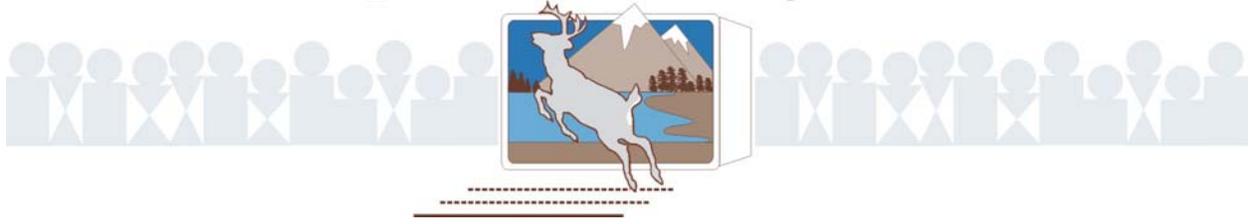


# Responsive Management



## **A REVIEW OF BOATING SAFETY EDUCATION PROGRAMS NATIONWIDE**

**PHASE III: FINAL REPORT**

**Conducted for the  
National Association of State Boating Law Administrators**

**by Responsive Management**

**2010**

# **A REVIEW OF BOATING SAFETY EDUCATION PROGRAMS NATIONWIDE**

## **PHASE III: FINAL REPORT**

**2010**

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## **Acknowledgments**

Responsive Management would like to thank Gail Kulp, John Johnson, and Deborah Gona of the National Association of State Boating Law Administrators for their input, support, and guidance on this project.

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## **CHAPTER 1: INTRODUCTION AND PURPOSE OF STUDY**

With more than 60 million boaters taking to the water in the U.S. each year, accounting for approximately a half billion boating days and more than 12 million boats registered in the U.S., boating is an extremely important recreational activity in the U.S. Additionally, trend projections indicate that the boating population is growing and will continue to do so into the foreseeable future. Fortunately, for most boaters, boating is a pleasant, enjoyable activity. However, every year, many boating trips end in tragedy. And, although boating safety has improved greatly over the past decades with the passage of the Federal Boating Safety Act of 1971 and the creation of the Aquatic Resources (Wallop-Breaux) Trust Fund in 1984, there is still room for improvement regarding boating safety in the U.S.

What is more disheartening about boating accidents is that nearly all of them, as well as most of the injuries and fatalities, are preventable. According to U.S. Coast Guard accident statistics, in 2007 approximately three-fourths of all boating fatalities occurred on boats in which the operator had *not* taken a boating safety course. More telling, in a ranking of the top factors in boating accidents in 2007, the top seven factors—operator inattention, careless/reckless operation, passenger/skier behavior, excessive speed, alcohol use, no proper lookout, and operator inexperience—are all within the control of the boat operator. Additionally, most drownings occur to boaters who were *not* wearing a life jacket, despite the fact that putting on a life jacket is one of the simplest actions a boater can take to be safer. These types of problems are all addressed by state boating safety education programs.

To allow state recreational boating safety programs to continue to save lives and to enhance the programs themselves, a review of boating safety programs is essential. This report is Phase III of a three-part study conducted for the National Association of State Boating Law Administrators (NASBLA) under a U.S. Coast Guard grant to assess and provide a review of boating safety education programs nationwide.

The knowledge gained from a review of both internal constituents (professionals within the boating community) and external constituents (the boat owners themselves) will provide boating safety agencies and organizations with valuable knowledge to improve boating safety education

programs and to build strong partnerships. Awareness of the program priorities of stakeholders will produce long-term benefits to boating safety agencies and organizations and will facilitate the development of boating safety education programs that address important priorities.

Phase I of this study entailed personal interviews with Boating Law Administrators and Education Coordinators (structured like a survey, but in a personal interview format that allowed more in-depth discussion). Phase II of the study entailed a telephone survey of owners of registered boats in all 50 states and Washington, D.C., with a sampling plan designed to reflect owners of registered boats nationwide. Phase II provided an enhanced understanding of the attitudes of boaters toward boating safety education programs and their experiences with boating safety education. The report for Phase III synthesizes the data from the Phase I and II reports, as well as additional analyses of the survey data and the inclusion of information obtained from focus groups of owners of registered boats (some who had completed boating safety education and some who had not taken any boating safety education).

This report first discusses the findings of the interviews with boating professionals—Boating Law Administrators and Education Coordinators—in Chapter 2. It next discusses the findings of the nationwide telephone survey of owners of registered boats in Chapter 3. Then, Chapter 4 provides a comparison of the results of these phases of the study to determine where boating professionals' and boaters' opinions and attitudes are in agreement and where they are divergent. Chapter 5 then discusses the implications of the study findings on boating safety education and boating safety education programs. The methodology of the study is detailed in Chapter 6.

## **CHAPTER 2: BOATING PROFESSIONALS' ATTITUDES TOWARD BOATING SAFETY EDUCATION PROGRAMS**

The interviews of Boating Law Administrators and Education Coordinators were conducted face to face and via telephone. The interviews focused primarily on the two groups' attitudes toward boating safety education, including their opinions on the most important topics and audiences for safety education. The entire findings of the two sets of interviews conducted with boating safety professionals are presented in the Phase I report produced as part of this overall project; pertinent findings from the interviews are discussed here. This chapter first discusses boating safety issues of concern among the two professional groups, including actions to make waters safer, then discusses boating professionals' opinions of various aspects of boating safety education and safety programs, including program strengths and weaknesses, additional needs, and topics and target audiences that Boating Law Administrators and Education Coordinators consider important.

### **BOATING SAFETY ISSUES OF CONCERN**

When boating professionals were asked in an open-ended question (in which respondents had no answer set to choose from but could name anything they thought of) about the boating safety issues that concern them the most, the same two issues emerged at the top among Boating Law Administrators and among Education Coordinators: boaters not wearing life jackets and alcohol use/alcohol-related accidents. These issues were the most commonly named safety issues of concern among the two groups: nearly a third of Boating Law Administrators (32%) named boaters not wearing life jackets, while 27% said alcohol use/alcohol-related accidents; among Education Coordinators, 55% said boaters not wearing life jackets, and 40% named alcohol use/alcohol-related accidents (Figures 2.1 and 2.2).

The interviews also found that Boating Law Administrators were highly concerned with what they perceived to be a lack of education among many boaters (27% of Boating Law Administrators gave a response relating to this), while a slightly lower percentage of Education Coordinators (13%) also named this as one of their chief safety concerns.

**Figure 2.1. Boating Safety Issues of Concern (Boating Law Administrators)**

**As the state Boating Law Administrator, what types of boating safety issues concern you the most?  
(Boating Law Administrators)**

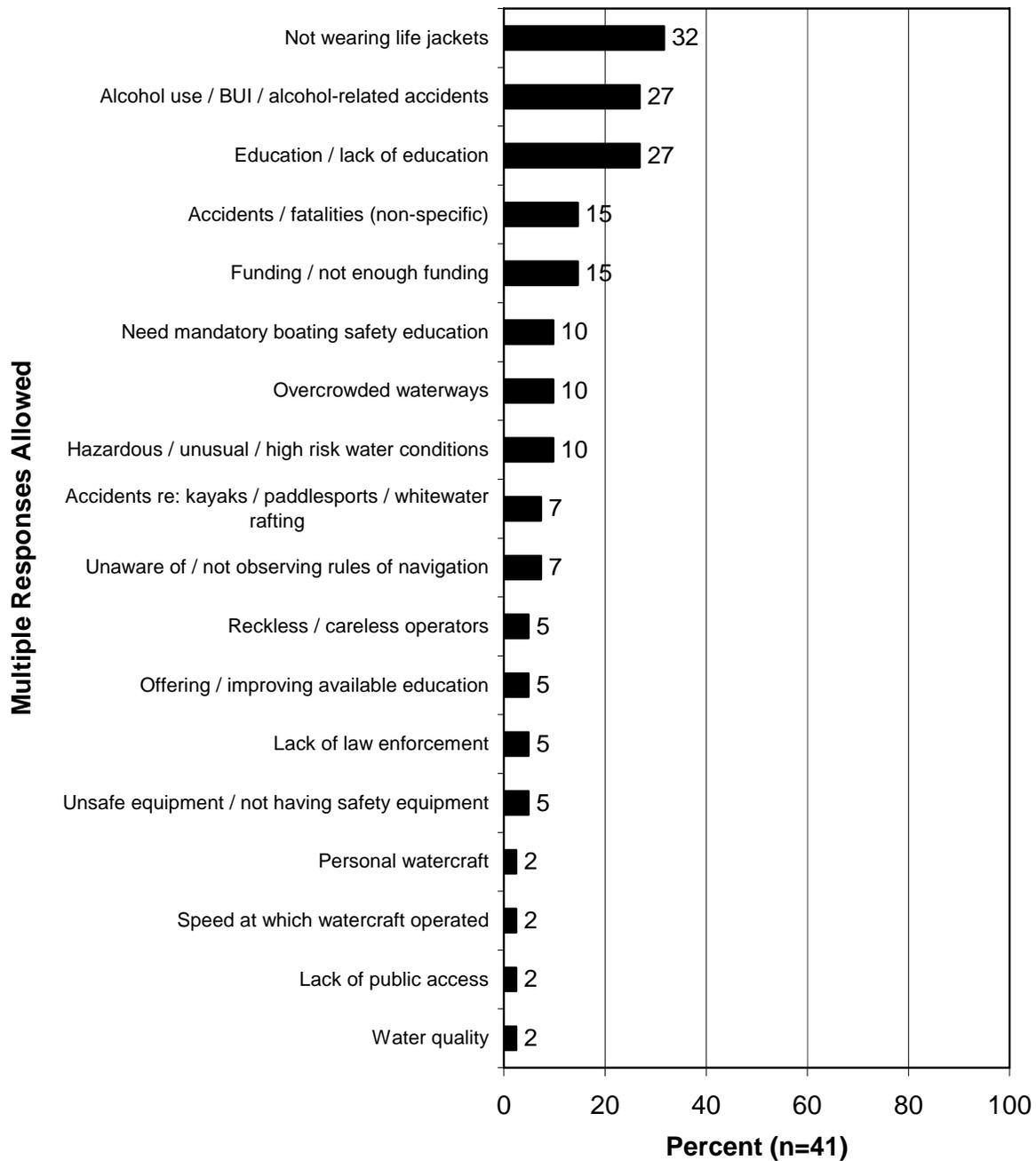
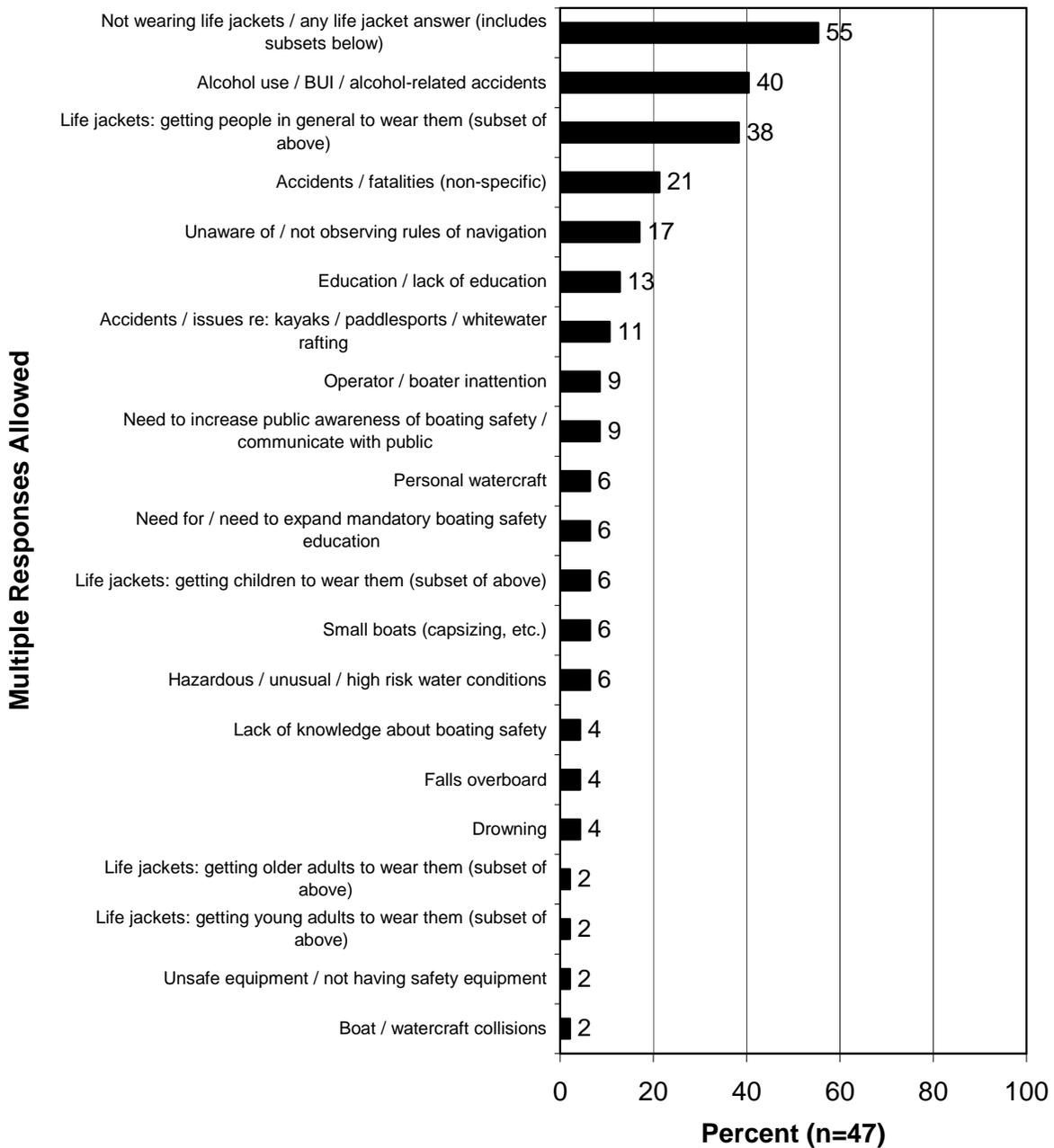


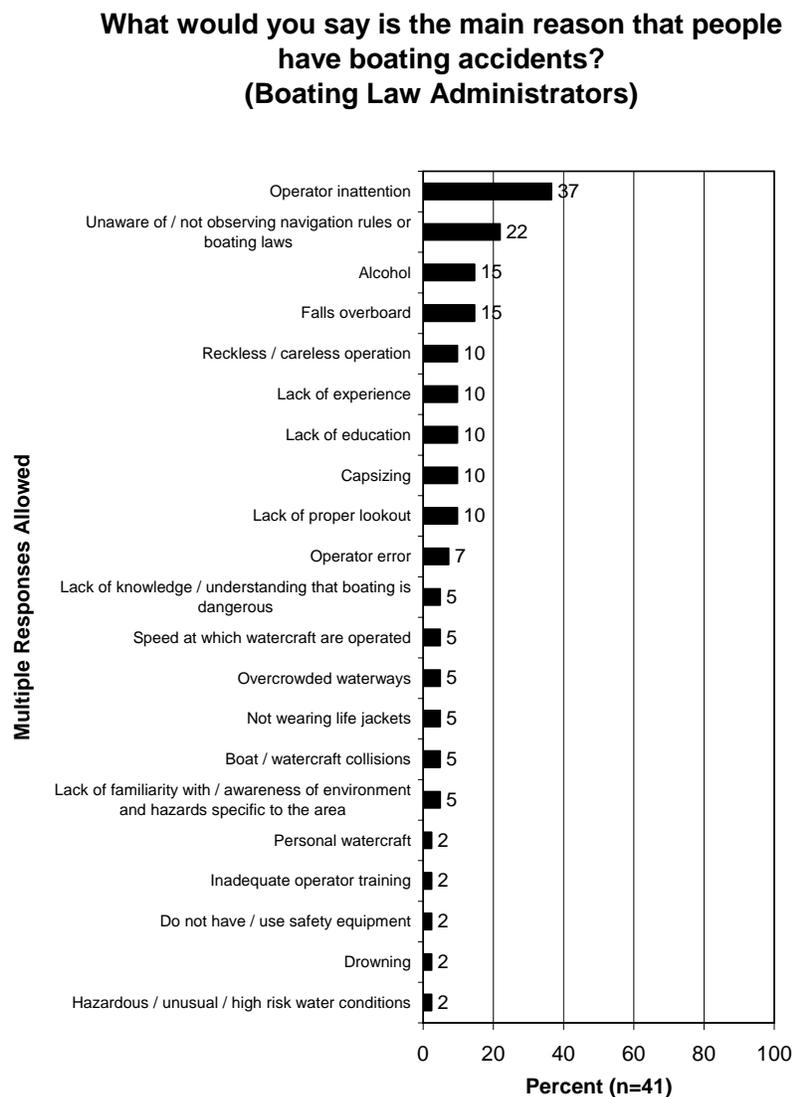
Figure 2.2. Boating Safety Issues of Concern (Education Coordinators)

**As the state Boating Education Coordinator, what types of boating safety issues concern you the most?  
(Education Coordinators)**



The interviewers also asked Boating Law Administrators about the main reasons that boaters have accidents, and the most commonly named reasons were operator/boater inattention (37%), boaters being unaware of or not observing the rules of navigation or boating laws (22%), and alcohol use among boaters (15%) (Figure 2.3). Table 2.1 shows Coast Guard data, which provide a useful context for these findings: boater inattention was the leading cause of accidents in 2007; alcohol use was the fifth-ranked cause of accidents, and it was the top-ranked cause of boater *deaths* in 2007 (according to *Recreational Boating Statistics 2007*, published by the U.S. Coast Guard).

**Figure 2.3. Main Reasons for Boating Accidents (Boating Law Administrators)**



**Table 2.1. Top Contributing Factors To Boating Accidents (U.S. Coast Guard Data)**

Primary Contributing Factor (2007)	Number of accidents	Number of injuries	Number of deaths	Percentage of accidents	Percentage of injuries	Percentage of deaths
Operator inattention	628	436	47	12.1	11.9	6.9
Careless/reckless operation	552	445	33	10.6	12.1	4.8
Passenger/skier behavior	492	458	47	9.5	12.5	6.9
Excessive speed	473	425	31	9.1	11.6	4.5
Alcohol use	391	341	145	7.5	9.3	21.2
No proper lookout	375	266	20	7.2	7.2	2.9
Operator inexperience	353	234	42	6.8	6.4	6.1
Machinery failure	312	146	21	6.0	4.0	3.1
Weather	148	70	36	2.9	1.9	5.3
Equipment failure	141	40	17	2.7	1.1	2.5
All other factors	1,326	812	246	25.5	22.1	35.9
<b>TOTAL</b>	<b>5,191</b>	<b>3,673</b>	<b>685</b>			

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

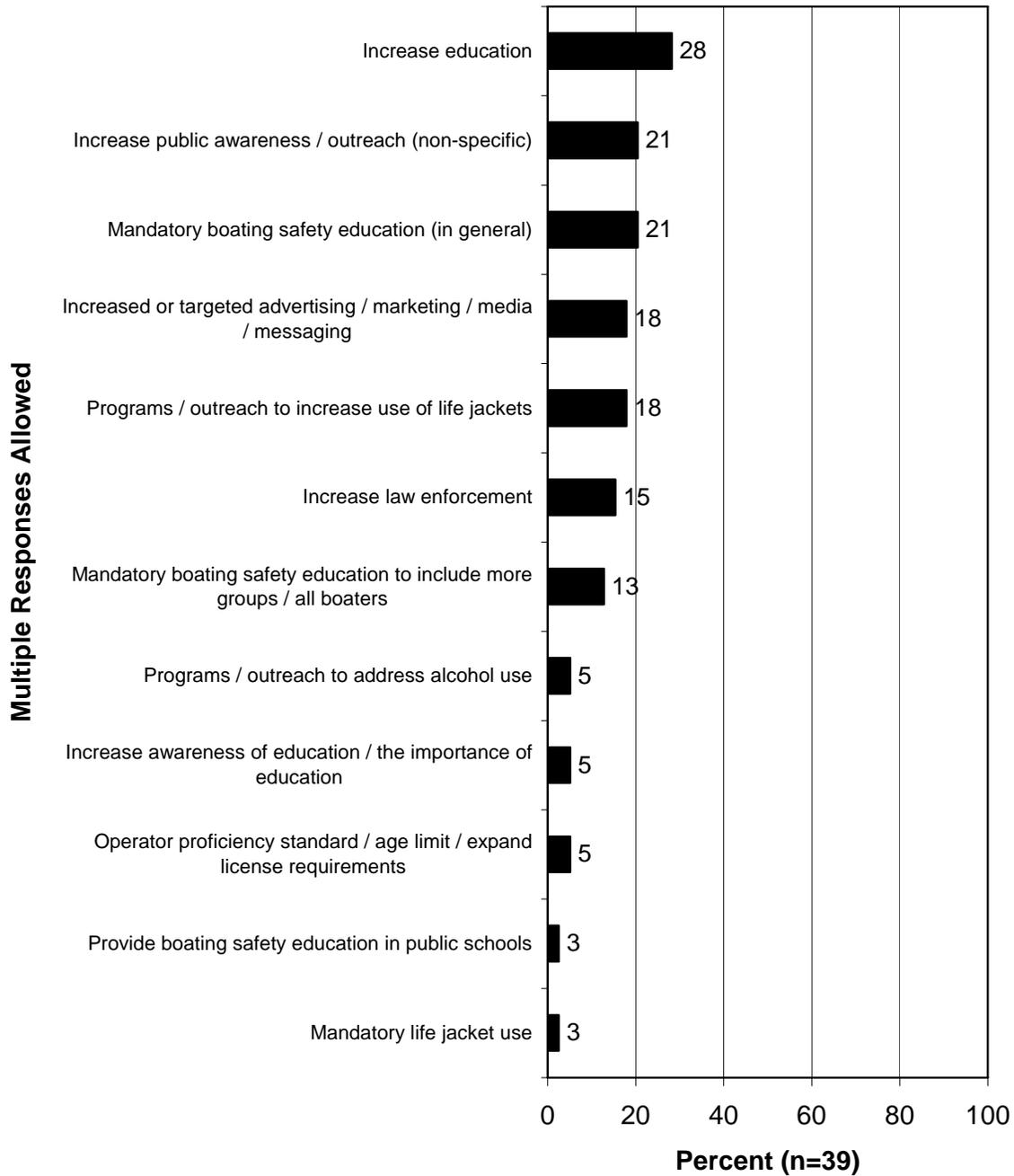
## **ACTIONS TO MAKE WATERS SAFER**

As previously mentioned, both Boating Law Administrators and Education Coordinators consider boating safety education to be of paramount importance. When asked to name the actions that could be taken to improve safety on public waters, a substantial percentage of Boating Law Administrators gave responses relating to education: 28% of Boating Law Administrators said “increase education” (the most common response for that group). Education Coordinators were asked about *education* efforts or actions to improve safety. Their top two responses were “mandatory boating safety education to include more groups/all boaters” (at 19%, the most common response among that group) and “increase education” (17%) (Figures 2.4 and 2.5).

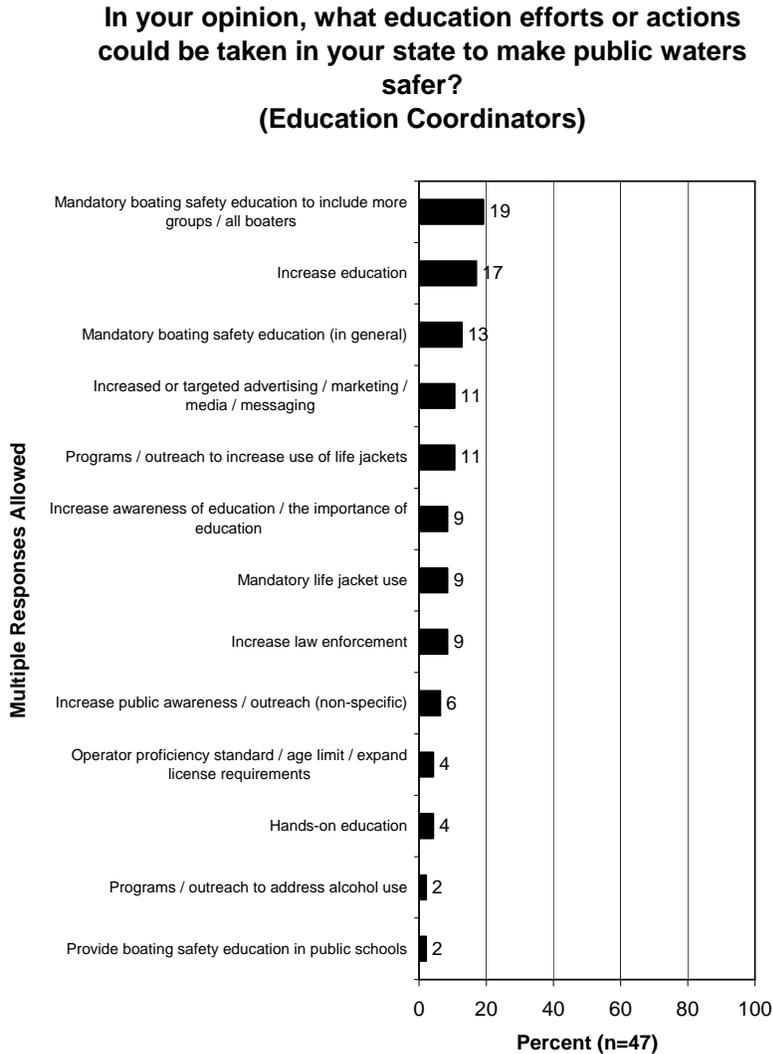
In addition to the above, many of the other responses from the two groups of professionals regarding ways to improve safety on public waters were related to or associated with education efforts: the other most common responses from Boating Law Administrators were “increase public awareness/outreach” (21%) and “mandatory boating safety education” (21%), while Education Coordinators said “mandatory boating safety education (in general)” (13%), “increased or targeted advertising” (11%), “programs/outreach to increase the use of life jackets” (11%), and “increase awareness of education/the importance of education” (9%).

**Figure 2.4. Actions to Make Public Waters Safer (Boating Law Administrators)**

**In your opinion, what actions could be taken in your state to make public waters safer?  
(Boating Law Administrators)**



**Figure 2.5. Actions to Make Public Waters Safer (Education Coordinators)**



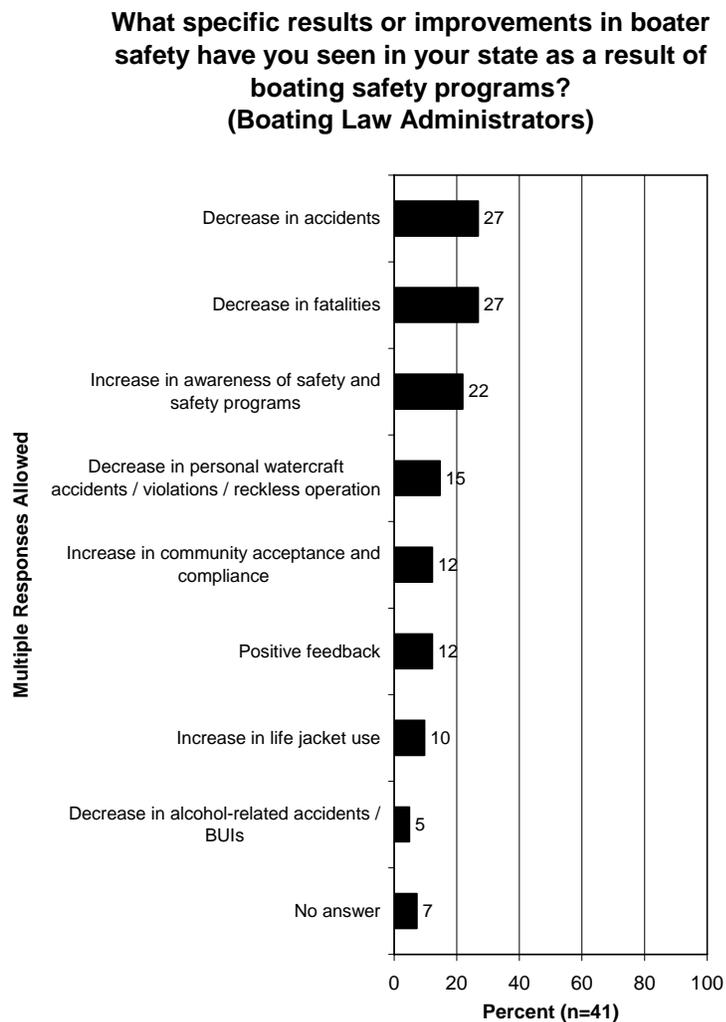
**EFFECTIVENESS OF BOATING SAFETY EDUCATION PROGRAMS AND PERCEIVED IMPROVEMENTS IN SAFETY**

The interviews with boating safety professionals attempted to measure the two groups’ opinions on the effectiveness of their state’s boating safety programs and any perceived improvements in safety as a result of such programs. First, the survey asked respondents to rate the boating safety programs in their state as being *very*, *somewhat*, or *not at all* effective, and most professionals appeared relatively confident about the effectiveness of their state’s programs: no Boating Law Administrators or Education Coordinators described their state’s boating safety programs as *not at all* effective. Indeed, a majority of Boating Law Administrators (51%) rated their state’s

boating safety programs as *very* effective (while the remainder gave a *somewhat* effective rating), and 40% of Education Coordinators rated their state's boating safety programs as *very* effective (while, again, the remainder gave a *somewhat* effective rating).

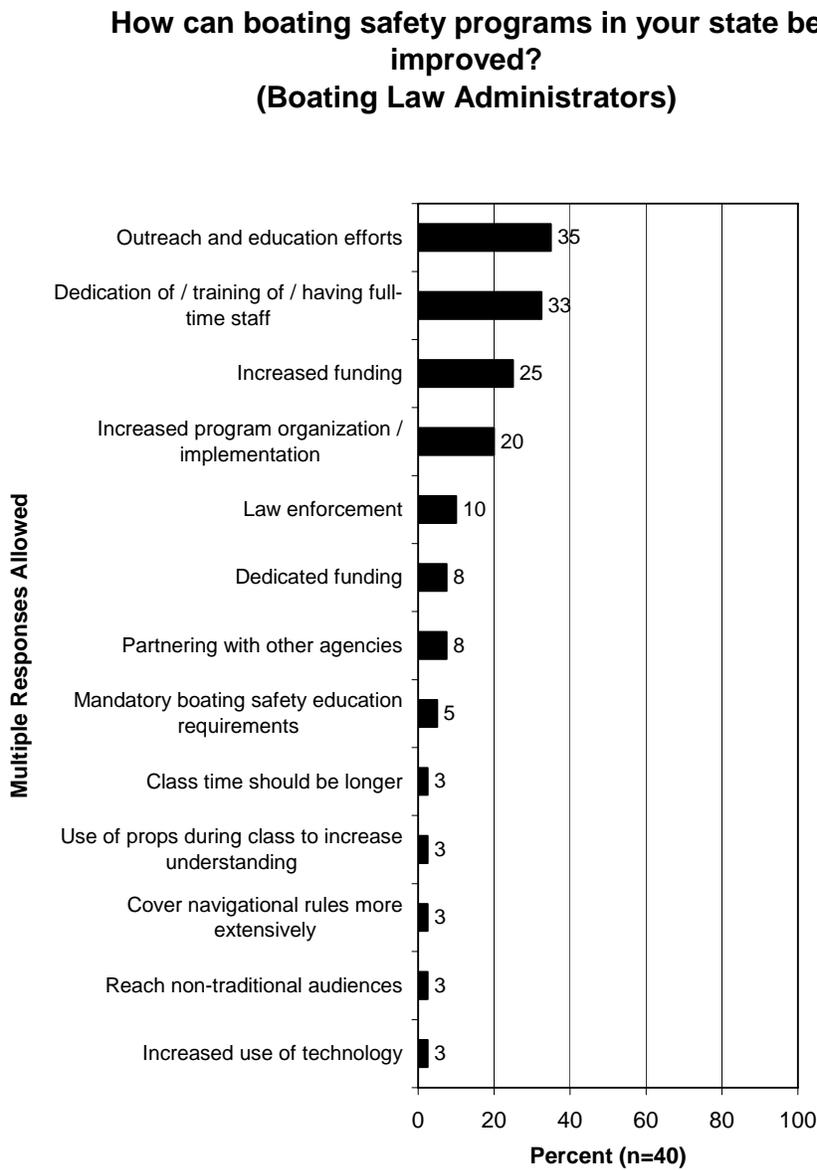
A follow-up question measured Boating Law Administrators' perceptions of results and/or improvements in safety as a result of their state's boating safety programs. On this topic, Boating Law Administrators most commonly point to decreases in accidents in general (27%) and decreases in fatalities (27%) as the top results and/or improvements, as well as general increases in awareness of safety and safety programs (22%) (Figure 2.6).

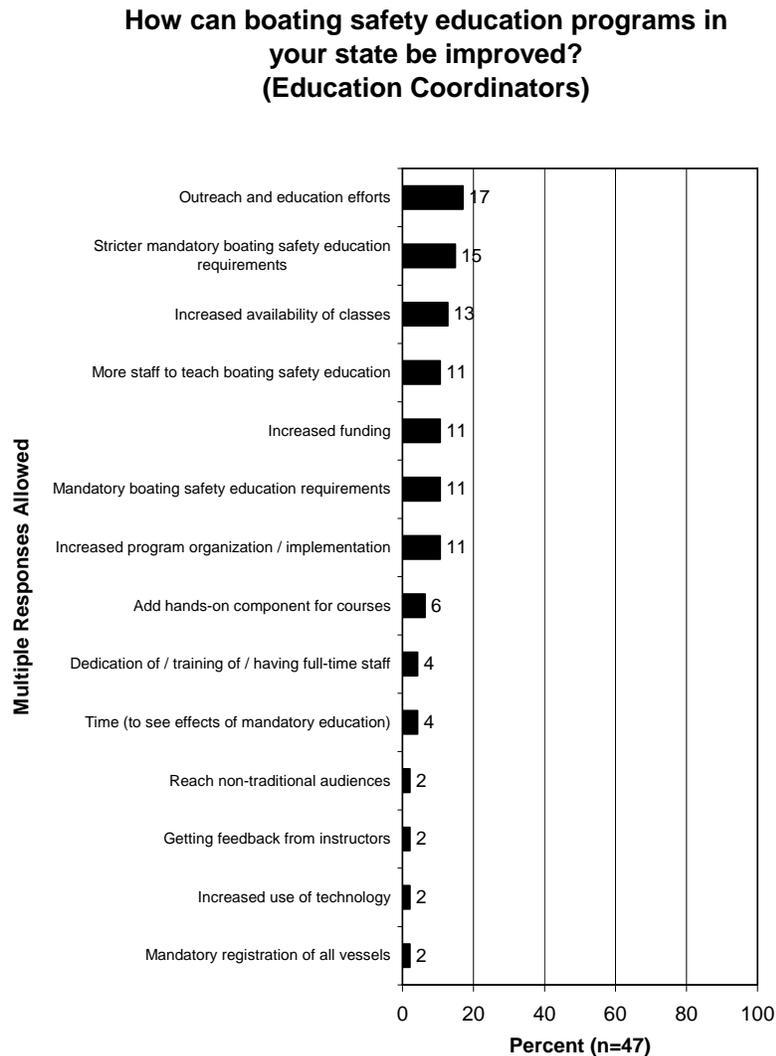
**Figure 2.6. Results or Improvements in Boater Safety as a Result of Boating Safety Programs (Boating Law Administrators)**



When asked how their state’s boating safety education programs can be improved, both Boating Law Administrators and Education Coordinators most commonly answered outreach and education efforts (35% of Boating Law Administrators and 17% of Education Coordinators gave this answer). A substantial number of Boating Law Administrators also said that programs could be improved by training/having full-time staff for programs (33%), increasing funding for programs (25%), and increasing the organization/implementation of programs (20%) (Figures 2.7 and 2.8).

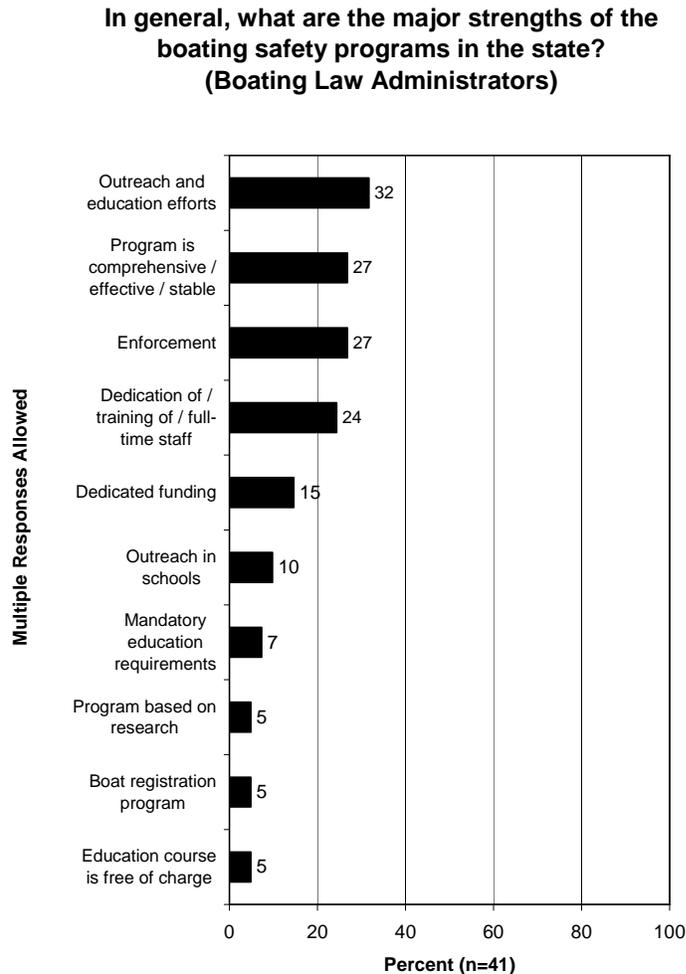
**Figure 2.7. Ways to Improve Boating Safety Programs (Boating Law Administrators)**



**Figure 2.8. Ways to Improve Boating Safety Programs (Education Coordinators)**

## **STRENGTHS AND WEAKNESSES OF BOATING SAFETY EDUCATION PROGRAMS**

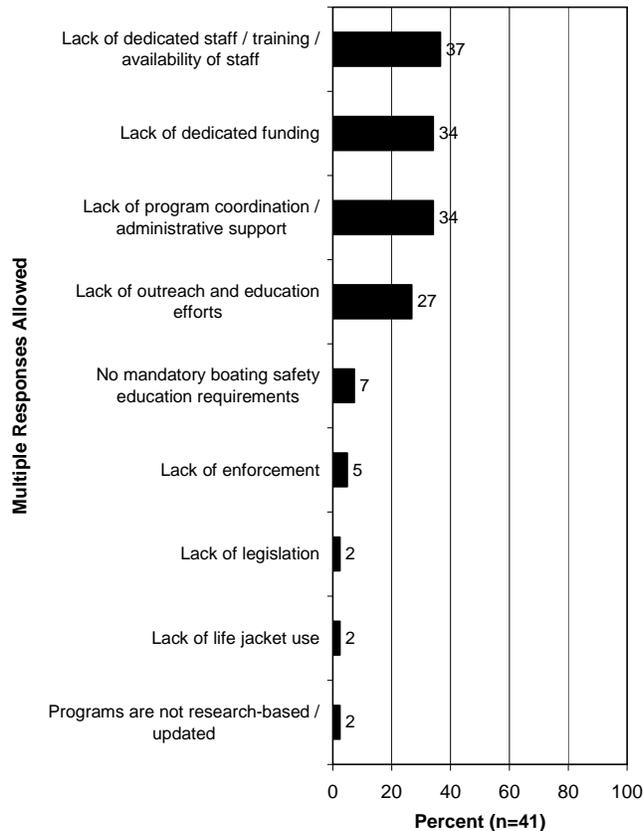
Boating Law Administrators were asked about the major strengths and weaknesses of their state's boating safety programs, and the most commonly named strength was outreach and education efforts (32% of Boating Law Administrators gave this answer), followed by the respondent indicating that his/her state's programs are generally comprehensive, effective, and stable (27%). Law enforcement (27%) and the dedication/training of program staff (24%) were also cited as program strengths (Figure 2.9).

**Figure 2.9. Major Strengths of Boating Safety Programs (Boating Law Administrators)**

Interestingly, several of the strengths named by Boating Law Administrators in the previous question turned up in responses among this group regarding program weaknesses: 37% of Boating Law Administrators named a lack of dedicated staff/training/availability of staff as a program weakness (the most common response), followed by a lack of dedicated funding (34%), a lack of program coordination/administrative support (34%), and a lack of outreach and education efforts (27%) (Figure 2.10). Such findings may simply reflect the fact that the characteristics of boating programs across the country differ considerably from state to state; for example, some state programs may employ effective outreach (in which case the respondent from that state likely indicated this in the question on program strengths), while other state programs may be lacking in this area (as demonstrated in the responses to the question on program weaknesses).

**Figure 2.10. Major Weaknesses of Boating Safety Programs (Boating Law Administrators)**

**In general, what are the major weaknesses of the boating safety programs in your state?  
(Boating Law Administrators)**

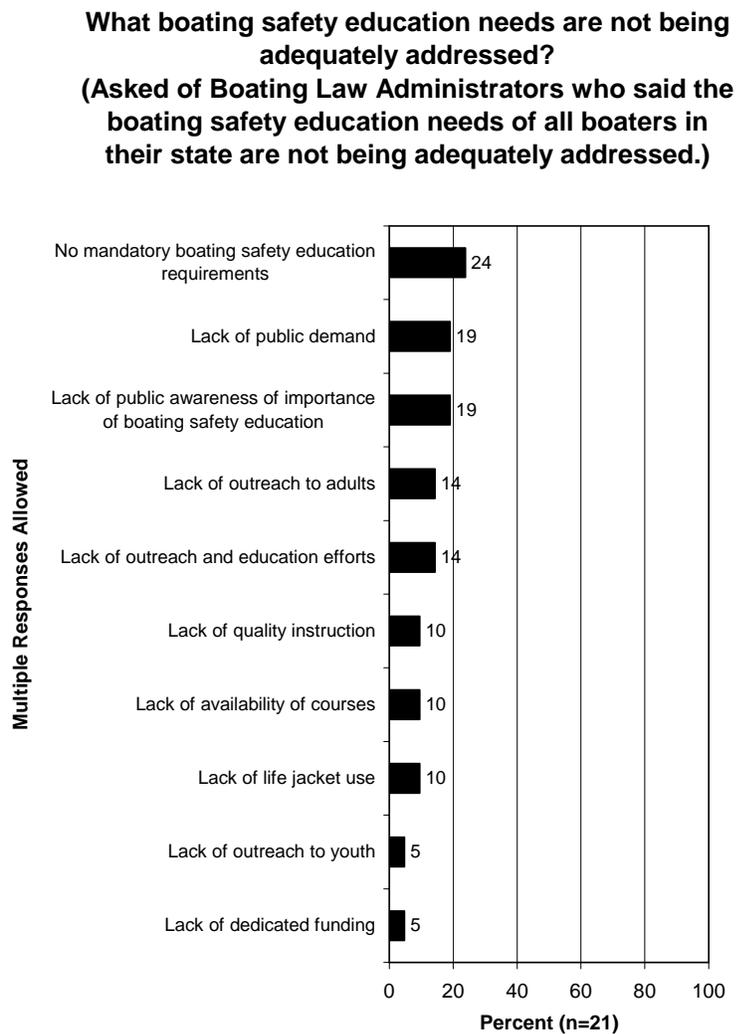


### **NEEDS OF BOATING SAFETY EDUCATION PROGRAMS**

The researchers examined boating safety professionals' perceptions of gaps or deficiencies in boating safety education programs. To this end, the survey found that Education Coordinators are more confident than are Boating Law Administrators that the boating safety education needs of all boaters in their states are being addressed: 64% of Education Coordinators said that all boaters' needs are being addressed by existing programs, while only 44% of Boating Law Administrators said the same.

Boating Law Administrators and Education Coordinators who said that *not* all boaters’ safety needs are being addressed were asked to describe the safety education needs that are not being addressed. Among Boating Law Administrators, the most commonly cited need was mandatory boating safety education requirements. They also noted a lack of public demand for boating safety education as well as the public’s lack of awareness of the importance of boating safety education (Figure 2.11).

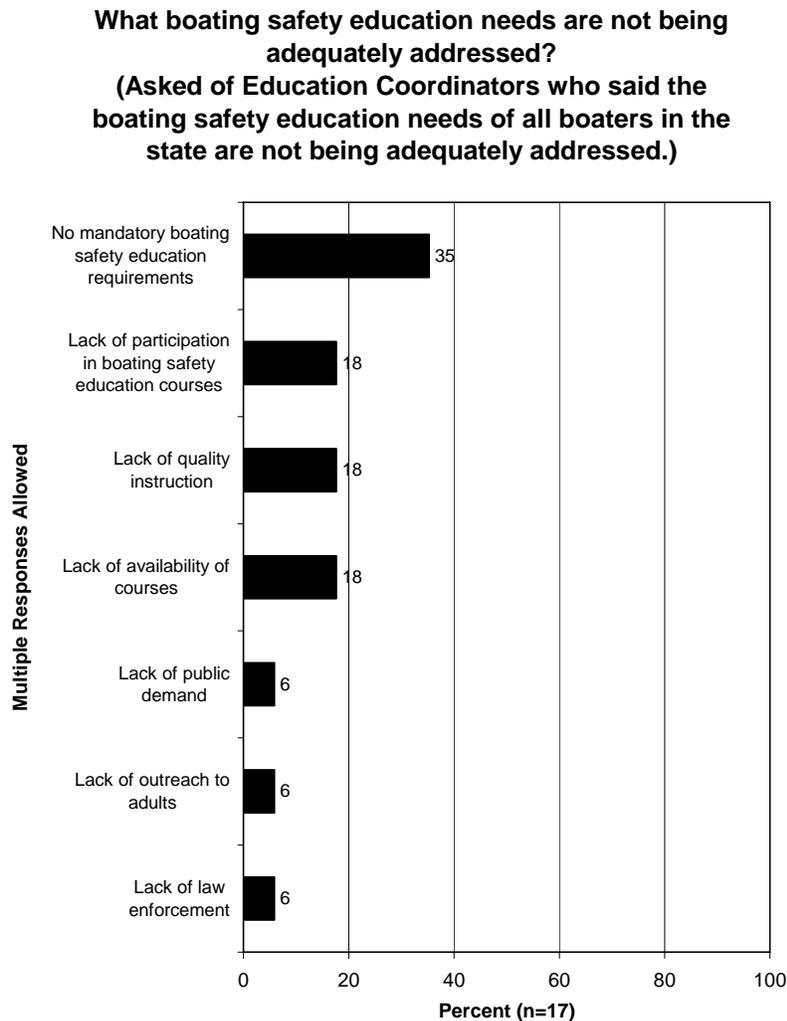
**Figure 2.11. Safety Education Needs Not Being Addressed (Boating Law Administrators)**



For their part, Education Coordinators who said that not all boaters’ safety needs are being addressed most commonly cited a lack of mandatory boating safety education requirements, a

lack of participation in boating safety education courses, a lack of quality instruction, and a lack of available courses as illustrative of the needs that are not being addressed by existing programs (Figure 2.12).

**Figure 2.12. Safety Education Needs Not Being Addressed (Education Coordinators)**



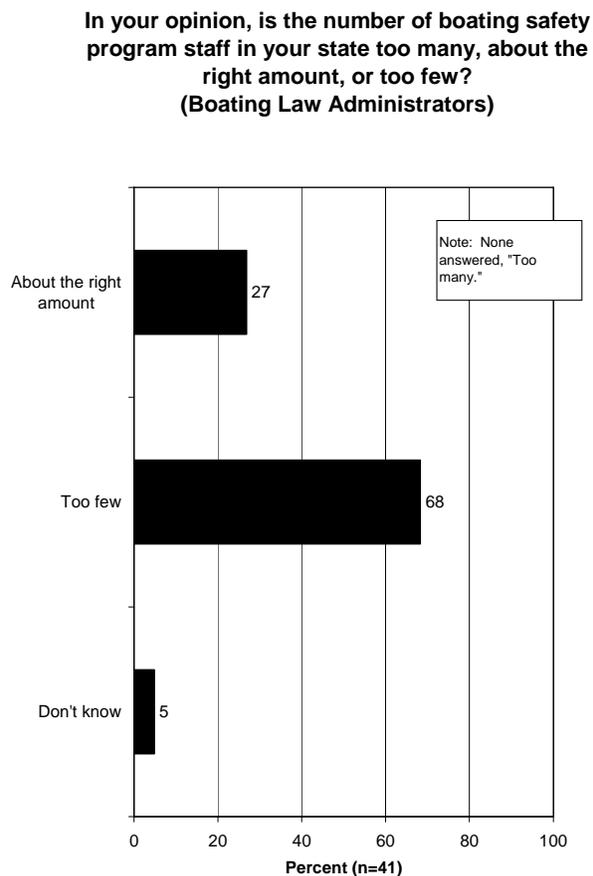
Note that the survey of owners of registered boats (discussed in the next chapter) found that less than a majority of registered boat owners have taken boating safety education, which perhaps accounts for the perception among many Education Coordinators that certain education needs are not being addressed. At the same time, however, the boat owner survey found that owners of registered boats are generally satisfied with the instruction they receive in boater safety courses,

and, in fact, reasons for dissatisfaction typically concern the *content* of a course rather than a lack of *quality instruction*.

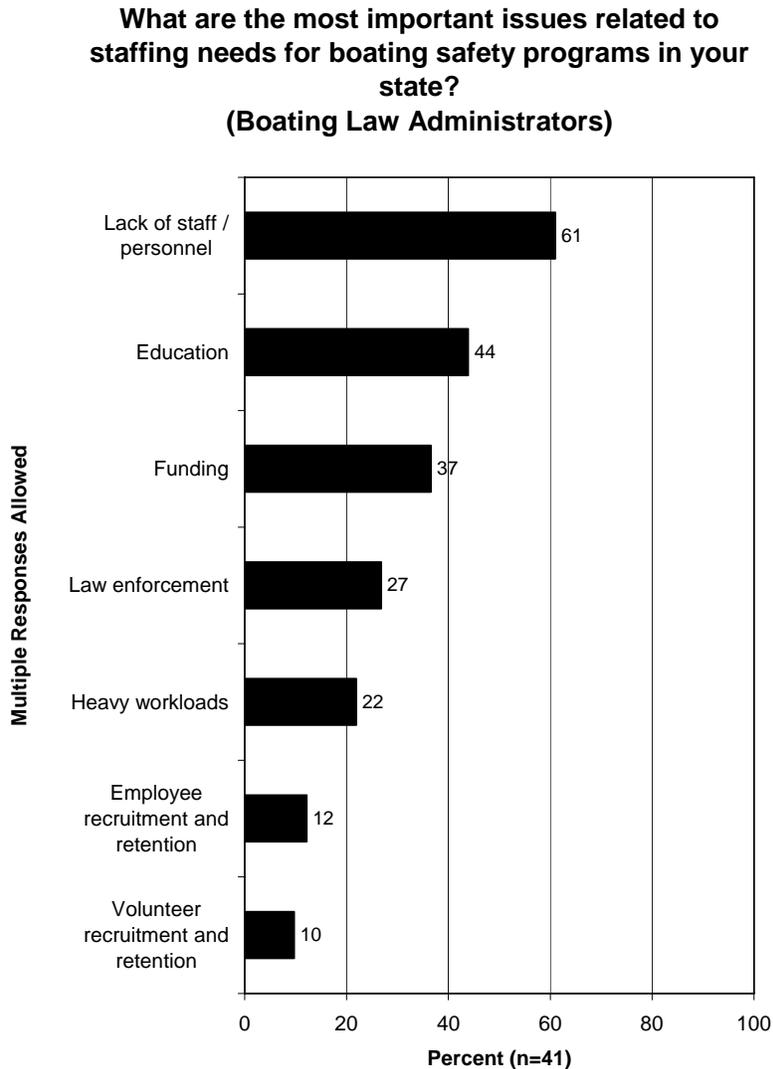
### STAFFING FOR BOATING SAFETY EDUCATION PROGRAMS

Boating Law Administrators were asked if the number of staff members currently available for their state's boating safety programs is too many, about the right amount, or too few, and the large majority (68%) said that there are too few boating safety program staff members in their state (none said the number of program staff is too many) (Figure 2.13). A follow-up question asked Boating Law Administrators about the most important issues related to staffing needs, and the top responses were lack of staff in general (61%), education for staff (44%), and funding for staff (37%) (Figure 2.14), although note that all of these things appear to be related to funding availability.

**Figure 2.13. Opinions on Staffing for Boating Safety Programs (Boating Law Administrators)**



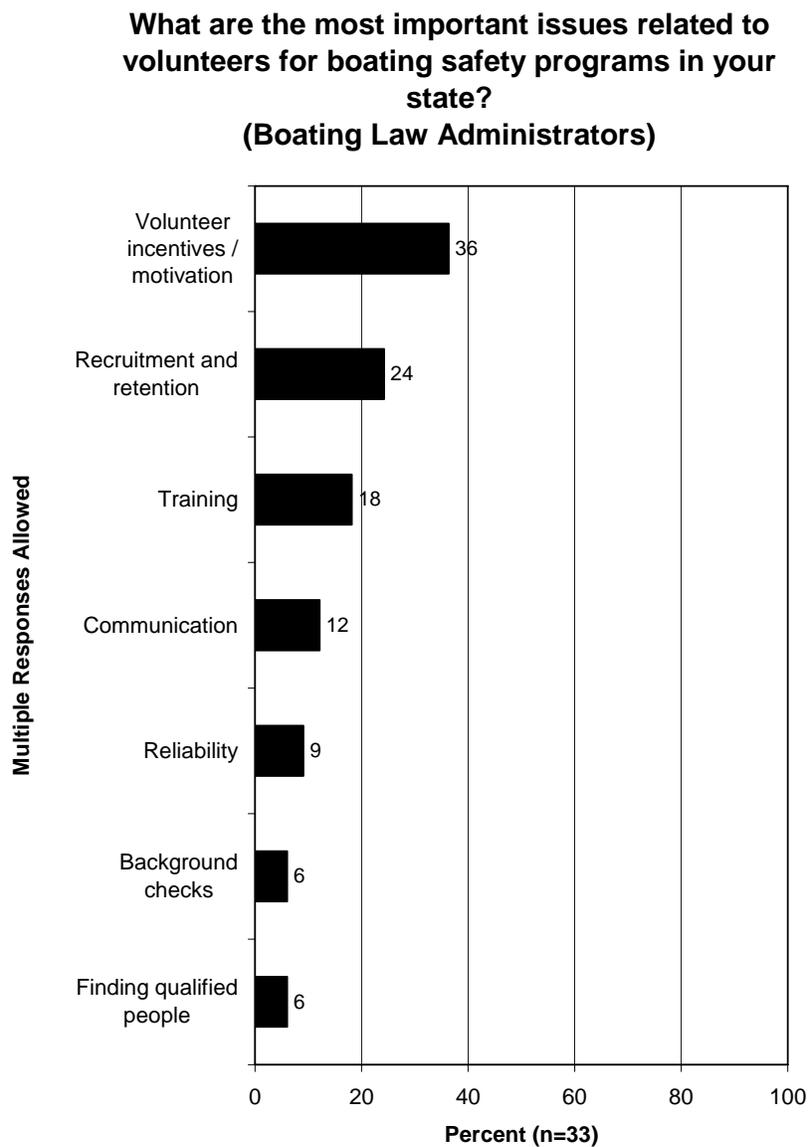
**Figure 2.14. Important Issues Related to Staffing for Boating Safety Programs (Boating Law Administrators)**



The vast majority of state boating education programs use volunteers: 80% of Boating Law Administrators and 89% of Education Coordinators said that their state programs use volunteers. Substantial percentages of volunteers for state boating safety programs are recruited through the Coast Guard Auxiliary (the most commonly named source of recruitment according to Boating Law Administrators). Perhaps not surprisingly, education is the chief task with which volunteers assist, according to 91% of Boating Law Administrators and 100% of Education Coordinators. The interviewers asked respondents about the most important issues related to volunteers for boating safety programs, and many of the top issues appear to be related to maintaining a steady

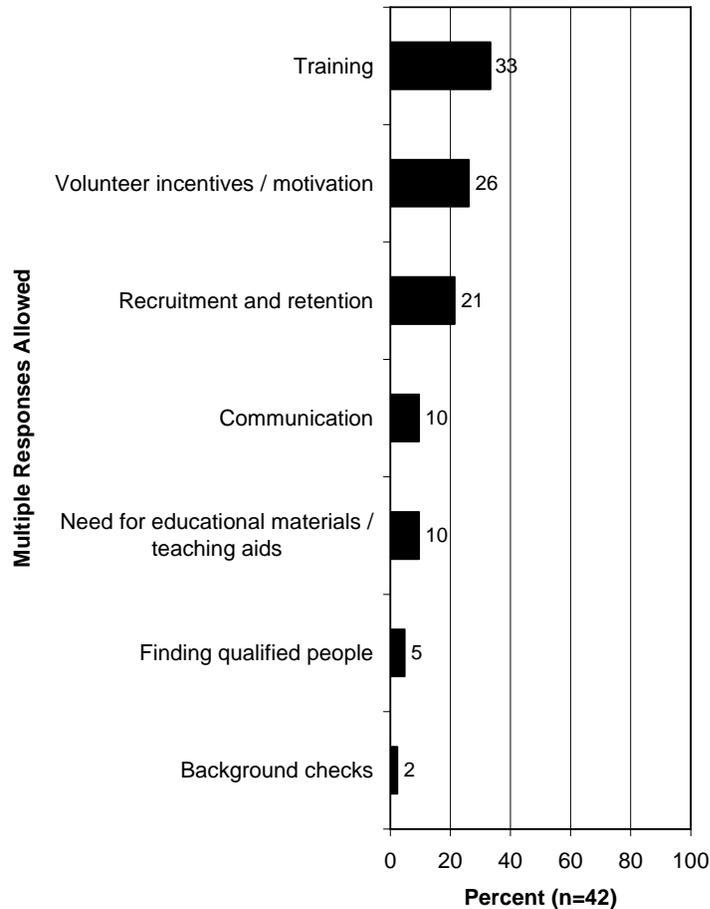
source of volunteer assistance for education efforts: volunteer incentives/motivation (36%), recruitment and retention (24%), and training (18%) are among the top volunteer issues according to Boating Law Administrators (Figure 2.15), while training (33%), volunteer incentives/motivation (26%), and recruitment and retention (21%) are the top volunteer issues as indicated by Education Coordinators (Figure 2.16).

**Figure 2.15. Important Issues Related to Volunteers for Boating Safety Programs (Boating Law Administrators)**



**Figure 2.16. Important Issues Related to Volunteers for Boating Safety Programs (Education Coordinators)**

**What are the most important issues related to volunteers for boating safety education programs in your state?  
(Asked of Education Coordinators who said the boating safety education programs in their state use volunteers.)**

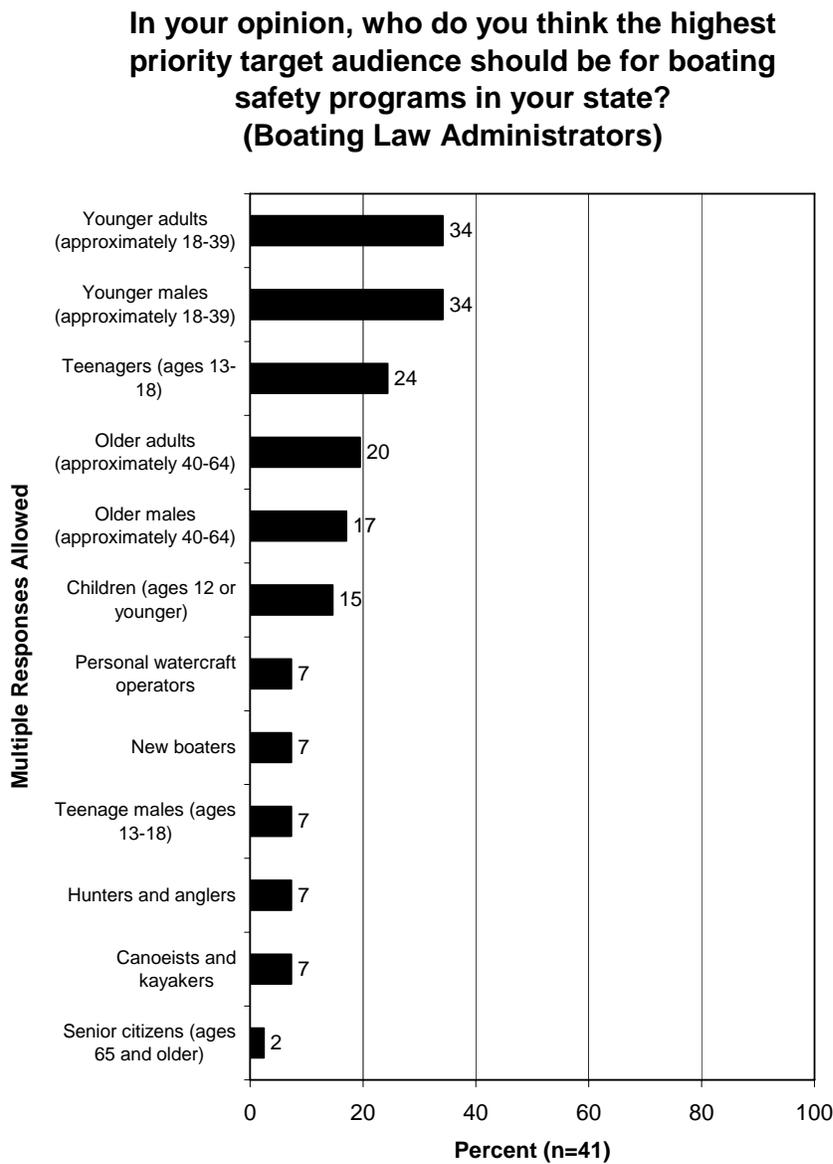


### **TARGET AUDIENCES FOR BOATING SAFETY EDUCATION PROGRAMS**

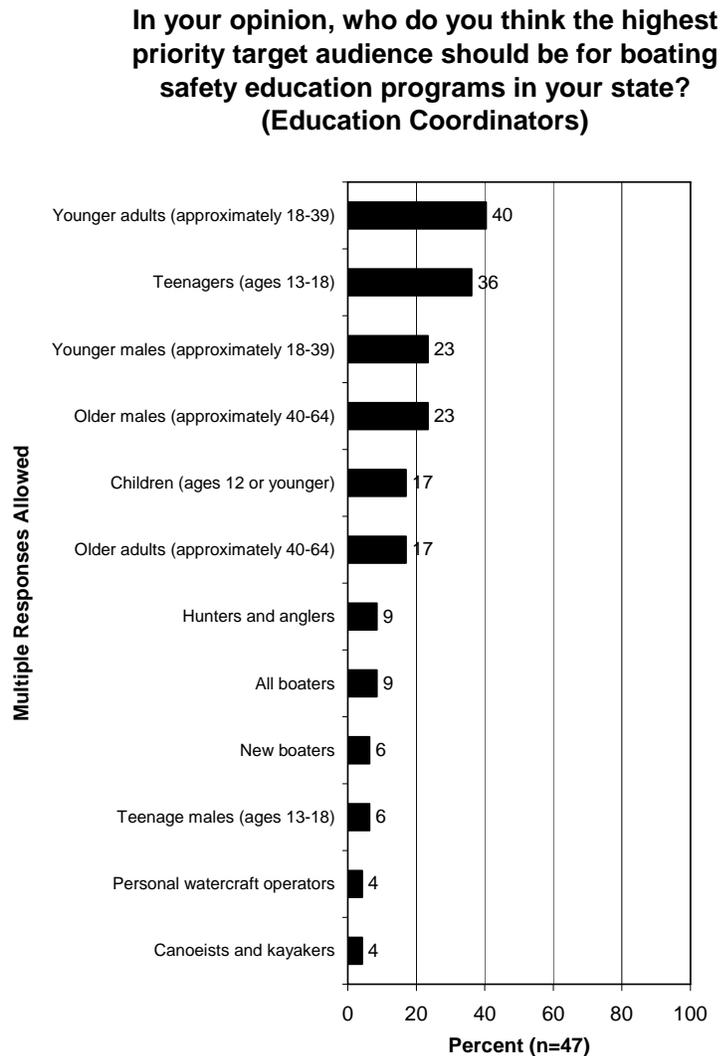
Boating Law Administrators and Education Coordinators were asked who they thought were the most important audiences to target for boating safety education programs, and, in general, males of all ages, younger people, and teenagers were the top target groups for boating safety education. Boating Law Administrators most commonly said younger adults (approximately 18-39 years old) (34%), younger adult males (approximately 18-39 years old) (34%), teenagers

(24%), and older adults (approximately 40-64 years old) (20%) as being the most important audiences for safety education (Figure 2.17). Meanwhile, Education Coordinators named younger adults (approximately 18-39 years old) (40%), teenagers (36%), younger adult males (approximately 18-39 years old) (23%), and older males (approximately 40-64 years old) (23%) (Figure 2.18).

**Figure 2.17. Highest Priority Target Audiences for Boating Safety Programs (Boating Law Administrators)**



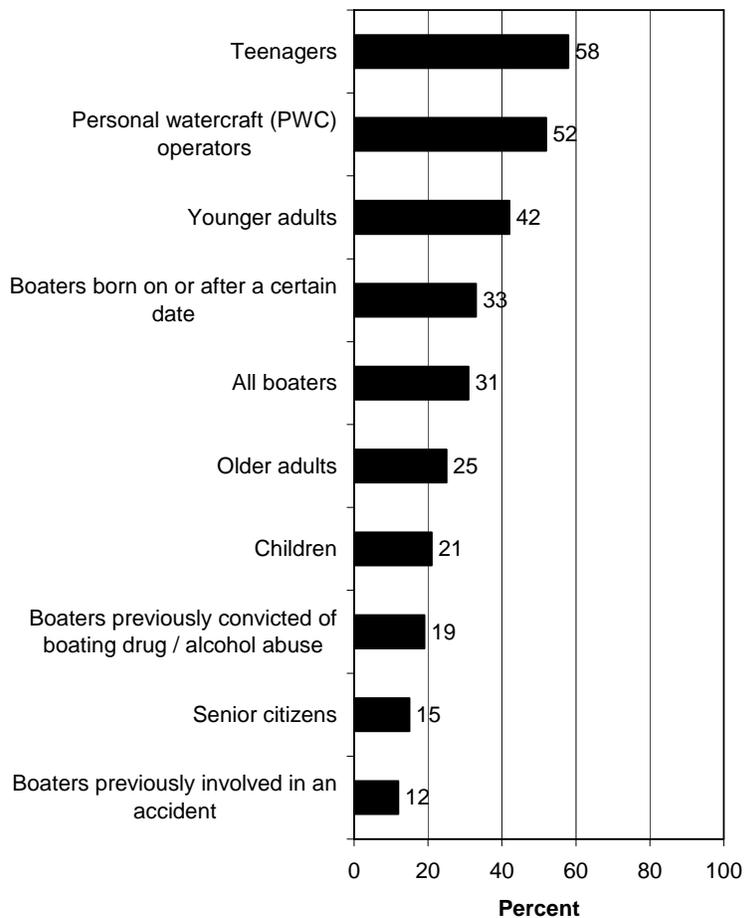
**Figure 2.18. Highest Priority Target Audiences for Boating Safety Programs (Education Coordinators)**



Education Coordinators were asked a series of follow-up questions to assess the degree to which certain groups of boaters are currently targeted for safety education (the previous questions asked about how much they *should* be targeted): teenagers (58%), personal watercraft operators (52%), and younger adults (42%) are at the top of the list of those boaters currently targeted *a great deal*. Additionally, between a third and a fifth of Education Coordinators say that the following groups are currently targeted *a great deal* for boating safety education: boaters born on or after a certain date (33%), “all boaters” (31%), older adults (25%), and children (21%) (Figure 2.19).

**Figure 2.19. Groups Currently Targeted a Great Deal for Boating Safety Education Programs (Education Coordinators)**

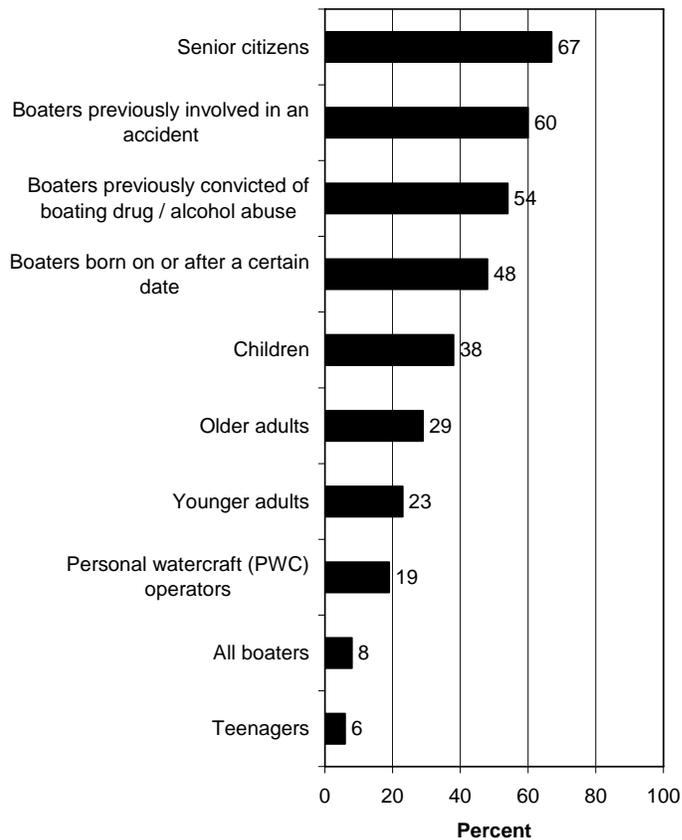
**Percent who indicated the following audiences or markets are currently targeted a great deal for boating safety education programs in their state. (Education Coordinators)**



On the other hand, a majority of Education Coordinators said that the following groups are targeted only *a little* or *not at all* for boating safety education: senior citizens (67%), boaters previously involved in an accident (60%), and boaters previously convicted of boating drug/alcohol abuse (54%). Boaters born on or after a certain date (48%) and children (38%) are also among those groups currently targeted *a little* or *not at all* for boating safety education (Figure 2.20).

**Figure 2.20. Groups Currently Targeted a Little or Not at All for Boating Safety Education Programs (Education Coordinators)**

**Percent who indicated the following audiences or markets are currently targeted a little or not at all for boating safety education programs in their state.  
(Education Coordinators)**



Regarding the portion of boaters in their state who have completed a boating safety education course, 47% of Education Coordinators gave an answer in the range of 1 to 25 percent when asked what percentage of their state's registered boaters have completed a course. A sizeable percentage of Education Coordinators (32%) were unsure regarding the proportion of boaters in their state with boating safety education.

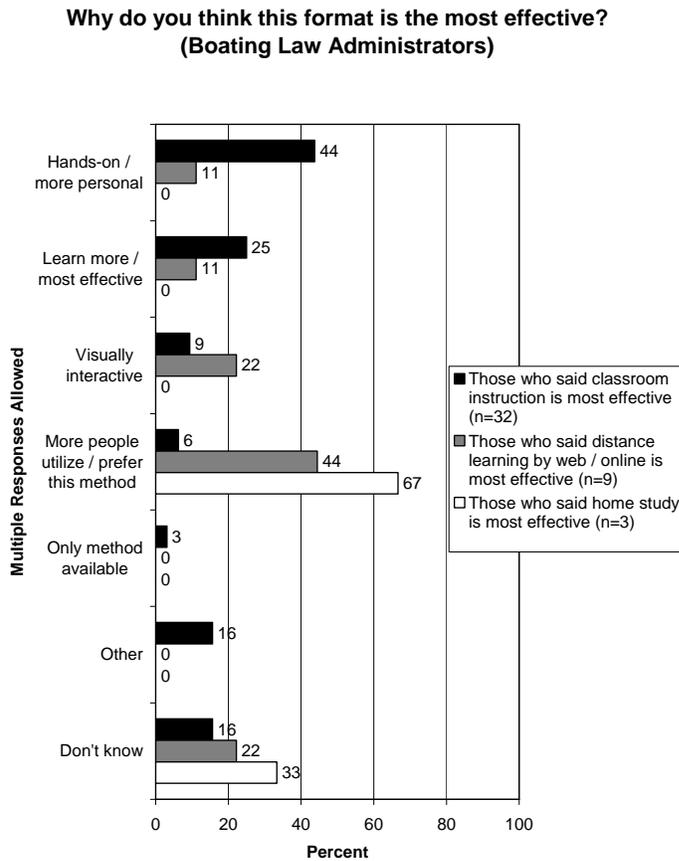
### **BOATING SAFETY EDUCATION PROGRAM FORMATS AND TOPICS**

Boating Law Administrators and Education Coordinators were asked some questions about the different formats and topics for state boating safety education courses. Education Coordinators

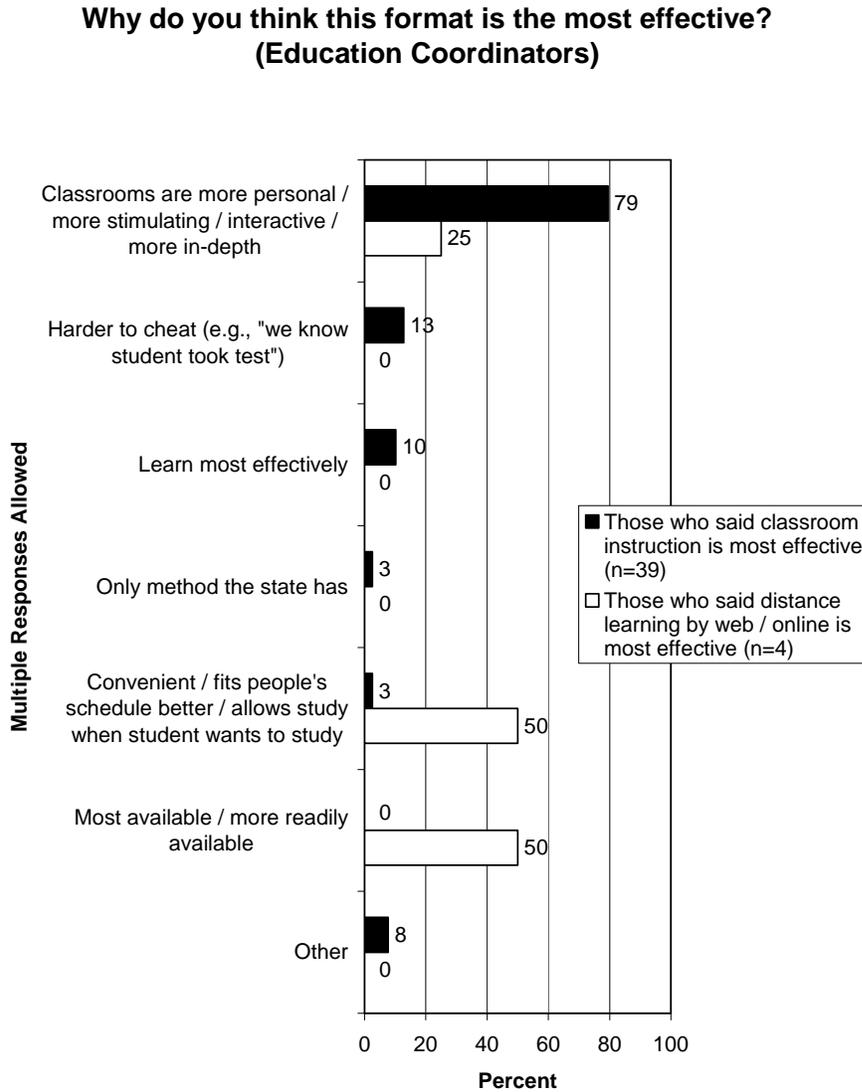
report that a substantial percentage of boating safety education courses are completed in the classroom, while comparatively fewer courses are completed online or through distance learning/home study.

Overwhelming majorities of Boating Law Administrators (78%) and Education Coordinators (83%) believe that the classroom format is the most effective for increasing safe boating; Boating Law Administrators and Education Coordinators say that the classroom format is hands-on, personal, interactive, and stimulating in ways that online/distance learning courses are not. On the other hand, those who say that home study or online formats are the most effective generally point to factors of convenience and that home study/online formats have the ability to reach potentially large numbers of boaters (Figures 2.21 and 2.22).

**Figure 2.21. Reasons for Effectiveness of Boater Safety Education Course Format (Boating Law Administrators)**



**Figure 2.22 Reasons for Effectiveness of Boater Safety Education Course Format (Education Coordinators)**



Boating Law Administrators and Education Coordinators generally appear satisfied with the current standard topics for NASBLA-approved courses. There are no obvious omissions or needs for additional topics or information related to boater safety, although a few respondents mentioned increasing the availability of state-specific information and topics for paddlers or non-motorized users.

## **RECIPROCITY IN BOATING SAFETY CERTIFICATION**

Nearly all states accept proof of boating safety education from another state for visiting boaters, and nearly all Boating Law Administrators and Education Coordinators strongly support this practice on the grounds that NASBLA-approved courses are standard in all states and that, in most cases, the completion of a boating safety course indicates some degree of boater competence.

Most states also currently accept proof of boating safety education from another state for new residents, for much the same reasons as described above. As before, both Boating Law Administrators and Education Coordinators tend to be strongly supportive of this practice.

## **CHAPTER 3: ATTITUDES OF OWNERS OF REGISTERED BOATS TOWARD BOATING SAFETY EDUCATION PROGRAMS**

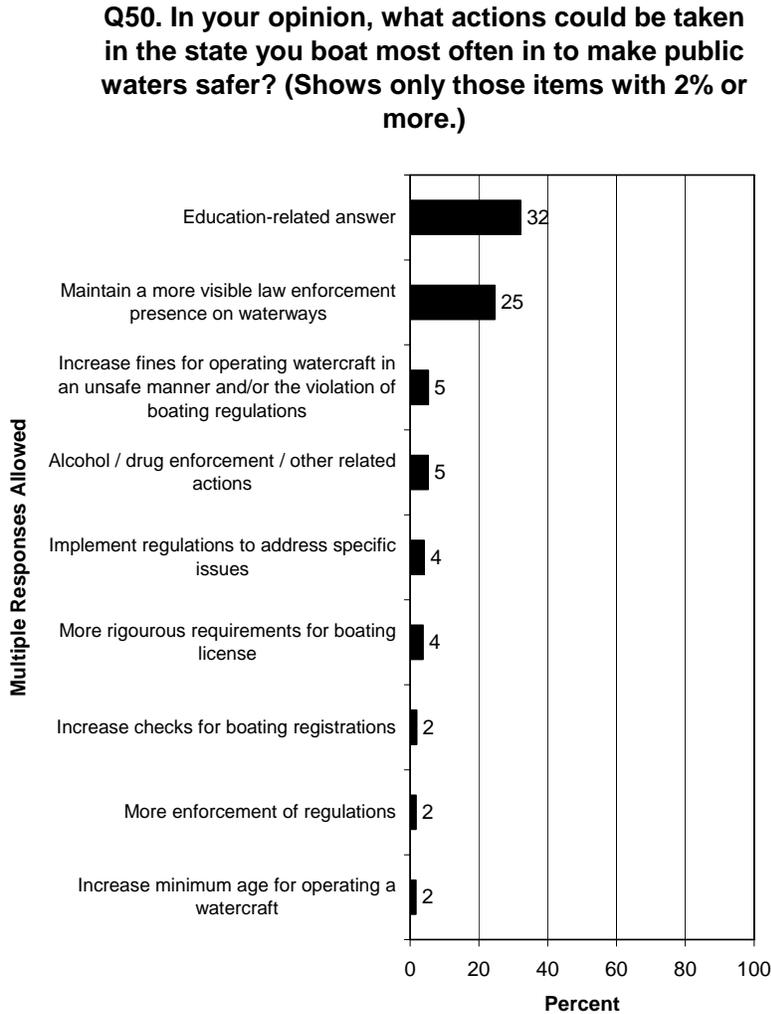
This chapter discusses the results of a telephone survey and focus groups of owners of registered boats. The telephone survey of owners of registered boats covered many aspects of boating safety in general and boating safety education in particular. The entire findings of this survey are reported in the Phase II report that was produced as part of this project. The most pertinent findings—those findings that have important implications on boating safety education programs—are discussed here. This chapter first discusses the effectiveness of boating safety education and boating safety education programs and campaigns, then talks about the types of boats and behaviors targeted for education, motivations and disincentives for taking boating safety courses, awareness of providers of boating safety education and programs, attitudes toward mandatory education requirements, and opinions on state certification.

### **EFFECTIVENESS OF BOATING SAFETY EDUCATION AND VARIOUS BOATING SAFETY EDUCATION PROGRAMS**

Education was perceived as important to boating safety and was the most commonly named way to make boating safer. When asked in an open-ended question to indicate the actions that could be taken in their state to make public waters safer, owners of registered boats most commonly gave an education-related response (e.g., make education mandatory, provide more courses)—nearly a third (32%) gave that type of response, even more than the percentage who said that the way to make boating safer is to maintain a more visible law enforcement presence (25%) (Figure 3.1).

Focus group participants also placed a high value on education, with many emphasizing the importance of ensuring, through mandatory requirements, that new boaters receive safety education and training on the basic operation of boats. In the focus groups, those who had taken a boating safety course were generally more likely to support mandatory boating safety education, although this was not always the case, as several non-course takers were also supportive of such measures. Basic boat operation was seen as an extremely important topic for training and education courses (“the simple physics of what makes a boat turn and move,” as one participant said).

**Figure 3.1. Registered Boat Owners’ Opinions on Actions That Would Make Boating Safer**



*“People who can afford to buy a boat can do so without having to have any training. ... I wish it [a mandatory education requirement] would become more widespread.”*

– Boater who had taken a safety course

*“I think boating safety courses should be required in all states. In Florida, you have to take a safety course and receive a card before you can boat. Too many people have no understanding of how dangerous boating can be; they think it’s all recreational, all fun, and they don’t understand the impact on other people.”*

– Boater who had taken a safety course

*“I believe that education should be required for boaters just as it should be for any vehicle used in a public venue, so I’m all for it from an education standpoint and a safety standpoint.”*

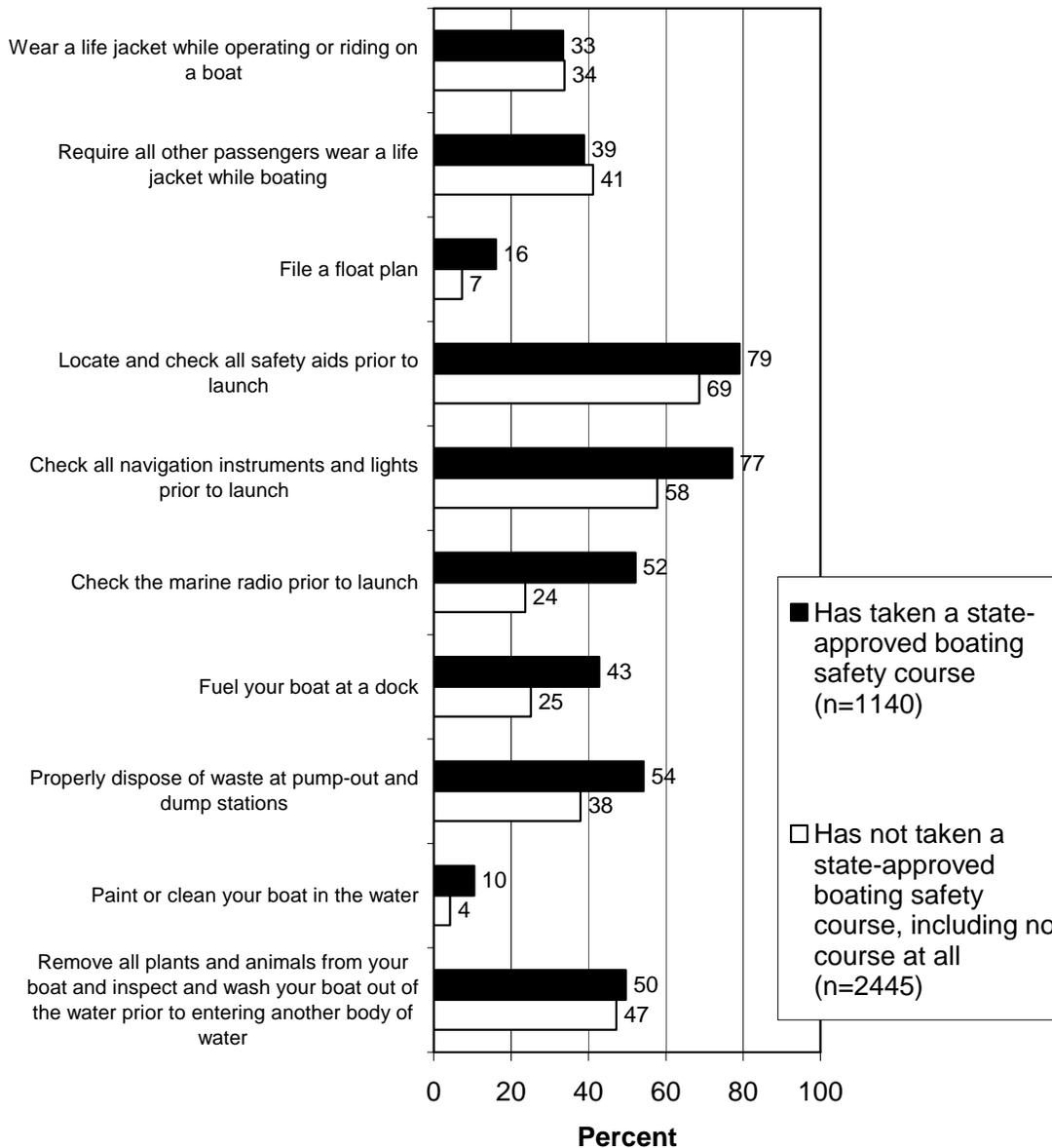
– Boater who had taken a safety course

In addition to exploring perceptions of the effectiveness of boating safety education, the survey also explored self-reported boater behavior as it relates to boating safety education. The telephone survey of owners of registered boats suggests that boating safety education is, for the most part, correlated with better behavior (based on respondents' reports of how often they practice the behaviors). The interviewers asked all owners of registered boats about their boating behaviors. Among those who took a boating safety course, the survey first asked about their behaviors *before* taking a course. The interviewers then asked about boaters' behaviors *after* taking a course (note that the respondents were *not* made aware that this comparison was going to be made when they were first asked about their behaviors so as to not bias their answers). Those boat owners without any boating safety education at all were also asked about their behaviors. This allowed two comparisons to be made: a comparison of behaviors among those who have taken a state-approved certification boating safety course versus those who have not (to include both those who took a course that was *not* state-approved and those who took *no course at all*), and a comparison of behaviors before a state-approved certification boating safety course versus after such a course (among those who took a state-approved course).

The comparisons of self-reported behavior suggest that boating safety education produces better subsequent behaviors in some aspects of boating safety. Put simply, boaters say that they more commonly do many of the things they *should* do after taking boating safety education. Specifically, as shown in Figure 3.2, for most behaviors, those who have taken a state-approved certification boating safety course practice the behavior "always" more often than do those who have *not* had state-approved boating safety education, particularly filing a float plan, checking navigation instruments and lights prior to launch, checking the marine radio prior to launch, fueling the boat at a dock, and properly disposing of waste. A comparison of behaviors before and after a course also demonstrates that safer behavior (albeit, self-reported behavior) is correlated with taking boating safety education, especially checking the safety aids prior to launch, checking navigation instruments and lights prior to launch, and checking the marine radio prior to launch (Figure 3.3).

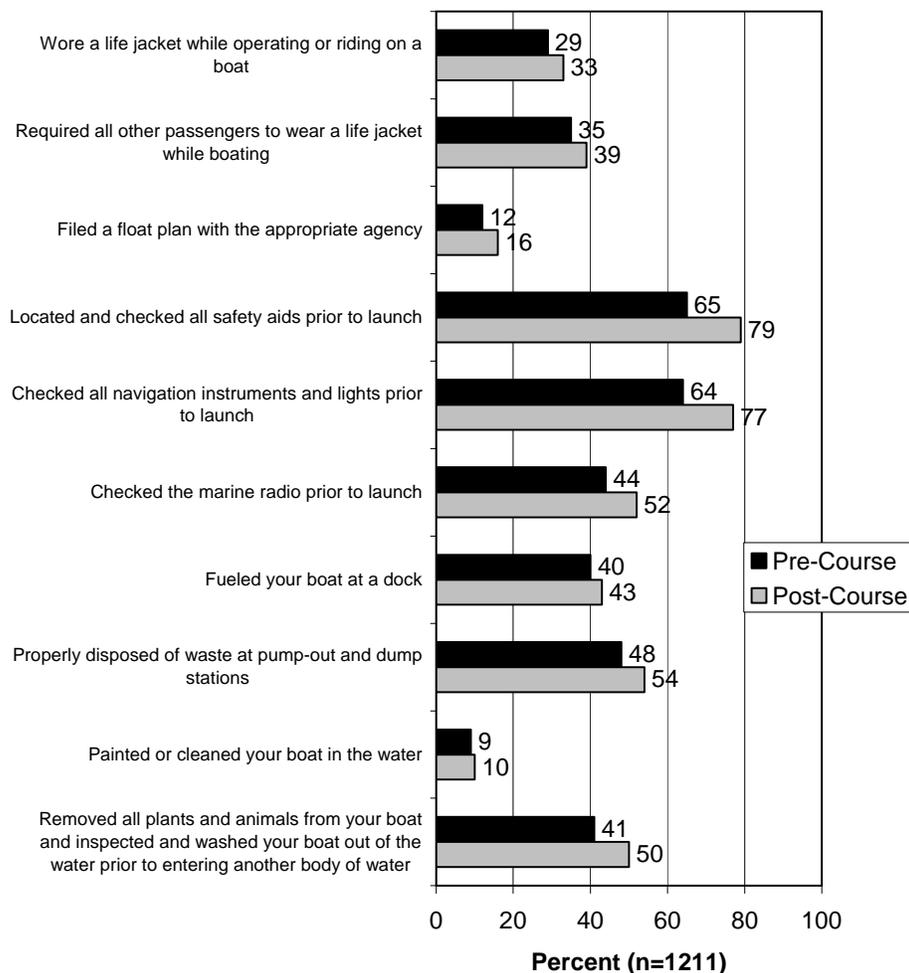
**Figure 3.2. Comparison of Registered Boat Owners’ Behaviors Among Those With State-Certified Boating Safety Education and Those Without**

**Q149-158/Q161-170. Percent who engage in the following behaviors always.**



**Figure 3.3. Comparison of Registered Boat Owners' Behaviors Before and After Taking State-Certified Boating Safety Education**

**Q136-145/Q149-Q158. Percent who always participated in the following before/after taking the most recent boating safety education course he/she completed. (Asked of those who have taken at least one state-approved certification course.)**



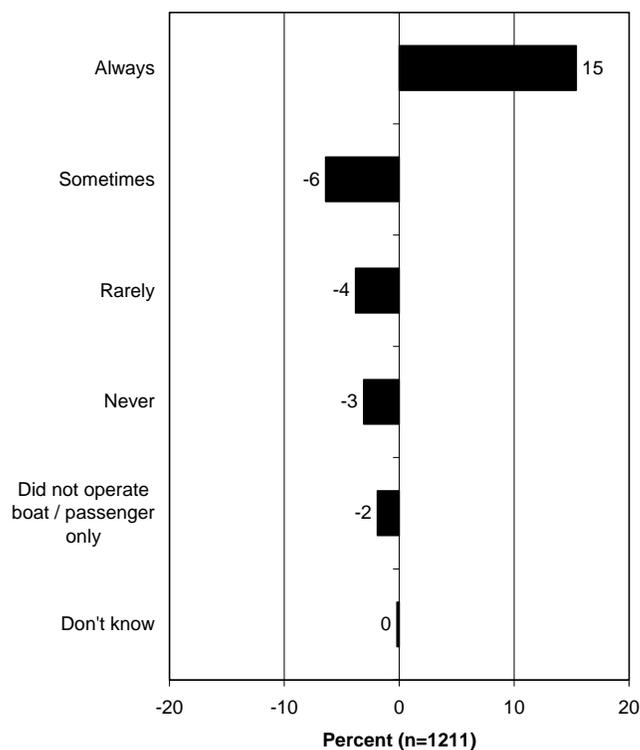
Note that the Phase II report also shows graphs for each behavior individually among course participants. An examination of the behaviors individually also shows that boating safety education appears to encourage better behavior. The behavior of “checking all navigation instruments and lights prior to launch” is a good example. The analysis looked at the change in the percentage of boaters who gave certain answers regarding the frequency that they practiced the behavior before taking a boating safety course and after (Figure 3.4). In this analysis, the

percentage who said that they practiced this always *after* the course exceeded (by 15 percentage points) the percentage who said that they did this always *before* the course (i.e., the percentage responding with *always* increased by 15 percentage points pre-course to post-course).

### Figure 3.4. Frequency of Checking Navigation Instruments and Lights Before and After a Boating Safety Course

Q140/Q153. Checked all navigation instruments and lights prior to launch.

Reported percentage point difference between pre-course and post-course boating behavior (only among those who took a state-approved certification course).



Additionally, several boaters in the focus groups reported that the boating safety courses in which they had participated had improved their awareness of and confidence with issues involving “rules of the road”; their recognition of channel markers, buoys, and boat markings; and their ability to navigate through commercial traffic.

*“I probably use the information on the buoys and channel markers the most. Dealing with commercial traffic—those were the things I felt I knew the least about, so I paid the most attention to them.”*

– Boater who had taken a safety course

*“We’ve got a small lake out here with a lot of boaters on it. So distances and right-of-ways [were the things I used most from the course I took].”*

– Boater who had taken a safety course

*“Rules of the road and also laws and regulations, like knowing what’s acceptable and what’s not acceptable.”*

– Boater who had taken a safety course

*“Learning about boat markings—the markings we have around here are woefully inadequate, and I would take the kids around to see them. I also echo the right-of-way issues.”*

– Boater who had taken a safety course

U.S. Coast Guard boating accident statistics also suggest that boating education is valuable. In looking at vessels involved in accidents and injuries and deaths from accidents, a large percentage of all of these involve operators *without* boating safety education. As shown in Table 3.1, operators *without* boating safety education account for 44.0% of vessels in accidents, 41.2% of deaths, and 52.2% of injuries, compared to 25.7% of vessels, 13.7% of deaths, and 25.5% of injuries among operators with boating safety education. Note that those with unknown educational status make up the remainder. Although the remainder is substantial, it is unlikely that *all* those of unknown status would be in the same group (i.e., the “no education” group or the “has taken education” group); therefore, determining the status of the unknowns would not likely change the fact that those with no education are involved in more accidents, injuries, and fatalities than are those who have taken education. Nonetheless, this could be further explored in another study.

**Table 3.1. Boating Accidents, Injuries, and Deaths by Operator Education, 2007**

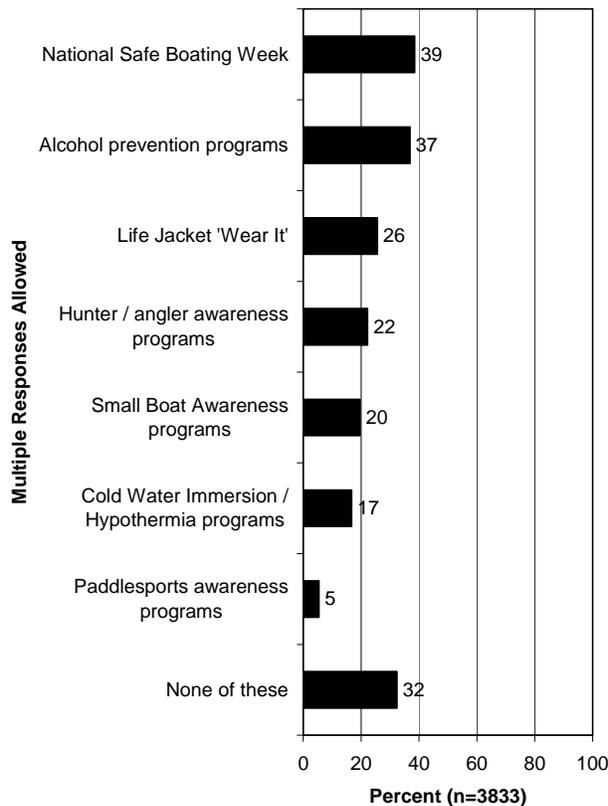
	Number of vessels	Number of deaths	Number of injuries	Percentage of vessels	Percentage of deaths	Percentage of injuries
No education	3,051	282	1,918	44.0	41.2	52.2
Unknown education	2,097	309	820	30.3	45.1	22.3
Has taken education	1,784	94	935	25.7	13.7	25.5
TOTAL	6,932	685	3,673			

Source: U.S. Coast Guard, *Recreational Boating Statistics 2007*

The survey also investigated the perceived effectiveness of seven boating safety programs or campaigns, some of which do not entail a boating safety course. The survey found that relatively high percentages of owners of registered boats have heard of National Safe Boating Week and alcohol-boating prevention programs, while a somewhat lower percentage have heard of the Life Jacket “Wear It” campaign (Figure 3.5). However, no program listed had a majority of boat owners saying that they had heard of it. In this regard, there is room for more outreach.

**Figure 3.5. Awareness of Boating Safety Programs**

**Q234. Next, I would like to know if you have heard about any of the following educational programs or campaigns?**

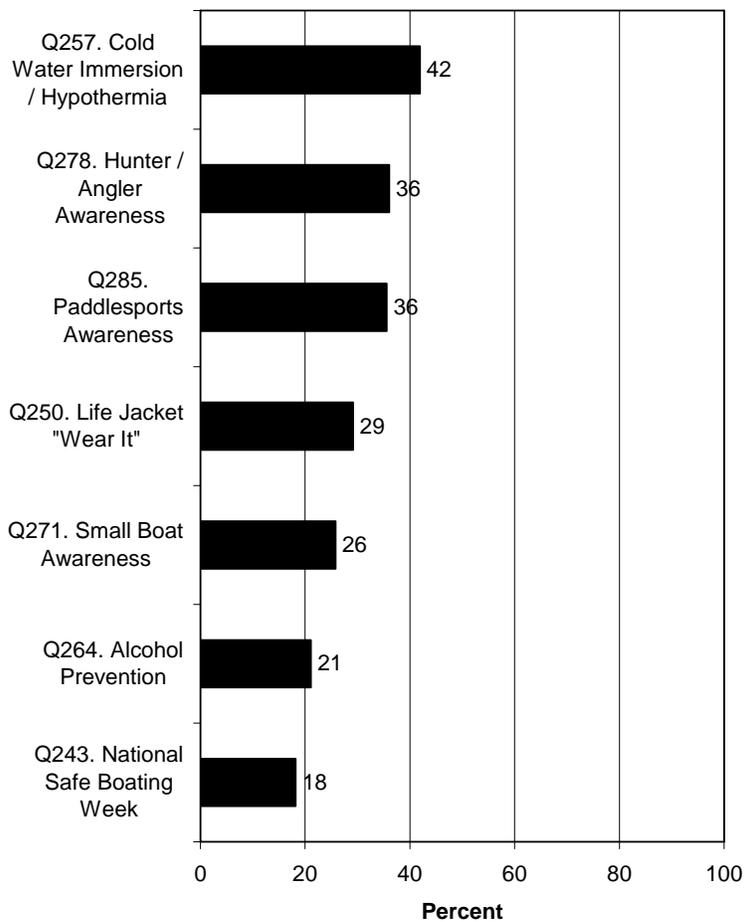


Unfortunately, follow-up questions found that the two programs of which boaters are most commonly aware—National Safe Boating Week and alcohol-related programs—are not considered by boaters to be highly effective (Figure 3.6). In particular, there is a common

perception that boating safety education is *not* having a marked positive effect on alcohol use (and abuse) among boaters—it is at the top of the ranking of programs perceived to be *not at all* effective (Figure 3.7).

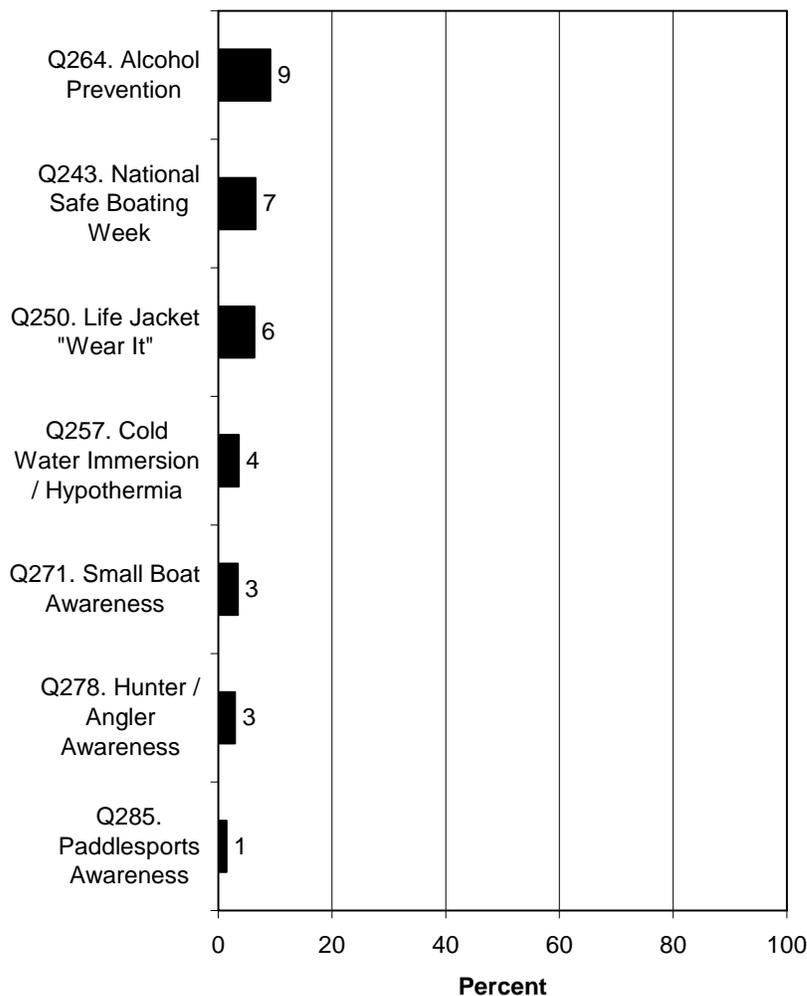
**Figure 3.6. Perceived Effectiveness of Boating Safety Programs**

**Q243, Q250, Q257, Q264, Q271, Q278, Q285.  
Percent saying that the following programs are  
very effective.  
(Of those who have heard of the program.)**



**Figure 3.7. Boating Safety Programs Considered Not At All Effective**

**Q243, Q250, Q257, Q264, Q271, Q278, Q285.**  
**Percent saying that the following programs are not at all effective.**  
**(Of those who have heard of the program.)**



Findings from the focus groups regarding awareness of boating safety programs and campaigns tended to echo the survey results above: small numbers of boaters had heard of National Safe Boating Week, the Life Jacket “Wear It” campaign, and various alcohol and general boating safety initiatives (such as those sponsored by state agencies and the Coast Guard Auxiliary), but most could not elaborate on the effectiveness of such programs. One exception was a boater who said that marine police had approached his vessel during National Safe Boating Week and

presented his kids with t-shirts as part of a “Caught wearing a PFD” campaign—this boater said the experience had been a memorable example of positive reinforcement.

*“One I’m familiar with is the Safe Boating Week, around May time. I was out on a lake, and the marine police pulled up beside us and we had all these kids wearing PFDs, and the marine police guy says, ‘You guys are caught.’ I’m thinking, ‘What the heck?’ And he hands all the kids t-shirts that say, ‘You were caught by the marine police wearing PFDs.’ And I thought that was absolutely cool. Positive reinforcement.”*

– Boater who had taken a safety course

*“We sponsor take-kids-boating or take-kids-sailing days. We don’t have PFDs for anyone under 90 pounds or so, but our local marina has provided PFDs for the smaller people we take out. There’s a big campaign down here to get people to go to the marina to get a loaner PFD if [they] don’t have one.”*

– Boater who had taken a safety course

*“You hear on the radio and see on TV the issues about float plans.”*

– Boater who had taken a safety course

*“I think the Coast Guard Auxiliary comes around and does inspections, such as for flares....”*

– Boater who had taken a safety course

*“Some of my son’s friends have taken courses, but I wouldn’t call [the courses] well publicized.”*

– Boater who had *not* taken a safety course

*“I’ve heard of National Safe Boating Week, but I’ve never actually participated in it. I’ve really seen no advertisements or billboards or anything for safe boating.”*

– Boater who had *not* taken a safety course

*“I’ve heard of our Game, Fish and Parks in South Dakota having advertisements relating to wearing life jackets and so forth.”*

– Boater who had *not* taken a safety course

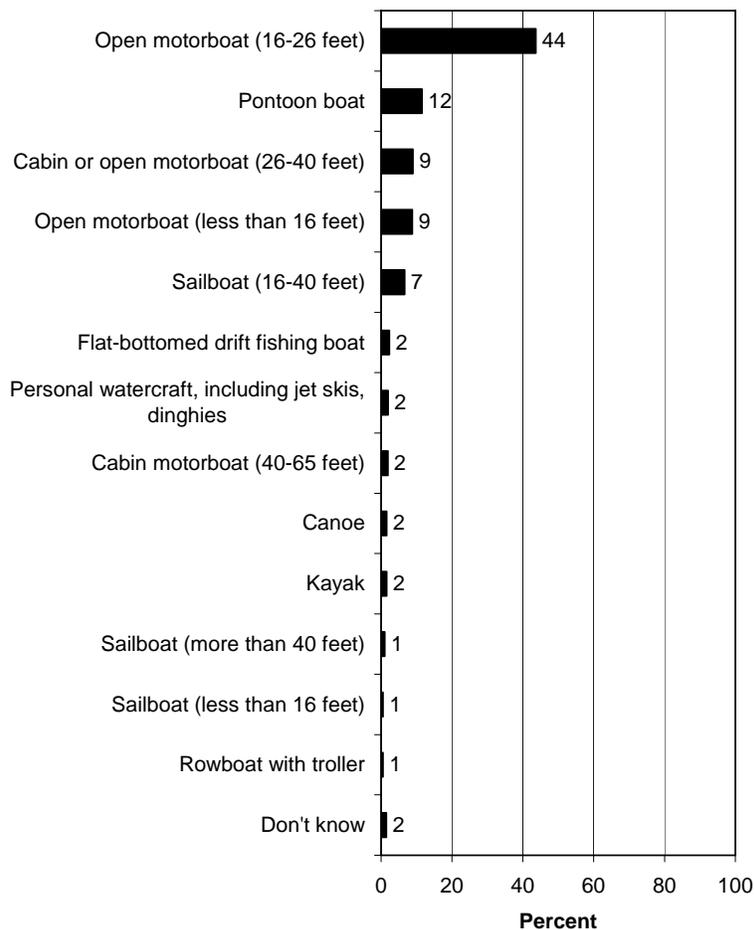
## **TYPES OF BOATS AND BOATERS ON WHICH TO FOCUS**

This section examines the types of boats most commonly used by owners of registered boats and the types of boats that predominate in accidents reported to the U.S. Coast Guard and that are in its boating accident database. The telephone survey found that the most commonly used boat types by owners of registered boats are open motorboats from 16 to 26 feet (44% of boat owners used this type the most), pontoon boats (12%), cabin or open motorboats of 26 to 40 feet (9%), open motorboats of less than 16 feet (9%), and sailboats of 16 to 40 feet (7%) (Figure 3.8).

Looking at cumulative totals, a slight majority (53%) most commonly use a motorboat of less than 26 feet; meanwhile, less than 10% primarily use a sailboat.

**Figure 3.8. Most Commonly Used Boat Types**

**Q37. What type of boat did you use most often in the past 12 months?**



It is also useful to review U.S. Coast Guard statistics on the types of boats involved in reported boating accidents. In looking at the vessel types with the most casualties, the list is led by open motorboats (334 deaths and 1,886 injuries in 2007), personal watercraft (67 deaths, 982 injuries), and cabin motorboats (53 deaths, 283 injuries) (Table 3.2). Together, these three types of boats

account for 83% of all vessels involved, 66% of all accidental boating deaths, and 86% of all injuries.

**Table 3.2. Boating Accidents, Injuries, and Deaths by Boat Type, 2007**

	Number of Vessels Involved	Deaths by Boat Type	Injuries by Boat Type	Percentage of Vessels Involved	Percentage of Deaths by Boat Type	Percentage of Injuries by Boat Type
Airboat	24	1	17	0.3	0.1	0.5
Auxiliary Sail	274	18	59	4.0	2.6	1.6
Cabin Motorboat	1,004	53	283	14.5	7.7	7.7
Canoe	104	71	59	1.5	10.4	1.6
Houseboat	101	6	39	1.5	0.9	1.1
Inflatable	18	6	11	0.3	0.9	0.3
Kayak	73	36	34	1.1	5.3	0.9
Open Motorboat	3,081	334	1,886	44.4	48.8	51.3
Personal Watercraft	1,655	67	982	23.9	9.8	26.7
Pontoon Boat	213	15	112	3.1	2.2	3.0
Rowboat	64	33	35	0.9	4.8	1.0
Sail Only	86	18	39	1.2	2.6	1.1
Other	115	18	57	1.7	2.6	1.6
Unknown	120	9	60	1.7	1.3	1.6
	6,932	685	3,673			

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

The same U.S. Coast Guard source also showed that reported accidents overwhelmingly involved boats of less than 26 feet in length (Table 3.3). Of all vessels involved in reported accidents, 72% are boats of less than 26 feet in length. Furthermore, 82% of all deaths and 80% of all injuries occur to boaters using boats of less than 26 feet in length.

**Table 3.3. Boating Accidents, Injuries, and Deaths by Boat Length, 2007**

	Numbers			Percentages		
	Vessels Involved	Deaths	Injuries	Vessels Involved	Deaths	Injuries
Less than 16 feet	2,037	263	1,199	29.4	38.4	32.6
16 to 25 feet	2,950	298	1,743	42.6	43.5	47.5
26 to 39 feet	876	41	320	12.6	6.0	8.7
40 to 65 feet	398	7	88	5.7	1.0	2.4
More than 65 feet	78	2	7	1.1	0.3	0.2
Unknown	593	74	316	8.6	10.8	8.6
TOTAL	6,932	685	3,673			

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

There appears to be much support for educating *younger* boaters; however, statistics from the U.S. Coast Guard on reported accidents show that the age group most commonly associated with injury and death from boating accidents is the 36- to 55-year-old group, accounting for 33% of all boating accident deaths and 32% of injuries (Table 3.4). Indeed, 67% of all deaths and 59% of all injuries from boating accidents occurred on a boat operated by a boater over 25 years of age; meanwhile, 14% of all boating accident deaths and 24% of all injuries occurred on a boat operated by a boater 25 years old or younger. Clearly, focusing *only* on younger boaters misses the age groups that account for most deaths and injuries. (Note that the table shows the age of the *boat operator*, not necessarily the age of the victim.)

**Table 3.4. Boating Accidents, Injuries, and Deaths by Age of Operator, 2007**

Age of Operator	Numbers			Percentages		
	Vessels Involved	Deaths	Injuries	Vessels Involved	Deaths	Injuries
12 years and under	26	1	21	0.4	0.1	0.6
13 to 18 years	489	35	290	7.1	5.1	7.9
19 to 25 years	871	57	587	12.6	8.3	16.0
26 to 35 years	1,006	103	638	14.5	15.0	17.4
36 to 55 years	2,006	223	1,190	28.9	32.6	32.4
Over 55 years	750	130	337	10.8	19.0	9.2
Unknown	1,784	136	610	25.7	19.9	16.6
TOTAL	6,932	685	3,673			

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

There is also widespread support for focusing education efforts on *inexperienced* boaters, and this certainly makes intuitive sense. Nonetheless, accident statistics on operator experience show that experienced operators are involved in a substantial percentage of accidents. A limitation of the data on operator experience is the quite high percentage in the “unknown” column; however, 39% of all vessels involved in reported accidents were operated by a boater known to have more than 100 hours of operating experience, and 26% of all deaths and 40% of all injuries occurred on boats operated by an operator known to have more than 100 hours of experience (Table 3.5).

**Table 3.5. Boating Accidents, Injuries, and Deaths by Operator Experience, 2007**

	Numbers			Percentages		
	Vessels Involved	Deaths	Injuries	Vessels Involved	Deaths	Injuries
No experience	70	14	35	1.0	2.0	1.0
Under 10 hours	514	38	286	7.4	5.5	7.8
10 to 100 hours	1,433	92	871	20.7	13.4	23.7
101 to 500 hours	1,975	132	1,075	28.5	19.3	29.3
Over 500 hours	704	46	404	10.2	6.7	11.0
Unknown	2,236	363	1,002	32.3	53.0	27.3
TOTAL	6,932	685	3,673			

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

Comments from the focus groups shed light on the types of boaters in need of education: nearly all boaters in the groups (regardless of whether they had taken a boating safety course) were critical of personal watercraft operators, citing them in particular as operating unsafely on the water. A number of focus group participants shared personal anecdotes describing times they had witnessed personal watercraft creating problems for other boaters, such as coming too close to vessels or crowding them, jumping wakes, and creating hazards for other boaters. Further, a number of boaters in the focus groups said that younger boaters ought to be the highest priorities for boating safety education, as these boaters are typically the least experienced and may not be as familiar with the details of boat operation. Finally, new boaters (such as those purchasing a boat for the first time) were also seen as high priorities for safety education by boaters in the focus groups.

*“Jet skis are probably a sore spot for both power boaters and sailboaters. I could probably spend an hour describing various jet skier behaviors. You can’t legislate common sense. The jet ski phenomenon—as those things have become affordable and readily available—it’s just put a different spin on boating safety. People who are basically non-boaters who hop on a little jet ski really complicate things out there.”*

– Boater who had taken a safety course

*“Speed and jet skis are the worst issues, definitely.”*

– Boater who had *not* taken a safety course

*“I think that jet skis are the most dangerous things on the water. My main problem is people being able to get a jet ski with no knowledge of how to operate one, just because they have a lot of money.”*

– Boater who had *not* taken a safety course

“A lot of people, when they get a brand new boat, don’t know how to back it in [at the boat ramp]. It’s a very dangerous situation.”

– Boater who had *not* taken a safety course

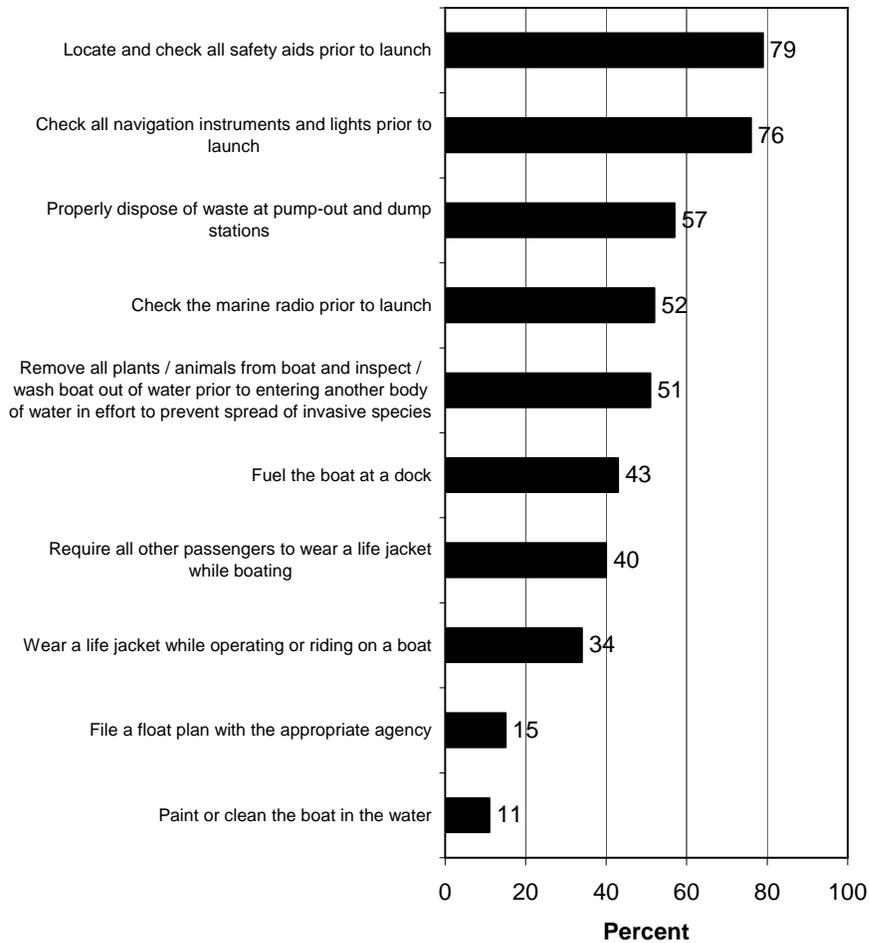
## TOPICS AND BEHAVIORS ON WHICH TO FOCUS

This report includes an examination of topics for boating safety education and behaviors to be addressed by boating safety education and boating safety programs. Not surprisingly, life jacket use (negatively associated with injury and death—the more life jacket use, the less the prevalence of injury and death) and alcohol use (positively associated with injury and death—the more alcohol use, the more the prevalence of injury and death) are leading topics/behaviors on which boaters feel there is a need to focus. However, other behaviors are also problems.

A basic way to help determine topics/behaviors to which boating safety efforts should be directed is to examine boaters’ perceptions of their own behaviors (the survey later asked boaters on which topics/behaviors they *thought* efforts should be focused, which is discussed shortly). The telephone survey asked boaters about the frequency that they practiced certain behaviors in the past and the frequency that they now practice those behaviors. Among boater behaviors examined, the use of life jackets is not practiced as frequently as it should be, as well as fueling while properly docked, checking the marine radio prior to launch, and filing a float plan. The survey asked about the behaviors among those who had taken a boating safety education course and among those who had *not* taken a course. Figure 3.9 shows the results among those who had taken a course (these people were asked about their behaviors prior to the course and after; the “after” course behavior is a proxy measure of current boating practices among this group), and Figure 3.10 shows the results among those who had not taken a course or had not taken a state-certified course. Note that these results show boaters’ self-reporting of their behaviors; more objective measurements of behavior are not feasible in a telephone survey.

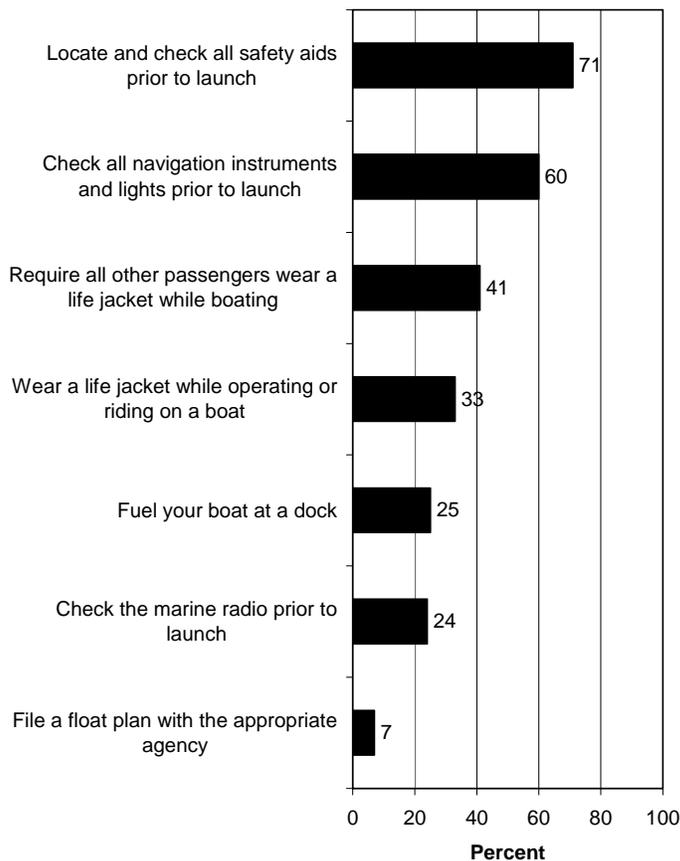
**Figure 3.9. Boaters' Current Behaviors Among Those Who Have Taken a State-Certified or Basic Boating Safety Education Course**

**Percent who say that they always participate in the following after taking the most recent boating safety education course that they completed. (Asked of those who have taken at least one NASBLA-approved or basic boating safety education course.)**



**Figure 3.10. Boaters' Current Behaviors Among Those Who Have Not Taken a State-Certified or Basic Boating Safety Education Course**

**Percent who say that they always participate in the following. (Asked of those who have not taken any boating safety education course or who have taken a course that was not NASBLA-approved and/or was not basic.)**



It should be noted that several boaters in the focus groups said that they thought safety courses often devoted too much time and discussion to alcohol issues and life jacket use (“standard safety blurbs,” according to one boater) to the detriment of other important topics such as standard boat operation, rules of the road, and the meanings of markings and buoys. This is not to say that boaters in the focus groups indicated that alcohol issues and life jacket use are *unimportant* topics for education, just that more time should be devoted to ensuring that all boaters know how to competently and safely pilot their boats. Closely related to this is the need for hands-on education and training, particularly so that boaters have experience or knowledge of

how to boat in inclement weather, which was a major and recurring topic in the group discussions. Proper procedures for trailering boats and rules of the road issues were also commonly discussed topics for boating safety education.

*“One of the things I noticed about the Coast Guard course was that it just beat you to death with the standard safety blurbs: wear a PFD, don’t drink and boat, same thing over and over and over again. Everybody recognizes that these portions of safe boating are essential, but at the same time, you can only say it so many times before people get turned off. ... I really agree that there needs to be more discussion about the actual handling of a boat—the simple physics of what makes a boat turn, move, and so on.”*

– Boater who had taken a safety course

*“Rules of the road would be the only thing [to add] for the course I took. We talked about fog earlier, and lights will tell you a lot about what’s coming. I think it needs to be more in-depth and make people more aware of what’s coming toward you or what you’re going toward.”*

– Boater who had taken a safety course

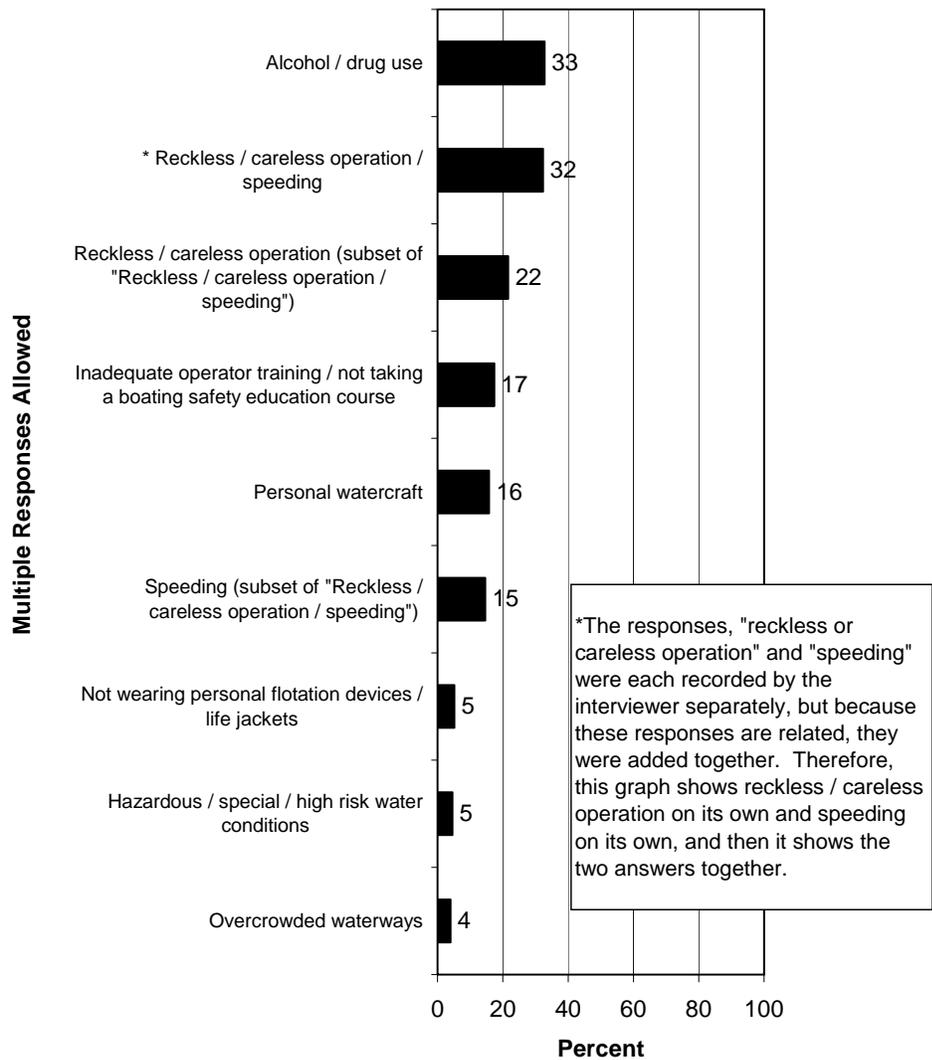
*“[The course should include] proper trailering and how to use some of the required equipment, like flares and other safety equipment. I think the course was lacking in that aspect of development.”*

– Boater who had taken a safety course

The telephone survey also asked boaters to name, in an open-ended question (i.e., not prompted by an answer set, which allows the respondent to say anything that comes to mind), the types of boating issues that concern them the most. The most commonly named problems were alcohol/drugs, reckless/careless operation, inadequate training, personal watercraft, and speeding (Figure 3.11). A similar question asked boaters about the perceived causes of accidents, and the most commonly named causes are alcohol/drugs, reckless/careless operation, and operator inattention (Figure 3.12).

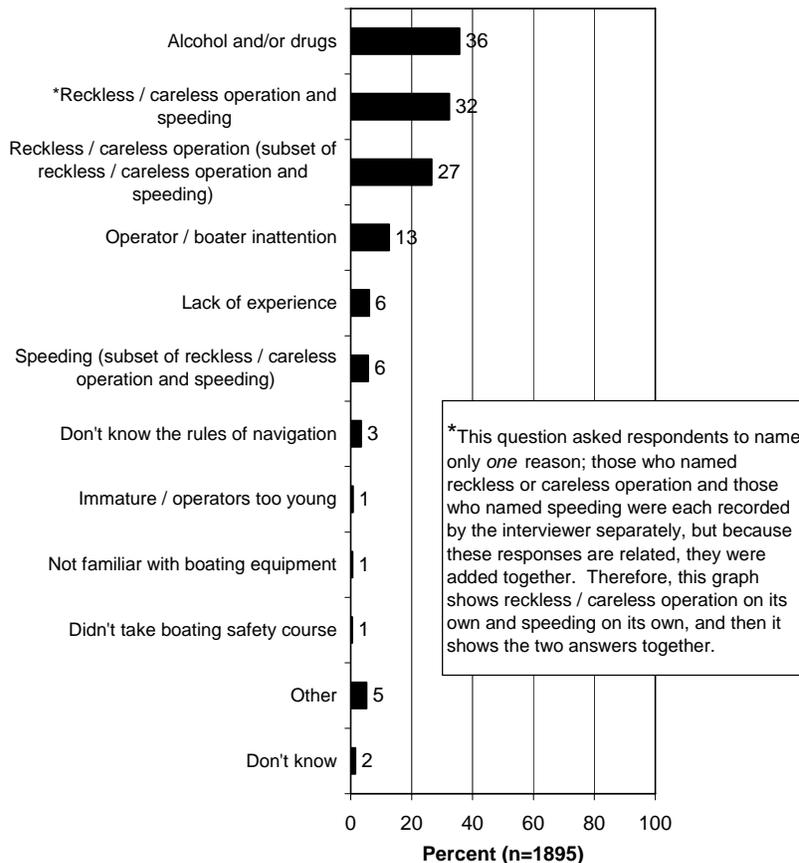
**Figure 3.11. Types of Boating Issues of Most Concern**

**Q44. As a boater, what types of boating safety issues concern you the most? (Shows only the responses given by more than 1% of respondents.)**



**Figure 3.12. Boaters' Perceptions of the Leading Causes of Boating Accidents**

**Q46. What would you say is the main reason that people have boating accidents?**



It is also instructive to examine the causes of accidents, as reported by the U.S. Coast Guard. Of the top ten primary contributing factors in accidents, the top seven are the fault of the operator and/or passengers (see Table 2.1), rather than machinery or equipment failure. While some *perceived* issues of concern and causes of accidents are similar to *actual* causes of accidents (alcohol, reckless/careless operation, operator inexperience/lack of training, and operator inattention), there are other actual causes on the “top ten” list that are not mentioned by boaters as being an important cause (passenger/skier behavior and no proper lookout). Certainly, all of the top seven factors should be addressed in behavior modification strategies, including through education. (The top seven primary contributing factors to accidents in 2007 were operator

inattention, careless/reckless operation, passenger/skier behavior, excessive speed, alcohol use, no proper lookout, and operator inexperience.)

The complete list of causes of accidents in 2007, according to U.S. Coast Guard accident data, is shown in Table 3.6. This list is divided into the major types of causes. Causes of accidents related to the operation of the vessel account for nearly half of deaths (49.5%) and the majority of injuries (63.1%); all of these causes are within control of the operator and passengers. Additionally, loading of passengers and/or gear accounts for an additional 13.9% of deaths and 14.3% of injuries, and these are also within the control of the operator and passengers. Taken together, these causes that are within complete or nearly complete control of the operator and passengers account for 63.4% of deaths and 77.4% of injuries.

The U.S. Coast Guard boating statistics on boating *activity* at the time of accidents also sheds light on behaviors or activities that need to be addressed by boating safety education. While water skiing has previously been shown to be important vis-à-vis accidents (under the heading of passenger/skier behavior), another activity was shown to be dangerous: fishing. In 2007, of all vessels involved in accidents, 7.3% were being used for fishing, involving 6.2% of injuries and 25.1% of deaths.

The boater telephone survey also asked boaters to name additional topics/areas that they think that boating safety education should cover, and the most common answers are personal watercraft, alcohol/drugs, and rules of the road. Similarly, the survey asked boaters to indicate the topics that are in need of *more* coverage in boating safety education, and their most common responses are rules of the road, personal watercraft-related education, alcohol/drug-related education, and emergencies/first aid.

Finally, regarding life jacket use, U.S. Coast Guard statistics on the cause of death point out the value of wearing life jackets in preventing deaths. As expected, drownings occur much more often to those *not* wearing life jackets compared to those who do wear them, but deaths from hypothermia and from trauma are also more common among those *not* wearing life jackets (Table 3.7).

**Table 3.6. Primary Causes of Boating Accidents, Injuries, and Deaths, 2007**

	Number of accidents	Number of deaths	Number of injuries	Percentage of accidents	Percentage of deaths	Percentage of injuries
<b>OPERATION OF VESSEL</b>	<b>2,986</b>	<b>339</b>	<b>2,317</b>	<b>57.5</b>	<b>49.5</b>	<b>63.1</b>
Alcohol use	391	145	341	7.5	21.2	9.3
Careless/reckless operation	552	33	445	10.6	4.8	12.1
Drug use	5	4	5	0.1	0.6	0.1
Excessive speed	473	31	425	9.1	4.5	11.6
Failure to vent	17	1	20	0.3	0.1	0.5
Lack of or improper vessel lights	18	1	10	0.3	0.1	0.3
No proper lookout	375	20	266	7.2	2.9	7.2
Operator inattention	628	47	436	12.1	6.9	11.9
Operator inexperience	353	42	234	6.8	6.1	6.4
Restricted vision	69	7	49	1.3	1.0	1.3
Rules of the road infraction	54	2	42	1.0	0.3	1.1
Sharp turn	51	6	44	1.0	0.9	1.2
<b>LOADING OF PASSENGERS/GEAR</b>	<b>629</b>	<b>95</b>	<b>526</b>	<b>12.1</b>	<b>13.9</b>	<b>14.3</b>
Improper loading	49	28	28	0.9	4.1	0.8
Improper anchoring	43	4	8	0.8	0.6	0.2
Overloading	33	13	23	0.6	1.9	0.6
Passenger/skier behavior	492	47	458	9.5	6.9	12.5
Standing/sitting on gunwales, bow, or transom	12	3	9	0.2	0.4	0.2
<b>FAILURE OF VESSEL OR EQUIPMENT</b>	<b>513</b>	<b>42</b>	<b>196</b>	<b>9.9</b>	<b>6.1</b>	<b>5.3</b>
Equipment failure	141	17	40	2.7	2.5	1.1
Hull failure	60	4	10	1.2	0.6	0.3
Machinery failure	312	21	146	6.0	3.1	4.0
<b>ENVIRONMENT</b>	<b>480</b>	<b>62</b>	<b>333</b>	<b>9.2</b>	<b>9.1</b>	<b>9.1</b>
Congested waters	107	1	72	2.1	0.1	2.0
Dam/lock	14	13	12	0.3	1.9	0.3
Force of wave/wake	128	1	118	2.5	0.1	3.2
Hazardous waters	83	11	61	1.6	1.6	1.7
Weather	148	36	70	2.9	5.3	1.9
<b>MISCELLANEOUS</b>	<b>583</b>	<b>147</b>	<b>301</b>	<b>11.2</b>	<b>21.5</b>	<b>8.2</b>
Ignition of spilled fuel or vapor	31	0	21	0.6	0.0	0.6
Other	305	61	170	5.9	8.9	4.6
Unknown	247	86	110	4.8	12.6	3.0
<b>TOTAL</b>	<b>5,191</b>	<b>685</b>	<b>3,673</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

**Table 3.7. Status of Life Jacket Use by Cause of Death, 2007**

Cause of Death	Number of Deaths	Life Jacket Worn	Life Jacket Not Worn
Drowning	476	49	427
Trauma	137	52	85
Hypothermia	18	7	11

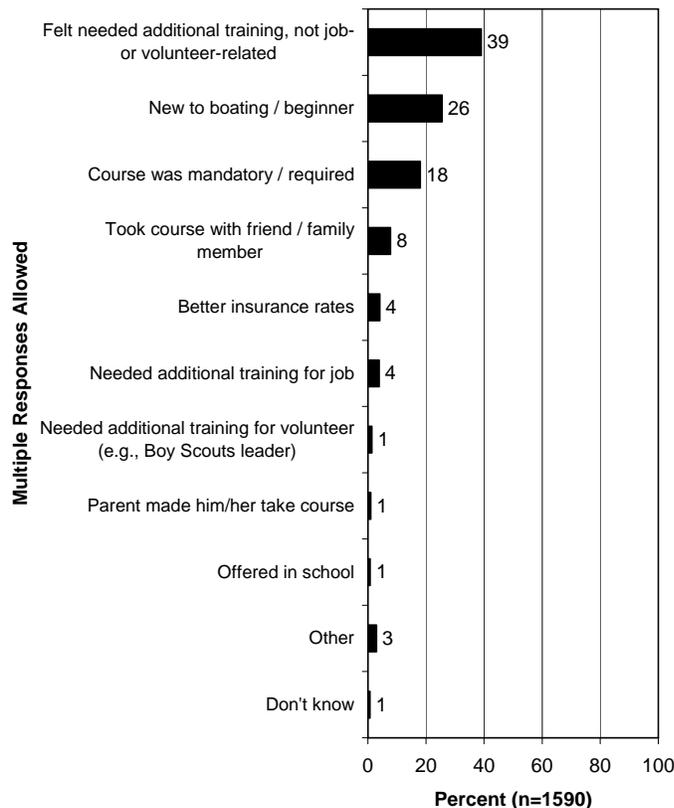
Source: *Recreational Boating Statistics 2007*, U.S. Coast Guard

### MOTIVATIONS/DISINCENTIVES FOR TAKING BOATING SAFETY EDUCATION AND SATISFACTION/DISSATISFACTION WITH BOATING SAFETY EDUCATION

While mandatory boating education requirements will force some boaters to take boating safety education, other boaters will take boating safety education simply because they feel that they need it. A top motivator for a boater to take boating safety education is the boater’s own feeling that he/she needs to know more (Figure 3.13). In a corollary, the top reason that boaters give for *not* taking boating safety education is that they do not feel that they need it (Figure 3.14). These findings suggest that engendering a feeling among boaters that there are things they need to know to be safe would encourage participation in boating safety education.

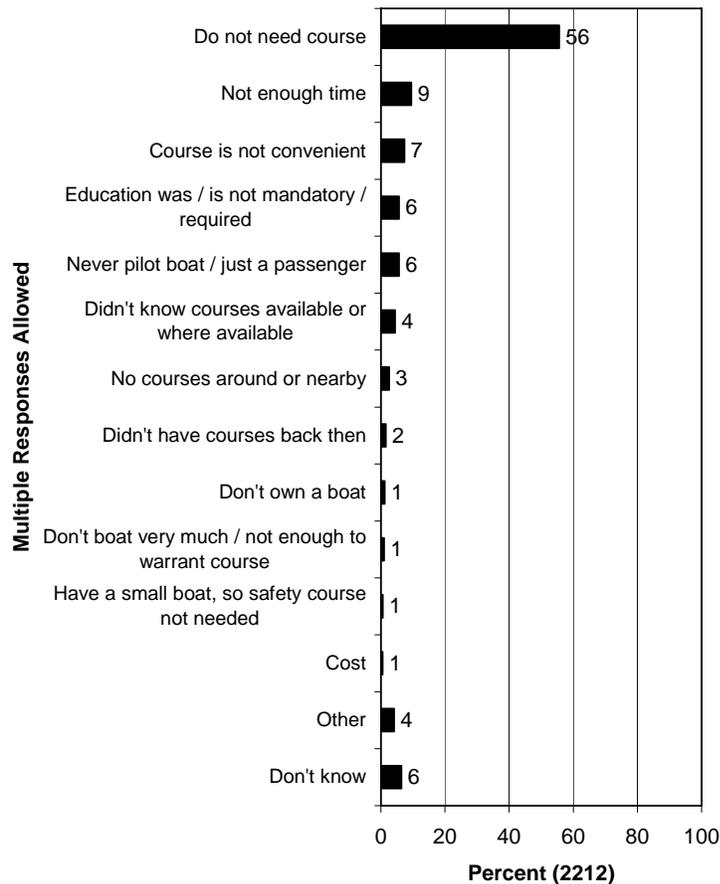
**Figure 3.13. Boaters’ Motivations for Taking Boating Safety Education**

**Q70. What are the main reasons you took a boating safety education course? (Asked of those who have taken at least one boating safety education course.)**



**Figure 3.14. Boaters' Reasons for Not Taking Boating Safety Education**

**Q66. What are the main reasons you have not taken a boating safety education course? (Asked of those who have never taken a boating safety education course.)**



Although only 6% gave this reason, it is worth noting that some owners of registered boats did not take a boating safety education course because they do not typically pilot the boat. This suggests that there is some demand for boating safety education among *passengers* and that some outreach should be specifically aimed at passengers to counter their belief that they do not need boating safety education.

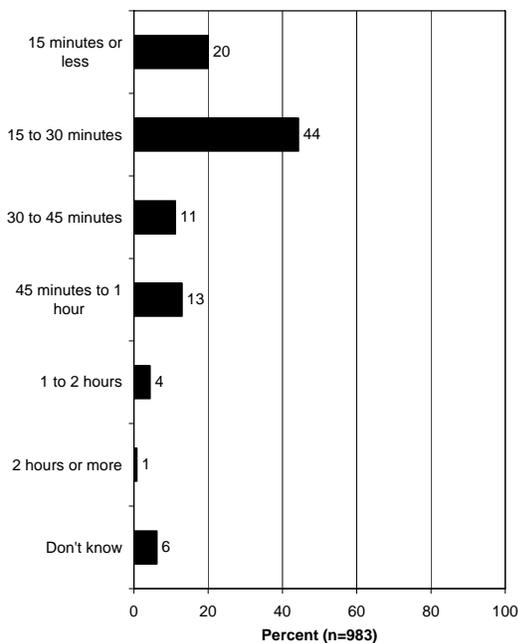
A nonparametric analysis of the boater survey data found several demographic characteristics associated with having taken boating safety education that may have implications on the demand

for and provision of boating safety education. One of the demographic characteristics that is correlated to having taken boating safety education is having a Bachelor's degree ( $p \leq 0.001$ ). Additionally, being female is *negatively* correlated to having taken boating safety education (i.e., a lower percentage of female boaters than male boaters have taken a boating education course) ( $p \leq 0.001$ ).

The boater telephone survey research explored distance to a course as a disincentive for taking boating safety education. Obviously there are regional differences, but survey results suggest that there is a steep drop-off of demand for boating safety education when the facility in which the class is held is much more than a 30-minute drive away, one way. The survey found that 64% of owners of registered boats, when asked how far they would travel to take a boating safety education course, gave an answer of 30 minutes or less, and 88% gave an answer of 1 hour or less (Figure 3.15). In other words, once the distance to a course is more than 1 hour away, there are 88% of boaters who indicate that they would *not* travel that far.

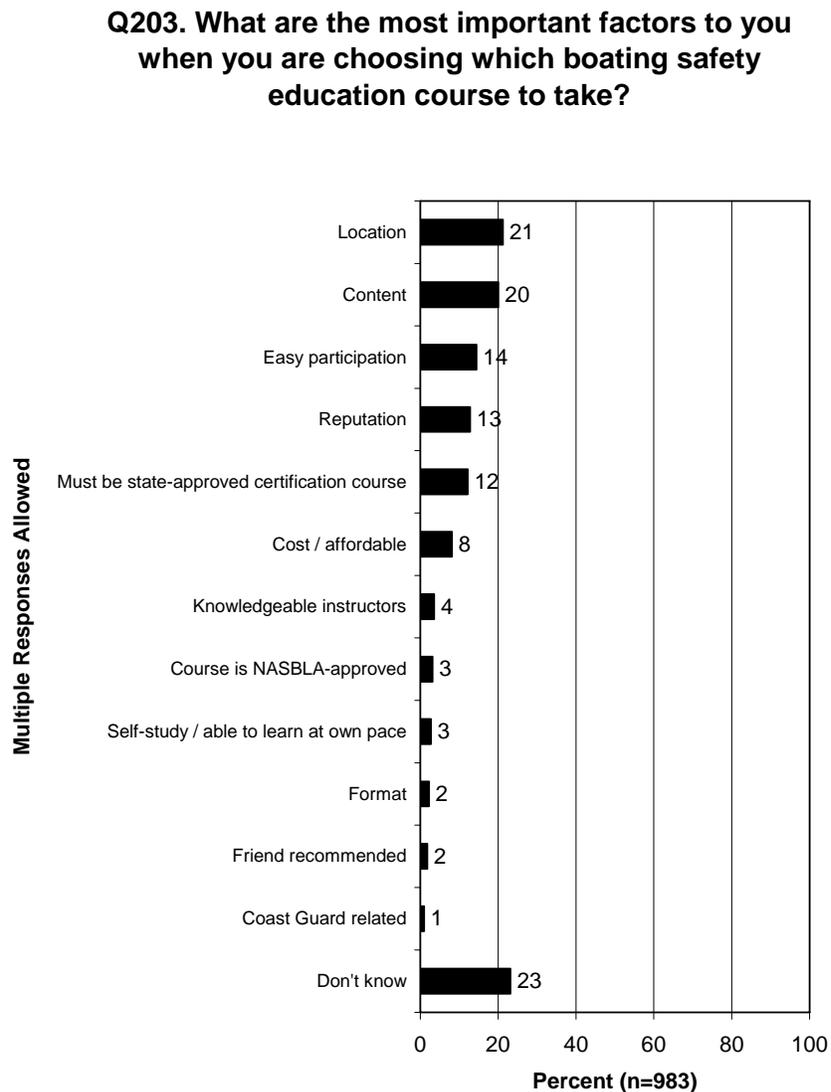
**Figure 3.15. Boaters' Willingness To Travel To Take Boating Safety Education**

**Q206. If you were to take a classroom course, how long would you be willing to travel to take a boating safety education course?**



Additionally, when owners of registered boats were asked in the survey to name the most important factors in choosing a boating safety course if they were to take one, location was the top answer (Figure 3.16). Note that a few focus group participants affirmed that location was an important factor in deciding to enroll in a classroom boating safety course (one boater said he preferred online courses because a classroom course meant driving 250 miles to the location).

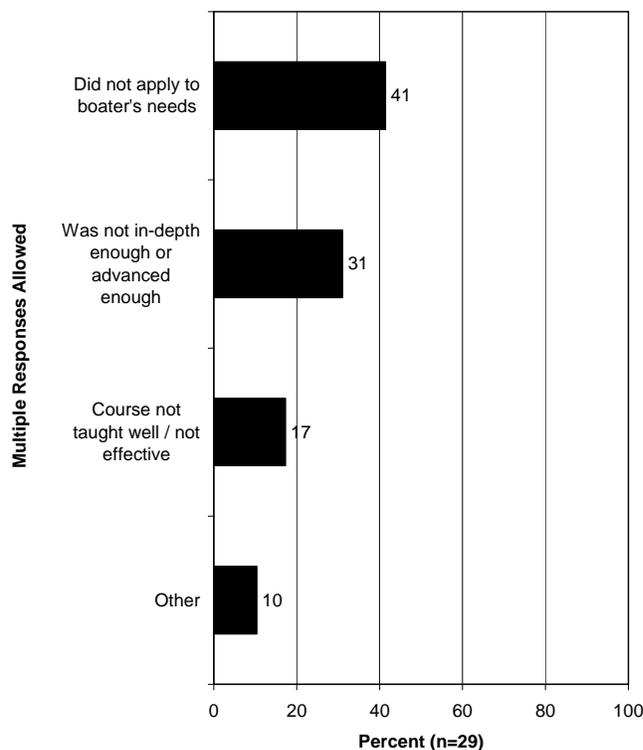
**Figure 3.16. Factors in Choosing a Boating Safety Education Course**



Another question in the survey provided data related to disincentives for taking boating safety education. The interviewers asked owners of registered boats who were dissatisfied with the boating safety education course that they took to indicate why they were dissatisfied. A leading reason for dissatisfaction is a mismatch between the boaters' expectations/needs and course content (Figure 3.17). In other words, a common reason for dissatisfaction is that the course did not teach what the boater felt he/she needed to know, or the course content did not apply to the type of boating the boater did. Another important reason was that the course was not in-depth enough, which also means that the course content did not match the boaters' needs. Indeed, both these reasons exceed bad or ineffective teaching as a reason for being dissatisfied with boating safety education. Note that very few boaters received this question because so few were dissatisfied with their boating safety education course.

**Figure 3.17. Reasons for Being Dissatisfied with Boating Safety Education**

**Q104. Why were you dissatisfied with the course?**  
(Asked of those who were dissatisfied with the boating safety education course they took.)



In the focus groups, many boaters who *had* taken a safety course in the past appeared open to the idea of taking another course, or to the concept of “refresher” courses for experienced boaters. One boater likened the concept to renewing a driver’s license, and others provided examples of changes in their boating that would necessitate more safety courses (e.g., one boater mentioned switching from power boating to sailing). As before, most agreed that inexperienced boaters represent the greatest priorities for safety education.

Boaters who had not taken a course were somewhat more reluctant to say that they would take a course in the near future; in most cases, the only reason such boaters would agree to take a course was if the safety course was mandatory. A few boaters who had never taken a course said they would voluntarily take one, but most of these boaters indicated that, because of their many years of experience boating, such courses would be pointless for them. Note that many of these same boaters later voiced support for the concept of mandatory boating education, perhaps demonstrating their preference that all other boaters receive such education while they themselves be exempted.

*“If you’re talking about experienced boaters, requiring a mandatory class or requiring a card, I would oppose that. I don’t think that’s reasonable. I’ve made my boating a very serious endeavor, and my idea of a good time is going out into inclement weather to face new challenges. I bristle at the idea of having to carry a card that says ‘I took a class in the last few months.’ So for the experienced boater, no. I don’t want to personally be regulated because of the foolishness of others.”*

– Boater who had taken a safety course

*“First-time boaters registering a boat for the first time should be required to take some kind of classroom training. ... There should be a decent way to go online and do some kind of refresher. You will find responsible people will take the responsible step to refresh their knowledge. But I absolutely do not feel like having to carry a card around.”*

– Boater who had taken a safety course

*“Things change, regulations change, hazards change. Signage, rules of the road, navigation—these are all things that change.”*

– Boater who had taken a safety course

*“I guess for safety reasons you’d have to require everybody across the board. You’d get all the experienced [boaters] and the people who take their boat out just two or three times a year.”*

– Boater who had *not* taken a safety course

*“I don’t need to take a boating safety course. I know about boating safety; we keep life jackets and I keep our fire extinguishers up to date. I have boating inspections by an independent party. My knowledge isn’t going to go away. I don’t need to go to a class in order to learn how to not be stupid.”*

– Boater who had *not* taken a safety course

*“If it was mandatory—that would encourage me to take a course.”*

– Boater who had *not* taken a safety course

*“The only thing I could think of would be knowing [the rules and regulations] in states around you, if you’re traveling. Some boaters may not know [such aspects of other states].”*

– Boater who had *not* taken a safety course

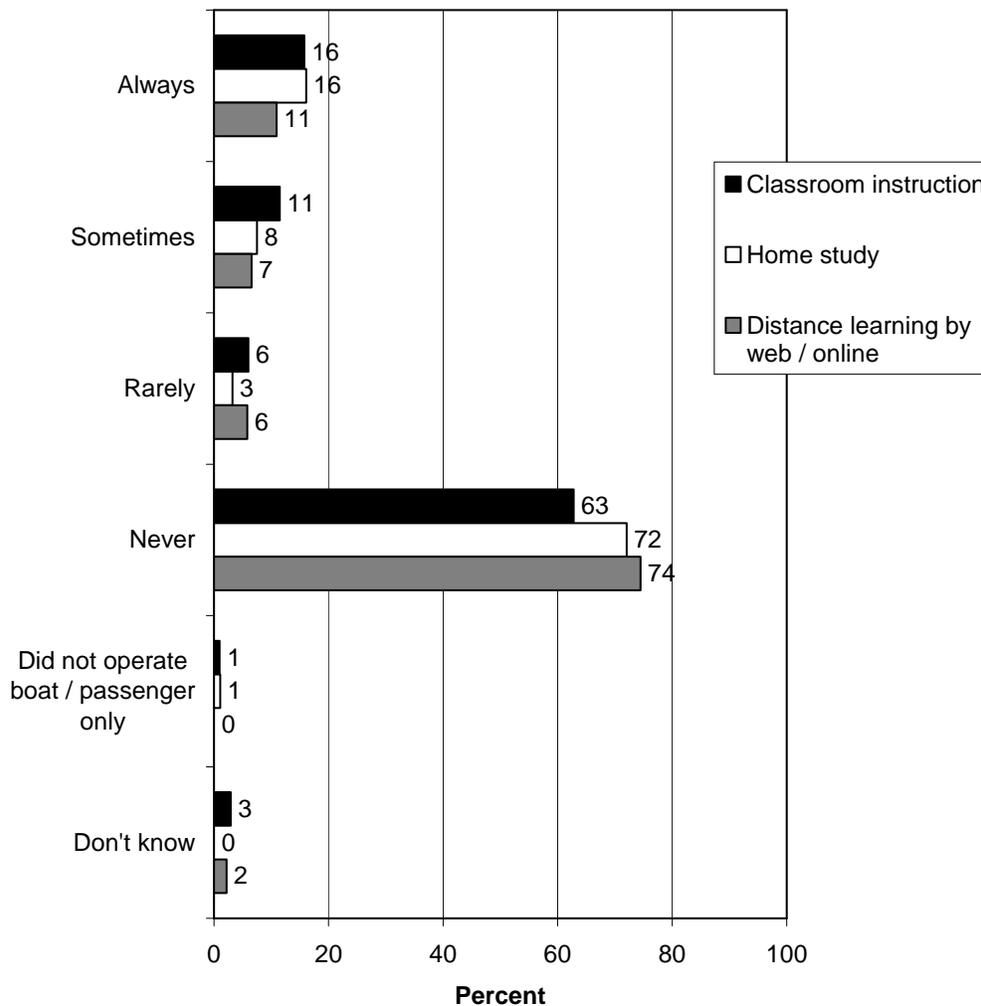
## **FORMATS AND LOGISTICAL ASPECTS OF BOATING SAFETY EDUCATION**

An analysis of the boater survey data found that the *format* of the boating safety course does not appear to greatly affect subsequent behavior—perhaps boating safety education is more dependent on the effort that the participant puts into it rather than the format. (This should not be confused with the effect of boating safety education in general, which does appear to affect behavior, as discussed previously.)

In the crosstabulations of the format and subsequent behavior, only three behaviors had statistically significant differences (Figures 3.18, 3.19, and 3.20): *file a float plan with the appropriate agency* (those who completed a classroom course were slightly more likely than other boaters to say that they always or sometimes do this); *check the marine radio prior to launch* (those who completed a classroom course were more likely than other boaters to say that they always or sometimes do this); and *remove all plants and animals from the boat and inspect and wash the boat out of the water prior to entering another body of water* (those who completed home study or a web course were more likely than those who completed a classroom course to say that they always or sometimes do this). On all other safety-related behaviors, there were no statistically significant differences correlated with the format of the boating safety education courses.

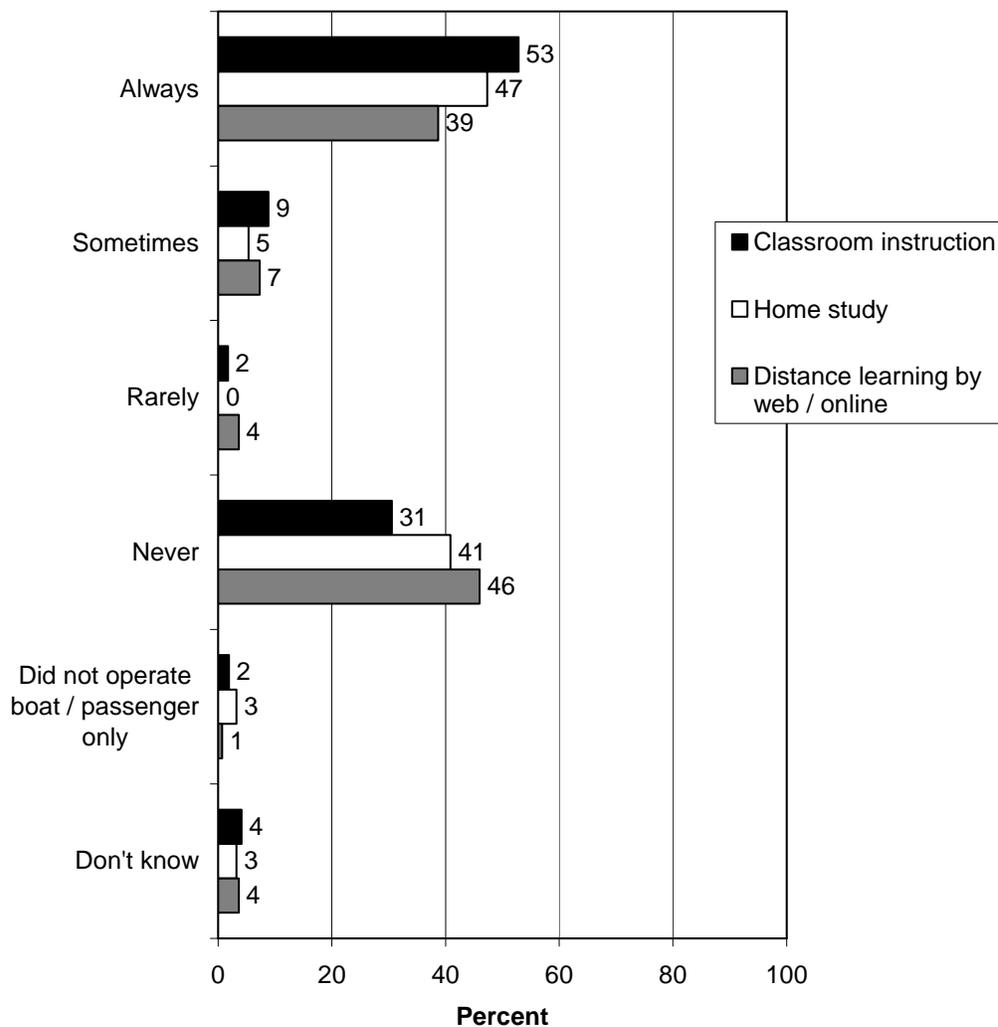
**Figure 3.18. Crosstabulation of Course Format and Subsequent Frequency of Filing a Float Plan**

**Q151. Would you say you filed a float plan with the appropriate agency always, sometimes, rarely, or never since completing the course? (Asked of those who have taken at least one state-approved certification or basic/general boating safety education course.)**



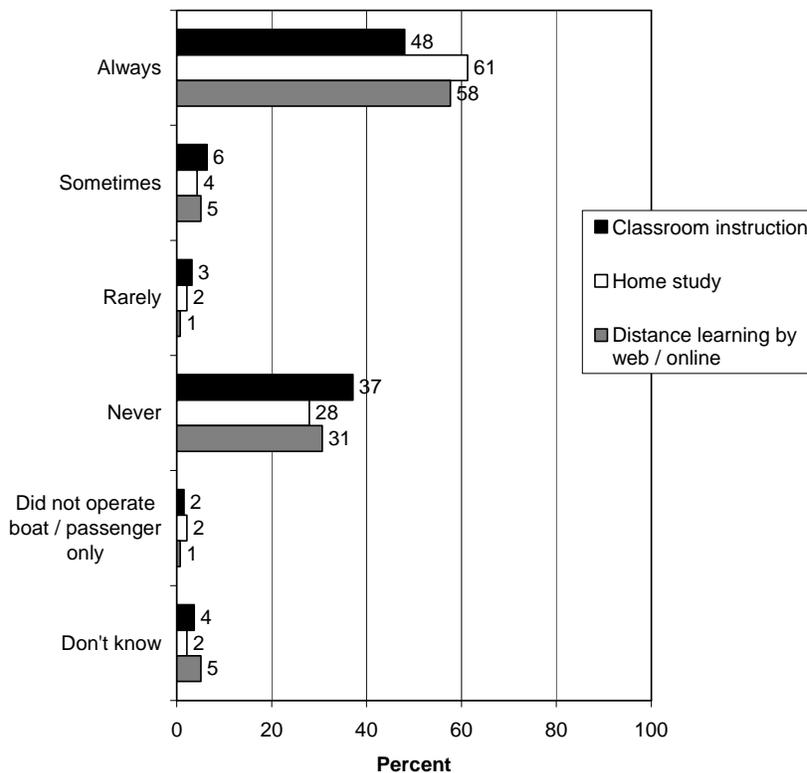
**Figure 3.19. Crosstabulation of Course Format and Subsequent Frequency of Checking the Marine Radio Prior To Launch**

**Q154. Would you say you checked the marine radio prior to launch always, sometimes, rarely, or never since completing the course? (Asked of those who have taken at least one state-approved certification or basic/general boating safety education course.)**



**Figure 3.20. Crosstabulation of Course Format and Subsequent Frequency of Removing Plants/Animals From Boat Before Entering Another Water Body**

**Q158. Would you say you removed all plants and animals from your boat and inspected and washed your boat out of the water prior to entering another body of water in an effort to prevent the spread of invasive species always, sometimes, rarely, or never since completing the course? (Asked of those who have taken at least one state-approved certification or basic/general boating safety education course.)**

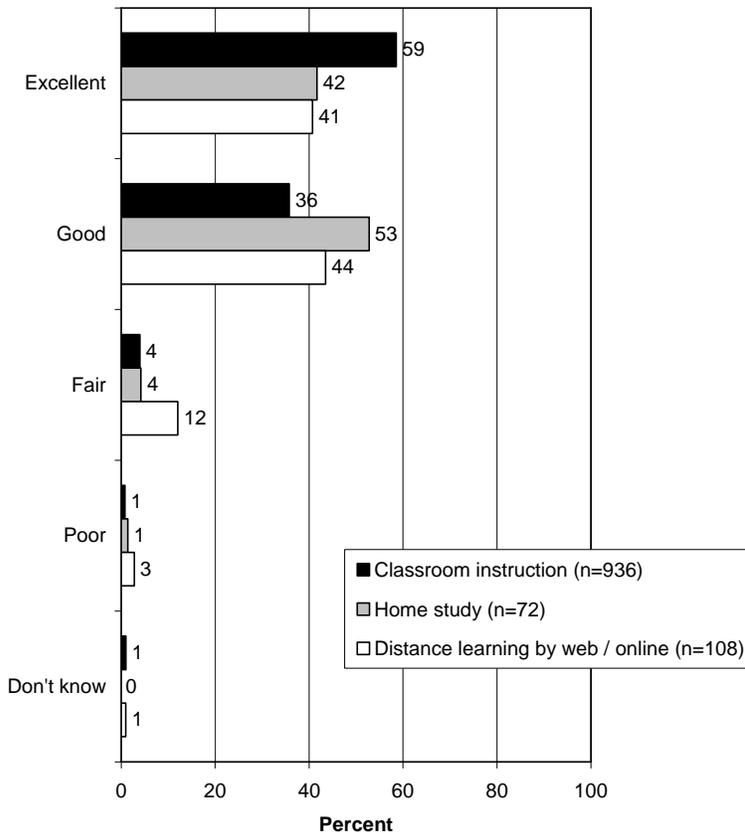


Despite the results above, which *suggest* that the formats of boating safety education are not markedly different in affecting subsequent behaviors, the format appears to affect ratings that participants give to the boating safety education course that they took. The interviewers asked those owners of registered boats who had taken boating safety education to rate their course on an excellent-good-fair-poor scale. Overall, ratings were favorable, and the crosstabulation of ratings by course format also found favorable ratings (Figure 3.21). The primary difference was in the upper end of the scale (between excellent and good) rather than between an overall positive rating (excellent or good) or an overall negative rating (fair or poor). Specifically, 59%

of those who took a state-approved certification boating safety course in a classroom rated the course as excellent, compared to 42% and 41% of those who took courses of the other formats, and this difference is statistically significant. However, when examining the sums of the percentages giving excellent or good, there is much less of a difference: 95% of those who took a classroom course rated the course as excellent or good, compared to 95% and 85% of those who took courses of the other formats—all three formats have high ratings and are separated by only 10 percentage points.

**Figure 3.21. Crosstabulation of Course Format and Subsequent Rating of Course**

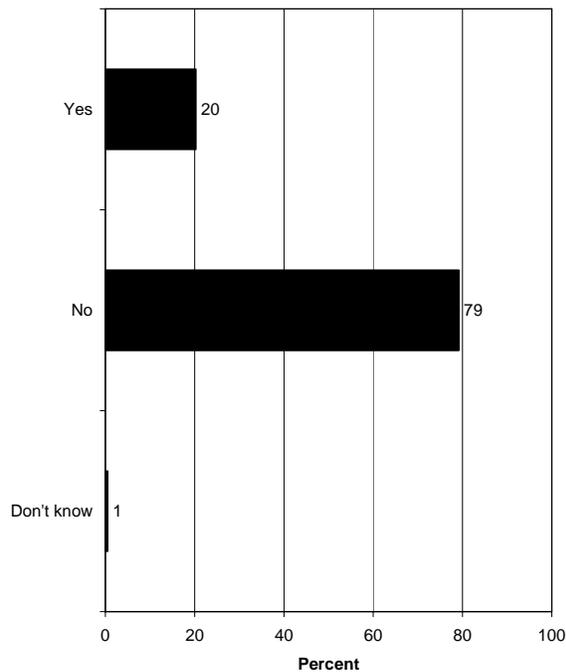
**Q114. Overall, how would you rate the most recent course you completed as a boating safety education course? (Among those who have taken at least one state-certified boating safety education course.)**



There is an important caveat to be considered regarding course format. The boater survey found that a hands-on component of courses is, for the most part, lacking, but it is considered to be very effective when it is used. Obviously, a hands-on experience can most feasibly be provided in a classroom course, but only 20% of those who took a state-approved boating safety course in a classroom indicated that the course had a hands-on component (Figure 3.22).

**Figure 3.22. Hands-On Component as Part of Classroom Format Boating Safety Education**

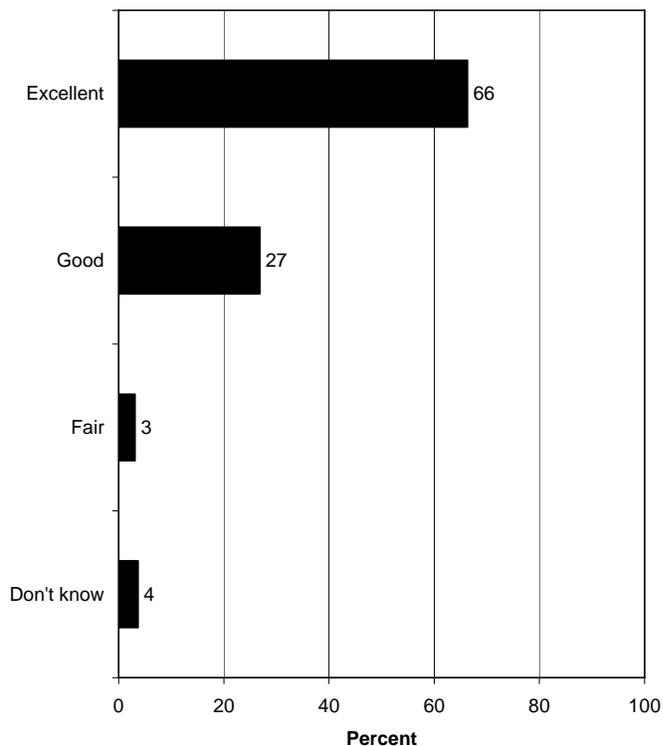
**Q122. Did the course you completed have a "hands-on" or "on-the-water" component? (Among those whose most recent state-approved certification boating safety course was classroom instructed; note that only those whose course was *state-approved* are included.)**



Despite the relatively low percentage of boaters who had taken a course with a hands-on component, those who had taken a course with a hands-on component gave quite high ratings to the component. Among those whose most recent course was in a classroom and contained a hands-on component, the overwhelming majority (93%) rated the quality of the hands-on component as excellent or good, with excellent leading good by more than 2 to 1, and no respondents rated it as poor (Figure 3.23).

**Figure 3.23. Ratings of the Hands-On Component of Boating Safety Courses**

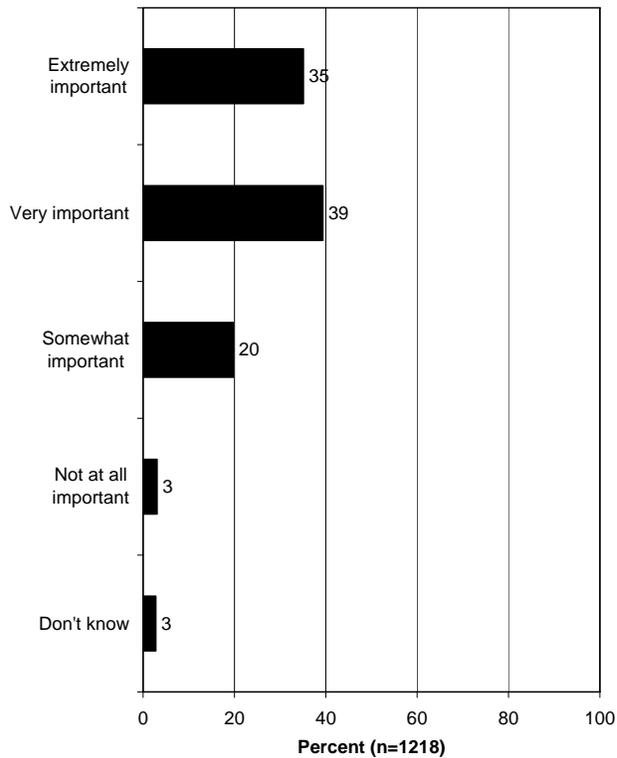
**Q123. How would you rate the quality of the hands-on or on-the-water component of the course you completed? (Among those whose most recent state-approved certification boating safety course was classroom instructed; note that only those whose course was *state-approved* are included.)**



Furthermore, a hands-on component of a classroom course is deemed to be highly important, as an overwhelming majority of those whose most recent course was a classroom format (94%) said that a hands-on component is *extremely* important, *very* important, or *somewhat* important, regardless of whether the course they had taken had a hands-on component (Figure 3.24). In fact, the top two answers accounted for almost three-quarters of respondents: 74% said a hands-on component is *extremely* important or *very* important.

**Figure 3.24. Perceived Importance of a Hands-On Component of Boating Safety Education**

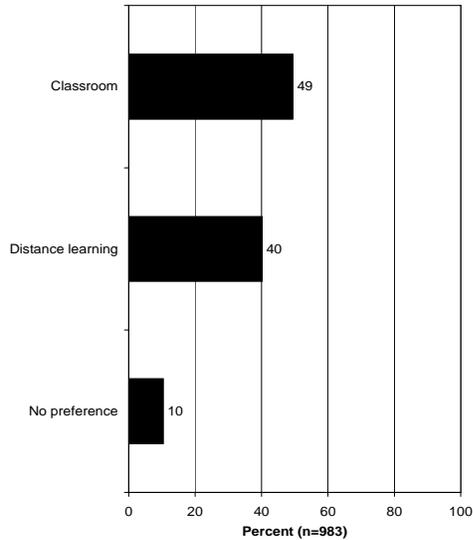
**Q121. In your opinion, how important is a hands-on or on-the-water component for successfully teaching safe boating? (Asked of those whose most recent boating safety education course was classroom instructed.)**



The boater survey also looked at demand for various formats of boating safety education. The results found that owners of registered boats are split between wanting classroom courses (49% say that they would prefer a classroom format) and wanting distance learning courses (40%) (Figure 3.25), primarily online. However, the previous format of boating safety courses that boaters took affected their choice for future courses—they were more likely to prefer the format they had previously taken: 73% of those who had taken a classroom course would prefer a classroom course; 76% of those who had taken a distance learning course would prefer a distance learning course (Figure 3.26). Those who had previously taken a home study course were about evenly split: 43% would prefer a classroom course, while 50% would prefer a distance learning course. (Note that those who had *not* taken a course were about evenly split.)

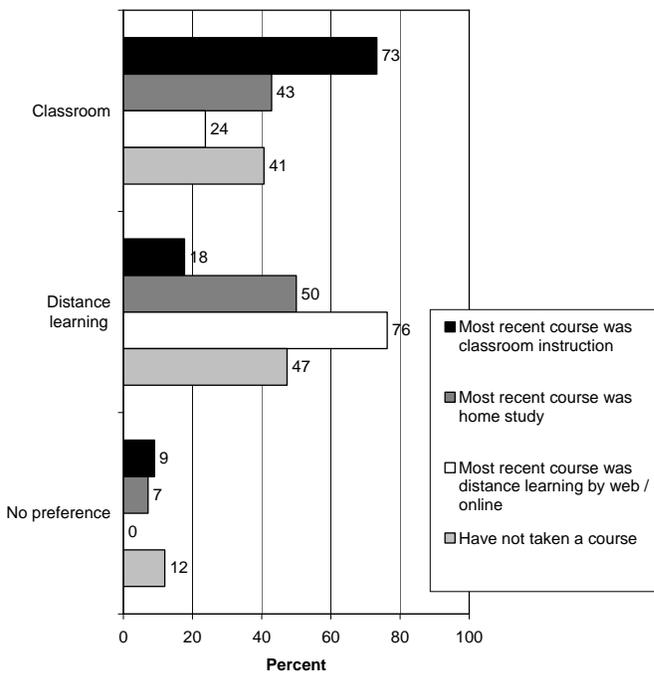
**Figure 3.25. Preferences Regarding the Format of Boating Safety Education**

Q205. If you were to take a boating safety education course in the near future, would you prefer to take a classroom or distance learning course, such as online or home study courses?



**Figure 3.26. Previous Format Taken and Preferences for Future Boating Safety Education**

Q205. If you were to take a boating safety education course in the near future, would you prefer to take a classroom or distance learning course, such as online or home study courses?



In the focus groups, there was slightly more support for the classroom format of boating safety education than there was for the online format, although several boaters acknowledged the convenience of the latter. Classroom courses were noted for the dynamic qualities of the instruction, the face-to-face interaction with the instructor and other students, and that students were thought to more readily process and absorb the material (some in the groups commented that online courses present the opportunity for cheating and quick, temporary memorization of quiz answers).

Boaters in the focus groups were supportive of the concept of a hands-on component in boating safety education courses (as in the survey results, most of those who *had* taken a course did *not* take one with a hands-on component). Several boaters discussed the importance of being able to navigate during inclement weather, and this was cited as an aspect that a hands-on component could potentially address. In all four groups there was widespread enthusiasm and support for hands-on components in boating safety courses.

*“I think the [courses] in classrooms are more effective, just by the nature of face-to-face discussions. You may have a question that you can’t see various aspects of online.”*

– Boater who had taken a safety course

*“In classroom scenarios, you can hear it, see it, and write it down—that’s a ninety-nine percent probability that you’ll retain the information.”*

– Boater who had taken a safety course

*“My options were to travel 250 miles or take a course on the Internet. I normally travel 45 miles to the closest town to do shopping, so I would be willing to drive that far for a classroom boating safety course.”*

– Boater who had taken a safety course

*“I’m retired but I teach driving safety and traffic violator school, and I find that people who take these courses by Internet admit that they learn nothing. They just look up the answers. And I have people come and tell me after taking the classroom course, ‘I really learned something.’”*

– Boater who had *not* taken a safety course

*“Actual classes are important, but I think also a practical test: someone trying to buy a jet ski should have to operate a motor and prove their competence. I sell pneumatics and hydraulics, and we give hands-on courses, as well as classroom talking-and-listening courses. Practical experience is the best teacher. It’s like the tests they give for driving. The hands-on experience allows an instructor to look and see what a person is doing right or wrong.”*

– Boater who had *not* taken a safety course

*“If people have never had [a course before], I think sitting in the classroom would do more, but for me, I’ve been boating a long time, so I’d take it online. It’s about convenience. I would rather just take the quiz online and be done.”*

– Boater who had *not* taken a safety course

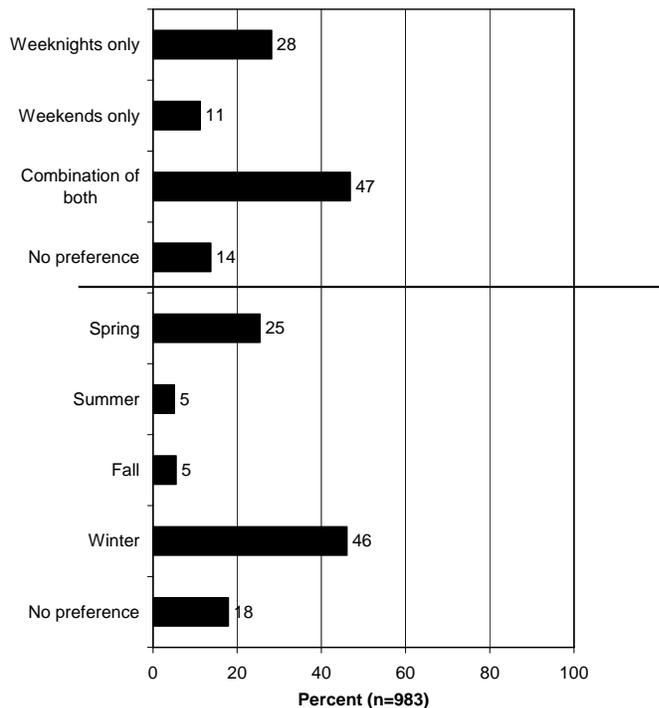
The survey examined the preferred timing of classroom-format boating safety education. There was not great demand for weeknight-only or weekend-only courses: only 28% say that they would prefer that classroom boating safety courses be held on weeknights only, and only 11% say that they would prefer weekends only (Figure 3.27). The most common preference is a combination of weeknights and weekends (47%). Also, the most demand for boating safety courses is for winter or spring courses rather than summer or fall: 71% say that the best time for them to take a classroom-format boating safety course is in winter or spring, while only 10% say summer or fall. In fact, nearly half (46%) prefer winter (also Figure 3.27).

**Figure 3.27. Preferences Regarding the Timing of Boating Safety Education Courses**

**Q207 and Q208. If you were to take a classroom course:**

**Do you think the sessions should be on weeknights only, weekends only, or a combination of both?**

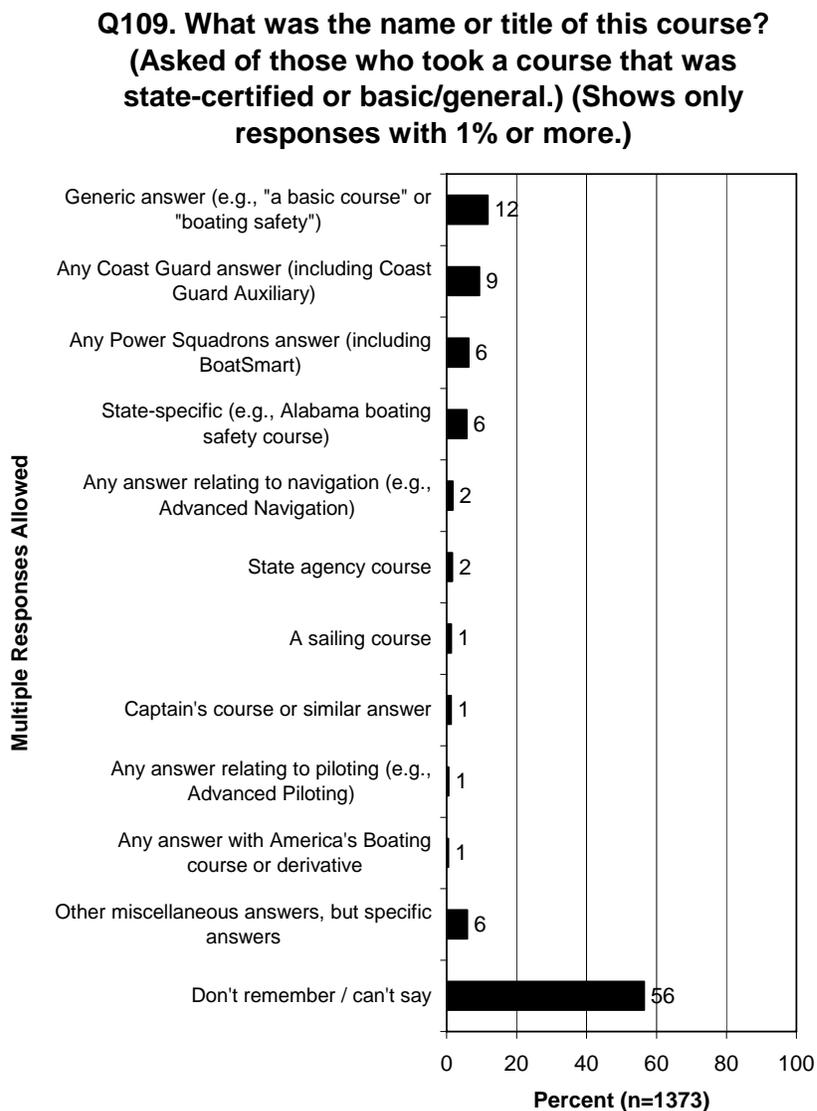
**What is the best time of year for you to take a boating safety education course?**



## PROVIDERS OF BOATING SAFETY EDUCATION AND SOURCES OF INFORMATION ABOUT BOATING SAFETY

The survey asked about providers of boating safety education. The U.S. Coast Guard is very important as a provider of (as well as a source of information about where to take) boating safety education, as is the U.S. Power Squadrons. When asked to name the boating safety course that they had taken (among those who took one), many gave a U.S. Coast Guard-related answer, including the Coast Guard Auxiliary (Figure 3.28). There were also many answers related to the U.S. Power Squadrons. Note that most could not remember the specific names of the courses.

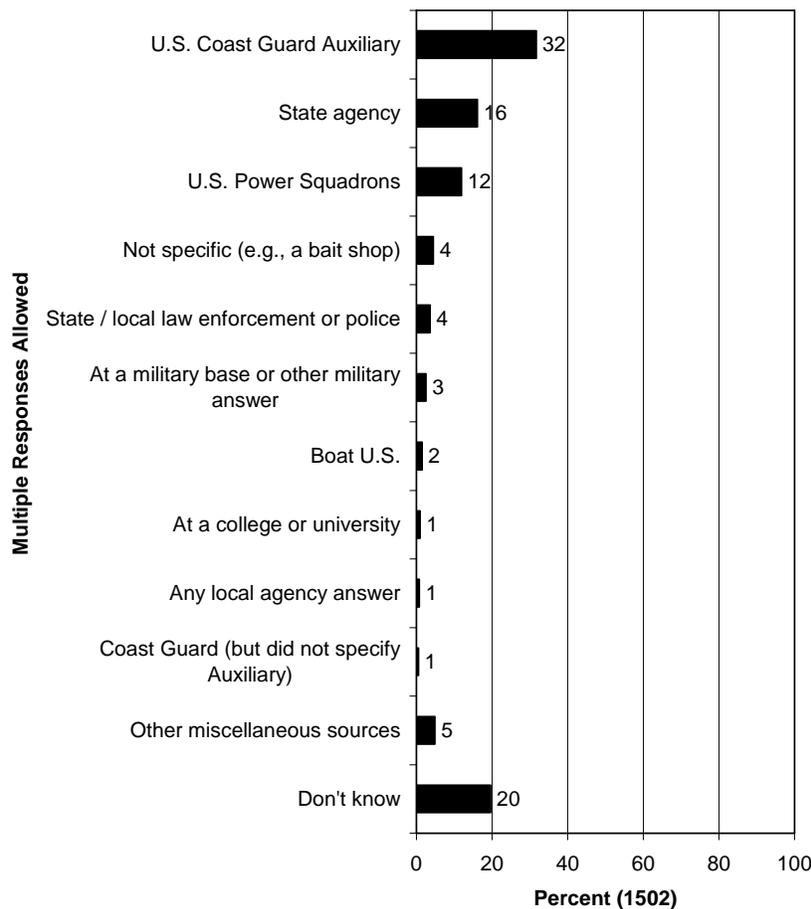
**Figure 3.28. Specific Boating Safety Education Courses Taken by Boaters**



Additionally, boaters were asked to name the provider of the course that they took that was state-certified or basic/general. Again, the U.S. Coast Guard, including the Auxiliary, is prominent, along with state agencies and the U.S. Power Squadrons (Figure 3.29).

**Figure 3.29. Providers of Boating Safety Education Courses Taken by Boaters**

**Q112. Who was the provider of this course? (Asked of those who took a course that was state-certified or basic/general.) (Shows only responses with 1% or more.)**

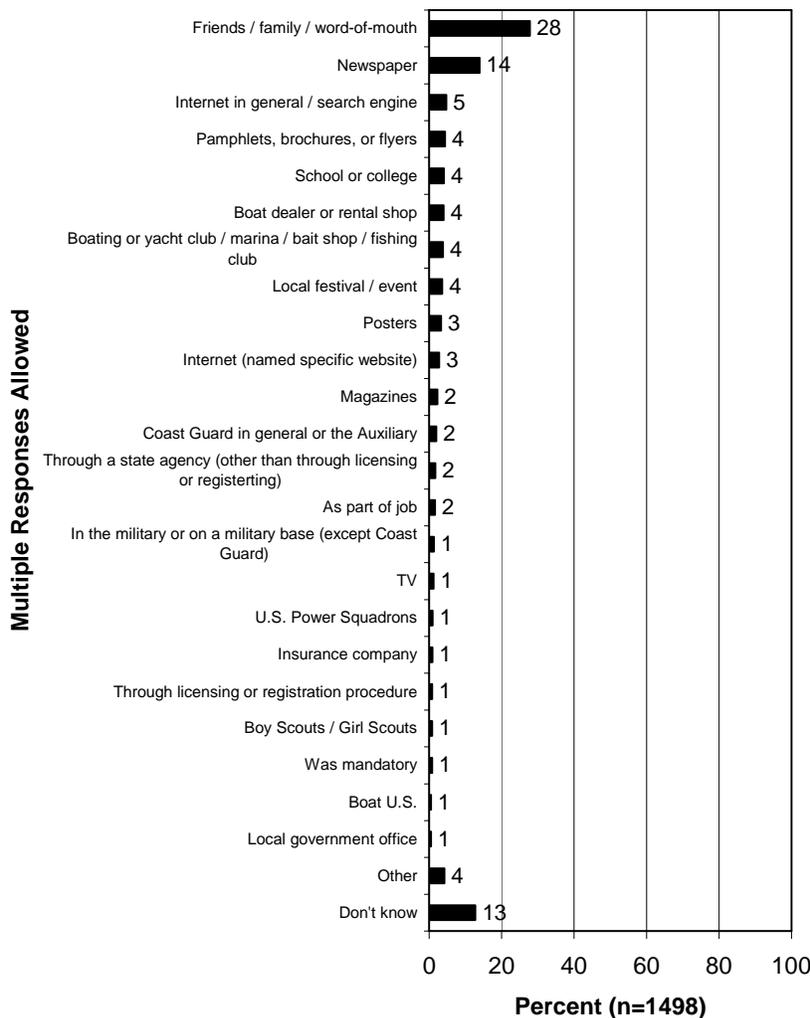


A topic related to *providers* of boating safety education courses is *sources of information* about boating safety education courses (some of which are also providers). The survey of owners of registered boats approached sources of information about boating safety education in three ways: the source *from which* people learned about the boating safety education course that they took (Figure 3.30), the sources *in which* people have seen or heard of boating safety education courses

being advertised (Figure 3.31), and the sources of information *to which* boaters would look if they were seeking information about boating safety education and boating safety programs (Figure 3.32). Taken together, these data indicate that the Internet is an important source of information, being the most common answer regarding where boaters would actively look for information, and that newspapers also remain an important way that boaters get information.

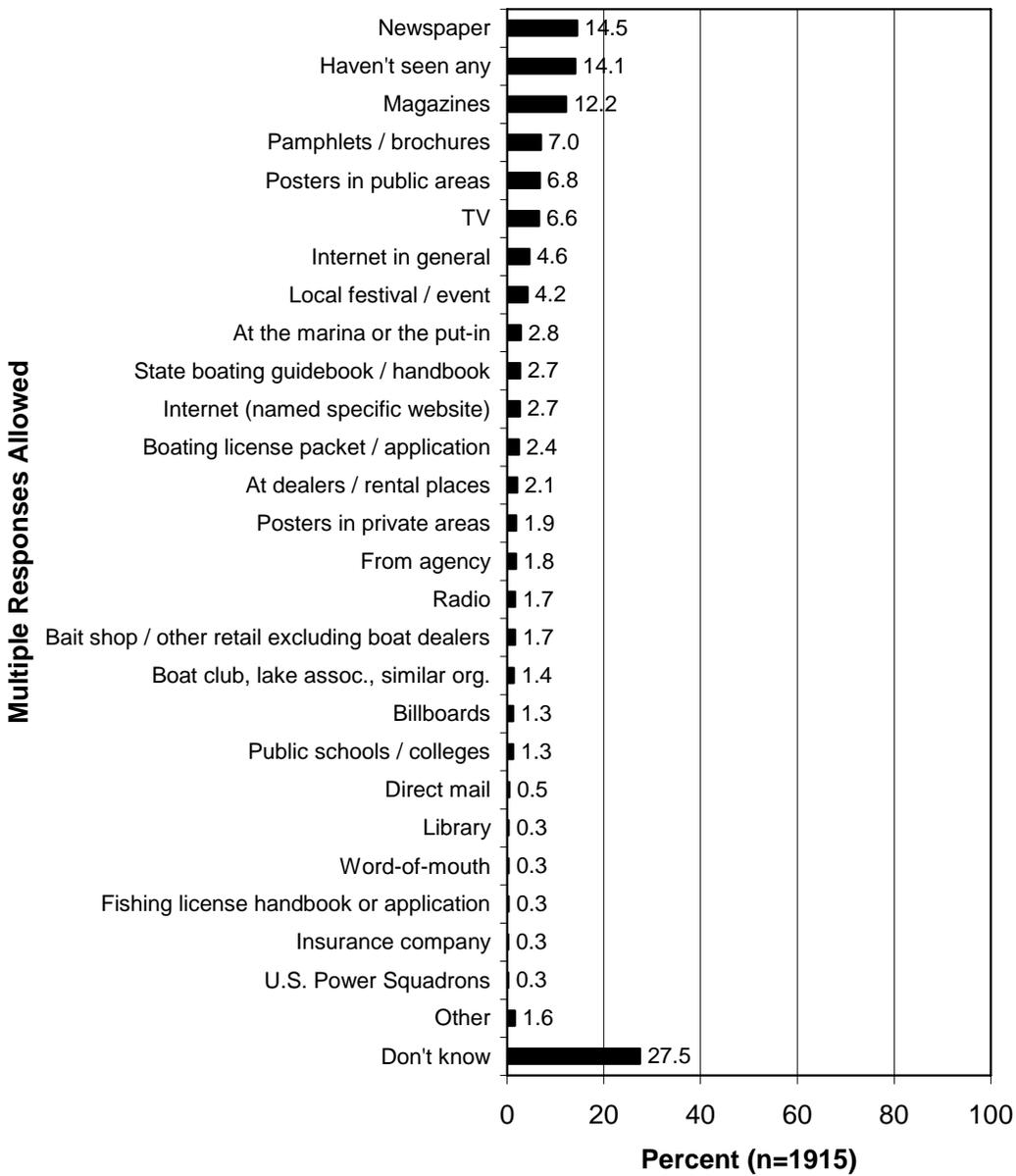
**Figure 3.30. Sources From Which People Learned About the Boating Safety Education Course That They Took**

**Q131. How did you learn about the most recent boating safety education course you completed?  
(Asked of those who have taken at least one state-approved certification or basic/general boating safety education course.)**



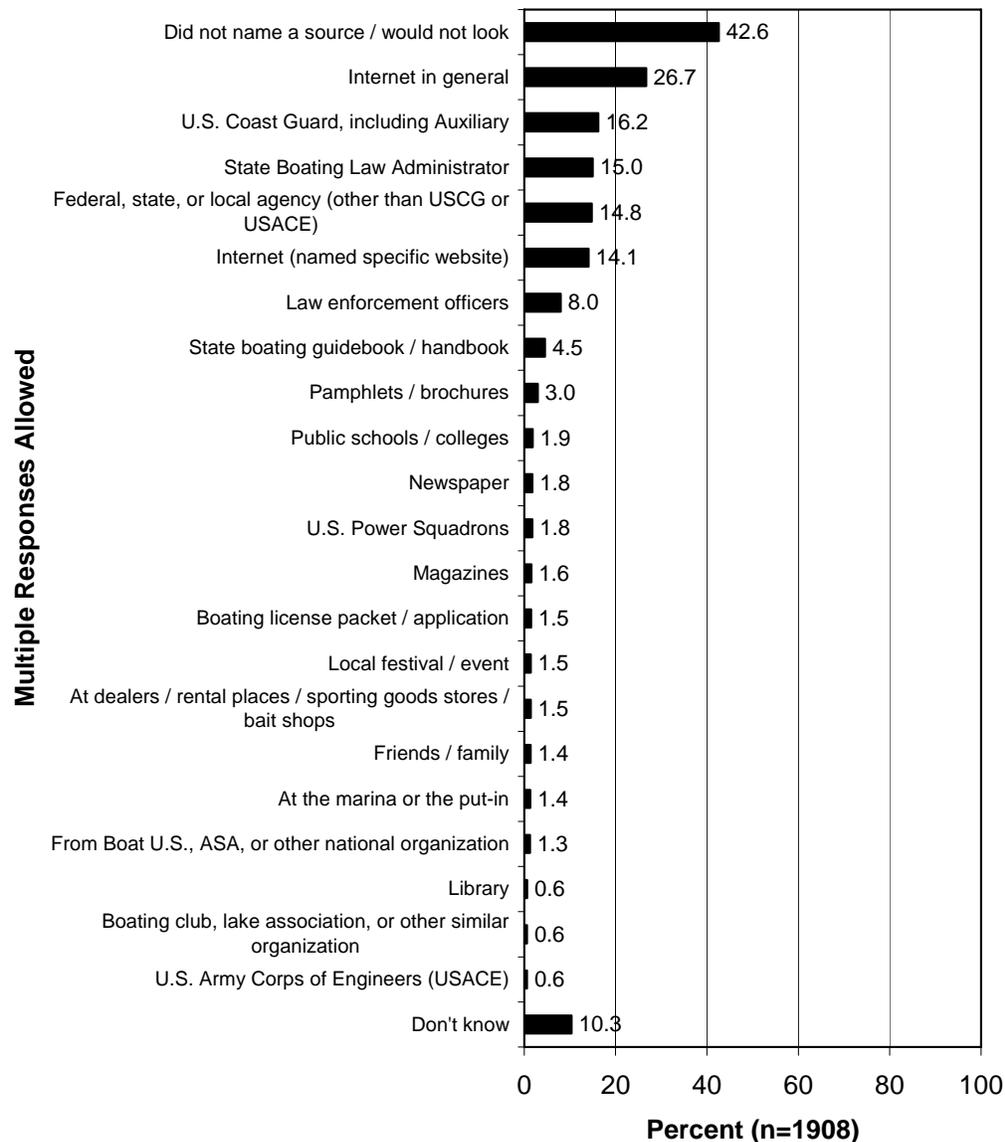
**Figure 3.31. Sources in Which People Have Seen or Heard of Boating Safety Education Courses Being Advertised**

**Q222. Where have you seen advertising for boating safety education courses?**



**Figure 3.32. Sources of Information To Which Boaters Would Look If They Were Seeking Information About Boating Safety Education**

**Q226/229. If you were looking for information on a boating safety education course, who would you contact or where would you look for the information?**



Many of the focus group participants (both those who had taken a safety course and those who had not) said that boat shows, yacht clubs, and marinas are the best venues for advertising

information on boating safety or publicizing opportunities for boating safety programs or courses. Another popular answer concerned targeting boaters with information at the point of sale of a boat (e.g., at a boat dealership). According to several boaters in the focus groups, the point here would be to prevent novice boaters from purchasing a boat without also collecting information on basic operation, safety, and opportunities for boating safety courses. Similarly, targeting boaters at the time of boat registration was also widely discussed in one group and was seen as potentially effective at reinforcing the importance of safety education.

There was both support for and opposition to using television as a medium for advertising boating safety education. Many boaters in the focus groups discussed the limitations of traditional media such as TV, radio, and newspapers, indicating that such media represent fairly narrow (not to mention costly) opportunities that run the risk of missing crucial segments of the boating populace (e.g., those who tune out during commercial segments, those who do not read newspapers). On the other hand, these boaters reasoned, since almost all boaters visit docks and/or marinas, such venues represent the best opportunities for communicating with boaters. Substantial numbers of boaters in the focus groups indicated that they had seen, heard, or otherwise received boating safety information at boat ramps, boat shows, and similar locations.

*“Wherever there’s a boat ramp, you know it’s going to get a lot of use. I’m sure most of us have witnessed safety inspections at the boat ramps. I don’t see enough of those inspections, but where you do have them, you immediately determine the number of boaters who are or are not compliant with the safety regulations. But they might also prompt people to take a little personal initiative to get safe.”*

– Boater who had taken a safety course

*“A pamphlet when you’re buying a boat—something saying, ‘Here’s a safety course you ought to take.’”*

– Boater who had taken a safety course

*“I think the best place would be marinas, yacht clubs, and boat dealers. Advertise these things there, and make it mandatory for people to take them.”*

– Boater who had *not* taken a safety course

“I guess radio and TV ads would help, in terms of advertising. But I would think there should be something at the time of registering your boat. I think that would be an ideal time to have a certification for boater safety. When you get that registration, you should have to show you’re qualified to operate the boat.”

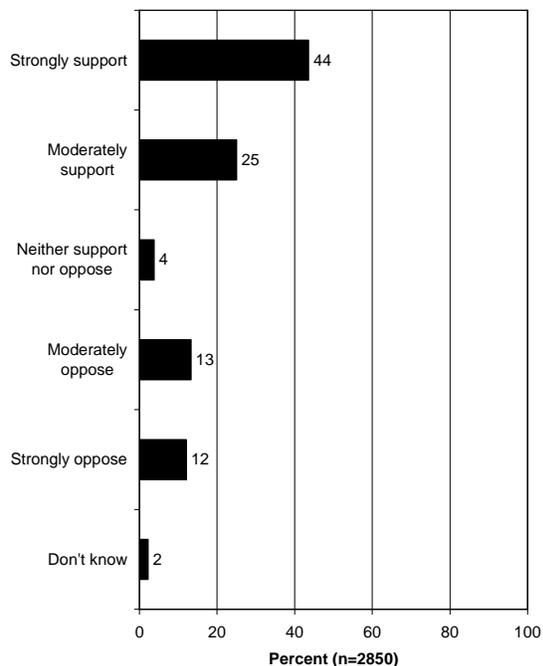
– Boater who had *not* taken a safety course

## MANDATORY BOATING SAFETY EDUCATION

The boater survey had several questions about mandatory boater education requirements. In one of the basic findings, the majority of owners of registered boats support mandatory boater education requirements, particularly for younger and inexperienced boaters: 69% of boaters support mandatory education requirements, with most of that being *strong* support; meanwhile, 25% oppose (Figure 3.33).

**Figure 3.33. Support of/Opposition to Mandatory Boating Safety Education**

Q185. Would you support or oppose a law making statewide boating safety education mandatory?

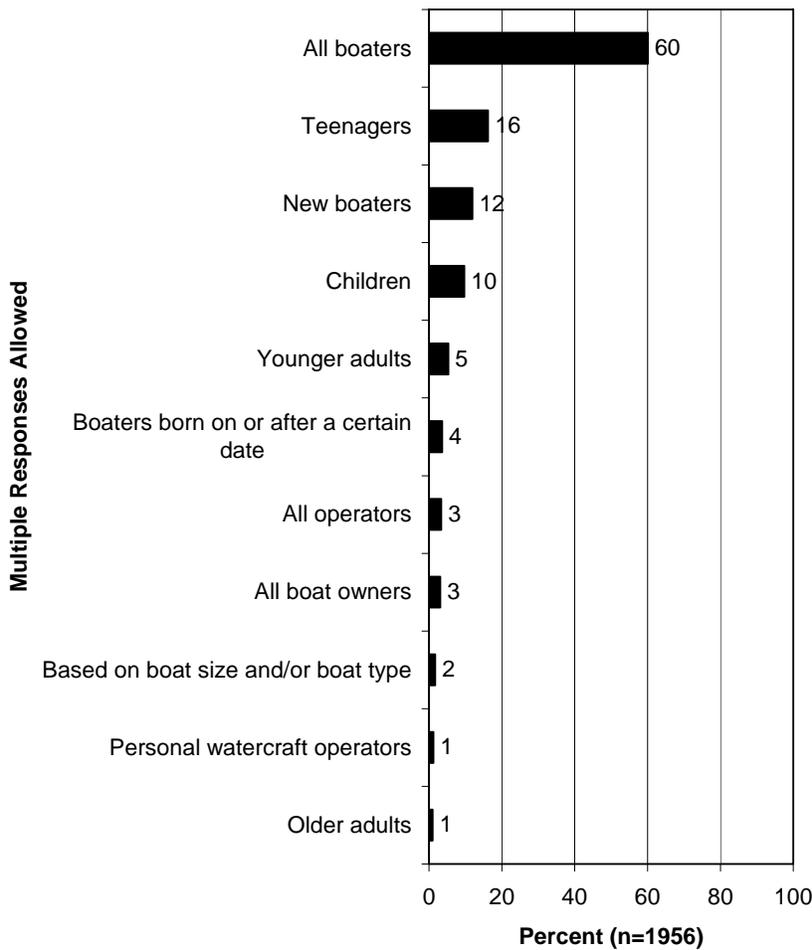


One caveat to the above findings is that further questions suggest that much of that support is for requiring *other boaters* to take boating safety education, not the boaters themselves.

Nonetheless, there is support for the concept of mandatory boating safety education. When those who support mandatory boating safety education were asked who should be required to take boating safety education, younger and inexperienced boaters predominate (although a majority say that all boaters should be required) (Figure 3.34).

**Figure 3.34. Groups That Boaters Think Should Be Required To Take Boating Safety Education**

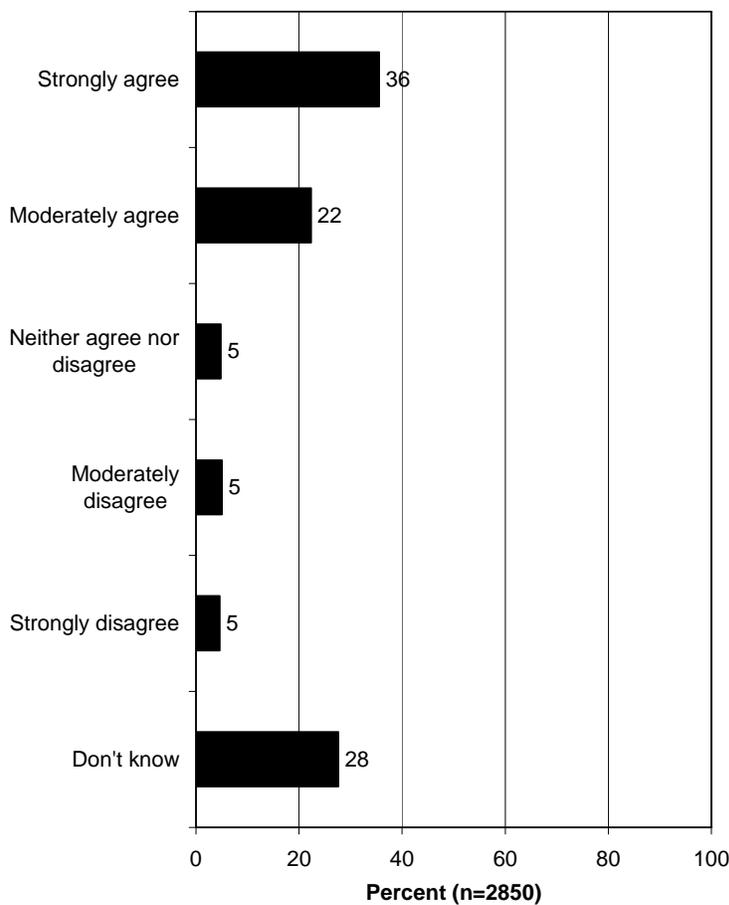
**Q188. In your opinion, who should be required to complete a mandatory boating safety education course before operating a boat? (Asked of those who support a law making statewide boating safety education mandatory.)**



Another question asked boaters whether they think boating safety education makes boating safer. The percentage who agree that mandatory education makes boating safer (58%) far exceeds the percentage who disagree (10%) (Figure 3.35).

**Figure 3.35. Perceived Effect on Safety of Mandatory Boating Safety Education**

**Q190. Do you agree or disagree that boating on the water is safer in states where boating safety education is mandatory?**



Closely mirroring the survey results, most boaters in the focus groups were supportive of the concept of mandatory safety education (although it seemed to hold true that focus group participants were more supportive of *other* boaters being required to take safety education rather

than themselves, and this was particularly true among those boaters in the groups who had *not* previously taken a safety course). A few boaters in each of the groups disagreed that mandatory safety education is necessary, with most of these individuals citing their reluctance at creating additional layers of governmental bureaucracy or overbearing regulations. Another aspect of resistance to mandatory safety education is the conviction among many avid boaters that they have been boating safely all their lives and, therefore, should not be forced to take a course. Cost was another prohibitive factor, according to one boater who had *not* taken a course.

*“My kids are not in need of [mandatory boating safety education]. They’ve lived their lives on boats. I’m not a big fan of a lot of government intervention into boating. It’s common sense and I have a hard time supporting some kind of mandatory education.”*

– Boater who had taken a safety course

*“I believe that education should be required for boaters just as it should be for any vehicle used in a public venue, so I’m all for it from an education standpoint and a safety standpoint.”*

– Boater who had taken a safety course

*“As with all things, there will be an element who will not want to participate. On the other hand, though, it’s for the safety of everyone else out there.”*

– Boater who had taken a safety course

*“I would think cost might be a hurdle for some people. The people I boat with had to pay several hundred dollars each for the safety course they took.”*

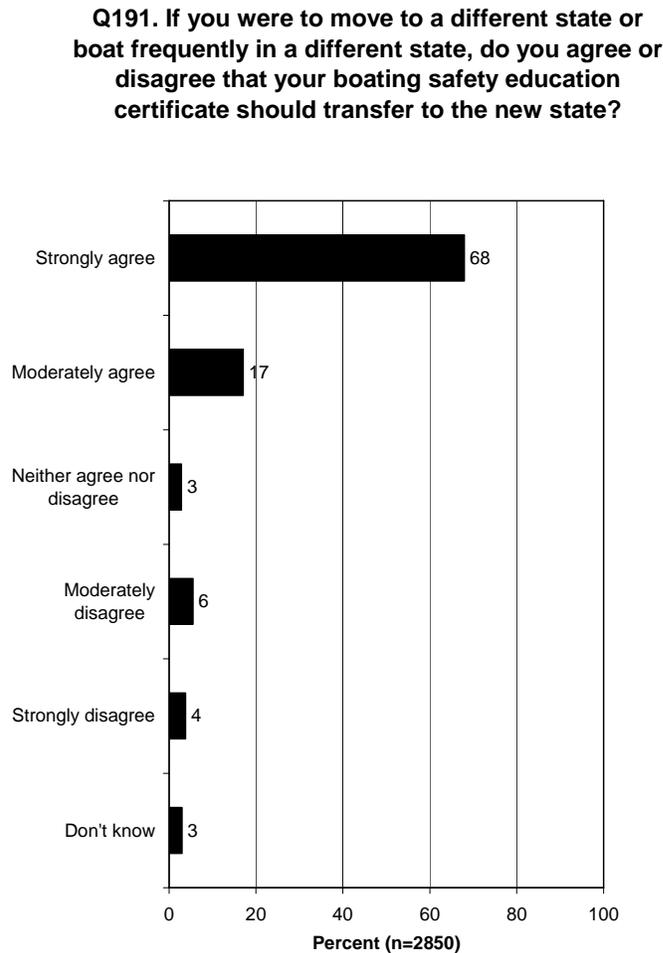
– Boater who had *not* taken a safety course

## **CERTIFICATION AND RECIPROCITY WITH OTHER STATES**

While there is much support for mandatory boating education requirements, boaters want their certification to transfer if they change residence or if they boat in another state. The boater survey found that owners of registered boats overwhelmingly agree that boating education certification from one state should transfer to another state: 85% agree, with 68% who *strongly* agree (Figure 3.36). However, there is concern that boaters new to a state need to know state-specific information. The survey found that those who oppose such reciprocity most often express concern that the out-of-state boater (or new resident, as the case may be) may not know all the state-specific information that he/she should know to safely boat, either about the state’s boating laws/regulations or something about the state’s boating waters (e.g., the physical

qualities of the water, such as cold-water hazards, or boating on a river versus boating on a Great Lake).

**Figure 3.36. Reciprocity in Boating Safety Education Certification**



The focus group research revealed much the same attitudes on this topic among boaters. Most boaters in the focus groups did not think that boaters visiting or moving to another state needed new certification or a state-specific license; at the same time, however, a number of boaters in the focus groups acknowledged major differences in the boating characteristics in different regions of the country (Maine versus Florida, for example). A few focus group participants cited state-specific rules or regulations. One boater proposed an online “refresher” course to test boaters visiting other states on state-specific information.

*“I’d like to see the Coast Guard Auxiliary do online courses. If you were certified for Montana, like the lakes and the rivers there, and you were going to take a vacation to the Gulf, you could take a refresher course online by the Coast Guard Auxiliary.”*

– Boater who had taken a safety course

*“Around here, when you’re out in the bays or in the ocean, if you run up against a military ship, the military ship has the right-of-way. And they’ll go right over the top of you. Also, everyone in California is supposed to be wearing a life jacket, whereas in some other states only certain people have to wear them.”*

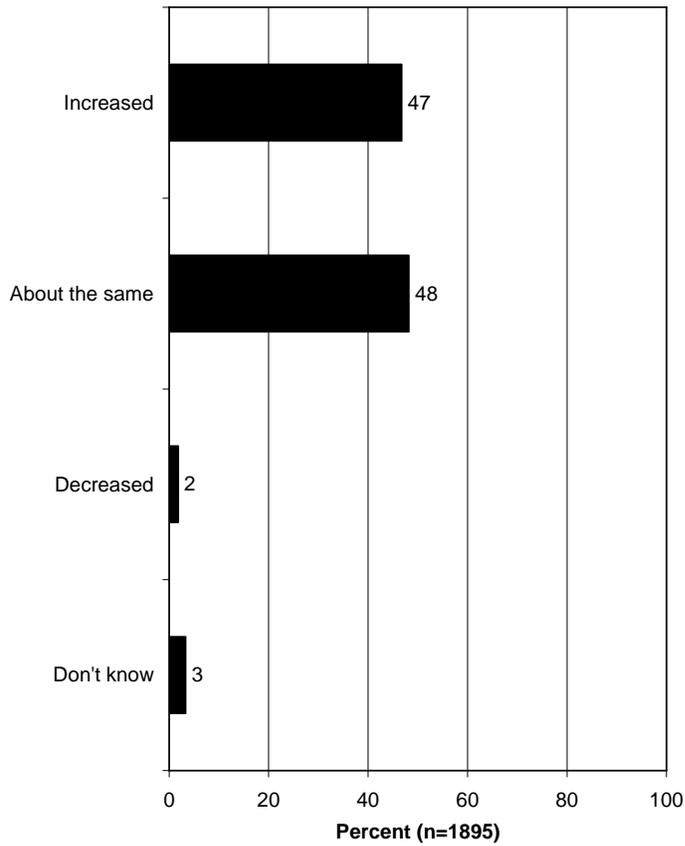
– Boater who had *not* taken a safety course

## **LAW ENFORCEMENT**

Finally regarding the survey of boaters, the survey included two measures of attitudes toward law enforcement. In the first, recall from Figure 3.1 that the second-ranked item regarding how to make boating safer was to maintain a more visible law enforcement presence (the first-ranked was an education-related answer). Also, in answer to a direct question about law enforcement, boaters much more often said that they would like law enforcement patrols to be increased (47%) than said they would like law enforcement patrols to be decreased (2%), with most of the remainder wanting patrols to remain about the same (Figure 3.37).

**Figure 3.37. The Opinions of Owners of Registered Boats on Law Enforcement Presence**

**Q53. Do you think the amount of law enforcement patrols on the waters in the state you boat most often in should be increased, stay about the same, or be decreased?**



## **CHAPTER 4: COMPARISON OF PROFESSIONALS' AND BOAT OWNERS' ATTITUDES TOWARD BOATING SAFETY EDUCATION PROGRAMS**

Phase I and Phase II of this study provided data on boating professionals' and boaters' opinions and attitudes about boating safety and boating safety education. On many issues, boating professionals and boaters have similar opinions. There are some areas, however, in which they have divergent opinions. This chapter discusses where opinions of the two groups are essentially the same and, more importantly, where their opinions differ, with a reconciliation of different opinions. Additionally, actual boating accident statistics from the U.S. Coast Guard are also compared to opinions of both groups.

### **EFFECTIVENESS OF BOATING SAFETY EDUCATION**

Both groups—boating professionals and boaters themselves—perceive boating safety education as being effective. Both groups, when asked to name actions that would make waters safer, most commonly indicated that education is the way to make waters safer. In comparing the attitudes of these two groups regarding this topic, we find that there is broad agreement.

### **TYPES OF BOATS AND BOATERS ON WHICH TO FOCUS**

Both professionals and boaters themselves think that boating education should focus on younger and inexperienced boaters—about this there is little disagreement. In the list of the types of boaters that boaters believe should be required to take mandatory education, younger boaters are heavily represented. Although the top answer is “all boaters,” the next five most commonly given answers center on younger and inexperienced boaters (e.g., teenagers, boaters born after a certain date). In this, boaters differ slightly from professionals. The professionals, while also mentioning younger/inexperienced boaters as high-priority target audiences, also include older adults as being a priority audience. In this, the professionals are closer to the reality of boating accidents, which are occurring in great numbers to operators older than 35 years old. The percentage of vessels involved in accidents operated by boaters over 35 is 39.7%, while the percentage operated by boaters 35 years old or younger is 34.6% (the remaining percentage is in the “unknown” age category). This suggests that older boaters should not be excluded from consideration as an important target audience.

One target audience—anglers—was not much mentioned by boating professionals or boaters as being an important target audience. However, U.S. Coast Guard statistics show that this target audience should be considered important. In looking at vessel activity at the time of accidents, fishing is prominent in the percentage of vessels involved, injuries, and especially in deaths (about a quarter of all deaths in 2007 occurred on boats in which fishing was an activity).

### **TOPICS AND BEHAVIORS ON WHICH TO FOCUS**

The topics on which to focus boating safety education were approached in the research in three ways. First, boating professionals were asked about issues of concern and about causes of accidents. Second, boaters were asked about issues of concern and about causes of accidents, and their behaviors were also examined. Third, accident data were examined regarding actual causes of accidents. For the most part, these three approaches obtained data that agree with each other, with just a few exceptions.

The first approach, based on boating professionals' responses regarding issues of concern and causes of accidents, found several important topics to be addressed: life jacket use, alcohol use, operator inattention, rules of the road, and inadequate or lack of training. These all were relatively high on the lists of Boating Law Administrators' and Education Coordinators' issues of concern and Boating Law Administrators' top perceived causes of accidents.

As indicated, boaters were also asked about issues of concern and perceived causes of accidents. Furthermore, boaters were asked about the frequency that they practiced various safety-related behaviors. Based on these questions, several topics emerge as important: alcohol use, reckless/careless operation, inadequate or lack of training, personal watercraft, speeding, and operator inattention. Additionally, although not named as top issues of concern nor as top causes of accidents, the research on boaters' behaviors also found that four behaviors are *not* widely practiced: checking the marine radio prior to launch, fueling the boat while the boat is properly docked, using life jackets, and filing a float plan.

Finally, in examining actual factors involved in accidents, injuries, and deaths (from U.S. Coast Guard statistics), the top factors are operator inattention, reckless/careless operation, passenger/

skier behavior, excessive speed, alcohol, no proper lookout, and operator inexperience (this latter factor analogous to inadequate or lack of training named by professionals and boaters).

Putting all these findings together, the research found much agreement. For instance, there appears to be no disagreement that lack of life jacket use is a huge problem—professionals, boaters, and actual accident/injury/death statistics point out the danger of not wearing life jackets. Likewise, alcohol and operator inattention are both problems about which there is much agreement.

Boaters mentioned that personal watercraft is an important topic. While this was not a topic of importance specifically mentioned by professionals, most of the other topics mentioned would certainly apply to personal watercraft (alcohol use, operator inattention, and rules of the road), so it may be that boating professionals focused on behaviors/factors in their responses rather than naming types of boats. Nonetheless, although personal watercraft was not specifically mentioned by professionals as an important topic, accident data point out the importance of educating personal watercraft users, as they make up about a quarter of all vessels involved in accidents (in the U.S. Coast Guard database), about a quarter of all injuries, and a tenth of all deaths.

The examination of boaters' behaviors found that checking the marine radio is not widely practiced (this could be in part because not all boats have a marine radio; nonetheless, this behavior should be addressed in boating safety education courses). While not checking the marine radio would not *cause* an accident, this behavior certainly would have consequences after an accident or in any emergency situation. Based on the possible consequences, it seems reasonable to include this as a topic to be addressed (i.e., a behavior that needs to be further encouraged). Likewise, fueling the boat while properly docked should also be further encouraged, even though fuel-related accidents accounted for only 0.6% of accidents and injuries in 2007. There is an environmental aspect to this behavior as well, so safety is not the only reason for practicing this behavior.

In looking at actual accident factors, one emerged as extremely important that was *not* widely mentioned by professionals or boaters: passenger/skier behavior. This factor in 2007 was the primary cause of accidents, involving more than 9% of all vessels involved in accidents, more than 12% of all injuries, and nearly 7% of all deaths. Related to this, no proper lookout accounted for accidents involving about 7% of all vessels, 7% of all injuries, and 3% of all deaths. When these findings are coupled with the fact that a common reason people give for *not* taking boating safety education is that they do not pilot the boat but are only passengers, the importance of boating safety education that focuses on passengers and passenger behavior is clear.

### **FORMATS AND LOGISTICAL ASPECTS OF BOATING SAFETY EDUCATION**

The professional group considers the classroom format to be the most effective for teaching boating safety. Both professionals and boat owners, furthermore, consider a hands-on component to be important. While, as stated previously, the format did not appear to greatly affect subsequent behaviors, the format did affect course participants' ratings of the effectiveness of the course.

### **MANDATORY BOATING SAFETY EDUCATION**

While boating professionals were not asked directly if they support or oppose mandatory boating safety education requirements, one could infer that support is high because the top answer among Education Coordinators regarding the actions that could be taken to make waters safer is to have mandatory education requirements include more boaters. Furthermore, the top answer among Boating Law Administrators and among Education Coordinators regarding the boating safety needs that are not being met is the lack of mandatory requirements. Boaters, on the other hand, were asked directly about their support or opposition to mandatory boating safety education requirements, and their support was high: 69% support, while only 25% oppose. These findings taken together suggest that there is much support among professionals and boaters for mandatory education requirements.

## **CERTIFICATION AND RECIPROCITY WITH OTHER STATES**

A question pertaining to mandatory boating education requirements and boater certification is reciprocity with other states. Both groups, boating professionals and boaters, want reciprocity. However, both groups' main concerns about reciprocity is ensuring that boaters new to a state are aware of state-specific information to allow them to boat safely. In this regard, both groups appear to be in close agreement.

## **CHAPTER 5: IMPLICATIONS**

The implications discussed below apply to both formal and informal boating safety education, unless specific to formal education (i.e., an education course).

The data in this report, as well as the data in the Phase I and Phase II reports, should be used as an ongoing resource, as the reports contain useful information about many topics. It may be that boating professionals, based on their own reading of the data, will find other implications of the results not discussed here.

### **AWARENESS AND EFFECTIVENESS OF BOATING SAFETY EDUCATION AND VARIOUS BOATING SAFETY EDUCATION PROGRAMS**

Boaters report that their behaviors improve with education; injuries and fatalities (according to U.S. Coast Guard data) are less prevalent among those boaters with education. In short, there appears to be political support among boaters for boating safety education. This includes formal and informal educational initiatives.

Awareness of boating safety education programs (including those that do not entail a formal course), such as National Safe Boating Week and programs focusing on alcohol prevention in particular, is low; in this regard, there is much room for improvement. Another program of which the boater survey found relatively little awareness is the Life Jacket “Wear It” campaign. Professionals and state government agencies should work to ensure that media materials supporting such campaigns are thorough and well publicized, particularly among boaters who use smaller bodies of water, such as freshwater lakes, rivers, and streams. Many boating professionals noted the importance of targeted advertising and outreach. The “Wear It” campaign’s simplicity (including its easy-to-remember tagline) should be treated as the asset that it is—work to insert the combination of the “Wear It” tagline and an accompanying image (e.g., a life jacket) into a variety of formats and media outlets, including Internet sites (especially state fish and wildlife agency sites and/or recreational boating sites), print publications, and in locations throughout the field.

## **TYPES OF BOATS AND BOATERS ON WHICH TO FOCUS**

Given limited funding, focus efforts on boats of less than 26 feet, which make up the majority of boats being used. Also, focus efforts on motorboats and personal watercraft, because these predominate in accidents, injuries, and deaths. (While sailboat safety, for instance, may be a good course, given limited funding, one would not want to focus on boats that make up only about 10% of registered boats being used at the expense of more commonly used boats.)

There is much emphasis on younger and inexperienced boaters. While this is necessary, these groups should not be the *sole* focus (fortunately, Boating Law Administrators and Education Coordinators indicated that some focus is put on older boaters). It is important to realize that more vessels are involved in accidents operated by boaters 36 to 55 years old than by boaters younger than 36, according to U.S. Coast Guard data.

It does not appear that anglers are considered an important target audience, but they should be. Anglers make up about a quarter of all boating accident deaths.

There is another target audience that appears to slip through the cracks, so to speak: passengers. A common factor in accidents, injuries, and deaths is passenger/skier behavior. This points out the utility of having passengers take boating safety education. Note that a somewhat common reason that people give for *not* taking boating safety education is that they do not pilot or steer the boat. In other words, many don't take boating safety education because they don't plan to pilot the boat, then they practice an unsafe behavior that is a factor in an accident.

## **TOPICS AND BEHAVIORS ON WHICH TO FOCUS**

Some of the more important topics to be covered, based on the surveys of professionals and boaters and an examination of U.S. Coast Guard boating accident data, include alcohol, life jacket use, reckless/careless operation, operator inattention, passenger/skier behavior, personal watercraft, speeding, having a proper lookout, fishing while boating, and hazardous conditions (particularly waves/wakes and weather). This list is not meant to be exhaustive, but it covers the most important topics, compiled from previously shown results among professionals and boaters regarding what they perceive as being important. It is also based on accident data, as well.

The survey identified four specific behaviors that boaters in the sample said they do not perform as frequently as they should: using life jackets (the operators themselves as well as their passengers), checking the marine radio *prior* to launch, fueling the boat while the boat is properly docked, and filing a float plan. Low participation in these specific behaviors suggests that they should be encouraged more strongly.

### **MOTIVATIONS/DISINCENTIVES FOR TAKING BOATING SAFETY EDUCATION AND SATISFACTION/DISSATISFACTION WITH BOATING SAFETY EDUCATION**

The negative correlation (as found in the nonparametric analysis of boater survey data) between having completed a boating safety course and being female suggests that there may be a demand for women-only courses. In other contexts (firearm safety, for instance), there is evidence that women feel more comfortable in a women-only class, which may better encourage their participation.

There is a positive correlation between *not* having a bachelor's degree and *not* having taken boating safety education. This possible link should be further explored. It may be that boaters at the low end of educational attainment are intimidated by boating safety education; it may be an environment—for instance, a classroom—in which they are not comfortable. Ways to increase these boaters' comfort level with boating safety courses is worth exploring and, if this is indeed the case, addressing.

A top reason for dissatisfaction with courses that boaters took was a mismatch in the boaters' expectations or needs and the actual content of the course. It may be that educators need to better indicate the content of courses and to create courses with modular materials so that boaters can choose topics that apply to them. This suggests a possible structure of boating safety education that would include a core course element that all boaters get and then modular supplementary elements from which boaters can choose so that they obtain the information that will be of most utility to them.

One way to motivate boaters to take boating safety education (short of mandating it) is to engender a feeling in them that there are things that they do *not* know. The top motivation

named by boaters for taking boating safety education was that they felt that there were things they needed to know to boat safely.

### **FORMATS AND LOGISTICAL ASPECTS OF BOATING SAFETY EDUCATION**

While classroom courses are *perceived* by both professionals and boaters as being more effective than online, distance, or home-study courses, the evidence suggests that *any* format can be effective. With this in mind, online courses should be offered, as they are cost-effective to administer, can be completed by the boater at his/her convenience, and have a strong demand. However, they should not entirely replace classroom courses, as the demand for those was still relatively strong.

Provide hands-on elements to classes where possible, as hands-on learning is considered effective by both professionals and boaters. If possible, some sort of hands-on simulation for online courses should be developed. Right now, hands-on experiences in classes are lacking.

While there are funding constraints to having several smaller education venues rather than a single larger one (the larger one would provide economies of scale), if at all possible, several smaller venues will encourage more total participation. The survey found that most boaters say they will not travel more than 30 minutes to take an education course.

The most demand was for a combination of weekends and weeknights rather than either of them as the sole offering for classroom courses.

Winter and spring courses were preferred, by far, over summer or fall courses for classroom courses.

### **PROVIDERS OF BOATING SAFETY EDUCATION, SOURCES OF INFORMATION, AND ADVERTISING ABOUT BOATING SAFETY**

Use the Internet for dissemination of information about boating safety courses, as it was the top-named source to which boaters would actively look for information. It is also cost-effective. Newspapers are also important sources of information for boaters, as many boaters indicate

reading about boating safety and boating safety courses in newspapers, which means that they will likely continue to look there in the near future.

Continue to use the U.S. Coast Guard as a provider, including the Coast Guard Auxiliary, and the U.S. Power Squadrons, as they have wide name recognition.

Note the multitude of opportunities for targeting advertising of boating safety programs and public service announcements, including boat shows, fairs/public events, schools, sportsmen's organizations/shows, through technology such as podcasts and YouTube, and on billboards, television, radio, brochures, pamphlets, and guidebooks.

### **MANDATORY BOATING SAFETY EDUCATION**

The study found much support among boaters for mandatory education requirements, and boaters, for the most part, feel safer knowing that mandatory education requirements exist, giving boaters some feeling of safety knowing that other boaters have had boating safety education.

### **CERTIFICATION AND RECIPROCITY WITH OTHER STATES**

The study also found much support among both professionals and boaters for reciprocity in boating education certification. However, they want to ensure that when transference of certification takes place that the boater new to the state knows all the state-specific information he/she needs to know to boat safely. A course with a state-specific modular element (discussed below) would supply this.

### **STRUCTURE OF BOATING SAFETY COURSES**

The findings suggest a course structure that includes a core section, with one or more modular elements for various specific boating activities/issues, particularly for state-specific information. This would ensure that all those who take boating safety education receive the necessary core information, any necessary state-specific information, and other modules of their choosing to allow them to tailor the course to their information needs (e.g., a sailing module for those who plan to use a sailboat; those not planning to sail would not need to take the sailing module). For

reciprocity, a boater moving to or boating in a new state (who has already passed the core information portion of certified boating safety education in one state) need only pass the state-specific information module in the new state. (Note that many boating education courses are already set up with this kind of structure—with a core section and then modules for various topics within boating safety—however, the requirements often entail completing *all* modules for certification. The suggestion here is that certification would not require *every* module to be completed; rather, only the core section and a set number of modules.)

## **VOLUNTEERS**

There are some important factors related to volunteers used for boating safety education efforts (a substantial percentage of whom come from the Coast Guard Auxiliary). Boating professionals and state governmental agencies should make efforts to reinforce incentives and motivation for volunteers, as many boating professionals said that volunteers are a critical asset to state boating safety programs—in short, the retention of every able volunteer appears to be extremely important. Boating professionals also noted the importance of developing standardized training for volunteers as a way of ensuring that all instructors of boating safety programs are adhering to NASBLA-approved standards and course topics, and to ensure the overall quality of instruction.

It is worth repeating that funding continues to be a major issue affecting boating safety programs, which in turn affects retention of trained and experienced staff/personnel, production of educational materials, and the ability to publicize and create awareness of such programs. In some cases, funding limitations for state boating programs adversely affect the quality of equipment and/or vessels used by law enforcement personnel, as well as the number of personnel able to patrol the water at any given time—all of these things are detrimental to the overall goals of state boating agencies. Alternative funding sources should be explored wherever possible.

## **LAW ENFORCEMENT**

Although not an education-related finding, note that the study found much support for increasing law enforcement presence on waters.

## **CHAPTER 6: METHODOLOGY**

### **PHASE I: PERSONAL INTERVIEWS WITH BOATING LAW ADMINISTRATORS AND EDUCATION COORDINATORS**

The Phase I multi-modal interviews with boating professionals, structured as surveys that also allowed for in-depth responses, were conducted face to face and by telephone. Most of the interviews were completed in-person at the NASBLA Spring Boating Law Administrators Workshop in Lexington, Kentucky, from March 10 to 15, 2008, and the NASBLA Education and Awareness Committee meeting in San Diego, California, from April 15 to 16, 2008. For Phase I, Responsive Management attempted to obtain a census of Boating Law Administrators and Education Coordinators. Responsive Management obtained 41 completed interviews with Boating Law Administrators and 47 interviews with Education Coordinators.

The in-person and telephone interviews of Boating Law Administrators and Education Coordinators were conducted by professional staff members of Responsive Management with experience conducting human dimensions research about natural resources and outdoor recreation. Responsive Management and NASBLA cooperatively developed the interview questionnaires for Phase I of the study. The Phase I face-to-face interviews were recorded on audiotape, and the pertinent data from the interviews were later entered by data entry personnel into a database. For Phase I interviews completed by telephone, the pertinent data were entered into a database as each interview was being conducted. The software used for the telephone interviews and the data collection was Questionnaire Programming Language (QPL).

The multi-modal interview questionnaires for Phase I consisted primarily of questions in an open-ended format (i.e., no response set was included from which respondents could choose) in an effort to capture “top-of-mind” issues associated with boating safety education programs as well as to obtain more in-depth information and insight into boating safety education programs, and responses were entered verbatim into the database. The analysis of the responses in the interviews, including the analysis of the open-ended questions, entailed several steps. First, audio recordings were reviewed, and the verbatim answers were typed into a database. The recordings were then compared to the entered data to confirm the accuracy of the data entry. Next, the data were closely analyzed for recurring themes, as well as for relevance to the purpose

of the research. By categorizing and computer coding the data, the emerging themes, issues, and most common responses could be quantitatively analyzed and displayed in easy-to-read graphs and tables. These data were further examined and analyzed in subsequent phases of the study in relation to the results of the Phase II telephone survey of owners of registered boats and for development of the implications for boating safety education programs in this Phase III report.

The analysis of the quantitative data that were obtained from the personal interviews and telephone surveys of Boating Law Administrators and Education Coordinators was performed using Statistical Package for the Social Sciences (SPSS) as well as proprietary software developed by Responsive Management.

## **PHASE II: BOATER TELEPHONE SURVEY METHODOLOGY**

### **Selection of Telephone as Survey Medium and Telephone Survey Facilities**

For the Phase II survey of owners of registered boats, telephones were selected as the preferred sampling medium. Responsive Management's central polling site allowed for rigorous quality control over the interviews and data collection. Responsive Management maintains its own in-house surveying facilities, staffed by interviewers and data-entry personnel with experience conducting computer-assisted telephone interviews and data collection on natural resource and outdoor recreation issues. The Phase II boater telephone survey questionnaire was developed cooperatively by Responsive Management and NASBLA. Responsive Management conducted a pre-test of the Phase II boater questionnaire to ensure proper flow, logic, and wording.

The researchers chose to interview owners of registered boats, thereby reaching a large constituency for boating education. While the researchers realized that this sampling design would miss some boaters (e.g., those who rent a boat, those who use a friend's boat, those who use an unregistered boat), the alternative sampling design to reach these boaters would have been prohibitively expensive. The alternative would have required a general population survey with screeners for any type of boating activity, requiring thousands of additional telephone calls. Interviewing owners of registered boats, thus, was a cost-effective method to determine opinions and attitudes of boaters regarding boating safety education and particularly issues related to mandatory boating education. The sampling design for this survey was based on standard

sampling methodology to accurately reflect the opinions and attitudes of owners of registered boats nationwide and regionally. The sample size chosen provided a sampling error of approximately 1.58% nationally.

To ensure the integrity of the Phase II telephone survey data, Responsive Management has interviewers who have been trained according to the standards established by the Council of American Survey Research Organizations. Methods of instruction included lecture and role-playing. The Survey Center Managers and other professional staff conducted project briefings with the interviewers prior to the administration of the boater survey. Interviewers were instructed on the type of study, study goals and objectives, handling of survey questions, interview length, termination points and qualifiers for participation, interviewer instructions within the survey instrument, reading of the survey instrument, skip patterns, and probing and clarifying techniques necessary for specific questions on the survey instrument. The Survey Center Managers and statisticians monitored the data collection to evaluate the performance of each interviewer and ensure the integrity of the data. After the surveys were obtained by the interviewers, the Survey Center Managers and/or statisticians checked each completed survey to ensure clarity and completeness.

### **Boater Telephone Survey Times and Dates and Sample Selection**

The boater telephone survey was conducted Monday through Friday from 9:00 a.m. to 9:00 p.m., Saturday noon to 5:00 p.m., and Sunday from 5:00 p.m. to 9:00 p.m., local time. A five-callback design was used to maintain the representativeness of the sample, to avoid bias toward people easy to reach by telephone, and to provide an equal opportunity for all to participate. When a boater could not be reached on the first call, subsequent calls were placed on different days of the week and at different times of the day. The boater telephone survey was conducted in September and October 2008.

Responsive Management obtained a total of 3,833 completed surveys of owners of registered boats nationwide. The state-by-state breakdown of completed surveys is shown in Table 5.1; the sample of boaters was designed to match the proportion of registered boats among all the states and Washington, D.C.

**Table 5.1. Number of Completed Surveys of Owners of Registered Boats by State**

State	Number of Registered Boats*	Percent of Registered Boats	Number of People in Sample	Percent of the People of Sample
Alabama	271,658	2.14	81	2.11
Alaska	49,533	0.39	16	0.42
Arizona	145,023	1.14	15	0.39
Arkansas	199,189	1.57	61	1.59
California	893,828	7.05	266	6.94
Colorado	98,067	0.77	29	0.76
Connecticut	108,701	0.86	32	0.83
Delaware	59,192	0.47	18	0.47
Florida	988,652	7.80	303	7.91
Georgia	336,579	2.66	103	2.69
Hawaii	15,109	0.12	5	0.13
Idaho	88,464	0.70	28	0.73
Illinois	383,615	3.03	115	3.00
Indiana	164,678	1.30	51	1.33
Iowa	234,335	1.85	69	1.80
Kansas	95,677	0.75	28	0.73
Kentucky	177,951	1.40	55	1.43
Louisiana	306,366	2.42	93	2.43
Maine	113,276	0.89	36	0.94
Maryland	204,277	1.61	61	1.59
Massachusetts	148,640	1.17	46	1.20
Michigan	828,529	6.54	246	6.42
Minnesota	862,937	6.81	258	6.73
Mississippi	179,433	1.42	53	1.38
Missouri	324,826	2.56	96	2.50
Montana	81,935	0.65	25	0.65
Nebraska	83,313	0.66	26	0.68
Nevada	59,957	0.47	18	0.47
New Hampshire	101,297	0.80	32	0.83
New Jersey	205,967	1.62	61	1.59
New Mexico	38,794	0.31	13	0.34
New York	497,975	3.93	153	3.99
North Carolina	370,291	2.92	116	3.03
North Dakota	49,638	0.39	19	0.50
Ohio	412,256	3.25	125	3.26
Oklahoma	216,556	1.71	64	1.67
Oregon	186,497	1.47	57	1.49
Pennsylvania	344,190	2.72	102	2.66
Rhode Island	43,375	0.34	14	0.37
South Carolina	436,075	3.44	134	3.50
South Dakota	53,430	0.42	20	0.52
Tennessee	271,687	2.14	88	2.30
Texas	595,934	4.70	179	4.67
Utah	76,481	0.60	24	0.63
Vermont	32,090	0.25	11	0.29
Virginia	248,091	1.96	74	1.93
Washington	270,627	2.13	93	2.43

State	Number of Registered Boats*	Percent of Registered Boats	Number of People in Sample	Percent of the People of Sample
Washington, D.C.	2,425	0.02	1	0.03
West Virginia	57,422	0.45	19	0.50
Wisconsin	635,571	5.01	191	4.98
Wyoming	26,296	0.21	10	0.26
TOTAL	12,676,705	100.00	3,833	100

\*Source: U.S. Coast Guard, *Recreational Boating Statistics 2007*

### Boater Telephone Survey Data Collection

The software used for telephone survey data collection was QPL. The survey data were entered into the computer as each interview was being conducted, eliminating manual data entry after the completion of the survey and the concomitant data entry errors that may occur with manual data entry. The boater survey instrument was programmed so that QPL branched, coded, and substituted phrases in the survey based on previous responses to ensure the integrity and consistency of the data collection.

### Boater Telephone Survey Data Analysis

The analysis of the boater telephone survey data was performed using SPSS as well as proprietary software developed by Responsive Management.

The analysis included crosstabulations by many variables, not all of which included important findings, but all of which were examined. These include, but are not limited to, the following:

- By whether the boater had taken a boating safety course.
- By the format of the course taken (among those who had taken a course).
- By the length of time since the course was taken (again, among those who had taken a course).
- By whether the boater had been in an accident.
- By whether the course taken was mandatory or voluntary (among those who had taken a state-approved certification course).
- By a regional breakdown based on the state in which the respondent boated most often, with the regions corresponding to the regions of the Western States Boating Administrators Association (AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, and WY), the Northern Association of Boating Administrators (CT, DE, IL, IN, IA, KS, ME, MA, MI, MN, NE, NH, NJ, NY, ND, OH, PA, RI, SD, VT, and WI), and the Southern States Boating Law Administrators Association (AL, AR, DC, FL, GA, KY, LA, MD,

MS, MO, NC, OK, SC, TN, TX, VA, and WV). Note that these are separate associations from NASBLA but are discussed on NASBLA's website.

- By a sub-regional breakdown simply because the above regions are so large, encompassing quite divergent types of states within each region (for instance, West Virginia, with no ocean coast, and Florida, with hundreds of miles of ocean coast, are both in the Southern States Boating Law Administrators Association). The sub-regions are: Coastal Western Region (AK, CA, HI, OR, and WA), Mountain Western Region (AZ, CO, ID, MT, NV, NM, UT, and WY), Plains Northern Region (IA, KS, NE, ND, and SD), Great Lakes Northern Region (IL, IN, MI, MN, OH, and WI), Northeast Northern Region (CT, DE, ME, MA, NH, NJ, NY, PA, RI, and VT), Interior Southern Region (AR, KY, MO, OK, TN, and WV), and Coastal Southern Region (AL, DC, FL, GA, LA, MD, MS, NC, SC, TX, and VA).
- By the strictness of the mandatory boating safety education requirements at the time of the survey. The states were categorized into three groups: most restrictive states—those that had “born after” or phased-in requirements (AL, AR, CT, DE, DC, KS, LA, MD, MS, MO, NV, NH, NJ, NM, OH, OR, PA, RI, TN, VT, VA, WA, WV, and WI); moderately restrictive states—those that had requirements only for teens (CO, FL, GA, IL, IN, IA, KY, MA, MN, MT, NE, ND, OK, SC, and TX); and least restrictive states—those that have requirements only for personal watercraft or had no requirements at all (AK, AZ, CA, HI, ID, ME, MI, NY, NC, SD, UT, and WY).

Note that after the Phase II report was completed, additional analyses of the Phase II survey data were conducted to shed further light on several aspects of the study.

### **Nonparametric Analysis of Boater Telephone Survey Data**

For the Phase II portion of the study, a nonparametric analysis examined how various responses to survey questions related to other responses to survey questions. Responses for selected questions were tested by z-scores for relationships to other responses (hereinafter, this analysis will be referred to as the “z-score analysis”). The z-score analysis of the boater telephone survey data examined 125 variables (based on survey responses of the respondents), entailing 7,875 calculations. A positive z-score means that the response and characteristic are positively related; a negative z-score means that the response and characteristic are negatively related. (The Phase II report includes a listing of the variables examined.)

The z-scores were calculated as shown in Figure 5.1 below.

**Figure 5.1. Nonparametric Analyses Equation**

$$z = \frac{(p_1 - p_2)}{\sqrt{p(1-p) \left[ \frac{1}{n_1} + \frac{1}{n_2} \right]}}$$

where:  $n_1$  represents the number of observations in Group 1.  
 $n_2$  represents the number of observations in Group 2.  
 $p_1 = a/(a + b) = a/n_1$  and represents the proportion of observations in Group 1 that falls in Cell  $a$ . It is employed to estimate the population proportion  $\Pi_1$  (% of Group 1 who had specific characteristic).  
 $p_2 = c/(c + d) = c/n_2$  and represents the proportion of observations in Group 2 that falls in Cell  $c$ . It is employed to estimate the population proportion  $\Pi_2$  (% of Group 2 who had specific characteristic).  
 $p = (a + c)/(n_1 + n_2) = (a + c)/n$  and is a pooled estimate of the proportion of respondents who had specific characteristic in the underlying population.

(Equation from *Handbook of Parametric and Nonparametric Statistical Procedures, 2<sup>nd</sup> Edition* by David J. Sheskin. © 2000, Chapman & Hall/CRC, Boca Raton, FL.)

### Boater Telephone Survey Sampling Error

The findings of the boater telephone survey are reported at a 95% confidence interval. For the entire sample of owners of registered boats nationwide, the approximate sampling error is at most plus or minus 1.58 percentage points. This means that if the survey were conducted 100 times on different samples that were selected in the same way, the findings of 95 out of the 100 surveys would fall within plus or minus 1.58 percentage points of each other. Sampling error was calculated using the formula described in Figure 5.2, with a sample size of 3,833 owners of registered boats and a population size of 12,676,705 registered boats nationwide.

**Figure 5.2. Sampling Error Equation**

$$B = \left( \sqrt{\frac{N_p(.25)}{N_s} - .25} \right) (1.96)$$

Where:  $B$  = maximum sampling error (as decimal)  
 $N_p$  = population size (i.e., total number who could be surveyed)  
 $N_s$  = sample size (i.e., total number of respondents surveyed)

Derived from formula: p. 206 in Dillman, D. A. 2000. *Mail and Internet Surveys*. John Wiley & Sons, NY.

**Note:** This is a simplified version of the formula that calculates the maximum sampling error using a 50:50 split (the most conservative calculation because a 50:50 split would give maximum variation).

## **FOCUS GROUP METHODOLOGY**

For this project, Responsive Management conducted four focus groups (two with boaters who had taken a boating safety education course and two with boaters who had not taken boating safety education). They were conducted in December 2008. The focus groups included representation from disparate regions of the U.S. in an effort to obtain qualitative data from many points of view.

Focus groups are non-directive group discussions that expose spontaneous attitudes of small groups. Focus groups entail an in-depth, structured discussion with a small group of participants (usually 8 to 12 people) about select subjects. The use of focus groups is an accepted research technique for qualitative explorations of attitudes, opinions, perceptions, motivations, constraints, participation, and behaviors. These focus groups provided Responsive Management's researchers with insights and understanding through the process of interaction.

### **Discussion Guide**

The focus groups were conducted using a discussion guide. The discussion guide allowed for consistency in data collection. Responsive Management developed the discussion guide based on previous experience, knowledge of literature in the field, input provided by NASBLA, and review of the data in Phases I and II.

### **Focus Group Moderation**

An experienced, trained moderator led each focus group, as unobtrusively as possible, through the discussion outline and looked for new insights into why boaters felt the way they did about particular boating safety issues. For each focus group, the moderator kept the discussion within design parameters without exerting a strong influence on the discussion content. The focus groups, each of which was slightly over an hour, were digitally recorded for further analysis. The focus groups were conducted via telephone conference hookup so that owners of registered boats from many different states could be included.

### **Focus Group Sample Acquisition**

A commonly encountered question about qualitative techniques and focus groups is one of sample size. Most qualitative techniques, such as the focus groups in this study, call for small sample sizes. The conclusions rest on face validity and rely on the depth of analysis rather than breadth of analysis. Focus group research, as does all qualitative research, sacrifices *reliability* (i.e., the ability to replicate results) for the sake of increased *validity*. The sample was recruited from among survey respondents for which information was already known to allow them to be categorized into the two groups (had boating safety education and did not have boating safety education).

### **Analysis of Focus Groups**

The analysis of the focus groups was conducted through observation of the focus group discussions and review of the digital recordings. Thus the analysis was performed in three iterations: 1) the actual focus group observation, 2) review of recordings, and 3) the development of the final report.

The analysis entailed listening to the discussions to identify topics of interest and nuances of issues of which the researchers were not previously aware. Additionally, review of the discussions helped the researchers better understand underlying reasons for certain survey findings, as well as helping verify other survey results. Some of the verbatim transcriptions of the focus groups were also used to shed light on certain nuances of the survey data for the reader's benefit.

## **ABOUT RESPONSIVE MANAGEMENT**

Responsive Management is a nationally recognized public opinion and attitude survey research firm specializing in natural resource and outdoor recreation issues. Its mission is to help natural resource and outdoor recreation agencies and organizations better understand and work with their constituents, customers, and the public.

Utilizing its in-house, full-service, computer-assisted telephone and mail survey center with 45 professional interviewers, Responsive Management has conducted more than 1,000 telephone surveys, mail surveys, personal interviews, and focus groups, as well as numerous marketing and communications plans, need assessments, and program evaluations on natural resource and outdoor recreation issues.

Clients include most of the federal and state natural resource, outdoor recreation, and environmental agencies, and most of the top conservation organizations. Responsive Management also collects attitude and opinion data for many of the nation's top universities, including the University of Southern California, Virginia Tech, Colorado State University, Auburn, Texas Tech, the University of California-Davis, Michigan State University, the University of Florida, North Carolina State University, Penn State, West Virginia University, and others.

Among the wide range of work Responsive Management has completed during the past 20 years are studies on how the general population values natural resources and outdoor recreation, and their opinions on and attitudes toward an array of natural resource-related issues. Responsive Management has conducted dozens of studies of selected groups of outdoor recreationists, including anglers, boaters, hunters, wildlife watchers, birdwatchers, park visitors, historic site visitors, hikers, and campers, as well as selected groups within the general population, such as landowners, farmers, urban and rural residents, women, senior citizens, children, Hispanics, Asians, and African-Americans. Responsive Management has conducted studies on environmental education, endangered species, waterfowl, wetlands, water quality, and the reintroduction of numerous species such as wolves, grizzly bears, the California condor, and the Florida panther.

Responsive Management has conducted research on numerous natural resource ballot initiatives and referenda and helped agencies and organizations find alternative funding and increase their memberships and donations. Responsive Management has conducted major agency and organizational program needs assessments and helped develop more effective programs based on a solid foundation of fact. Responsive Management has developed websites for natural resource organizations, conducted training workshops on the human dimensions of natural resources, and presented numerous studies each year in presentations and as keynote speakers at major natural resource, outdoor recreation, conservation, and environmental conferences and meetings.

Responsive Management has conducted research on public attitudes toward natural resources and outdoor recreation in almost every state in the United States, as well as in Canada, Australia, the United Kingdom, France, Germany, and Japan. Responsive Management routinely conducts surveys in Spanish and has also conducted surveys and focus groups in Chinese, Korean, Japanese, and Vietnamese.

Responsive Management's research has been featured in most of the nation's major media, including CNN, ESPN, *The Washington Times*, *The New York Times*, *Newsweek*, *The Wall Street Journal*, and on the front pages of *The Washington Post* and *USA Today*.

Visit the Responsive Management website at:

**[www.responsivemanagement.com](http://www.responsivemanagement.com)**