



Using the Powerboating Skills American National Standard for On-Water, Skills-based Instruction for Safer Boating

Technical Support Document for the *Powerboating Skills ANS*

Embrace the Standard • Design Instruction
Assess Performance • Make it Real

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Abstract

This Technical Support Document (TSD) has been developed to assist education providers, course developers, instructors, students, operator evaluators and operators in using the *On-Water Recreational Boating Skills Standard – Power* for entry-level recreational powerboat skills instruction and assessment.

The information contained in this document enhances understanding and guides the application of the *On-Water Recreational Boating Skills Standard – Power* in the design and implementation of instructional programs, courses, and curriculums for entry-level recreational powerboat operation. The standard was developed and agreed to by recreational boating experts from around the United States and validated through comprehensive national surveys and field-testing programs. The objective is to help raise, on a national level, the overall quality and availability of skills-based training and instruction for entry-level recreational boat operation, with the primary goal being an increase in the level of safety and enjoyment boaters experience on the nation's waterways.

Disclaimer

The content of this Technical Support Document (TSD) is advisory only. Its use is entirely voluntary. It represents, as of the date of publication, current understanding of best practices associated with designing and delivering recreational boating safety educational programming designed to incorporate content of the *On-Water Recreational Boating Skills Standard – Power* (EDU-1 *On-Water Power Standards* as titled by The American Boat & Yacht Council).

The National On-Water Standards (NOWS) Program, its subject matter experts and organizations involved in the development of this TSD assume no responsibility whatsoever for the use of, or failure to use, *On-Water Recreational Boating Skills Standard – Power*, this TSD, instructional materials promulgated by them, their adaptation to any instructional program, or any consequences flowing therefrom.

Users of this TSD are responsible for protecting themselves against liability associated with application of its content.

This TSD is a guide to achieving specific entry-level skills in recreational powerboat operation identified within *On-Water Recreational Boating Skills Standard – Power* and is not intended to preclude attainment of desired results by other means.

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Introduction

This Technical Support Document (TSD) provides information that complements the American National Standard (ANS) titled *On-Water Recreational Boating Skills Standard – Power, (EDU-1 On-Water Power Standards)* also known as the Powerboating Skills ANS.¹ The Powerboating Skills ANS went into effect on November 12, 2015.

This TSD includes information to help educators (course developers, instructors, trainers) learn about and use standards for on-water instruction in entry-level recreational powerboat operation. Detailed information about the standard is included, as well as benefits and guidelines for applying the standard to instructional programming.

The Powerboating Skills ANS and this TSD are part of a larger system of standards and other resources designed to help increase the level of safety and enjoyment boaters experience on our nations waterways. The standards and tools focus on increasing the level of quality and consistency of the instructional approaches used to deliver on-water skills-based education in recreational Power, Human-propelled and Sailboat operation, as well as the specific outcome skills boaters are able to demonstrate as a result of participating in those different approaches.

Since the Powerboating Skills ANS and this TSD focus on the outcome skills of powerboat instruction, they are intended to be used in conjunction with the *On-Water Recreational Boating Skills Standard – Instructional Approach (EDU-4 On-Water Instruction Standard)*, also known as the Instructional Approach Standard (IAS), and its corresponding TSD. The IAS and its TSD examine in detail the overall instructional approach used to deliver the outcome skills identified within the Powerboating Skills ANS and this TSD. Also, the IAS should be used in conjunction with the standards and TSDs for the Human-propelled and Sailing domains as well (see Figure 1).

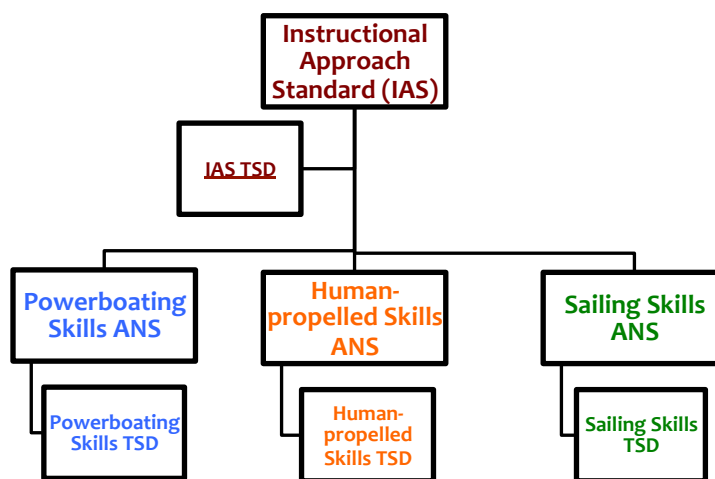


Figure 1: Relationship of On-Water, Skills-based American National Standards for Safer Boating

1 The title of the standard is *On-Water Recreational Boating Skills Standard – Power*, however ABYC has titled the ANS as *EDU1 On-Water Power Standards* to fit within its categorization system. Both titles are synonymous and may be used interchangeably in this document. Additionally, the phrase “Powerboating Skills ANS” may be used throughout this document to refer to either title.

Note: The Instructional Approach Standard (IAS) and its accompanying TSD are designed to be the first documents education providers read as they learn about and use standards for on-water instruction in entry-level recreational boat operation. The IAS is the starting place for developing new, or updating existing, on-water skills-based instruction courses or programs to follow the skills-based standards. It is recommended that the IAS and its TSD be reviewed prior to and in concert with this document.

Reader Navigation

This TSD is organized into four main chapters. To get the most out of the document, it is recommended that the following be used to determine which areas are applicable to the reader.

Introduction (this section).

Chapter 1. *Embrace the Standard* - Provides a brief history and places the Powerboating Skills ANS in the context of a national system of standards for recreational boat operation. Read this chapter to understand what the ANS is, why it was developed and the process used to develop and validate it.

Chapter 2. *Design Instruction* - Provides information on how to use the Powerboating Skills ANS to design, develop and implement courses, curricula, syllabi, and lesson plans. Read this chapter to understand ways in which instructional curriculum may be designed and implemented using the Powerboating Skills ANS.

Chapter 3. *Assess Performance* - Provides guidelines for using performance assessment / measurement rubrics to design specific behaviors into programs that result in skilled entry-level boat operation. Read this chapter to learn about how to assess, develop and strengthen students participating in entry-level instruction in recreational boat operation.

Chapter 4. *Make it Real* – Provides detailed information about the elements and assessment rubrics of the Powerboating Skills ANS to help apply it to instructional programming. Includes information for integrating Powerboating Skills ANS within instructional course and programs.

Appendices:

- A. The Powerboating Skills ANS.
- B. Powerboating Knowledge Standard to help design integrated skills and knowledge instructional programming.
- C. Integrating TSD information within Education Provider Materials.
- D. Additional Resources *
- E. Glossary

* Note: This document is intended to be a resource that provides important information about the on-water standards, why and how they were developed, and how to use the Powerboating Skills ANS along with the Instructional Approach Standard to design instructional programs and assess performance. ***This TSD is not meant to be a substitute for a textbook on instructional design.*** For those without training or experience in instructional design, please consider the resources provided in the appendices.

Chapter 1. Embrace the Standard

Embrace - *verb* - em·brace \im-ˈbrās\ - to take up especially readily or gladly.

The Powerboating Skills ANS was created using public grant funding; therefore, it belongs to the public. All are encouraged to **embrace** the standard as their own and use them to the maximum possible benefit. The more educators use the standards, the more our waterways can be safe and fun for all boaters.

Why have Standards?

The mission of the National Recreational Boating Safety (RBS) Program of the United States Coast Guard (USCG) is to ensure the public has a safe, secure, and enjoyable recreational boating experience by implementing programs that minimize the loss of life, personal injury, and property damage while cooperating with environmental and national security efforts.²

The USCG 2012-2016 RBS Strategic Plan Objective 3 ‘*Advanced and/or On-Water, Skills-Based Boating Education*,’ aims to “Increase the number of boaters who have completed advanced and/or on-water, skills-based boating education.” “To measure our progress, we must also establish a baseline and develop guidelines and **standards**.”³

The Powerboating Skills American National Standard (ANS) and this Technical Support Document (TSD) serve as a primary source of information used to help raise and standardize the overall level of quality, consistency and availability of on-water, entry-level powerboat education across the country in order to further enhance the safety and enjoyment of our nation’s recreational boaters. The standard also serves as a basis for monitoring progress toward that objective.

How were the Standards created?

The on-water skills ANSs were developed by the National On-Water Standards (NOWS) Program, which was funded through the USCG’s non-profit grant program in support of Strategic Plan Objective 3; the outcome being ANS within the context of the American National Standards Institute (ANSI). The standards were developed using the following *voluntary consensus* process:

- Engage a professional change management facilitator to design and manage an open, inclusive, and balanced process for developing and reaching *consensus* on the standards.
- Assemble a diverse core team of nearly 50 subject matter expert (SME) *volunteers* from across the recreational boating community to develop the initial content for the standards.
- Gather input on content of the standards from an additional 950 SMEs around the nation.
- Achieve consensus among the core SME team as to the fundamental skills individuals should be able to perform in order to be considered safe entry-level recreational boat operators, as well as the characteristics and qualities of the on-water instructional approach that should be used to develop those skills.
- Validate the standards by field-testing them at over 20 different venues around the country using actual boats operated by real people.
- Attain American National Standard status using a process led by the American Boat & Yacht Council (ABYC), which is an ANSI-accredited Standards Development Organization.

² Source: *A Report on the Strategic Plan of the National Recreational Boating Safety Program 2012-1016*; <http://uscgboating.org/content/strategic-plan.php>

³ *ibid*; page 21

In total, over 3000 subject matter experts and recreational boaters from around the country were involved in the five-version process to produce the standards. The American Boat & Yacht Council (ABYC), an ANSI Accredited Standards Developer (ASD), led the final stage of the process. The overall process resulted in the development, testing and consensus on 98 entry-level skills and over 1,100 specific safety-related behaviors associated with entry-level recreational boat operation, across the three domains of Powerboating, Human-propelled, and Sailing.



For more information about the process used to develop the Nows ANSs, visit www.onwaterstandards.org.

Developing proficient entry-level recreational powerboat operators toward the goal of safer boating requires consideration of a number of different factors, including:

- Ensuring the ‘right’ **people** are involved including both instructors and students appropriate for the program.
- Using instructional **methods** to engage students in hands-on experience with practice and feedback that takes place while on a boat.
- Establishing an environment that encourages students and instructors to learn, grow and develop as they engage in a safe learning **context**.
- Having among the key players a clear and shared understanding of the learning **outcomes** targeted for the experience.

To make boating instruction most effective, best practices for on-water, skills-based instruction needs to include standards associated with this entire **system** of people, methods, context and outcomes.

Four ANSs have been developed to address on-water, skills-based instruction for safer boating associated with this system. The *On-Water Recreational Boating Skills Standard – Instructional Approach (EDU-4 On-Water Instruction Standard)*, also known as the Instructional Approach Standard (IAS), serves as the ‘umbrella’ ANS. It identifies the characteristics and qualities associated with all parts of the system and is applicable across the three recreational boating education domains of **Power**, **Human-propelled**, and **Sail**. The three domain-specific skills ANSs identify the learning outcomes of instruction associated with each domain of recreational boating. They are:

- *On-Water Recreational Boating Skills Standard – Power (EDU-1 On-Water Power Standards)*, also known as the **Powerboating Skills ANS**⁴ (described in this TSD)
- *On-Water Recreational Boating Skills Standard – Human-propelled (EDU-2 Skill-Based Human-Propelled Standard)*, also known as the **Human-propelled Skills ANS**
- *On-Water Recreational Boating Skills Standard – Sail (EDU-3 Skills-Based Sailboat Standard)*, also known as the **Sailing Skills ANS**.

The skills-based standards represent a consensus of recreational boating experts from across the country as to what skills should be included within an entry-level curriculum of instruction. More specifically, they identify the skills recreational boat operators should be able to demonstrate as a result of participating in an on-water skills-based instructional program.



To learn more about these standards and their accompanying TSDs, visit www.usnows.org.

⁴ The parenthetical titles (EDU-1..., EDU-2..., and EDU-3...) of the domain-specific skills standards refer to the ABYC titles, which are used to fit within its categorization system. The respective titles are synonymous and may be used interchangeably. Additionally, the abbreviations “Power Skills ANS,” “Human-propelled Skills ANS,” and “Sailing Skills ANS” may be used.

What does the Powerboating Skills ANS do?

The Powerboating Skills ANS identifies entry-level, performance-focused recreational boating skills. While the Powerboating Skills ANS describes outcome-based skills (the “what”), it does not address the process used to teach or acquire them (the “how”), since that is a decision best made by the education provider.

The Powerboating Skills ANS includes a fundamental set of on-water skills in order for the operator to be considered safe at an entry-level. Some instructional programs may contain additional elements not listed in the Powerboating Skills ANS. Other programs may contain a subset of the Powerboating Skills ANS elements. Additionally, many instructional programs may contain knowledge components in addition to on-water skills.

Rather than being prerequisites for entering an instructional program, the skills contained in the Powerboating Skills ANS would typically be learned as a result of participating in a beginner-level on-water boating course, although they may have been obtained in other ways, such as personal experience.

The Powerboating Skills ANS contains entry-level skills for the operation of the boat from the point it is in the water and ready for pre-trip inspection. Other than departure and return to the shoreline, the standard does not include launching or retrieving the boat with a trailer or hoist. Other than required items (e.g., life jackets, distress signals, etc.) to be carried aboard, it does not include the use of recommended items such as navigation charts, or a VHF radio, compass, anchor, etc.

Some elements in the Powerboating Skills ANS may require at least one other skill or knowledge element to be completed beforehand. In other words, some skills are progressive in nature and participants may need to be proficient in some elements prior to moving on to the next.

What are the operating conditions?

The Powerboating Skills ANS is organized into opening statements of maximum platform size and operating conditions followed by seven sections or *stages* of recreational boat operation. The opening statements are included in order to place the Standard within a uniform context applicable to the average conditions expected to be encountered during an instructional event. Additionally, the constraint of boat length is included to limit the size of platform upon which the skills would be expected to be accomplished. The platform characteristics and operating conditions are:

- *Boat length*: Less than 26 feet.
- *Wind / water conditions*: Less than 10 knots of wind, gusting to 12 knots; waves 1 foot or less.
- *Operating conditions*: Daytime with no restricted visibility or threatening weather.

The operations and skills in the Powerboating Skills ANS are intended to be carried out within all legal and good seamanship parameters for the operational environment. A statement to this effect is included, and reads:

“NOTE: For those recreational boat operations where the boat is in motion*, operator skills-based standard elements in this On-Water POWER Standard are accomplished according to aids to navigation, navigational rules, and regulations applicable to the location in which the skill is being executed.”

*The phrase...in motion” in the note above refers to when the boat is not at anchor, or made fast to the shore, or aground.

How is the Powerboating Skills ANS organized?

Individual skills are contained within seven sections or ‘stages of operation,’ which are:

1. *Prepare to depart* – the boat is in the water and secured.
2. *Leave a dock/slip/mooring/ramp/shoreline* – the boat leaves from a particular point of departure such as a dock, slip, mooring, ramp or shoreline.
3. *Maneuver in close quarters* – the boat is operating at slow speed in a limited or confined waterway.
4. *Operate in open water* – the boat is operating in a waterway and is capable of planing speed.
5. *Arrive at a dock/slip/mooring/ramp/shoreline (make first contact)* – the boat makes first contact at a point of arrival
6. *Secure the boat (preparing to leave boat unattended)* – the boat is being readied to leave unattended.
7. *Perform general safety/emergency procedures/maneuvers* – skills that can be performed during any of the operations.

Each stage of operation contains a list of *Elements* or individual skills that are each described in two parts, following a leading stem phrase “*The operator will be able to...*”. The first part (Part A) is the skill, and the second part (Part B) is the condition, or ‘proficiency,’ associated with successful performance of that skill. For example:

3.1	<i>The operator will be able to:</i> A: Turn the boat... B: by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.
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It should be noted that the numerical identifiers (‘3.1’ in the above example) assigned to the standard elements are for ease of reference only, and do not imply any sequential process of skill learning or performance. In addition, because of the nature of the stages of operation, some elements may be repeated, or may appear to be similar to elements in another stage of operation. It should also be noted that individual elements are organized within the seven operations for ease of reference and that each element can be applied within other operations during the design and delivery of instruction.

Is it mandatory to use the Powerboating Skills ANS?

The NOWS ANSs were created voluntarily and by consensus of recreational boating experts from across the country. As a result, they represent the foundation of best practices in on-water skills-based instruction in entry-level recreational boat operation.

Although there is no mandate for their use, all organizations and individuals providing recreational boating education are encouraged to design and deliver on-water courses that follow the ANSs. Doing so enables organizations and individuals to reap the benefits of higher quality instruction, students with greater readiness to engage in safer boating, and increased credibility of their programs in the marketplace. Following the standards also enables individuals and organizations to be part of creating the future of recreational boating education.

Is there a fee to use the Powerboating Skills ANS? Where can it be obtained?

The Powerboating Skills ANS and supporting its documents are freely available for use by anyone interested in the design and delivery of on-water skills-based recreational powerboat instruction. It is included in the appendix to this document as well as available for free download at the NOWS Program website.



To download a free copy of the Powerboating Skills ANS, visit: www.usnows.org.

Chapter 2. Design Instruction

Design - *verb* - de·sign \di-'zīn\ - to make drawings, preliminary sketches, or plans; to plan and fashion the form and structure of an object, work of art, project, program, etc.

The On-Water Standards may be used to **design** effective instruction programs, or strengthen existing programs.

For the purpose of a discussion on *skills-based* instructional design, please consider the following definitions:

- **Novice:** a person who is new to an activity and typically has little or no knowledge or skills related to that activity.
- **Beginner:** a person who has begun a course of instruction or is learning the fundamentals.
- **Entry-level:** The proficiency reached by a person who has successfully completed the appropriate beginner instruction and is ready to pursue (or 'enter' **safely** into) the associated activity.

In the context of powerboat skills instruction, the *novice* is someone who has decided they want to 'drive' a powerboat, but has perhaps never done so, or maybe tried it with supervision once or just a few times. The novice may have some notional concepts about powerboat operation but will likely have few direct *skills*, if any.

The *beginner* has enough motivation to 'take the plunge' and obtain instruction for powerboating skills. They may or may not hold a safe boating certificate issued by their state of residence, and they may have done a bit of research about boating, from books, magazines, videos, or Internet-based media.

The *entry-level operator* is a person who has successfully completed a beginner skills-based instructional program / course(s), or has sufficient personal experience, and is deemed ready to safely be in command of a recreational powerboat, under certain conditions. This includes whatever complimentary knowledge is required to be able to safely operate the boat.

The language structure of the Powerboating Skills ANS is outcome-based, meaning that the skills contained in the standard describe the outcome as a result of completing on-water skills-based boating instruction.

Designing New Programs

Like any quality product, an effective instructional program begins with sufficient planning and a viable foundation. One of main purposes of the Standard is to provide a solid foundation upon which high quality skills-based instructional programs for entry-level recreational powerboating can be built.

Course developers are asked to consider the following recommended guidelines for designing their beginner powerboating skills instructional program:

Decide first on the purpose and outcome skills for the instructional program.

Define and describe why the instructional program is being developed and what the student should be able to achieve as a result of participating in the program. This will help set the context for decision making about curriculum and course designs included within the instructional program.

The Powerboating Skills ANS identifies the outcome set of skills that an entry-level operator should be able to perform as a result of successfully completing a skills-based instructional experience in recreational powerboat operation. Generally speaking, the outcome of the instructional program is an entry-level operator that is more likely to be safe because they are able to satisfactorily perform all of the skills.

Since the skills identified in the Powerboating Skills ANS are targeted at beginners, prerequisites are not necessary for a course that is designed using the standard. However, course developers may choose to establish knowledge or skills prerequisites, based on their business model, equipment (boats), or environment (waterway or prevailing weather conditions).

Use the Powerboating Skills ANS to confirm that the instructional program will include the complete list of skills (the elements) identified in the standard.

The Powerboating Skills ANS contains the fundamental skills that have been determined by the subject matter experts to apply across the widest possible platforms and environments. Become familiar with the profile of all skills contained within the Powerboating Skills ANS before designing a curriculum or instructional program. Including additional elements in an individual program is certainly appropriate. Course developers and instructors are encouraged to add material to their offerings as applicable to their local markets, platforms, or waterways.

The Powerboating Skills ANS is not itself a course. Rather, it describes the desired outcome as a result of successfully completing one (or more) beginner powerboating skills course(s). When the student successfully completes the course(s), he or she should be able to perform all of the elements contained in the Powerboating Skills ANS. Therefore, decisions should be made about how skills instruction could be delivered (e.g., one long course, multiple short courses, etc.).

The skills identified in the Powerboating Skills ANS are all independent from each other. They can be learned, demonstrated and evaluated in most cases as separate skills without dependency across multiple skills. Therefore, they can be designed into an instructional program without having to link or connect them during instruction. Student performance on each skill can be assessed independently as well. A student can be highly proficient at one and have little proficiency in another. Therefore, when designing a program, consider each skill as an individual learning opportunity to be designed, delivered and evaluated independently from each other.

Familiarity with all of the standard elements will enable a better understanding of the full set of skills students should be able to perform as a result of instruction. This will also better inform the course designer about how best to organize and sequence learning objectives and instructional activities to best meet the needs of students.

Once the high-level design of the instructional program has been established, determine the number and scope of the course(s) required to deliver the skills associated with the curriculum. Then, determine which courses will deliver which skills to what level of proficiency.

Develop courses using a logical progression of skills development and experiential learning.

The Powerboating Skills ANS identifies the fundamental set of skills associated with entry-level recreational powerboat operation but it *does not prescribe* the exact order or sequence in which the skills must be taught or learned. It is mainly up to the course designer or instructor to determine the order or sequence. However, there is a logical progression for some of the skills contained within the standard making it more productive for a student to learn some of the skills before learning others. For example, it

might make more sense for a student to learn the skill of **‘stop the boat’** before the **‘return to the dock’** skill.

Manageable blocks of skills can be grouped together into learning modules. This is easily done, since the Standard elements are written as outcome-based, rather than technique-based. For example: a standard element for the skill of moving a powerboat in a straight line would be written “the operator is able to **steer the boat in a straight line**” rather than “the instructor will emphasize steering wheel orientation so the student effectively moves forward on a chosen heading.”

When skills development is the instructional focus, learning is best accomplished through experiential instruction *in situ* (i.e., the learning takes place in the actual environment that the boat would normally be operated). The Powerboating Skills ANS has been developed to target the skills-based outcomes for active, on-water, and hands-on approaches to recreational boating instruction.

Experiential learning is one of the most influential ways to enable students to learn skills. Experiential learning occurs when a student engages in the process of learning through experiences and then reflecting on the learning they achieve.

One of the more powerful applications of experiential learning is the use of real (vs. realistic) experiences on a boat during the learning process. As a result, it is important to consider all of the human senses associated with the experience of recreational boating. Thought should be given to designing experiential learning activities so that students develop all their available senses as they learn to demonstrate skilled recreational boat operation. Experiences can take into account the feel of the wind, the sounds of other people and boats, as well as the mechanical steps and procedures associated with boat operation. Awareness of the speed of the boat through the water is often difficult for students to accurately perceive. Continual coaching on this aspect makes the learning of many other tasks much easier.

Because experiential learning is so potent, the learning of several related skills can be combined into one activity or scenario. This has a synergistic effect that promotes efficiency and effectiveness of the instruction.

Allow sufficient time for students to learn more difficult or complex skills.

Some of the skills in the Standard are larger in scope and more comprehensive than others. For example, the ‘Return to Man Overboard’ skill involves a number of different skills and behaviors put together to achieve a desired outcome - that is to quickly and safely maneuver the boat back to someone who is in the water. Whereas this comprehensive skill might be difficult to learn in the aggregate, it is an excellent learning opportunity that brings together several other individual skills. ‘Return to Man Overboard’ can be learned and demonstrated on many different types and sizes of boats.

These skills will likely take more design time, as well as more actual time to learn during instruction. Considerations for this include:

- Allow sufficient time to design more comprehensive skills.
- Consider parsing comprehensive skills into smaller components.
- Design experiences for learning portions of a larger skill prior to other parts.
- Plan to use more instructional time on those skills that are larger in scope.
- Be mindful about the type of boat used for learning comprehensive skills.

Reviewing and Updating Existing Programs

Existing powerboat instruction courses may be reviewed and updated using the Powerboating Skills ANS. Many of the guidelines written in the preceding section apply, and in this case, it is a matter of taking a look at the existing program to see how the course design and curriculum align with the Powerboating Skills ANS. Becoming familiar with content of the standard is equally important whether designing a new course or updating an existing one. Additional guidelines include:

Gather information and ideas from instructors about existing courses and past student outcomes.

Since they are the ones who interact most frequently and directly with students, instructors often have valuable perspectives about existing courses and ideas on how they might be improved. Instructors can be briefed on the Powerboating Skills ANS and asked to compare the elements with what they have experienced in genuine instructional scenarios. Instructors can help determine if there are areas of the existing program that might be missing or need improvement so that they better align with the standard.

Observe practical on-water exams during existing courses to determine if all skills elements are currently included.

The Powerboating Skills ANS may be used as a checklist of skills to see if all of the elements are being included in existing skills practical exams. Using the checklist to observe skills can help quickly determine which ones are present, which ones are missing, or which might need improvement within the existing instructional course. For example, students consistently demonstrating low levels of performance on any one skill may indicate a potential problem with the instructional design or approach used to teach that particular skill.

Consider creating an alignment matrix to analyze the contents of an existing course.

The modules or individual components of an existing course may be placed into a column and lined up with the standard elements, which are placed in another column. This can enable a comparison between the contents of a course with the contents of the standard. It also may reveal gaps, or areas within the existing course that need strengthening.

Determine what changes, if any, should be made to the existing course.

After performing the appropriate amount of analysis, as suggested in the previous guidelines, decisions can be made and priorities assigned to the areas that will have the most impact in successful student outcomes. Perhaps the course is sufficient as is and requires no change, since it already aligns with the standard. Or, maybe some gaps were found between the existing course and the standard elements, in which case additional course content may need to be created or emphasized. In either case, by using the standard, the existing program can be evaluated to determine its completeness and whether or not it should be changed.

Alignment of Knowledge with Skills

The primary focus of the Powerboating Skills ANS is on *skills* associated with entry-level recreational boat operation. However, safe recreational boat operation also requires *knowledge* as well as good *judgment* and a positive *attitude*.

The National Association of State Boating Law Administrators (NASBLA) Education Standards Panel (ESP) is the organization responsible for the *NASBLA-103-2016 Basic Boating Knowledge - Power* Standard, the content of which has been in use for a number of years. This Knowledge Standard forms the basis for mandatory boater education in most of the states and territories of the USA and is primarily concerned with risk management. Like the Powerboating Skills ANS, *NASBLA-103-2016 Basic Boating Knowledge - Power* is also an ANS.

Course developers and instructors can choose if, when and how to integrate knowledge and skills components into their instructional approach. It should be noted that Knowledge Standard elements could be taught in a non-classroom setting as part of an on-the-water, skills-based course, particularly at an entry level.

Although different groups developed the Knowledge and Skills Standards at different times, the two standards are complimentary and can be used together by course developers. A separate Technical Report⁵ is planned for the Knowledge Standard, and that document will provide details of the how to use the Knowledge Standard. Appendix B of this document contains more information about the Sailing Knowledge Standard.

Design Instruction - Q & A

Why are some elements repeated in the Powerboating Skills ANS?

Certain elements were originally repeated to emphasize safety, and because they tend to apply across multiple operations. The repeated elements are currently found in Operation 7 “Perform general safety/emergency procedures/maneuvers.”

Does a course need to be certified that it meets the standard?

Although not required, education providers are encouraged to follow the Powerboating Skills ANS in the design and implementation of on-water instruction. It is recommended that they be deliberate about their use of the ANS to design and implement their on-water instructional course or program.

For existing courses, this can involve determining through self-assessment the extent to which the course follows the Powerboat Skills ANS. The NOWS Program has developed a Self-Assessment Checklist for this purpose.



For a free copy of a NOWS Self-Assessment checklist for assessing the extent to which the instructional approach follows the Powerboating Skills ANS, visit: www.usnows.org.

⁵ A ‘Technical Report’ and a ‘Technical Support Document’ are essentially the same type of document used to provide additional information in support of an American National Standard.

What if a program already follows a different standard?

The Powerboating Skills ANS sets the foundation for best practices in entry-level, on-water skills-based powerboat instruction. If the program under consideration already follows a standard, check the extent to which that standard follows the Powerboating Skills ANS. If the program standard meets or exceeds the Powerboating Skills ANS, there is no need to change the program. If the program standard is set lower than the Powerboating Skills ANS, make alterations to ensure the program meets or exceeds the Powerboating Skills ANS.

If the program under consideration was developed by a different organization, such as a parent organization or national association, contact the program owner and inquire whether or not the course was designed to follow the ANS.

- If the program is designed to follow the Powerboating Skills ANS, check to ensure implementation of the program locally is taking place according to the program standards.
- If the program is not designed to follow the Powerboating Skills ANS, work with the course owner to update the program so that it follows the ANS.

Is a certified instructor required to teach a course that includes the skills identified in the Powerboating Skills ANS?

Although a non-certified instructor could theoretically teach skills identified by the Powerboating Skills ANS, it is important that instructors have appropriate experience, training and certification as required by the organization providing the education. If a course includes skills identified by the standard, and that course requires certification, then all the necessary procedures and protocols need to be followed to acquire the appropriate certification for that course. It is also recommended that course developers receive training on how to design instructional programming.

How many standard elements are needed to ensure that a course is complete?

The Powerboating Skills ANS identifies the skills a recreational boat operator should be able to perform at an entry-level. For one course to comply with the entire Standard, it would need to deliver all the skills identified within the standard. However, there is no pre-determined number of courses it should take to deliver all the skills within the standard. Therefore, a number of different short courses could collectively comply with the full standard, even though each delivers only a subset of the skills identified within the standard. The number of courses or instructional experiences required to deliver the complete set of entry-level skills is a decision to be made by the education provider, based on unique situations, curriculum design, etc. For example:

- Time limitations may necessitate the design and delivery of an introductory course, in which case using a subset of the skills from the standard may be appropriate.
- An organization may require verification or certification of a specific course, which implies that all of the skills identified in the standard may be needed in order to comply with that organization's certification specifications.
- Additional skills or learning experiences beyond the scope of the standard may be needed to obtain a particular certification.

Can the standard elements be edited or changed?

The Powerboating Skills ANS has been designed to fit within a particular set of parameters such as boat size and wind/water conditions. When designing instruction that fits these parameters, the elements should remain intact and unchanged. However, a course or program can be delivered so that it exceeds the levels of proficiency identified within the standard. In these situations the standard remains the same. It is the course that is '*changed*' to exceed the standard. Appropriate precautions should always be taken to ensure a safe learning environment and experience.

Can more skills than are currently in the Powerboating Skills ANS be included in a course?

Yes. The Powerboating Skills ANS contains the fundamental set of skills associated with safe recreational boat operation at the entry-level, as agreed to by experts looking at a national level. There may be other skills not contained within the standard that are relevant to a specific location or learning environment and that impact safe boat operation. If these additional skills are relevant and important, then they should be added to the program.

Chapter 3. Assess Performance

Assess - *verb* - as·sess \ə-ˈses\ - to estimate or judge the value, character, etc., of; evaluate.

The rubrics that correspond to each element of the Standard make it easier to **assess** and measure the performance of a student or boat operator.

Rubrics - Definition and Purpose

The use of a standard for the design and implementation of instructional programming requires that performance against that standard can be assessed. Therefore, part of the standard development process involved the creation of *rubrics*.

A rubric is an assessment tool used to create deliberate and explicit clarity about the targeted outcome of learning. Rubrics are particularly helpful in learning situations where the focus is on physical education or training; i.e., skills development. Rubrics are an authentic approach to education in that they help instructors and evaluators design and assess student learning that takes place within the context of eventual use of skills. Specifically, rubrics are used to:

- Identify the priority characteristics of a desired outcome or final product of performance. In this case, for a particular boating skill, which is expressed by a standard element.
- Differentiate strong from weak performances.
- Make performance expectations known in order to increase the quality of learning.⁶

Rubrics were developed for use with the Powerboating Skills ANS to:

1. Help course developers and instructors raise the quality of recreational boating education.
2. Assist in determining the effectiveness of the standard to differentiate safe and unsafe recreational boat operation.
3. Provide observers with a way to distinguish different skill levels to determine if the level of difficulty identified within the Standard was at the entry-level.

The rubrics were created using the same development process as the standard elements. The rubrics were also used to field-test the Powerboating Skills ANS as part of the on-water validation program.

The focus of the rubrics is on entry-level behaviors that can be observed while skills are performed rather than on the process or method for teaching or accomplishing the skills. By providing additional clarity beyond the ‘Part B’ proficiency description in the Standard Elements, the rubrics enable:

- Course designers to have more information about what might be included within their curriculum to achieve desired performance outcomes.
- Instructors and evaluators to calibrate behavior observations and assess performance more easily.

Assessing Performance with Rubrics

Standard **elements** are individual skills that are described in two parts, following the leading stem phrase “The operator will be able to...”. The first part of the element, Part “A,” is the skill, and the second part of the element, Part “B,” is the condition or proficiency associated with successful performance of that skill.

⁶ Lund, Jacalyn L., Ph.d. (2000). *Creating Rubrics for Physical Education*. National Association for Sport and Physical Education.

Each standard element has a corresponding **rubric** describing behaviors associated with the following three levels of performance:

- Level 3: Successful Performance
- Level 2: Needs Improvement
- Level 1: Unacceptable (Unsuccessful) Performance

An **element** describes a **skill and proficiency**, whereas the **rubric** describes the qualities of **behaviors** and **actions** that might be observed during the performance of the skill.

Measureable characteristics (e.g., angles in degrees, distance in boat lengths, etc.) are included in the rubrics whenever possible to allow performance to be quantified, and help the evaluator select the appropriate level of performance. To help illustrate the difference between elements and rubrics, the example from Chapter 1 is revisited. Standard Element 3.1 is shown below, along with the corresponding rubric:

Element	3.1	<i>The operator will be able to:</i> A: Turn the boat... B: <i>by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.</i>
Rubric	Level	Proficiency description
	3 Successful Performance	<i>The operator:</i> Turns boat 180 degrees within 1-2 boat lengths. Turns helm only while in neutral. Shifts gears smoothly. Throttle control is smooth using appropriate amount of power. Maintains proper lookout during entire maneuver.
	2 Needs Improvement	<i>The operator:</i> Turns boat 180 degrees with in 2-3 boat lengths. Occasionally turns helm in wrong direction while in neutral or has awkward transition into and out of gear. Applies more throttle than needed some of the time. Maintains proper lookout during entire maneuver.
	1 Unacceptable (unsuccessful) Performance	<i>The operator:</i> Turns boat almost 180 degrees taking more than 3 boat lengths. Frequently shifts into wrong gear. Turns helm in wrong direction, turns the helm while in gear. Does not maintain lookout throughout the entire maneuver.

In this example, the **skill** is written as:

[The operator will be able to:] **A: Turn the boat...**

and the priority descriptor of **proficiency** is written as:

B: by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.

Some of the rubric for this element is derived directly from Part B and used in the three levels:

- Level 3: Turns boat 180 degrees within 1-2 boat lengths.
- Level 2: Turns boat 180 degrees with in 2-3 boat lengths.
- Level 1: Turns boat almost 180 degrees taking more than 3 boat lengths.

Additional behaviors are written into each rubric to help instructors coach students for further learning and skills development and to enable an evaluator to more effectively determine the level of performance. Following are the purpose and uses of the three levels:

- Level 3 Successful Performance - Identifies the successful level of proficiency with the Element. Contains key information from Part B of the Element and targets the desired level of

performance. Helps instructors focus student attention on the desired outcome for a particular skill.

- Level 2 Needs Improvement - Describes a level of performance that is not quite at the targeted or desired level. Provides instructors with a means to identify and focus coaching opportunities for additional skills development.
- Level 1 Unacceptable (unsuccessful) performance - Identifies behaviors that are well below the desired outcome. Significant learning may need to occur to achieve successful performance.

It should be noted that the ***behaviors and actions described in the rubrics are not exhaustive***. Additional performance criteria may be appropriate to include in certain situations, such as unique platforms or environments. While the rubrics are provided to assist with the assessment of student proficiency, the *instructor's judgment is ultimately what determines successful or unsuccessful performance* of each skill and overall.

Guidelines for Using Rubrics

Align performance assessment with the purpose and outcome of instruction.

The Powerboating Skills ANS and rubrics have been developed to assist education providers with teaching and evaluating skills associated with safe recreational boating. Rubrics are provided as a means to elaborate on behaviors associated with skills identified in the standard. Student performance assessment should be aligned with the intended purpose and outcome of the instructional program. If these rubrics are not used, it is recommended to develop and integrate other rubrics aligned with the purpose and outcomes of instruction.

Use rubrics before, during and after a learning experience.

Before an instructional event, share the rubrics with students so that they know what they are being asked to learn and do. This process of establishing an *anticipatory set*⁷ is a powerful approach to engage students more effectively in the learning process. When students are aware of what they will be expected to learn and do, they are likely to be more ready for the learning experience.

During a course, use the rubrics to provide students with feedback about their current level of skills acquisition and to target additional learning needs. This is called ***Formative Evaluation*** and it provides an opportunity to adjust learning while there is still time to redirect toward a more successful outcome.

After the instruction is finished, use the rubrics to assess overall proficiency. This is known as ***Summative Evaluation***, and is used to determine whether a student has successfully acquired the skills associated with the Standard and safe entry-level recreational powerboat operation.

Establish criteria for successful course completion, using the Standard and rubrics as source material.

A question many people have asked during the standard creation and validation process is: *How does one determine if a student has passed or failed the standard?*

⁷ Establishing anticipatory set is an instructional strategy that is intended to capture a students' interest in the beginning of a lesson.

The Powerboating Skills ANS and this TSD are source documents used to design instruction and assess performance. Neither the standard nor the TSD is an instructional course and this means that a student cannot pass or fail the standard. There is no set number of rubrics that have to be at Level 3 or Level 2 for a student to be considered a safe entry-level operator. It may be possible for a student to be assessed at Level 1 for certain skills, yet still be considered safe. Similarly, a student could be evaluated at Level 3 across the board and yet be considered unsafe, perhaps due to poor judgment or attitude.

For these reasons, while the rubrics are designed to support the work of assessing performance, the *education provider has the obligation to determine what level of proficiency constitutes the passing or failing of a course*. For example, it may be determined that a student needs to perform 100% of the skills at Level 3. Or perhaps 80% of the skills performed at Level 3 and 20% of the skills at Level 2 would be considered sufficient proficiency to pass, with the inclusion of an improvement plan. Likewise, the course provider will decide on the level of proficiency associated with failing a course, such as an assessment of Level 1 proficiency for one or more skills.

Modify rubrics, if appropriate, to accommodate local factors.

Some behaviors not currently in the rubrics may be relevant to a particular venue. In this case, the rubrics may be modified to include additional proficiencies applicable to unique circumstances, boat equipment, or waterway conditions within the local environment. When modifying a rubric, the quality should be raised, rather than lowered. In other words, changes to rubrics should be more comprehensive or make the outcome more challenging to achieve.

Train instructors and evaluators in the use of the Standard and rubrics.

To properly assess student performance, instructors should be trained to:

- Provide assessment during instruction to target feedback and coaching opportunities.
- Conduct an overall assessment of skills obtained to determine whether someone successfully demonstrates a level of proficiency on the profile of skills needed to be a safe entry-level recreational operator.
- Encourage continuous learning and development of students beyond their course experience.

Trained evaluators should be trusted to make detailed observations of performance and decisions about who successfully demonstrates safe and unsafe boat operation relative to the Standard. Instructors should rely on their expertise rather than numbers. This approach helps avoid the challenges often associated with pass/fail scoring systems in which the difference between pass and fail can be a single point.

Evaluators should pay particular attention to key performance measures that tend to be present in multiple skills, and are therefore included as rubrics with multiple Elements. Examples of this include:

- Situational awareness: continuously looking “outside the boat” for other vessels or hazards.
- Steering and engine controls: smooth operation of helm, gearshift, and throttle.

Chapter 4. Make it Real

Make - *verb* – meyk \ - 1. to bring into existence by shaping or changing material, combining parts, etc.
2. to produce; cause to exist or happen; bring about.

Studying the details behind each Standard Element can enable an education provider to more easily **make** available an effective On-Water recreational boating instruction program.

Standard Elements - Details and Assessment Rubrics

This section contains detailed information in the form of ‘one-pagers’ for each element, providing additional details about the intent behind the element, the performance assessment rubrics, and any explanations or clarifications.

Each element is followed by:

- An **Understanding the Element** section that indicates why the element is included in the standard and any clarifications needed such as definitions of words or phrases, or additional detail not written in the element.
- A **Designing Instruction** section, which includes things to be considered when designing instructional programs, as well as tips for teaching the skill.
- An **Assessing Performance** section, which contains the Rubrics used for performance measurement.

They are organized by the same seven stages of recreational boat operations used to develop and organize the Powerboating Skills ANS, which are:

1. Prepare to depart
2. Leave a dock/slip/mooring/ramp/shoreline
3. Maneuver in close quarters (operating at slow speed)
4. Operate in open water
5. Arrive at a dock/slip/mooring/ramp/shoreline (make first contact)
6. Secure the boat (preparing to leave the boat unattended)
7. Perform general safety/emergency procedures/maneuvers

Each year the USCG compiles recreational boating accident statistics, which are derived from accident reports filed by recreational vessel owners and operators. The fifty states, five U.S. territories and the District of Columbia submit accident report data to the USCG for inclusion in the annual Boating Statistics publication.



For those standard elements in which recreational boating statistics are available and applicable; a reference to the relevant statistic has been provided using the figure of a magnifying glass. The information contained within the figure identifies a trend over a three-year period (2013, 2014, 2015) of *Recreational Boating Statistics* reports, which can be downloaded at: http://www.uscgboating.org/statistics/accident_statistics.php



The rubrics that follow are also available for free download in a format that allows for copying and pasting into instructional materials at: www.usnws.org.

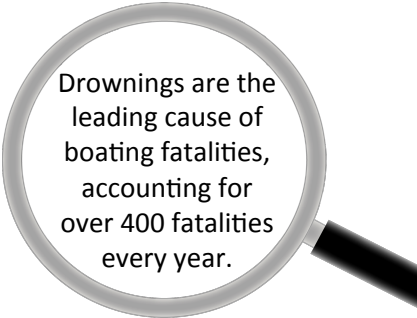
Operation #1: Prepare to Depart

Element # 1.1: The operator will be able to: **A: Put on a life jacket...** B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.

Understanding the Element

Studies consistently show that wearing a life jacket dramatically increases the chances of survival in the event that a person falls overboard. Properly selecting and wearing an appropriate life jacket is critical to keeping the wearer afloat. This element affords the opportunity to encourage life jacket wear at all times while boating.

- The element does not indicate whether a life jacket should be worn; it only focuses on the ability to select and properly put one on.
- ‘Serviceable’ means the life jacket has no rips, tears, or holes, and that all seams, straps, and buckles are in good condition. There should be no signs of waterlogging, mildew, or shrinkage of the buoyant materials.
- ‘Fits properly’ means the life jacket is sized correctly for the wearer, i.e., fits comfortably snug. A correctly fitting life jacket is designed not to ride-up on the body when in the water. To check the buoyancy of a life jacket in the water, the wearer should relax their body and tilt their head back. The life jacket should keep the chin above water and the wearer should be able to breathe easily.
- The USCG publishes a useful guide on selection and proper fitting of appropriate life jackets. See: http://www.uscgboating.org/images/howtochoosetherightlifejacket_brochure.pdf.



Drownings are the leading cause of boating fatalities, accounting for over 400 fatalities every year.

Note: This Standard element is repeated as 7.4.

Designing Instruction

- It is recommended that operators be instructed in this element prior to going out on the water. Ensure the operator has properly fastened the life jacket ashore before boarding the boat, to help avoid simply draping a life jacket over the shoulder.
- Instructors could wear their life jacket during the instruction of this skill to model a successful outcome.
- Ensure that all operators have read available literature and emphasize wearing, as opposed to merely carrying appropriate life jackets.
- Provide several life jackets of various types, sizes, and conditions to acquaint the operator with criteria for selection and fitting.

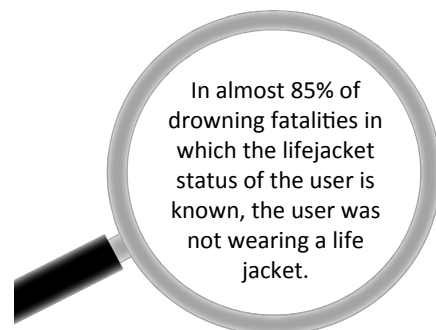
Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Reads the label on the life jacket to ensure it is USCG approved and checks it is in serviceable condition. Selects a life jacket with proper chest size and weight for wearing, and appropriateness for boating activity. Fastens all straps, zippers and ties. Tightens adjustment straps and tucks in loose ends. Makes adjustments to ensure proper fit.
2 Needs Improvement	The operator: Reads the label on the life jacket to ensure it is USCG approved and checks it is in serviceable condition. Selects a life jacket with proper chest size and weight for wearing, and appropriateness for boating activity. Fasten all straps, zippers and ties. Tightens adjustment straps and tucks in loose ends. Jacket is still loose. Readjusts straps to ensure proper fit.
1 Unacceptable (unsuccessful) Performance	The operator: Does not read label on the life jacket. Does not check for USCG approval, serviceability or appropriateness for boating activity. Selects life jacket with inappropriate chest size and weight. The life jacket is too large or too small and therefore does not fit correctly. Does not fasten all straps, zippers and ties. Does not tighten adjustment straps or tuck in loose ends.

Element # 1.2: The operator will be able to: **A: Confirm that all others on the boat put on their life jacket...** B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.

Understanding the Element

Studies consistently show that wearing a life jacket dramatically increases the chances of survival in the event that a person falls overboard. Properly selecting and wearing an appropriate life jacket is critical to keeping the wearer afloat. This element affords the opportunity to encourage life jacket wear by all occupants at all times while boating.



- The element does not indicate whether a life jacket should be worn; it only focuses on the ability to select and properly put one on.
- ‘Serviceable’ means the life jacket has no rips, tears, or holes, and that all seams, straps, and buckles are in good condition. There should be no signs of waterlogging, mildew, or shrinkage of the buoyant materials.
- ‘Fits properly’ means the life jacket is sized correctly for the wearer, i.e., fits comfortably snug. A correctly fitting life jacket is designed not to ride-up on the body when in the water. To check the buoyancy of a life jacket in the water, the wearer should relax their body and tilt their head back. The life jacket should keep the chin above water and the wearer should be able to breathe easily.
- The USCG publishes a useful guide on selection and proper fitting of appropriate life jackets. See: http://www.uscgboating.org/images/howtochoosetherightlifejacket_brochure.pdf.

Note: This Standard element is repeated as 7.5.

Designing Instruction

- It is recommended that operators be instructed in this element prior to going out on the water. Ensure the operator has properly fastened the life jacket ashore before boarding the boat, to help avoid simply draping a life jacket over the shoulder.
- Instructors could wear their life jacket during the instruction of this skill to model a successful outcome.
- Ensure that all operators have read available literature and emphasize wearing, as opposed to merely carrying appropriate life jackets.
- Provide several life jackets of various types, sizes, and conditions to acquaint the operator with criteria for selection and fitting.
- This element provides an opportunity to stress the point that the operator bears the responsibility for the safety of all others on board.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Demonstrates awareness that others in the boat have properly chosen a life jacket and have correctly put the life jacket on with all fasteners and straps properly secured.
2 Needs Improvement	The operator: Is uncertain of no more than one safety feature regarding the selection of life jackets or the proper wearing of the jacket by others in the boat.
1 Unacceptable (unsuccessful) Performance	The operator: Is unaware of more than one safety feature regarding the selection of life jackets of the proper wearing by others in the boat.

Element # 1.3: The operator will be able to: **A: Inspect boat systems and safety equipment...** B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/anchoring point.

Understanding the Element

Inspection of boat systems and safety equipment reduces the risk of failure, ensures the vessel is legally compliant, and helps the operator locate essential gear, particularly in case of an emergency. Using a written checklist helps avoid missing items during the inspection.

- The skill is the use of a checklist to inspect the boat, not the development of a checklist.
- Boat systems include mechanical systems such as engine, gearshift/throttle, fuel system, navigation lights, etc., as well as electronics such as depth sounder, radar, and GPS/chartplotter, if equipped.
- Identification of mooring/towing/anchoring points is included so that the operator is aware of the location of these items in case they are needed during the trip.

Designing Instruction

- The school or instructor should have a checklist appropriate to the boat being used and set an example by consistently using the checklist prior to every departure.
- Checklists should be developed and systematically used for several activities, not just the pre-departure checklist addressed in this element. Checklists should also be developed for pre-start, docking, and various emergencies (fire, engine inoperative, boat taking on water, electrical failure, etc.).
- It may be helpful if the checklist includes decision rules as to what to do in the event that certain systems are broken or inoperative.
- Having crew/passengers assist the operator in using the pre-departure checklist can make the process more efficient, as well as enable the operator to give a pre-departure briefing.
- Consider including within the instruction design student demonstration and practice with deploying mandatory safety equipment.
- For information about potential contents of a checklist see the appendices.

Assessing Performance

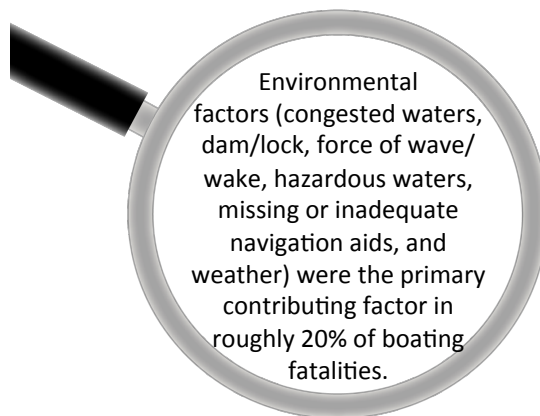
Level	Proficiency description
3 Successful Performance	The operator: Uses a checklist. Checks thoroughly for legally required equipment and manufacturer-recommended equipment appropriate for boat type. Identifies boat's mooring, towing and anchoring cleats. Has checked the forecast weather conditions for period of expected operation and beyond. Has a means of communicating distress and other messages to persons ashore or on other boats, including use of visual distress signals and marine VHF (if available).
2 Needs Improvement	The operator: Uses a checklist improperly or only part of the time. Fails to check thoroughly for: legally required equipment and manufacturer-recommended equipment appropriate for boat type, all mooring and anchoring cleats and attachments, forecast weather conditions. Has limited means of communicating distress and other messages to persons ashore or other.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to use checklist. Does not check for legally required equipment and manufacturer-recommended equipment appropriate for boat type. Fails to check mooring, anchoring cleats and attachments. Has failed to check weather. Has no means of communicating distress and other messages to persons ashore or other boats including use of visual distress signals and marine VHF (if available).

Element # 1.4: The operator will be able to: **A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...** B: by assessing whether conditions are favorable for the voyage for length/time of trip.

Understanding the Element

It is important to properly assess the risks posed by weather conditions prior to undertaking a voyage.

- Consider including actual and forecasted weather (visibility, wind and sea state), traffic (amount and type), tides and currents, Aids to Navigation (ATONs) out of position or exhibiting wrong characteristics, and other potential hazards to navigation (e.g., presence of dams, locks).
- The operator should know where and how to get this information. For example, the operator should be able to consult weather forecasts (such as by use of marine weather radio), determine the status of ATONs (e.g., by listening to Broadcast Notices to Mariners or downloading the local notices to mariners from the USCG NAVCEN web site), and evaluate hazards to navigation (e.g., from nautical charts).
- Judgment is required. The experience of the operator, available equipment (e.g., radar, depth sounder, GPS, chart plotter), and boat characteristics (e.g., freeboard, boat design, and size) are important factors to consider. Some conditions, such as a small craft advisory, call for a “no go” decision. The domain of application specifies acceptable weather conditions and boat type and size.



Designing Instruction

Instruction should include training on how to gather and interpret key information (particularly forecast and actual weather).

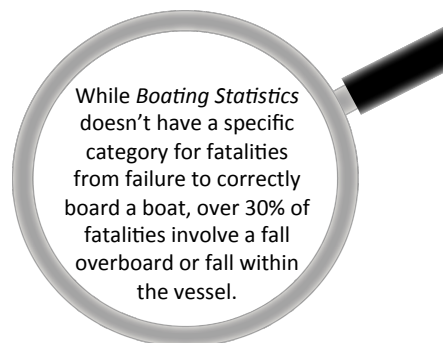
Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Has evidence showing current forecast weather conditions. Has forecast to cover full time plus reasonable extra time to be spent on water. Checks current weather conditions for consistency with forecast. Has assessed weather in relation to the type (openness) of the waters on which the boat will be operating. Is aware of navigation hazards and environmental factors that may be encountered during the trip.
2 Needs Improvement	The operator: Has incomplete or inaccurate evidence showing weather conditions and is only partially aware of its contents. Has forecast to cover only partial time on the water with no allowance for extra time that might be spent on water. Does not fully check current weather conditions for consistency with forecast. Has only partially assessed weather in relation to the type (openness) of the waters on which the boat will be operating. Has only partial awareness of navigation hazards and environmental conditions that may be encountered during the trip.
1 Unacceptable (unsuccessful) Performance	The operator: Cannot present evidence showing current forecast weather conditions. Has forecast that fails to cover entire period of trip. Fails to check current weather conditions for consistency with forecast. Has not assessed weather conditions in relation to the type (openness) of the waters on which the boat will be operating. Has not evaluated navigation hazards and environmental conditions that may be encountered during the trip or has overlooked one potentially dangerous hazard or condition.

Element # 1.5: The operator will be able to: **A: Board the boat...** B: by using three points of contact and distributing persons/gear while maintaining stability.

Understanding the Element

- Boarding the boat properly helps prevent injuries from slips or falls.
- It is easy for a person to become distracted during the boarding process. The excitement of going out on the water, the need to transport gear or other people onto the boat, the perception that boarding a boat is easy, can all be distractions to the practice of safely boarding a boat. This skill is included to help avoid accidents and injuries that can arise from when individuals are distracted or paying attention to many things during the boarding process.
- Coordinated use of hands and feet when entering the boat reduces the likelihood of falls when boarding.
- ‘Three points of contact’ – Sitting, or using feet or hand holds, can all be considered as points of contact.
- Boarding the boat can involve boarding while the boat is moored at a mooring buoy, a dock, a ramp or a shoreline. It can involve any boarding of the boat including during a trip, not just at the starting point.
- ‘Maintaining stability’ means being in control of body movements and balance throughout the process of boarding to keep the boat stable.



Designing Instruction

- Some practice may be required to perform this skill. Age, weight, and athletic ability may impact the ease with which boarding may be accomplished. Boat size is also likely to be a factor.
- The person boarding should also take advantage of any assistance that can be provided by others, such as by steadying the boat and/or offering a helping hand from dockside.
- It is easier to board safely if persons are onboard before gear is loaded. Gear should be passed to a person already on the boat. Persons onboard can assist with stability by standing on the opposite side of the boat from the person boarding.
- The person boarding should consider whether the surface where they intend to place their feet is slippery.
- The boat should be properly secured and fenders should be used if applicable.
- Instructors should be mindful of their modeling behavior and always board the boat properly.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Inspects the boat to ensure it is securely attached to the dock/slip/mooring/shoreline so as to allow safe loading and boarding. Checks proper use of fenders. Does not carry equipment while boarding the boat. Passes equipment to person already aboard. Moves carefully and securely when embarking/debarking. Uses hands in addition to feet to stabilize self while boarding. Is conscious of boat balance in positioning equipment and passengers/crew in the boat.
2 Needs Improvement	The operator: Makes an incomplete inspection of boat's attachment to dock/slip/mooring/shoreline. Passes equipment to a person already on board boat most of the time with one lapse. Boards boat safely but in a manner that could lead to injury or falling overboard. Does not fully stabilize self with hands while boarding. Loads boat in a manner that is safe but impairs full maneuverability. Moves awkwardly while in the boat.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to pay attention to the manner in which boat is attached to the dock/slip/mooring/shoreline. Fails to determine if boat is contacting dock/slip/pier in a fashion that could cause damage. Attempts to carry equipment while embarking or debarking boat. Embarks/debarks in an unsafe manner. Moves abruptly and awkwardly in boat creating a potential hazard for passengers/crew or self. Falls overboard; or loads boat in such a manner that it produces dangerous or unacceptable heel or trim.

Element # 1.6: The operator will be able to: **A: Prepare the boat for departure...** B: by readying lines, equipment and crew for intended departure maneuver.

Understanding the Element

- Safe departure requires good planning and execution. Providing a safety briefing and assigning crew positions is important. Distinguish between those who will have an active role (e.g., handling lines or fenders) and those who should remain properly seated during the departure.
- It is much easier to depart if there are people dockside to be able to handle lines, but the task should be demonstrated without additional assistance.
- The skill is designed to focus on the operator. If others are on board, they can be involved in the process of preparation. However, this skill is aimed at the operator completing the preparation activities.

Designing Instruction

- The proper sequence of line release as well as the proper departure technique (bow out, stern out) depend in part on the wind and current and proximity of other boats. Ideally the departure should be practiced in different conditions to ensure that the operator has the required proficiency.
- If lines are to be taken with the boat upon departure, as opposed to remaining at the dock, consider doubling the lines (leading the line around a cleat or pile on the pier and then back to the boat) to be able to cast off from within the boat.
- Wind, current, and proximity of other boats or obstacles should be considered in selecting a departure plan. Wind or current pressing the boat against the dock is generally more challenging. Prior to departure it is essential to check for traffic.
- When designing for this element, consider including safety briefing information about such topics as: safety roles and responsibilities of passengers, use of life jacket, and the plan for departure. Also consider including use of safety equipment (e.g., radio, signaling devices, etc.) and emergency procedures (e.g., MOB; bad weather) and anchoring (if appropriate). Include other safety-related topics based on the needs of the situation and context in which the powerboat will be operated.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Ensures docking/mooring lines are readied for easy and clear release without snagging. Checks wind and current for effect in getting underway and departing the area. Clearly communicates expectations and duties to passengers/crew. Completes required safety brief for passengers/crew including the location and use of safety equipment. Communicates plan for getting underway and departing the dock/mooring area. Secures gear and readies equipment.
2 Needs Improvement	The operator: Does not fully ensure docking/mooring lines are readied. Cursorily checks wind and current for effect in getting underway. Incompletely communicates expectations, safety brief and duties to passengers/crew. Has planned incompletely for getting underway and departing the dock/mooring area. Secures some but not all gear and readies most of the equipment.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to ensure docking/mooring lines are ready for departure or check wind and current for effect in getting away and departing the area. Does not communicate expectations and duties to crewmembers. Does not complete required safety brief for passengers/crew on location and use of safety equipment. Has not planned for getting underway and departing the dock/mooring area. Fails to ensure gear is secure or safety equipment is ready.

Element # 1.7: The operator will be able to: **A: Start the engine...** B: safely and ensure it is running properly.

Understanding the Element

- In order to depart in a powerboat, it is necessary to start the engine. Failure to follow the appropriate procedures associated with starting an engine can cause damage to equipment, fires or explosions, resulting in injuries, accidents and even fatalities. This skill is included to ensure the operator can start an engine in a safe and effective manner.
- Starting the engine is applicable any time including before departure and once out in open water.
- Running properly means the engine is operating according to specifications and is ready to use.



Boat Operators should always attach the Emergency Engine Cutoff Switch lanyard in order to prevent injuries that might result from an operator or passengers being ejected from the boat with the engine running. If using a wireless Emergency Engine Cutoff Switch device, Boat Operators should make certain it is turned on, functional, and properly worn. This Standard element is repeated as 7.7.

Designing Instruction

- It is helpful to prepare and use a written checklist to avoid missing key steps, such as checking for adequate fuel quantity and fueling procedures.
- Failure to check for cooling water flow could result in a damaged engine.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Ensures battery switch is in start position and checks proper connection of fuel lines. Runs blowers for four minutes (if applicable). Checks for fuel quantity and fumes (if applicable). Pressurizes fuel system using primer bulb. Ensures engine tilt is lowered and engages reverse tilt lock (if applicable) prior to departure. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Checks that engine is in neutral and that throttle is in start position. Ensures proper position/need for choke or priming system. Checks for clearance around propeller and cooling water intake. Correctly activates electrical or manual starter. Immediately checks for water flow. Allows engine to stabilize and warm. Checks full throw of steering. Briefly shifts engine into forward, neutral and reverse to check shift mechanism.
2 Needs Improvement	The operator: Initially attempts to start with engine in gear or when throttle is not in start position. Fails to immediately check for water flow or check thoroughly for fuel quantity or fumes (if applicable). Has difficulty initially starting engine due to: battery switch position; connection of fuel lines; proper position/need for choke or priming system; or Emergency Engine Cutoff Switch lanyard not attached (if using wireless device, does not make certain it is turned on, functional, and properly worn). Has difficulty keeping the engine running due to closed fuel tank vent, failure to pressurize fuel system using primer bulb, or not allowing engine to stabilize and warm sufficiently before trying to move boat. Ensures that reverse tilt lock is engaged (if applicable) prior to departure.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to put battery switch in appropriate position. Fails to check adequately for fuel quantity or fumes (if applicable). Fails to check fuel line connections. Fails to use blower; pressurize fuel system using primer bulb; ensure Emergency Engine Cutoff Switch lanyard is attached (if using wireless device, make certain it is turned on, functional, and properly worn), or check for clearance around propeller and cooling water intake. Attempts to start engine with engine tilted up; when throttle is not in correct position; without proper use of choke/primer, or without correctly activating electrical or manual starter. Does not check water flow or allow engine to stabilize and warm for full throw of steering or shift mechanism. Engine dies repeatedly due to inadequate venting of fuel tank. Repeatedly attempts to start engine while in gear. Does not ensure reverse tilt lock is engaged (if applicable) prior to departure.

Operation #2: Leave a dock/slip/mooring/ramp/shoreline⁸

Element # 2.1: The operator will be able to: **A: Get underway...** B: by using shift, throttle and steering, giving consideration to wind and current, while properly managing lines and maintaining a proper lookout throughout all activities.

Understanding the Element

- Getting underway from a point of departure often can be a complicated maneuver involving a variety of actions taking place simultaneously. It often occurs in a confined space with objects and people nearby. This skill is included to ensure the operator can demonstrate what it takes to safely and effectively manage the many factors associated with getting underway in a powerboat.
- This element is designed for leaving a point of departure applicable to a local area. The departure point can be a dock, slip, mooring, ramp or shoreline. The skill does not need to be demonstrated for every type of departure point.



Designing Instruction

- This skill should be practiced to improve proficiency, particularly if the operator is the sole occupant and/or if no dockside assistance is available.
- Getting underway often takes place at a marina or ramp where other boats are often in close proximity. This increases the difficulty as well as the risk of collision.
- Where possible, this skill should be practiced under various conditions of wind and current.
- The importance of maintaining a proper lookout should be emphasized.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Performs 360-degree lookout for boats, environment and situation prior to getting underway. Alerts passengers/crew to prepare for getting underway. Unties and casts off all lines (unless using a spring line). Gets fenders on board when boat is clear of dock or slip. Coils and stows lines. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Shifts gears smoothly into forward or reverse at idle speed. Engages throttle smoothly from idle speed to no-wake speed. Positions helm before shifting from neutral to forward. Turns steering mechanism in the intended direction of the boat. Steers boat accurately and smoothly. Uses small and timely corrections, going no more than 5 degrees off the desired heading, and clears the dock. Maintains a proper lookout throughout the entire maneuver and looks in the direction the boat is going to go.
2 Needs Improvement	The operator: Performs incomplete lookout for boats, environment and situation prior to getting underway. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Shifts gears smoothly and cleanly into forward or reverse then into idle 75 percent of the time (completes 3 times out of 4). Advances throttle from idle speed to no-wake speed smoothly with some excessive throttle. Positions helm before shifting from neutral to forward. Turns steering mechanism in the desired direction. Corrects steering before boat is more than 15 degrees off course with some over-steering or under-steering; and then returns to center as needed to clear the dock/slip/ mooring/ramp/shoreline. Casts off all dock lines unless using a spring line. Takes spring line and fenders on board when clear of dock/slip/mooring/ramp/shoreline. Lines are not coiled correctly and/or stowed.

⁸ Accidents when launching or loading a vessel are typically not collected or included within *Recreational Boating Statistics*. Therefore, the number of actual casualties associated with docking and undocking a vessel are greater than reported for Operation #2: Leave a dock/slip/mooring/ramp/shoreline.

<p>1 Unacceptable (unsuccessful) Performance</p>	<p>The operator: Fails to perform lookout for other boats, environment and situation prior to getting underway. Unable to clear dock. Fails to cast off all dock lines in a manner that controls the boat's departure. Fails to take fenders on board when clear of dock/slip/mooring/ramp/shoreline. Leaves lines attached to the boat hanging off the side of the boat. Fails to attach Emergency Engine Cutoff Switch lanyard, or does so incorrectly (if using wireless device, fails to make certain it is turned on, functional, and properly worn). Shifts gears cleanly and smoothly into forward or reverse and then idle less than 75 percent of the time. Is unable to engage throttle from idle speed to no-wake speed smoothly and includes sudden and excessive throttle movement. Does not position helm before shifting. Does not turn, or delays turning steering mechanism in the intended direction of the boat. Steering is not corrected before boat is more than 15 degrees off course. Is unable to maintain a consistent heading without over or under steering. Causes other boats or people to take action to avoid a collision.</p>
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Element # 2.2: The operator will be able to: **A: Check for a clear departure...** B: by confirming there are no conflicts with boat's intended actions in relation to other boats or activities in the vicinity.

Understanding the Element

- Checking for clear departure is essential given how often it takes place in a situation where other boats and or objects are in close proximity, increasing the risk of collision.

Designing Instruction

- This skill should be practiced under various conditions of wind, current, and proximity to other boats.
- If there are other persons/crew aboard, they should be briefed to help maintain a proper lookout.
- A 360-degree scan is not a one-time event and must be repeated throughout the departure maneuver, especially in a crowded area.



Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Performs 360-degree lookout for boats, environment and situation. Checks to ensure propulsion unit is clear.
2 Needs Improvement	The operator: Performs incomplete lookout for boats, environment and situation. Checks to ensure propulsion unit is clear.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to perform lookout for boats, environment and situation. Fails to ensure propulsion unit is clear.

Element # 2.3: The operator will be able to: **A: Depart a mooring...** B: by avoiding contact with the mooring line and buoy.

Understanding the Element

- Departing from a mooring may be easier than departing a dock. Nonetheless, accidents can occur such as fouling the propeller(s) with the mooring line or bumping into the mooring buoy.
- ‘Avoiding contact’ includes both the boat hull and the propulsion unit (e.g., propeller) do not come in contact with the mooring buoy or mooring line.

Designing Instruction

- When leaving a mooring, the boat may immediately start moving with current and wind, so the departure needs to be well planned to clear other nearby boats and mooring buoys.
- It is important to maintain a proper lookout.
- Mooring buoys are sometimes located in the vicinity of shallow water, so the nautical chart should be consulted in planning the departure route and the depth sounder needs to be monitored.
- As with departing a dock or docking, practicing this activity helps the operator learn to maneuver successfully in close quarters situations.
- Where possible, it is highly desirable to practice this operation under various conditions of wind and current and proximity to other boats.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Performs complete 360-degree lookout for boats, environment and situation. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Maneuvers boat away from mooring engaging throttle smoothly from idle speed to no-wake speed. Ensures all lines remain clear and free from propulsion unit. Does not bump into the mooring buoy. Maintains proper lookout throughout the entire maneuver and looks in the intended direction of the boat.
2 Needs Improvement	The operator: Performs incomplete lookout for boats, environment and situation. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Maneuvers boat away from mooring engaging throttle smoothly from idle speed to no-wake speed, with some excessive throttle. Lines are clear and free from propulsion unit. Causes boat to come into contact with the mooring buoy but without damage. Maintains proper lookout throughout the entire maneuver and looks in the intended direction of the boat.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to perform lookout for boats, environment and situation. Does not alert passengers/crew to secure gear or ready safety equipment. Does not attach Emergency Engine Cutoff Switch lanyard, or does so incorrectly (if using wireless device, does make certain it is turned on, functional, and properly worn). Is unable to engage throttle from idle speed to no wake speed smoothly and uses sudden and excessive throttle when maneuvering boat away from mooring. Mooring lines snag on boat or get tangled in propulsion unit. Boat contacts buoy causing damage. Fails to maintain proper lookout throughout the entire maneuver.

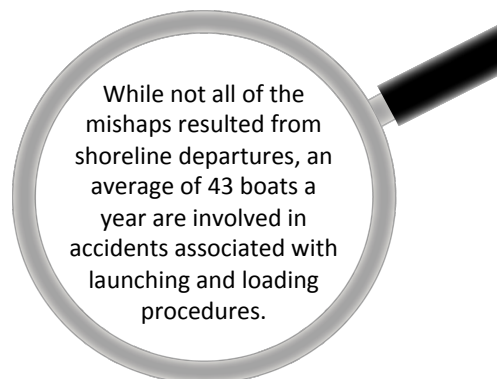
Element # 2.4: The operator will be able to: **A: Leave from the shoreline...** B: without damaging the propulsion unit and avoiding people in the water.

Understanding the Element

- ‘Shoreline’ (used in the element) and ‘ground’ (used in the rubric) both refer to a sloping beach or a ramp.

Designing Instruction

- Departing from a shoreline may be easier than departing from a dock, depending on circumstances.
- Boarding a boat from the water presents challenges and mishaps can occur such as running aground, damaging the boat’s propulsion unit(s), and/or striking persons in the water.
- The boat will likely be lower in the water once loaded with passengers and gear.
- Wind and current need to be considered, as well as the proximity to persons in the water and hazards to navigation (such as rocks or other shoal areas). A nautical chart should be used to determine the location of submerged rocks or other hazards.
- This operation should be practiced under various conditions of wind and current and proximity to navigational hazards, where possible.
- It is important not to use excessive throttle when departing to avoid taking water over the transom.



Assessing Performance

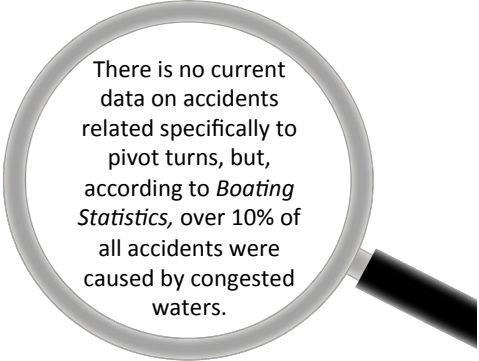
Level	Proficiency description
3 Successful Performance	The operator: Performs complete 360-degree lookout for boats, environment and situation. Gets self and others on board without injury and adjusts the load of the boat to back off shore. Looks around propulsion unit before starting engine. Keeps propulsion unit clear of the bottom, people or objects. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Shifts gears smoothly into forward or reverse at idle speed. Engages throttle smoothly from idle speed to no-wake speed and maneuvers away from the ground. Maintains a proper lookout throughout the entire maneuver and looks in the intended direction of the boat.
2 Needs Improvement	The operator: Performs incomplete lookout for boats, environment and situation. Has difficulty with getting self (or others) on board, but does so eventually and adjusts the load of the boat to back off shore. Looks around propulsion unit before starting the engine. Keeps propulsion unit clear of the bottom, people or objects. Attaches Emergency Engine Cutoff Switch lanyard (if using wireless device, makes certain it is turned on, functional, and properly worn). Engages throttle from idle speed to no wake speed smoothly, with some excessive throttle. Maneuvers away from the ground safely. Maintains a proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to perform lookout for boats, environment and situation. Passengers/crew fall while boarding the boat. Fails to adjust the load to enable boat to back off the shore. Does not check around propulsion unit before starting engine. Does not attach Emergency Engine Cutoff Switch lanyard, or does so incorrectly (if using wireless device, does not make certain it is turned on, functional, and properly worn). Propulsion unit makes contact with the bottom or objects. Shifts engine into gear and maneuvers away from ground. Fails to maintain a proper lookout throughout the entire maneuver. Other boats or people must take action to avoid a collision.

Operation #3: Maneuver in close quarters (operating at slow speed)

Element #3.1: The operator will be able to: **A: Turn the boat...** B: by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.

Understanding the Element

- This is an important skill for avoiding collisions with fixed objects in close quarters as well as being able to change direction in a confined area.
- A 'pivot turn' (or 'standing turn') is defined as a turn of 180-degrees within the approximate length of the boat.



There is no current data on accidents related specifically to pivot turns, but, according to *Boating Statistics*, over 10% of all accidents were caused by congested waters.

Designing Instruction

- Any change in direction requires that a proper lookout be maintained to ensure that the area is clear before turning.
- Practice understanding and use of coordinated helm and shift controls before introducing the pivot turn.
- Emphasize turning the helm in the appropriate direction before shifting into gear.
- While executing the maneuver, maintain proper lookout and situational awareness.
- Demonstrating the pivot turn next to a buoy or marker in the water will provide the operator with a frame of reference for turning within 1 to 2 boat lengths.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Turns boat 180 degrees within 1-2 boat lengths. Turns helm only while in neutral. Shifts gears smoothly. Throttle control is smooth using appropriate amount of power. Maintains proper lookout during entire maneuver.
2 Needs Improvement	The operator: Turns boat 180 degrees with in 2-3 boat lengths. Occasionally turns helm in wrong direction while in neutral or has awkward transition into and out of gear. Applies more throttle than needed some of the time. Maintains proper lookout during entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Turns boat almost 180 degrees taking more than 3 boat lengths. Frequently shifts into wrong gear. Turns helm in wrong direction, turns the helm while in gear. Does not maintain lookout throughout the entire maneuver.

Element # 3.2: The operator will be able to: **A: Hold position of the boat...** B: near an object in the water for at least a minute within two boat lengths.

Understanding the Element

- Holding position is frequently needed to maintain the location of the boat while waiting in line at a fuel dock, ramp, bridge, locks, or while fishing, etc. Failure to be able to maintain position could increase the risk of collision.
- Holding position includes use of coordinated helm, shift, and throttle controls to adjust for environmental conditions such as wind and current.

Designing Instruction

- It is recommended that the operator practice coordinating helm, gearshift and throttle controls before introducing the hold position maneuver. Where feasible, this maneuver should be practiced in different wind and current conditions.
- Emphasize turning the helm in the appropriate direction before shifting into gear.
- While executing the maneuver, maintain proper lookout and situational awareness.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Maneuvers boat to a position near an object in the water. Holds position relative to the object within 1-2 boat lengths for at least 1 minute. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Maneuvers boat to a position near an object in the water. Holds position relative to the object within 2-4 boat lengths for 1 minute. Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Maneuvers boat to a position near an object in the water, but is unable to hold position relative to the object within 4 boat lengths for 1 minute. Does not maintain proper lookout throughout the entire maneuver.

Element # 3.3: The operator will be able to: **A: Maintain directional control at minimum control speed...** B: keeping boat on a predetermined course for a distance of at least five boat lengths.

Understanding the Element

- This is an important skill since there many situations when an operator needs to maneuver a powerboat at a very slow speed while maintaining control of the boat. For example, achieving the slowest possible speed is necessary when approaching a dock, slip, ramp, or when coming alongside another boat or operating in congested traffic or a buoy/anchorage field.
- ‘Minimum control speed’ is different from *idle speed*.

Designing Instruction

- Directional control involves helm, gearshift and throttle adjustments to keep the boat on a predetermined course. The techniques vary by type of boat and power. For example, for twin-screw inboards, use of the gearshifts alone while keeping the wheel centered may be the most efficient method.
- Practice use of coordinated helm, gearshift and throttle controls before introducing the maneuver.
- Emphasize turning the helm in the appropriate direction before shifting into gear.
- To maintain a predetermined course, the operator could utilize a fixed object to steer toward.

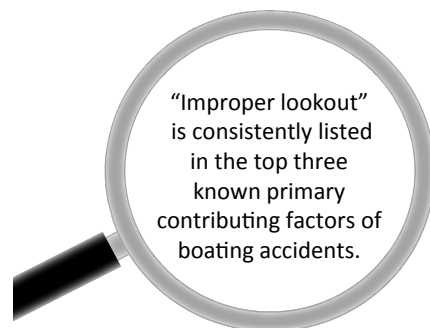
Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Keeps boat on a predetermined course for a distance of at least 5 boat lengths under minimum control speed. Maintains predetermined course within 10 degrees. Steers smoothly and adjusts for wind and/or current. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Keeps boat on a predetermined course for a distance of at least 3-4 boat lengths under minimum control speed. Maintains predetermined course within 10 degrees. May over-steer requiring over-correction at times. Does not adjust heading for wind and/or current. Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Is unable to keep boat on a predetermined course for at least 3 boat lengths at minimum control speed. Maintains predetermined course more than 20 degrees. Over-steers most of the time. Does not maintain proper lookout throughout the entire maneuver.

Element #3.4: The operator will be able to: **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.

Understanding the Element

- This skill is included to ensure the path is clear before an operator steers the powerboat in an intended direction. It is a proactive approach to maintain safe boat operation.
- “Maintain proper lookout” is an independent skill; however it is included in all elements where the boat is moving, given its importance to safety. It appears in rubrics Level 3 (Successful Performance) and Level 2 (Needs Improvement), but not in Level 1 (Unsuccessful Performance). Maneuvers that result from observation(s) made while maintaining a proper lookout are included in the actions associated with the other elements in which maintaining proper lookout takes place. Maintaining proper lookout does not need to be continuous but it needs to be effective.
- ‘360-degree visual checks’ means that the operator turns their head far enough in both directions to enable a visual check all the way around the boat.
- ‘Frequent’ checks will be dependent upon the amount and proximity of traffic and objects in the water.



Note: This element is repeated as 4.8 and 7.3.

Designing Instruction

- Maintaining a proper lookout is essential for safe operation of any watercraft. It is also required under Navigation Rule 5.
- When demonstrating frequent 360-degree visual checks, the operator should pay most attention toward the direction to which the boat is being maneuvered and take note of any watercraft and objects.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Is fully aware of other boats and hazards in environment. Makes 360-degree scans of area in which boat is operating, pausing at other boats and/or hazards and paying most attention toward direction to which the boat is to be maneuvered.
2 Needs Improvement	The operator: Is aware of and evaluates other boats and hazards in environment 80% to 95% of the time. Makes 360-degree scans of area in which boat is operating between 80% and 95% of time. Does not thoroughly check area to which boat is to be maneuvered.
1 Unacceptable (unsuccessful) Performance	The operator: Is aware of other boats and hazards in environment less than 80% of the time. Makes 360-degree scans of area in which boat is operating less than 80% of time. Does not thoroughly check area to which boat is to be maneuvered. Seems unaware of impending collisions or other issues that may require action.

Element # 3.5: The operator will be able to: **A: Bring the boat from idle speed to a complete stop...** B: within one boat length.

Understanding the Element

- This element is included to ensure the operator can bring the boat to a controlled stop at a desired location or to avoid collisions. It is intended to be carried out when the boat is operating with the drive continuously in forward gear and with the boat having forward motion prior to demonstrating the skill.
- 'Complete stop' is relative to a fixed object.

Designing Instruction

- In certain conditions, a complete stop may require adjustment of shift and throttle and, if feasible, should be practiced under various wind and current conditions.
- Maintain a straight heading while stopping by using a fixed object as a reference.
- Under some conditions associated with demonstrating level of proficiency on the standard element, it may be necessary for the operator to add a slight amount of throttle to achieve sufficient headway and steering control before initiating the stop.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Brings boat from Idle speed to a complete stop within 1 boat length. Shifts smoothly into neutral and reverse. Maintains a straight heading. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Brings boat from idle speed to a complete stop within 2-3 boat lengths. Uses more throttle than needed in reverse. Changes heading less than 10 degrees. Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Requires more than 3 boat lengths to stop the boat from idle speed. Uses excessive throttle in reverse causing boat to move backwards or causing passengers/crew to have to hold on. Shifts awkwardly between gears. Changes heading more than 10 degrees. Does not maintain proper lookout throughout the entire maneuver.

Element #3.6: The operator will be able to: **A: Back the boat...** B: in a predetermined direction for five boat lengths.

Understanding the Element

- Backing the boat is an essential skill, particularly in close quarters situations such as backing into or out of a slip, getting out of the way of an oncoming boat, etc.

Designing Instruction

- Appropriate backing speed depends upon the type of boat (e.g., open transom, single or twin screw, amount of freeboard) and environmental conditions.
- Helm should be centered using small helm adjustments to stay on predetermined course.
- It is often useful to have the student face aft while standing to the side of the helm.
- Teach the student to point the outboard engine or outdrive in the direction they want to go.
- This is a good time to point out what happens to a boat's pivot point while backing.
- Use a fixed object as a reference to maintain predetermined course.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Maneuvers boat backwards in a predetermined course for at least 5 boat lengths without losing directional control. Ensures engine trim is completely in or down (if applicable). Takes little to no water into the boat. Makes timely helm adjustments to stay in a predetermined course. Maintains a proper lookout throughout the entire maneuver with emphasis on looking backwards.
2 Needs Improvement	The operator: Maneuvers boat backwards in a predetermined direction for 4-5 boat lengths. Ensures engine trim is completely in or down (if applicable). May lose some directional control. May take a small amount of water into the boat but adjusts speed accordingly. Maintains a proper lookout throughout the entire maneuver and looks backwards 80-95% of the time.
1 Unacceptable (unsuccessful) Performance	The operator: Is unable to maintain control of the boat for 4 boat lengths while moving backwards. Does not ensure engine trim is completely in or down (if applicable). Excessive water comes into the boat. Maintains a proper lookout less than 80% of the time.

Operation #4: Operate in open water

Element # 4.1: The operator will be able to: **A: Trim the boat...** B: while underway by adjusting position of persons/gear and engine/drive trim or trim tabs.

Understanding the Element

- ‘Trim’ refers to the fore and aft balance of the boat.
- Trim is influenced by position of people and gear in the boat, position of the drive unit for outboard and stern drive, and position of trim tabs.
- Correct trim increases comfort, boat handling ability, fuel economy, visibility from the helm, and safety, particularly with small boats.

Designing Instruction

- Instruction should include demonstrations of handling under various trim conditions, and details of how to recognize and achieve proper trim, including directing passengers/crew to adjust position.
- Include interpretation of trim position indicators if equipped.
- Differentiate trim from listing and heeling. *Listing* refers to static lateral balance while *heeling* refers to dynamic lateral balance such as caused by the wind.
- Emphasize proper care when moving people/gear while underway to achieve proper trim.
- Make clear connections between maintaining proper trim and safety issues associated with having clear visibility at the helm.

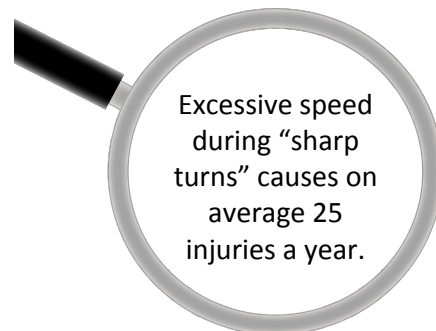
Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Positions equipment and passengers/crew to optimize proper trim and list at any speed. Properly uses engine trim and trim tabs to maintain optimum and comfortable pitch and heel. Uses trim to achieve desired cruising speed.
2 Needs Improvement	The operator: Positions equipment and passengers/crew to optimize proper trim and list 80-95% of the time. Spends excessive time in bow high, semi-displacement mode before achieving a plane. While on the plane, allows occasional plowing and porpoising. Obtains desired cruising speed 80% to 95% of the time.
1 Unacceptable (unsuccessful) Performance	The operator: Positions equipment and passengers/crew to maintain optimum trim and list less than 80% of the time. Does not use engine trim and trim tabs to maintain optimum and comfortable pitch and heel (if applicable). Unable to get up on plane because of improper positioning of passengers/crew and equipment, and/or improper use of engine trim and trim tabs (if applicable). Is able to use engine trim to achieve desired cruising speed less than 80% of the time (resulting in boat porpoising or plowing).

Element # 4.2: The operator will be able to: **A: Turn the boat at high speed...** B: by assuming a new heading 45 degrees to port and starboard using appropriate throttle control.

Understanding the Element

- High-speed (planing) turns are routine maneuvers and therefore important for an operator to be able to demonstrate safely. This is also relevant because of the varied handling conditions that might exist across different boat types.
- “High speed” means planing speed.
- This skill involves turning the boat both directions.
- Heading means the direction in which a boat is being steered.



Designing Instruction

- Design instructional activities to take place at planing speed to help reduce risks when learning the skill.
- Teach the importance of maintaining lookout while changing heading.
- Teach importance of vessel handling characteristics and how to recognize the need to change speed to maintain control while exercising the maneuver.
- A number of components are involved in this element such as rate of turn, adjusting speed if necessary, and adequate lookout.
- Ensure operator provides information to any passengers or crew on board before engaging in turn.
- Digging a chine (see rubric, below) occurs when chine or sharp lower edge of a hull catches or trips on a wave resulting in a loss of lateral stability.
- Ventilation (see rubric, below) refers to the phenomenon that occurs when air is drawn from the surface and passes through the propeller. The propeller loses flow or grip on the water and the engine is allowed to speed up. The air is allowed to enter the prop stream as the boat rolls toward the turn and the propeller actually moves closer to the surface.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Steers boat accurately and smoothly through 45 degree turn in one direction, holds stable on heading, and then turns back in opposite direction 45 degrees. Warns passengers/crew of pending change in direction. Starts and stops turns at desired headings. Uses appropriate rate of turn for conditions. Maintains speed through turn with throttle. Maintains proper lookout before commencing and throughout entire maneuver.
2 Needs Improvement	The operator: Steers boat through turns with varying rates of speed. Warns passengers/crew of pending change in direction. Over or under—steers turn by less than 15 degrees. Slides, digs chine or ventilates no more than once during turn and makes correction. Allows boat to slow unnecessarily during turn. Maintains proper lookout before commencing and throughout entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Steers boat erratically through turns. Over or under steers turn by more than 15 degrees. Fails to warn passengers/crew of pending change in direction. Drifts by more than 15 degrees after stopping turn. Turns dangerously, digging chine, ventilating or sliding. Speed drops off excessively (starts or comes off plane) through turn. Does not maintain any lookout before commencing or throughout entire maneuver.

Element # 4.3: The operator will be able to: **A: Steer a straight course...** B: at high speed in a predetermined direction for 50 boat lengths.

Understanding the Element

- ‘Steer a straight course’ is a routine maneuver and therefore important for an operator to be able to demonstrate safely. Being able to do so without overcompensation avoids potential “zigzag” courses that might cause safety issues relative to other boats.
- Under certain circumstances, maintaining a straight course may be required for compliance with the navigation rules.
- ‘High speed’ is defined as *planing speed*.

Designing Instruction

- Use appropriate distant objects/marks for reference.
- ‘50 boat lengths’ allows adequate space to judge the 5-degree performance target.
- The 5 and 15-degree measurements (see rubric, below) are arbitrary yet reasonable.
- Success of the maneuver can also be judged by observing the wake of the craft.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Steers a straight course within 5 degrees at high speed for at least 50 boat lengths. Is able to maintain the boat pointing at an object/marker. Maintains proper cruising speed for the maneuver. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Fails to steer a straight course within 5 degrees at high speed but steers a straight course within 15 degrees for 50 boat lengths. Is not able to maintain the boat pointing at an object/marker within 5 degrees but does so within 15 degrees. Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Is unable to steer a straight course within 15 degrees at high speed for 50 boat lengths. Is not able to maintain the boat pointing at an object/marker within 15 degrees. Is unable to maintain a consistent speed for 50 boat lengths. Fails to maintain lookout throughout the entire maneuver.

Element # 4.4: The operator will be able to: **A: Throttle up to and down from slow speed to high speed to slow speed...** B: smoothly and with consideration of passengers/crew and gear.

Understanding the Element

- Being able to effect smooth speed transitions is an important vessel control safety skill. Abrupt speed changes may cause objects to shift or people to fall or go overboard. Changing from high to low speed also increases the risk of collision as well as being swamped from astern by the boat's wake.
- 'High speed' is defined as *planing speed*.
- This skill involves the smooth use of a throttle when changing speed from high (planing) to slow and from slow to high (planing) speed.

Designing Instruction

- Beginner students tend to be hesitant in advancing the throttle when transitioning to planing speed. This causes protracted periods in the semi-displacement mode with resulting high wake and boat instability. Students also tend to lose heading control while advancing the throttle due to changing engine torque.
- Unless there is a clear emergency, abrupt speed changes should be avoided.
- At high speeds the operator's hand may be steadied by resting the heel on the base of the throttle control. Holding the throttle at the top can lead to sudden speed increases if the boat hits a wave.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Transitions between speeds smoothly without abrupt throttle movement. Maintains heading (toward object/marker) within 5 degrees during the speed change. Decelerates slowly so as not to have backwash over transom. Warns passengers/crew of pending speed shifts. Transitions between speeds without causing equipment to shift or passengers to lose balance. Adjusts engine trim or trim tabs to facilitate speed changes (if applicable). Maintains proper lookout throughout entire maneuver.
2 Needs Improvement	The operator: Transitions between speeds with awkward throttle movement. Drifts from 5 to 15 degrees in heading (toward object/marker) during the speed change. Decelerates quickly causing minor backwash over transom. Warns passengers/crew of pending speed shifts. Transitions between speeds without causing passengers/crew to suddenly grasp on to someone or something to maintain balance. Adjusts engine trim or trim tabs incompletely to facilitate speed changes (if applicable). Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Transitions between speeds with erratic throttle movement. Fails to maintain heading during speed change within 15 degrees. Decelerates abruptly causing significant backwash over transom. Fails to warn passengers/crew of pending speed shifts causing passengers/crew to lose balance or equipment to shift. Completely fails to take engine trim or trim tabs into account (if applicable). Drags out speed changes (taking too long with bow too high, and with a large wake). Fails to maintain proper lookout throughout the entire maneuver.

Element # 4.5: The operator will be able to: **A: Stop the boat...** B: from planing or normal operating speed to within five boat lengths ensuring the wake does not over take the stern and with consideration of passengers/crew and gear.

Understanding the Element

- Stopping a boat from planing speed is a commonly used maneuver during powerboat operation that takes place in open water. It is important for an operator to safely stop a boat that is traveling at planing speed in a manner that avoids problems for the boat or people on board.
- Normal operating speed for most small recreational boats is planing speed. The phrase ‘normal operating speed’ is used for boats that are not capable of operating on a plane. See the glossary for specific definitions of planing speed and normal operating speed.
- This skill is a normal or typical stop of the boat while traveling at planing speed and is different from stopping the boat in emergency mode, which is where the operator needs to stop the boat quickly to avoid collision or for some other safety reason.
- Different hull types and different propulsion systems exhibit a wide variety of stopping characteristics as do operations at various speeds. This element requires the operator to demonstrate proper stopping technique from normal operating speed for the boat, which for most boats is planing speed.
- Planing speed presents a different challenge than that encountered while at displacement speed and if not executed properly can result in injury to those on board as well as engine damage. In some boat designs coming off the plane too quickly can result in water coming over the transom.

Designing Instruction

- Ensure the operator understands the role of communication between operator and passengers/crew before engaging in training this skill.
- The student should be made aware that attempting to stop a boat from a plane by using reverse can do irreparable damage to the engine and may result in the boat taking longer to stop.
- Ensuring the student checks behind his vessel before commencing to stop is an important element of this skill.
- As in the case of the emergency stop many boats can be stopped in a shorter distance by initiating a turn.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Selects optimal method for stopping boat depending on urgency, speed and sea conditions. Retards throttle smoothly and positively. Maintains heading within 5 degrees. Warns passengers/crew of pending stop. Stops boat within 5 boat lengths. Shifts to neutral or reverse but at speed so as not to cause cavitation, engine kick-up or damage to engine. Maintains proper lookout throughout entire maneuver.
2 Needs Improvement	The operator: Does not select optimal method for stopping boat depending on urgency, speed and sea condition. Is hesitant in throttle positioning. Fails to maintain heading within 5 degrees but does so within 15 degrees during stop, except for planing stop. When decelerating from a plane advances greater than 5 but no greater than 8 boat lengths, or has some water enter the boat over transom. Warns passengers/crew of pending stop. Delays shifting to neutral or shifts to reverse at a speed causing minor cavitation. Maintains proper lookout throughout entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Selects method for stopping boat that is dangerous in terms of urgency, speed and sea condition. Fails to retard throttle smoothly or delays maneuver. Fails to maintain heading within 15 degrees during stop. When decelerating from a plane advances greater than 8 boat lengths; or has large amounts of water enter boat over transom. Does not warn passengers/crew of pending stop. Shifts reverse at a speed that causes cavitation, engine kick-up or damage to engine. Does not maintain proper lookout throughout the entire maneuver.

Element #4.6: The operator will be able to: **A: Make course alterations...** B: by smoothly changing direction 45 degrees.

Understanding the Elements

- The ability to safely and smoothly change heading is an essential skill for any operator.
- ‘Course’ is the intended direction. *Heading* is the actual direction at a given time.

Designing Instruction

- Changing the heading at planing speed can result in the boat digging a chine or having the stern slide over the surface of the water resulting in the boat almost reversing course. Either of these problems can often result in injury to the operator or person on board the vessel. Digging a chine can result in capsize.
- Hesitancy in initiating a turn could result in a collision or grounding.
- Consider stressing the importance of checking for other boats or objects in the direction of turn and maintaining a scan in that direction.
- In sharp or extended turns the operator may need to increase throttle to maintain the boat on a plane.
- Use a reference point (on water or land) to help the operator visualize a turn of 45 degrees.
- Digging a chine (see rubric, below) occurs when chine or sharp lower edge of a hull catches or trips on a wave resulting in a loss of lateral stability.
- Ventilation (see rubric, below) refers to the phenomenon that occurs when air is drawn from the surface and passes through the propeller. The propeller loses flow or grip on the water and the engine is allowed to speed up. The air is allowed to enter the prop stream as the boat rolls toward the turn and the propeller actually moves closer to the surface.
- Heading (See rubric, below) means the direction in which a boat is being steered at a given instant.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Steers boat accurately and smoothly through a 45-degree turn in one direction and holds stable on new heading. Adjusts throttle to maintain speed during turn without ventilation or sliding. Takes sea state into account to avoid digging a chine during the turn. Steers smoothly into turn without causing passengers/crew to lose balance. Maintains a constant rate of turn and a radius that remains clear of all hazards. Positions self to remain firm during turn and still maintains a proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Steers boat through turn with varying rates of speed. Over or under-steers the turn by less than 15 degrees. Adjusts throttle to maintain speed during turn without digging a chine, without ventilation or with minor sliding. Steers smoothly into turn without causing passengers/crew to lose balance. Does not maintain a constant rate of turn and has to adjust radius during turn to remain clear of all hazards. Initially fails to position self so as to remain firm during turn but maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Steers boat erratically through the turn. Over or under steers turn by more than 15 degrees. Fails to balance throttle and helm to maintain safe rate of turn. Turns too sharply causing digging of chine, ventilation or sliding. Jars passengers/crew and self with rate of turn; and causes passengers/crew or self to lose balance. Fails to maintain any lookout during maneuver.

Element # 4.7: The operator will be able to: **A: Cross waves or wakes...** B: by using appropriate angle of approach and controlling boat speed for the given wake/wave size and frequency.

Understanding the Element

- Improperly crossing waves or boat wakes can cause injury to those on board as well as damage to the boat. It is important for operators to judge wave size and length and react appropriately.
- The term ‘frequency’ refers to rate of a wave but is being used as a measure of wavelength. The actual speed of a wave or frequency of a wave is not as important as the relative speed with which a boat crosses each crest.
- Rate measures the number of crests that pass a given point in a unit of time. Frequency measures the number of time units between each crest. Each is a function of wave speed. Wavelength is the distance between crests and the greater the wavelength for waves of the same height the more gradual their slope will be and the easier it is for a boat to safely pass through them.

Designing Instruction

- Consider having student boats follow the instructor’s boat in a large figure-8 while gradually increasing speed. The boats all cross each other’s wake and the students have the boat ahead of them as a reference. This may help the student build confidence for operating in waves.
- This element teaches the student that the effective distance between waves can be increased by crossing the wave system at an angle (45 degrees is often mentioned in the literature, but this should not be regarded as an absolute). A short steep wave will cause more damage to a boat than a long gradual wave even though the latter may be much higher.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Adjusts angle of approach to a wave or series of waves to increase effective distance between waves. Adjusts speed as necessary to avoid damage to equipment and minimize discomfort to passengers/crew when operating in waves. Adjusts speed and angle to waves when operating down swell. Ensures passengers/crew are securely positioned. Adjusts promptly to changing conditions.
2 Needs Improvement	The operator: Adjusts angle of approach to a wave or series of waves to increase effective distance between waves 80% to 95% of the time. Uses proper speed 80% to 95% of the time to avoid damage to equipment and minimize discomfort to passengers/crew. Operates at proper angle to waves and speed when operating down swell 80% to 95% of the time. Ensures passengers/crew are securely positioned. Adjusts to changing conditions but not promptly.
1 Unacceptable (unsuccessful) Performance	The operator: Adjusts angle of approach to a wave or series of waves to minimize effect on boat less than 80% of the time. Approaches waves too fast more than 20% of the time causing damage to equipment or extreme discomfort to passengers/crew. Does not adjust speed and angle to waves when operating down swell. Broaches or buries the bow. Fails to ensure passengers/crew are securely positioned. Does not adjust to changing conditions.

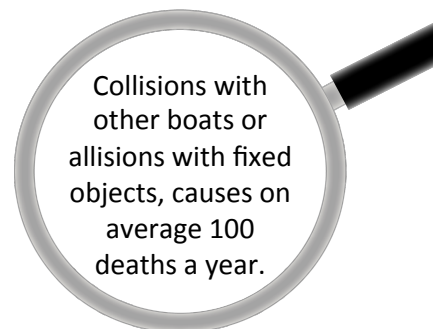
Element #4.8: The operator will be able to: **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.

[repeated as 3.4 and 7.3]

Element # 4.9: The operator will be able to: **A: Avoid collisions...** B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.

Understanding the Element

- Collisions with other vessels or with fixed objects are the leading statistical accident type. Avoiding collisions is one of the most fundamental actions an operator can take to reduce injuries, accidents and fatalities. It is a core skill appropriate in all operations for which a powerboat is underway.
- ‘Early and decisive action’ is not specifically defined in the Navigation Rules, but Rule 8 “Action to Avoid Collision” provides more information:
 - a) Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.
 - b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.⁹



Designing Instruction

- To help assess potential collision risks, introduce the concept of ‘constant bearing decreasing range’ targets.
- It is a useful idea to have a review of the Navigation Rules, with particular emphasis on those directly related to collision avoidance.
- When maneuvering to avoid, it is preferable to alter course when maneuvering to avoid rather than to change speed. The latter is very difficult for the stand on vessel to determine. A sizable course alteration sends a clear signal that the give way vessel is keeping clear.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Takes early and positive action to avoid collision. Maintains safe distance between boats/objects without a close call. Anticipates other boats’ movements. Accurately assesses all potentially hazardous situations. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Is slow to take action. Does not take a positive, visible, discernible action to avoid collision. Fails to maintain a safe distance between boat/object. Maintains proper lookout throughout the entire maneuver. Misses not more than one potentially hazardous situations
1 Unacceptable (unsuccessful) Performance	The operator: Fails to take early and positive action to avoid collision. Fails to maintain proper lookout during the entire maneuver. Forces stand-on vessel to take action to avoid collision. A close call or collision takes place. Misses more than one potentially hazardous situations.

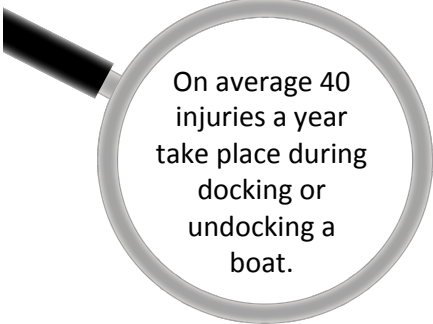
⁹ <http://www.navcen.uscg.gov/?pageName=navRulesContent>

Operation #5: Arrive at a dock/slip/mooring/ramp/shoreline (make first contact)

Element # 5.1: The operator will be able to: **A: Prepare the boat for arrival...** B: by readying lines, equipment and passengers/crew for intended arrival maneuver.

Understanding the Element

- Proper preparation is essential in making a safe and appropriate arrival. It is important to take the necessary time to ensure that required equipment is available and that others on board are adequately briefed as to what is expected.



On average 40 injuries a year take place during docking or undocking a boat.

Designing Instruction

- The use of spring lines is often an essential component for success.
- Knowing the proper names for the various pieces of equipment can increase effective communication.
- The operator should have a plan for docking before approaching the dock. Relevant factors to be considered in this plan include wind, current, the number of engines on the boat, and whether there are any engine or steering faults. The operator should brief the crew/passengers on the plan and roles/responsibilities well in advance of the approach.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Has bow, stern and spring lines rigged correctly, and fenders attached at appropriate height. Boat hook is on deck (if required). Briefs passengers/crew about arrival plan and safely positions them to assist in line handling. Engages in radio communication with dock if needed. Stops and checks reverse gear before approaching dock or mooring.
2 Needs Improvement	The operator: Has some but not all dock lines rigged. Fenders are attached but may not be at the appropriate height. Does not provide complete briefing of passengers/crew about arrival plan or safely position them to assist in line handling. Boat hook is on board but not on deck. Does not communicate with dock if needed.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to have dock lines rigged and ready. Does not brief passengers/crew about arrival plan or safely position them to assist in line handling. Passenger/crew positioning is unsafe. Fenders are out of position. Loses control of the vessel by stopping short of dock or mooring. Overruns the mooring or collides with dock.

Element # 5.2: The operator will be able to: **A: Check for clear approach...** B: by confirming there are no conflicts between boat's intended actions and other boats and activities in the vicinity.

Understanding the Element

- Checking for a clear approach is essential for arrival given it often takes place in a situation where other boats and or objects are in close proximity, which increases the risk of collision. Ensuring early on that there is no conflicting traffic and that there is adequate space for arrival is important skill in avoiding the need for last minute radical maneuvers.

Designing Instruction

- It may be useful to have the operator bring the boat to a complete stop (dead in the water) before docking. By doing this the operator tends to use a much slower speed in approaching the landing area be it a beach, dock or ramp.
- Teach students never to approach a dock “faster than they want to hit it.”
- Coach the student to establish a set pattern associated with docking develops a routine that works for them even when under pressure.
- The operator is likely to be quite busy during the approach to docking. Enlisting crew/passengers to help maintain a lookout is helpful.



Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Surveys the area visually and waits for traffic to clear before approaching. Chooses a space that is sufficient for safe docking.
2 Needs Improvement	The operator: Approaches the dock, slip or mooring without waiting for traffic to clear and must take action to avoid other boats or persons in the water. Chooses a space within which the boat will fit, but requires excessive maneuvering.
1 Unacceptable (unsuccessful) Performance	The operator: Causes other boats to take action to avoid a collision. Approaches a dock without sufficient space for the boat to safely dock.

Element # 5.3: The operator will be able to: **A: Bring the boat to a predetermined point...** B: by using a stopping procedure; giving consideration to wind, current and boat traffic; and coming to a full, safe stop within 12 inches of the dock/slip/mooring/ramp/shoreline (point of contact).

Understanding the Element

- An essential part of any journey is to bring the powerboat safely to rest at a predetermined point. Since this point is often found in close quarters with other boats and objects nearby, this skill is included to ensure an operator has the ability to make that happen safely and effectively.
- This skill is designed to focus arriving at a point of contact. The point of contact can be a dock, or a slip, or a mooring, or a ramp, or a shoreline. The skill does not need to be demonstrated for every type of arrival point of contact.



Designing Instruction

- Being able to position the boat accurately is critical in order to avoid accidents and injury to those on board. Stopping within 12 inches allows crew to easily pass lines to those on shore.
- By approaching the dock slowly, crew are less tempted to fend off with their hands or feet.
- Docking should be planned so that reverse gear (except briefly for alignment) is needed for speed control only as a last resort.
- The use of proper terminology will help in communication. Line handling terminology is very important.
- Insist that no one on board be allowed to position their hands arms legs or feet outboard of the gunwale during the approach or actual docking. Crew should not be allowed to cushion a hard landing with their appendages.
- Beginning boaters should practice docking often. A significant factor is getting students to slow down while approaching the dock.
- A good way to start docking practice that minimizes potential damage to a boat is to use a string of closely placed buoys (rubber docking) as a simulated dock. The instructor can position them parallel to the wind or cross wind depending on the skill level of the student.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Approaches dock/slip/mooring/ramp/shoreline at appropriate angle considering wind and current, and at minimum control speed. Has line handlers ready and in a safe position (if applicable). Uses smooth throttle control and does not rely on reverse to dock at predetermined point. Stops the boat within 12 inches of the dock/slip/mooring/ramp/shoreline.
2 Needs Improvement	The operator: Approaches dock/slip/mooring/ramp/shoreline at an inappropriate angle to the dock/slip/mooring/ramp/shoreline. The effect of wind or current is either not used to aide in landing or negatively impacts the landing. Is able to bring the boat to full stop using some reverse. Engages in smooth throttle control. Stops the boat between 1 and 2 feet from the dock/slip/mooring/ramp/shoreline.
1 Unacceptable (unsuccessful) Performance	The operator: Approaches dock/slip/mooring/ramp/shoreline at an angle where the bow is nearly head on. Uses significant amount of reverse. Hits the dock/slip/ramp/shoreline or overruns the mooring. The dock/slip/mooring/ramp/shoreline is fended off using body limbs.

Element #5.4: The operator will be able to: **A: Arrive at the shoreline...** B: without damaging the propulsion unit and avoiding people in the water.

Understanding the Element

- Recreational boaters often use a shoreline (e.g., a sandy beach) as a destination for an outing. Bringing a boat safely to rest at a shoreline is a unique maneuver particularly for a powerboat. Many factors need to be considered to bring a boat to rest on a shoreline, including potential contact with people or other objects typically found near a shoreline. Landing safely on a shoreline without damage to the boat and its occupants, or coming in contact with anyone or thing in the water is an important skill for any recreational powerboat operator.
- Some boating organizations depend on launching and recovering from a shore since they have no docking facilities.
- Risks associated with this maneuver include running aground and possibly causing persons aboard to fall in the boat or overboard.

Designing Instruction

- The damage most frequently seen is striking the bottom with the propeller causing failure of the neoprene seal (spun prop) or the shear pin. People can also injure their feet because they remove their shoes when jumping in the water or have them off when they attempt to re-board the boat.
- The operator should always consult a nautical chart to see if there are any charted hazards to navigation, such as rocks.
- The element does not specifically mention using engine tilt to raise the engine enough to keep it clear of the bottom. This should be standard practice whenever approaching a shoreline or shallow water.
- This can be a difficult maneuver to practice since many boating organizations do not want their boats operated near a shoreline.
- Although use of an anchor of any sort is considered an advanced skill, the advantages of a stern anchor and its use of a kedge may well be worth the extra effort.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Approaches a shore suitable for landing at an appropriate angle considering type of boat and wind, waves and traffic. Uses minimum control speed with smooth throttle transitions. Passengers/crew disembark safely. Keeps propulsion unit clear of the bottom, people or objects.
2 Needs Improvement	The operator: Approaches a shore suitable for landing at an angle that allows waves to heel boat or take a small amount of water over the transom. Uses minimum control speed with some rough throttle transitions. Keeps propulsion unit clear of the bottom, people or objects.
1 Unacceptable (unsuccessful) Performance	The operator: Approaches a shore not suitable for landing, considering type of boat and wind, waves and traffic. Action by someone other than operator is needed to avoid a collision, or contact with the bottom or objects in the water. Propulsion unit makes contact with the bottom or objects.

Operation #6: Secure the boat (preparing to leave the boat unattended)

Element # 6.1: The operator will be able to: **A: Secure the boat to the dock/slip/mooring/shoreline...** B: by using appropriate knots and lines, anticipating winds, currents and tides expected.

Understanding the Element

- A powerboat can often spend more time secured at a destination point than it does while underway. During that time, many changes can happen within the environment (e.g., weather, tides, etc.) that will affect the boat. Often the operator will not be present to make appropriate or needed adjustments to ensure the boat remains secure. It is important that an operator know how to secure a boat in a way that will keep it, and any objects around it, safe from potential damage.
- ‘Anticipating’ refers to the choices the operator makes in maneuvering and positioning the boat based on observed and forecast winds, currents and tides.

Designing Instruction

- There are multiple skills contained in this one element and many of them have applications in other elements.
- Knowledge of proper terminology by the operator and others on board is very important.
- Knot tying and heaving a line are not separate elements in the Standard yet are essential items of knowledge in this and many other boating activities. Knot tying skills can be gamed, thus providing fun and a relaxing break for students.
- If heavy weather is expected, it may be appropriate to double up on all lines or, if feasible, put the boat on a trailer on land or have it hauled out.
- The app and web page Animated Knots (<http://www.animatedknots.com/>) is an excellent source of self-training for students

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Uses proper knots for securing lines both to the boat and to the point of attachment. Uses proper line type (spring, bow, stern) and size for securing method. Makes allowance in lines for tidal changes, as well as for current direction and velocity changes. Places lines and fenders as needed to prevent damage to boat, dock and lines. Uses weather forecast to determine types and sizes of lines.
2 Needs Improvement	The operator: Uses adequate knots for securing lines both to the boat and to the point of attachment with 1-2 less desirable knots. Fails to use proper line type (spring, bow, stern) and size for securing method, though not resulting in damage. Makes allowance in lines for tidal changes with one to two exceptions. Makes allowance for current direction and velocity changes with one to two exceptions. Places lines and fenders in places that are less than perfect but will not cause damage to boat, dock and lines. Uses weather forecast to determine types and sizes of lines.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to use adequate knots for securing lines either to the boat or to the point of attachment, potentially causing the boat to come loose over a long period. Fails to use proper line type (spring, bow, stern) and size for securing method, potentially causing the boat to come loose during a long period. Fails to make allowance for tidal changes such that boat would place unnecessary stress on lines. Fails to make allowance for current direction and velocity changes such that damaging chafing could occur. Places lines and fenders in places that will cause damage to boat, dock and lines. Does not use weather forecast to determine types and sizes of lines.

Element # 6.2: The operator will be able to: **A: Prepare to depart...** B: having checked and/or secured systems and equipment.

Understanding the Element

- This element is focused on securing the boat to leave it unattended for an extended period of time.
- Improper securing of the boat and equipment is a frequent source of damage. While there is little direct threat of personnel injury, it is conceivable that persons could be injured in attempting to correct the problem caused by careless procedures. This skill is included to ensure the operator safely secures all equipment and systems on the boat before leaving it unattended.

Designing Instruction

- The use of a written checklist increases the accuracy of any procedure. Whether one is used as an initial training tool of a matter of everyday routine is an organizational policy issue. In either case it is strongly recommended that a written checklist be developed for securing a boat and that it be used at least initially in a student's training.
- There are differing opinions on the status of the bilge pump in an unattended vessel. Some feel that leaving the pump in the automatic mode would allow the battery to be drained in the event of a slow leak. Others feel that a drained battery would be preferable to a sunken boat.
- Recommended Reading *The Checklist Manifesto* by Atul Gawande

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Ensures all equipment is properly secured. Ensures bilge pump is in proper position. Ensures ports, openings, drains and/or seacocks are properly secured. Ensures all systems are secured or in proper positions. Ensures battery switch is in proper position. Gives lines a final check.
2 Needs Improvement	The operator: Leaves 1-2 items of equipment not properly secured. Leaves one or two systems not properly secured or in proper position. Does not properly secure some ports, openings, drains and/or seacocks. Gives lines only a cursory final check.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to ensure that any equipment is properly secured. Fails to ensure that all systems are secured or in desired position. Does not properly secure ports, openings, drains and/or seacocks. Fails to ensure that battery switch is in proper position. Fails to give lines a final check.

Element # 6.3: The operator will be able to: **A: Depart the boat...** B: by disembarking using three points of contact.

Understanding the Element

- The trip is not over until all people are off the boat and safely on land. This process often includes removing gear from the boat.
- As with boarding, disembarking from a boat can be a source of falls and injuries. This simple action can cause significant safety issues or loss of equipment if done inappropriately.
- ‘Three points of contact’ – Sitting, and using feet and hand holds, can all be considered as points of contact.

Designing Instruction

- Causes for falls and equipment losses include an insecure boat-to-pier attachment and attempting to disembark while the boat is in an unstable condition.
- Role modeling by the instructor contributes to establishing a student’s behavior patterns.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Makes a final check to ensure that boat is securely fastened to the dock/slip/mooring/ramp/shoreline. Maintains three firm points of contact with boat while debarking. Passes equipment from boat to person already off the boat. Maintains the boat in a balanced and stable condition while debarking.
2 Needs Improvement	The operator: Makes only a cursory final check the boat is fastened to the dock/slip/mooring/ramp/shoreline. Maintains three firm points of contact or does not fully stabilize self with boat while debarking for only part of the process. Passes most equipment from boat to person already off the boat. Maintains the boat in a marginally balanced and stable condition while debarking.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to engage in final check to ensure that the boat is securely fastened to the dock/slip/mooring/ramp/shoreline. Fails to maintain three firm points of contact or debarks in unsafe manner. Carries equipment from boat while debarking. Fails to maintain the boat in a balanced and stable condition while debarking.

Operation #7: Perform general safety/emergency procedures/maneuvers

Element # 7.1: The operator will be able to: **A: Return to man overboard...** B: within 10 feet and less than one minute.

Understanding the Element

- This element refers to a situation in which a person has fallen out of a boat while underway. The boat may be the operator's boat, or it may be from some other boat in the area.
- Falling overboard while underway accounts for a significant number of injuries and fatalities in recreational boating. It is typically an unexpected surprise. Returning to a man overboard (MOB) in a safe and timely manner plays an important role in likelihood of a MOB being rescued without injury. Often times, the operator is maneuvering the boat close enough to the MOB to return in time to ensure a safe rescue. This skill is included to ensure the operator has the ability to implement such a maneuver.
- This element is focused on returning to the person in the water in a timely manner, defined in this element as 'within 10 feet in less than one minute.' This is intended to put the boat in proximity of the MOB to allow final close maneuvering for recovery. Actual retrieval of the MOB is a separate element.



Designing Instruction

- Risk to the MOB is directly related to maintaining a safe distance between the propulsion unit and the MOB as well as the length of time in the water.
- This skill should be practiced in varying conditions such as wind and surrounding objects.
- The initiating event in this maneuver is when someone spots the MOB, yells "Man overboard," points to the person in the water and, unless otherwise directed, continues to point to the MOB until recovery occurs or is determined to be impossible. There are several other procedural elements in a MOB drill including:
 - The operator saying aloud the boat's present course (to facilitate determining a reciprocal course) and advising crew/passengers that a turn is imminent,
 - Grabbing a throw ring or rescue bag (for heaving to the person in the water) equipped with a light (if at night), and throwing it as close as possible to the MOB,
 - Operator makes final approach to the MOB with control of the boat at the slowest speed possible heading into the wind or current.
- The concept of a scan pattern should be incorporated in instruction to allow the student to monitor the position of the MOB while maintaining adequate lookout.
- Checklists are useful.
- Special precautions may need to be considered in the approach used when returning to a MOB who is physically challenged. For example, the distance the boat stops away from the MOB may need to be closer in order to allow for other forms of contact besides use of a boat hook or tossing a line.

Assessing Performance

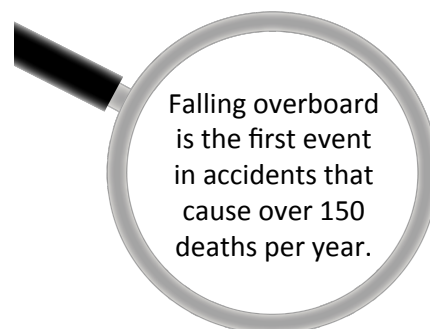
Level	Proficiency description
3 Successful Performance	The operator: Immediately verbalizes "Man overboard". Gives order to passengers/crew (if available) to point at person in water. Ensures throwable flotation aid is thrown if available. Verbalizes "Hold on" before beginning to turn the boat. Engages in smooth steering and throttle control. Returns to man overboard within 1 minute. Positions side of the boat within 8 to 10 feet from person. Makes final approach to MOB with control of the boat at the slowest speed possible heading into the wind or current. Stops boat before reaching MOB but close enough to MOB to reach using a boat pole or by throwing a line a short distance. Maintains proper lookout throughout the entire maneuver for boats/objects and man overboard.

<p>2 Needs Improvement</p>	<p>The operator: Immediately verbalizes “Man overboard”. Gives order to passengers/crew (if available) to point at person in water. Verbalizes “Hold on” before turn begins. Ensures a throwable flotation aid is thrown if available. Turns boat wider or tighter than necessary. Slides, digs chine or ventilates no more than once during turn and makes correction. Allows boat to slow unnecessarily with throttle but adjusts speed. Returns to man overboard within 1 to 2 minutes. Positions side of the boat to within 10 to 12 feet of person. Makes final approach to MOB with control of the boat at the slowest speed possible heading into the wind or current. Stops boat before reaching MOB but close enough to the MOB to reach using a boat hook pole or by throwing a line a short distance. Performs lookout before and throughout the entire maneuver for boats/objects and man overboard.</p>
<p>1 Unacceptable (unsuccessful) Performance</p>	<p>The operator: Does not immediately verbalize “Man overboard”. Does not give order to passengers/crew (if available) to point at person in water. Does not throw any throwable flotation aid. Does not verbalize “Hold on” before turn begins. Makes extra large turn of boat and engages in sporadic throttle control with sliding, digging chine or ventilating of the boat. Returns to man overboard in more than 2 minutes. Is unable to make final approach to MOB with control of the boat at the slowest speed possible heading into the wind or current. Stops boat too short before reaching or passes MOB so that boat is not close enough to MOB to reach using a boat hook pole or by throwing a line a short distance. MOB is not at the side of the boat. Does not maintain proper lookout throughout the entire maneuver for boats/objects and man overboard.</p>

Element #7.2: The operator will be able to: **A: Retrieve man onboard...** B: without further injury to the person.

Understanding the Element

- ‘Retrieve’ means getting the man overboard (MOB) back into the boat.
- There are a number of significant risks to the MOB during the process of retrieval. The good intentions of a boat operator can turn into injuries or fatalities during the retrieval process. Contacting the MOB with the boat or propulsion unit or taking too long to retrieve the MOB can cause significant risk to the MOB. This skill is included to ensure the operator can actually retrieve a MOB once the boat has returned to the MOB.
- This element is for a MOB who is conscious and uninjured.



Designing Instruction

- This maneuver contains other more specific skills. Therefore, it should be taught after students have learned other more specific skills such as turning the boat, stopping the boat, etc.
- This may not be an easy task, depending upon the condition (e.g., conscious or not, the person’s weight) of the MOB and the design of the boat (e.g., having a swim ladder).
- Retrieval needs to take into consideration the condition of the MOB. Plan for different procedures based on condition of the MOB (Injuries, temperature exposure, and level of consciousness).
- Avoid lifting a person by the life jacket unless it is equipped with leg straps. A weakened person may easily slip out of a properly-fitting life jacket.. Use of a swim or removable ladder if available and wind/water conditions permit.
- The USCG uses dummies (called Oscar for the flag signal for MOB) that are properly weighted to simulate recovery.
- Instruction should teach critical thinking skills for assessing the boat, equipment available, and best methods and location for retrieval.
- Instructions should reference the importance of post recovery actions.
- When retrieving the MOB it is important to guard against injury by contact from the propulsion unit or the hull.
- Account for varying conditions that may affect the performance of this skill such as wind and surrounding objects.
- If immediate retrieval is not possible, ensure the MOB has adequate floatation and call for assistance.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Throws line to active man overboard or reaches with a boat pole and makes secure contact with man overboard on the first attempt. Turns off engine once physical contact is made with the person. Securely assists man overboard alongside the boat's gunwale to transom or appropriate boarding area. Assists person climbing aboard using appropriate re-boarding techniques, if available uses a boarding aid to help person. Retrieves throw-able flotation aid. Maintains proper lookout throughout maneuver with an eye on the man overboard. If passenger/crew is present, the Operator gives appropriate and timely orders to passenger/crew in the process of retrieving man overboard.
2 Needs Improvement	The operator: Throws line to active man overboard or reaches with a boat pole, makes two attempts to secure contact with man overboard. Turns off engine once physical contact is made with the person. Securely assists man overboard alongside the boat's gunwale to transom or appropriate boarding area. Assists person climbing aboard using appropriate re-boarding techniques, if available uses a boarding aid to help person. Retrieves throw-able flotation aid. Maintains proper lookout throughout maneuver with an eye on the man overboard. If passenger/crew is present, the Operator gives appropriate and timely orders to passenger/crew in the process of retrieving man overboard.

1 Unacceptable (unsuccessful) Performance	<p>The operator:</p> <p>Does not throw line to active man overboard or reach with a boat pole. Takes more than two attempts to make secure contact with man overboard. Does not turn off engine once physical contact is made with the person. Loses contact with the man overboard. Does not securely assist man overboard alongside the boat's gunwale to transom or appropriate boarding area. Does not assist person climbing aboard. Uses unsafe re-boarding techniques. Does not use a boarding aid to help person, if available. Does not retrieve throwable flotation aid. Does not maintain proper lookout throughout maneuver with an eye on the man overboard. If passenger/crew is present, the Operator does not give appropriate and timely orders to passenger/crew in the process of retrieving man overboard.</p>
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Element # 7.3: The operator will be able to: **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.

[Repeat as 3.4 and 4.8]

Element # 7.4: The operator will be able to: **A: Put on a life jacket...** B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.

[Repeat as 1.1]

Element # 7.5: The operator will be able to: **A: Confirm that all others on the boat put on their life jacket...** B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.

[Repeat as 1.2]

Element #7.6: The operator will be able to: **A: Stop the boat in "emergency" mode...** B: from planing or normal operating speed in less than 2 boat lengths, turning to ensure stern wave passes behind the boat with consideration of passengers and gear.

Understanding the Element

- This maneuver is potentially useful for collision avoidance, but may entail significant risk to people and equipment on board (e.g., by overtaking boats, overtaking stern wave, loose gear, or falls in boat or overboard by passengers/crew) if not done properly.
- Stopping in 'emergency mode' is different from a stopping the boat at planning speed in that it is focused on collision avoidance. The intent is for the operator to be able to avoid a collision by stopping the boat while at planning speed in a short distance and in a manner that reduces safety risks.

Designing Instruction

- Include specific safety precautions that must be incorporated prior to demonstrating this maneuver to reduce the risk of any person being thrown out of the boat when learning the maneuver.
- The phenomenon of overtaking stern wave is important.
- It is important that the operator warns passengers/crew of emergency stop prior to attempting this maneuver.
- The use of a turn significantly reduces the boats advance (movement in original direction) over other methods of stopping from a plane.
- Power should be reduced immediately to idle while turning the helm. The engine is shifted to neutral only after the turn is complete.
- Attempting to stop using reverse can damage the engine and will result in stalling the engine.
- This maneuver presents an opportunity to reinforce the importance to have properly secured gear.
- This execution technique is very dependent on the equipment and may not be possible within the defined distance for some vessels.
- The instructor should feel comfortable in demonstrating this maneuver.
- Discuss the issue potential for mechanical damage if inadvertent shift to reverse occurs.
- When performing this maneuver, ensure student checks behind his/her vessel beforehand.
- The United States Power Squadrons® has prepared a useful video, posted on YouTube and available at <https://www.youtube.com/watch?v=f91u5JfIEOs>.

Assessing Performance

Level	Proficiency description
3 Successful Performance	The operator: Stops boat in less than 2 boat lengths. Makes a smooth 90-degree turn while throttling down to idle, ensuring water does not come into the boat. Throttle control is smooth. Shifts into neutral after turn. Warns passengers/crew of emergency stop prior to performance. Maintains proper lookout throughout the entire maneuver.
2 Needs Improvement	The operator: Stops boat in 3 to 4 boat lengths. Delays initiating the maneuver. Times the turn to ensure wave mostly passes the boat or with little splashing. Makes a smooth turn but not quite 90 degrees. Engages in awkward throttle control. Warns passengers/crew of emergency stop prior to performance. Maintains proper lookout throughout the entire maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: Stops boat in more than 5 boat lengths. Lacks coordination of steering and throttle control, causing stern wave to hit back of boat or enter boat. Makes turn too wide. Does not warn passengers/crew that emergency stop is going to begin. Passengers/crew and gear are thrown around the boat. Does not check for traffic or maintain proper lookout throughout the entire maneuver.

Element # 7.7: The operator will be able to: **A: Start the engine...** B: safely and ensure it is running properly.

[Repeat as 1.7]

Appendix A: Powerboating Skills ANS

Following is the *On-Water Recreational Boating Skills Standard – Power*. Since this ANS serves as the primary source document for the design, development and implementation of entry-level recreational powerboat instruction, it is recommended that a copy of the original ANS be included with course or instructional materials. This will help ensure those who design or deliver instruction, as well as students receiving instruction all share the same starting point for understanding the content of the ANS.



To download a free copy of the *Powerboating Skills ANS*, visit: www.usnows.org.



EDU-1

**On-Water Power Standard
On-Water Education Project Technical
Committee**

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EDU-1

ON-WATER POWER STANDARDS



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This standard was developed under procedures accredited as meeting the criteria for American National Standards. The Project Technical Committee that approved the Standard was balanced to ensure that individuals from competent and concerned interests have had an opportunity to participate.

This standard, which is the result of extended and careful consideration of available knowledge and experience on the subject, is intended to provide minimum performance requirements.

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Upon written request, the On-Water Education PTC will render an interpretation of any requirement of the Standard. The request for interpretation should be clear and unambiguous. Requests should be presented to the PTC in a manner in which they may be answered in a yes or no fashion.

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EDU-1 On-Water Power Standards

National System of Standards for Recreational Boat Operation

Title: On-Water Recreational Boating Skills Standard – Power

Purpose: To establish the national consensus-based standard for use by course providers for course design and student assessment to raise the overall level of quality, availability and consistency of entry level on-water, skill-based instruction in recreational powerboat operation.

Scope: This is the core voluntary standard designed to apply to entry-level powerboat on-water skill-based courses in the U.S. states and territories and District of Columbia and function within a national system of standards for recreational boat operation.

POWER

Domains of application

Boat Characteristics: Less than 26 feet

Wind/Water Conditions: Less than 10 knots of wind; waves 1 foot or less

Operation Conditions: Daytime with no restricted visibility or threatening weather

NOTE: For those recreational boat operations where the boat is in motion, operator skill-based standard elements in this On-Water POWER Standard are accomplished according to aids to navigation, navigational rules, and regulations applicable to the location in which the skill is being executed.



Produced through USCG grant funding to US Sailing to facilitate the development of On-Water skills-based standards as part of a *National System of Standards for Recreational Boat Operation*. Document Title: *On-Water Recreational Boating Skills Standard – Power*.

Operation #1: Prepare to depart

The operator will be able to:

- 1.1 **A: Put on a life jacket...** B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.
Note: This Standard element is repeated as Standard element 7.4
- 1.2 **A: Confirm that all others on the boat put on their life jacket...** B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.
Note: This Standard element is repeated as Standard element 7.5
- 1.3 **A: Inspect boat systems and safety equipment...** B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/anchoring point.
- 1.4 **A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...** B: by assessing whether conditions are favorable for the voyage for length/time of trip.
- 1.5 **A: Board the boat...** B: by using three points of contact and distributing persons/gear while maintaining stability.
- 1.6 **A: Prepare the boat for departure...** B: by readying lines, equipment and crew for intended departure maneuver.
- 1.7 **A: Start the engine...** B: safely and ensure it is running properly.
Note: This Standard element is repeated as Standard element 7.7

Operation #2: Leave a dock/slip/mooring/ramp/shoreline

The operator will be able to:

- 2.1 **A: Get underway...** B: by using shift, throttle and steering, giving consideration to wind and current, while properly managing lines and maintaining a proper lookout throughout all activities.
- 2.2 **A: Check for a clear departure...** B: by confirming there are no conflicts with boat's intended actions in relation to other boats or activities in the vicinity.
- 2.3 **A: Depart a mooring...** B: by avoiding contact with the mooring line and buoy.
- 2.4 **A: Leave from the shoreline...** B: without damaging the propulsion unit and avoiding people in the water.

Operation #3: Maneuver in close quarters

The operator will be able to:

- 3.1 **A: Turn the boat...** B: by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.
- 3.2 **A: Hold position of the boat...** B: near an object in the water for at least a minute within two boat lengths.
- 3.3 **A: Maintain directional control at minimum control speed...** B: keeping boat on a predetermined course for a distance of at least five boat lengths.
- 3.4 **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.

Note: This Standard element is repeated as Standard element 7.3

- 3.5 **A: Bring the boat from idle speed*** to a complete stop... B: within one boat length.
**Note: Standard element 3.5 is intended to be carried out when the boat is operating with the drive continuously in forward gear and with the boat having forward motion prior to demonstrating the skill. Under some conditions associated with demonstrating level of proficiency on the standard element, it may be necessary for a Boat Operator to add a slight amount of throttle to achieve sufficient headway and steering control before initiating the stop.*
- 3.6 **A: Back the boat...** B: in a predetermined direction for five boat lengths.

Operation #4: Operate in open water

The operator will be able to:

- 4.1 **A: Trim the boat...** B: while underway by adjusting position of persons/gear and engine/drive trim or trim tabs.
- 4.2 **A: Turn the boat at high speed...** B: by assuming a new heading 45 degrees to port and starboard using appropriate throttle control.
- 4.3 **A: Steer a straight course...** B: at high speed in a predetermined direction for 50 boat lengths.
- 4.4 **A: Throttle up to and down from slow speed to high speed to slow speed...** B: smoothly and with consideration of passengers/crew and gear.
- 4.5 **A: Stop the boat...** B: from planing or normal operating speed to within five boat lengths ensuring the wake does not over take the stern and with consideration of passengers/crew and gear.
- 4.6 **A: Make course alterations...** B: by smoothly changing direction 45 degrees.
- 4.7 **A: Cross waves or wakes...** B: by using appropriate angle of approach and controlling boat speed for the given wake/wave size and frequency.
- 4.8 **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.
- 4.9 **A: Avoid collisions...** B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.

Operation #5: Arrive at a dock/slip/mooring/ramp/shoreline (make first contact)

The operator will be able to:

- 5.1 **A: Prepare the boat for arrival...** B: by readying lines, equipment and passengers/crew for intended arrival maneuver.
- 5.2 **A: Check for clear approach...** B: by confirming there are no conflicts between boat's intended actions and other boats and activities in the vicinity.
- 5.3 **A: Bring the boat to a predetermined point...** B: by using a stopping procedure; giving consideration to wind, current and boat traffic; and coming to a full, safe stop within 12 inches of the dock/slip/mooring/ramp/shoreline (point of contact).
- 5.4 **A: Arrive at the shoreline...** B: without damaging the propulsion unit and avoiding people in the water.

Operation #6: Secure the boat (preparing to leave boat unattended)

The operator will be able to:

- 6.1 **A: Secure the boat to the dock/slip/mooring/shoreline...** B: by using appropriate knots and lines, anticipating winds, currents and tides expected.
- 6.2 **A: Prepare to depart...** B: having checked and/or secured systems and equipment.
- 6.3 **A: Depart the boat...** B: by disembarking using three points of contact.

Operation #7: Perform general safety/emergency procedures/maneuvers

The operator will be able to:

- 7.1 **A: Return to man overboard...** B: within 10 feet and less than 1 minute.
- 7.2 **A: Retrieve man onboard...** B: without further injury to the person.
- 7.3 **A: Maintain proper lookout...** B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.
Note: This Standard element is repeated as Standard element 3.4
- 7.4 **A: Put on a life jacket...** B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.
Note: This Standard element is repeated as Standard element 1.1
- 7.5 **A: Confirm that all others on the boat put on their life jacket...** B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.
Note: This Standard element is repeated as Standard element 1.2
- 7.6 **A: Stop the boat in "emergency" mode...** B: from planing or normal operating speed in less than 2 boat lengths, turning to ensure stern wave passes behind the boat with consideration of passengers and gear.
- 7.7 **A: Start the engine...** B: safely and ensure it is running properly.
Note: This Standard element is repeated as Standard element 1.5

* * * * *

Origin and Development of EDU-1, On-Water Power Standard

This is the first publication of EDU-1. It is the work of the On-Water Education Project Technical Committee.

* * * * *

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Appendix B: Basic Powerboating Knowledge Standard

The American National Standard for basic power boating knowledge in this appendix was developed by the National Association of State Boating Law Administrators' (NASBLA) Education Standards Panel (ESP). Since this standard serves as a primary source document for the design, development and implementation of entry-level instruction in recreational powerboating knowledge, it is provided here to support efforts to design and deliver instruction that integrates acquisition of the knowledge and skills associated with safe and enjoyable recreational boating.



To download a free copy of this knowledge standard, visit:

<https://www.nasbla.org/education/national-ed-standards>.

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This National Boating Education Standard, as overseen by the National Boating Education Standards Panel (ESP), is the product of voluntary consensus of representatives of federal and state government, industry, nonprofit organizations, and public sectors. It is intended as a guide to aid the boating community in the design and implementation of boating courses and boater education.

ESP will review this standard at least every five years, at which time it may be reaffirmed, revised, or withdrawn. ESP welcomes written comments on the Standard during open public comment periods via <http://esp.nasbla.org/esp/>. Requests for interpretation may be submitted at any time via esp@nasbla.org.

American National Standard

ANSI/NASBLA 103-2016: Basic Boating Knowledge – Power



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ANSI/NASBLA 103-2016
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American National Standard (ANS)

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This standard was developed under procedures of essential requirements for the American National Standards Institute. The Panel that approved the standard was balanced based on interest categories to ensure that individuals representing those with material interests in the standard had an opportunity to participate.

This standard, which is the result of extended and careful consideration of available knowledge and experience on the subject, is intended to provide minimum performance requirements.

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The Panel reserves the right to reconsider any interpretation when or if additional information which might affect it becomes available to the ESP. Persons aggrieved by an interpretation may appeal to the Panel for reinterpretation.

REQUEST FOR APPEALS

Any directly and materially affected interest who believe they have been or will be adversely affected by a Standard, or by the lack thereof, shall have the right to appeal substantive or procedural actions or inactions of the National Boating Education Standards Panel per Part XII of the [Panel Rules](#) (latest version) posted at www.nasbla.org under *Education>Education Standards Panel*. As stated in the Rules, prior to the filing of a formal appeal, communication of the alleged actions or inactions, with mutual effort to informally resolve the dissatisfaction, shall be attempted and documented.

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**ANSI/NASBLA 103-2016
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ANSI/NASBLA 103-2016
American National Standard

American National Standard

Basic Boating Knowledge - Power

Scope

This is the minimum required standard that applies to all basic boating courses in the U.S. states and territories and District of Columbia.

Purpose

To establish the national standard for use by course providers to meet the needs of recreational boaters for basic boating knowledge in order to identify and reduce primary risk factors and mitigate their effects on recreational boating.

1.0 The Boat

1.1 Boat Capacities

1.1.1 The course shall describe how to determine acceptable loading based on:

- locating and determining a boat's gross load capacity (total weight and number of persons) from the boat capacity plate; and
- horsepower recommendations.

1.2 Personal Watercraft (PWC)

Personal Watercraft (PWC) or other boats without capacity plates should reference the owner's manual and state laws.

2.0 Boating Equipment

2.1 Personal Flotation Devices (Wearable Life Jackets and Throwable Devices) Types and Carriage

2.1.1 The course shall explain the:

- different classifications and types of U.S. Coast Guard approved personal flotation devices (PFDs), including wearable and throwable devices;
- different sizes of U.S. Coast Guard approved PFDs; and
- respective uses, advantages, and disadvantages of life jackets based upon the activity for which they are intended.

2.1.2 The course shall also:

- describe the number and types of PFDs/life jackets that must be carried aboard the boat according to applicable regulations;
- discuss and clarify label restrictions; and
- emphasize that the best life jacket is the one that will be worn all the time.

2.2 Personal Flotation Device Availability and Sizing

The course shall communicate that PFDs/life jackets must be:

- readily accessible, and
- correctly sized for the persons using them.

2.3 Wearing Life Jackets

The course shall inform boat operators of the importance of:

- selecting the proper life jacket for the activity and everyone wearing life jackets at all times while aboard, skiing, or otherwise being towed;
- showing passengers how to correctly select the right size of life jacket and put on their life jackets;
- emphasizing the need to be aware that conditions can change quickly while boating (i.e., weather and water conditions, boat traffic, etc.); and
- stressing the need to always wear a life jacket while aboard due to the difficulty of putting a life jacket on in the water while under distress.

2.4 Personal Flotation Device Serviceability

2.4.1 The course shall describe:

- the characteristics of serviceable PFDs/life jackets, and
- when to replace PFDs/life jackets due to excessive wear or damage.

2.4.2 Special attention shall be given to the maintenance of inflatable life jackets as per manufacturer recommendations.

2.5 Fire Extinguisher Equipment

The course shall describe:

- the legal carriage requirements for fire extinguishers on recreational boats;
- the type and size of fire extinguishers needed for different types of fires;
- the importance of placing fire extinguishers in readily accessible locations; and
- the need for following manufacturer's recommendations for inspection and maintenance of fire extinguishers.

2.6 Back-Fire Flame Control Device

2.6.1 The course shall describe:

- the purpose, and
- maintenance of a back-fire flame control device.

2.7 Ventilation Systems

The course shall discuss the ventilation system requirements for different types of boats.

2.8 Navigation Light Equipment

The course shall cover the navigation light requirements for recreational boats as set forth in the most recent version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the United States Coast Guard.

2.9 Sound Signaling Equipment

The course shall cover sound signal requirements for recreational boats as set forth in the most recent version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the United States Coast Guard describing:

- the types of sound-producing devices required on recreational boats, and
- the use of such devices on recreational boats.

2.10 Visual Distress Signal Equipment

The course shall describe:

- the types of visual distress signals required on recreational boats, and
- the use of visual distress signals required on recreational boats operating on coastal waters, and adjoining rivers two (2) or more miles wide at the mouth and up to the first point the river narrows to less than two (2) miles as summarized in the most recent version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the United States Coast Guard

3.0 Trip Planning and Preparation**3.1 Checking Local Weather and Water Conditions**

3.1.1 The course shall describe how to make informed boating decisions based on:

- forecasted local weather,
- water conditions,
- boater skill level,

- boat range, and
- capability of the operator and the boat pertinent to those conditions.

3.1.2 It shall describe:

- dangerous weather (i.e., strong winds, storms, lightning, hurricanes, fog);
- water conditions (i.e., high water, sand bars, currents, large waves); and
- their importance in trip planning.

3.2 Checking Local Information

3.2.1 The course shall describe how to obtain information about local hazards that may impede the safe operation of a recreational boat.

3.2.2. The course shall describe how to obtain information and inform the boater regarding local and state laws and regulations.

3.3 Filing a Float Plan

The course shall describe:

- the importance of notifying someone of your boating plans, and
- the basic information that should be included.

3.4 Boat Preventative Maintenance

The course shall communicate the need for:

- regular inspection, and
- maintenance of the boat and its key components (e.g., through-hull fittings, motor, electrical system, fuel system, operation of engine cutoff device [if installed]).

3.5 Launching and Retrieving from a Trailer

The course shall cover safe trailering procedures including:

- safe towing preparation,
- road handling factors when pulling a trailer,
- launching a boat, and
- retrieving a boat from the water.

3.6 Fueling Procedures

The course shall provide information on proper procedures for:

- fueling, and
- ventilation during fueling.

3.7 Pre-Departure Checklist and Passenger Communication

3.7.1 The course shall describe:

- the importance of using a pre-departure checklist, and
- conducting an onboard safety discussion with passengers.

3.7.2 Passengers should be informed about the location and use of:

- PFDs/life jackets (and shown how to put them on),
- fire extinguishers, and
- visual distress signals and first-aid kit.

3.7.3 Passengers should be informed about:

- anchoring procedures,
- emergency radio operation (if applicable),
- storm/rough weather procedures,
- line handling;
- emergency boat operation and falls overboard procedure.

4.0 Safe Boat Operation

4.1 Operator Responsibilities

4.1.1 The course shall describe boat operator's ultimate responsibility for:

- operator proficiency,
- situational awareness,
- safety of boaters aboard and anyone coming into contact with the boat, and
- all activity aboard the boat.

4.1.2 The course shall describe a boat operator's responsibility regarding the impact of the boat's operation on other water users, including, but not limited to, the need for:

- controlling boat speed,
- obeying no wake/limited wake restrictions;
- refraining from careless, reckless, or negligent operations on the water; and
- observing and operating in accordance with homeland security measures.

4.1.3 The course shall describe homeland security measures, including:

- keeping a safe prescribed distance from military and commercial ships;
- avoiding commercial port operations areas;
- observing all security zones; and
- observing and reporting suspicious activities to proper authorities.

4.1.4 The course shall indicate that it is the beginning of the boater's education and that other courses are available.

4.2 Influence of Drugs and Alcohol on Boat Operation

The course shall describe:

- the effects of drinking alcohol or using drugs while boating, and
- the boating laws pertinent to operating a boat while under the influence.

4.3 Navigation Rules

4.3.1 This course shall describe basic safe boating operation and good seamanship for recreational boaters.

4.3.2 The course shall be designed to assist the recreational boater when encountering typical navigation rules of the road situations.

4.3.3 Although boat operators are responsible to be knowledgeable of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the United States Coast Guard in their entirety, this course will focus on only the following Inland Rules*:

*In those states that Inland Rules do not apply, the equivalent International, Western Rivers or Great Lakes rule(s) may be substituted by the Course Provider.

- Rule of responsibility – Rules 2(a) and 2(b)
- Proper lookout – Rule 5
- Safe speed – Rule 6(a)
- Collision avoidance rules
 - Rules 7(a),
 - 7(d),
 - 7(d)(i),
 - 7(d)(ii),
 - Rule 8,
 - Rules 13(a),
 - 13(b),
 - Rule 16,
 - Rule 17,
 - Rule 18 (a-d)
- Inland Rules
 - 14(a),
 - 14(b),
 - 14(c),
 - Rule 15(a)
- Restricted visibility – Rules 19(a) through (e)
- Disclaimer (Include verbatim in course materials.)

“The navigation rules contained in this course summarize basic navigation rules for which a boat operator is responsible on inland waterways. Additional and more in-depth rules apply regarding various types of waterways, such as International Waters and Western Rivers, and operation in relation to commercial vessels and other watercraft.

For a complete listing of the navigation rules, refer to the document NAVIGATION RULES AND REGULATIONS HANDBOOK by the United States Coast Guard.

For State specific navigation requirements, refer to the state laws where you intend to boat.”

4.4 Aids to Navigation

4.4.1 The course shall describe the Federal U.S. Aids to Navigation System (USATONS).

4.4.2 The course will provide information about regulatory/informational markers (identified by orange bands on the top and bottom of each buoy) used to advise of:

- situations,
- dangers, or
- directions indicating:
 - shoals,
 - swim areas, and
 - speed zones, etc.

4.5 Docking and Mooring

The course shall describe common practices for docking and mooring a boat relative to:

- boat size,
- type of boat,
- location,
- weather, and
- current.

4.6 Anchoring

4.6.1 The course shall describe the importance of:

- carrying an anchor, and
- the selection of: anchors, related ground tackle, and their use for different types of boats in various boating conditions.

4.6.2 The course shall describe:

- procedures for anchoring,
- use of anchors as safety devices in emergency situations, and
- the hazards of stern anchoring.

4.7 Carbon Monoxide

The course shall describe the dangers, symptoms, and avoidance practices associated with carbon monoxide (CO) poisoning in recreational boating.

4.8 Propeller Intervention & Awareness

The course shall describe the dangers, unsafe activities, safety equipment (e.g., engine cutoff device), and avoidance practices to mitigate or prevent propeller strikes in recreational boating.

5.0 Emergency Preparedness

5.1 Rendering Assistance

5.1.1 The course shall explain that, according to the Navigation Rules, boat operators are required to render assistance to a boat in distress to the extent they are able.

5.2 Capsizing/Falls Overboard

5.2.1 The course shall describe how to prevent and respond to these emergencies.

5.2.2 The prevention responses shall include:

- stay centered and low,
- avoid standing and sudden moves,
- maintain three points of contact,
- never overload,
- balance your load, and
- avoid rough water.

5.2.3 The responding procedures shall include:

- wearing life jackets,
- taking a head count,
- staying with the craft when appropriate,
- signaling for assistance,
- using improvised floating aids, and
- initiation of procedures to recover people in the water.

5.3 Cold Water Immersion

5.3.1 The course shall describe the effects of cold water immersion and how to prepare for, prevent, and respond to a cold water immersion event, including:

- Stages and the physiological effects of cold water immersion:
 - Initial reaction (cold shock response; gasping and hyperventilation),

- Short-term response (cold incapacitation; swim failure, functional loss), and
- Long-term response (immersion hypothermia).
- Preparation and Prevention:
 - Wearing a life jacket enhances chances of survival during each stage;
 - Carrying communication and signaling devices on person; and
 - Preventing capsizing, swamping, and falls overboard.
- Response:
 - Initial reaction (first 1-5 minutes) – airway protection and breath control;
 - Short-term (first 30 minutes) – performing the most important functions first (emergency communication, situational assessment, decision making, and self-rescue activities); and
 - Long-term (after 30 minutes or more) – slow body core heat loss and be prepared at all times to signal rescuers.

5.4 Fire Emergency Preparedness

The course shall describe procedures to prevent and respond to boating fires such as:

- proper use of fire extinguishers, and
- basic knowledge of fire suppression principles.

5.5 Running Aground Prevention and Response

The course shall describe how to prevent, and respond to running aground for recreational boats.

6.0 Other Water Activities

6.1 Water-Jet Propelled Watercraft

The course shall inform all operators of jet-propelled and personal watercraft about:

- safe boating practices, and
- special accident risks unique to personal watercraft (PWC), such as:
 - off throttle loss of steering,
 - stopping (including braking and reverse systems),
 - re-boarding a PWC, and
 - the use of a lanyard cutoff switch.

6.2 Water Skiing, Towed Devices and Wake Sports

The course shall describe safety practices specific to:

- pulling water skiers,

- towing anyone behind a vessel, and
- allowing anyone to participate in an activity using the wake of the vessel (wake boards, tubes, etc.).

6.3 Diving and Snorkeling

The course shall describe:

- how to recognize a diver down flag, and the International Code Flag A, and
- the legal requirements for operating a boat in the vicinity of snorkeling or scuba diving activities.

6.4 Hunting and Fishing

6.4.1 The course shall inform people who fish and hunt from boats that they are boaters, and need to follow safe boating practices.

6.4.2 Information will be provided about accident risks unique to this group of recreational boaters.

6.5 Small Boats

6.5.1 The course shall describe that all boat operators should be aware of their interactions around small boats including the effect of boat wakes.

6.5.2 Additionally, the course shall provide information about the safety considerations inherent to all small watercraft, as to:

- the importance of donning a life jacket prior to entering the watercraft,
- stabilizing a small boat for entering,
- boarding a small boat safely,
- proper loading for stability,
- moving around in the boat (e.g., keeping the weight centered from side-to-side and bow-to-stern),
- maintaining stability while underway, and
- being prepared for unintended water entry.

Appendix C: Integrating TSD information within Education Provider Materials

Education providers are encouraged to use the information contained in this TSD to support the development and implementation of their recreational boating safety education programs. The following guidelines are provided to ensure appropriate use of the TSD content within program materials.

Provide appropriate credit for direct quotes. The information contained within this TSD is copyrighted. Therefore, when taking direct quotes from the TSD, credit the source of the information within your materials. For example:

- This TSD is copyrighted by the United States Sailing Association (US Sailing); the USCG grantee behind its development. Use a statement such as the following to provide appropriate credit when directly quoting from the TSD:

Source: Using the Powerboating Skills American National Standard for On-Water, Skills-based Instruction for Safer Boating: Technical Support Document for the Powerboating Skills ANS. Produced through USCG grant funds to develop national on-water skills-based standards. ©2018 United States Sailing Association.

- The ANS *EDU-1 On-Water POWER Standard* contained in Appendix A is copyrighted by the American Boat & Yacht Council (ABYC); the ANSI-accredited Standards Development Organization (SDO) behind its development. Provide appropriate credit to ABYC when quoting from this Standard.
- The ANS *ANSI/103-2016: Basic Boating Knowledge – Power* contained in Appendix B is copyrighted by the National Association of State Boating Law Administrators (NASBLA); the ANSI-accredited SDO behind its development. NASBLA authorizes use of this standard for development of course and boating safety materials without the need for further written permission.

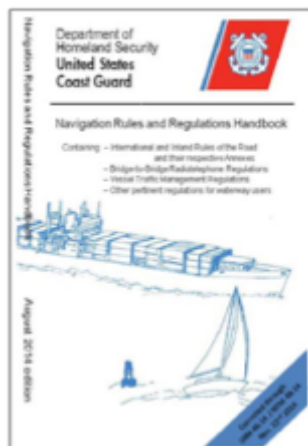
Follow requirements for appropriate use of organizational logos. Organizations have strict requirements for the use of their logos. Avoid using logos from any organization involved in the NOWS Program, or identified in this TSD unless such use is in full compliance with any terms and conditions set forth by those organizations. This includes the USCG, US Sailing, ABYC, NOWS, NASBLA, and Think First Serve.

Tailor fonts and colors to fit organizational branding. It is appropriate to format text, use font style or type sizes that are consistent with organizational color codes, style guides or branding when describing TSD content in course materials.

Appendix D: Additional Resources

This appendix contains resources that may be helpful in the design and implementation of skills-based instruction in entry-level recreational powerboat operation.

Book: The U.S. Coast Guard Navigation Rules and Regulations Handbook.



For those recreational boat operations where the boat is in motion (underway), operator skills-based elements in *On-Water Recreational Boating Skills Standards* are accomplished according to aids to navigation, navigational rules, and regulations applicable to the location in which the skill is being performed.

This resource contains all the current information about the Navigation Rules and Regulations powerboat operators must be able to conform to when operating a powerboat. Use it to help ensure instructional programming delivers skills that include understanding when and why operators should use the different skills acquired.



To download a copy of the manual, visit the U.S. Coast Guard's website at: www.navcen.uscg.gov/?pageName=navRulesContent.



Please note: Navigation Rules are now incorporated into 33 CFR (Electronic Code Of Federal Regulations) Chapter I, Subchapter E, which can be accessed at: www.ecfr.gov.

Website: The National Recognized Standard Evaluator Program.



This resource identifies a group of subject matter experts that course designers can access to help develop On-Water instruction that delivers the skills identified within the National On-Water Skills POWER Standard. Subject matter experts participated in an intensive training program that provided them with a unique knowledge and understanding of the Standard. Use this resource to help ensure your instructional program delivers the skills and outcomes identified in the Standard.

Included in the Registry are the names, contact information, and a short biography, for each of the subject matter experts. This group of people can provide coaching on the use of the standard to develop on-water instructional programming.



To access the National Registry, visit: <http://www.onwaterstandards.org/#/national-standard-evaluators-program/c13vi>.

Website: ABYC (The American Boat & Yacht Council).



The American National Standards Institute (ANSI)-approved process used to complete the approval and publication of the Standard as an American National Standard is owned by ABYC, an approved Standards Development Organization (SDO).



For further information about ABYC or the process, visit: www.abycinc.org.

Appendix E: Glossary of Terms

This Glossary provides definitions and descriptions of key terminology used within the on-water recreational boating skills American National Standards (ANSs) and associated Technical Support Documents (TSDs). The following sources were consulted when defining the key terminology: The American Sailing Association's *Sailing Made Easy*; *Bowditch Knight's Seamanship, Start Powerboating Right!*; *Naval Ship Handling (Crenshaw)*; *The Oxford Companion to Ships and the Sea*; *Powerboat Handling Illustrated*, and US Sailing's *Learn Sailing Right – Beginner*.

2-part command. A communication given by the skipper to the crew, in which some action may be expected on the part of the crew. Part 1 is the preparation and part 2 is the execution; e.g. "Ready About" and "Helm's A-Lee" or "Prepare to Jibe" and "Jibe-Ho."

Abeam. Off the boat at right angles to its centerline.

Aft. Toward the stern or behind the boat.

Americans with Disabilities Act (ADA). Passed in 1990, the ADA prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation (source: www.ada.gov/2010_regs.htm)

Apparent wind. The combination of true wind and the wind effect of motion as felt aboard a moving boat.

Astern. Behind the stern.

Avoiding collisions. Any action taken in this skill takes place in accordance with international or inland rules or special regulations related to the body of water involved. This message is emphasized for this particular standard even though all standards take place according to navigation rules.

Beam. (1) The width of the boat at its widest point; (2) The region of the boat's sides halfway between a bow and stern.

Beam Reach. The point of sail where the wind is abeam of the boat.

Bear away. To turn the boat away from the wind, also known as "fall off."

Bearing. The horizontal direction of a point not on the vessel with respect to the vessel or to the compass; expressed in degrees.

Beginner. A person who has begun a course of instruction or is learning the fundamentals.

Boat. The vessel under operation.

Boat length. The length of the boat the operator is aboard. Often used to judge distances the boat has traveled.

Boom. The spar that supports the foot of the mainsail.

Boom vang. A sail control, either rigid or in block and tackle form, used to hold down the boom or control the twist in the leech of the sail.

Bow. The forward part of the boat.

Broad Reach. The downwind point of sail between a beam reach and a run.

Burying the bow. When the entire bow (to the shear line) goes below the level of the surrounding water, whether into a wave or a trough. Water may or may not enter the boat burying the bow.

By the lee. Sailing on a run with the wind on the same side as the mainsail.

Cavitation. When low pressure along the leading edge of the propeller causes the formation of bubbles (low pressure steam) resulting in loss of thrust and metal erosion to the propeller and other propulsion components. Differs from Ventilation.

Centerboard. A device that pivots down from the bottom of the boat to provide lateral resistance.

Chine. The intersection of the bottom of the hull with the side of the boat.

Class. A specific occasion when students meet with an instructor to learn a particular topic. A class, sometimes referred to as a *lesson*, may stand on its own or be part of a larger course of instruction (see *Course*).

Cleat. A fitting used to secure a line under load.

Clew. The aft lower corner of the sail (between the leech and the foot)

Close-hauled. The upwind point of sail where a boat sails as close to the wind as possible.

Close reach. The upwind point of sail between close-hauled and a beam reach.

Cockpit. The area of the boat, usually recessed into the deck, from which the boat is steered or sailed.

Course. (1) The intended steering direction; (2) A series of specific learning experiences such as lectures or training sessions focused on a specific topic. A course is designed to accomplish the acquisition of a defined level of knowledge and skills associated with the specific topic. A course contains a framework of specific goals and objectives for learning experiences individuals will engage in to transfer knowledge and/or skills. It may stand on its own or be part of a larger curriculum. Multiple courses are used when the goals and objectives of a curriculum are too large in scope to be accomplished by one course.

Crew. People who have duties aboard or assist in the operation of a vessel.

Cruising speed. A speed for a particular boat usually somewhat below maximum that is comfortable and economical and not necessarily with wide-open throttle. Three-quarter throttle often provides an acceptable balance of speed and fuel efficiency.

Cunningham. A type of downhaul used to tension the luff of a sail.

Curriculum. A high-level plan or overarching framework for all the experiences individuals will engage in as part of their education. A curriculum identifies WHAT is to be learned and takes into account the needs of the individual learner, the domain of knowledge and skill, and the needs of society overall.

Daggerboard. A device that lowers vertically down from the bottom of the boat to provide lateral resistance.

Deck. Generally horizontal surface that encloses the top of the hull.

Downhaul. A line used to tension the luff of the mainsail by pulling down the boom at the gooseneck.

Downwind. In the direction toward which the wind is blowing.

Emergency Action Plan. An emergency action plan (EAP) is a written document required by particular OSHA standards. The purpose of an EAP is to facilitate and organize employer and employee actions during workplace emergencies. (Source: <https://www.osha.gov/SLTC/etools/evacuation/eap.html>)

Emergency mode (stop). To stop a boat quickly for safety reasons. Synonymous with ‘panic stop’ or ‘immediate stop.’

Entry-level. The proficiency reached by a person who has successfully completed an appropriate amount of beginner instruction, or has achieved a sufficient level of experience, to be ready to pursue (or ‘enter’ safely into) the associated activity.

Equipment. All items that are not fixed or permanently attached to the boat, including fenders, boathook, anchor and other items useful for departure, operation, arrival, or safety.

Erratic. Uneven, irregular or unpredictable movement.

Essential Eligibility Criteria (EEC). The requirements a student needs to meet in order to participate in a learning experience. Examples of EEC include: weight, height, ability to follow instructions, capacity to independently communicate, etc.

Experiential education. An approach to education that involves students engaging in the process of learning through hands-on activity and direct experience, followed by focused reflection, to develop knowledge, skills, attitude, judgment, values, etc., associated with the learning goals and objectives.

Foot. The bottom edge of a sail.

Formative feedback. The act of providing students with feedback during instruction about their current level of skills acquisition and to target additional learning needs. It provides opportunities to adjust learning while there is still time to redirect toward a more successful outcome.

Forward. Toward the bow.

Furl. To stow a sail on a spar or a stay.

Give-way vessel. Under the Navigation Rules, the vessel that is obligated to adjust its course or speed to avoid collision with another vessel.

Goal. The intended outcome of an instructional approach. What the student will be able to know, do or believe as a result of participating in instruction.

Gooseneck. An articulated fitting that connects a boom to a mast.

Halyard. A line used to raise and lower a sail.

Head. The top corner of a sail.

Head down. To steer away from the wind, bear away, fall off.

Heading. The direction the boat is pointing at any given time; sometimes expressed as *compass heading*.

Head to wind. A boat's position when its bow is pointing directly into the wind.

Head up. To steer the boat toward the wind.

Heave-to. To slow a boat significantly by setting the sails and rudder in opposition.

Heel. (of a boat) to lean sideways under the pressure of the wind on the sails.

Helm. The location and/or mechanism by which a boat is steered (e.g., wheel, tiller, handle bars, etc.).

High speed. The minimum speed at which a boat will be on plane.

Hull. The watertight structural shell of a boat.

Idle. The lowest revolutions per minute (RPM) at which an engine will maintain continued operation. The manufacturer generally sets this through the use of a detent in the throttle or the lowest position at which the throttle can be set.

Idle speed. The speed of the boat through the water when continuously in gear at the lowest RPM possible.

In irons. The state of a sailboat that is head to wind, having lost headway with the sails luffing.

Instructional approach. The overall manner of preparing, supporting, delivering and following up on the way in which knowledge, skills, etc., are passed on. Includes infrastructure and support, the people involved, and the environment in which it happens, as well as the actual act of delivering instruction before, during, after a learning experience.

Jib. A triangular sail set forward of the mainmast.

Jibe. To turn the boat so that its stern passes through the wind with the mainsail changing sides.

Keel. The main structural member along the bottom of the boat's hull; on a sailboat, often an appended fin-shaped structure that contains ballast.

Lesson. A specific occasion when students meet with an instructor to learn a particular topic. A lesson, sometimes referred to as a *class*, may stand on its own or be part of a larger course of instruction (see *Course*).

Leeward. The direction, or side of the boat, away from the wind.

Life jacket. A flotation device intended to be worn by an individual that meets the standards set forth in the Code of Federal Regulations as promulgated by the US Coast Guard.

List. Defines the lateral orientation – side to side - relative to the water's surface. Tilting of the boat due to internal forces.

Luff. (1) *n.* The forward edge of a sail; (2) *v.* The fluttering of a sail when the boat is too close to the wind, g. "the sail is luffing;" (3) *v.* To head up into the wind so that the sails are depowered, "luff up."

Mainsail. The sail attached to the aft side of the mainmast.

Maintain proper lookout. Making a make a full appraisal of the situation and of the risk of collision using sight, hearing and all other available means appropriate in the current circumstances or conditions. Called “Look-out” in Rule 5 of the Navigation Rules and Regulations Handbook.

Making way. When a boat is being propelled through the water by sail, machinery, or oar.

Maneuver in close quarters. To operate a boat in a confined area; typically requires operation at slow speed (e.g., in a marina or narrow fairway).

Mast. A fixed vertical spar that holds up a sail or sails.

Minimum control speed. The slowest speed at which an operator can effectively control the heading of the boat using intermittent application of power, steerage and headway.

Navigation rules. Rules for the operation of a boat while on the water, whether underway or at anchor, and designed to prevent collisions.

Neutral. The engine / propulsion unit are not in gear or engaged.

Normal operating speed. The speed at which the boat is operated for optimum performance and efficiency. The actual speed is dependent upon design of the hull (*see planing speed*).

No-sail zone. The zone in relation to the wind where the sails cannot generate power; sometimes called the “no-go zone.”

Novice. A person who is new to an activity and typically has little or no knowledge or skills related to that activity.

Objectives. Specific end results students will achieve that collectively accomplish the overall goal for the unit of instruction. They provide guides to selecting content, designing the instructional strategy and preparing the materials to engage students in he instructional activities.

On-water instruction. A course or program of instruction that is boat-based and on the water for skills development. Instruction takes place primarily in the natural setting of the boat (on or near the water) with experiential learning as the primary method of delivery.

Outhaul. A line used to tension the foot of the mainsail.

Passengers. People or occupants in a boat who are not involved in its operation.

Performance Objectives. Specific focused outcomes to be achieved as a result of engaging in a learning experience. Objectives may identify the concrete knowledge, skills, attitude or behaviors a student will be able to demonstrate as a result of the learning experience.

Planing speed. The speed at which a planing hull is supported by dynamic buoyancy generated by its forward speed. The boat is no longer operating in the displacement or semi-displacement mode.

Planing stop. The stop used to bring a planing hull to a stop with the least amount of movement or advance along its original track while avoiding having water enter the boat over the transom. This applies only to planing hulls.

Point of sail. The direction a boat is sailing relative to the wind. There are five points of sail: Close-haul (or Close-hauled), Close Reach, Beam Reach, Broad Reach, and Run (or Running).

Porpoising. The motion of the bow of a boat bobbing up and down due to its fore and aft trim and resulting interaction with the water. Not wave generated.

Port. 1. A harbor; 2. The left-hand side of a boat when facing forward.

Prerequisites. Something that is required before a student can participate in a learning experience. For example, a prerequisite for attending a course might be a previous learning experiences attended, a set of skills previously acquired, or knowledge previously learned.

Proficiency. A description of the behaviors and actions that demonstrate the level of competence, accomplishment or skill in operating a recreational boat.

Program. A collection of courses designed to accomplish a comprehensive set of goals and objectives too large to be accomplished by any one course of instruction.

Propulsion unit. The mechanism that causes the powerboat to move (e.g. propeller, jet). The phrase is applied to a mechanical device rather than a sail or paddle.

Radius of turn. The distance a boat offsets laterally during 90 degrees of turn; usually measured in feet, yards, or meters.

Rate of turn. The change in vessel heading per unit of time, typically measured in degrees per minute.

Rubric. A mechanism used to define and describe different levels of proficiency for a particular skill in behavior and action. Along with distinguishing successful from unsuccessful demonstration of a skill, rubrics identify performance that needs improvement to obtain targeted successful level of proficiency.

Rudder. The movable appendage attached to a boat under the water and with which it can be steered. A rudder could be attached to a post underneath the boat, or hung on the transom with fittings called pintles and gudgeons.

Rules of the road. The collegial expression often used to refer to *Navigation Rules*. This is the term used to identify the general statement governing the application of those on-water standard elements for which the boat is making way.

Run. The point of sail on which the wind is directly astern.

Safety Position. When a sailboat has essentially stopped making forward progress (may be drifting as a result of wind or current) on a close reach with the sail(s) luffing and the mainsail eased. This is a maneuver commonly used by sailing dinghies.

Sheet. A line used to control the alignment or angle of a sail relative to the boat and the wind.

Skill. The learned capacity, aptitude or ability to do something.

Stand-on vessel. Under the Navigation Rules, the vessel that is obligated to maintain its course or speed, unless it is apparent that the Give-way vessel is not taking early and substantial enough action to avoid the collision.

Standard. The definition of the qualities or characteristics used to judge how well something is accomplished. Skills standards for entry-level, recreational boat operation identify, a) the skill individuals are able to demonstrate; and b) the condition that is fulfilled when the skill is demonstrated to an

acceptable level of proficiency. The Instructional Approach Standard identifies a) the characteristic, and b) the criteria of the instructional approach.

Starboard. The right-hand side of the boat when looking forward.

Steady course. Maintaining the boat's intended direction.

Stern. The aft part of a boat.

Student-centered instruction. An approach that puts the focus of attention on the student and tailors delivery of instruction to fit the distinct learning needs, preferences and interests of the individual student, or group of students. This approach is often counter to those designed to work best for the education provider (e.g., efficiency and mass production) but that might not be the best approach for learning the particular topic.

Summative feedback. The act of providing students with feedback at the conclusion of a learning experience about their overall level of proficiency obtained as a result of participation. It is used to determine whether a student has successfully acquired the skills associated with the specific learning goals and objectives of the learning experience and to identify future opportunities to continue learning.

Tack. (1) *n.* The forward lower corner of a sail; (2) *v.* To change course by turning the bow of a sailboat through the wind; (3) *n.* A designation according to which side of the boat the wind is blowing onto. The boat is said to be "on a port tack," or "on a starboard tack." For the purposes of the Navigation Rules, when on the *Running* point of sail, the tack is determined by the side of the sailboat that is opposite the mainsail.

Telltale. A short length of light yarn or similar material attached to a sail to indicate the flow of air across it and thus the state of the sail's trim.

Three points of contact. Includes contact with the boat by any three of the following: individual hand, individual foot or buttocks.

Throttle. The mechanism used to control the engine's revolutions per minute and used to control the speed of the boat.

Tiller. A lever used to control the angle of the rudder and thereby steer the boat.

Track. The path that the boat has taken over the ground.

Traveler. A car and track system that allows the main sheets attachment point to the deck to be moved aftwardships.

Trim. The relation of a boat's fore and aft orientation to the water's surface; e.g., level trim; or bow up or down; or stern up or down. Also, to adjust the angle of outboard motors or stern drives.

Underway. When a boat is not at anchor, or made fast to the shore, or aground.

Upwind. In the direction from which the wind is blowing.

Ventilating. The drawing of air from the surface into the propeller blades disrupting the water flow over the blades causing a sudden loss of thrust and increase in engine RPM. Often occurs in a turn of a planing hull where the propulsion unit moves too close to the surface due to the boat's heel.

Windward. Toward the wind.