

# Using the Human-propelled Skills American National Standard for On-Water, Skills-based Instruction for Safer Boating

Technical Support Document  
for the *Human-propelled Skills ANS*

*Embrace the Standard • Design Instruction*

*Assess Performance • Make it Real*

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Managing editorial, content and design: K. Brian Dorval  
Editorial, content and design support: Jeff Riecks  
Main content providers: NOWS Program Subject Matter Expert Core Team

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Gordon Colby	Lynn Lynch	Jeff Riecks
Pamela Dillon	John Malatak	Bruce Rowe
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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 – Human-propelled* for entry-level recreational skills instruction and assessment.

The information contained in this document enhances understanding and guides the application of the *On-Water Recreational Boating Skills Standard – Human-propelled* in the design and implementation of instructional programs, courses, and curriculum for entry-level recreational boat 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 – Human-propelled (EDU-2 Skill-based Human-propelled Standard* 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 – Human-propelled*, 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 human-propelled craft operation identified within *On-Water Recreational Boating Skills Standard – Human-propelled* 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 – Human-propelled*, (*EDU-2 On-Water Human-propelled Standard*) also known as the Human-propelled Skills ANS<sup>1</sup>. The Human-propelled Skills ANS went into effect on October 11, 2016.

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

The Human-propelled 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 Human-propelled Skills ANS and this TSD focus on the outcome skills of instruction in Human-propelled craft operation, 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 Human-propelled Skills ANS and this TSD. Also, the IAS should be used in conjunction with the standards and TSDs for the Powerboating and Sailing domains as well (see Figure 1).

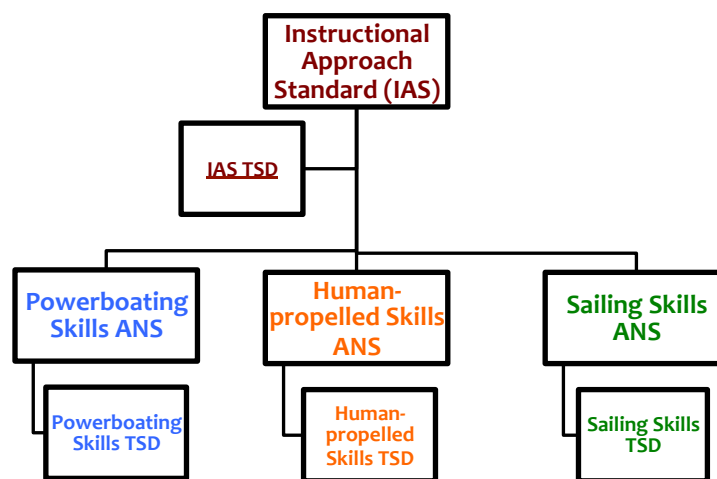


Figure 1: Relationship of On-Water, Skills-based American National Standards for Safer Boating

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<sup>1</sup> The title of the standard is *On-Water Recreational Boating Skills Standard – Human propelled*, however ABYC has titled the ANS as *EDU2 Skill-based Human-propelled Standard* to fit within its categorization system. Both titles are synonymous and may be used interchangeably in this document. Additionally, the phrase “Human-propelled Skills ANS” may be used throughout this document to refer to either title.

***Note: This Instructional Approach Standard (IAS) and its accompanying TSD are designed to be the first document 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 Human-propelled 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 Human-propelled 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 Human-propelled Skills ANS to help apply it to instructional programming. Includes information for integrating Human-propelled Skills ANS materials within instructional course and programs.

### Appendices:

- A. The Human-propelled Skills ANS.
- B. Human-propelled 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 Human-propelled 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 Human-propelled 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.<sup>2</sup>

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**.”<sup>3</sup>

The Human-propelled 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 instruction in human-propelled craft operation 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.

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

<sup>3</sup> *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](http://www.onwaterstandards.org).

Developing proficient entry-level recreational boat 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**<sup>4</sup>
- *On-Water Recreational Boating Skills Standard – Human-propelled (EDU-2 Skill-Based Human-Propelled Standard)*, also known as the **Human-propelled Skills ANS** (described in this TSD)
- *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](http://www.usnows.org).

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<sup>4</sup> 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 Human-propelled Skills ANS do?

The Human-propelled Skills ANS identifies entry-level, performance-focused recreational boating skills. While the Human-propelled 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 Human-propelled 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 Human-propelled Skills ANS. Other programs may contain a subset of the Human-propelled 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 Human-propelled 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 Human-propelled 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 Human-propelled 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 Human-propelled 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 characteristics:* A *paddle craft* is a vessel powered only by its occupant(s), using a single or double-bladed paddle as a lever without the aid of a fulcrum provided by oar locks, thole pins, crutches, or similar arrangements. A *rowing craft* is a vessel powered only by its occupant(s), using an oar as a lever with the aid of a fulcrum provided by oarlocks, hole pins, crutches, or similar arrangements.
- *Wind / water conditions:* Flat water, with current less than 1 knot, protected from the wind and waves.
- *Operating conditions:* Daytime with no restricted visibility or threatening weather.

The operations and skills in the Human-propelled 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 underway, individual skills-based standard elements in this On-water HUMAN-propelled Standard are to be accomplished in accordance with any aids to navigation, navigational rules, and any regulations applicable to the location in which the skill is being executed.”

## How is the Human-propelled Skills ANS organized?

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

1. *Prepare to depart* – the craft is in the water and secured.
2. *Leave a departure point (e.g., dock, slip, shoreline, etc.)* – the craft leaves from a particular point of departure such as a dock, slip, mooring, ramp or shoreline.
3. *Maneuver in close quarters* – the craft is operating in a limited or confined waterway.
4. *Operate in open water* – the craft is operating in an open waterway with plenty of room to maneuver.
5. *Arrive at a destination (e.g., dock, slip, shoreline, etc.) making first contact* – the craft makes first contact at a point of arrival such as a shoreline, dock, or slip.
6. *Secure the boat (preparing to leave the craft unattended)* – the craft 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:

4.2	<i>The operator will be able to:</i>  <b>A: Turn the craft while maintaining forward motion...</b> B: <i>90° to the right and left, and based upon a 360° scan of the surrounding area and using appropriate and effective strokes, while maintaining trim and balance of the craft.</i>
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It should be noted that the numerical identifiers (‘4.2’ 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 operations during the design and delivery of instruction.

## Is it mandatory to use the Human-propelled Skills ANS?

The NOWS ANS 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 Human-propelled Skills ANS? Where can it be obtained?**

The Human-propelled Skills ANS and its supporting documents are freely available for use by anyone interested in the design and delivery of on-water skills-based recreational craft 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 Human-propelled Skills ANS, visit: [www.usnows.org](http://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 human-propelled craft skills instruction, the *novice* is someone who has decided they want to operate a human-propelled craft, 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 human-propelled craft operation but will likely have few direct *skills*, if any.

The *beginner* has enough motivation to 'take the plunge' and obtain instruction for human-propelled craft 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 human-propelled craft, under certain conditions. This includes whatever complimentary knowledge is required to be able to safely operate the craft.

The language structure of the Human-propelled 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 *On-water Boating Skills Standard – Human-propelled* is to provide a solid foundation upon which high quality skills-based instructional programs for entry-level recreational human-propelled craft can be built.

Course developers are asked to consider the following recommended guidelines for designing their beginner human-propelled craft 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 Human-propelled 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 human-propelled craft 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 Human-propelled 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 Human-propelled Skills ANS to confirm that the instructional program will include the complete list of skills (the elements) identified in the standard.***

The Standard 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 Human-propelled 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 Human-propelled Skills ANS is not itself a course. Rather, it describes the desired outcome as a result of successfully completing one (or more) beginner human-propelled craft skills course(s). When the student completes the course(s), he or she should be able to perform all of the Elements contained in the Human-propelled 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 Human-propelled 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 Human-propelled Skills ANS identifies the fundamental set of skills associated with entry-level recreational human-propelled craft 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 ‘**Propel the craft forward**’ before the ‘**Propel the craft in a figure of 8 course**’ 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 human-propelled craft in a straight line would be written “The operator will be able to... **Propel the craft forward in a straight line**” rather than “the instructor will emphasize paddle control so the student effectively stays 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 Human-propelled 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 ‘Rescue a person in the water and capsized craft...’ 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.

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 human-propelled craft instruction courses may be reviewed and updated using the Human-propelled 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 Human-propelled 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 Human-propelled 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 Human-propelled 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 Human-propelled 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) National Boating Education Standards Panel (ESP) is the organization responsible for developing *NASBLA-101-2017 Basic Boating Knowledge - Human-Propelled*. 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 Human-propelled Skills ANS, *NASBLA-101-2017 Basic Boating Knowledge - Human-Propelled* 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 can 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 Report<sup>5</sup> is planned to be written 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

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

Although not required, education providers are encouraged to follow the Human-propelled 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 instructional approach 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 course follows the Human-propelled Skills ANS, visit: [www.usnows.org](http://www.usnows.org).*

### *What if a program already follows a different standard?*

The Human-propelled Skills ANS sets the foundation for best practices in entry-level, on-water skills-based human-propelled craft instruction. If the program under consideration already follows a standard, check the extent to which that standard follows the Human-propelled Skills ANS. If the program standard meets or exceeds the Human-propelled Skills ANS, there is no need to change the program. If the program standard is set lower than the Human-propelled Skills ANS, make alterations to ensure the program meets or exceeds the Human-propelled 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 Human-propelled Skills ANS, check to ensure implementation of the program locally is taking place according to the program standards.

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<sup>5</sup> 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.

- If the program is not designed to follow the Human-propelled 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 Human-propelled Skills ANS?***

Although a non-certified instructor could theoretically teach skills identified by the Human-propelled 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 Human-propelled 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 Human-propelled 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 Human-propelled Skills ANS be included in a course?***

Yes. The Human-propelled 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-'ses\ 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.<sup>6</sup>

Rubrics were developed for use with the Human-propelled 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 Human-propelled 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.

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<sup>6</sup> 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 4.2 is shown below, along with the corresponding rubric:

Element	4.2	The operator will be able to: <b>A: Turn the craft while maintaining forward motion...</b> B: 90° to the right and left, and based upon a 360° scan of the surrounding area and using appropriate and effective strokes, while maintaining trim and balance of the craft.	
		Level	Proficiency description
Rubric		3 <b>Successful Performance</b>	The operator: Propels the craft in a forward motion. Scans 360 degrees before initiating turn. Turns craft 90 degrees to the right or left. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle).
		2 <b>Needs Improvement</b>	The operator: Propels the craft in a forward motion. Does not scan a full 360 degrees before initiating turn. Turns craft within 30 degrees of a 90-degree turn. Keeps craft upright but may require sudden recovery motions. Uses inappropriate but effective strokes or appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle).
		1 <b>Unacceptable (unsuccessful) Performance</b>	The operator: Does not propel the craft in a forward motion. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Does not scan. Does not turn craft. Falls in water or allows craft to capsize.

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

*[The operator will be able to:]* **A: Turn the craft while maintaining forward motion...**

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

B: 90° to the right and left, and based upon a 360° scan of the surrounding area and using appropriate and effective strokes, while maintaining trim and balance of the craft.

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

- Level 3: Turns craft 90 degrees to the right or left.
- Level 2: Turns craft within 30 degrees of a 90-degree turn.
- Level 1: Does not turn craft.

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 Human-propelled 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*<sup>7</sup> 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 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 human-propelled craft operation.

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<sup>7</sup> An anticipatory set is an instructional strategy that is intended to capture a students' interest in the beginning of a lesson.

***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?*

The Human-propelled 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:

- Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle).
- Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.

## 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 Human-propelled Skills ANS, which are:

1. Prepare to depart
2. Leave a departure point (e.g., dock, slip, shoreline, etc.)
3. Maneuver in close quarters
4. Operate in open water
5. Arrive at a destination (e.g., dock, slip, shoreline, etc.) making first contact
6. Secure the boat (preparing to leave the craft 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](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.usnews.org](http://www.usnews.org).

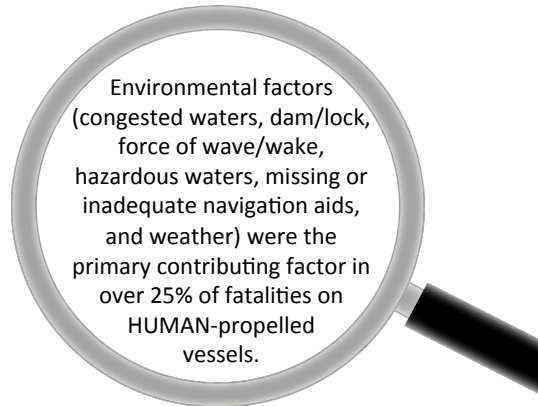
## Operation #1 Prepare to Depart

**Element # 1.1:** The operator will be able to: **A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...** B: assessing if 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, air and water temperature), 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.
- The operator should be able to consult weather forecasts (such as by use of marine weather radio) and evaluate hazards to navigation (obtainable from nautical charts), and notices to mariners if applicable.
- Judgment is required. The experience of the operator is an important factor to consider. Some conditions, such as a small craft advisory, call for a “no go” decision. The domain of application specifies acceptable weather conditions for boat type and size.
- Environmental factors include, but are not limited to, water quality and temperature, water levels, hazards such as rip-rap and breakwaters, currents, man-made structures, and areas with restricted navigation due to law enforcement or military activities.



### Designing Instruction

- Ensure operator has considered appropriate safety factors for the trip before departing.
- Identify/understand factors that might make a trip unsafe.
- Forecasts should extend beyond the length of the trip.
- Include examples of appropriate information and how to obtain that information both before and during the trip.
- Discuss the importance of gaining current information during long trips. Recognize that conditions may suddenly change.
- Incorporate multiple sources of information, ranging from traditional observation of weather and water patterns to advanced technology.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Obtains and recites detailed weather conditions (wind speed and direction, air temperature, precipitation, cloud cover, water conditions). Obtains and recites forecasts for length/time of trip. Identifies hazards to navigation for the length/time of trip. Identifies other environmental hazards. Accurately assesses conditions for the trip before (making appropriate go/no go decision) and throughout the trip.
2 Needs Improvement	The operator: Obtains and recites limited weather conditions. Obtains and recites incomplete weather forecasts for length/time of trip. Obtains limited environmental information.

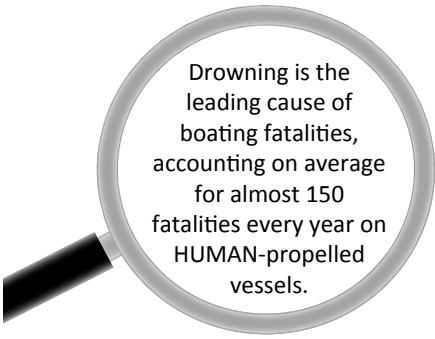


<p>1 Unacceptable (unsuccessful) Performance</p>	<p>The operator: Does not obtain or recite weather conditions. Does not obtain or recite forecast. Does not identify hazards to navigation for the length/time of trip.</p>
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**Element # 1.2:** The operator 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.



Drowning is the leading cause of boating fatalities, accounting on average for almost 150 fatalities every year on HUMAN-propelled vessels.

- 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/howtochoosetherightlife\\_jacket\\_brochure.pdf](http://www.uscgboating.org/images/howtochoosetherightlife_jacket_brochure.pdf).

### Designing Instruction

- As a result of instruction on this Element, the operator should be able to:
  - Comply with boating laws regarding choice of life jacket.
  - Choose a life jacket that will do the job it is intended to do.
  - Properly put on and fasten (buckle) a life jacket and adjust life jacket to a snug fit.
  - Identify an appropriate life jacket for the activity/craft because not all life jackets are universal for every application
- 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 should wear their life jackets during the instruction of this skill to model a successful outcome and demonstrate the importance of wearing life jackets during recreational boating.
- Identify / provide examples of different types of life jackets used for different boating applications.
- Show where to find the buoyancy range of a given life jacket to ensure it fits the body type/size of the user.
- Provide examples of life jackets that are NOT in serviceable condition (not USCG approved, torn fabric, missing buckles, etc.).
- Instruction of this skill can be linked to instruction of the skills in Element 7.4 (**Avoid cold water shock and hypothermia...**) and Element 7.5 (**Rescue a person in the water and capsized craft...**).

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Chooses life jacket appropriate for the operator's body type and size, boat and activity. Ensures life jacket is in good working order. Puts on life jacket. Adjusts life jacket to proper fit.
2 Needs Improvement	The operator: Chooses life jacket appropriate for the operator's body type and size, boat and activity. Ensures life jacket is in good working order, but may miss non-critical flaws (e.g., torn pocket) that do not affect flotation. Puts on life jacket. Adjusts life jacket too loose, improper fit, such that boater may float but is unable to purposefully swim.

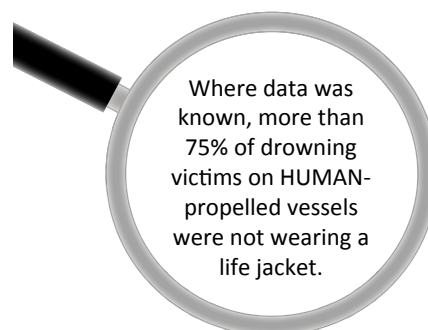
<p>1</p> <p>Unacceptable (unsuccessful) Performance</p>	<p>The operator:</p> <p>Chooses life jacket not appropriate for the operator's body type and size, boat or activity.</p> <p>Does not ensure life jacket is in good working order. Does not put on life jacket. Does not adjust life jacket to fit (e.g. Life jacket slips off boater, or is so loose that boater has difficulty breathing or swimming).</p>
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**Element # 1.3:** The operator will be able to: **A: Confirm all others on the craft put on their life jackets...** B: ensuring 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/howtochoosetherightlife\\_jacket\\_brochure.pdf](http://www.uscgboating.org/images/howtochoosetherightlife_jacket_brochure.pdf).



### Designing Instruction

- The operator must be responsible for ensuring the life jackets are used as intended and are successful, if called to do so, in keeping persons in water afloat, to give them a chance to survive until rescue.
- Life jackets can often be seen by non-boaters as clunky, uncomfortable or ‘not-cool’. It is important that the operator be persuaded to be a good role model because life jacket use is the single biggest contributor to surviving capsized or person in water situations.
- Adjustments and sizing are partners. No amount of adjustment will make a wrong sized life jacket fit and even the perfect size life jacket will not work if mis-adjusted.
- Choosing, donning, adjusting a life jacket for crew should be done well in advance of departure. This is easy to forget until after the boat has departed.
- Consider zipper lube on the life jacket zippers every six months in saltwater environments.
- Students might tend to ‘either’ snap a buckle or zip a zipper. Be on the lookout for that and insist that the life jacket is only worth wearing when it is fully and properly secured. This might be needed in the middle of training.

**Additional Information:** Include explanations for the Rubric (if needed)

- Stay current with changes in life jacket regulations – not just wear and inventory rules, but manufacture rules; especially given the recent USCG regulation changes for categorization and labeling of life jackets.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	<p>The operator:</p> <p>1.3a Confirms all others on the boat have chosen a life jacket appropriate for the boat/activity.</p> <p>1.3b Confirms life jackets are sized correctly.</p> <p>1.3c Ensures life jackets are serviceable.</p> <p>1.3d Confirms all others on boat have put on life jackets.</p> <p>1.3e Confirms all others on boat have adjusted life jackets to fit.</p>

<p>2 Needs Improvement</p>	<p>The operator:</p> <p>1.3a Does not confirm all others on the boat have chosen life jackets appropriate for the boat/activity.</p> <p>1.3b Ensure life jackets are sized correctly.</p> <p>1.3c Ensures life jackets are in good working order, but may miss non-critical flaws (e.g., torn pockets) that do not affect flotation.</p> <p>1.3d Confirms that all others on boat have put on life jackets.</p> <p>1.3e Confirms that all others on boat have adjusted life jackets to fit, but one or more may be adjusted too loosely or in a way that may affect ability to swim.</p>
<p>1 Unacceptable (unsuccessful) Performance</p>	<p>The operator:</p> <p>1.3a Does not confirm all others on boat have chosen an appropriate life jacket.</p> <p>1.3b Does not ensure life jackets are sized correctly.</p> <p>1.3c Does not ensure life jackets are serviceable.</p> <p>1.3d Does not confirm that all others on boat have put on life jackets.</p> <p>1.3e Does not confirm that all life jackets are adjusted for proper fit (e.g. one or more life jackets may slip off, affect breathing, or inhibit swimming).</p>

**Element # 1.4:** The operator will be able to: **A: Inspect craft systems and safety equipment...** B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.

#### 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.

#### Designing Instruction

- Ensure operators can recognize key systems in their craft and how to ensure they work correctly.
- Ensure operators can recognize required and recommended safety equipment [for example, signaling devices (e.g., whistles and other sound producing devices, lights, radios, etc.), navigational tools (e.g., charts, maps, etc.) rescue equipment (e.g., throw bags, pumps, spare paddles, pin kits, paddle floats, slings, etc.) and communication (paddle/oar and whistle signals)].
- For information about rules and regulations associated with craft systems and safety equipment, download a free copy of the U.S. Coast Guard Navigation Rules and Regulations Handbook at: <http://www.navcen.uscg.gov/?pageName=navRuleChanges>.
- Ensure operators can recognize appropriate manufacturer's recommendations for their craft
- 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.
- Instruction should include both discussion and hands-on use of systems and equipment.
- Samples of pre-departure checklists should be provided.
- Discussion should include, but not be limited to, the craft's owner's manual.

**Additional Information:** Include explanations for the Rubric (if needed)

- Links to state and local boating law requirements for the local region should be included.

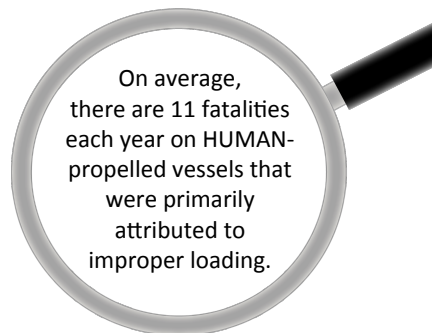
#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Inspects craft systems and safety equipment using a written or memorized pre-departure checklist. Matches systems and equipment to the intended voyage. Matches systems and safety equipment to the anticipated weather.
2 Needs Improvement	The operator: Does not fully inspect craft systems and safety equipment using a written or memorized pre-departure checklist. Matches systems and equipment to the intended voyage. Matches systems and safety equipment to the anticipated weather.
1 Unacceptable (unsuccessful) Performance	The operator: Does not fully inspect systems or safety equipment checklist. Does not match systems and safety equipment to the intended voyage. Does not match systems and safety equipment to the anticipated weather.

**Element # 1.5:** The operator will be able to: **A: Prepare the craft for departure...** B: readying equipment (e.g., secured, appropriate load, craft balanced, etc.) and individuals (e.g., safety equipment, plan, etc.) for intended departure.

### Understanding the Element

- Proper preparation reduces the risk of capsize and other accidents and helps ensure a safe and enjoyable trip.
- Properly stowed equipment is less likely to drift away after capsize.
- Properly stowed equipment contributes to correct trim.
- Proper preparation includes insuring individuals in a group are personally prepared and the group has gear and expertise needed for the intended voyage.



### Designing Instruction

- Instruction should discuss appropriate safety and navigation equipment, including but not limited to signaling devices (whistles and other sound producing devices, lights, radios, ...), navigational tools (charts, maps, ...), rescue equipment (throwbags, pumps, spare paddles, pin kits, paddle floats, slings, etc....) and communication (paddle/oar and whistle signals).
- Students should practice storage techniques that help keep equipment dry to the extent possible, secured to the craft, and accessible when needed.
- Students should be provided a list of appropriate equipment.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Securely stows equipment in/on craft/person. Ensures craft is balanced with appropriate load. Completes pre-departure review of equipment (e.g., general use, safety equipment) and plans (e.g., for departure, safety). Confirms all individual(s) have all necessary equipment.
2 Needs Improvement	The operator: Places equipment in craft but equipment is not securely stowed in/on craft/person. Balances craft but is overloaded with weight, OR loads appropriate amount of weight but craft is unbalanced. Performs incomplete pre-departure review of equipment (e.g., general use, safety equipment) and plans (e.g., for departure, safety). Does not confirm all individual(s) have all necessary equipment.
1 Unacceptable (unsuccessful) Performance	The operator: Does not place equipment in craft. Overloads craft with weight causing capsize or equipment to fall out. Does not perform pre-departure review of equipment and plans. Individual(s) do not have necessary equipment.

## Operation #2: Leave a departure point (e.g., dock, slip, shoreline, etc.)

**Element # 2.1:** The operator will be able to: **A: Enter and launch the craft...** B: using appropriate techniques for the venue (e.g., kneeling on a SUP during departure, etc.), keeping the craft upright with minimal wobbling or loss of control.

### Understanding the Element

- Entering and launching a craft in a controlled manner is fundamental to an overall safe outing.
- Safe departure sets the tone for the rest of the trip.
- Capsize on departure, in shallow water or near a pier, has a higher risk of injury than in deeper water away from structures.
- Departure can be from any appropriate site (e.g., dock, slip, shoreline), as long as fundamental principles are followed.

### Designing Instruction

- Ideally, several different sites would be utilized in a course.
- Sites should be chosen so as to minimize the risk of injury during departure.
- Level departure points, such as a sandy beach, require different techniques than a high dock or steep shoreline.
- Care should be taken to avoid damage to shorelines during departure.

### Assessing Performance

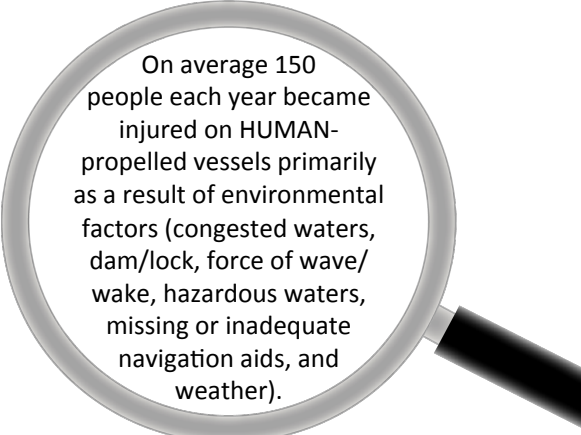
Level	Proficiency Description
3 Successful Performance	The operator: Enters/boards the craft keeping craft upright with minimal wobbling or loss of control, and no sudden recovery motions while boarding/entering and launching. Launches from departure point (e.g., dock, slip, shoreline, etc.) using appropriate technique for venue.
2 Needs Improvement	The operator: Enters/boards the craft keeping craft upright but may require sudden recovery motions while boarding/entering and launching. Launches from departure point (e.g., dock, slip, shoreline, etc.) using inappropriate technique for venue.
1 Unacceptable (unsuccessful) Performance	The operator: Does not enter/board craft. Falls in water or allows craft to capsize while boarding/entering and launching. Launches causing damage to craft or injury to person. Does not launch craft.



**Element # 2.2:** The operator will be able to: **A: Check for a clear departure...** B: using a 360-degree scan to confirm a clear path of departure with no conflicts with craft's intended actions and boats/activities in the vicinity and ensuring that departure is not a hazard for others underway.

### Understanding the Element

- Checking for clear departure is essential given it often takes place in a situation where other boats and or objects are in close proximity, increasing the risk of collision.
- Collisions should be avoided. Do not depart into the path of oncoming traffic.
- Safe departure sets the tone for the rest of the trip.
- Hazards should be recognized and avoided on departure.



On average 150 people each year became injured on HUMAN-propelled vessels primarily as a result of environmental factors (congested waters, dam/lock, force of wave/wake, hazardous waters, missing or inadequate navigation aids, and weather).

### Designing Instruction

- Content should include discussion of navigational rules, and their applicability to human-powered craft.
- This skill should be practiced under various conditions of wind, current, and proximity to other boats.
- Operators should identify blind spots and high-speed traffic areas.
- Operators should constantly maintain a high degree of situational awareness. A 360-degree scan is not a one-time event and must be repeated throughout the departure maneuver, especially in a crowded area.
- Whenever possible, choose departure locations that allow good visibility.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Performs complete 360-degree scan of the launch area. Shows evidence all hazards that can cause harm or damage to person or craft are identified prior to launch.
2 Needs Improvement	The operator: Performs an incomplete scan (less than 360 degrees) of the launch area. Shows evidence some but not all hazards that can cause of harm or damage to person or craft are identified prior to launch.
1 Unacceptable (unsuccessful) Performance	The operator: Does not complete a scan of the launch area. Does not show evidence hazards that could cause harm or damage to person or craft are identified prior to launch.

## Operation #3: Maneuver in close quarters

**Element # 3.1:** The operator will be able to: **A: Propel the craft forward...** B: while maintaining proper grip and paddle/oar orientation along with trim and balance of the craft.

### Understanding the Element

- Forward propulsion is the primary means by which the operator makes progress toward a destination.
- Proper grip and paddle/oar orientation minimize risk of injury to operator and improve efficiency of the technique.
- Proper trim and balance reduce the risk of capsize and improve stroke efficiency.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully drive the boat forward.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from propelling the boat.
- Properly trimmed boats may have a relatively neutral waterline, and will have controlled pitch, roll and yaw while underway, thereby demonstrating proper balance and stroke efficiency.

### Designing Instruction

- Operators can maintain directional control by using a range (lining up two distant fixed points).
- Rowers should periodically look over their left and right shoulders to see where they're going and check for obstacles in their path, but they should not look over their shoulders all the time. This is done on the "drive" phase of the stroke. Paddlers will generally be facing the direction of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and operator's body type should be considered when determining proper stroke technique. However, the stroke path generally should be a front to back / bow to stern motion
- Operators should be able to combine this skill with stopping, pivoting, and moving forward on an arc.
- The operator should use large torso muscles as much as possible for added strength during propulsion, without overburdening smaller arm muscles.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft forward. Has proper paddle/oar grip with blades facing the correct direction. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft forward. Propels craft using improper grip and/or paddle/oar orientation. Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft forward. Does not use proper grip or paddle/oar orientation. Falls in water or allows craft to capsize.

**Element # 3.2:** The operator will be able to: **A: Stop the craft...** B: within two boat lengths, using the appropriate and effective strokes, while maintaining trim and balance of the craft.

#### Understanding the Element

- Stopping the craft is critical for avoiding hazards and collisions; for approaching beaches, docks and piers; and for performing rescues.
- Proper trim and balance reduce the risk of capsize and improve stroke efficiency.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully stop the boat's momentum within two boat lengths.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from stopping the boat.
- Properly trimmed boats will have a relatively neutral waterline, and will have minimal pitch, roll and yaw while underway, thereby demonstrating proper balance and stroke efficiency.

#### Designing Instruction

- Operators can maintain directional control by using a range (lining up two distant fixed points)..
- Craft freeboard and beam, type of paddle/oar, type of craft, and operator's body type should be considered when determining proper stroke technique.
- Operators should be able to stop while travelling forward, backwards or sideways.
- During the stop, the craft might spin (e.g., for a turn stop), but trim and balance will be maintained throughout the maneuver.
- The operator should use large torso muscles as much as possible for added strength during stopping maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Stops the craft. Stops craft within two boat lengths. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Stops the craft. Stops craft within 2-4 boat lengths. Uses appropriate but ineffective strokes. Or uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not stop the craft. Stops craft in more than 4 boat lengths. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Falls in water or allows craft to capsize.

**Element # 3.3:** The operator will be able to: **A: Turn the craft from a stationary position...** B: 180° to the right and left, within 1-2 boat lengths, based upon a 360° scan of the surrounding area, using appropriate and effective strokes, while maintaining trim and balance of the craft.

#### Understanding the Element

- Turning 180-degrees to the right and left is sometimes called “pivoting” the craft.
- Pivoting in place allows the operator to change the boat’s heading toward a desired direction.
- Pivoting in place may allow the operator to more easily scan the surrounding area, particularly if mobility issues exist.
- Pivoting is important for close quarters maneuvers, to allow proper positioning relative to other craft and to natural and man-made features.
- Proper trim and balance reduce the risk of capsize and improve stroke efficiency.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully spin the craft with limited fore or aft motion.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from spinning the boat.
- Properly trimmed boats will have a relatively neutral waterline, and will have minimal pitch or roll while spinning, thereby demonstrating proper balance and stroke efficiency.
- Operators should be encouraged to complete a 360-degree scan before initiating a pivot. However, in some cases, mobility issues might prevent a complete scan until after the pivot begins.

#### Designing Instruction

- Operators generally should look in the direction of the turn.
- Craft freeboard and beam, type of paddle/oar, type of craft, and boater’s body type should be considered when determining proper stroke technique. Several different stroke types (e.g., forward and reverse sweeps) might be required.
- During the turn, the craft should spin smoothly to help maintain trim and balance.
- The operator should use large torso muscles as much as possible for added strength during maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Turns the craft. Turns craft 180 degrees to the right and the left. Executes turn in 1-2 boat lengths. Scans 360 degrees before initiating turn. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions. Uses appropriate and effective strokes for intended use of propulsion unit (e.g., oar, paddle).
2 Needs Improvement	The operator: Turns the craft. Turns craft within 25-30 degrees of target. Turns craft in 2-4 boat lengths. Does not scan a full 360 degrees before initiating turn. Keeps craft upright but may require sudden recovery motions. Uses inappropriate but effective strokes, or appropriate but ineffective strokes for intended use of propulsion unit (e.g., oar, paddle).
1 Unacceptable (unsuccessful) Performance	The operator: Does not turn the craft. Does not turn craft within 25-30 degrees of target. Turns craft in more than 4 boat lengths. Does not scan. Falls in water or allows craft to capsize. . Uses ineffective and inappropriate strokes for intended use of propulsion unit (e.g., oar, paddle).

**Element # 3.4:** The operator will be able to: **A: Move the craft sideways (if applicable\*)...** B: 10 feet (to each side), based upon a 360° scan of the surrounding area, using proper techniques with appropriate and effective strokes, while maintaining trim and balance of the craft.

\* This element is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.

#### Understanding the Element

- Sideways motion is important to raft up with other operators or to move in to a dock space.
- Sideways travel may be important when performing rescues and recoveries, or otherwise assisting fellow operators
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully move the craft laterally with limited fore or aft motion.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from lateral travel.
- Properly trimmed crafts will have a relatively neutral waterline, and will have minimal pitch, roll or yaw while traveling laterally, thereby demonstrating balance and stroke efficiency.

#### Designing Instruction

- Operators generally should look in the direction of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and boater's body type should be considered when determining proper stroke technique.
- During lateral movement, the craft should travel smoothly to help maintain trim and balance.
- The operator should use large torso muscles as much as possible for added strength during maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft directly sideways. Propels craft 10 feet in each direction. Scans 360 degrees before initiating turn. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft sideways, but has some associated spin, or forward or backward motion. Propels craft less than 10 feet in each direction. Does not scan a full 360 degrees before initiating turn. Uses appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Or uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft sideways. Does not scan. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Falls in water or allows craft to capsize.

**Element # 3.5:** The operator will be able to: **A: Propel the craft in a figure of 8 course (if applicable\*)...** B: around markers 3-4 boat lengths apart, based upon a 360° scan of the surrounding area, using appropriate and effective strokes, while maintaining trim and balance of the craft.

\* This element is applicable when paddling a canoe, kayak, raft, stand-up paddleboard, or operating a classic dinghy-type rowboat.

#### Understanding the Element

- Moving through a figure of 8 course demonstrates the ability to maintain forward momentum while changing directions, and demonstrates the ability to use different strokes to effectively control the craft.
- A figure of 8 course can be set up with two buoys or markers approximately 3 to 4 boat lengths apart - but tailor dimensions to fit instructional needs and local waterway.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully move the craft along the desired path of travel.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from travel.
- Properly trimmed crafts will have a relatively neutral waterline, and will have minimal pitch or roll while underway, thereby demonstrating balance and stroke efficiency.

#### Designing Instruction

- Operators generally should look in the direction of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and boater's body type should be considered when determining proper stroke technique.
- During travel, the craft should travel smoothly to help maintain trim and balance.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft in a figure of 8 course while maintaining forward momentum. Completes a figure of 8 course, around markers 3-4 boat lengths apart, with each turning diameter no greater than 4 boat lengths. Scans 360 degrees before and during maneuver. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle) during the maneuver. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft in a figure of 8 course, but completely loses forward momentum at least once. Completes the figure of 8 course, around markers 3-4 boat lengths apart, with each turning diameter within 4-6 boat lengths. Does not scan a full 360 degrees before and during maneuver. Uses appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Or, uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not complete a figure of 8 course. Completes a figure of 8 course with either turning diameter more than 6 boat lengths. Does not scan. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Falls in water or allows craft to capsize.

## Operation #4: Operate in open water

**Element # 4.1:** The operator will be able to: **A: Propel the craft forward in a straight line...** B: 15-20 boat lengths using appropriate and effective strokes to maintain a constant heading, while maintaining trim and balance of the craft.

### Understanding the Element

- Forward propulsion is the primary means by which the operator makes progress toward a destination.
- Proper trim and balance reduce the risk of capsize and improve stroke efficiency.
- Appropriate and effective strokes reduce the need for constant course corrections.
- Maintaining a constant heading for 15-20 boat lengths indicates a likelihood that the operator could do so for longer distances.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully drive the boat forward.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from propelling the boat.
- Properly trimmed boats will have a relatively neutral waterline, and will have minimal pitch, roll and yaw while underway, thereby demonstrating proper balance and stroke efficiency.
- The operator should use large torso muscles as much as possible for added strength during propulsion, without overburdening smaller arm muscles.

### Designing Instruction

- Operators can maintain directional control by using a range (lining up two distant fixed points).
- Rowers should periodically look over their left and right shoulders to see where they're going and check for obstacles in their path, but they should not look over their shoulders all the time. This is done on the "drive" phase of the stroke. Paddlers will generally be facing the direction of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and operator's body type should be considered when determining proper stroke technique. Large muscle groups should be used when possible. The stroke path generally should be a front to back / bow to stern motion.
- Corrective strokes should be smoothly incorporated in to power strokes.
- Operators should be able to combine this skill with stopping, pivoting, and moving forward on an arc.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft forward in a straight line. Propels craft in a straight line for 15-20 boat lengths. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft forward within 30 degrees of target. Propels craft for 10-15 boat lengths. Uses appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Or uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft forward. Does not have control over direction of craft. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Falls in water or allows craft to capsize.



**Element # 4.2:** The operator will be able to: **A: Turn the craft while maintaining forward motion...** B: 90° to the right and left, and based upon a 360° scan of the surrounding area and using appropriate and effective strokes, while maintaining trim and balance of the craft.

#### Understanding the Element

- Changing direction while underway is a foundational skill.
- Changing direction while maintaining momentum is much more efficient than turning after coming to a stop.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully drive the boat forward along the desired path of travel.
- The path of travel should be an arc, rather than a distinct pivot at a fixed point.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from propelling the boat.
- Properly trimmed craft will have a relatively neutral waterline, and will have minimal pitch, roll and yaw while underway, thereby demonstrating proper balance and stroke efficiency.
- Operators should be able to continue along a constant heading after making the right or left turn.

#### Designing Instruction

- Operators can maintain directional control by looking towards the desired path of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and operator's body type should be considered when determining proper stroke technique. Corrective strokes should be smoothly incorporated in to power strokes
- Operators should be able to combine this skill with stopping and pivoting.
- The operator should use large torso muscles as much as possible for added strength during maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft in a forward motion. Scans 360 degrees before initiating turn. Turns craft 90 degrees to the right or left. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle).
2 Needs Improvement	The operator: Propels the craft in a forward motion. Does not scan a full 360 degrees before initiating turn. Turns craft within 30 degrees of a 90-degree turn. Keeps craft upright but may require sudden recovery motions. Uses inappropriate but effective strokes or appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle).
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft in a forward motion. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Does not scan. Does not turn craft. Falls in water or allows craft to capsize.



**Element # 4.3:** The operator will be able to: **A: Move the craft sideways (if applicable\*)...** B: 10 feet (to each side) using proper techniques with appropriate and effective strokes, while maintaining trim and balance of the craft.

\* This element is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard

#### Understanding the Element

- Sideways motion is important to raft up with other operators or to move in to a dock space.
- Sideways travel may be important when performing rescues and recoveries, or otherwise assisting fellow operators
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully move the craft laterally with limited fore or aft motion.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from lateral travel.
- Properly trimmed crafts will have a relatively neutral waterline, and will have minimal pitch, roll or yaw while traveling laterally, thereby demonstrating balance and stroke efficiency.

#### Designing Instruction

- Operators generally should look in the direction of travel.
- Craft freeboard and beam, type of paddle/oar, type of craft, and boater's body type should be considered when determining proper stroke technique.
- During lateral movement, the craft should travel smoothly to help maintain trim and balance.
- The operator should use large torso muscles as much as possible for added strength during maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft sideways, without spinning or moving forward or backwards. Propels craft 10 feet in each direction. Uses appropriate and appropriate strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft sideways, but may have spin or forward motion or backward motion. Cannot propel craft 10 feet in each direction. Uses appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Or uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft sideways, movement is primarily spinning, or moving forward or backwards. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Capsizes or nearly capsizes.

**Element # 4.4:** The operator will be able to: **A: Move the craft backwards...** B: 3-4 boat lengths using appropriate and effective reverse strokes while maintaining directional control and while maintaining trim and balance of the craft

#### Understanding the Element

- Operating the craft backwards allows operators to avoid hazards and maneuver up to natural and man-made features, including other boats.
- Appropriate strokes will vary based on the type of craft, but in all cases will purposefully move the craft backwards.
- Effective strokes will have minimal splash at all times during stroke. Ineffective strokes will have splash during the stroke that detracts from backwards travel.
- Properly trimmed crafts will have a relatively neutral waterline, and will have minimal pitch, roll or yaw while traveling backwards, thereby demonstrating balance and stroke efficiency.
- Maintaining directional control is assessed by maintaining a generally straight line, but minimal yaw is acceptable.

#### Designing Instruction

- Paddlers should periodically look over their shoulder to see where they're going, but they should not look over their shoulder all the time. Rowers will generally be facing the direction of travel.
- Operators should initially check for collision hazards before travelling backwards.
- Operators should be able to combine this skill with the ability to stop and to pivot the craft.
- The operator should use large torso muscles as much as possible for added strength during backing maneuver, without overburdening smaller arm muscles.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Propels the craft backwards. Propels craft backwards 3-4 boat lengths. Uses appropriate and effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Maintains directional control remaining within 30 degrees of intended direction. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Propels the craft backwards. Propels the craft backwards 1-3 boat lengths. Uses appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Or, uses inappropriate but effective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Maintains directional control varying greater than 25-30 degrees of intended direction. Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not propel the craft backwards. Uses inappropriate and ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Does not control direction of craft. Falls in water or allows craft to capsize.

## Operation #5: Arrive at a destination (e.g., dock, slip, shoreline, etc.) making first contact

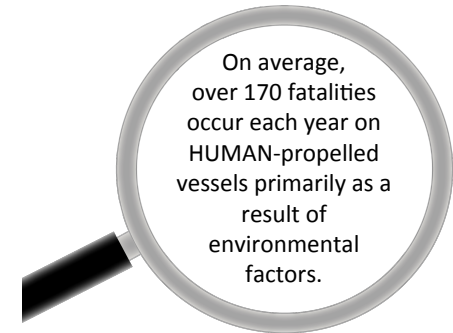
**Element # 5.1:** The operator will be able to: **A: Check for clear approach...** B: using a 360-degree scan to confirm a clear path of arrival with no conflicts with craft's intended actions and boats/activities in the vicinity and ensuring that arrival is not a hazard for others underway.

### Understanding the Element

- Checking for a clear approach is critical to avoiding collisions and staying clear of other hazards.

### Designing Instruction

- Consider and select a safe area to arrive while avoiding hazards.
- Content should include discussion of navigational rules, and their applicability to human-powered craft.
- Operators should identify blind spots and high-speed traffic areas.
- Operators should constantly maintain a high degree of situational awareness.
- Care should be taken to avoid damage to shorelines during landing.



### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Performs complete 360-degree scan of the arrival area. Shows evidence all hazards that can cause harm or damage to person or craft are identified prior to arrival.
2 Needs Improvement	The operator: Performs an incomplete scan (less than 360 degrees) of the arrival area. Shows evidence some but not all hazards that can cause of harm or damage to person or craft are identified prior to arrival.
1 Unacceptable (unsuccessful) Performance	The operator: Does not complete a scan of the arrival area. Does not show evidence hazards that could cause harm or damage to person or craft are identified prior to arrival.

**Element # 5.2:** The operator will be able to: **A: Arrive at a destination point (e.g., dock, slip, shoreline, etc.) and exit the craft...** B: using appropriate techniques for the venue (e.g., kneeling on a SUP during arrival, etc.), keeping the craft upright with minimal wobbling or loss of control.

#### Understanding the Element

- Safe arrival properly closes out the trip.
- Capsize on arrival, in shallow water or near a pier, has a higher risk of injury than in deeper water away from structures.
- Arrival can be to any appropriate site (e.g., dock, slip, shoreline), so long as fundamental principles are followed.

#### Designing Instruction

- Content should include discussion of navigational rules, and their applicability to human-powered craft.
- Operators should identify blind spots and high-speed traffic areas.
- Operators should constantly maintain a high degree of situational awareness.
- Techniques will vary depending upon the characteristics of the destination point; e.g., level sandy beach, dock, boat ramp, rocky shoreline, etc.).

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Arrives at intended destination using appropriate technique for the venue. Uses appropriate and effective strokes for intended use of propulsion unit (e.g., oar, paddle). Keeps craft upright with minimal wobbling, loss of control, and no sudden recovery motions while arriving and exiting the craft. Exits the craft.
2 Needs Improvement	The operator: Arrives at the dock, slip or shoreline using inappropriate technique for venue. Uses inappropriate but effective strokes or appropriate but ineffective strokes for the intended use of the propulsion unit (e.g., oar, paddle). Keeps craft upright but may require sudden recovery motions while arriving and exiting craft. Exits the craft.
1 Unacceptable (unsuccessful) Performance	The operator: Does not arrive at intended destination. Uses ineffective and inappropriate strokes for intended use of propulsion unit (e.g., oar, paddle). During arrival, falls in water or allows craft to capsize while exiting the craft, or causes damage to craft or injury to person.

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

**Element # 6.1:** The operator will be able to: **A: Secure the craft and equipment...** B: using appropriate techniques and anticipating winds, currents and tides.

### Understanding the Element

- Properly securing craft prevent them from drifting or blowing away.
- Secure means that craft will not float away or be swamped/filled with water due to changing conditions.

### Designing Instruction

- When water levels change over time (e.g., due to tides or river flow), discussion should include managing both rising and falling water levels.
- Depending on craft and conditions, techniques could include carrying boats in to safe storage, tying to structures, or carrying on to shore.

### Assessing Performance

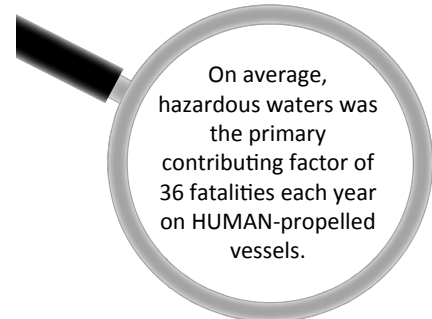
Level	Proficiency Description
3 Successful Performance	The operator: Secures craft with regard for current conditions and for anticipated changes in weather, current and tides. Secures equipment with regard for current conditions and for anticipated weather, current and tides.
2 Needs Improvement	The operator: Secures craft for immediate conditions without consideration of anticipated future conditions. Secures equipment for immediate conditions without consideration of anticipated future conditions.
1 Unacceptable (unsuccessful) Performance	The operator: Leaves craft unsecured. Leaves equipment unsecured.

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

**Element # 7.1:** The operator will be able to: **A: Avoid capsizing the craft...** B: maintaining proper body position and paddle/oar techniques.

### Understanding the Element

- Capsizing means the craft overturns.
- Capsizing is a common occurrence in a small craft.
- Avoiding a capsize allows the operator to have a safer and more enjoyable experience.
- Proper body position could mean multiple points of contact and proper posture.



### Designing Instruction

- Including use of bracing or momentum strokes for paddle craft and use of feathered oars for rowing to create stability.
- Paddlesports: in order avoid capsizing the operator should be coached to keep their nose over their navel.
- Rowing: proper body position and proper oar handle level are important.

### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Keeps the craft upright with minimal wobbling or loss of control, and no sudden recovery motions. Deliberately controls stability of craft through body position. Deliberately controls stability of craft through paddle/oar techniques.
2 Needs Improvement	The operator: Keeps the craft upright but may require sudden recovery motions. Controls stability of craft through body position but craft may wobble. Controls stability of craft through paddle/oar techniques but craft may wobble.
1 Unacceptable (unsuccessful) Performance	The operator: Does not deliberately control stability of craft through body position. Does not deliberately control stability of craft through paddle/oar techniques. Falls in water or allows craft to capsize.

**Element # 7.2:** The operator will be able to: **A: Exit the craft after capsize...** B: using proper body position and contact with the craft and paddle/oar (wet-exit).

### Understanding the Element

- Exiting the craft helps to avoid entrapment and reduce panic and injury.
- Wet exit for rowers means using the quick release for feet.
- Wet exit for paddling means pulling the grab loop of the spray cover (skirt) to detach from the cockpit combing of a kayak or canoe and using techniques to exit the craft to avoid entrapment and injury.
- Maintaining appropriate contact with the craft and paddle/oar can help with flotation and keeps equipment in proximity for eventual reuse.

### Designing Instruction

- Practice on land before going on the water and then this technique should be initially practiced under supervision in appropriate water depths.
- Include techniques for safely capsizing the craft as part of instructing this skill.
- Paddling – if a spray skirt is used, then the grab loop must be on the outside.
- Rowers should demonstrate foot board quick release.
- Include how to handle the overturned and/or swamped craft.

**Additional Information:** Include explanations for the Rubric (if needed)

- Decked paddleboats present entrapment hazards.
- In a rowboat, operators should be aware of oars coming out of the oarlocks when the boat goes over, as well as coming up from underwater and hitting their head.
- Standup paddleboard operators should consider appropriate leash wear to maintain contact with the board. SUP operators should generally fall away from the board to avoid injury and fall “shallow.”

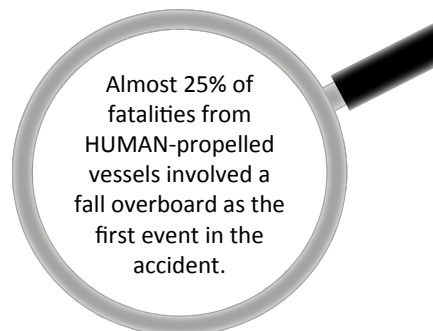
### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Smoothly exits craft after capsize so as to avoid injury and entrapment. Grasps and controls craft within a few seconds of exit. Grasps and controls paddle/oar within a few seconds of exit. Stays with craft. Avoids injury.
2 Needs Improvement	The operator: Exits craft after capsize but may have brief entrapment or may have minor injury requiring no treatment. May grasp craft shortly after exit, but does not control craft. May grasp paddle/oar shortly after exit but cannot control paddle/oar. Stays with craft. May have minor injury requiring no treatment.
1 Unacceptable (unsuccessful) Performance	The operator: Becomes entrapped in craft due to capsize. Does not grasp or control craft after capsize. Does not to grasp or control paddle/oar after capsize. Does not stay with craft. May have injury that requires treatment.

**Element # 7.3:** The operator will be able to: **A: Rescue self and the craft...** B: using a proper self-rescue technique.

#### Understanding the Element

- Self-rescue allows operator to get him or herself out of the water and/or to safety.
- Exits craft appropriately means exiting the craft without injury to operator or damage to the craft or loss of equipment.
- Reentry can mean from shore or deep water
- Deep-water reentry – boat operator cannot touch the bottom, can't be assisted touching the bottom and pushing off to help reentry.
- Self-rescue should be done by the operator with no assistance.



#### Designing Instruction

- Use of self-rescue devices like leashes, bailers, lines, stirrups, and paddle floats could be used to accomplish self-rescue.
- Conduct this skill while in a controlled environment, such as an easy swimming distance from shore.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Exits craft appropriately. Controls craft and equipment. Re-enters and returns to activity using an effective self-rescue technique (e.g., swim self and boat to shore, or deep water re-entry).
2 Needs Improvement	The operator: Exits craft appropriately. Has difficulty controlling craft and paddle/oar (may lose paddle/oar). Re-enters using an effective self-rescue technique.
1 Unacceptable (unsuccessful) Performance	The operator: Does not exit craft appropriately. Has difficulty controlling craft and paddle/oar. Does not to complete self-rescue, may require assistance from others.



**Element # 7.4:** The operator will be able to: **A: Avoid cold water shock and hypothermia...** B: by wearing appropriate clothing for the venue and using a documented safety technique.

#### Understanding the Element

- Cold water shock and hypothermia can cause incapacitation of operator, which can lead to death.
- Documented safety technique – such as wearing life jacket, using the “HELP” or “huddle” position, etc.

#### Designing Instruction

- Practice using the help and huddle positions during a swim test.
- Demonstrate proper clothing options, explaining heat loss
- For anticipated conditions, verify operators know how to check weather conditions and what to be aware of, including air and water temperatures.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Describes anticipated weather and water conditions. Chooses and wears appropriate clothing for anticipated conditions.
2 Needs Improvement	The operator: Describes anticipated weather and water conditions. Chooses but does not wear appropriate clothing for anticipated conditions.
1 Unacceptable (unsuccessful) Performance	The operator: Does not anticipate weather and water conditions. Does not choose or wear appropriate clothing for anticipated conditions.

**Element # 7.5:** The operator will be able to: **A: Rescue a person in the water and capsized craft...** B: using an appropriate assisted rescue technique and standard practice for rescue priorities.

#### Understanding the Element

- This is for a non-motorized rescue, paddler/rower to paddler/rower
- The skill is to rescue another operator or passenger and to provide assistance to a person in distress.

#### Designing Instruction

- Practice in a controlled environment
- Practice one rescuer and multiple rescuer techniques
- Include a discussion of appropriate rescue devices, including bailers, pumps, paddle floats, tow lines, etc.



#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Retrieves person without injury, securing individual to side of boat or inside craft, or bringing person to shore, using an appropriate technique. Returns craft to operator using an appropriate technique. Returns other equipment to operator using appropriate techniques. Demonstrates awareness of rescue priorities (self, victim, craft, gear).
2 Needs Improvement	The operator: Retrieves person without injury securing individual to side of boat or inside craft, or bringing person to shore, using an appropriate technique. Returns craft to operator using an appropriate technique. Returns other equipment to operator using appropriate techniques. Does not demonstrate awareness of rescue priorities (self, victim, craft, gear).
1 Unacceptable (unsuccessful) Performance	The operator: Does not rescue person, craft and equipment, or becomes a victim during rescue attempt.

**Element # 7.6:** The operator will be able to: **A: Use essential safety equipment...** B: by ensuring it is available on the craft and appropriate for the trip, follows local, state, federal laws and regulations; and employing according to manufacturer instructions.

#### Understanding the Element

- Use of safety equipment can minimize risk and expedite rescue.
- Laws may differ depending on location, local, state and federal laws, etc.
- Stowing equipment securely means securing the load so it does not move and no additional entanglement hazard is created.

#### Designing Instruction

- Demonstrate use of safety equipment and the ability to stow equipment safely
- Links or other means of access (e.g., hard copies) to local, state, federal regulations should be provided.

**Additional Information:** Include explanations for the Rubric (if needed)

- Depending on location, essential safety equipment may include: life jacket, sound producing device, visual distress signal, leashes for SUP equipment, quick releases for rowing shells, tow ropes, first aid kit, etc.
- Discuss flotation options for canoes and kayaks.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Ensures appropriate safety equipment is available on the craft. Replaces missing or damaged equipment. Stows equipment securely. Uses safety equipment appropriately.
2 Needs Improvement	The operator: Checks for appropriate safety equipment. Does not replace missing or damaged equipment that is not legally required by state or federal laws. Stows equipment securely. Uses safety equipment appropriately.
1 Unacceptable (unsuccessful) Performance	The operator: Does not check for appropriate safety equipment. Does not stow equipment securely. Does not use safety equipment appropriately.

**Element # 7.7:** The operator will be able to: **A: Propel an appropriate course...** B: using information provided by navigational aids (e.g., charts, buoys, landmarks) and hand/whistle signals.

#### Understanding the Element

- Operator needs to be aware that they are part of the general boating community and should use appropriate navigation techniques and hand/whistle signals to avoid conflict / collisions with other boats and hazards.
- Appropriate course can mean understand that the marked channels are designed for deeper draft vessels and paddlers/rowers can use areas just outside of the marked channel.

#### Designing Instruction

- Practice use of hand/whistle/oar signal, understand what each signal means, use props on shore to practice.
- Consider linking to knowledge standards on navigation aids.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Identifies an appropriate course based on navigation marks and hand/whistle signals from others. Propels craft through the identified course.
2 Needs Improvement	The operator: Identifies an appropriate course based on navigation marks and hand/whistle signals from others. Propels craft through the identified course with minimal errors.
1 Unacceptable (unsuccessful) Performance	The operator: Does not identify an appropriate course based on navigation marks and hand/whistle signals from other boaters on the water. Does not propel craft through the identified appropriate course.

**Element # 7.8:** 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, while maintaining trim and balance of the craft.

#### Understanding the Element

- Avoid collisions with other craft by knowing and taking proper course of actions based on navigation rules.
- Recognize, assess, and avoid hazards by taking early and substantial action to avoid.
- The operator will be able to maintain trim and balance of the craft while maneuvering.
- ‘Early and decisive action’ means changes were made to course and/or speed early enough that the operator did not have to make abrupt changes that would affect the trim or balance of the craft AND the maneuver was apparent to oncoming craft in sufficient time to avoid collision.
- ‘Proper lookout’ means, at all times, being aware of boat traffic and hazards 360 degrees around the boat.

#### Designing Instruction

- Operators should constantly maintain a high degree of situational awareness.
- Operators should know and recognize hazards of the area they are operating in.
- Content should include discussion of navigational rules, and their applicability to human-powered craft.

#### Assessing Performance

Level	Proficiency Description
3 Successful Performance	The operator: Takes action early to avoid collision. Maintains safe distance between boats/objects. Maintains proper lookout throughout the entire maneuver. Keeps craft upright with minimal wobbling or loss of control, and no sudden recovery motions.
2 Needs Improvement	The operator: Is slow to take action to avoid collision, leading to rapid and sudden changes in direction. Fails to maintain a safe distance between boats/objects. Maintains proper lookout throughout the entire maneuver. Keeps craft upright but may require sudden recovery motions.
1 Unacceptable (unsuccessful) Performance	The operator: Fails to take action to avoid a collision. Collides with boat/object or forces stand-on vessel to take action to avoid a collision. Does not maintain proper lookout. Falls in water or allows craft to capsize.

## Appendix A: Human-propelled Skills ANS

Following is the *On-Water Recreational Boating Skills Standard – Human-propelled*. Since this ANS serves as the primary source document for the design, development and implementation of entry-level recreational human-propelled craft 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 *Human-propelled Skills ANS*, visit: [www.usnows.org](http://www.usnows.org).



**EDU-2**

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

*The ABYC Standards and Technical Information Reports for Small Craft are the product of a consensus of representatives of government, industry and public sectors. It is intended solely as a guide to aid manufacturers and the marine community in the design, construction, equipage and maintenance of small craft.*

*ABYC reviews each standard at least every five years at which time it may be reaffirmed, revised, or withdrawn. ABYC welcomes any written comments on the standards and Technical information reports.*

## **EDU-2**

# **SKILL-BASED HUMAN-PROPELLED STANDARD**



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*NOTE: Membership on a committee shall not in and of itself constitute an endorsement of ABYC or any document developed by the committee on which the member serves.*

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.

ABYC's Project Technical Committee meetings are open to the public. All contact regarding standards activity, interpretations, or meeting attendance should be directed to the ABYC Technical Department at [comments@abycinc.org](mailto:comments@abycinc.org).

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### **REQUEST FOR INTERPRETATIONS**

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.

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



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*. Page 0



## EDU-2 Skills-based HUMAN-propelled Boat Standard

### National System of Standards for Recreational Boat Operation

**Title:** On-Water Recreational boating Skills Standard – HUMAN-propelled

**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, skills-based instruction in HUMAN-propelled recreational boat operation.

**Scope:** This is the core voluntary standard designed to apply to entry-level HUMAN-propelled On-Water skills-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.

HUMAN
<p><b>Domain of application</b></p> <p><b>Boat Characteristics:</b> Paddle craft is a vessel powered only by its occupant(s), using a single or double-bladed paddle as a lever without the aid of a fulcrum provided by oar locks, thole pins, crutches, or similar arrangements. Rowing craft is a vessel powered only by its occupants, using an oar as a lever with the aid of a fulcrum provided by oar locks, thole pins, crutches, or similar arrangements.</p> <p><b>Wind/Water Conditions:</b> Flat water, with current less than 1 knot, protected from the wind and waves</p> <p><b>Operation Conditions:</b> Daytime with no restricted visibility or threatening weather</p>
<p><b>Stages of entry-level recreational boat operation</b></p> <p><b>NOTE:</b> For those recreational boat operations where the boat is underway, individual skills-based standard elements in this On-Water HUMAN Standard are to be accomplished in accordance with any aids to navigation, navigational rules, and any regulations applicable to the location in which the skill is being executed.</p>

---

## Operation #1: Prepare to depart

The operator will be able to:

- 1.1 **A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...** *B: assessing if conditions are favorable for the voyage for length/time of trip.*
- 1.2 **A: Put on a life jacket...** *B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.*
- 1.3 **A: Confirm all others on the craft put on their life jackets...** *B: ensuring life jackets are serviceable, fit properly, and are appropriate for the boat/activity.*
- 1.4 **A: Inspect craft systems and safety equipment...** *B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.*
- 1.5 **A: Prepare the craft for departure...** *B: readying equipment (e.g., secured, appropriate load, craft balanced, etc.) and individuals (e.g., safety equipment, plan, etc.) for intended departure.*

---

## Operation #2: Leave a departure point (e.g., dock, slip, shoreline, etc.)

The operator will be able to:

- 2.1 **A: Enter and launch the craft...** *B: using appropriate techniques for the venue (e.g., kneeling on a SUP during departure, etc.), keeping the craft upright with minimal wobbling or loss of control.*
- 2.2 **A: Check for a clear departure...** *B: using a 360-degree scan to confirm a clear path of departure with no conflicts with craft's intended actions and boats/activities in the vicinity and ensuring that departure is not a hazard for others underway.*

---

## Operation #3: Maneuver in close quarters

The operator will be able to:

- 3.1 **A: Propel the craft forward...** *B: while maintaining proper grip and paddle/oar orientation along with trim and balance of the craft.*
- 3.2 **A: Stop the craft...** *B: within two boat lengths, using the appropriate and effective strokes, while maintaining trim and balance of the craft.*
- 3.3 **A: Turn the craft from a stationary position...** *B: 180° to the right and left, within 1-2 boat lengths, based upon a 360° scan of the surrounding area, using appropriate and effective strokes, while maintaining trim and balance of the craft.*
- 3.4 **A: Move the craft sideways (\*if applicable)...** *B: 10 feet (to each side), based upon a 360° scan of the surrounding area, using proper techniques with appropriate and effective strokes, while maintaining trim and balance of the craft.*  
*\*This element is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.*
- 3.5 **A: Propel the craft in a figure of 8 course (\*if applicable)...** *B: around markers 3-4 boat lengths apart, based upon a 360° scan of the surrounding area, using appropriate and effective strokes, while maintaining trim and balance of the craft.*  
*\*This element is applicable when paddling a canoe, kayak, raft, stand-up paddleboard, or operating a classic dinghy-type rowboat.*

---

## Operation #4: Operate in open water

The operator will be able to:

- 4.1 **A: Propel the craft forward in a straight line...** B: 15-20 boat lengths using appropriate and effective strokes to maintain a constant heading, while maintaining trim and balance of the craft.
- 4.2 **A: Turn the craft while maintaining forward motion...** B: 90° to the right and left, and based upon a 360° scan of the surrounding area and using appropriate and effective strokes, while maintaining trim and balance of the craft.
- 4.3 **A: Move the craft sideways (\*if applicable)...** B: 10 feet (to each side) using proper techniques with appropriate and effective strokes, while maintaining trim and balance of the craft.  
*\*This element is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.*
- 4.4 **A: Move the craft backwards...** B: 3-4 boat lengths using appropriate and effective reverse strokes while maintaining directional control and while maintaining trim and balance of the craft.

---

## Operation #5: Arrive at a destination (e.g., dock, slip, shoreline, etc.) making first contact

The operator will be able to:

- 5.1 **A: Check for clear approach...** B: using a 360-degree scan to confirm a clear path of arrival with no conflicts with craft's intended actions and boats/activities in the vicinity and ensuring that arrival is not a hazard for others underway.
- 5.2 **A: Arrive at a destination point (e.g., dock, slip, shoreline, etc.) and exit the craft...** B: using appropriate techniques for the venue (e.g., kneeling on a SUP during arrival, etc.), keeping the craft upright with minimal wobbling or loss of control.

---

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

The operator will be able to:

- 6.1 **A: Secure the craft and equipment...** B: using appropriate techniques and anticipating winds, currents and tides.

---

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

The operator will be able to:

- 7.1 **A: Avoid capsizing the craft...** B: maintaining proper body position and paddle/oar techniques.
- 7.2 **A: Exit the craft after capsize...** B: using proper body position and contact with the craft and paddle/oar (wet-exit).
- 7.3 **A: Rescue self and the craft...** B: using a proper self-rescue technique.
- 7.4 **A: Avoid cold water shock and hypothermia...** B: by wearing appropriate clothing for the venue and using a documented safety technique.
- 7.5 **A: Rescue a person in the water and capsized craft...** B: using an appropriate assisted rescue technique and standard practice for rescue priorities.
- 7.6 **A: Use essential safety equipment...** B: by ensuring it is available on the craft and appropriate for the trip, follows local, state, federal laws and regulations; and employing according to manufacturer instructions.
- 7.7 **A: Propel an appropriate course...** B: using information provided by navigational aids (e.g., charts, buoys, landmarks) and hand/whistle signals.
- 7.8 **A: Avoid collisions...** B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action, while maintaining trim and balance of the craft.

\* \* \* \* \*

### *Origin and Development of EDU-2, Human Propelled Standard*

This is the first publication of EDU-2. It is the work of the On-Water Education Project Technical Committee.

\* \* \* \* \*

ABYC technical board rules provide that all reports, including standards and technical information reports, are advisory only. Their use is entirely voluntary. They represent, as of the date of publication, the consensus of knowledgeable persons, currently active in the field of small craft, on performance objectives that contribute to small boat safety.

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## Appendix B: Basic Boating Knowledge Standard – Human-propelled

The American National Standard for basic Human-propelled 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 human-propelled boating 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>.

Standard Number: NASBLA 101-2017

Previous Version - NASBLA Paddlesports Education Standard Effective January 2009

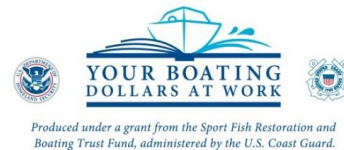


This National Boating Education Standard, as overseen by the National Boating Education Standards Panel (ESP), is the product of voluntary consensus of representatives of federal and state government, industry, non-profit organizations, and public sectors. It is intended as a guide to aid the boating 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](mailto:esp@nasbla.org).

## American National Standard

### ANSI/NASBLA 101-2017: Basic Boating Knowledge – Human Propelled



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ANSI/NASBLA 101-2017

## American National Standard (ANS)

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This list represents the membership at the time the standard was complete in June 2017.

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This standard was developed under procedures of essential requirements for 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.

National Boating Education Standards Panel meetings are open to the public. All contact regarding standards activity, interpretations, or meeting attendance should be directed to NASBLA ESP Staff at [esp@nasbla.org](mailto:esp@nasbla.org).

#### **REQUEST FOR INTERPRETATIONS**

Upon written request, the Education Standards Panel 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 ESP in a manner in which they may be answered in a 'yes' or 'no' fashion.

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](http://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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## **Basic Boating Knowledge - Human-Propelled\***

### **Scope**

This is the minimum standard that applies to all human-propelled 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 human-propelled boating knowledge in order to identify and reduce primary risk factors and mitigate their effects on recreational boating.

\* This standard applies to all human-propelled craft, such as canoes, kayaks, rafts, stand-up paddleboards (SUPs), dragon boats, etc., hereafter referred to as 'boats.'

## **1. The Boat**

### **1.1. Boat Capacity**

The course shall describe:

- how to determine acceptable loading capacity; and
- how and why to properly balance the load.

## **2. Boating Equipment**

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

The course shall explain the:

- different classifications and types of U.S. Coast Guard approved personal flotation devices (PFDs), including inflatable life jackets, hybrids, and throwable devices;
- the number and types of PFDs/life jackets that must be carried aboard the boat according to applicable regulations; and
- label information, how to read and understand them.

### **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;
- showing passengers how to select the correct size of life jacket and properly put on and wear 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. The course will cover the importance of the maintenance of inflatable life jackets as per manufacturer recommendations.

### **2.5. Navigation Light Equipment**

The course shall cover the applicable navigation lights and shapes requirements as set forth in the most recent version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the U.S. Coast Guard.

### **2.6. Sound Signaling Equipment**

The course shall cover the applicable navigation sound signaling requirements as set forth in the most recent version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the U.S. Coast Guard, describing:

- sound-producing requirements; and
- the use of sound signals.

### **2.7. Visual Distress Signal Equipment**

The course shall describe:

- when U.S. Coast Guard approved visual distress signals are required to be carried on board,
- the types of visual distress signals required on boats; and
- the use of visual distress signals when required on 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 U.S. Coast Guard.

## **2.8. Recommend Additional Safety Equipment**

- 2.8.1. The course shall recommend boaters carry additional safety equipment appropriate for the circumstances, such as:
- helmet, whistle, river knife, rescue throw bag, rescue hardware (webbing, carabiners, z-drag kit), leash, first aid kit, signal mirror, flotation bags, and dry bags;
  - dewatering equipment – pump, sponge or bucket; and
  - a map or chart (if applicable) of the area.
- 2.8.2 Recommend carrying visual distress signals, communication devices and survival items ON YOUR PERSON so they are readily available (e.g. whistles, waterproof radios, waterproofed cell phones).

## **3. 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 and water conditions.
- 3.1.2. The course shall also describe:
- dangerous weather conditions such as strong winds, storms, lightning, hurricanes and fog;
  - dangerous water conditions such as strong currents, waves, hydraulics and high water;
  - dangerous areas and features in and around the water, such as rocky shores, man-made structures and debris, and trees or other items in the waters; 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 filing a float plan and the basic information that should be included; and
- leaving the float plan with an appropriate responsible person.

### **3.4. Preventative Maintenance**

The course shall describe and illustrate where possible:

- the need for regular inspection; and
- maintenance of the boat, gear and related equipment, including:
  - inspecting the boat for water tightness, including hull integrity, gaskets, and all hatch covers;
  - patching holes with a material suited to the composition of the hull;
  - cleaning the boat to remove all foreign bodies, mud and aquatic invasive species;
  - storing the boat in accordance with manufacturer recommendations;
  - checking, replacing as necessary, and tightening all screws and deck fittings;
  - treating the hull with an appropriate UV inhibitor as recommended by the manufacturer;
  - checking flotation air bags to be sure they are effectively secured and don't leak;
  - checking lines and grab handles for fraying;
  - checking paddles/oars; and
  - all other equipment to ensure it conforms to manufacturer performance guidelines and specifications.

### **3.5. Pre-Departure Checklist and Passenger Communication**

The course shall describe:

- the importance of using a pre-departure checklist, and
- conducting a safety discussion with all in the party.

### **3.6. Transporting**

The course shall describe proper procedures for transporting a boat to prevent accidents and property damage, including:

- making sure the boat is securely fastened to the car or racks, and
- using proper tie downs and knots.

## **4. Safe Boat Operation**

### **4.1. Operator Responsibilities**

4.1.1. The course shall describe:

- a boater's ultimate responsibility for his or her personal safety;
- the safety of anyone else on board and all activity aboard the boat; and
- how to evaluate currents and determine which should be avoided by the novice paddler/rower.

4.1.2. This responsibility extends to other water users and includes but is not limited to:

- refraining from careless, reckless, or negligent operations on the water;
- abiding by other general boater courtesy;
- crossing a channel as a group;
- understanding the impact of waves and wakes on boat handling; and
- sharing water features such as eddies and rapids with other paddlers.

### **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. The course shall utilize the content of the U.S. Coast Guard Navigation Rules and Regulations Handbook (most current version) to describe:

- generally avoiding channels used by larger boats and, if navigating in a channel, giving way to vessels constrained by the channel;
- avoiding collision with powerboats by keeping a sharp lookout, using light and sound signals to identify your presence, and maneuvering out of the way;
- observing and operating in accordance with homeland security measures by keeping a safe distance from military and commercial ships at sea and in port and observing all restrictions in security zones;
- observing restricted areas near dams, power plants and bridges; and
- the duty to render necessary assistance.

4.3.2. The course shall include, verbatim, the following disclaimer: "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, and operation in relation to commercial vessels and other watercraft are set forth in the NAVIGATION RULES AND REGULATIONS HANDBOOK by

the U.S. Coast Guard (latest edition). For State-specific navigation requirements, refer to the rules and laws that apply in the state where you intend to boat.”

#### **4.4. Aids to Navigation**

The course shall describe:

- the U.S. Aids to Navigation (USATONS) as they are relevant to boaters, including:
  - understanding channel markers;
  - understanding regulatory markers, such as those marking dams, submerged objects and other hazards; and
  - homeland security restrictions.

#### **4.5. Boarding, Propelling, Exiting and Securing the Boat**

4.5.1. The course shall describe:

- how to safely board and exit a small boat;
- sufficient clearance or proper fit so that entry into and exit from the boat is not impeded; and
- basic ergonomics of rowing or paddling (e.g. proper body and arm position to reduce the possibility of injury and to maintain balance in/on the boat).

4.5.2. The course shall explain how to secure the boat at the shore to prevent it from drifting away.

### **5. Emergency Preparedness**

#### **5.1. Assisting Other Boaters**

The course shall describe procedures and tools for assisting other boaters in difficulty, while minimizing risk to the rescuing boater.

#### **5.2. Capsizing/Falls Overboard**

5.2.1. The course shall describe how to prevent and respond to emergencies. The prevention recommendations will include at least the following:

- stay centered and low,
- avoid standing and sudden moves,
- maintain three points of contact,
- never overload,
- avoid rough water, and
- additional techniques specific to individual craft (e.g. falling from a Stand Up Paddleboard).

5.2.2. The responding procedures shall include at least the following:

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

**5.3. Cold Water Immersion**

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;
  - Preventing capsize, swamping and falls overboard; and
  - Proper clothing to enhance survival following cold water immersion.
- 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. Boating Accident Reports**

5.4.1. The course shall describe:

- what kinds of boating accidents require an accident report,
- how, when and where to file the report, and
- reporting accidental loss of boats to reduce likelihood of unneeded search efforts.

5.4.2. The course shall include a sample accident report form, which can be included in the textbook, as a separate handout, or as an online link.



## **6. Other Water Activities**

### **6.1. Hunting and Fishing**

- 6.1.1. The course shall inform people who hunt and fish from boats that they are boaters, and that they need to follow safe boating practices.
- 6.1.2. Information must be provided about accident risks relevant to this group of boaters.

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

- The ANS *EDU-2 Skill-based Human-propelled 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/NASBLA 101-2017: Basic Boating Knowledge – Human Propelled* 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 human-propelled craft 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 human-propelled craft operators must be able to conform to when operating a human-propelled craft. 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](http://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](http://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 Standard for Human-propelled skills. 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: <http://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](http://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.