instructive nonetheless.)

Drowning accounts for two-thirds of all boating deaths—even more if deaths with unknown cause are excluded—but does not account for the same fraction of deaths for all types of boats.

Figure 3 shows the fractions (filled circles) of drowning deaths for four broad types of boat in 2008. These differences are both ma-

terially and statistically significant. They also provide clues to generate hypotheses for follow up analyses.

For example, the primary accident types “capsizing” and “falls overboard” (major contributors to drowning) were the two largest contributors to boating fatalities, together accounting for 53 percent of fatalities in 2008—and these types are more likely to occur on smaller boats than cabin motor boats, which are typically larger and more stable.

Personal watercraft (PWC) accidents are more likely to result in blunt trauma injuries (in part because of speed). But another important reason why PWCs have fewer drownings is because most states require personal watercraft operators and passengers to wear life jackets.

Life Jackets Save Lives

Modern theories of accident prevention⁶ in several fields stress a hierarchy (avoid-trap-mitigate) of means to reduce unsafe acts and accidents. It is clearly desirable to use safe boating practices to avoid accidents or,



“Wear It” is the name given to a cooperative program among the Coast Guard, the National Safe Boating Council (NSBC), and individual states. The program/slogan is a simple, standardized reminder to encourage everyone to stay safe on the water by always wearing a life jacket.

Although recreational vessels are legally required to carry life jackets for all aboard, experience shows that boaters are not always able to don a life jacket before being thrown in the water, and life jackets are very difficult to put on when in the water. Thus, the advice is “Don’t just carry a life jacket—wear it.”

Cause of death	Life jacket worn	Life jacket not worn	Total deaths if cause of death and life jacket use known	Fraction life jackets worn if known
Carbon monoxide	0	11	11	0.00
Cardiac arrest	1	6	7	0.14
Drowning	46	459	505	0.09
Hypothermia	7	5	12	0.58
Trauma	33	90	123	0.27
Other	1	7	8	0.13
Unknown	2	32	34	0.06
Total	90	610	700	0.13

Table 1. Life jacket use and cause of death among boating fatalities in 2008. The 505 drowning deaths accounted for approximately 76 percent of the 666 fatalities where the cause of death and life jacket use was known. While use of life jackets is not a guarantee that drowning will be prevented, life jackets were worn in only about nine percent of these cases. (Note: This table excludes nine fatalities where life jacket use was unknown.)



failing this, to trap possible errors or violations before these lead to accidents.

The Coast Guard is committed to data-driven analysis, to improving the quality of our data, and to use it to prioritize recreational boating safety initiatives.



The third element of the hierarchy is to employ means to mitigate the consequences of accidents should these occur, such as wearing a life jacket.

Most boating drownings are sudden, unexpected events, typically resulting from capsizing or falls overboard, which provide little time to don a life jacket.

Life jacket wear rates are high for some boaters (typically skiers, personal watercraft occupants, and children), largely because they are legally required to be worn in many states. But according to life jacket wear rate observation studies sponsored by the Coast Guard,⁷ life jacket wear rates are not high for other boaters.

For example, excluding personal watercraft, the overall mean life jacket wear rate for all boaters was 17.3 per-

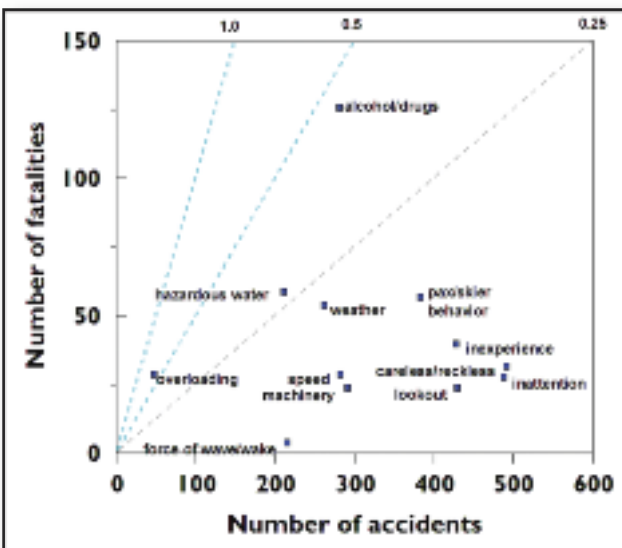


Figure 4. Fatalities and accidents in 2008 by primary contributing factor among those factors that account for at least 200 accidents or 25 fatalities.

cent in 2008. However, for adults in open motorboats, the overall wear rate was only 5.2 percent.

Perhaps the most compelling indication of the importance of wearing a life jacket developed from the BARD data is shown in Table 1. Life jackets were worn by only about nine percent of those who drowned in boating accidents in 2008; similar percentages are reported for Australia and Canada.⁸

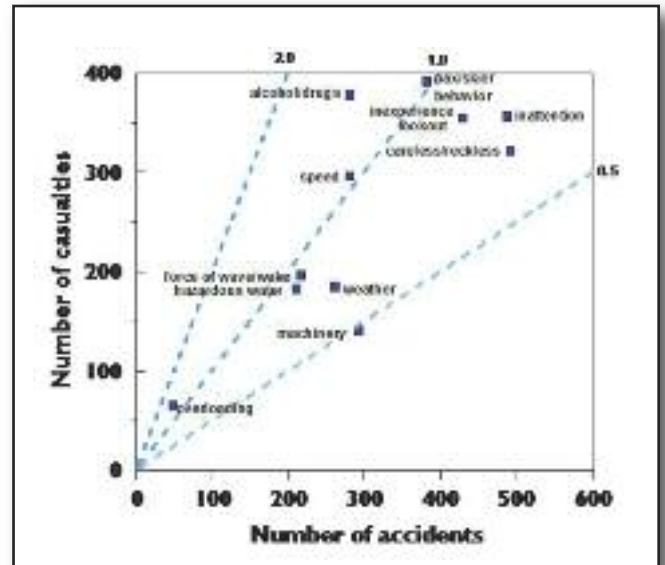


Figure 5. A similar chart to that shown in figure 4, except that casualties (total of fatalities and injuries) are plotted rather than fatalities. Dashed lines show ratio of casualties to accidents. Alcohol/drugs is still an important factor, accounting for more than six percent of total casualties, but other factors are also important.

The Coast Guard continues to do research on methods to provide rigorous and accurate estimates of the benefits (lives saved) of increased life jacket wear. One way to develop such estimates is to use boating accident report data to trace the effects of various laws/regulations that mandate life jacket use.

For example, a 2006 comparison of fatality rates for states with “quick phase in” education requirements (those requiring boating safety education for a broad range of operator ages within a short period of time) showed that these policies reduced boating fatality rates by a statistically significant margin compared to other states.⁹

Alcohol Kills


One particularly telling boating accident report data field is the primary contributing factor for each reported accident. Figure 4 shows the number of accidents and number of fatalities for the most important primary contributing factors.

Each factor (for example, alcohol or drugs) is plotted as a point showing the number of fatalities (126) and number of accidents (281). The dashed lines in this figure show contours of constant ratios of fatalities per accident. To avoid clutter, only factors resulting in at least 200 accidents or 25 fatalities are shown.

The statistics show that use of alcohol or drugs (principally alcohol) caused the greatest number of fatalities in 2008.

Other Contributing Factors

Figure 5 shows a similar chart, except that casualties (the sum of fatalities and reported injuries) are plotted rather than fatalities. In this case the clustering evident in figure 4 differs and the relative importance of



Numerous investigators have studied the effects of alcohol on operators, calculated relative risks from case control and other studies, and concluded that reducing alcohol use would reduce boating fatalities. Moreover, many authorities believe that alcohol use is underreported.¹

Operation Dry Water is one of the initiatives employed by the Coast Guard and its partners, including the National Association of State Boating Law Administrators and member states, that is aimed at reducing the number of alcohol-related accidents and fatalities and fostering a stronger and more visible deterrent to alcohol use on the water.

Endnote:
¹Smith et al., 2001. Drinking and recreational boating fatalities: a population-based case-control study. *JAMA*, 286(23), 2974-2980; and Maritime New Zealand, (2008). Boating Safety Strategy available electronically at <http://www.maritimenz.govt.nz/Publications-and-forms/Recreational-boating/Boating-Safety-Strategy-2007-full-version.pdf>.

less of a factor in fatalities is that waterskiers are typically required to wear a life jacket, which reduces fatalities.

About the authors:

Ms. Susan Tomczuk is a statistician in the Office of Auxiliary and Boating Safety at Coast Guard headquarters. She coordinates the collection of recreational boating accident data from state agencies, reports on data, and provides policy guidance on accident reporting.

Dr. L. Daniel Maxim is the president of Everest Consulting Associates. He is also an active member of the United States Coast Guard Auxiliary and a former National Directorate Commodore, Recreational Boating Safety.

Endnotes:

¹ The solid line shown in this figure is given by the equation $FT = 39.5(1 - 0.046)^{(T-1960)}$, where FT is the fatality rate in year T ($T \geq 1960$), estimated constants derived from non-linear least squares. The fit is quite good ($R^2 = 0.96$).

² This can be calculated as follows: For each year, T, the estimated number of fatalities (absent any improvement from 1960 levels) is determined by multiplying the 1960 fatality rate by the number of registered boats in year T. The lives saved in year T is calculated as the difference between the estimated fatalities (absent any improvement) and the actual number of fatalities in that year. Finally, the number of total lives saved is determined by adding together the lives saved in each of the years from 1960 until 2008.

³ Boeing statistical summary of commercial aviation accident rates, <http://www.boeing.com/news/techissues/pdf/statsum.pdf>.

⁴ Navy Safety Center presentation at safetycenter.navy.mil/presentations/aviation/orp.ppt.

⁵ U.S. Department of Transportation, National Highway Traffic Safety Administration (2008). Traffic Safety Facts available at <http://www-nrd.nhtsa.dot.gov/Pubs/811170.pdf>.

⁶ www.firefighternearmiss.com/data/Rsources/.../CRM_Presentation.ppt, <http://www.hf.faa.gov/webtraining/TeamPerform/TeamCRM013.htm>, www.uscg.mil/safety/docs/PPTs/CRM_Refresh2002.ppt, www.nfpa.org/assets/files/PDF/.../Near-MissReportingSystem.ppt, and <http://www.ncbi.nlm.nih.gov/pubmed/11541445>.

⁷ JSI Research & Training Institute, Inc., 2009. 2008 life jacket wear rate observation study, Boston MA, available electronically at <http://www.uscg-boating.org/assets/1/Publications/2008PFDRReportFINAL.pdf>.

⁸ P.J. O'Connor and N. O'Connor, 2005. Causes and prevention of boating fatalities. *Accident Analysis & Prevention*, 37, 4, 689-698. See also E. Cassell and M. Congiu, 2005. Review of the literature on the epidemiology and prevention of unintentional submersion and non-submersion injury in recreational boating. Monash University Accident Research Centre, prepared for Marine Safety, Victoria; and The Lifesaving Society, National Boating Fatalities Report, 2003 edition available at <http://www.lifesaving.ca/content/english/pdf/2003-NatlBoatingRepFinal.pdf>.

⁹ C. Meehan and H.A. Hogan, 2006. A comparative analysis of recreational boating policies: "Quick Phase In" education vs. other education policies, available electronically at http://www.uscgboating.org/assets/1/Publications/Phase_In_2006.pdf.

FOR MORE INFORMATION:

Online issues of the annual statistics reports are available at http://www.uscgboating.org/statistics/accident_statistics.aspx.

the various contributing factors differs somewhat. Alcohol/drugs remain important, but other factors increase in relative importance.

For example, inattention, proper lookout, speed, careless or reckless behavior, and passenger/skier behavior are also quite important. This is because the determinants of fatalities and those of injuries differ.

Alcohol/drugs is a key for fatal accidents, whereas there are many keys for accidents that result in injuries. Incidentally, passenger/skier behavior has a very different profile—very important as a factor in injuries, but less so for fatalities. One possible reason why it is





The National Recreational Boating Survey

Improving risk assessment to guide safety efforts.

by DR. PHILIPPE GWET

Mathematical Statistician

U.S. Coast Guard Office of Auxiliary and Boating Safety

DR. GLENN HAAS

Professor, Colorado State University

Vice President, National Association of Recreation Resource Planners

The Coast Guard releases boating accident statistics annually and measures the effectiveness of its recreational boating safety programs by calculating the number of casualties per 100,000 registered vessels. Although this approach has provided useful information on accidents and casualties, it does not provide a clear understanding of boaters' exposure to hazards, which is critical in risk assessment.

To fill this gap, the National Recreational Boating Survey (NRBS) has undergone a major redesign to collect extensive information about the U.S. boating population, recreational vessels, and boating activities.

The latest version of the survey will be implemented in the beginning of 2011. Survey data will support strategies to reduce accidents and casualties and will be used to plan for future demand and participation. Key measurement goals include the need to estimate the risks of death, injury, or property damage using exposure data.

This survey also includes questions to help determine what motivates boaters to boat safely, what boating safety campaigns influence them and by what delivery system, and why individuals completed a boating safety instruction course. This information can be used to devise and evaluate the possible benefits of various strategies to reduce accidents and casualties.

Studying Recreation Demand

Recreation demand is the number / types of people who already participate or are projected to participate in a recreation opportunity. The concept and practice of measuring recreation demand (current and future) has historically been confusing and often overlooked. Many recreation-related plans are devoid of this information, or the demand information is too shallow to be useful.

Frequently, data collection tools and measurements are inconsistent from one effort to another, making it impossible to build comparisons and linkages. There is also confusion about what purpose demand information serves, how to integrate it into a planning process, and whether estimating demand requires complex and expensive scientific study.

Additionally, recreation planning and decision making is becoming even more complex and contentious. This situation will only increase as the recreating public grows in number and diversity and as new technologies and choices of how to enjoy the outdoors expand. Conversely, recreation management budgets are not adequate and in competition with the increasing demand for non-recreational goods and services from the public estate.

History of Boating Surveys

1960s

The Coast Guard began an informal survey process in the late '60s as an aid in allocating its boating safety resources. This initiative used a compilation of statistical data from various sources, including a statistical telephone survey of households in the Coast Guard's Fifth District, an observational study of boating activities in the Chesapeake Bay, and other data collection efforts.

Although this study did not provide an exhaustive picture of recreational boating in the nation, it produced a considerable body of data on recreational boating activities. For example, it revealed that 20 percent of the estimated 539,077 boat operators in the USCG Fifth District completed at least one formal boating safety course, and totaled about 76,473,600 exposure hours.

1970s

The second USCG-sponsored boating survey in 1974 collected data for the 1973 boating season. This was a national statistical survey designed with state-of-the-art methods, though based on a very small sample size—just 24,137 households.

While the household sample was too small to produce state-level boating statistics or national statistics by boat type, this survey introduced the concepts of “boat hours,” “passenger hours,” and “ratio of passenger hours per boat hour.” The statistics: boat hours were estimated at 1,549,137,000 hours; passenger hours 4,604,336,000.¹

The USCG conducted another national recreational boating survey in 1977 to collect 1976 boating season data. Although again small in scale (only 5,507 households), this was a well-designed statistical survey that produced broad national-level statistics on boat owners, operators, and boating activities among boating households.

Both the 1973 and 1976 surveys were weighted to yield continental U.S. estimates. For example, the 1976 survey estimated 11,322,000 recreational boats in the country with 2,255,624,000 boat hours and 7,635,246,000 passenger hours.

1980s-2002

In 1989, the USCG issued a grant to the American Red Cross to conduct a national recreational boating survey covering the period from October 1, 1988 through September 30, 1989.² This survey was based on a sample of 3,700 recreational boating participants and estimated 4,922,143,730 passenger hours per year on owned, rented, or borrowed boats during 1989 (106.78 hours per boater).

The next USCG-sponsored survey produced only national-level boating statistics. The survey came in 1998 when a Coast Guard contractor conducted another national recreational boating survey based on a sample of 9,746 recreational boating participants.

In 2002 the USCG conducted a national recreational boating survey with the goal of producing state-level statistics. This survey was based on a substantial sample of 25,000 boat operators. However, its focus on only boat operators made the use of these statistics limited.

Endnotes:

¹ Recreational Boating in the Continental United States in 1973 and 1976: The Nationwide Boating Survey, March 1978.

² American Red Cross National Boating Survey, 1991.

In light of increasing recreation demand, decreasing recreation supply (because of competing interests for resources), and shrinking budgets to manage opportunities, it is ever more important to measure and understand the public participation, preferences, values, trends, and tolerance to regulations in the interest of public safety and resource protection. Surveys like the USCG Recreational Boating Survey are key tools to access this important information.

Limitations of Past Boating Surveys

The recreational boating surveys conducted or sponsored by the Coast Guard since the late 1960s showed several limitations. Some focused on boat operators, while others collected data from all recreational boating participants. The 1973 and 1976 surveys only covered boat-owning households and households with a boat operator.

The 1989 boating survey featured more comprehensive coverage of the recreational boating population, but used a small sample of participants who provided data using a 12-month recall period. Such retrospective surveys are known to be prone to many types of recall errors.

Design of Future Surveys

To remedy these problems and collect data that would be more useful to most of its boating partners, the Coast Guard initiated a comprehensive redesign of its boating survey. To be as inclusive and thorough as possible, the redesign project was conducted under the auspices of a scientific advisory committee and a group of partners representing the boating industry, academia, and other interest groups.¹

Because the partners of the group were data users (and therefore stakeholders), its members were given the opportunity to describe their data needs, which served as a basis for questionnaire development. The scientific advisory

committee, on the other hand, was the group of scientists and boating research experts whose role was to develop methodological guidelines for efficient survey implementation.

The outcome was a streamlined list of questions to be used in the revised survey questionnaire and a report of key methodological principles to guide the survey design.

On July 22, 2009, the Coast Guard awarded a multi-year contract to implement the next two National Recreational Boating Surveys in 2011 and 2013. The 2011 survey will collect 2010 and 2011 data. While 2010 data will

be based on a 12-month recall period, the 2011 data will be based on a more efficient 30-day recall period.

The surveys will measure:

- exposure
- boat and boater hours on the water
- boat hours in docked recreation
- boating participation and boat ownership
- total annual participation overall
- total annual participation by boat type
- total boat ownership
- boating safety awareness and behaviors
- life jacket use
- reasons for life jacket use

Most Recent Boating Statistics	
PARTICIPATION FIGURES	SOURCE
82 million Americans participated in recreational boating	U.S. Forest Service, 2009
12.7 million boats registered in the United States	U.S. Coast Guard, 2009
2020 projections of the number of recreationists: 60.4 million motorboaters 23.3 million canoers 21.1 million PWC users 20.9 million rafters 19.1 million waterskiers 13.5 million kayakers 11.4 million sailing 9.7 million rowers	U.S. Coast Guard, 2009
25.8 million fishing participants were boating	Recreational Boating and Fishing Foundation, 2009
ECONOMIC FIGURES	
\$33.6 billion in recreational boating sales and services	National Marine Manufacturer's Association, 2009
\$16+ billion in recreational boating trip expenditures	National Marine Manufacturer's Association, 2009
18,940 boating businesses 154,300 people employed	National Marine Manufacturer's Association, 2009
BOATING SAFETY	
4,789 boating accidents 709 deaths and 3,331 injuries \$54 million damage from recreational boating accidents	U.S. Coast Guard, 2009 Recreational Boating Statistics
90 percent of deaths occurred on boats where the operator had not received any boating safety instruction/course.	U.S. Coast Guard, 2009 Recreational Boating Statistics
76 percent of anglers boat fishing did not complete a boating safety course.	U.S. Fish and Wildlife Service, 2006
The National Recreational Boating Safety Program performance goal: 675 deaths in 2010 659 deaths in 2011	Strategic Plan of the National Recreational Boating Safety Program, 2007-2011

Table 1: The U.S. Forest Service estimated about 82 million recreational boaters and about 12.7 registered boats in America. According to National Marine Manufacturers Association statistics, the economic impact of recreational boating is more than \$16 billion in trip expenditures and over \$33 billion in boating sales and services. The number of boating fatalities has varied from 676 to 821 in the past 10 years for an annual average of 722. The most recent statistics indicate 709 boating deaths for 2008.

- alcohol use and boat operation
- economic impact of recreational boating
- money spent on boats
- money spent in communities on boat trips
- negative event incidence and risk
- actual and reported accidents that cause injury and boat damage
- boat statistics
- features of boats such as hull material and propulsion systems

Three Survey Types

This data will be collected through three survey instruments—the boat survey, trip survey, and participant survey.

The boat survey collects information about the number and type of boats owned as well as some information about how much money boat owners spend on their boats. This survey will generally be conducted in the fourth quarter of the year that comes before the target year.

The trip survey will proceed monthly during the survey year. The sample will be boats that have responded to the boat survey. The survey samples individual trips and collects information about what happened on those trips: how long they lasted, what safety events occurred, and what money was spent.

The participant survey collects information about who spent time boating during the year. We will conduct this survey in the first quarter of the year after the target year.

Measuring Future Demand

Like all outdoor recreation activities, recreational boating in America is influenced by trends, fads, and

changes in society. Influences can be of a social, economic, demographic, or technological nature.

Key factors affecting outdoor recreation demand include employment, disposable income, and leisure time; the increase of dual-spousal employment and even multiple family jobs decreasing leisure time; the increasing aging and cultural diversification of society; and the new recreation boating technologies and competing technologies that attract people to other ventures. Some influences will attract people to recreational boating while others detract or even displace current participants.

No matter what the demand, the National Recreational Boating Survey (NRBS) will attempt to better estimate the risks of death, injury, or property damage. In doing so, the U.S. Coast Guard will strive to best use the survey data to support strategies to reduce accidents and casualties and plan for future demand and participation.

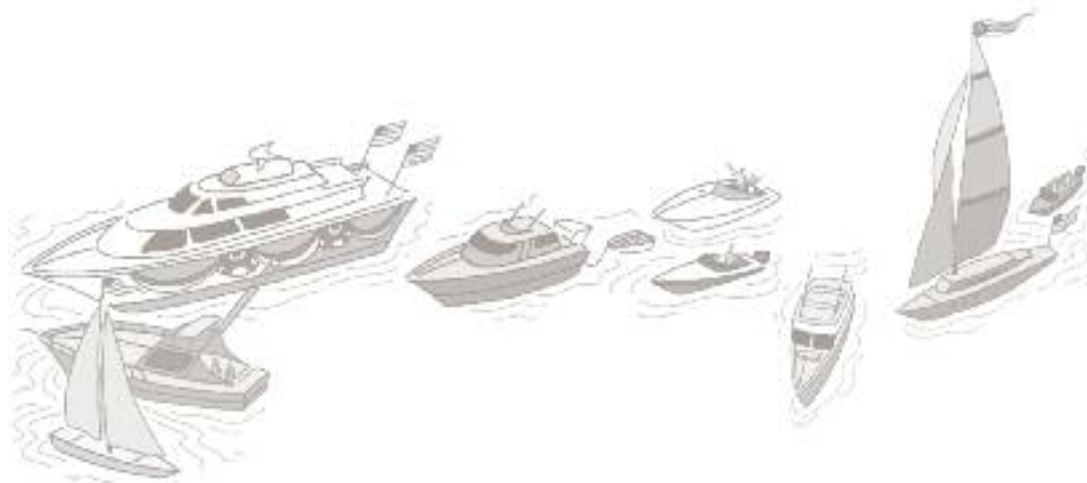
About the authors:

Dr. Philippe Gwet is a mathematical statistician with the USCG Boating Safety Division, and the Technical Manager of the National Recreational Boating Survey.

Dr. Glenn Haas is a former professor in the College of Natural Resources at Colorado State University, specializing in natural resource planning and policy, park and recreation management, and visitor capacity. He is currently the Vice President of the National Association of Recreation Resource Planners.

Endnote:

¹ The scientific advisory committee included members from the USCG Boating Safety Division, Survey Sampling Inc., Michigan State University, National Marine Manufacturers Association, Applied Research Services, and the University of Michigan Institute for Social Research. The organizations represented in the collaboratory of partners include the USCG, the U.S. Fish and Wildlife Service, West Marine, the National Transportation Safety Board, the American Canoe Association, the National Safe Boating Council, the Ohio Department of Natural Resources, the National Association of State Boating Law Administrators, the Recreational Boating and Fishing Foundation, the U.S. Army Corps of Engineers, the USCG Auxiliary, the States Organization For Boating Access, BoatU.S., the National Marine Manufacturers Association, the Florida Fish and Wildlife Conservation Commission, U.S. Sailing, the Marine Retailers Association of America, the Marine Industries Association of Florida, MBIA Insurance Corporation, Michigan State University, and the Recreational Marine Research Center.





The Recreational Boating Safety State Grant Program

Funding that ounce of prevention.

MR. GARY JENSEN

U.S. Coast Guard Office of Auxiliary and Boating Safety

MS. LYNNE MCMAHAN

U.S. Coast Guard Office of Auxiliary and Boating Safety

How many lives are saved each year by preventing boating accidents? Since it's not possible to quantify "non-accidents," we will never know.

We do know that prevention efforts are effective. Since the 1970s, in the wake of significant boating safety prevention efforts, boating fatalities have precipitously declined in the U.S.—even while boat ownership skyrocketed.

The Program

The Recreational Boating Safety (RBS) State Grant Program was established in 1973, on the heels of the Federal Boat Safety Act of 1971, to supplement Coast Guard efforts. First, we need to recognize the importance of the states' role in the National RBS Program. Although the Coast Guard is statutorily responsible for maritime safety, we are not staffed or funded to maintain an effective RBS program by ourselves. It is essential that we form alliances and partnerships with other entities capable of assisting in our boating safety mission.

The states and territories are, without a doubt, our most valuable partners. Collectively, they bring to bear an additional 7,900 full-time law enforcement officers, 7,300 seasonal or other officers, about 150 full-time ed-



ucation specialists, and over 7,800 volunteer instructors.

In fiscal year 2008, they provided over 1.9 million hours of on-water patrols, conducted nearly 11,000 search and rescue cases assisting over 43,000 boaters, and provided boating education courses to nearly 400,000 individuals. Funds from the grant program permit states to assume the greater share of boating safety education, assistance, and enforcement activities.

How Does This Work?

Funding for the program currently comes from the Sport Fish Restoration and Boating Trust Fund (formerly known as the Wallop-Breaux Trust Fund). Each year a portion of that trust fund is allocated to support

recreational boating safety activities throughout the United States and its territories.

The RBS state grants are non-competitive grants available only to eligible states, territories, and the District of Columbia. To be eligible to receive these federal funds, a recreational boating safety program must have:

- a vessel numbering system,
- a cooperative boating safety assistance program with the Coast Guard,
- sufficient patrol and other activity to ensure adequate enforcement of applicable state boating safety laws and regulations,
- a sufficient state boating safety education program that includes disseminating information concerning the hazards of operating a vessel under the influence of alcohol or drugs,
- a marine casualty reporting system.

User Pays/User Benefits

Funding is provided through the Sport Fish Restoration and Boating Trust Fund, which gets its revenue, in part, from federal excise taxes on motorboat fuel, taxes on sport fishing equipment, and import duties on fishing tackle, yachts, and pleasure boats. No general tax revenues are used—the funds come from the people who benefit from these services.

Of the funds appropriated for the state grant program, the Coast Guard is authorized to retain not more than two percent for the costs of administering it, and up to five percent for grants to national non-profit public service organizations to conduct national boating safety activities.

The balance is allocated to the states as follows:

- One-third is allocated equally among participating states.
- One-third is allocated in the same ratio as the number of vessels numbered in the state bears to the number of vessels numbered in all participating states.
- One-third is allocated in the same ratio as the amount of the state's prior-year expenditures for boating safety bears to the total prior-year expenditures for boating safety of all participating states.

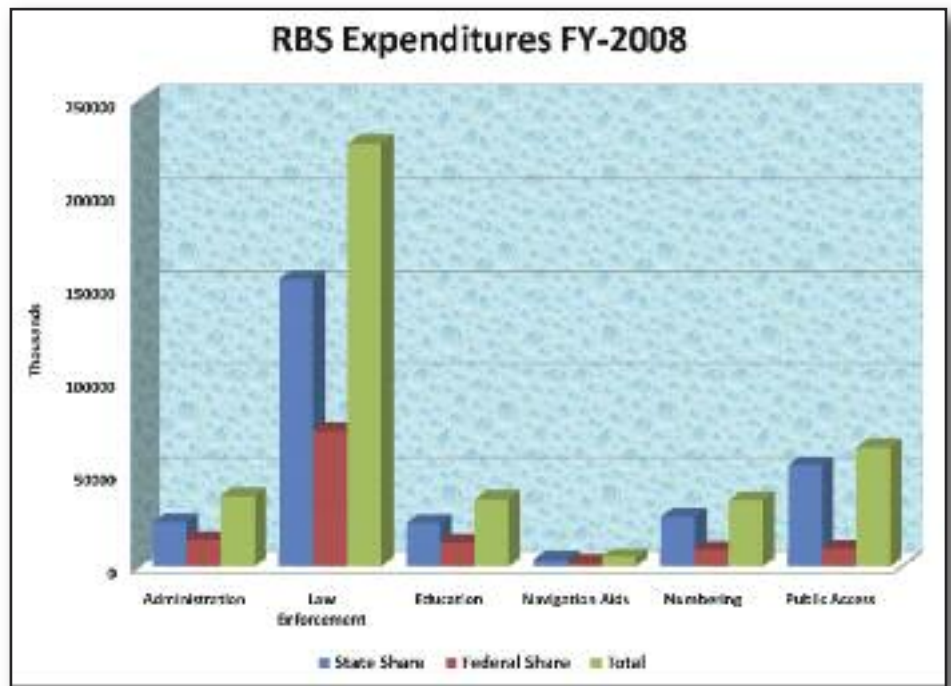


Figure 1: The spending levels in each program area for FY 2008.

A state cannot receive more than one-half of the total cost of its RBS program. It must provide matching funds from general state revenues, undocumented vessel numbering and license fees, or state marine fuel taxes.

Funds may only be used for certain purposes. Examples include:

- Providing facilities, equipment, and supplies for boating safety education and law enforcement, including purchase, operation, maintenance, and repair.
- Training personnel in skills related to boating

FOR MORE INFORMATION:

The Recreational Boating Safety State Grant Program

The U.S. Coast Guard's Boating Safety Division is dedicated to reducing the loss of life, injuries, and property damage that occurs on U.S. waterways by improving the knowledge, skills, and abilities of recreational boaters.

To learn more about the Recreational Boating Safety State Grant Program, visit http://www.uscgboating.org/grants/rbs_state_grants_program.aspx.





OUR PARTNERS

To accomplish the National Recreational Boating Safety Program's missions, we strongly rely on the cooperative efforts, talents, and resources of many people. These include state and local governments working through the National Association of State Boating Law Administrators and volunteers such as our own Coast Guard Auxiliary and the U.S. Power Squadrons.

Our established cooperative relationships also include the National Recreational Boating Safety Coalition, the National Safe Kids Campaign, Mothers Against Drunk Driving, the American Medical Association, and the American Academy of Pediatrics, as well as traditional boating organizations such as the National Boating Federation, National Water Safety Congress, U.S. Sailing Association, Boat Owners Association of the United States, and the American Canoe Association.

We also count on our valuable partnerships with the boating industry and members of the private sector, as well as the individual boater.

safety and the enforcement of boating safety laws and regulations.

- Providing public boating safety education, including educational programs and lectures, to the boating community and the public school system.
- Acquiring, constructing, or repairing public access sites used primarily by recreational boaters.
- Conducting boating safety inspections and marine casualty investigations.
- Establishing and maintaining emergency or search and rescue facilities, and providing emergency or search and rescue assistance.
- Establishing and maintaining waterway markers and other appropriate aids to navigation.
- Providing state recreational vessel numbering and titling programs.

Program Areas

There are six major areas that make up the federal Recreational Boating Safety Program (Figure 1).

Administration. Includes most of the fiscal and record-keeping functions of the program, as well as other items, including planning, legislative, and regulatory functions; waterway management initiatives; and sub-grant administration and auditing. A major facet of the states' RBS programs under this category would be their boating accident reporting systems, which help the Coast Guard understand the causes of accidents to more effectively address the issues that may prevent them.

Law Enforcement. Along with traditional law enforcement duties such as stopping violators and issuing citations or warnings, law enforcement includes many other functions. Among them are accident investigations, stolen vessel investigations, and boater assistance. In many instances a routine boarding to check for safety equipment can provide an opportunity to educate the boater, thus turning a potentially negative contact into a positive experience. Additionally, the mere presence of officers on the water is a deterrent to unsafe boating practices.

Education. Distance learning has played a huge role in boater education in recent years. In 2008 almost 43 percent of the boater safety certificates issued were the result of an Internet or home study course. Approximately 57 percent of participants attended classroom courses taught by state education specialists, state RBS officers, state volunteers, the Coast Guard Auxiliary, or the U.S. Power Squadrons.

Registration and Titling. Since the Federal Boating Safety Act of 1958, states and territories have had the authority to register and require vessels to be numbered. Currently all states and territories do so. Registration periods range from one year up to a maximum of three years. Revenue derived from registration fees (along with marine fuel taxes and general revenue funds) is used to fund state boating safety programs in many states, and is a source of matching dollars for federal RBS grants. The computer systems used for registration and titling (in a number of states) will also serve as the backbone for the upcoming vessel identification system enacted by Congress, which will act as a central identification point for all registered watercraft in the United States. As of February 2010, 31 states/territories participated in this system.

Navigation Aids. With the increased number of boats on the water, there is a growing need for buoys, signs, and other waterway markers. These "signposts of the water" mark restrictions implemented under marine traffic management and provide important information to boaters.

Public Access. Since the mid-1980s the acquisition, development, and maintenance of public access facilities has been an allowable cost for RBS grant funds (in addition to projects built under a grant program administered by the U.S. Fish and Wildlife Service). A number of states have used a portion of their funds for this pur-

continued on page 31



Boating is fun...we'll show you how®

On-the-Water Training

Practical practice makes perfect.

by VICE COMMANDER ROBERT SWEET
Senior Navigator, National Educational Officer
United States Power Squadrons

Recreational boating safety is a subject of high priority, and further reductions in accidents and fatalities will require advanced training programs beyond basic boating safety courses. On-the-water training tops the lists of skills-based training needed to make a significant difference.

With grant funding provided by the Sport Fish Restoration and Boating Safety Trust Fund, and administered by the U.S. Coast Guard, United States Power Squadrons (USPS) is refining a program that can be delivered across the country to a large number of boaters.

Training the Trainers

The principal challenge is training enough boaters to make a difference. This requires an effective, efficient program that has a sufficient supply of instructors and boats. USPS has established a network and system for training advanced certifiers who can instruct the program.

This program was initiated using materials and training from U.S. Sailing. More than 400 individuals have been certified by USPS trainers to administer this program in the past year, and this training continues. The initial program is being tailored to address key risk factors and areas of concern expressed by boaters.

Audience Participation

The program includes extensive classroom training to help boaters understand how boats behave in the water and why and how they respond to controls. Animations, videos, and graphics-based text help to explain boat actions and maneuvers.

By the time participants get to the helm on the water, they know what to expect rather than dealing with trial and error. Their helm time is much more efficient and helps them to quickly ingrain proper techniques.

On-water training is conducted in boats in the 16-to-24-foot range, nominal center console. Heavy emphasis is placed on close quarters maneuvering. Participants also learn how to make tight turns, hold position in wind and current, and execute safe quick stops.

Ongoing Efforts

Developing detailed instructor training, videos to assist in student training, and student training is still underway. Instructor and student manuals will be completed for the on-the-water portion of the training.

The classroom programs utilize existing USPS University seminars. The objective of this program is to reach boaters. To do that, the materials are being developed with input from other boating organizations such as U.S. Sailing and will be available for their training.¹

Endnote:

¹ USPS has appropriate insurance coverage for the boats, instructors, and participants in this program.



U.S. Power Squadrons members Rear Commander Herman Green, left, and past Chief Commander Creighton Maynard monitor a maneuver executed by Chief Commander Frank Dvorak (at helm) as part of the USPS on-the-water skills certification. Photo by Mr. Steve Erickson, U.S. Power Squadrons national photographer, courtesy of USPS.

FOR MORE INFORMATION:



United States Power Squadrons

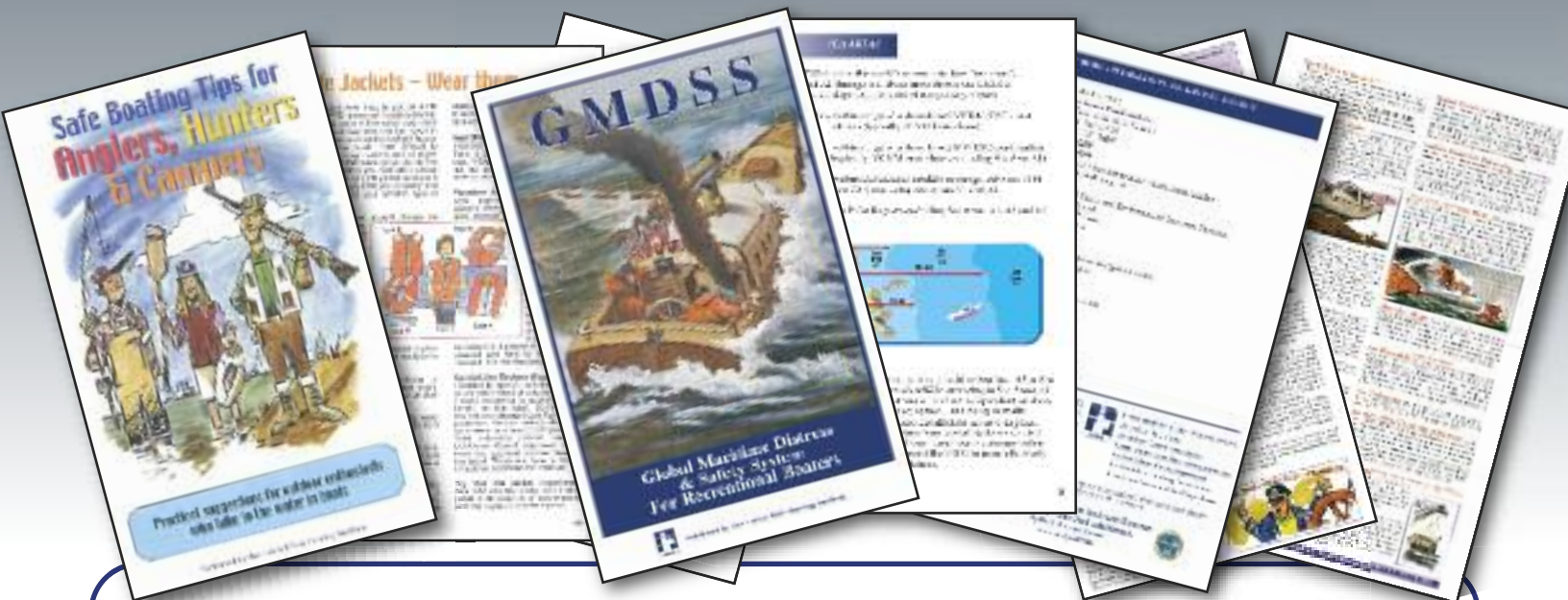
USPS is a volunteer organization of more than 40,000 individuals dedicated to recreational boating through 440 squadrons located across the country. We train boaters at all levels via our "USPS University" program while gathering with fellow boaters and assisting the boating community. USPS offers seminars, courses, and boat operator certification.

USPS headquarters are located in Raleigh, N.C.
Phone: 888-FOR-USPS
Website: www.americasboatingcourse.com
or www.usps.org



Boating is fun...we'll show you how®





The United Safe Boating Institute

Filling special niches in the boating scene.

by CAPTAIN WILLIAM GRISWOLD, USCG (RET.)
President, United Safe Boating Institute

The United Safe Boating Institute (USBI) is an alliance of non-profit organizations united to provide a public service through preparation and distribution of focused boating educational information, funded by grants and/or public, private, and corporate contributions.

USBI's purpose is to attract grants to undertake specific projects that will enhance recreational boating safety. It was formed in the late 1980s by members of the Coast Guard Auxiliary, U.S. Power Squadrons, the American Red Cross, the U.S. Sailing Association, and the Canadian Power Squadrons. The American Canoe Association also joined the group a few years ago.

Targeted Initiatives

Safety Tips for Anglers, Hunters, and Campers is our most popular pamphlet. This 16-page publication outlines boating safety, first aid, aids to navigation, and navigation rules, with illustrations covering life jacket use, the dangers of alcohol and hypothermia, and equipment you should have on board.

Global Maritime Distress and Safety System for Recreational Boaters is a booklet that presents an overview of the GMDSS system, sea areas, and mandatory requirements for different class vessels. It

outlines digital selective calling radio equipment, the various classes of radios, and their ability to send distress alert messages to coastal stations and other DSC-equipped vessels in their immediate area.

The booklet explains the interface these radios have with the Global Positioning System, enabling the radio to transmit its position and a maritime mobile service identity number, which identifies the boat's owner and the boat's description. It also includes a short discourse on the capabilities of the 406-MHz emergency position indicating radio beacon.

Which Life Jacket for You? is a poster that displays pictures and brief descriptions of popular life jackets appropriate for use in various boating activities.

It is designed to be placed in boating stores or departments near the life jacket counter to guide shoppers regarding the best jacket for their intended activity. It is hoped that having a more comfortable life jacket will increase wear.

Future Plans

Upcoming initiatives include revising the old **Five Tons and No Brakes**, a short booklet aimed at houseboat operators. Normally, houseboat renters are not expe-

rienced boaters, and this sheet serves to acquaint them with issues they might encounter.

We are also looking at a means to capture reasons why vessels fail the voluntary vessel

FOR MORE INFORMATION:



**THE
UNITED
SAFE
BOATING
INSTITUTE**

P.O. Box 30428
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Website: <http://www.usbi.org/>
E-mail: president@usbi.org

safety check to guide future educational efforts.

About the author:

Captain Griswold served 37 years in the military, retiring in 1993. His last assignment was Chief Director of the Coast Guard Auxiliary at USCG headquarters. Since retirement, in addition to being a member of the Coast Guard Auxiliary, he has served as chair of the National Safe Boating Council and is currently president of the United Safe Boating Institute.

pose. Access facilities generally consist of boat ramps, boarding docks, and parking lots.

In some cases, additional facilities such as mooring docks, restrooms, and lighting are also provided. These sites provide safe and reliable access to lakes, rivers,

some form of recreational boating. They spend more than \$25 billion for boats, accessories, safety equipment, maintenance, and associated products annually.

The states' commitment to ensuring safe and enjoyable boating for all who use our nation's waters, as well as

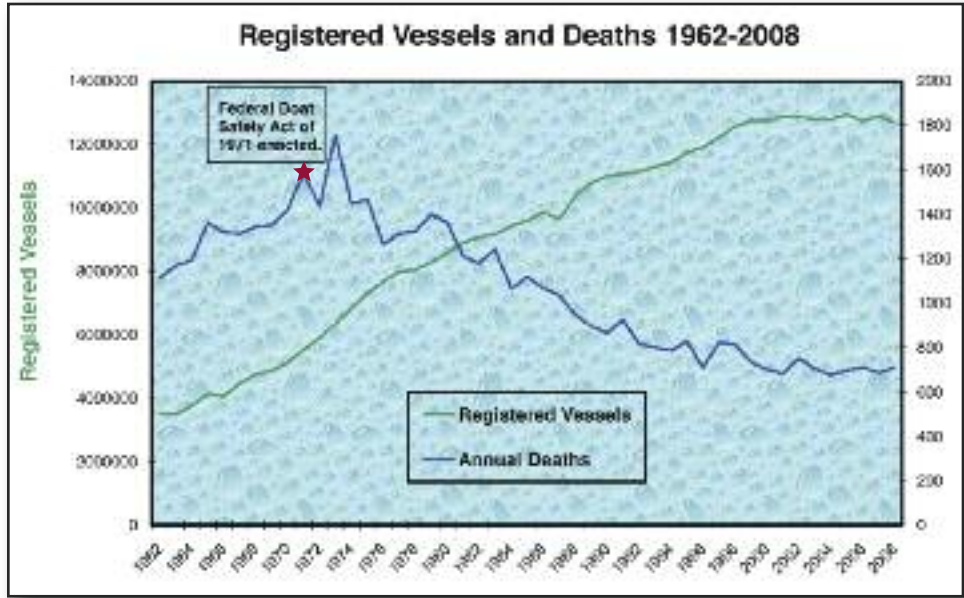


Figure 2: As a result of USCG and partner efforts, boating accident fatalities declined significantly, even while boat ownership nearly doubled.

to leading the boating public in maintaining the tradition of ethical use and stewardship of our nation's waters, is the hallmark upon which we have developed our programs.

Through our efforts and those of our partners, recreational boating fatalities have been reduced from a high of 1,754 in 1973 to 709 in 2008 even though the number of recreational boats nearly doubled (from about 6.3 million to about 12.3 million, as shown in figure 2).

and the ocean, as well as providing a contact point for boating safety information. For example, state and local RBS agencies will often establish kiosks at these sites to distribute educational material and the U.S. Coast Guard Auxiliary and U.S. Power Squadrons tend to find the sites ideally suited to conduct free vessel safety checks.

What Have We Accomplished?

Currently more than 72 million Americans—more than one-fourth of our nation's population—participate in

About the authors:

Gary Jensen retired from active duty in the Coast Guard as a master chief boatswain's mate after serving nearly 27 years, including three assignments to the cutter fleet. In September 2007, after two years in the private sector, he returned to government service working for the Boating Safety Division at Coast Guard headquarters.

Lynne McMahan came to the United States Coast Guard Division of Boating Safety Program Operations Branch in March of 2002 after working 10 years at The Department of Transportation Office of Inspector General. She serves as the Northeast/North Central regional coordinator.





What Is NASBLA?

by COL. TERRY WEST

Boating Law Administrator and Assistant Director

Georgia Department of Natural Resources

President, National Association of State Boating Law Administrators

The National Association of State Boating Law Administrators (NASBLA) is a national non-profit organization that works to develop public policy for recreational boating safety. NASBLA represents the boating safety authorities of all U.S. states and territories.

NASBLA's Beginnings

NASBLA had its initial meeting on April 12, 1960, to which the U.S. Coast Guard's Merchant Marine Council invited the state officials responsible for administration and enforcement of state boating laws. This meeting provided an opportunity for the Coast Guard to brief state boating law administrators on requirements and procedures of the uniform numbering system under the Federal Boating Act of 1958.

Because of the problems concerning the numbering and regulation of small boats in the various states, it was agreed that an annual national meeting of boating law administrators was desirable. On November 28-29, 1960, the first Boating Law Administrators' meeting was held in Chicago. Discussions centered on improving the Federal Boating Act of 1958.

During the group's second meeting, participants selected the name "National Conference of State Boating Administrators," and the following year it was agreed to establish the conference as an autonomous organization known as the National Association of State Boating Law Administrators.

Mission

NASBLA's mission is to strengthen the ability of boating authorities to reduce death, injury, and property damage associated with recreational boat-

ing and ensure a safe, secure, and enjoyable boating environment.

The association addresses its mission by:

- fostering partnerships among the states, the Coast Guard, and others;
- crafting model boating laws;
- maintaining national education and training standards;
- providing members with critical knowledge and skills;
- assisting in homeland security challenges on our waterways;
- advocating the needs of the state boating programs

before Congress and federal agencies.

Partnering to Protect Boaters

As state boating programs have evolved, NASBLA's mission has expanded to



For the past 25 years, NASBLA has published *Small Craft Advisory*, a bimonthly magazine devoted to recreational boating laws, safety, and education.

The award-winning magazine utilizes news articles, features, standard columns, and news briefs to highlight successful recreational boating safety programs, organization activities, professional news, legislative updates, upcoming events, and other recreational boating-related safety, education, and law enforcement matters. The magazine reaches more than 10,000 boating law administrators, education specialists, law enforcement officers, legislators, and other boating safety and security partners and organizations.

include law enforcement training, education standards, model acts, national leadership, and advocacy.

One major task is to ensure that boating safety funds from the Sport Fish Restoration and Boating Trust Fund are allocated for state boating safety programs. These dollars, collected via various boater taxes, help fund education, law enforcement, and access programs in every state.

NASBLA's public policy committees—enforcement and training; education and awareness; engineering, reporting, and analysis; preparedness and response; and

In keeping with the goal of achieving uniformity for boating laws from state to state, NASBLA's committees have generated numerous model acts and model policies and procedures over the last half century. These models are used by the states in developing statutes and regulations regarding boating education, vessel operator licensing, personal watercraft, motorboat noise control, personal flotation devices, numbering and titling of vessels, and more.

Safety Standards and Reference Materials

In another effort to promote uniformity and reciprocity among the states, the National Association of State Boating Law Administrators developed boating safety education standards in the 1970s. Working with Penn State University and boating safety partners such as the United States Power Squadrons, U.S. Coast Guard Auxiliary, and National Safe Boating Council, NASBLA adopted the National Boating Education Standards in 1999.

Prescribing the minimum body of knowledge necessary to effect safe, legal, and enjoyable boating, these standards have served as a guide to develop boating education materials. All states and territories recognize these standards in their laws and regulations.

In addition to model acts, policies, and standards, the association publishes national recreational boating law reference materials including the Reference Guide to State Boating Laws and the National Numbering and Titling Manual. These publications provide a wealth of helpful information to boating law enforcement officers, boating safety education officials, and boating safety advocates.

Law Enforcement, Investigation, and Detection Efforts

An integral component of reducing boating-related accidents and fatalities is the ability to determine accident causes, trends in accident types, and problems related to the design or construction of boats, safety equipment, and operator error. Through cooperation with the U.S. Coast Guard and the National Transportation Safety Board, NAS-

BLA conducts comprehensive and advanced-level courses that teach officers how to conduct consistent, thorough accident investigations.

vessel identification, registration, and titling—are its backbone, and accomplish much of the organization's work.

The Legislative Process

by AUX CHRISTOPHER WARE
Director, USCGAUX Government Affairs

The Coast Guard Auxiliary has more than 60 legislative liaison officers who track legislative actions on issues including life jacket wear, public education, boating under the influence, and personal watercraft operation.

The Auxiliary Government Affairs Department disseminates this information to our partners including:

- the U.S. Coast Guard Boating Safety Division;
- the National Recreational Boating Safety Coalition, which includes representatives from the U.S. Power Squadrons;
- the U.S. Boating Federation;
- BoatU.S.;
- the National Association of State Boating Law Administrators;
- the National Transportation Safety Board;
- the Personal Watercraft Industry Association;
- the National Marine Manufacturers Association.

The Coast Guard also allows Coast Guard Auxiliarists to testify on legislative matters such as life jacket wear, carbon monoxide detection, boating under the influence, and mandatory education for boaters. Requests to testify are processed through the auxiliary chain of leadership and management to the cognizant Coast Guard district commander.

FOR MORE INFORMATION:



For more information visit the Auxiliary Government Affairs website at <http://gdept.cgaux.org>.





BOAT Program

dard for the training, qualification, credentialing, and typing of maritime law enforcement and rescue personnel.

While the program is not mandatory, it provides a true national standard for maritime interoperability at the federal, state, and local levels.

Adapted from the U.S. Coast Guard's boat forces training framework, the BOAT program is comprised of vital maritime training and management components, including:

- system policy,
- the training and qualification process,
- boat crew qualification tasks,
- program manager roles and responsibilities,
- boat crew currency maintenance,
- documentation requirements.

Other training modules, including search and rescue, are being developed.

Boat Operations and Training (BOAT) Created in cooperation with the Florida Fish and Wildlife Commission, the U.S. Navy Center for Asymmetric Warfare, the Federal Emergency Management Agency, the Federal Law Enforcement Training Center, and the U.S. Coast Guard Office of Boat Forces, the BOAT program establishes a national stan-

In 2004, National Association of State Boating Law Administrators began teaching boating under the influence (BUI) detection and enforcement courses that cover planning for BUI enforcement, arrest decisions, BUI suspect processing procedures, essential elements of the arrest report, note taking and report writing, pre-trial conferences and presentation of evidence, and proper administration of sobriety tests.

Learning from the Past, Leaning Toward the Future

Throughout its history, organizations around the globe have partnered with NASBLA to share ideas, maximize resources, and expand the range of boating safety and security initiatives. These partnerships have reduced recreational boating fatalities, yet we must continue to lean forward if we want to preserve the gains we've made thus far and further enhance the experience of recreational boating in the United States.

While many milestones achieved were the result of reactions to crises and the cumulative evidence of a growing public safety challenge in recreational boating, NASBLA, its members, and its partners—as a community—are now better positioned and better equipped to analyze emerging trends, anticipate likely outcomes, and plan contingencies to address them. RBS stakeholders' ability to think and act strategically will characterize and define our success in the next few decades and beyond.

Considering this, the association plans to become an even more valuable resource for RBS stakeholders. By looking back and better understanding the evolution

of recreational boating safety to its present state, NASBLA can see a progression in the collective thinking and action-oriented responses that can and should be projected into the future. With this mindset, the National Association of State Boating Law Administrators hopes to help further reduce boating-related fatalities and make the nation's waterways even safer, more secure, and more enjoyable.

About the author:

Col. Terry West is Assistant Director and Boating Law Administrator for the Georgia Department of Natural Resources. He has served NASBLA as its president, vice president, and treasurer and has chaired NASBLA's Law Enforcement and Conference committees. He holds a Master of Public Administration from Columbus State University in Columbus, Ga.

FOR MORE INFORMATION:

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The USCG Marine Patrol Officer Course

*Leading the way in
boating safety enforcement
training for all marine
patrol officers.*

by MR. MIKE BARON
*Recreational Boating Safety Specialist
U.S. Coast Guard Boating Safety Division
Program Operations Branch*

History

To meet the requirements of the Federal Boating Safety Act of 1971, the Coast Guard established the National Boating Safety School in 1972 at its Reserve Training Center in Yorktown, Va. Although the course was originally focused on federal requirements and basic boating safety law enforcement techniques, over the years legislation was enacted that required states to take the primary role in their own recreational boating programs.

In support of these new requirements, the Coast Guard launched the National Safe Boating Instructor Course (NSBIC) in 1983 with a curriculum focused on training law enforcement officers to conduct boating safety classes for the public while also training fellow marine patrol officers as instructors.

In 2000 the curriculum was updated to include practical field knowledge, training methodologies, and skills, and the course name was changed to the Marine Patrol Officer Course, or MPOC. Recent changes include a move from the training center in Yorktown to a new home at the Federal Law Enforcement Training Cen-

ter (FLETC) in Charleston, S.C., and, in 2006, the first-ever MPOC-“T” (tactical) course was convened to enhance the MPOC-“I” (instructor development) offering.

Purpose and Core Mission

The Marine Patrol Officer Course works to build effective educational methodologies, field skills, and knowledge of federal regulations that a maritime law enforcement officer must possess. Focusing on a “team concept” and standardization, we envision this course as the leader in boating safety enforcement training for all marine patrol officers.



The Marine Patrol Officer Course's first graduating class, Maritime Law Enforcement Academy, Charleston, S.C. USCG photo by Mr. Mike Baron.





It's Fun Until Somebody Gets Hurt

Federal partners join forces for public safety.

by Ms. LYNDA NUTT

U.S. Army Corps of Engineers

National Operations Center for Water Safety

Federal public land and water agencies have long focused on providing safe and secure recreational opportunities for the visiting public. This effort has been extremely successful in that more than one billion people visit public lands and waterways every year. But despite educational and regulatory efforts, the growing numbers of recreation-related injuries and fatalities continue to present a challenge.

Who Does What

In an effort to enhance injury prevention and to better manage public risk on public lands and waters, the Bureau of Indian Affairs, Bureau of

Reclamation, Bureau of Land Management, National Park Service, Forest Service, U.S. Army Corps of Engineers, U.S. Coast Guard, and U.S. Fish and Wildlife Service formed an Interagency Working Group on Visitor Safety in 2007.

The Centers for Disease Control and Prevention's Division of Unintentional Injury Prevention assists the group in identifying trends in unintentional injuries and understanding risk factors and prevention.

Common Ground

Despite differences among the missions of each agency, the members

find great commonality in their risk management concerns. As part of the key objectives identified in discussions to date, the team will focus on aligning and standardizing policies, tools, data collection methods, and training to benefit visitor injury prevention strategies.

Information exchange and partnership opportunities will also be an important outcome among the agencies as the working group replaces the traditional "agency-by-agency" model with a collaborative approach to achieve a shared objective, improve existing services, or develop an entirely new initiative.

To fulfill the boating safety goals, the course is designed to:

- Prepare boating safety professionals to instruct fellow law enforcement officers and the public in boating safety.
- Standardize training in the maritime law enforcement arena in response to the boating public while ensuring educational efficiency in our delivery process.

Curriculum

The course is two weeks long and is conducted four times each year at the Coast Guard Maritime Law Enforcement Academy at the FLETC facility in

"The working group provides an opportunity to share 'best practices' among all agencies."

*Sam Crispin, Loss Control Manager,
U.S. Army Corps of Engineers*

FOR MORE INFORMATION:

U.S. Army Corps of Engineers



For more information, visit
<http://watersafety.usace.army.mil>.

Charleston. The class is limited to 32 students and tends to fill up fast.

During the first week of MPOC-I, students alternate between training methodologies and skills development while working in groups of four to develop a training session based on the federal carriage requirements for recreational boating safety. The officers apply the training skills they have learned in the classroom to present their training session at the end of the week to the other

officers in class and the MPOC staff.

The second week is devoted to field skills. Coast Guard Law Enforcement Academy staff conduct training on boating under the influence regulations and de-

tection, firearms laws, navigation rules scenarios, and water survival techniques. National Association of State Boating Law Administrator instructors conduct training on boating accident response and the reporting process. An instructor and certified marine investigator from the International Association of Marine Investigators conduct classroom training on stolen boat identification, followed by a practical field exercise.

Partnerships Perfect the Focus

As a direct result of a strong relationship with MPOC stakeholders and results from a focus group held in 2004, MPOC-T was offered to the states and territories. It incorporates a standard field sobriety test course with a live alcohol workshop and a “marine event scenario” in which officers work through a series of boating safety scenarios to determine appropriate enforcement actions and case disposition.

Attendees also practice tactical procedures in “shoot houses.” These scenarios are performed in a mock-up building that resembles a ship as well as aboard the M/V *Cape Chalmers*, a former break bulk freighter-turned-training-platform that is part of the FLETC’s training resource inventory.

Primed to Succeed

MPOC is designed with success in mind. The cadre of Maritime Law Enforcement Academy instructors who teach the Marine Patrol Officer Course are subject matter experts who stay informed and knowledgeable of current boating safety regulations as well as the latest in

Who Attends MPOC

The Marine Patrol Officer Course is open to all federal, state, and local marine patrol officers.

However, as the course curriculum is not designed for senior boating safety officers, the preferred candidate possesses less than seven years of experience in boating safety. The ideal candidate demonstrates good potential to train fellow law enforcement officers or to teach boating safety to the public.

The student’s agency or department is responsible for transportation to and from Charleston, S.C. The Coast Guard provides all training materials, lodging, and meals.

instructor development modalities. Additionally, the FLETC facility provides an excellent training environment with modern classrooms, excellent platforms upon which to conduct training, and a dedicated

staff that works to accommodate the needs of students so they can concentrate on training.

Furthermore, collaboration is encouraged—students learn from the instructors, instructors learn from the

“Partnering creates ‘safety solidarity.’”

John Malatak, Chief, Program Operations Branch,
U.S. Coast Guard Boating Safety Division

students, and students learn from each other. Classmates make lasting friendships with officers from other states, and realize they have a network of fellow officers whose knowledge and experience they can draw from.

To date nearly 3,000 marine patrol officers have graduated from MPOC, all with a common desire to carry out the goals, objectives, and strategies of the national recreational boating safety plan through education, enforcement, and training.

About the author:

Mike Baron served in the U.S. Coast Guard for 23 years. His last active duty tour was at the Maritime Law Enforcement Academy in Charleston, S.C., retiring in 2005. Mr. Baron has worked in the Boating Safety Division as a civilian since 2007.





Operation Dry Water

Coordinated enforcement effort surpasses expectations.

by MR. MIKE BARON
*Recreational Boating Safety Specialist
 U.S. Coast Guard Boating Safety Division
 Program Operations Branch*

Never before had there been such an undertaking in the world of recreational boating safety—a nationwide, multi-agency, coordinated weekend of boating under the influence (BUI) detection and enforcement, focused on reducing alcohol-related accidents and fostering a more visible deterrent to alcohol use on the water.

National safety campaigns are not new; the National Highway Traffic Administration sponsors national campaigns each year, such as “Click It or Ticket”

to encourage seat belt wear, and the recent “Over the Limit, Under Arrest” campaign to discourage intoxicated individuals from operating an automobile.

Boating and Drinking

For some, boating and drinking go together—enjoying an adult beverage or two (or more) while operating a boat on our nation’s water-

ways seems commonplace. Unfortunately for the misinformed, operating a vessel while under the influence of alcohol is not only unsafe, contributing to nearly 300 accidents and 124 fatalities annually¹—it’s illegal.

More than 20 percent of fatal boating accidents are a result of alcohol use. It’s commonly known that consuming alcoholic beverages will adversely affect the operator’s judgment, balance, vision, and reaction time. Additionally, alcohol can increase fatigue and susceptibility to the effects of cold water immersion. Add the stressors common to the boating environment—sun, wind, noise, vibration, and motion, all of which can intensify alcohol’s effects—and you have a recipe for a dangerous situation.

Operating a recreational vessel with a blood alcohol content of .08 or higher is against federal and most state laws. The vessel’s voyage will be terminated, the boat may be impounded, and the operator may be arrested. In some states an individual may lose his or her vehicle license if convicted of BUI.

The Operation Takes Shape

Coordinated by the National Association of State Boating Law Administrators (NASBLA) working with the states, the U.S. Coast Guard Boating Safety Division, and other partner agencies, Operation Dry Water directly addressed the National Recreational Boating Safety Strategic Plan, specifically Strategy 6.2:



A boater’s blood alcohol content (BAC) registers above the .08 legal limit of alcohol consumption. Photo courtesy of the Arizona Game and Fish Department.

“... increase the number of BUI checkpoints to collect and report BUI and safety compliance data in the Performance Report Part II AND Strategy 6.6 Challenge law enforcement officials to test more operators for alcohol/drug use in accident investigations.”

The task of coordinating this major undertaking fell to Mr. Ron Sarver, Deputy Director of NASBLA. Never attempted before, this was a major, nationwide, multi-agency undertaking. Ron had a lot of hard work to do in a short time to ensure this campaign was successful.

To begin with, the campaign needed a good catchphrase. Drawing from the state of Kentucky, where there are counties that have restrictive laws on the sale of alcohol and so are referred to as “dry” counties, “Operation Dry Water” was christened.

The weekend of June 26-29, 2009 was specifically chosen for this effort, as it was the weekend prior to the weekend of the 4th of July. It was hoped that the education and awareness achieved during this surge operation would carry over, making the holiday weekend that much safer.

Public Awareness

Participating states and territories were informed beforehand that there would be no additional funding available if they chose to participate in the operation. However, Operation Dry Water was partially funded through the Sport Fish Restoration and Boating Trust Fund administered by the U.S. Coast Guard.

The Boating Safety Division at Coast Guard headquarters and its communications firm provided coordination and office support for the outreach and promotional aspects of Operation Dry Water, including a website that provided participating states with the materials they would need to conduct a successful public awareness campaign.

The website was populated with public service announcements, brochures, pamphlets, and posters in English and Spanish, designed to be posted anywhere boaters would see them. The material was also designed to allow customization, so that it would have a local feel. Additionally, Operation Dry Water could be followed on Facebook and Twitter.

The Stats

Operation Dry Water was an unequivocal success, which can sometimes be difficult to measure. Although the goal was a weekend of detection and enforcement, it was also a weekend of education and focusing ma-



USCG photo.

rine patrol resources on the water to reduce the number of alcohol-related accidents and fatalities. The operation also served to illustrate that BUI is a nationwide problem, and that law enforcement is taking it seriously.

As word of Operation Dry Water was announced, word spread quickly. For the period of June 22 to August 24, 2009, Operation Dry Water accumulated 563 television “hits,” 273 online mentions, 224 newspaper articles, four magazine articles, 104 wire stories/hyperlink mentions, and 11 international mentions. It also received an incredible amount of coverage in blogs and newspaper comments from citizens nationwide.

Comments and postings varied widely. Some were disparaging and equated the event to just another heavy-handed law enforcement operation focused on ruining a good time, but an equal number of respondents said they supported the effort to increase safety on the water.

Anybody Who’s Anybody Was There

Success can also be measured by looking at the number of participants. Coordinated Operation Dry Water activities occurred in 52 of the 56 states and territories. Law enforcement agencies at the federal, state, and local levels worked side by side to make the weekend a success. Agencies that wished to participate were asked to focus efforts on a particular body of water, increasing patrol activities in several areas, conducting BUI checkpoints in one or more areas, or a combination of these activities.

Extraordinary efforts were put

Operating a recreational vessel with a blood alcohol content of .08 or higher is against the law.



One Sector's Statistics

U.S. Coast Guard Sector Hampton Roads in Portsmouth, Va., has an area of responsibility that covers a large portion of the Chesapeake Bay and its adjacent coastal and state waters.

Sector Hampton Roads' Operation Dry Water stats:

- 1,079 dedicated hours
 - 372 U.S. Coast Guard boardings
 - 1,635 boardings by other government agencies
 - 7 arrests for BUI
 - 5 arrests for other crimes discovered during the boarding process
 - 13 recreational vessel voyages terminated
- Officers came in contact with 17,695 recreational vessels.
 - Officers contacted 36,277 boaters.
 - This contact resulted in 283 BUI arrests, 19 for BUI extreme.
 - More than 5,300 warnings were issued.
 - Boaters were cited for 1,127 other boating safety violations.
 - Participating officers also took the opportunity to educate more than 35,000 boaters on boating safety requirements, such as equipment carriage, education requirements, and life jacket wear.

forth throughout our nation.

To date, with 33 of the participating 52 states reporting in, NASBLA provided the following data:

- 2,442 officers dedicated over 23,500 hours.

Future Plans

Due to the overwhelming success of the first Operation Dry Water, plans are in place to make it an annual event. It is important that recreational boating remains a safe and enjoyable experience for all who take to our waterways. It's imperative that boaters are aware that law enforcement professionals are serious about BUI, and that the weekend of Operation Dry Water isn't the only time the laws will be enforced.

About the author:

Mr. Mike Baron served in the U.S. Coast Guard for 23 years. His last active duty tour was at the Maritime Law Enforcement Academy in Charleston, S.C., retiring in 2005. Mr. Baron has worked in the Boating Safety Division as a civilian since 2007.

Endnote:

¹ U.S. Coast Guard Boating Safety Division, Recreational Boating Statistics COMDT PUB P16754.21.

FOR MORE INFORMATION:



The campaign's website, <http://www.operationdrywater.org>, will continue to provide numerous resources, including press releases, fact sheets, report forms, public service announcements, flyers, brochures, photographs, talking points, and other resources.

Campaign Deemed Success in Combating BUI

by Ms. KIMBERLY JENKINS
Publications Management

National Association of State Boating Law Administrators

Operation Dry Water, coordinated by the National Association of State Boating Law Administrators (NASBLA), was a tremendous success in its inaugural year. During the weekend of June 26-28, 2009, law enforcement officials from nearly all U.S. states and territories participated in this enhanced boating under the influence (BUI) enforcement campaign.

Reports from agencies that participated in Operation Dry Water 2009 show that there were more BUI arrests in that one targeted weekend of enforcement than there were for more than half of the states combined for all of 2008.

Safety First

Though the intensified enforcement had the direct result of removing nearly 300 impaired boaters from the waterways, just as important was the publicity that Operation Dry Water generated, which further increased awareness of BUI and other boating safety issues.

Though funds for the first year were limited, Operation Dry Water was undoubtedly big news. With efficient media relations practices, "pickup" was extensive, providing a strong foundation to expand and intensify Operation Dry Water.

Future Plans

"We are confident that as we build this program over time there will be a reduction in accidents and fatalities associated with boating and alcohol," said NASBLA Deputy Director Ron Sarver, who initiated the concept of Operation Dry Water and coordinated the event.

Considering the remarkable success of the first Operation Dry Water, plans are underway to make it an annual event, with NASBLA at the helm on the national crackdown. The campaign will continue to combine increased patrols and BUI checkpoints, high-visibility enforcement, and heightened public awareness efforts.

The Vessel Identification System

Closing a critical gap in our nation's safety and security.

by MR. W. VANN BURGESS
*Senior Recreational Boating Safety Specialist
U.S. Coast Guard Boating Safety Division*

MS. KATHLEEN POOLE
*Western States Grant Coordinator
U.S. Coast Guard Boating Safety Division*

VIS: The Background

In 1988, Congress passed a law requiring the Coast Guard to develop a system to provide vessel information for law enforcement, search and rescue, finance, and other purposes. During the late 1980s and early 1990s, the Coast Guard initiated several projects to define the requirements for such a system.

A contract was awarded in 1995 to develop the Marine Information for Safety and Law Enforcement (MISLE) System to replace and combine the Marine Safety Information System and the Law Enforcement Information System II. The Vessel Identification System (VIS) was to be a subcomponent of this project.

During the course of this process, however, the Coast Guard noted factors that complicated implementation, most notably:

- not all vessels had unique identification numbers,
- state participation in the system was voluntary,
- many states were unwilling or unable to participate.

The Effort Heats Up

Today, there are more than 12.5 million state-registered vessels, over 200,000 U.S.-documented recreational vessels, and millions of unregistered or undocumented vessels, and these numbers grow each year. These vessels operate along approximately 88,000 miles of U.S. coastal



A New York State Department of Environmental Conservation officer conducts an identification check during a boarding on a recreational boat in Long Island Sound, N.Y. U.S. Coast Guard photo by Petty Officer 2nd Class Annie Elis.

shoreline. However, law enforcement officials maintain minimal contact with the operators of all these vessels. When they do make contact, they may have difficulty identifying the operator and verifying the vessel's ownership, especially if the vessel was registered in a different state. There is a vividly apparent need for better real-time information about this boating environment.

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The BoatU.S. Foundation educates boaters using unconventional methods.

by MR. CHRIS EDMONSTON
*Vice President, BoatU.S. Foundation
 for Boating Safety and Clean Water*

The Urban Dictionary defines “guerilla education” as “educating people about a subject under the auspices of helping them with something unrelated.” The BoatU.S. Foundation uses this approach by employing unconventional, cutting-edge approaches to boater education.

For example, in 1997 the foundation introduced one of the first NASBLA-approved online boating safety courses. This early foray into online education consisted entirely of text with a few static pictures. Unfortunately, even with these basic features, slow download speeds left many users frustrated.

Flash Forward

Today, faster download speeds and improved computer capability allows the course to incorporate many interactive features such as animations and videos. These features provide students a vicarious experience that is very effective as a training aid.

While students can learn about fire extinguishers by reading a description, a video showing how to use a fire extinguisher allows a student to learn in an almost hands-on way, and provides a real-world portrayal of how the product is actually used.

NavigateIt!

Advanced animations such as the “NavigateIt!” and “DockIt!” games are also available. The games allow students to take the “helm” of a boat and navigate through common boating scenarios. Rules and other boating standards are displayed and reinforced through game play.

With multiple levels, including a nighttime level, students can choose from a variety of playing scenarios, which keeps the game fresh and allows the player to learn more tips and techniques.

Simulator

One recent development is a downloadable boating simulator based on the same

technology used by the U.S. and Royal Navies for their training programs.

As with the online animations, a student is presented with numerous scenarios as he or she proceeds through the simulation. Points are allotted at the start, and improper boat handling will quickly reduce the final score. Enter a naval restriction zone ... lose points. Speed through a no-wake zone ... lose points.

While the simulator is a stand-alone product, the foundation is working to integrate it within the basic online boating course, making the online boating course as close as possible to on-the-water training.

The foundation is pleased to use current technologies to present boating education in a fun yet highly educational manner. Students can learn and demonstrate skills at home, free of charge. This reduces the overall cost of education, and makes learning more fun.



Modeling a day trip to “Walrus Island,” the BoatU.S. simulator challenges the student to navigate safely. Points are allotted at the start. Improper boat handling reduces the final score. Graphics courtesy of BoatU.S.

FOR MORE INFORMATION:

BoatU.S.

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 800-245-BOAT (2628)

Alexandria, Virginia Office

880 South Pickett Street
 Alexandria, VA 22304
 800-245-BOAT (2628)

The free online course, the “NavigateIt!” and “DockIt!” games, and the downloadable simulator are available at www.boatus.com/foundation.

Recognizing the need to close this gap, the Coast Guard again moved forward to develop a usable Vessel Identification System to provide this much-needed information. In discussions with state partners, it became apparent that there were concerns about the security of the information.

The primary concern was that the information should only be available to law enforcement agencies for the purposes of enforcement, titling and registration, security, and search and rescue. Additionally, a large percentage of states did not collect all the information required for participation. As a result, it was decided that non-law enforcement entities would be excluded from access to the VIS database, and waivers were granted for the data elements not collected by certain states. This would allow the more critical elements to be entered into the database, and, as states modernized their numbering and titling systems, more and more data would be available.

In September 2007, the VIS database was placed online and began to be populated with data as states signed memorandums of agreement to participate.

The System in Use

Currently 32 states and territories have access to a secure database for vessel and vessel owner information for all vessels documented by the Coast Guard. If the state officials participate with the National Law Enforcement Telecommunications System, they can access the VIS via their existing login portals. If not, they are provided a secure web-enabled login directly to the Vessel Information System.

The data is accurate to at least within the last 30 days, and the information on documented vessels is real-time, as the information comes directly from the Coast Guard's MISLE system. This information can be used to



A boarding team from Coast Guard Station Washington, D.C., conducts a law enforcement, safety, and security boarding of a recreational vessel on the Potomac River. U.S. Coast Guard photo by Joseph P. Cirone, USCGAUX.

verify ownership of a vessel while a law enforcement officer is on scene, as well as to identify abandoned vessels or vessels involved in an accident or search and rescue case.

With a single point of entry

into the system, this eliminates time lost trying to contact a state agency, and the information is available 24 hours a day, seven days a week.

Getting More States on Board

The advantages of this type of system are obvious, yet there are still states that are not participating. Some are facing barriers such as state privacy laws, or their system of numbering doesn't provide a unique identifier for each record. Some states cannot provide the information in a format that can be translated into the system. The Coast Guard is engaging the states and working to resolve these issues. Making sure that states and the Coast Guard share as much timely information with each other as possible to protect our nation's waterways and citizens is a top priority.

The Vessel Identification System provides one more tool to help close a critical gap in our nation's safety and security. The Coast Guard strongly encourages those states not yet participating to re-energize efforts to resolve any issues preventing participation and work with the Coast Guard to bring this system up to its full potential.

About the authors:

Mr. Burgess retired from the United States Coast Guard after serving more than 20 years on active duty. During his career, Mr. Burgess's primary fields were law enforcement and search and rescue. As a civilian his duties as Senior RBS Specialist include oversight of the State Recreational Boating Safety Grant Program.

Ms. Poole worked more than 15 years as a grant analyst with the Department of Education. Her duties with the Coast Guard include the oversight of the Western States RBS Grant Programs and as the Coast Guard representative to the states for the Vessel Identification System.





Mandatory Education Initiatives

Recreational boaters navigate a sea of regulations.

by MR. HARRY HOGAN
Contract Staff

U.S. Coast Guard Office of Auxiliary and Boating Safety

MR. JEFF LUDWIG

Regulatory Development Manager

U.S. Coast Guard Boating Safety Division

Executive Secretary, National Boating Safety Advisory Council

The Coast Guard's annual recreational boating statistics for 2008 reported 3,331 injuries, \$54 million in property damage, and 709 deaths.¹ Additionally, these statistics show that only 10 percent of the deaths occurred on boats where the operator received some type of boating safety instruction.

Further, the National Association of State Boating Law Administrators

(NASBLA) completed a study in 2006 that found the states with the longest history of boating education requirements also have the lowest average fatality rates.² NASBLA also reported that the longer the requirements have been in place, the lower the fatality rates; states with no boating education requirements have the highest average fatality rates.

In an attempt to reduce the number of recreational boating accidents, many states



Mandatory boat operator safety instruction is often conducted as classroom-style sessions. All photos USCG.



Mandatory boat operator safety instruction can help prevent dangerous situations.

have mandated various types of education and licensing for motorized vessel operators.

Current Requirements

Although this could change, the current mandatory state boat operator safety education courses are not as rigorous as automobile driver education, particularly because the behind-the-wheel and hands-on testing are not part of the mandated process. Instead, the courses are classroom or online learning sessions followed by a multiple choice-style final exam.

Operators are typically then required to carry their proof of course completion when they are operating their vessel. There are five general categories into which the recreational operator boating safety instruction requirements can be grouped.

Under a certain age: 19 states/territories have a policy that requires boat operators under a certain age to complete a boating safety course.

Born after a specified date: 17 states/territories have a requirement that the boat operator must complete a class if he or she was born on or after a specific date.

Quick phase-in of all operators: Eight states/territories have mandated boating safety instruction for their entire operator population, or at least up to a specified “grandfathered-in” age. This third group conducted a quick phase-in approach to getting their boaters educated, typically by requiring operators in younger age ranges to take courses first, then incrementally increasing the mandated age range.

Where no requirements exist: Eight states/territories have no boating safety education requirements.

For personal watercraft operators only: Four states have boating safety education requirements for personal watercraft operators only.

Lack of Uniformity

The Coast Guard has been designated as the coordinator of the National Recreational Boating Safety Program. Unfortunately, the Coast Guard does not have the legal authority to require mandatory education for recreational boaters. The National Boating Safety Advisory Council (NBSAC) has recommended that the Coast Guard seek such authority.

In 2004, NBSAC recommended the Coast Guard seek authority to require a boat operator to possess a certificate showing completion of a boating safety instructional course or its equivalent.

Most recently, in December 2007, NSBAC recommended that the Coast Guard seek legislative authority to be able to establish minimum requirements for recreational vessel operator proficiency. This was a slightly different twist on the 2004 recommendation, the intent



This crash test between two open motorboats demonstrates the damage that can occur.



These recreational boaters required a Coast Guard rescue after their vessel capsized.



A boat operator is arrested for boating under the influence of alcohol.



Types of State Boating Safety Education Policies

(as of 11/9/09)

State	Effective Date	Age Requirement	Boat
CO	01/01/1998	14-15 YOA	MB
GA	07/01/1998	12-13 YOA; 14-15 YOA	MB <31 HP & all HP PWC
IA	07/01/2003	12-17 YOA	MB>10 HP
IL	07/29/1999	12-17 YOA	MB
IN	01/01/1996	15 YOA	MB>10 HP
KS	01/01/2001	Born 1/1/1989 but only <21 YOA	MB & SB
KY	01/01/1999	12-17 YOA	MB>10 HP PWC
MA	04/09/1990	12-15 YOA; 16-17 YOA	MB; PWC
MI	05/24/1995	12-15 YOA	MB>6 HP
MN	01/01/1991	12-17 YOA	MB>25 HP
MT	05/01/2000	13-14 YOA	MB>10 HP
NC	05/01/2010	<26 YOA	MB>10 HP
ND	UNKNOWN	12-15 YOA	MB>10 HP
NE	01/01/2004	14-17 YOA	MB
NY	01/01/2000	ALL AGES; 10-17 YOA	PWC; MB
OK	01/01/2007	12-15 YOA	MB>10HP; SB>16' & PWC
SC	05/06/1997	<16 YOA	MB>14 HP
TX	09/01/1997	<18 YOA	MB>10 HP & SB>14'
VI	03/24/2006	≤18 YOA	MB

Table 1. Operators Under a Certain Age

State	Effective Date	Date of Birth	Boat
AR	01/01/2001	1/1/1986	MB
DE	01/01/1994	1/1/1978	MB
FL	1/01/2010	1/1/1988	MB>9 HP
LA	07/01/2010	1/1/1984	MB>10 HP
MD	07/01/1988	7/1/1972	MB
MO	01/01/2005	1/1/1984	MB & SB >12'
MS	07/01/1997	6/30/1980	MB
NM	01/01/2007	1/1/1989	MB
NV	01/01/2003	1/1/1983	MB>15 HP
OH	01/01/2000	1/1/1982	MB>10 HP
PA	01/01/2005	1/1/1982	MB>25 HP
PR	01/01/2001	7/1/1972	MB
RI	07/02/1999	1/1/1986	MB>10 HP
TN	01/01/2005	1/1/1989	MB>8.5 HP
VT	07/01/1991	1/1/1974	MB
WI	05/03/2006	1/1/1989	MB
WV	01/01/2001	12/31/1986	MB

Table 2. Operators Born After a Specified Date

being that if the recommendation were successful, Coast Guard regulations would provide a baseline for recreational boater education requirements, but states would be able to expand upon those if they desired. The Coast Guard has actively sought this authority through legislative change proposals.

State	Effective Date	Quick Phase-In	Boat
AL	Start- 04/28/1994; End- 04/28/1999	12 YOA through born April 28, 1954	MB
CT	Start- 11/24/1992; End- 10/1/1997	ALL AGES	MB, SB>19.5'
DC	UNKNOWN	ALL AGES	ALL VESSELS
NH	Start- 01/01/2002; End- 01/01/2008	ALL AGES-- phase in by 1/1/2008	MB>25 HP
NJ	Start- 01/09/2006; End- 06/01/2009	ALL AGES	MB
OR	Start- 01/01/2003; End- 01/01/2009	ALL AGES-- phase in by 01/01/2009	MB>10 HP
VA	Start- 07/01/2011; End- 07/01/2016	ALL AGES	MB≥10 HP
WA	Start- 01/01/2008; End- 01/01/2016	born before 01/01/1955 & are exempt	MB≥15 HP

Table 3. Quick Phase-in of All Operators

State	Effective Date	Age Requirement	Boat
AK		No Requirements	
AS		No Requirements	
AZ		No Requirements	
CA		No Requirements	
GU		No Requirements	
CNMI		No Requirements	
SD		No Requirements	
WY		No Requirements	

Table 4. No Requirements

State	Effective Date	PWC Only	Boat
HI	01/01/2005	ALL AGES	PWC
ID	07/01/1996	ALL AGES	RENTAL PWC ONLY
ME	06/30/2006	16-17 YOA	PWC
UT	07/01/2002	12-17 YOA	PWC

Table 5. Personal Watercraft Operators Only

KEY:	
HP	Horsepower
MB	Motorboat
PWC	Personal Watercraft
SB	Sailboat
YOA	Years of Age

Absent a national standard for recreational boating operator education requirements, many states have enacted state-specific requirements. As previously mentioned,

there are five general categories of these requirements, but there are multiple policy differences within each category. The states also vary on issues such as reciprocity—for example, would a recreational boater from state “Q” still be able to go boating in state “Z” if state

continued on page 48





Advantages of the Quick Phase-In Policy

In 2006 the Coast Guard sponsored a study of operators involved in fatal accidents, finding that for the period of 1995 through 2005, the median age was 40.¹ This means that in approximately 50 percent of the fatal motorized vessel accidents, the operator was over 40. Therefore, the 19 states/territories with youth-based or “under a certain age” requirements are not reaching the majority of boaters involved in fatal accidents.

The 17 states/territories with a “born after” cut-off policy will have a long wait before they begin reaching boaters who are 40. For instance, Maryland has the earliest cut-off—July 1, 1972—but even Maryland will not reach approximately 50 percent of its presumed target audience until 2012. New Mexico and Tennessee have the latest “born after” cut-off year—1989. The targeted boat operators in those states will not be 40 until 2029.

Thus, the main drawbacks of education programs that do not require a quick phase-in for all ages are either a failure to address the majority of operators or the delay that occurs in educating the wide-ranging age group of operators involved in fatal accidents.

Conversely, the quick phase-in policy targets a wide range of boat operators over a short period of time.

Examining Trends

The 2006 study determined that states could see normal fluctuations during the quick phase-in period, then a decline in the motorized fatal accident rate (FAR) for a few years, followed by a leveling-off at 25 percent of the initial FAR.

Three years of recreational boating statistics were collected since the study (2006 through 2008). The phase-in period for New Hampshire, New Jersey, and Oregon has recently concluded, and the fatal accident rate of these three states will be examined over the next few years. At this time, Alabama and Connecticut are the only two states that have gone through the process of requiring all motorized vessel operators to obtain boating safety instruction for enough years that before/after comparisons are reasonable.

The study used the combined FAR of Alabama and Connecticut to show that future quick phase-in policy states should expect an approximately 25 percent decline in fatal accident rate. Using the three years of more recent data (2006 through 2008), Alabama and Connecticut combined have an average FAR of 3.9 fatal accidents per 100,000 registered motorized vessels. This is 32 percent lower than the average fatal accident rate during what was considered their combined phase-in period from 1995 to 1999.

Thus, it appears that these quick phase-in policy states are still following the predicted trend from the 2006 study.

A Closer Look at Alabama

Further examination reveals that Alabama is driving the low fatal accident rate for this recent three-year period. Alabama has more than twice as many registered motorized vessels, at an average of 270,034, compared to Connecticut's 108,875. Alabama's average FAR was 3.8 fatal accidents per 100,000 registered motorized vessels during this three-year period, which is 45 percent lower than the average during phase-in.

Conversely, Connecticut had a FAR of 4.0, which was 66 percent higher than the average during phase-in. One possible explanation for Connecticut's higher fatal accident rate in the past three years is their low number of total fatal accidents (averaging 4.3 per year for the past three years), which can result in major percentage changes with just a few accidents.

Confirming Trends

The major assumption is that the quick phase-in policy is the primary factor in fatal accident rate reduction. Another assumption is that other states will follow trends that are similar to Alabama and Connecticut's (or at least Alabama's).

Examining the trends that occur with New Hampshire, New Jersey, and Oregon will contribute to the understanding of these education policies' effects on fatal boating accidents.

FOR MORE INFORMATION:



A good resource for recreational boater education requirements can be found at <http://www.nasbla.net/referenceguide/index.php?queryID=2.1>

Endnote:

¹. “A Comparative Analysis of Recreational Boating Policies: ‘Quick Phase-In’ Education vs. Other Education Policies,” <http://www.uscgboating.org/statistics/pha-sein.aspx>, United States Coast Guard, 2006.



“Q” boater education requirements were not as stringent as in state “Z”?

Until the Coast Guard has the authority to establish minimum recreational boater education standards, recreational boaters need to be aware of the state requirements—particularly when operating on a body of water that serves as a boundary between two or more states.

About the authors:

Harry A. Hogan has been a U.S. Coast Guard contractor for the past five years in the Boating Safety Division of the Office of Auxiliary and Boating Safety. He conducts research and analysis of recreational boating accident data. He holds a Master of Science degree in public health from San Diego State University.

Jeff Ludwig has worked for the Office of Auxiliary and Boating Safety for four years, managing all boating safety regulatory efforts and serving as the executive secretary for the National Boating Safety Advisory Council. Prior to joining the Coast Guard, he oversaw the regulatory efforts of a trade association representing personal watercraft manufacturers. He served eight years in the U.S. Army and is a graduate of the University of Maryland.

Endnotes:

- ¹United States Coast Guard, “Recreational Boating Statistics 2008,” http://www.uscgboating.org/statistics/accident_statistics.aspx.
- ²“Boating Education Requirements Do Make a Difference,” <http://nasbla.org/i4a/pages/index.cfm?pageid=3420>.

Through Education, Lives Are Saved

by Ms. ANNE R. LOCKWOOD
Director of Education
U.S. Coast Guard Auxiliary

The Auxiliary Public Education Directorate is committed to providing a variety of safety-related courses in its effort to reach boaters of all ages and skill levels.

Beginners

For beginning boaters, “About Boating Safely” offers basic safety knowledge. This eight-hour course provides knowledge needed to obtain a state safety certificate and encourages students to attend more advanced education courses.

Kayakers and Canoeists

Reaching out to one of the fastest-growing audiences in North America, the Auxiliary’s newest course is “Paddlesports America.” The target audience is novice kayakers and canoeists. This five-chapter, four-hour course ad-

resses how to be safe on the water and how to return home safely.

Comprehensive Courses

The premier USCG Auxiliary public education courses are “Boating Skills and Seamanship” and “Sailing Skills and Seamanship.” These extensive safety courses provide up-to-date information on handling boats in all conditions and enhance boater skills.

What if ... ?

“Suddenly in Command” is designed for a person who suddenly becomes the helmsman when the boat operator becomes incapacitated. The course is a two- to four-hour seminar, designed to

educate a person who becomes suddenly in charge of getting help or returning the boat to shore.

FOR MORE INFORMATION:

U.S. Coast Guard Auxiliary

Each year auxiliaries volunteer more than 2 million hours benefitting boaters and their families.

Learn more at:
<http://www.cgaux.org/>



The target audience ranges from a child out fishing with Granddad to an adult out for a boat ride. Participants are encouraged to further their education by taking advanced courses.





Safety Afloat

The Boy Scouts of America promote aquatic safety.

by MR. KEITH CHRISTOPHER
National Events Director / Sea Scouts National Director
Boy Scouts of America

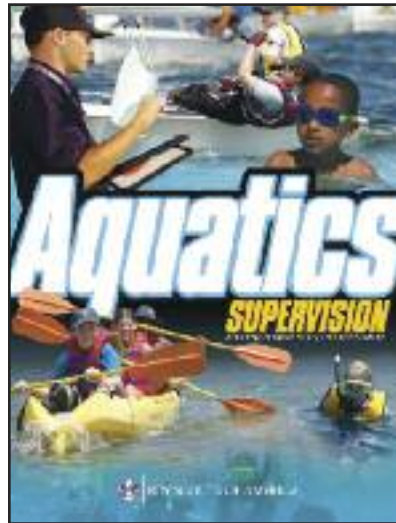
All aquatic activities comply with Boy Scouts of America (BSA) "Safe Swim Defense" and "Safety Afloat" programs, which outline mandatory minimum standards that all BSA leaders must be trained in before conducting sanctioned aquatic programs. Additional guidance includes the manual "Aquatics Supervision ... A leader's guide to youth swimming and boating activities."

Training and Merit Badges

During 2009, there were 48,793 adults and older youth trained in safe swim defense and 44,370 trained in safety afloat programs. We also provide an online version of weather hazard training to ensure the group's leadership is versed in what to look for when going on an outing. In all, 840,582 adults and older youth were trained during 2009.

Boy Scouts aged 10-17 earn merit badges as they advance in rank to Eagle Scout. Several merit badges teach life

skills, as well as rules needed for safe boat operation.



Recent statistics for Boy Scouts trained / badges earned each year are as follows:

- ★ Canoeing: 42,000 merit badges
- ★ Small Boat Sailing: 18,000 merit badges
- ★ Rowing: 16,000 merit badges

- ★ Motorboating: 13,000 merit badges
- ★ Whitewater Paddling: 4,000 merit badges
- ★ Water Sports (waterskiing/wakeboarding): 4,000 merit badges

Safety Partners

The BSA recognizes other organizations that provide expertise in specialized aquatic activities. Letters of agreement or understanding have been signed with the U.S. Coast Guard Auxiliary, U.S. Power Squadrons, American Red Cross, and the American Canoe Association.



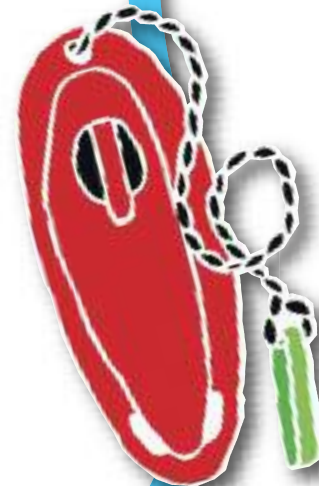
**FOR MORE INFORMATION:
THE BOY SCOUTS OF AMERICA**
<http://www.scouting.org/>

Sea Scouts

Boy Scouts of America Sea Scout units, called "ships," focus on boating skills and promote knowledge of our maritime heritage. Sea Scouts learn to maintain and safely operate a vessel. Sea Scouts also learn the meanings of buoys and lights, how to take advantage of wind and tide, and how to drop anchor or approach a dock.



For more information about the Sea Scouts, including how to join or start a Sea Scout ship in your area, contact your local Boy Scouts of America Council service center.





The Non-profit Organization Grant Program

Partnering with non-profits to improve boating safety.

by MR. DONALD J. KERLIN
*Chief, Program Management Branch
U.S. Coast Guard Boating Safety Division*

MS. LINDA GRAY-BROUGHTON
*former Non-profit Organization Grant Coordinator
U.S. Coast Guard Boating Safety Division*

The Federal Boat Safety Act of 1971 established the Recreational Boating Safety (RBS) Federal Financial Assistance Program to permit states to assume a larger share of boating safety education, assistance, and enforcement activities. Of the funds appropriated for these programs, the Coast Guard is authorized to retain up to five percent for grants to national non-profit public service organizations.

The Process

The grant process begins with an announcement through the website www.grants.gov, which includes a listing of suggested topic areas that receive additional points in the scoring process, such as tying the topic to the National Recreational Boating Safety Strategic Plan. The [grants.gov](http://www.grants.gov) announcement is made around November 1st and closes at the end of January. About \$6,000,000 is available for non-profit organizations each year.

The USCG non-profit organization grant program administrator first reviews applications for eligibility and completeness and prepares a detailed review of the project and cost portions. Subject matter experts review the grant administrator's threshold cost evaluation and

then review each application using a "merit review" checklist, which focuses on technical merit, personnel qualifications, and the degree to which a proposal offers potential value and measurements to RBS program goals. All applications in a particular area of interest are reviewed by the same USCG subject matter expert.

Those applications meeting review standards (60 to 80 per year) are forwarded to the non-profit organization grant review team,¹ which ranks selections based on parameters including:

- support of National RBS Program goals,
- probability of project success,
- return on investment.

FOR MORE INFORMATION:

The USCG Boating Safety Division online grant application package contains an overview, eligibility requirements, application procedures, required forms, application review guidelines, and grant product guidelines.

Access at <http://www.uscgboating.org/grants/default.aspx>.

Recent Successful Applications

2005

Navigation Lighting on Barges. National Water Safety Congress. The towboat/tugboat/barge industry expressed an interest in determining a manner to light their barges while under tow. Recommendations for additional lighting or other means to increase the visibility of the barges had to be consistent with Rule 20 of the Navigation Rules (33 U.S.C. 2020).

2006

Boating and Water Safety Summit. National Safe Boating Council/National Water Safety Congress. A multi-year initiative to conduct conferences to impact the safer use of water resources through improved public education and more efficient means of transferring information among waterways managers, user groups, and individuals. The summit also provided professional-level training workshops for boating and water safety officials (2006-2009).

Development of Risk-Based Assessments. Underwriters Laboratories. This initiative focused on developing a risk-based compliance approval methodology for life jackets. The risk-based compliance approval process included three recommended models for inherently buoyant, inflatable, and hybrid life jackets (2006-2009).

National Estimates of Personal Flotation Device Wear Rates. JSI Research. A multi-year

effort to measure the effectiveness of recreational boating safety program initiatives to increase life jacket wear (2006-2009).

Staged Collisions. National Association of State Boating Law Administrators (NASBLA). This project conducted staged boating collisions for boating safety accident investigation training.

2007

BUI Detection and Enforcement Training Seminars. NASBLA. Primary objectives: Review and distribute an updated BUI curriculum package for marine officers and produce regional BUI officer training seminars.

Cold Water Boot Camp USA. National Water Safety Congress. Goal: Reduce fatalities by targeting immersion in cold water as a specific issue. This educational program was focused on informing, motivating, and changing behavior of the target audience to increase life jacket wear rates.

"Paddle Safe, Paddle Smart." American Canoe Association. The program concentrated on the effort to move "Paddle Safe, Paddle Smart" lessons from an extra-curricular option into the regular classroom.

2008

Inflatable Life Jacket Testing for Children 16 Years and Under. Foundation for Recre-

ational Boating Safety and Educational Awareness. Goal: Determine if and under what circumstances children under the age of 16 and adult non-swimmers using automatic inflatable life jackets reduce their overall risk of drowning.

Personal Flotation Device (PFD) Point of Purchase Show Board. United Safe Boating Institute. Designed and produced a show board depicting information about PFDs for sailing, paddling, skiing, operating personal watercraft, fishing, hunting, and general recreational boating. Product distributed to retail outlets, parks, ranger stations, safe boating booths, and other boating safety facilities.

PSA on Dangers of Carbon Monoxide on Boats. Carbon Monoxide Action Group. This was a nationally televised Public Service Announcement (PSA) on exposing the dangers of carbon monoxide on boats.

"WEAR IT!" National Safe Boating Council. This ongoing campaign encourages all who participate in activities on the water to be safe and responsible. This includes wearing a life jacket, always being alert and aware while operating any type of vessel (including personal watercraft, canoes, or kayaks), taking an approved boater education course, and being informed on what to do in case of an accident.

The non-profit organization grant program administrator prepares the top-ranked grant award recommendations for the program director's review and final approval.

Application Rating Criteria

The Coast Guard has approved a wide variety of projects related to boating safety, ranging from highly technical engineering studies to developing public service announcements. The grantee must be a national non-profit public service organization and the project must have the potential to benefit recreational boating safety at a national level.

A "demonstration" project within a limited geographic area may qualify if it can be demonstrated that the benefits of the project can be extended nationwide.

The following generic criteria are used during evaluations:

- The extent to which work under the grant supports the National Recreational Boating Safety Program missions, goals, and objectives.
- Feasibility, including, but not limited to:
 - the likelihood of the activity leading to desired results;
 - the technical and managerial competence of



National Recreational Boating Safety Program, Mission, Goals, Objectives

Mission: To ensure the public has a safe, secure, and enjoyable recreational boating experience by implementing programs that minimize loss of life, personal injury, and property damage while cooperating with environmental and national security efforts.

Goals: To reduce the annual number of recreational boating fatalities to 682 for 2010 and 679 for 2011.

Objective 1: Safety Education Certificates

Objective 2: Awareness of Safe Boating Practices

Objective 3: Advanced Boating Education

Objective 4: Life Jacket Wear

Objective 5: Operator Compliance—Navigation Rules

Objective 6: Boating Under the Influence

Objective 7: Manufacturer Compliance

Objective 8: Operator Compliance—USCG-Required Safety Equipment

Objective 9: Boating Accident Reporting

Objective 10: Determine Participant Denominator

Objective 11: Measure Effectiveness by Reviewing Annual Reports from Grants

- the staff, the adequacy of equipment, and the organizational capacity to perform the proposed project as evidenced by its previous successful completion of work similar to that proposed for funding;
- the reasonableness and consistency of the timetables and milestones relative to the available resources;
 - the adequacy of specific delivery systems to ensure that the output is used.
 - Impact/cost effectiveness, which includes consideration of:
 - whether the proposed project fits criteria noted in solicitation for projects of particular interest;
 - the overall merit of the proposed project or activity;
 - the value of the intended output to nationwide recreational boating safety, including the like-

likelihood of the project spurring other beneficial actions and its consistency with the direction of the National Recreational Boating Safety Program; as well as the project cost and proposals for cost sharing.

Approval

This overall review process spans several months. Once the successful grantees have been notified, they have the option to accept or decline the offer.

If they accept, the award negotiations begin. This negotiation process takes another several weeks to com-

2007-2010 awards

- 2007 – \$5,219,380 was allocated for 37 funded projects.
- 2008 – 50 applications received, totaling \$10.8 million. Awarded 36 grants totaling \$6.2 million.
- 2009 – 74 applications totaling \$16.1 million received. Awarded 34 grants totaling \$6.028 million.

For the 2010 grant cycle, we received 73 applications totaling \$15,629,034 competing for the approximately \$6.2 million available.

plete. The end result is a signed agreement between the grantee and the USCG.

About the authors:

Mr. Kerlin has served as Chief of the Program Management Branch, Boating Safety Division, Office of Auxiliary and Boating Safety since January 2008. Prior to that he was Deputy Director of the National Maritime Center from 1996-2007. He has also served as the Director of the Technical Cooperation Division at the International Maritime Organization. Mr. Kerlin earned a BS in fire protection and safety engineering from the Illinois Institute of Technology before attending USCG Officer Candidate School and becoming an ensign in 1965, working ever since in a combination of CG active duty, CG civilian, and merchant marine safety and boating safety positions. He has received the DOT Superior Achievement Medal in 1984, the Commander's Award for Civilian Service in 2007, and numerous CG meritorious team awards.

Linda Gray-Broughton is currently a grants specialist for the Federal Mediation and Conciliation Service. Previously, she was the Non-profit Organization Grant Coordinator for the U.S. Coast Guard's Boating Safety Division. She has a wealth of knowledge in the grants management field, with over 10 years of experience.

Endnote:

¹. To the maximum extent possible, members selected to serve on the non-profit organization grant review team do not include anyone who, on behalf of the government, performed or is likely to perform any of following functions: provide substantive technical assistance to the applying organization; serve as project officer for previous grant projects of the organization; serve as grant program manager or grant technical manager; perform audits of grant projects; are active members of any applying organization.

Celebrating



The National Safe Boating Council

Making a difference through outreach, education, and training.

Years

by MR. VIRGIL CHAMBERS
Executive Director
National Safe Boating Council

The National Safe Boating Council (NSBC) is a coalition of organizations working together to promote safe boating. Membership consists of more than 330 U.S. and Canadian organizations, all with an interest in boating safety and education. Membership is diverse, with approximately 35 percent composed of for-profit organizations and 65 percent non-profit organizations as well as local boat clubs, foundations, and law enforcement agencies.

Its missions include:

- conducting national safe boating campaigns,
- improving professional development of boating safety educators,
- providing skills-based training,
- recognizing outstanding boating safety programs.

Outreach

Each year, in partnership with the National Water Safety Congress, the NSBC produces the International Boating and Water Safety Summit. Now in its 14th year, the summit provides a venue for training professionals and volunteers within the

recreational boating safety community.

The NSBC also works in partnership with the National Association of State Boating Law Administrators to ad-

the country organize to promote safe boating. During this National Safe Boating Week (the week before Memorial Day), organizations address topics including alcohol and boating, boater education, and life jacket wear.

FOR MORE INFORMATION: National Safe Boating Council



P.O. Box 509
Bristow, VA 20136
Phone: (703) 361-4294
Fax: (703) 361-5294

*For more information on programs
or products, go to*
www.SafeBoatingCouncil.org
or
www.BoatingSideKicks.com.

vance the availability of competent instructors and consistent boating safety curricula for entry-level students. Additional NSBC member-requested programs include boating safety instructor training and "Boating Safety Sidekicks" for children.

National Safe Boating Week

Each year since 1952, boating safety organizations and advocates across

The current nationwide "Wear It!" campaign urges recreational boaters to wear life jackets at all times, as it has been estimated this could reduce drowning by as much as 90 percent. A large component of the campaign is educating people about USCG-approved inflatable devices and demonstrating how the form-fitting, comfortable materials found in inherently buoyant life jackets make them truly wearable.

Close-Quarters Boat Control

The NSBC's newest training program focuses on maneuvers and techniques for enforcement officers and safety patrol boat handlers to operate power boats, using factors like wind and current to assist in boat placement. The boating industry is reviewing this as a model for on-water interaction and training for the boat-buying public.





The National Water Safety Congress

Working to prevent water-related recreation accidents.

by Ms. CECILIA DUER, *Executive Director, National Water Safety Congress*

Established in 1951 as one of the first non-profit water safety organizations, the National Water Safety Congress (NWSC) is a non-governmental, 501C-3 non-profit organization dedicated to promoting boating and water safety. Its membership is comprised of federal, state, and local agencies; profit and non-profit organizations; private corporations; manufacturers; retailers; and concerned citizens who are committed to water safety.

Its efforts include:

- developing, publishing, and distributing educational safety materials;
- creating hands-on youth and community boating and water safety programs;
- providing training and professional development seminars, including hands-on training;
- encouraging individual states to establish and maintain effective water and boating safety programs;
- acknowledging those who have

made outstanding contributions in water safety, educational efforts, or in preventing accidents or loss of life;

- promoting uniform legislation and encouraging reciprocity of boating and water safety regulations among individual states;
- establishing and improving partnerships among federal, state, and local agencies; non-profit organizations; and individuals on boating and water safety issues.

Ongoing Efforts

Through grants provided through the USCG Office of Auxiliary and Boating Safety, we are able to co-present the annual International Boating and Water Safety Summit, next scheduled for March 6-9, 2011 in Savannah, Ga. Additionally, the congress's activities have grown to include:

- publishing the internationally distributed *Water Safety Journal*, course curriculum for "Cold Water Boot Camp USA," "Beyond Boot Camp: Rescue, Recover, Re-

warm," and the "Multiple Use Waterway Management Guide;"

- establishing a personal watercraft instructor/cold water immersion/first responder trainer certification program;
- completing a life jacket national wear rate validation study;
- providing grants for boating and water safety projects.

Leadership

The NWSC executive director serves as a member of the USCG's National Boating Safety Advisory Council, Vice Chair of the Strategic Plan Committee, and liaison to the Towing Safety Advisory Council. The executive director is a board member of the partner organization the National Drowning Prevention Alliance and is also the executive director of the Spirit of America Youth Family and Community Boating Education programs.

FOR MORE INFORMATION:

**The National
Water Safety
Congress**



P.O. Box 1632
Mentor, OH 44061
Phone: (440) 209-9805
Fax: (440) 209-9805
www.watersafetycongress.org

Recreational Boating Safety Specialists

Leveraging partnerships for successful mission execution.

by MR. FRANK JENNINGS, JR.
*Recreational Boating Safety Specialist
Ninth Coast Guard District*

MR. BRUCE R. WRIGHT
*Recreational Boating Safety Specialist
Seventh Coast Guard District*

The Program Celebrates a Century of Safety

This year marks the 100th anniversary of key legislation for the Coast Guard's boating safety program—a significant milestone for one of the oldest programs in our service's portfolio of missions. Following passage of the Motor Boat Regulations Act of 1910, the program marked the beginning of the federal effort to regulate navigational lighting, machinery requirements, and life jacket carriage on the then-relatively small population of recreational vessels plying U.S. waters.

Later strengthened by the Motorboat Act of 1940 and the Federal Boat Safety Act of 1971, the program's evolution has been one of emerging priorities and changing responsibilities, always aimed at reducing deaths and injuries on our nation's waters. And, as with any successful program, partnerships are the keystone. Today, helping to leverage those partnerships at the regional level are the Coast Guard's cadre of civilian recreational boating safety (RBS) specialists.

While the staff of the Coast Guard headquarters' Boating Safety Division function at a strategic level, RBS



specialists work at the operational level to facilitate mission execution with a variety of stakeholders outside the Coast Guard. In fact, the majority of work related to the district-level RBS program is externally focused.

Recreational Boating Safety Specialists: History

Surprisingly, it was the Coast Guard streamlining initiative of the mid-1990s that served as the genesis for the district RBS specialist positions and the modern Coast Guard Recreational Boating Safety Program. During streamlining, the last of the district boating safety divisions were dissolved. With the exception of the Auxiliary Affairs Branch, which remained, many of the responsibilities of the other divisions' disestablished branches were distributed among other elements on the district staff. All, that is, except state boating affairs.

This threatened to create a gap in Coast Guard/state partnerships at the regional level because the state boating affairs branches were the engagement point among Coast Guard districts and the state and territorial boating safety program managers, known as boating law administrators (BLAs). The architects of streamlining proposed that BLAs engage the Coast Guard at the

continued on page 57



Regional Emphasis

First District

In the 1st District, paddlesport safety is a huge concern. Many fatalities occur on

whitewater or in colder coastal waters as paddlers take advantage of the seasonal changes. The RBS specialist works with the Coast Guard Auxiliary, outfitters, retailers, and other paddling organizations coordinating training seminars to enhance safety awareness and risk-based decision making.



The “brainchild” of Seventh District RBS Specialist Bruce Wright, the Boating Advisory Trailer Public Awareness Kit, also known as the “Bat-Pak,” travels throughout the district, facilitating hands-on training. USCG photo by Bruce R. Wright, Seventh Coast Guard District.



The Seventh District Bat-Pak opens to display a number of hands-on simulators and various pieces of boating safety gear. USCG photo by Bruce R. Wright, Seventh Coast Guard District.

whitewater or in colder coastal waters as paddlers take advantage of the seasonal changes. The RBS specialist works with the Coast Guard Auxiliary, outfitters, retailers, and other paddling organizations coordinating training seminars to enhance safety awareness and risk-based decision making.

Fifth District

The 5th District specialist serves as Executive Secretary of the Virginia Recreational Vessel Subcommittee and manages the Coast Guard Outreach Innovation Center (www.outreach.uscg5sr.com), which con-

Seventh District

Because of a year-round boating season coupled with a high population of seasonal residents and tourists, the 7th District specialist travels around the district with a Boating Advisory Trailer Public Awareness Kit. Also known as the “Bat-Pak,” the rolling boating safety classroom is towed around to provide hands-on recreational boating safety training to partners, the public, and the Coast Guard Auxiliary.

Eighth District

The 8th District specialist serves as the district boating under the influence (BUI) and

Boating Safety Strike Team (BSST) program manager. The BSST deploys seasonally to support state marine patrol efforts during annual high-profile marine events such as Cincinnati’s “Tall Stacks” and provide remote surge capability on waters popular with exuberant boaters, such as the Lake of the Ozarks.

Ninth District

The 9th District’s specialist coordinates joint training for marine patrol officers, collaborates on annual district boarding and BUI guidance, and is a contributing writer for *Mid-America Boating*, a regional newspaper for Great Lakes boaters.

Eleventh District

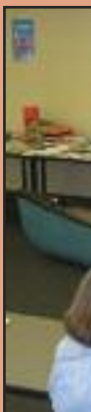
In the 11th District, the RBS specialist participates in the “Wear It California!” life jacket campaign, an annual effort conducted by the California Department of Boating and Waterways and the National Safe Boating Council. Supporting several booths at various marinas in what is called “the Delta,” where the Sacramento and San Joaquin Rivers meet, inflatable life jackets are distributed to anyone who signs a pledge to wear it when on the water. The RBS specialist also participates in the Tri-State Boating Safety Fair at Lake Havasu, Ariz., assisting officers from Arizona, California, and Nevada in conducting a life jacket trade-in.

Thirteenth District

The 13th District’s specialist manages the district recreational boating policy. In addition, he or she is a member of the Washington State Drowning Prevention Coalition, the Washington State Parks Boating Safety Council, and is an advisory member to several boating advocacy groups.

Fourteenth District

The 14th District Recreational Boating Safety Specialist oversees the CG-4100 report of



boarding forms and coordinates a variety of safe boating events and activities related to the annual National Safe Boating Week observance.

Seventeenth District

This specialist is perhaps the most unique. The 17th District RBS Specialist deploys RBS teams to the Arctic to raise boating safety awareness and instill best practices among the regional Native American tribes. In addition, he or she employs Boating Education and Safety Teams around the state, oversees the CG-4100 report of boarding forms, and coordinates boarding officer and boarding team member training.



Partnering with the Ninth Coast Guard District, the Ohio Department of Natural Resources provides paddle sport training for Coast Guard Auxiliary and U.S. Power Squadrons boating education instructors. Here, Officer Rich Lowry discusses the proper way to exit a sit-on-top kayak while Auxiliarist Dick Hilmer demonstrates. USCG photo by Frank Jennings, Jr., Ninth Coast Guard District.



In a training session for Coast Guard Auxiliary and U.S. Power Squadrons instructors, Ohio Department of Natural Resources Officer Bill Staiger discusses the different types of canoe and kayak paddles. USCG photo by Frank Jennings, Jr., Ninth Coast Guard District.

headquarters level, effectively bypassing districts altogether. However, this was not fully embraced by our state partners, since most preferred maintaining localized contact.

Partnership Challenges

Communication among the states and the district boating safety staffs prior to streamlining had been challenging enough. This was due in large part to the military nature of the Coast Guard. The primary complaint raised by the states was that as soon as a boating law administrator developed rapport with the assigned district liaison (usually a junior officer), that individual would transfer. Consequently, rapport had to be redeveloped on a continual basis, thus limiting the long-term effectiveness of any Coast Guard/state partnership.

By the time the Coast Guard embarked on streamlining, the majority of states had developed Coast Guard-approved boating safety programs, as called for by the Federal Boat Safety Act of 1971, each under the leadership of a boating law administrator. At the same time, Coast Guard field level responsibility for boating safety shifted more to the Coast Guard Auxiliary as regular Coast Guard forces shifted focus to other mission areas. However, despite the shift in mission emphasis and changing priorities, the continued success of the overall RBS effort at the regional level remained dependent upon a continued partnership between states and individual Coast Guard districts.

Civilians Bring Continuity

The president of the National Association of State Boating Law Administrators (NASBLA), the umbrella organization for state and territorial boating safety programs, suggested that the USCG Commandant create civilian liaison positions. The individuals assigned to these positions would sustain direct lines of communication between individual state BLAs and their assigned Coast Guard districts and bring about the continuity the state programs sought. In response to NASBLA's recommendation, the Coast Guard established the civilian RBS specialist positions.

Today recreational boating safety specialist positions are perhaps some of the most unique in the Coast Guard. Assigned primarily to district prevention division staffs, RBS specialists are part ambassador, part regulator, part subject matter expert, and part program integrator. It is the sum of these parts that makes the



position as diverse as the districts to which specialists are assigned.

Working Knowledge

First and foremost, these specialists are people-oriented communicators, capable of conveying the RBS message through a variety of means, including the media. The position demands creative and innovative thinking and a penchant for public speaking. Considering the 12,692,892 registered recreational vessels in the United States¹ (as well as an unknown number of non-registered recreational vessels), RBS specialists must have a thorough understanding of Coast Guard missions, since nearly all missions involve the recreational boating public in some way.

Since no two state boating programs are exactly alike, RBS specialists must understand various state and territorial government boating program structures and how they interact with the Coast Guard and other recreational boating safety partners. They must also understand political sensitivities and be ever-conscious of emerging issues that could impact the program. Understanding the mindset of the recreational boating community is equally important, since such insight proves to be invaluable when planning boating safety operations.

Myriad Duties

Recreational boating safety specialists each serve as the principal Coast Guard liaison to individual state BLAs and their staffs. An RBS specialist is the one person on a district staff that a state administrator can always contact directly. This regular contact may involve discussions of unclassified Coast Guard operations within the state; emerging recreational boating issues, boating casualty investigations, or joint operations planning; or local boaters' complaints.

They may also assist BLAs and assigned Coast Guard Auxiliary state liaison officers with initiatives pertaining to safe boating legislation. At times, specialists also serve as sounding boards or advisors on matters concerning federal regulations, requirements, and rulemaking.

RBS specialists coordinate and host workshops and professional training programs, such as the NASBLA-sponsored boating under the influence (BUI) officer training program and the recently introduced Boat Operator and Training Program, a specialized program for state and federal law enforcement officers who operate marine patrol small boats. They also serve as the Coast Guard's "ambassadors" to RBS partners, such as mu-

nicipal water safety agencies, local safe boating coalitions, the Red Cross, and the U.S. Power Squadrons, and hold active memberships in organizations including the National Safe Boating Council, National Water Safety Congress, and International Association of Marine Investigators.

Jurisdiction

In addition to liaison duties, these specialists are responsible for the district recreational boating safety cooperative agreements the Coast Guard maintains with each state and territory, which delineate the responsibilities shared by the state and Coast Guard on waters of concurrent jurisdiction. Each district is assigned a group of states with whom the respective RBS specialist works for all matters related to the overall recreational boating safety program.

Although RBS specialists work primarily with state boating law administrators to which they are assigned, they also work with BLAs in other states to strengthen the overall Coast Guard/state RBS partnership and provide coverage when a particular specialist is otherwise unavailable.

Special Efforts

One overarching safety message continues to be the importance of wearing a life jacket when boating. However, because boating constituencies and activities vary from district to district, the message may require slight modification to reach localized user groups.

Districts in colder climates experience different seasonal patterns than districts in warmer climates. Additionally, life jacket wear in northern climates is a far more significant issue because of the potential for cold water immersion. BUI may be more of a safety concern in southern climates because a greater number of waterfront establishments cater to a transient boating population. It's the specialist's job to tailor each message and its regional emphasis.

About the authors:

Mr. Frank Jennings, Jr., has served as the Ninth District RBS specialist since 1996. Prior to his appointment he served 12 years of active duty with the Coast Guard in New Jersey, Connecticut, Ohio, and Washington, D.C. In September 2009 he retired from the U.S. Coast Guard Reserve at the rank of Master Chief Petty Officer.

Mr. Bruce Robert Wright is a retired police officer from New York State, having served 30 years as a Marine Patrol Officer. He also serves as a USCG Reserve Marine Science Technician, Chief Petty Officer (MSTC) assigned to Coast Guard Sector Miami. He has served as the recreational boating safety specialist since 2001.

Endnote:

¹ U.S. Coast Guard Recreational Boating Statistics 2008.

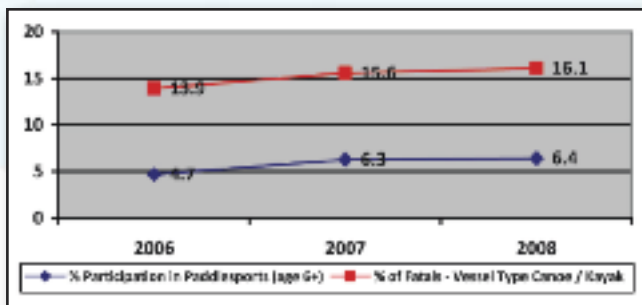
Safe Paddle Sports

by MR. JEREMY OYEN

Director of Safety Education, Instruction, and Outreach
American Canoe Association

From 2006 to 2008 the growth of individuals participating in paddle sport activity grew from 4.7 percent of the population to 6.4 percent. In 2008, approximately 17.8 million people participated in paddle sports, logging 174 million paddling outings.¹

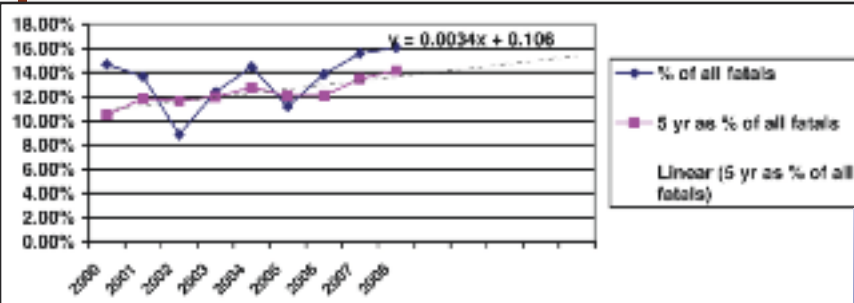
Since 2006, in comparing the paddling-related fatalities to all boating fatalities, we see a disturbing trend toward a higher number of paddle sport fatalities and a corresponding increase in the overall percentage of fatalities.



Growing Popularity, Higher Fatality Rates

The statistics don't end here, however. Many of the growth areas in paddle sport are reflective of what the Outdoor Industry Foundation calls "crossover activities," which are entry points to paddle sport, like a hunter who uses a canoe to get to a remote area or a fisherman who fishes from a kayak. These participants typically do not consider themselves "paddlers," so they don't usually seek specific paddle sport instruction.

Using a five-year average to compare paddling-related fatalities to all boating fatalities, we see a disturbing trend toward a higher overall percentage.



Five-year statistical average comparing paddling-related fatalities to all boating fatalities taken from USCG RBS Boating Safety statistics reports.

With this marked increase in activity and the subsequent increase in the accident and fatality rates, the American Canoe Association (ACA) has developed resources to better educate the public.

Safe Practices

While the American Canoe Association is a leader in the design and distribution of high-quality brochures, booklets, and videos, newer methods of outreach are needed in a time where brochures and booklets only reach a small percentage of the population.

In today's society, organizations must use the Internet, electronic media, and social networking to reach a new group of paddlers and outdoor enthusiasts. Currently, the ACA offers online resources to paddlers of all abilities and levels, including:

- 11 safety brochures (four translated into Spanish),
- 4 safety pamphlets,
- 4 safety posters,
- 8 safety and stewardship videos.

Additional information and training is available for classroom and on-water education. The goal is to reduce the number of accidents and fatalities by emphasizing the need for education for those who do not consider themselves paddlers, but might use a canoe, kayak, or raft to participate in other outdoor activities.

Bibliography:

Data compiled from USCG Recreational Boating Statistics reports (2006-2008) and the 2009 Outdoor Industry Association Participation Study.

Endnote:

¹ Outdoor Industry Association Special Report on Paddle Sports 2009.

FOR MORE INFORMATION:



To learn more about the American Canoe Association or to access its resources, go to www.americancanoe.org/resources.

Visit www.ipaddleonline.com for an online paddle sports safety course.





U.S. Army Corps of Engineers Life Jacket Policy Test

More wear? More lives saved.

by Ms. LYNDA NUTT
*U.S. Army Corps of Engineers
 Manager, National Operations Center for Water Safety*

The U.S. Army Corps of Engineers (USACE) is the nation's largest federal provider of outdoor recreation, hosting more than 370 million visitors per year at its 4,200 recreation areas. In particular, its 422 lake and river projects in 43 states are very popular with the recreating public.

With Popularity Comes Water Safety Challenges

Despite the national reductions in recreational boating-related casualties that resulted from the passage of the Federal Boating Safety Act of 1971, USACE recreation managers struggled to minimize the high numbers of serious injuries and fatalities occurring on their waters throughout the 1970s and 1980s.

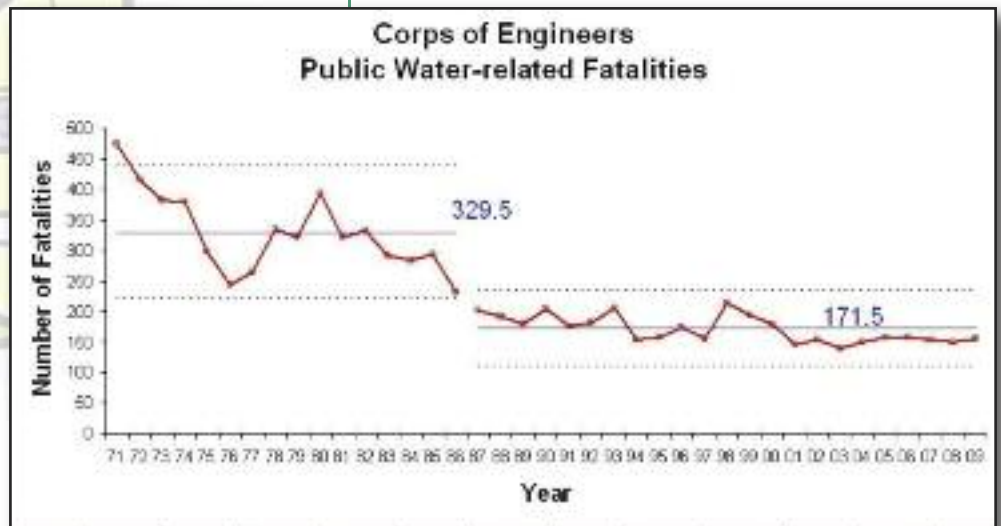
By 1985, the corps was using aggressive water safety educational campaigns and key visitor assistance initiatives led by park rangers in local communities, parks, and on the water to warn the public of open water recreation risks and encourage safer behaviors. While all these efforts had a dramatic effect on reducing the numbers of fa-

talities over the next 25 years, fatalities still averaged 170 each year.

Statistical Analysis

The USACE began to evaluate trends and found that of the 1,948 fatalities that occurred between 1997 and 2009, 91 percent of the victims were not wearing a life jacket. Further, it was determined that in the majority of the incidents, a life jacket would have likely kept the victim from drowning.

To enhance the corps' analysis of life jacket wear trends, the U.S. Coast Guard's Office of Auxiliary and Boating Safety provided some data that illuminated the current



life jacket wear situation. The Coast Guard has been observing and measuring life jacket wear rates through a grant funded by the Sport Fish Restoration and Boating Trust Fund since 1998. After measuring life jacket wear for nearly a decade at that point, the Coast Guard's data indicated voluntary wear rates remained extremely low for the at-risk population, but high for those groups who were mandated to wear a life jacket, such as personal watercraft operators and children.

These facts did not go unnoticed by senior USACE leaders, specifically Maj. Gen. Donald T. Riley, former deputy commanding general of Civil and Emergency Operations. In 2007, Maj. Gen. Riley tasked the USACE National Operations Center for Water Safety to conduct a study on the feasibility of implementing a life jacket policy on all corps waters. In February 2008, Maj. Gen. Riley embraced the recommendation that USACE conduct a policy test to measure the effect of adopting such a policy command-wide.

The policy test took on greater value when the U.S. Coast Guard's Office of Auxiliary and Boating Safety agreed to support the effort by conducting life jacket wear observations at the lakes participating in the test. They would use the same observation techniques employed during the office's 10-year voluntary wear assessment.

The Policy Test

By March 2008, USACE was ready to move out with its policy test. The Pittsburgh and Vicksburg Districts were selected to participate. Pittsburgh District was included because although managers adopted a limited life jacket policy on its western Pennsylvania lakes in 1990, staff reductions and budget constraints resulted in limited documentation on the policy's effect on wear rates among boaters.

Since 1990, Pittsburgh District policy mandates that life jackets be worn by all non-swimmers and occupants of vessels under 16 feet. Results of the Pittsburgh policy to date have found that the lakes in this region experience greater numbers of boats outside the policy, which skews the overall wear rate average of the region. USACE managers are reviewing the existing policy and will consider whether changes need to be applied to increase the wear rates among all boaters in that region.

USACE officials have documented four lives saved on the Mississippi lakes specifically tied to the policies implemented during the first test season.

"These victims stated that they would not have worn a life jacket if it hadn't been for the corps' policy," said Michael Ensich, chief of the USACE Operations Division. "In each case, the situations were challenging enough that survival without the life jacket was questionable. This truly is about saving lives."

The Vicksburg District opted to closely evaluate accident and fatality statistics and set policy to address some of the greatest risks. While not required by the test, the district opted to include a swimming-related policy, as well as model its boating-related policy after bass tournament regulations, which were already well understood in the region. Vicksburg District "test" policies are as follows:

- Life jackets are required to be worn at all times by all occupants of powered vessels under 16 feet and all non-powered vessels, regardless of size.
- Life jackets are required to be worn by all occupants of vessels 16 feet to 26 feet while under main propulsion. Life jackets are not required while vessel is trolling or standing still.
- Life jackets are required to be worn by swimmers in non-designated swimming areas.
- Life jackets are required to be worn while skiing or being pulled by a vessel, regardless of vessel length.

Pittsburgh District staff had little to do to prepare, since this policy had been in place for the past 18 years. Vicksburg District staff began a carefully managed process of congressional notifications, followed by coordination with regional stakeholders, media, and members of the public, bringing attention to the policy and explaining enforcement intentions.

After a full year of advance preparation, Vicksburg District initiated enforcement of the life jacket wear requirements on May 22, 2009.

continued on page 63



The Personal Flotation Device Manufacturers Association



What is the best life jacket on the market? The one you will wear.

by Ms. DOROTHY TAKASHINA, *Personal Flotation Device Manufacturers Association*

The Personal Flotation Device Manufacturers Association (PFDMA) is comprised of life jacket and life jacket component manufacturers who continually work to improve standards and test methods by subsidizing independent studies and volunteering with industry work groups.

Wear It—Don't Stow It!

Life jackets have come a long way. Today's jackets are less bulky, more comfortable, and easier to move around in. They not only feel better—they look better and come in bright, attractive colors.

In general, recreational boaters use life jackets classified by the Coast Guard as Type I, Type II, or Type III. The Coast Guard type classification for inherently buoyant life jackets is straightforward:

- Type I has a minimum of 22 lbs. buoyancy. More buoyancy means more lift. The bulky Type I life jacket is classified as "off-shore" and is designed for survival in rough, open water where quick rescue is unlikely.
- Type II has a minimum of 15.5 lbs. buoyancy and more stringent performance requirements than Type I, such as righting (tested to turn many wearers from face-down to face-up in the water). Type II is suit-

able for a wide variety of boating activities in calm inland waters where fast rescue is likely.

Type III life jackets also have a minimum of 15.5 lbs. buoyancy but do not have the more stringent standards required of Type II jackets. Type III jackets are generally considered the most comfortable for continuous wear and the most suitable for active water sports, where wearer mobility and flexibility are essential. Type III life jackets are available in a wide variety of colorful styles.

There are different types of life jackets for different on-water activities. Life jackets intended for high-speed water sports have more buckles and belts to ensure they stay properly secured on the body in case of impact. Jackets intended for recreational canoeists and kayakers have large, open armholes for freedom of movement.

More buoyancy does not necessarily mean a better and safer life jacket; it depends on the activity.

Read the U.S. Coast Guard label and take note of the intended use.

Inflatable Life Jackets

The first inflatable life jackets were U.S. Coast Guard-approved in 1996 and are gaining in popularity. They come in several variations, but basically work the same way: A gas-tight bladder is folded into a durable cover that is held closed with Velcro until the life jacket inflates or is inflated by firing a CO₂ cylinder.

Inflatable PFDs may also be classified as Type I, II, or III:

- Fully inflated Type I and Type II life jackets have a minimum of 34 lbs. buoyancy. Both types are suitable for off-shore use in open, rough waters, and are also suitable for general boating and coastal cruising due to their slim design. Turning (righting) action is faster with the higher buoyancy of Types I and II. Type I inflatable PFDs have highly visible coloring, enhancing rescue.
- The Type III inflatable life jacket has a minimum of 22.5 lbs. of buoyancy and is required to have turning (righting) ability.

All inflatable life jackets require re-arming and periodic maintenance, so there is a particular need for an industry-educated front-line sales staff.

FOR MORE INFORMATION:



Visit the Personal Flotation Device Manufacturers Association website at www.pfdma.org for more information.



A U.S. Army Corps of Engineers park ranger discusses the benefits of wearing a life jacket with a boater. Photo courtesy of the U.S. Army Corps of Engineers.

Mandatory Use of Life Jackets

- When swimming outside of designated swim areas
- When Skiing or being towed by any vessel
- At all times on powered vessels less than 16 feet in length and all non-powered vessels, regardless of length
- On vessels 16-26 feet in length when under power by main propulsion unit. (Not required when trolling)

This sign alerts boaters to new (2009) life jacket wear requirements. USCG photo by Mr. Jeff Ludwig.

Vicksburg Findings Impressive

Vicksburg officials reported that the initial public reaction to the life jacket policy was mixed. However, rangers were able to gain significant compliance without having to issue even one citation over the course of the recreational summer.

By Labor Day weekend, the Vicksburg recreation managers proudly declared the first test season a success. Observation data supported that a cumulative wear rate of nearly 71 percent was found on the Vicksburg test waters. Comparatively, nearby "control" lakes, where policy wasn't introduced, were still showing only six percent wear rates overall. By the end of the first test year, which included the fall season, the overall cumulative wear rate average for the Mississippi test lakes climbed to more than 78.5 percent.

Pittsburgh Results Disappoint

In Pittsburgh District, however, the findings were quite different. By the end of the recreation season, it had achieved only a 3.7 percent cumulative wear rate on the test lakes in this region, while nearby control lakes in Ohio showed wear rates of more than seven percent.

Clearly, the policy had become stale after nearly two decades with no new emphasis on promotion or enforcement. The policy was also limited in scope, applying only to craft less than 16 feet, while the majority of boats on these test lakes were greater in size. It was also noted that Ohio boating safety officials were engaged to a much greater degree in the National Safe Boating Council's "Wear It!" campaign to encourage voluntary life jacket wear.

Future Efforts

The USACE will continue the tests in the Pittsburgh and Vicksburg Districts for an additional two years. During this time, officials will continue to evaluate data collection in monitoring wear rates. In addition, impact on recreation (losses or gains); staffing/budget requirements and capabilities; and public, stakeholder, and congressional reactions will also be monitored and evaluated.

All findings will be studied and serve as the basis of the National Operations Center for Water Safety's final recommendation to USACE leadership at the end of the 2011 recreation season.

About the author:

As manager of the U.S. Army Corps of Engineers National Operations Center for Water Safety, Lynda Nutt serves as her agency's key subject matter expert on recreational safety. She currently serves on the National Safe Boating Council Board, U.S. Coast Guard Tiger Team, and Federal Interagency Working Group for Public Safety.

Endnote:

All statistics available at the USACE Natural Resources Management website, <http://corpslakes.usace.army.mil/employees/watersafety/ljms.html>.

FOR MORE INFORMATION:

For more information on the Coast Guard's National Life Jacket Wear Rate Observational Study, visit <http://www.uscgboating.org/statistics/pfd.aspx>.

For more information on the National Safe Boating Council's "Wear It!" voluntary life jacket wear campaign, visit <http://www.safeboatingcampaign.com/>.





US SAILING

Life jacket wear initiatives.

by MR. RICHARD JEPSEN
Education Division Chair
US SAILING

Fifty years ago in the sport of sailing, life jackets were typically only worn during storms or by children sailing with the family.

In the early 1980s, the United States Yacht Racing Union (now US SAILING) began a program of youth training and studied the statistics on the risks of boating. It took seriously the statistical findings that pointed to enhanced safety for wearers of life jackets who found themselves unexpectedly in the water.

As a result, the organization decided to start training youth to wear life jackets as part of sailing right from their first time away from the dock.

Put It On

Additionally, since 1985, US SAILING's training program guidelines requires students, instructors, and instructor trainers to wear life jackets while aboard all boats (sailboats or powerboats) while underway or on a mooring.

The common theme at US SAILING is that promoting life jacket wear

from the beginning of an individual's boating career creates better "buy-in" and dramatically increases the likelihood he or she will wear a life jacket while boating.

The Hanson Rescue Medal

The organization also maintains statistics on person-in-water rescue attempts and funds a rescue award called the Hanson Rescue Medal to encourage boaters to report rescue attempts in detail to help gather data on real-life incidents.

Not surprisingly, a brief perusal of these attempts shows that successfully rescued sailors almost always were wearing a life jacket.

FOR MORE INFORMATION: US SAILING



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Fax: 401-683-0840
E-Mail: info@ussailing.org



The Case for Mandatory Recreational Boating Education



by MR. FRED W. POPPE
*Vice President
 National Boating Federation*

When you meet another boat operator on the water in a passing or crossing situation, you should be able to assume that this person has at least a minimum knowledge of the rules for safe operation. Yet many do not.

A Coast Guard study indicates that fewer boating fatalities occur in states that have implemented requirements for boat operators to be educated in a more rapid timeframe. U.S. Coast Guard Rear Admiral Kevin Cook, Director of Prevention Policy, stated that only 10 percent of boating fatalities occurred on boats where the operator had received boating safety education. He further stated that boaters who have taken a boating safety course are less likely to be involved in an accident.¹

Thus, the course for future reduction in accidents, injuries, and fatalities is clear: Every state should enact mandatory boating education for all recreational vessel operators.

The National Boating Federation, its member organizations, and their delegates continue to be involved in

efforts to pass mandatory boating education laws in their states. In addition members participate in and contribute to 42 national, regional, and international maritime organizations through the federation's executive committee members and member delegates.

About the author:

Mr. Fred W. Poppe is the delegate to the National Boating Federation of the Chicago Yachting Association and a member of its executive committee. He has served the recreational boating community as Commodore of the Chicago Yachting Association and of the Burnham Park Yacht Club. His 25-year sailing experience on Lake Michigan includes three Chicago-to-Mackinac Island races and extensive "Around the Buoys" races.

Endnote:

¹ USCG press release, "Coast Guard reports a rise in 2008 recreational boating fatalities," Aug. 12, 2009.

U. S. Recreational Boating Fatalities

Year	Lives Lost
2003	703
2004	676
2005	697
2006	710
2007	685
2008	709
Total	4,180

U.S. Coast Guard statistics.

FOR MORE INFORMATION:

The National Boating Federation

A federation of national, regional, and state boating organizations representing America's boaters.

Visit www.n-b-f.org.



Manufacturing Standards



AUX ROBIN FREEMAN
Assistant National Commodore, Recreational Boating Safety
U.S. Coast Guard Auxiliary

Recreational Boating Safety Outreach

by MR. ALSTON COLIHAN
Technical Writer
U.S. Coast Guard Recreational Boating Product Assurance Branch

MR. MICHAEL JENDROSSEK
Boating Safety Specialist
U.S. Coast Guard Boating Safety Division

The Office of Auxiliary and Boating Safety administers a variety of educational outreach programs to help reduce the numbers of boating accidents, fatalities, injuries, and property damage involving recreational boats. Two of these programs are the Boat Factory Visit Program and the Recreational Boating Safety Visitation Program.

Most recreational boats are built to comply with safety standards. Government contract personnel known as “compliance associates” go to boat manufacturing plants to educate boat builders about how to comply with mandatory federal manufacturing standards and the desirability of compliance with the voluntary industry standards. Coast Guard Auxiliarists also establish relationships with marine dealers and provide them with safety information which they, in turn, can

provide to prospective boat and marine equipment purchasers.

The Boat Factory Visit Program

Manufacturers of recreational boats are required to self-certify compliance with applicable U.S. Coast Guard safety standards.¹

The credibility of that certification process is maintained, in part, by means of:

- visits to domestic boat manufacturing plants to educate boat builders,
- the authority to assess penalties against boat builders who are willfully non-compliant.

The Coast Guard neither inspects nor approves the plans or designs of recreational boats. Instead, the manufacturer or importer is required to certify that each of its boats complies with federal safety standards. The Coast Guard does not require any specific procedures to determine compliance, so the manufacturer may employ a third-party certification service, use an independent laboratory, or use the company’s in-house technical staff.

There are approximately 4,000 companies in the business of building or importing recreational boats. However, it is estimated that 80 percent of the recreational boats sold in the U.S. are manufactured by 20 percent of the manufacturers. Generally those manufacturers are members of the National Marine Manufacturers Asso-



Compliance associates Ron Hassler and Mike Haley conduct a recreational boat manufacturer factory visit. USCG photos.

ciation (NMMA). These members participate in the NMMA Boat and Yacht Certification Program, wherein member manufacturers' boats are inspected by third-party inspectors to certify compliance with Coast Guard safety standards and voluntary American Boat and Yacht Council standards.



Compliance associates Ron Hassler, Mike Haley, and Tom Allan inspect the fuel system in a gasoline-powered boat.

Educational Efforts

For the remaining manufacturers, the Coast Guard's enforcement program places heavy emphasis on safety standards education. New boat manufacturers are provided with a "Boat-builder's Handbook" CD, which contains information regarding the laws, regulations, and safety standards applicable to builders of recreational boats; copies of compliance guidelines and explanations for test procedures for each of the safety standards; and a variety of references concerning boat manufacturing, compliance testing, and the recreational boating product assurance program.

Visit Schedule

The Recreational Boating Factory Visit Program employs "compliance associates," most of whom were former inspectors in the commercial vessel safety program of the Coast Guard.

The visit schedule is as follows:

- annual visits to manufacturers whose boats are subject to most of the standards;
- biennial visits to manufacturers whose boats are subject to some of the standards;
- manufacturers of other boats that are excepted from the standards, such as canoe and kayak manufacturers, are visited at least once every three years.

These visits ensure that manufacturers understand the safety standards, know how to comply with them, and can inspect any boats under construction for compliance. In addition, boat manufacturers are also made aware of voluntary safety standards such as those published by the American Boat and Yacht Council.



Compliance associate Alan Kiehle inspects a boat's wiring harness.

Product Assurance

Enforcement

While the Coast Guard has long had statutory authority to use civil administrative penalties for regulatory non-compliance, historically this authority has not been fully effective in addressing recreational boat manufacturer violations because many of the non-compliant builders are small business entities for whom going out of business was easier than paying monetary fines. Additionally, the civil administrative penalty system currently processes the highest-priority cases first, which means that passenger vessel safety violations, pollution violations, and other high-profile offenses take precedence over assessments against recreational boat manufacturers.

The Coast Guard, however, is exploring better coordination between the boating safety program and local Officers in Charge, Marine Inspection in the enforcement of civil penalties for recreational boat manufacturer violations. This additional means of compliance enforcement efforts could go far in bringing the few recalcitrant boat builders into line.

The Recreational Boating Safety Visitation Program

Formerly known as the Marine Dealer Visitor Program, the Recreational Boating Safety Visitation Program has

expanded the outreach and educational opportunities of the program. Historically, this program was directed toward the marine dealer, who was considered the primary contact for boaters.

Via this program, a trained USCG Auxiliary visited dealers to provide them with safe



boating information about courtesy marine examinations and boating safety classes, information on state and federal regulations, and recall updates. It was expected that by developing a relationship with the marine dealer, the safety information would be passed on to the boater.

In 2005, this program was restructured and expanded. Now known as the Recreational Boating Safety Visitation Program, its goal is to build long-lasting relationships with the recreational boating safety community as a whole.

About the authors:

Mr. Alston Colihan has been a technical writer/editor in the USCG Recreational Boating Product Assurance Branch since 1973.

Mr. Michael Jendrossek is a boating safety specialist with more than 38 years of combined active duty and federal civilian service.

AUX Robin Freeman has been a member of the U.S. Coast Guard Auxiliary for 16 years and has served on the national RBS staff for eight years.

Endnote:

¹ Part 183 of Title 33 of the Code of Federal Regulations.



Safe and Stylish

Recreational boat manufacturer factory visit program brings substance to style.

by MR. LUKE WOODLING

Digital Content Manager, Water Sports, Bonnier Corporation

Water ski and wakeboard boats are sexy creatures, where (according to the advertising) bikini-clad models drape themselves across supple lounge seating and muscle-bound professional athletes pilot with the aid of oversized LCD screens.

But what is style without substance? Fortunately, all that style is backed up by something less visible but no less important—safety ensured by the United States Coast Guard's regulations and reinforced by the Coast Guard's Recreational Boat Manufacturer Factory Visit Program.

This affords water ski and wakeboard boat manufacturers the peace of mind that the boats coming off their assembly lines are as safe as possible, which is particularly reassuring in a market that is so family-focused.

What the Manufacturers Think About the Program

Dan Gasper, the Director of Research and Development at Malibu Boats, said

"It's comforting to know that you're building by those specifications, because you know the boat will be safe. Safety is what they're all about."

"It's not as if they print these regulations and run," added Bill Snook, Chief Engineer at Nautique Boats. "They come in and look over our shoulder and see what we're building. There is peace of mind in that."

Snook finds reassurance in the hands-on approach of the factory visit program and in the breadth of expertise that backs up the Coast Guard's regulations. "The Coast Guard's program doesn't just get a small group of experts together to decide how something is going to be built," he said. "They pull on an industry pool of experts who put together requirements that are very well thought out."

Results

The Coast Guard's regulations and factory visit program do more than just instill confi-

dence—they also enable water ski and wakeboard boat manufacturers to focus on innovation. Resources that would have to be dedicated to developing and carrying out safety protocols are instead freed up to design everything from state-of-the-art dashboards to more functional towers and ballast systems.

"Without the Coast Guard's support, we'd have to put more of our resources into solving problems and making sure that we're building a safe product," Mr. Snook said. "Now all we have to do is follow the specifications—buy this part and assemble it in this way. We don't have to invent any of that. All we have to do is follow what they specify, and we know we have a much better and safer product."

FOR MORE INFORMATION:



For more information, see
<http://www.wsia.net/>



Marine Experts on Call

The boating accident investigation Tiger Team.

by MR. PHIL CAPPEL
Chief, Recreational Boating Product Assurance Branch
U.S. Coast Guard Office of Auxiliary and Boating Safety

The annual Coast Guard boating statistics report provides statistical information on boating accidents nationwide. Although the annual report provides much useful data, it doesn't allow for more timely analyses.

However, the widespread use of the Internet by the news media has provided the capability to conduct nationwide searches of online news articles regarding boating accidents. This capability also allows the USCG Boating Safety Program to monitor boating accidents and identify, on an almost-real-time basis, any trends of accidents in a particular area, a particular type of boat, or a particular type of boating activity. It also affords our Product Assurance Branch the means to follow up with the media contact or the accident investigating official.

In pursuing this follow-up process, however, it quickly became apparent that the individuals contacted, for the most part, lacked the expertise to provide enough information, thus determining whether further investigation was necessary. This shortcoming revealed the need for the timely investigation of high-interest boating accidents by well-qualified parties, which led to the idea of creating an on-call, fast-response accident investigation team of marine experts.

The Tiger Team

The Product Assurance Branch was particularly interested in:

- accidents in which boats less than 20 feet in length sank,
- carbon monoxide poisoning incidents,

- propeller injury incidents,
- any accident where a defective product was suspected to have contributed to or directly caused the accident.

Using these criteria, we were able to award a contract to a company that had the proper qualifications. On January 23, 2003, the on-call, fast-response team of marine experts was established.

Results Right off the Bat

This team quickly came to be known as the accident investigation "Tiger Team." Within its first few months it investigated an accident involving a near-sinking of a boat less than 20 feet in length that led to a recall of several thousand boats that did not have the required amount of flotation.

In moving forward, we solicited the State Boating Law Administrators to assist in identifying appropriate accidents for follow up and offered the Tiger Team to assist state boating accident investigators. This began what would become a productive partnership.

Appreciation of Efforts

An e-mail from the State Boating Law Administrators following an investigation echoed the many phone calls and e-mails received in every instance where the Tiger Team assisted in an investigation.

This e-mail read: "We had the pleasure of working with the Tiger Team investigator on a fatality boating collision and I just wanted to let you know how impressed



Mysteries Solved

Four Perish Due to Carbon Monoxide Poisoning

In one instance, a state investigator was baffled by an incident in which a boat ran up on the shore of a lake with all four aboard dead from carbon monoxide (CO) poisoning.



The boat after the accident, with canvas deployed. All photos USCG, taken by Tiger Team investigator Augusto “Kiko” Villalon.

The boat was traveling in rain at night and the operator had put a canvas over it, leaving a small opening above the helm for him to stand and pilot the boat. He was found dead at the helm. The other three passengers, who had been sleeping in the stern, died in their sleep.

At first glance it appeared that a “station wagon effect,” in which a boat moving forward creates a vacuum behind it that tends to pull exhaust fumes back into the boat, could have been the cause of the CO entering the boat. However, the canvas appeared to be placed in such a manner that it would have either prevented or at least mitigated this effect.

Upon further investigation by the Tiger Team expert, he theorized that, at the probable speed the boat was running, the angle of the boat would have been such that the opening in the canvas at the helm actually created a “venturi effect.” This effect formed a lower pressure within the boat

that, combined with the station wagon effect, drew the CO through every small opening in and around the canvas and created a death zone within the entire boat, including the helm position.

Upon testing of this theory, it was determined to be the likely scenario.

Poker Run Collision

In another serious incident, two high-powered cigarette boats competing in a “poker run” at high speed collided, resulting in five fatalities.

One boat was heading east on one leg of the poker run and the other was heading west on another leg of the run. The boats were about to meet on opposite courses when, for unknown reasons, one of the boats turned hard to port, spun around, and ended up dead in the water on the same course and directly in front of the other boat.

The following boat, still running at high speed, collided with the stern of the other boat in an extremely powerful collision that practically destroyed and sank both boats. The lone survivor of the crash could provide no details as to the cause of the crash.

Because of the difficulty in determining the cause of the accident, the Tiger Team was called in to assist. Both boats were recovered and it was found that the engines of the boat that had veered violently had ripped out of the bottom of the boat. The investigation also revealed that the hydraulic steering system had a small leak in it, but this alone may not have been enough to cause the violent swerving.

After careful examination of the recovered boats, the Tiger Team expert found that the owner of the boat that had swerved had made some modifications to the trim tab system. He further determined that the



Extensive damage to the boat that swerved directly in front of the other boat.

we were with his knowledge and his report. Our lead investigator appreciated being able to talk to him and observe him at work, and all of us learned from him. Thank you for sending him, he was very helpful.”

Over the years, the Tiger Team has investigated approximately 10 boating accidents each year, with several of the investigations resulting in recalls of boats that were not in compliance with the federal safety regulations or boats containing defects that were identified as causing a substantial risk of injury to the public.

Additionally, the Tiger Team has assisted less experienced accident investigators in making determinations of the causes of accidents that otherwise may have gone unresolved.

About the author:

Mr. Phil Cappel is a U.S. Coast Guard Academy graduate who spent most of his 20-year career in financial management positions. After retirement, he commenced working for the Coast Guard in a civilian capacity. He assumed his current position as chief of the Product Assurance Branch in the Office of Auxiliary and Boating Safety in 1996.



Damage to the boat that collided with the boat that swerved directly into its path.

modifications were not sufficiently strong enough for their purpose and the starboard trim tab assembly likely failed catastrophically, causing the starboard side of the boat to rise out of the water and swerve violently to port into the path of the oncoming boat. This

FOR MORE INFORMATION:

For more information, visit www.uscgboating.org.

theory was supported by one witness who stated that he saw the starboard bottom of the boat rise out of the water.

Sailboat Sinking

In one very complicated and high-profile case, the Tiger Team was called in to assist a state investigator and the Coast Guard investigation team. This incident involved a university sailboat that sank very quickly while participating in a regatta, resulting in one fatality and a highly publicized Coast Guard rescue.

When the Tiger Team experts arrived, they found that the Coast Guard had taken the lead in the investigation. The Coast Guard investigators, however, allowed the Tiger Team members to assist, and soon discovered that they had valuable expertise.

Core samples of the hull were sent to a lab for analysis, the use and maintenance records of the boat were scrutinized, the design and construction plans of the boat were examined, and witnesses were questioned.

Following this, the Tiger Team found a weakened keel-to-hull connection, which eventually led to the catastrophic failure of the keel. The Coast Guard investigators concurred and the Tiger Team report was included as an



The sailboat before the accident, with keel in place.



The same sailboat after the accident, with keel missing.

important part of the final Coast Guard investigative report.

Personal Watercraft Industry's Model Legislation

by Ms. MAUREEN A. HEALEY

Executive Director, Personal Watercraft Industry Association

The personal watercraft (PWC) industry supports strong boating laws and their strict enforcement, as well as mandatory boater education for operators.

To do our part, the industry encourages state lawmakers to enact industry-backed model legislation that encourages all states to set a minimum age of 16 to operate a PWC (18 for rentals) and requires all personal watercraft operators, regardless of age and experience, to pass a boater education course.

In addition, the industry advocates for personal watercraft use only during daylight hours; laws against reckless operation; and rules regarding operation within 100 feet of shore, anchored boats, piers, or swimmers.

FOR MORE INFORMATION:

For more information on the PWC industry and its model legislation, visit www.pwia.org.



Understanding Acrylonitrile

by LCDR GRETCHEN BAILEY, *Marine Inspector, U.S. Coast Guard Hazardous Materials Standards Division*

What is it?

Acrylonitrile is a colorless to pale yellow volatile liquid that is soluble in water and used in common solvents such as acetone, benzene, carbon tetrachloride, ethyl acetate, and toluene. Technical-grade acrylonitrile is more than 99 percent pure and always contains a polymerization inhibitor. Synonyms for acrylonitrile are acrylonitrile monomer, cyanoethylene, propenenitrile, vinyl cyanide, and VCN.

Acrylonitrile is a reactive chemical that polymerizes (converts one compound into another) spontaneously, either when heated or in the presence of a strong alkali (unless it is inhibited, usually with ethylhydroquinone). It can explode when exposed to flame. It attacks copper and is incompatible and reactive with strong oxidizers, acids and alkalis, amines, and bromine.

Acrylonitrile is used primarily as a co-monomer in the production of acrylic and modacrylic fibers. Uses include the production of plastics, surface coatings, nitrile elastomers, barrier resins, and adhesives. It is also a chemical intermediate in the synthesis of various antioxidants, pharmaceuticals, dyes, and surface-active agents.

How is it shipped?

Acrylonitrile is typically shipped as a liquid in low-pressure tank railcars, as liquid in tank barges, or by truck as liquid in non-pressure liquid tanks.

Why should I care?

► *Shipping concerns.*

Acrylonitrile is a polymerizing cargo that can become explosive when heated or involved in a fire. This product has a very low flash point—30 degrees Fahrenheit—and using water to fight the fire may be inefficient. When this cargo is heated or burned, it may produce a toxic vapor of hydrogen cyanide gas, so it is essential to keep a safe distance during a fire. Additionally, its vapor is heavier than air and has been known to travel a considerable distance to an ignition source, then flash back to the spill.

► *Health concerns.*

It is very toxic by ingestion, inhalation, or absorption through the skin. Symptoms of poisoning will begin with irritation of the eyes, limb weakness, difficulty in breathing, dizziness, and impaired judgment. If the degree of poisoning increases, the symptoms will progress to cyanosis, nausea, collapse and loss of consciousness, ir-

regular breathing, convulsions, and respiratory arrest. Based on animal evidence, chronic exposure may cause cancer.

Because it is lighter than water, acrylonitrile will form a light surface sheen when spilled on the water. Sorbent booms, pillows, and other containment tools will be contaminated by this sheen and must not be handled without appropriate personnel protective equipment. However, due to its moderately high solubility, acrylonitrile will quickly dissolve into the water column.

► *Fire or explosion concerns.*

Acrylonitrile is flammable and has the capability to explode. This happens when the cargo is heated, causing a polymerization reaction, which is highly exothermic. If the cargo is involved with a fire, the fumes from the cargo are a poisonous gas and should be avoided.

It is essential for emergency responders to wear self-contained breathing apparatus and rubber overclothing (including gloves), and to combat the fire from a safe distance or protected location. The most efficient way to extinguish the fire is with dry chemical foam, alcohol foam, or carbon dioxide. With water, use spray or fog; do not use straight stream.

What is the Coast Guard doing about it?

Acrylonitrile is categorized as a “Subchapter D” cargo, regulated in 46 Code of Federal Regulations Part 30.25. This cargo is carried in tank barges and ships that are required to be inspected by the Coast Guard.

Required design and construction standards for these vessels include:

- being double-skinned,
- having spacing between the hull and the inner tank wall,
- employing individual tank manifolds and pumps to avoid cross-contamination,
- utilizing a separate tank venting facility,
- being capable of internally circulating the tanks,
- being capable of being ventilated.

About the author:

LCDR Gretchen Bailey is a marine inspector currently working in the Hazardous Materials Standards Division at U.S. Coast Guard headquarters. Her areas of focus are on the domestic and international regulations for the marine transportation of bulk liquids and gases, and on carriage of regulated cargos in offshore supply vessels.

Return on Investment

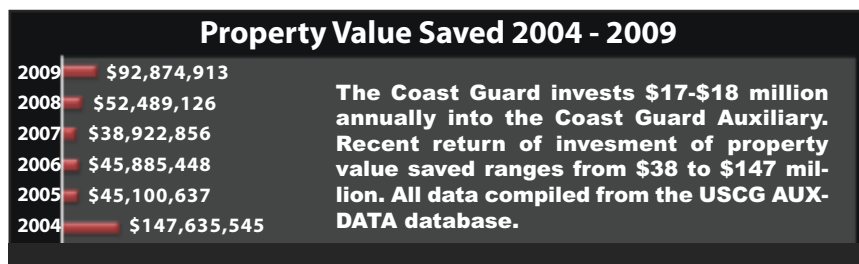
The value of the U.S. Coast Guard Auxiliary.

by CDR DAVID CHAREONSUPHIPHAT
 Director, Northern Region Auxiliary
 U.S. Coast Guard District Eleven Prevention Division



The Coast Guard Auxiliary is made up of more than 30,000 volunteers who donate their time and effort as well as their boats, aircraft, and radio facilities to the U.S. Coast Guard. Over 4,000 vessels, 240 aircraft, and 2,600 radio facilities have been accepted for use annually to aid the Coast Guard in carrying out its many missions.

While auxiliarists maintain their own facilities (aircraft, boats, and radio facilities) and donate their time, the



Coast Guard injects approximately \$17-\$18 million annually into the Coast Guard Auxiliary. This includes funding the fuel and maintenance allowance for the use of auxiliary facilities, Coast Guard schools for auxiliary training and education, active duty and civilian staff to manage auxiliary program offices, personal protective safety equipment, and damage and disability claims associated with surface and aviation patrols.

So What Does the Coast Guard Get?

The value of volunteer time is calculated annually by an organization called the "Independent Sector,"¹ which is a leadership forum of charities, foundations, and corporate giving programs. The 2009 value of a volunteer hour: \$20.25.

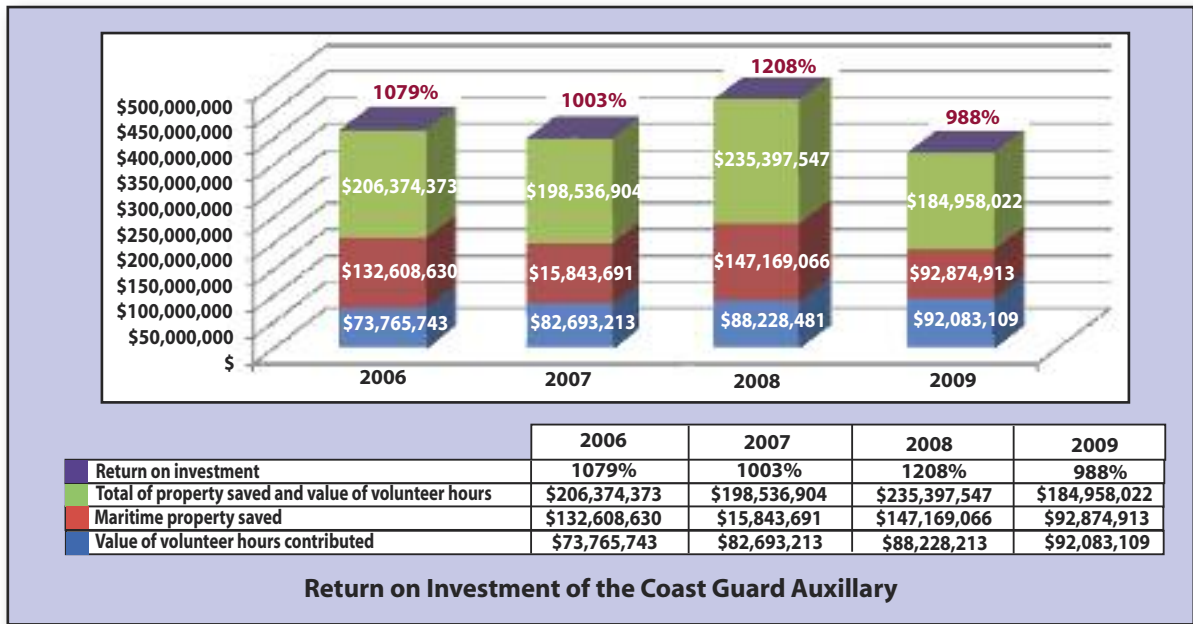
In 2009, the auxiliary provided more than 4.5 million volunteer hours² to the Coast Guard, which comes to approximately \$91 million dollars in labor, using that independent estimate. While certainly impressive, this figure doesn't take into account the amount of property or lives that were saved as result of auxiliary efforts.

Put another way, the Coast Guard Auxiliary's labor hours in 2009 are equivalent to 2,186 full-time Coast Guard employees.³

In an average year, the Coast Guard Auxiliary:

- Provides 4,500,000 volunteer hours to the U.S. Coast Guard.
- Saves 800 lives.
- Assists 13,000 people in distress.
- Protects \$92,000,000 in property.
- Conducts 132,000 vessel safety checks.
- Conducts 2,000 commercial fishing examinations.
- Conducts over 86,000 marine dealer visits.
- Provides 4,000 vessel facilities to the Coast Guard.
- Provides 240 air facilities to the Coast Guard.
- Conducts 16,600 public education sessions and teaches 2,800 boating safety courses.





The return on investment of the USCG Auxiliary is based on the addition of value of volunteer hours and maritime property saved minus the amount of annual Coast Guard investment into the CG Auxiliary (approximately \$17-18 million annually) divided by the investment. All data this page compiled from the Coast Guard's AUXDATA database.

Continuing the math and factoring in the value of property saved, the return on investment ranges from 970 percent to 1,200 percent for the years 2006 to 2009, or up to \$12 for every dollar spent.

What Do Auxiliarists Do?

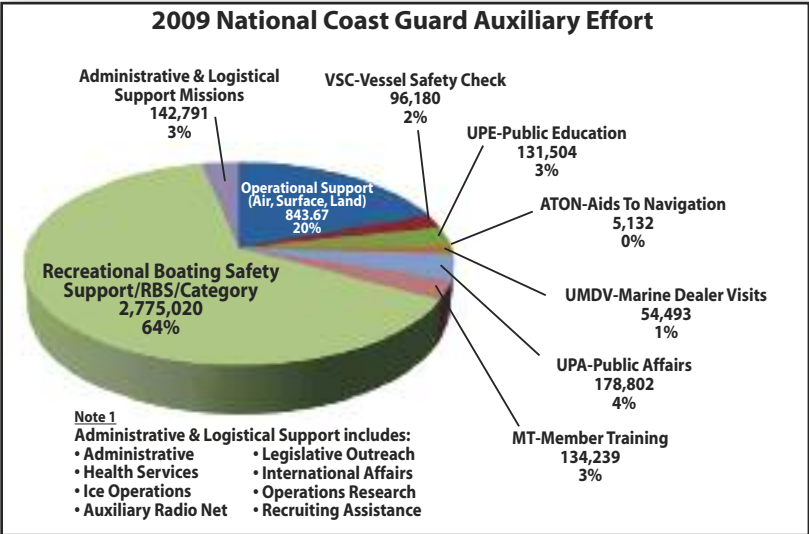
While the main mission function for the Coast Guard Auxiliary is recreational boating safety, auxiliarists perform a wide range of duties including vessel safety and commercial fishing vessel examinations, private aids to navigation verifications, program dealer visits, and marine safety education.

About the author:

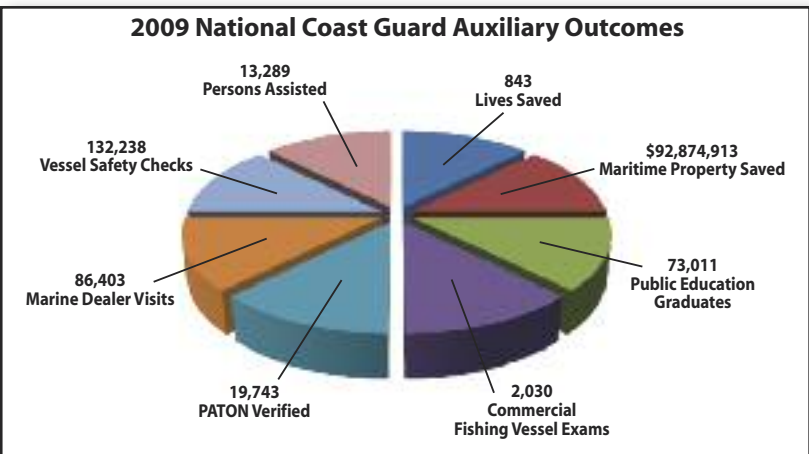
CDR David Chareonsuphiphat has served in the U.S. Coast Guard for 24 years—10 as a search and rescue helicopter pilot at Air Station Barbers Point and Air Station Los Angeles. He has served as the Pacific Area operations/budget/resource manager. He currently serves as the Director of Auxiliary, District Eleven, Northern Region.

Endnotes:

¹ <http://www.independentsector.org/>
² <http://www.cgaux.org/>
³ In 2009 auxiliarists volunteered a total of 4,547,314 hours. One full-time equivalent is based on 2,080 hours—a full year of 40-hour weeks with no vacation.



The Coast Guard Auxiliary contributed over 4.5 million hours of effort to the USCG in 2009, valued at approximately \$91 million.



The Coast Guard Auxiliary

Helping yourself while helping others.

by AUX GARY NORDLINGER

Joining the Coast Guard Auxiliary is a great way to help yourself while helping others. Auxiliary membership provides a great way to meet people from all walks of life and receive invaluable training that can be useful personally and professionally.

Each year the Coast Guard invests millions of dollars training auxiliarists in areas such

as leadership, seamanship, public affairs, website design, instruction, and facilitation. Like active duty Coast Guard personnel, auxiliarists undergo background checks as part of their enrollment process to determine their suitability for service.

We are trained to Coast Guard standards and regularly serve alongside the active

duty in various capacities and at venues ranging from cutters to command centers, medical facilities, and Coast Guard headquarters. On miles of rivers and lakes, the auxiliary is often the only Coast Guard presence, and saves lives and property every year.

FOR MORE INFORMATION:

For more information on the Coast Guard Auxiliary and how to join, please visit www.CGAux.org.



Auxiliary Public Outreach

In 2009, USCG Auxiliarists donated more than 4.5 million hours to public safety and support of the U.S. Coast Guard. Public outreach programs are among our most important activities, and span a wide range of missions, as noted below.

Vessel safety checks: Auxiliarists conduct about 100,000 complimentary vessel safety checks each year on recreational craft to make sure safety equipment is in working order and sufficient in quantity and the vessel is seaworthy. During these inspections, the auxiliarists discuss a wide range of safety issues with the owners.

Public education classes: Each year thousands of boaters complete auxiliary courses on boating skills, seamanship, navigation, sailing, and other related topics.

Marine dealer visits: Auxiliarists make tens of thousands of visits each year to businesses selling boats and boating-related products to stock public displays of boating safety literature and publicize upcoming boating safety classes.

Public affairs: In 2009 alone, auxiliarists devoted more than 180,000 hours staffing booths at boat shows, giving presenta-

tions to civic and educational organizations, and reaching out to the news media and boating public regarding boating safety and maritime security.

Legislative outreach: Auxiliarists maintain close relationships with state legislatures, state boating administrators, and other public and non-profit organizations.

Coast Guard recruiting: Hundreds of auxiliarists support Coast Guard active duty recruiting efforts and also visit high schools to encourage students to consider applying to the Coast Guard Academy.





Small Vessel Security

Not just a U.S. concern.

by MR. ROBERT M. GAUVIN

Technical Advisor

U.S. Coast Guard Office of Vessel Activities

In November 2008, 10 men in rubber rafts landed on the shores of a bustling financial capital as the sun set. They scattered in different directions, carrying backpacks with automatic weapons, hand grenades, and satellite phones.

Within just a few hours, innocent civilians were killed, a national icon was set ablaze, hostages were killed mercilessly, and an international city was under siege for three days.

News of the attack quickly circled the globe, from traditional media coverage to streaming video, blogs, text messages, and even Twitter posts. The attackers used that same technology not only to monitor the movements of police and rescue teams, but also to evade capture and communicate with their leaders in another country.

The city was Mumbai, India, and hundreds died or were injured during this three-day reign of terror.

Attack via Marine Vector

Investigation concluded that a freighter brought the assault team from Pakistan to the internal waters of India. There, an Indian fishing vessel was hijacked by the terrorists.

Its crew was murdered immediately, except for the captain, who was kept alive until he navigated the vessel into the shadows of Mumbai's fishing shanty village. There the terrorists killed him, boarded rubber boats to

land on the beaches of the city, and initiated their attack.

The International Marine Community Responds

At the same time, thousands of miles away, the International Maritime Organization's Maritime Safety Committee was in session at its headquarters on the Thames River in London, England. Work had been progressing on security guidelines regarding the operation of vessels that did not fall under international mandatory security regimes.¹ These vessels of less than 300 gross tons were categorized as commercial non-passenger and special purpose vessels, passenger vessels (carrying passengers for hire), fishing vessels, and pleasure craft.

As discussion started on a final draft of the guidelines in the MSC plenary, India's delegate confirmed that small vessels had been used to transport the terrorists from Pakistan to the port of Mumbai. The guidelines moved quickly to adoption and were published.²

The Guidelines

IMO sees these guidelines as minimum standards that small vessel operators can use when operating in their home waters or internationally to understand what is expected of them when entering into a member state port or working with or near vessels and port facilities.

Masters, captains, and operators of pleasure craft need to protect themselves, their families, and passengers by understanding the threat being communicated by authorities in any port they are operating in, travelling through, or moored in.

It may not appear that small vessels are likely targets, but yachts have been targeted and their owners held ransom by pirates. Connections among international criminal groups, pirates, and terrorists are not uncommon, as each uses the other's tactics to succeed in whatever their goals are.

Additionally, some countries have initiated mandatory security requirements even for small vessels (including pleasure craft) within the controls of their own waters. For example, Turkey announced in 2007 that all vessels, including yachts, small passenger boats, cargo vessels, and fishing boats would be required to carry Automated Identification System equipment while operating within Turkish waters and the Bosphorus Straits.

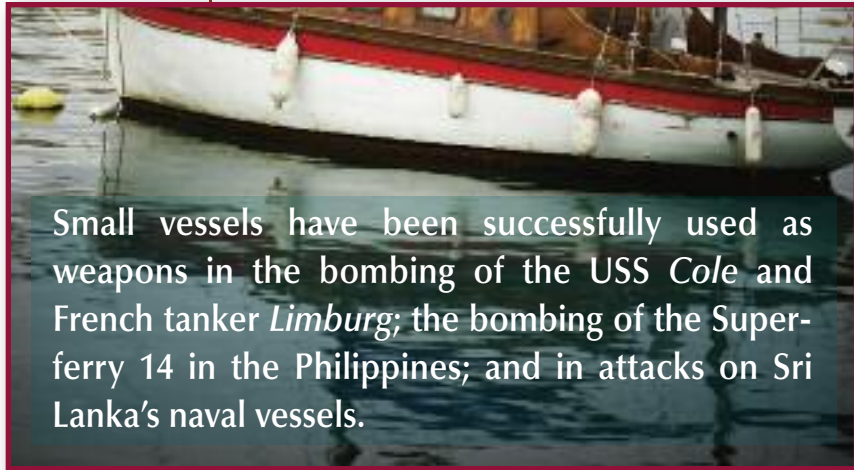
U.S. Efforts

The U.S. Maritime Domain Awareness programs are layered defense systems using risk-based decision making processes to target high-level threats and possible actions to vulnerable critical infrastructure and key resources.

Port assessments in the U.S. are completed through area maritime security committees in each port to determine threats, risk, and vulnerabilities, which include the small vessel threat. Plans designed from these assessments are exercised with port stakeholders and les-

sons learned from these exercises are used to update and make each plan more accurate and definitive in the management and reduction of threats for each individual area of the ports.

The area maritime security committee, working with the Coast Guard's sector commander as its lead, coordinates with other federal agencies; state, local, and



Small vessels have been successfully used as weapons in the bombing of the USS *Cole* and French tanker *Limburg*; the bombing of the Superferry 14 in the Philippines; and in attacks on Sri Lanka's naval vessels.

tribal governments; and private and commercial maritime industry stakeholders in the ports to combine responses and reduce threats, which also supports all hazard responses in the port.

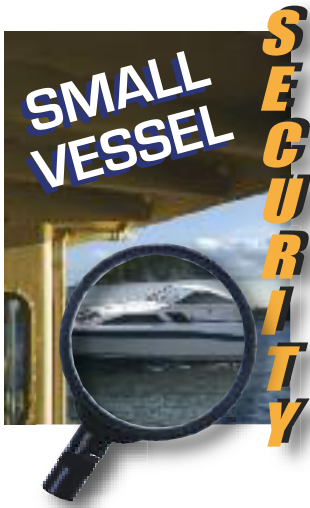
About the author:

Mr. Gauvin is responsible for projects involving vessel compliance and enforcement. His current duties include assignment as a special project officer for the Coast Guard on small vessel security, managing the DHS National Small Vessel Security Summit and Report and regional summits, and working to develop the DHS Small Vessel Security Strategy and Implementation Plan.

Endnotes:

- ¹ The International Ship & Port Facility Security (ISPS) Code, Chapter XI-2 of the Safety of Life at Sea Treaty.
- ² MSC.1/Circ.1283 on 22 December 2008, Non-Mandatory Guidelines on Security Aspects of the Operation of vessels which do not fall within the scope of SOLAS Chapter XI-2 and ISPS Code.





Yes We CAN!

by Ms. JUDY DARBY
Program Coordinator

U.S. Coast Guard Auxiliary, District Eight

The area of District Eight encompasses the New Orleans metropolitan area north to the Red River and west to Lafayette, La. Within this area, there are thousands of acres of sparsely populated marshland and swamp near the cities of Baton Rouge, Port Fouchon, Lafayette, Morgan City, and New Iberia. In an effort to improve area maritime security, a small committee of USCG Auxiliarists worked to launch a Citizen's Action Network (CAN)—citizens who volunteer to help the U.S. Coast Guard save lives and property, report oil spills, and protect wildlife.

The committee focused its early recruiting efforts on auxiliarists who live, work, and recreate on the water, and on large entities with permanent water presence and an interest in adding another layer of security.

Partners

The Greater New Orleans Expressway Commission (GNOEC) became the first business partner. With employees on watch 24 hours a day, seven days a week, the GNOEC manages the Lake Pontchartrain Causeway, a double span that stretches 24 miles entirely over open water from Jefferson Parish to St. Tammany Parish in the New Orleans metropolitan area. General Manager Carlton Dufrechou said of the initiative, "We are very happy to be able to have this new opportunity for cooperation with the Coast Guard. The Lake Pontchartrain Causeway is a major hurricane evacuation route that also carries 42,000 commuter vehicles a day between the north and south shores."

A meeting with Jacobs Engineering, Inc., the civilian contractor that manages the NASA/Michoud Assembly Facility, led to another important CAN partner. The Michoud complex is located on an 800-acre tract in East

New Orleans with direct access to the Intracoastal Waterway. It is where the external fuel tanks for the space shuttle are assembled and shipped by barge to Florida. Jacobs' Director of Business Development, Ray Vogel, explained that NASA has actively recruited private enterprise to locate on several sites that have been prepared for development, and the enhanced security provided by the Citizen's Action Network is expected to benefit the recruitment of new businesses.

The Lake Pontchartrain Basin Foundation, with thousands of members interested in environmental issues, became the first non-profit to partner with the Coast Guard in this effort. Executive Director Anne Rheams said, "The CAN program is a way our members can better alert the Coast Guard of environmental problems in the watershed. We feel this is a natural partnership for us and the Coast Guard."

Recruitment Efforts

The commercial fishing industry and ports management entities were reached through personal contact. Recreational boaters, fishermen, and waterfront homeowners were reached through vendors who display tri-fold Citizen's Action Network information brochures and application forms at checkout counters.

The Citizen's Action Network is designed to be readily apparent to auxiliarists in the division whenever they visit their local auxiliary websites. The Auxiliary Chief Technology Officer, Bill Pritchard, who was also a member of the original core committee, created a dynamic link to an electronic version of the Citizen's Action Network application form. This means that anyone interested in joining can now fill out the form online and send it directly to the local CAN coordinator, who

FOR MORE INFORMATION:

Gulf Coast residents and organizations with a view of any navigable waterway, a phone, and a willingness to participate are invited to call the Eighth Coast Guard District at 800-524-8835 or e-mail cgcانmember@gmail.com for an application form. The Citizen's Action Network is administered by the U.S. Coast Guard Auxiliary, the civilian volunteer component of the Coast Guard, which also offers general boating education to CAN members.

You may also fill out an application form online by going to

<http://www.d8cr.org/CAN/>.

order in which the watchstander will ask for pertinent information and terminology that will be used.

LAST

After training, a member receives the Coast Guard sector communications emergency number to be used for reporting purposes. CAN reporting uses the acronym "LAST" to describe the information to be reported:

- Location of the incident,
- Activity,
- Size and identification information of the vessel involved in the incident,
- Time, date, and conditions at the scene of the incident.

All CAN Contribute

The success of the CAN program is proportional to the number of members in the network, the extent of their training, and their familiarity with their particular waterway. A member's contribution is not dependent on his or her ability to confront a situation or fix a problem, but on the ability to report appropriate information to the Coast Guard investigator.

About the author:

Judy Morgan Darby is a member of Flotilla 42, Mandeville, La. She is editor of the Coast Guard Auxiliary's national magazine, Navigator, and branch chief of the Prevention Outreach Network, which is responsible for the Citizen's Action Network program nationwide. She has been a photographer and journalist in the boating industry for 10 years.

verifies that the applicant contact information is correct and vets the applicant for program participation.

Potential Missions

Citizen's Action Network members might be called upon to aid search and rescue efforts, verify radio calls and flare sightings, and note unsafe vessel operation, aids to navigation equipment outages/abnormalities, suspicious activity, and marine pollution.

As well-trained members are best prepared to aid Coast Guard watchstanders, the committee provides a CAN observers' manual that instructs members as to the

Photo courtesy of Ms. Judy Darby.



Upcoming in

Winter 2010-11 |||➔ ***Fishing Vessel Safety***

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Lessons Learned



from Casualty Investigations



Barkald / Essence

A regular feature in Proceedings: "Lessons Learned From USCG Casualty Investigations."

In this ongoing feature, we take a close look at recent marine casualties. We explore how these incidents occurred, including any environmental, vessel design, or human error factors that contributed to each event.

We outline the U.S. Coast Guard marine casualty investigations that followed, describe in detail the lessons learned through them, and indicate any changes in maritime regulations that occurred as a result of those investigations.

Unless otherwise noted, all information, statistics, graphics, and quotes come from the investigative report. All conclusions are based on information taken from the report.

Lessons Learned



from **Casualty Investigations**

A Turn for the Worse

A routine passage turns tragic.

by Ms. CAROLYN STEELE
Technical Writer

The pre-dawn hours of September 20, 2006 were clear and calm as the 623-foot, 28,912 GT cargo ship *M/V Barkald* set out from Bridgeport, Conn., into Long Island Sound. The pilot for the transit was familiar with this ship and crew, having piloted the vessel twice before. The cargo of coal had been unloaded, the anchor had been heaved, and the ship rode high in the water as she began her voyage eastbound to Halifax, Nova Scotia. No one could have predicted impending tragedy—a sailboat impaled upon the cargo ship’s bow, and a life lost.

Pre-collision: Aboard the Cargo Ship

At 10:00 p.m. on September 19, 2006, the captain arrived aboard at Bridgeport, Conn. He and the pilot discussed the pilot’s intended route through the sound, which would have the ship transit north of Stratford Shoals. All equipment was reported to be in good working order. The pilot set up his laptop computer on the port side of the bridge, using a satellite program for chart plotting.

At about 2:30 a.m. on September 20, the cargo ship left the anchorage. By 3:00 a.m., the ship was clearing Stratford Shoals and was brought up to full speed at 15 knots. The crewmembers on the bridge reported good visibility for the transit, with no large traffic in Long Island Sound. All deck, crane, and spotlights were turned off by 3:30 a.m. The ship had her sidelights, stern light, and masthead light turned on.

A radio call came at 4:04 a.m. The person on the radio referred to the cargo ship as “the vessel off my port side.”

“Vessel off my port side...”

At that time the pilot, who did not respond, was at the port radar; after the call, he went over to the windows on the starboard side of the ship. Both the pilot and the 2nd mate said they saw a sailboat’s green and white lights at the same time, and both estimated that the smaller vessel was about 1,000 feet off their starboard bow.

Just seconds after the first call, they received a second. After this brief radio exchange, the pilot saw the yacht make a 10-degree course change to starboard, which brought the two vessels even closer together. The pilot responded on the radio, asking if the smaller vessel intended to stay clear of his ship. The yacht’s helmsman assured him that he would stay clear. The pilot then went out to the starboard bridge wing to watch the yacht make what he thought would be a close starboard-to-starboard passing.

Moments later, at about 4:05 a.m., the pilot saw the yacht come suddenly hard to starboard, crossing in front of his ship. The pilot immediately called to stop the engines, but it was too late. The yacht collided with the cargo ship’s bow, which struck the yacht’s port side at nearly midship.

The cargo ship’s speed at the time of impact was 15 knots, and the yacht’s speed was 8 knots, making a closing speed of 23 knots. The immediate response aboard the cargo ship was to contact the yacht, call the Coast Guard, and lower a lifeboat.

Pre-collision: Aboard the Yacht

On September 19, 2006, the *Essence*, a 92-foot sailboat, was anchored in Newport, R.I., preparing to depart for Greenwich, Conn., on a southwesterly course. There were three people aboard: a captain, a mate, and a cook. Earlier in the day, the mate had been ill with flu-like symptoms and had gone to Newport Hospital, where

he was prescribed an antibiotic and a decongestant. He was asleep when the vessel departed Newport at 6:00 p.m.; the captain was at the helm. The yacht was equipped with two VHF radios, two radar units, a chart plotter, and a GPS unit. When the vessel departed Newport, one VHF radio was on, monitoring channel 16, and one radar unit was on; the other unit, the Automatic Radar Plotting Aid (ARPA) was off. There was no radar reflector set.

The vessel was motor sailing; both engines were engaged and the mainsail was set. All lights were working properly. Visibility was up to 10 miles, waves were 2-3 feet, and there was a light breeze.

At 2:00 a.m. on September 20th, the mate began his watch, and the captain went below to the main salon on the port side to get some sleep. Shortly afterward, the mate noted a vessel ahead of his bow, which he believed was about 10 miles away. As he approached, he saw a ship's green light and two white lights; his first impression was that the ship was on a path to cross his bow from port to starboard. He had visual contact; he did not use the yacht's radar to track the cargo ship's movements.

The yacht's mate thought he saw the bow of the cargo ship.

At 4:04 a.m., the mate called to the larger vessel on VHF. The pilot on the cargo ship acknowledged him after his second call, and the mate told the pilot that the cargo ship's port light was out. The mate on the yacht believed he was looking at the bow of the cargo ship, and adjusted his course slightly—approximately 10 degrees to starboard—to show the ship his port side, and to make what he believed would be a port-to-port passage. The pilot on the larger vessel then called over the radio and asked if the yacht was going to stay clear. After assuring the cargo ship's pilot that he would do so, the mate made an abrupt 70 to 90 degree turn to starboard without changing speed. Less than 30 seconds later, the two vessels collided.

Post-collision

The captain of the yacht was awakened by the explosive sound of the cargo ship's bow breaking through the hull of the yacht. The smaller craft was now pinned to the bulbous bow of the cargo ship. The yacht's captain ran to the pilothouse, where he discovered both other crewmembers awake and uninjured.

All three donned life jackets, but because of the impact site and the collapsed mast and rigging, they could not reach the life raft. The yacht had been towing astern a small 14-foot rigid hull inflatable tender, which was tied off to a cleat on the yacht's starboard stern, but the tender's line had looped so tightly beneath the yacht's hull that it could not be removed. The captain told the mate to swim over to the tender and use it as a rescue boat. Once aboard the tender, the mate found that he could not start the engine.

The captain and the mate found each other in the water, but they lost sight of the cook.

The yacht's bilge alarms went off, and the vessel began to creak loudly. The captain told the cook to get over to the tender. He then tried to cast off the tender's line from the yacht's stern, but at that moment the yacht sank from under him, throwing him into the water. At the same time, as the cook was swimming toward the tender and the mate was reaching out to her, the tender was pulled out from under him, sinking rapidly as the yacht slipped off the bow of the cargo ship. The captain and the mate quickly found each other in the water, but they lost sight of the cook, who had either been dragged underwater by the towline between the yacht and the tender, or struck by the tender and dragged underwater as the yacht sank.

A crewmember on the cargo ship threw the survivors a life ring with a strobe light, and lowered a lifeboat. At 4:25 a.m., a Coast Guard rescue boat arrived and recovered the mate and the cook, who was now unconscious and floating face-down in the water. They carried her onto the rescue boat, and immediately began administering CPR. The captain of the yacht was brought aboard the cargo ship.

At 5:03 a.m., the rescue team arrived at Sector Long Island Sound with the yacht's mate and cook. An ambulance took them to Yale-New Haven Hospital, where the cook was pronounced dead. The mate was treated for mild hypothermia and released. Another Coast Guard rescue boat was sent out to transport the captain, who had minor injuries, from the cargo ship to Sector Long Island Sound.



The cargo ship suffered no damage as a result of the collision. The sailboat sank, and was a total loss.

Contributing Factors

Inexperience

Though the yacht's mate had been serving aboard the vessel for two years and had formal mariner training in South Africa, he did not hold any merchant mariner's license or document, and had never sailed the waters of Long Island Sound.

Situational Awareness

The mate had been feeling ill, had taken medication before the yacht departed, and had slept until he was awakened for his watch. It is unclear whether he was affected by the decongestant he was prescribed, but that might explain his failure to turn on the yacht's ARPA unit, and his failure to use the yacht's radar reflector on the voyage. It might also explain his mistaken assumption that the cargo ship's port light was out, when in fact he was not in a position to see it.

Errors in Judgment

The yacht's mate told investigators that he spotted the cargo ship's lights when the vessel was 10 miles away. However, rather than taking early avoiding action, he continued on a course that brought him ever closer.

Though neither vessel adequately judged the risk of collision, had the yacht's mate used his radar, made unambiguous radio communication, and taken avoiding action sooner—before the two vessels approached each other in a meeting situation at 1,000 feet—the collision might have been averted.

Visibility

Aboard the cargo ship: The ship had four cranes installed on her starboard side for loading and unloading cargo. These cranes partially obstructed the view from the pilothouse.

Aboard the yacht: Because the cargo ship was holding no cargo and rode high in the water, the mate on the yacht may have had a difficult time seeing the larger ship's lights at close quarters.

Poor Communication

Ineffective communications—both between crewmembers aboard the cargo ship, and between the two vessels—contributed to this accident.

A risk of collision already existed when the cargo ship's pilot heard the first radio transmission from the yacht. Unfortunately, the mate on the yacht did not communicate his whereabouts in a way the pilot understood. On Long Island Sound, a major commercial waterway, the pilot was accustomed to vessels identifying one another by their geographic location (e.g., 'westbound sailing vessel').

Thus he was confused by the yachtsman's choice of words: "... are you the motor vessel off my port side?" and did not respond at first. In addition, the cargo ship was not on the port side of the yacht, as the yacht's mate had stated on the radio. When the yacht made a second, similar radio call to the cargo ship seconds later, the state pilot responded, "Yes, this is the motor vessel off your port side," even though the cargo ship was to starboard of the yacht.

This began what the state pilot later termed "the beginning of the error chain." About four seconds later, the mate on the yacht radioed the cargo ship advising that its port side (red) running light was extinguished; it was not. The state pilot responded to that call about 10 seconds later, asking whether the yacht was going to stay clear of his ship. The yacht responded affirmatively three seconds later. Less than half a minute after that, the yacht turned hard to starboard, becoming impaled on the cargo ship's bulbous bow.

Inadequate Lookout

Visibility problems from the cargo ship's bridge, caused by loading equipment and compounded by the darkness, obstructed the view from the windows. In spite of these problems, the cargo ship had no designated lookout during the time leading up to the collision. This was the captain's responsibility. Paragraph 9, pages 141-143 of the Standards of Training, Certification and Watchkeeping Code (STCW), states:

"The master of every ship is bound to ensure that watch-keeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding."

Findings of the Coast Guard Investigation

The Coast Guard investigation cited the failure of both vessels to determine that a risk of collision existed, as well as inadequate communication between the vessels

as they approached each other in a meeting situation as factors contributing to the collision. The investigation ruled out mechanical failure and weather as possible culprits. Alcohol and drug tests conducted on both crews were negative. Specific findings are outlined below.

Equipment

- All navigation lights were energized and working properly on both vessels.
- All navigation systems and ship systems were operating properly on both vessels.
- All radar and radio equipment was working properly on both vessels.

Lookouts

- On the yacht – mate on watch.
- No dedicated lookout on the cargo ship.

Aids to Navigation

Federally mandated aids to navigation did not play a role in this marine casualty.

Long Island Sound

There are no formally designated traffic separation schemes or traffic lanes in Long Island Sound, and the waterway had not been established as a vessel traffic service area.

Within Long Island Sound, standard traffic patterns for commercial vessels have developed mostly based on natural features and obstructions, and mariner experience. Traffic flow of commercial shipping in Long Island Sound generally runs in an east-west direction down the central portion of the sound.

Collision

The two vessels were on nearly reciprocal courses. Both were in deep water and not constrained by any navigational hazards. The cargo ship was making 15 knots and the yacht was making 8 knots. Because the navigation lights on both vessels were lit and were being displayed properly, the yacht spotted the cargo ship when she was over 10 miles away. The cargo ship spotted the yacht, a much smaller vessel, at .2 miles.

The yacht initiated radio communication, but no specific meeting arrangement was made between the two vessels. The yacht reported to the cargo ship that the ship's port light was out, and made a slight turn to starboard. The pilot did not respond to the port light comment. The mate on the yacht affirmed he would stay clear, after which he made a hard turn to starboard, colliding with the oncoming ship.

Primary Cause of the Accident

- The mate on the yacht failed to properly identify the aspect of the lights of the cargo ship, and his position in relation to the cargo ship.
- The mate also failed to take proper action to avoid the collision, violating rule 8 of the International Regulations for Preventing Collisions at Sea (72 Colregs) and the United States Inland Rules (see sidebar). He effected a 70 to 90 degree turn to starboard, crossing the other vessel's bow, resulting in the collision.

Contributing Causes

- The pilot and second mate on the cargo ship violated rule 5 when they failed to maintain a proper lookout.
- The bridge team on the cargo ship failed to comply with the vessel's company policy to post a lookout on the bridge, as required during the hours of darkness.
- The mate on the yacht violated rule 7 when he failed to recognize that a risk of collision existed with the cargo ship.
- The bridge team on the cargo ship violated rule 7 when they failed to make visual contact and/or radar contact with the yacht in sufficient time to judge a whether risk of collision existed. The weather was clear, and both vessels were exhibiting the proper navigation lights. Both vessels were traveling in a direction that would have them looking down a dark sound, not into the city lights; conditions were very favorable to make visual contact. In accordance with Inland Navigation Rule 22, Visibility of Lights, the masthead light on the cargo ship should have been visible at 6 miles, and the masthead light on the yacht should have been visible at 5 miles.
- The pilot and second mate of the cargo ship violated rule 14 when they failed to determine a head-on situation existed with the yacht.
- There were improper communications throughout the incident.

Coast Guard Recommendations

To the Board of Commissioners of Pilots of the State of New York: The Coast Guard recommended that pilots require bow lookouts on all vessels transiting through Long Island Sound. Further, the Coast Guard required that civil penalty action be initiated against the pilot of the cargo ship, for negligence and for violating 5, 7, and 14 of the Inland Navigation Rules.



To the Cargo Ship's Flag State (Marshall Islands)

The Coast Guard recommended that:

- A dedicated lookout stand watch on the ship during all passages through all inland and international waters within three nautical miles of the United States;
- The cargo ship's flag state address the blind sector caused by the cranes mounted down her starboard side, and consider installing a radar unit antenna on her forward mast to provide an unobstructed radar picture; and
- Civil penalty action be taken against the operators of the cargo ship, for violating rule 2 of the Inland Navigation Rules, and for violating their own policy in that their bridge team failed to identify a lookout for the transit through Long Island Sound.

To Other Personnel Involved in the Collision:

The Coast Guard recommended that civil penalty action be initiated against the officer on watch aboard the cargo ship, for negligence and for violating 5, 7, and 14 of the Inland Navigation Rules; and against the yacht's mate, for violating Inland Navigation Rule 8.

Lessons Learned

This was an avoidable tragedy. If commonsense precautions had been taken and well-known rules followed, a young woman's life would not have been lost. The following are lessons to be learned to avoid such a casualty in the future.

- All mariners should bear in mind that fatal accidents can and do happen in clear, calm weather. In such conditions, letting your guard down can be an invitation to disaster.
- When you are on the water, make sure to use your eyes and ears because radio contact alone does not guarantee that you will avoid a vessel on collision course with you. If circumstances force you to rely on radio communications, be certain that everything you say is clear, prompt, and precise—especially when you are navigating a heavily trafficked waterway.
- The purpose of a lookout is to detect, assess, and manage risk—most of all, a risk of collision. Night sailing with only a single helmsman/lookout on watch is an invitation to disaster, particularly if you are not using radar, or are unfamiliar with the waters.
- Always keep in mind the fundamental principles of the U.S. Coast Guard International and Inland Navigation Rules. Rule 2 stresses the importance

of taking responsibility—no vessel, regardless of size, is exempt.

- Use basic mariner skills and training at all times to assess risk. Rule 7 addresses the subject of risk of collision. Once you decide this risk exists, rule 8—Action to Avoid Collision—comes into play.

The commander of Coast Guard Sector Long Island Sound observed, "As tragic as this accident was, it does reinforce the need for all of us to remain ever attentive to the rules of navigation and ever vigilant to the inherent dangers of the sea, to ensure safety for ourselves and other mariners."

Aftermath

Representatives from the ship's flag state presented the Coast Guard with documentation stating that the ship's blind sectors did not exceed International Maritime Organization specifications. Thus they were under no obligation to change the ship's bridge arrangement.

The mate on the yacht was assessed a civil penalty for his actions.

The Board of Commissioners of Pilots of the State of New York suspended the pilot's license for 60 days. During this time, he was required to perform 30 supervised passages: 20 in and out of Long Island Sound (10 at night), and 10 in and out of the Port of New York (five at night). He was also required to take bridge resource management courses that focused on radio communication and protocol. He served his sanctions shortly after the civil penalty hearing, and has resumed piloting in New York state waters.

Editor's Note:

All conclusions are based upon information taken from the U.S. Coast Guard "Report of Investigation into the Circumstances Surrounding the Incident Involving *Barkald / Essence / collision / Long Island Sound on 09 / 20 / 2006*," as well as the related investigating officer report.

Acknowledgments:

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About the author:

Ms. Carolyn Steele has over 20 years of experience in the communications field. As a writer/editor she has worked on numerous Coast Guard projects since 2006, including the USCG Marine Safety Manual, the USCG Maritime Law Enforcement Manual, and USCG Publication 1. She is the editor and designer of the Crew Endurance Management newsletter. Besides writing, Ms. Steele has an extensive background in graphic design and fine art.

Endnotes:

- ¹ Board of Commissioners of Pilots Opinion and Order, Marine Accident Investigation Collision in Long Island Sound on 20 September 2006 Between the M/V *Barkald* and the S/V *Essence*.
- ² *Ibid.*
- ³ Coast Guard News, November 7, 2007.

PERTINENT U.S. Coast Guard International and Inland Navigation Rules

RULE 2: RESPONSIBILITY

- a. Nothing in these rules shall exonerate any vessel, or the owner, master, or crew thereof, from the consequences of any neglect to comply with these rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.
- b. In construing and complying with these rules, due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these rules necessary to avoid immediate danger.

RULE 5: LOOKOUT

Every vessel shall at all times maintain a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

RULE 7: RISK OF COLLISION

- a. Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
- b. Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- c. Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- d. In determining if risk of collision exists the following considerations shall be among those taken into account:
 - Such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change.
 - Such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

RULE 8: ACTION TO AVOID COLLISION

- a. Any action taken to avoid collision shall be taken in accordance with the Rules of

this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

- b. Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.
- c. If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
- d. Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.
- e. If necessary to avoid collision or allow more time to assess the situation, a vessel may slacken her speed or take all way off by stopping or reversing her means of propulsion.
- f. A vessel that, by any of these rules, is required not to impede the passage or safe passage of another vessel shall, when required by the circumstances of the case, take early action to allow sufficient sea room for the safe passage of the other vessel.

A vessel required not to impede the passage or safe passage of another vessel is not relieved of this obligation if approaching the other vessel so as to involve risk of collision and shall, when taking action, have full regard to the action that may be required by the rules of this part.

A vessel, the passage of which is not to be impeded remains fully obliged to comply with the rules of this part when the two vessels are approaching one another so as to involve risk of collision.

RULE 14: HEAD ON

- a. Unless otherwise agreed. When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.

- b. Such a situation shall be deemed to exist when a vessel sees the other ahead or nearly ahead and by night she could see the masthead lights of the other in a line or nearly in a line and/or both sidelights and by day she observes the corresponding aspect of the other vessel.
- c. When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.
- d. Notwithstanding paragraph (a) of this Rule, a power-driven vessel operating on the Great Lakes, Western Rivers, or waters specified by the Secretary, and proceeding downbound with a following current shall have the right-of-way over an upbound vessel, shall propose the manner of passage, and shall initiate the maneuvering signals prescribed by Rule 34(a)(i), as appropriate.

RULE 22: VISIBILITY OF LIGHTS

The lights prescribed in these Rules shall have intensity, as specified in Section 8, so as to be visible at the following minimum ranges:

- a. In vessels of 50 meters or more in length:
 - a masthead light, 6 miles;
 - a sidelight, 3 miles;
 - a towing light, 3 miles;
 - a white red, green or yellow all-round light, 3 miles; and
 - a special flashing light, 2 miles. [Inland]
- b. In vessels of 12 meters or more in length but less than 50 meters in length:
 - a masthead light, 5 miles; except that where the length of the vessel is less than 20 meters, 3 miles;
 - a sidelight, 2 miles;
 - a sternlight, 2 miles;
 - a towing light, 2 miles; and
 - a white, red, green or yellow all-round light, 2 miles.
 - a special flashing light, 2 miles. [Inland]
- c. In vessels of less than 12 meters in length:
 - a masthead light, 2 miles;
 - a sidelight, 1 miles;
 - a towing light, 2 miles; and
 - a white red, green or yellow all-round light, 2 miles.



Nautical Engineering Queries

Prepared by NMC Engineering
Examination Team

Q

uestions

1. Amortisseur windings are installed in a synchronous motor to _____.
 - A. reduce eddy current losses
 - B. produce a higher power factor
 - C. provide a means for starting
 - D. eliminate arcing between the stator and the rotor

2. Coast Guard regulations (46 CFR) define several acceptable means of closure for ballast and fuel oil tank vents. One of the acceptable means is by the use of a/an _____.
 - A. manually operated ball check valve
 - B. automatically operated hinged closure
 - C. permanently installed canvas hood
 - D. corrosion-resistant wire screen

3. A continuous blow is used to _____.
 - A. regulate the density or salinity of boiler water
 - B. remove scum from the surface of boiler water
 - C. permit air to escape while raising steam in a cold boiler
 - D. remove sludge from the bottom of the water drum

4. What type of engine lubrication oil filter system sends filtered oil directly back to the high-pressure discharge manifold?
 - A. centrifugal purifier system
 - B. bypass system
 - C. shunt system
 - D. batch system

Nautical Deck Queries

Prepared by NMC Deck Examination Team

Q

uestions

1. A star is observed at lower transit. The line of position derived from this sight is _____.
 - A. on the prime vertical
 - B. a latitude line
 - C. a longitude line
 - D. of no special significance

2. BOTH INTERNATIONAL & INLAND: Which signal may at some time be exhibited by a trawling vessel?
 - A. two white lights in a vertical line
 - B. a white light over a red light in a vertical line
 - C. two red lights in a vertical line
 - D. all of the above

3. An International Tonnage Certificate will be issued to a vessel when it meets several requirements, one of which is that the vessel must _____.
 - A. admeasure over 100 GT
 - B. be 79 or more feet in length
 - C. engage in intercoastal or international trade
 - D. be issued a certificate of inspection

4. Wages due a seaman may be attached by the court for the _____.
 - A. payment of any fines imposed by the court
 - B. payment of back taxes to the IRS
 - C. support of a spouse
 - D. all of the above



1. *Note: Synchronous motors are utilized in applications in which constant speed is essential, or where the power factor of a system must be maintained at a high level. Large machines that are in continuous service for long periods of time operate more efficiently when driven by synchronous motors.*

- A. reduce eddy current losses Incorrect answer. To reduce eddy current losses, the core of the synchronous motor stator is built up from many thin steel sheets that are insulated from each other with a coating of varnish.
- B. produce a higher power factor Incorrect answer. To adjust the power factor of a synchronous motor, a DC exciter varies the amount of current to the rotor field windings. Low values of field current result in less hold-in strength and a lagging (lower) power factor. Conversely, high values of field current result in greater hold-in strength and a leading (higher) power factor.
- C. provide a means for starting **Correct answer. The amortisseur winding is a squirrel-cage winding consisting of copper bars embedded in the rotor pole faces, and is used to start and accelerate the synchronous motor to near synchronous speed.**
- D. eliminate arcing between the stator and the rotor Incorrect answer. Any arcing would occur at the DC exciter circuit breaker when opened. To prevent this, a "field-discharge resistor" converts the energy stored in the magnetic field of the rotor to heat energy that is harmlessly dissipated to the atmosphere.

- 2. A. manually operated ball check valve Incorrect answer. 46 CFR 56.50-85(a)(7)(i) states: "A ball check valve where the ball float, normally in the open position, will float up and close under the action of a submerging wave." A ball float check valve that will float up and close under the action of a submerging wave is an automatically operated valve.
- B. automatically operated hinged closure **Correct answer. 46 CFR 56.50-85(a)(7)(ii) states: "A hinged closure normally open on the outlet of the return bend, which must close automatically by the force of a submerging wave ..."**
- C. permanently installed canvas hood Incorrect answer. A permanently installed canvas hood over the vent would prevent proper venting of the ballast and/or fuel oil tank under normal operating conditions.
- D. corrosion-resistant wire screen Incorrect answer. A corrosion-resistant wire screen is a permeable material, and would not prevent the entrance of water into the ballast and/or fuel oil tank from a submerging wave or other source.

3. *Note: Boiler blowdown is the removal of water from a boiler to control boiler water parameters within prescribed limits to minimize scale, corrosion, and carryover.*

- A. regulate the density or salinity of boiler water **Correct answer. A continuous blow, as the term implies, is the continuous removal of water from the boiler via a tapped connection close to the boiler water surface. A continuous blow allows for the regulation of the salinity of the boiler with minimal loss of water and heat from the boiler.**
- B. remove scum from the surface of boiler water Incorrect answer. A surface blow is used to remove scum and light solids from the surface of the boiler water via a tapped connection at the boiler water surface.
- C. permit air to escape while raising steam in a cold boiler Incorrect answer. Venting of the boiler through the "aircock" permits the escape of air from a cold boiler when raising steam. The "aircock" is a high-pressure globe valve installed at the highest point of the steam drum.
- D. remove sludge from the bottom of the water drum Incorrect answer. A bottom blow is used to remove heavy solids and sludge via a tapped connection at the bottom of the water (mud) drum.

- 4. A. centrifugal purifier system Incorrect answer. The centrifugal purifier filtering system is a "sump"-type filtering system. The purifier is supplied lubricating oil from the engine sump, purifies same, and then discharges the clean oil back to the engine sump.
- B. bypass system Incorrect answer. In a "bypass"-type filtering system, a portion of the oil discharged by the lube oil supply pump is continuously passed through filter(s) and then discharged back into the sump. To ensure that sufficient oil is supplied to the engine bearings, the amount of oil passed through the filter(s) is limited through the use of a flow-restricting orifice.
- C. shunt system **Correct answer. In a shunt-type filtering system, oil taken from the engine sump by the lube oil supply pump is discharged first into a strainer, then through a filter and cooler, and finally to the high-pressure discharge (supply) manifold. To ensure that an adequate flow of oil will be delivered to the engine at all times, the filter and strainer are fitted with pressure relief valves.**
- D. batch system Incorrect answer. The "batch" system of filtering lubricating oil is a reclamation process performed periodically. When the engine oil has become too contaminated, it is drained and the system refilled with fresh oil. After the drained oil has been permitted to settle, any water or contaminants are removed through filtering and/or centrifuging. After the reclamation process is complete, the oil is stored for reuse.

1. A. on the prime vertical Incorrect answer.
 B. a latitude line Correct answer. A sight taken when a body is either due north or due south of the observer, while transiting the observer's meridian, yields a line of position extending in an east-west direction. This is a parallel of latitude when plotted.
- C. a longitude line Incorrect answer.
 D. of no special significance Incorrect answer.
-
2. A. two white lights in a vertical line Incorrect answer.
 B. a white light over a red light in a vertical line Incorrect answer.
 C. two red lights in a vertical line Incorrect answer.
 D. all of the above Correct answer. Annex II of the Navigation Rules defines additional signals for fishing vessels fishing in close proximity. The annex includes signals for trawlers and states: "Vessels of twenty meters or more in length when engaged in trawling, whether using demersal or pelagic gear, shall exhibit:
 (i) when shooting their nets: two white lights in a vertical line
 (ii) when hauling their nets: one white light over one red light in a vertical line
 (iii) when the net has come fast upon an obstruction: two red lights in a vertical line."
-
3. A. admeasure over 100 GT Incorrect answer.
 B. be 79 or more feet in length Correct answer. As per 46 CFR 69.69, on request of the vessel owner, an International Tonnage Certificate (1969) is issued for a vessel measured under this subpart that is 79 feet or more in registered length and that will engage on a foreign voyage. The certificate is issued to the vessel owner or master and must be maintained on board the vessel when it is engaged on a foreign voyage.
- C. engage in intercoastal or international trade Incorrect answer.
 D. be issued a certificate of inspection Incorrect answer.
-
4. A. payment of any fines imposed by the court Incorrect answer.
 B. payment of back taxes to the IRS Incorrect answer.
 C. support of a spouse Correct answer. As per 46 USC Sec 11109(a), wages due or accruing to a master or seaman are not subject to attachment or arrestment from any court, except for an order of a court about the payment by a master or seaman of any part of the master's or seaman's wages for the support and maintenance of the spouse or minor children of the master or seaman, or both.
- D. all of the above Incorrect answer.



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- **Sound one whistle, indicating a course change to starboard?**
- **Sound five or more (the danger signal)?**
- **Maintain course, with continual blasts, keeping a vigilant watch that the smaller vessels will yield any right of way?**

Does the average recreational boater understand sound signals?

In an effort to help with these answers, the Coast Guard and its partners are working to provide valuable navigation rules awareness training to recreational boaters. Coast Guard efforts include seeking the authority to mandate recreational boater education, funding navigation rules training programs for law enforcement officers, and coordinating enforcement of current regulations.

These efforts, combined with various recreational boating-specific programs, are aimed at reducing recreational boating fatalities and creating safer waters for all who use them.

Take a look inside to learn more.



Cover photo courtesy of Tom Sperduto.