



**Assessing the Efficacy of Boating Education Courses:  
Retention Study**

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## Executive Summary

The National Association of State Boating Law Administrators (NASBLA) is the professional association that represents the recreational boating authorities in each of the 56 U.S. states and territories and supports those authorities through the establishment of standards for boating safety and education. The NASBLA-approved courses, which meet the National Boating Education Standards, are designed to provide recreational boaters with the information necessary to make them safer boaters while at the same time providing certification for those states that require boat operator certification.

In 2008, NASBLA identified a need to investigate the efficacy of online boating safety courses that have been approved by NASBLA, and a grant proposal on this topic was funded by the U.S. Coast Guard. The initial purpose of this quasi-experimental (nonrandomized) retention study was to determine if there are differences between classroom and online courses with regard to knowledge retention after a four-month time period. However, due to changing delivery and presentation techniques within the online courses, the study was revised to investigate participant retention rates for the classroom training condition only in order to gather the necessary baseline data on this aspect of boating safety courses.

NASBLA, the United States Coast Guard, and HumRRO research staff agreed to conduct the revised study on the basis of the following research questions.

**Primary:** What is the level of knowledge retention among participants completing the boating safety training in a classroom environment? Retention will be measured by comparing scores on a 25-item test administered immediately after completion of a classroom course with scores on the same test administered four months later.

**Secondary:** Is knowledge retention differentially related to variables such as age, gender, level of boating experience, and geographic area?

## Study Design

The study was designed to compare mean difference scores between a content knowledge test administered immediately after training and again four months later. The sample for this study is from a population of those seeking boating certifications and training from agencies in each of the 50 states and 6 territories. NASBLA has categorized states into three geographic regions: the West, North, and South. First, NASBLA identified the states in each region that offer both classroom and online training. From those, three states were randomly selected. Potential volunteers were asked prior to receiving the boating safety course of instruction if they were interested in participating in a study to improve boating safety courses should they pass the end-of-course exam. The only requirement for participation was that each participant has an active email account and access to the Internet in order to complete the study four months later. Financial incentives were offered to encourage participation. Data were collected between mid-February and October 2009. Data used for analysis included participant test scores from the initial and retention tests, in addition to responses from short questionnaires regarding age, gender, boating experience, and boating frequency.

## Research Findings

Of the 525 people who expressed interest in being part of this study by completing the initial questionnaire and 25-item test, 186 people completed the second part of the retention study, resulting in a 35% return rate. Based on the sample of 186 volunteers, degradation of knowledge was found between the initial and retention test scores. The result of a paired t-test on difference scores for N=186 was a t-value of 7.59, which is statistically significant at .0001. Participants missed approximately 4.5 questions of a 25-item test immediately after training (mean score for the initial test was 20.7). Four months later, the mean score for the retention test was 19.0; an increase in the incorrect responses of a little less than 2 questions on the same test.

Additional analyses were conducted to determine if retention was differentially affected by variables such as age, gender, frequency of boating, and geographic area. First, ages were categorized into three levels; Level 1 - "25 or under" (N=46), Level 2 - "26-49" (N=70), and Level 3 - "50 or older" (N=70). No significance was found among age levels; however, it is interesting to highlight that the mean difference score of the "Under 25" level was 2.30, while the age 26-49 and the "Over 50" levels were 1.7 and 1.4, respectively. Also, no significant differences were found with regard to how many times participants had been boating since taking the boating safety course.

Differences between males (n=128) and females (n=58) were statistically significant (F=5.14, p =0.0245). Males and females received very similar mean scores with the initial test, so the difference rests primarily from scores on the retention test. Significant differences were also found among the participating states. Post hoc comparisons among states indicated that one state was significantly different from the other states because it had the highest mean score with the initial test and the second lowest retention mean score. Further details are listed within the report.

## Summary

The study provides baseline data for future research into the retention of knowledge obtained from recreational boating classroom courses and comparison to online courses. The study indicates knowledge retention declines over time; however, the rate of decline (less than 2 questions on a 25-item test) does not seem to be an unreasonable drop in performance after four months (without refresher training) and does not suggest an immediate concern for boaters' safety practices. The study also suggests that some differences in retention may exist for other factors such as age, gender, frequency of boating, and geographic area. Additional study of classroom courses, to include online courses (particularly with regard to participant age), is prudent so improvements can be made to the courses.



# Efficacy of Online Boating Safety Courses: Retention Study

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# EFFICACY OF ONLINE BOATING SAFETY COURSES: RETENTION STUDY

## Introduction

The National Association of State Boating Law Administrators (NASBLA) is the professional association that represents the recreational boating authorities in each of the 56 U.S. states and territories and supports those authorities through the establishment of standards for boating safety and education. The NASBLA-approved courses, which meet the National Boating Education Standards, are designed to provide recreational boaters with the information necessary to make them safer boaters, while at the same time providing certification for those states that require boat operator certification. The instruction includes content on 7 boating safety standards that are common across all states, in addition to information that is unique to each state (e.g., tow line length, regulations for reporting accidents). The boating safety classes are offered by a variety of providers as either face-to-face classroom, home study or distance learning (online) training opportunities and generally involve 6-8 hours of content delivery. It has been estimated that as many as 500,000 individuals will receive boating safety certificates each year in the U.S.

## Background

In 2000, the final report for the *Phase Three: NASBLA Testing and Distance Learning Recommendations* was submitted by J. William Hug and led to the creation of the pool of test questions and standardized test writing format that are now in place for all NASBLA-approved courses. In this report, a series of questions were posed by the NASBLA Education Advisory Board to the researchers. The primary question was: What does evidence from educational research literature tell us about learner acquisition of boating knowledge in distance learning courses versus classroom courses?

A limited body of research has examined and compared learning or knowledge transfer between traditional classroom and online training experiences across educational and business environments. Bartley and Golek (2004) indicate that with the large numbers of online training opportunities, the literature has not been able to keep up, citing a two-phased study that found no significant differences in learning between the more traditional classroom and online training. The cited study (Schmeeckle, 2003) involved a law enforcement training center. The study was conducted to first evaluate the effectiveness and efficiency of online training. The second phase examined instructional time, motivation, and attitudinal advantages. Both phases found no differences between classroom and online training. Research has indicated that individuals learn in different ways; therefore, training should be designed to address multiple learning styles. Aragon, Johnson, and Shaik (2000) reported that online learning appears to be as effective as classroom learning even though students have different learning style preferences.

By July 2008, the research regarding knowledge transfer differences between classroom and online training remained thin; therefore, NASBLA identified a need to investigate the efficacy of online boating safety courses that it has approved. The initial purpose of this quasi-experimental (nonrandomized) retention study was to determine if there are differences between classroom and online courses with regard to knowledge retention after a four-month time period. However, due to changing delivery and presentation techniques within the online courses, the study was revised to investigate participant knowledge retention rates for the classroom training condition only, in order to gather the necessary baseline data on this aspect of boating safety

courses. NASBLA, the United States Coast Guard, and HumRRO research staff agreed to conduct the revised study on the basis of the following research questions.

**Primary:** What is the level of knowledge retention among participants completing the boating safety training in a classroom environment? Retention will be measured by comparing scores on a 25-item test administered immediately after completion of a classroom course with scores on the same test administered four months later.

**Secondary:** Is knowledge retention differentially related to variables such as age, gender, level of boating experience, and geographic area?

Classroom courses are commonly viewed as the “gold standard” for boating safety training. Having empirical evidence of knowledge retention rates for classroom training is necessary before comparisons to online courses can be made. The research questions are important in order to provide baseline data for classroom training and are an important first step in understanding knowledge retention of classroom, and subsequently online, courses. A proposal has been submitted to complete a secondary study to measure the retention rate of students who complete an online boating safety course and the data collected in this study will be compared to the data in the future retention study.

### **Project Design**

The study was designed to compare mean difference scores between a content knowledge test administered immediately after training and again after four months. Potential volunteers were recruited to participate in the study, and they were asked to complete a short questionnaire (primarily contact information) combined with a 25-item content knowledge test after they had successfully completed the classroom boating safety course. Participants were later contacted by email and were provided a link to complete another short questionnaire and the same 25-item content knowledge test.

The main goal for this grant project was to conduct a research study using established boater safety education materials to determine the efficacy of boating safety courses. The four tasks that were established to guide the work are described as follows.

#### ***Task 1: Develop the materials and resources for the retention study to determine the efficacy of boating safety courses.***

Instruments used in this study were two short demographic questionnaires (Appendix A) and one testing instrument (Appendix B). Questionnaire 1 was administered immediately after completing the course. In addition to participant contact information, the questionnaire asked if this was the first time that the participant had taken the course and the reason for taking the course. Questionnaire 2 was administered four months later, and, due to the change in the research question, it was expanded to include additional demographic questions deemed appropriate for enhanced analysis such as the frequency of boating, types of boats used, and whether the person had received any citations or been involved in any boating accidents since completing Questionnaire 1.

The testing instrument contained 25 content-based questions specific to the training that was delivered in the boating safety course. The standard NASBLA end-of-course test is composed of at least 50 items from a pool of NASBLA-approved questions that are weighted across all National Boating Education Standards and includes additional state or territory-specific questions (e.g., tow line length, regulations for reporting accidents). A concern for the researchers was that potential volunteers might be reluctant to complete a second test knowing it would be 50 questions in length, particularly for those who traveled some distance to a testing site. Therefore, it was determined that the retention test be limited to a 25-item subset of the standard test questions and retain a similar distribution across training objectives.

Although there is one 25-item test, it was administered twice using the same content-based questions; therefore, throughout the remainder of this report the 25-item test administered immediately after participants completed the course is identified as the “initial test.” The 25-item test administered after four months is referred to as the “retention test.” The questionnaires and 25-item test were reviewed and approved by HumRRO’s certified Institutional Review Board (IRB) and NASBLA.

***Task 2: Recruit study groups composed of states from each of the three regions.***

The sampling method used was a combination of purposeful random sampling and convenience sampling. Purposeful sampling has limitations on the generalizations possible when randomized sampling is employed (Patton, 2002). Those limitations are reflected in the summary and discussion of the research findings.

The sample for this study is from a population seeking boating certifications and training from agencies in each of the 56 U.S. states and territories. NASBLA has categorized states into three geographic regions: the North, South and West. First, NASBLA identified the states in each region that offer both classroom and online training; from those, three states were randomly selected. The states initially recruited for participation in the study were California, Delaware, Georgia, Indiana, Kansas, Nevada, Oklahoma, Oregon, and Virginia. After data collection began in early 2009, it became evident that response rates were lower than anticipated due to a number of factors, which included canceled courses and low attendance, so four states dropped out of the study (see Table 1). Two new states were added and the data that were received came from California, Georgia, Oklahoma, Oregon, Pennsylvania, Tennessee, and Virginia. Table 1 contains the states selected from the three geographic regions.

***Table 1. Distribution of States in Geographic Regions***

North	South	West
Delaware*	Georgia	California
Indiana*	Oklahoma	Nevada*
Kansas*	Tennessee	Oregon
Pennsylvania	Virginia	

Note. \* indicates no data were received from these states

Potential volunteers were asked prior to taking the boating safety course if they were interested in participating in a study to improve boating safety courses. The only requirements for participation were that each participant had to pass the classroom boating safety course and have an active email account with access to the Internet in order to be contacted for the completion of the study later. Participants were assured that there would be no consequences taken for those who received a failing score on the 25-item content knowledge test. Incentives were offered to encourage participation. Each participant who completed both the initial and follow-up tests received a check for \$10 that could be applied towards the cost of their course and certification. Additionally, an inflatable life jacket was given to 33 participants randomly chosen by an online random number service generator ([www.random.org](http://www.random.org)). The grand prize consisted of a \$500 VISA check card that was awarded to one participant who was again chosen randomly.

***Task 3: Conduct the study with the recruited students from each of the seven participating states.***

Data collection required two interactions with study participants: immediately after they completed the training and after four months. The first interaction was primarily the responsibility of the state agencies and was conducted between mid-February and November 2009. The delivery and presentation of the boating safety classroom courses were not altered nor was the traditional end-of-course test that was administered in each course. After successfully completing the course and traditional end-of-course test, volunteers were provided Questionnaire 1 and the initial test. The state agencies mailed the completed questionnaires to HumRRO and the data were entered into a spread sheet.

The second interaction with volunteers was initiated by HumRRO and began in early July and continued through mid-March 2010. HumRRO sent the study participants an email reminding them that they had completed the first part of the study earlier and asked them to click on a link to access a follow-up questionnaire and retention test. Nonrespondents were contacted two additional times, the first time after two weeks had passed and the final time after four weeks had passed. Participant responses were captured by the website program and entered into statistical software for analysis.

***Task 4: Analyze results of the study and present results to the NASBLA membership.***

Data used for analysis included participant test scores from the initial and retention tests, in addition to responses provided regarding age, gender, boating experience, and boating frequency. The data analyses included a mix of frequency and between-subject statistical tests beginning shortly after data collection was complete. A paired t-test was conducted for the test scores from the initial and retention tests. Analysis of variance (ANOVA) was used for comparisons among retention scores based on the information collected in the questionnaires. The t-test and ANOVA are statistical comparisons between one (t-test) or more (ANOVA) independent variables and the dependent variable. For this study the dependent variable is retention and the independent variable is the difference score between the initial and retention tests. The assumption is that if statistically significant differences in retention are found (main effect), then those differences are not due to chance. Other independent variables such as age, gender, and boating experience are then used to determine which variables may modify that

difference, or in other words, also have a main effect on retention. Additionally, a subscale analysis of test items was conducted to uncover any significant differences in scores based on participant responses related to the National Boating Education Standards for test content.

### **Research Findings**

Of the 525 people who expressed interest in being part of this study by completing the initial questionnaire and 25-item test, 186 returned to complete the retention study, resulting in a 35% response rate. There were 128 males and 58 females with an average age of 41; however, ages varied widely from 9 to 73 years. None of the participants reported being issued any boating citations since taking their boating safety course and two people reported the occurrence of non-injury accidents. Volunteers were asked to indicate why they were taking the course and were permitted to give multiple answers, 55 did. Table 2 provides the results from that question.

***Table 2. Reasons for Taking the Boating Safety Course***

Reason	Responses
To become a safer boater	138
State requirement	69
Save money on insurance	20
Other (e.g., need for work, family request, just wanted to)	39

The primary research question was to identify the level of knowledge retention based on the scores of the 25-item test administered immediately after training and again four months later. Based on the sample of 186 participants who completed the study, degradation of knowledge was found between the initial and retention test scores. The result of a paired t-test on difference scores for N=186 was a t-value of 7.59 which is statistically significant at .0001. The mean score of the test administered after training was 20.7 (the number of questions correct of 25) and the mean score four months later was 19.0, resulting in a difference score of 1.7.

Because significance was found in difference scores, additional analyses were conducted to determine if retention was differentially affected by variables such as age, gender, frequency of boating, and geographic area. First, ages were categorized into three levels; Level 1 - “25 or under” (N=46), Level 2 - “26-49” (N=70), and Level 3 - “50 or older” (N=70). A one-way analysis of variance (ANVOA) was conducted with no statistically significant differences being found between age levels, F Value 1.20 at 0.3031. It is interesting to note that Level 1 had a mean score on the initial test of 18.7 and 16.4 on the retention test, resulting in a mean difference score of 2.3. Levels 2 and 3 had mean scores on the initial test of approximately 21.3 with mean difference scores of 1.7 and 1.4, respectively.

The second analysis was conducted to determine gender differences. Differences between males (n=128) and females (n=58) were statistically significant (F=5.14, p =0.0245). On the initial test, females had a mean score of 20.4 while males’ mean score was 20.8; however, the retention test mean scores were 17.9 and 19.4, respectively.

Volunteers were asked how many times they had been boating since taking the boating safety course and seven levels of responses were provided (none, 1-5 days, 6-10 days, 11-20 days, 21-30 days, 30-60 days, and over 60 days). No significant differences were found between levels ( $F=1.95$ ,  $p=0.0754$ ).

The last analysis conducted was between the seven states (California, Georgia, Oklahoma, Oregon, Pennsylvania, Tennessee, and Virginia) participating in the study and differences were found to be significant ( $F = 3.23$ ,  $p=0.0084$ ). Post hoc comparisons between states indicated that Oklahoma was significantly different from the other six states with a difference score of 3.9. The participants in Oklahoma missed nearly 4 questions more on the retention test, whereas the mean difference score for the study as a whole was less than a 2-question difference.

### **Discussion and Summary**

Statistically significant differences were found in participant scores for the initial and retention tests; however, the practical significance (if the difference is meaningful enough to spur change in training or delivery) is not as clear. In other words, participants missed approximately 4.5 questions of a 25-item test immediately after training (mean score for the initial test was 20.7). Four months later, participants missed an average of fewer than 2 questions more on the same test (mean score of 19.0). A less than 2-question difference does not seem to be an unreasonable drop in test performance (without refresher training) and does not suggest that boating safety knowledge has sufficiently decreased to negatively impact safe boating practices. In addition to the t-test, a subscale analysis of the test items was conducted by content standard to determine if differences in retention were detected based on training topic. Even though the number of items (between 1 and 7) per standard was minimal for this type of analysis, results indicated that performance on test questions decreased similarly among content standards.

No significance was found among age levels; however, it is interesting to highlight that the mean difference score of the “Under 25” level was 2.3 while the age 26-49 and the “Over 50” levels were 1.7 and 1.4, respectively. This outcome may speak to the potential differences in learning modes between young people and adults. It is not uncommon to hear that youth flourish in computer-based learning environment, while adults are generally less comfortable in that setting and more comfortable in a classroom course. This could be an area of future focus when expanding the investigation to boating safety courses that are delivered online.

The difference between genders was found to be significant, yet the reason is unclear. Males and females received very similar mean scores with the initial test, 20.8 and 20.4, respectively. The mean score on the retention test for males was 19.4 and 17.9 for females; therefore, the main effect comes from the retention test. One reason could be the number of times participants had been boating since taking the boating safety course; however, that analysis found no significant differences.

Significant differences were found between participating states. Post hoc test results were interesting in that the difference was found primarily with one state, Oklahoma. When compared to the other five states with at least 8 participants, the primary reason for the difference was with the mean scores of the initial test. Oklahoma had a mean score for the initial test of 22.4 while

the other five states' mean score ranged from 20.3 to 21.1; one to two test points higher. The mean scores for the retention test from all states ranged from 18.4 to 19.7, with Oklahoma having the second lowest mean score of 18.5. It is important to note that the sample sizes for individual states are low and sweeping generalizations based on geographic area are not recommended. One state had fewer than 10 participants, five states had between 14 and 28 participants, and one state had 51 (see Table 3).

**Table 3. Distribution of Participants by States**

State	Number of Participants
Virginia	51
Oregon	28
Tennessee	28
California	22
Oklahoma	21
Georgia	14
Pennsylvania	8

To provide additional information about the study participants, they were asked what type of watercraft(s) they had used since taking the boating safety course. Table 4 provides a summary of the number of responses by category. Not all participants provided a response and many indicated they used several types of watercraft.

**Table 4. Watercraft Used by Study Participants**

Watercraft Category	Responses
Canoe/kayak/raft	13
Sailboat	13
Personal Watercraft (PWC)	28
Powerboats (less than 16')	4
Powerboats (16'-25')	73
Powerboats (26'-39')	13

Participants' satisfaction with the boating safety course was very favorable, 180 of the 186-person sample responding they were somewhat or extremely satisfied with the course. The only comment expressing dissatisfaction stated that the course information was lacking detail and was not delivered professionally. Many comments, however, indicated that the course information was useful and complete. Regarding the delivery of content, several suggested more interaction with students including hands-on opportunities such as having access to a boat in the parking lot and individual and team practice exercises (e.g. tying knots, recognition of channel markers, line handling).

In summary, this study provides baseline data for future research into the retention of knowledge obtained from recreational boating classroom courses and comparison to online courses. As hypothesized, data indicated that knowledge retention declines over time; however, the rate of decline (less than 2 questions on a 25-item test) does not seem to be unreasonable. That would roughly equate to a less than one letter grade reduction of score in a 100-point conventional grading system. A subscale analysis of the test was very limited because of the low number of items per standard, but it indicated that knowledge degradation is similar across content standards. The study also suggests that some differences in retention may exist for other factors such as age, gender, frequency of boating, and geographic area and that additional study of classroom and online courses (particularly with regard to age) is prudent so improvements, grounded in research, can be made to the courses.

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## Appendix A

This appendix includes two questionnaires: The Initial Questionnaire and the Retention Questionnaire

### **Initial Questionnaire (Questionnaire 1)**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Age: \_\_\_\_\_ Gender: \_\_\_\_\_

Is this the first time you have taken this boating safety course? Yes \_\_\_ No \_\_\_

If you answered no, how many times have you taken it in the past? \_\_\_

Why did you choose to take this course? (Check all that apply)

- To become a safer boater
- State requirement
- Save money on insurance
- Court order
- Other \_\_\_\_\_

## Appendix A, continued

### Retention Questionnaire (Questionnaire 2)

1. How many days have you been boating since you took your boating safety course? (Either yours or someone else's boat)

- a. None
- b. 1-5 days
- c. 6-10 days
- d. 11-20 days
- e. 21-30 days
- f. 31-60 days
- g. Over 60 days

2. Please list the type(s) of boat(s) you have used most often since you took your boating safety course. \_\_\_\_\_

3. Have you been involved in a boating accident since you took your boating safety course?

Yes \_\_\_ No \_\_\_

If Yes, Please provide more specific information such as the cause of the accident, if there were any injuries or fatalities, and the extent of damage. \_\_\_\_\_

4. Have you been issued any boating citations or violations since you took your boating safety course? Yes \_\_\_ No \_\_\_

If No, please provide additional details such as what was the violation for and if you dispute the citation or violation. \_\_\_\_\_

5. How satisfied were you with the boating safety course that you took?

- a. Extremely satisfied
- b. Somewhat satisfied
- c. Neither satisfied or dissatisfied
- d. Somewhat dissatisfied
- e. Extremely dissatisfied

If dissatisfied, please provide a brief explanation why. \_\_\_\_\_

6. Would you recommend a friend or family member to take the same boating safety course that you took? Yes \_\_\_ No \_\_\_

7. Have you taken other boating classes since this boating safety course? Yes \_\_\_ No \_\_\_

If Yes, please list what the classes were for. \_\_\_\_\_

8. Please list any other topics or information that you would have wanted to see included in the boating safety course that you took. \_\_\_\_\_

## Appendix B

This appendix contains the questions (from the NASBLA-approved item pool) used in the initial and retention tests.

<p><b>Directions:</b> Please circle the correct option for each question. If you make a mistake, please erase or scratch completely through your incorrect answer so that only the correct answer is circled.</p> <ol style="list-style-type: none"> <li>1. Registration numbers on the forward half of the boat must be at least how many inches high?             <ol style="list-style-type: none"> <li>a. two</li> <li>b. three</li> <li>c. four</li> <li>d. five</li> </ol> </li>   <li>2. When selecting a PFD, what should be the most important consideration?             <ol style="list-style-type: none"> <li>a. size</li> <li>b. price</li> <li>c. color</li> <li>d. uniformity</li> </ol> </li>   <li>3. A float plan should contain what information?             <ol style="list-style-type: none"> <li>a. a pre-departure checklist</li> <li>b. a national weather service storm listing</li> <li>c. Coast Guard emergency radio frequencies</li> <li>d. a date and time to contact the authorities</li> </ol> </li>   <li>4. What is the USCG-approved meaning of "serviceable condition" for PFDs?             <ol style="list-style-type: none"> <li>a. straps and zippers work</li> <li>b. proper size and fit</li> <li>c. the ability to turn a person face up</li> <li>d. must be within easy reach</li> </ol> </li>   <li>5. How many fire extinguishers are required aboard an 18-foot powerboat with installed fuel tank(s)?             <ol style="list-style-type: none"> <li>a. none</li> <li>b. one</li> <li>c. two</li> <li>d. three</li> </ol> </li>   <li>6. What does the letter "B" on a B-1 fire extinguisher indicate?             <ol style="list-style-type: none"> <li>a. the type of fire it is designed to extinguish</li> <li>b. the size of the extinguisher</li> <li>c. the capacity of the extinguisher</li> <li>d. the type of extinguisher mount to be used</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>7. What is the minimum number of minutes you should run the blower after refueling?             <ol style="list-style-type: none"> <li>a. one</li> <li>b. two</li> <li>c. three</li> <li>d. four</li> </ol> </li>   <li>8. In what part of the boat are gasoline fumes most likely to accumulate?             <ol style="list-style-type: none"> <li>a. bow</li> <li>b. stern</li> <li>c. bilge</li> <li>d. cockpit</li> </ol> </li>   <li>9. What safety precaution should you take while filling the fuel tank of a gasoline-powered boat?             <ol style="list-style-type: none"> <li>a. open all doors, windows, and portholes</li> <li>b. keep engines, motors, and fans turned off</li> <li>c. keep a water hose running to flush away any spills</li> <li>d. only allow smoking downwind of the fueling</li> </ol> </li>   <li>10. When can a Navigation Rule be overlooked?             <ol style="list-style-type: none"> <li>a. when operating in less than 50-feet off shore</li> <li>b. in good visibility during the day</li> <li>c. if necessary to avoid immediate danger</li> <li>d. in calm waters and clear weather</li> </ol> </li>   <li>11. To stop the spread of aquatic nuisance species, when is the best time to clean your boat?             <ol style="list-style-type: none"> <li>a. before you leave home</li> <li>b. when you get back home</li> <li>c. before leaving the ramp area after boating</li> <li>d. prior to launching at a different waterway</li> </ol> </li>   <li>12. What is the proper technique for anchoring?             <ol style="list-style-type: none"> <li>a. over the stern.</li> <li>b. from the bow.</li> <li>c. over the port side.</li> <li>d. from the starboard quarter.</li> </ol> </li> </ol>
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## Appendix B, continued

<p>13. A boat operating in a narrow channel is required to keep as close as is safe to what side of the channel?</p> <ol style="list-style-type: none"> <li>starboard side</li> <li>port side</li> <li>leeward side</li> <li>windward side</li> </ol> <p>14. The USCG requires which type of fire extinguisher to be on-board a PWC?</p> <ol style="list-style-type: none"> <li>Type A</li> <li>Type B</li> <li>Type C</li> <li>Type D</li> </ol> <p>15. What is the purpose of the safety lanyard on a PWC?</p> <ol style="list-style-type: none"> <li>to keep a throwable PFD from falling overboard</li> <li>to keep the operator from falling overboard</li> <li>to secure the PWC to its trailer to prevent theft</li> <li>to shut off the engine if the operator falls overboard</li> </ol> <p>16. Which is a characteristic of low head dams?</p> <ol style="list-style-type: none"> <li>They pose hazards both above and below dams.</li> <li>They pose few hazards to inboard-powered boats.</li> <li>They may be crossed safely at a 45-degree angle.</li> <li>They usually have strong currents just above them.</li> </ol> <p>17. Regulatory and informational markers are easily identified through which features?</p> <ol style="list-style-type: none"> <li>vertical black and white striping</li> <li>triangular shape and red lettering</li> <li>yellow square or triangular symbol</li> <li>white color with orange geometric shapes</li> </ol> <p>18. Under which conditions do most boating accidents occur?</p> <ol style="list-style-type: none"> <li>during late evening or nighttime rain</li> <li>during sudden lightning or thunderstorms</li> <li>during calm, clear weather with light winds</li> <li>during rough water with strong winds</li> </ol> <p>19. If you are in a boating accident involving an injury requiring medical attention, whom must you notify?</p> <ol style="list-style-type: none"> <li>your marina owner</li> <li>your insurance agent</li> <li>the U.S. Coast Guard</li> <li>the state boating authority</li> </ol>	<p>20. What should you do if your boat capsizes?</p> <ol style="list-style-type: none"> <li>swim for shore</li> <li>stay with the boat</li> <li>swim toward the last vessel you passed</li> <li>tread water to reduce the risk of hypothermia</li> </ol> <p>21. According to the Navigation Rules, what factor should be considered in determining a safe speed?</p> <ol style="list-style-type: none"> <li>the amount of fuel</li> <li>the state of visibility</li> <li>the maximum speed of the vessel</li> <li>the number of passengers</li> </ol> <p>22. Which of the following is the major cause of fatalities involving small boats?</p> <ol style="list-style-type: none"> <li>being run over by large boats</li> <li>being swamped by waves and sinking</li> <li>falling overboard and drowning</li> <li>loading the boat with too many people</li> </ol> <p>23. Where should you aim a fire extinguisher's stream when extinguishing a fire?</p> <ol style="list-style-type: none"> <li>At the top of the fire and use little motion.</li> <li>At the center of the fire and use a circular motion.</li> <li>At the edge of the fire and use a rapid motion.</li> <li>At the base of the fire and use a sweeping motion.</li> </ol> <p>24. According to the Navigation Rules, what is the give-way vessel's responsibility?</p> <ol style="list-style-type: none"> <li>to maintain course and speed</li> <li>to take early and substantial action to keep well clear</li> <li>to use hand signals to communicate to the passing vessel</li> <li>to keep astern of the other vessel</li> </ol> <p>25. While water skiing, what is the preferred form of communication between the skier and the observer?</p> <ol style="list-style-type: none"> <li>hand signals</li> <li>verbal commands</li> <li>rope signals</li> <li>water ski positions</li> </ol>
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