

Background and Need

This document explains the context and need surrounding the development of National On-Water Standards (NOWS). It also identifies the structures and systems used to define and structure the NOWS American National Standards produced by the program.

Background

Over the years, a great deal of work has been conducted by a variety of organizations to help ensure the public has access to high-quality education and training in recreational boat operation. In most cases, the work focused on producing best practices for instructional delivery that takes place in the classroom with knowledge acquisition as the primary objective.

In 2012, the *National Boating Safety Advisory Council* for the US Coast Guard developed a strategic plan designed to reduce the number of injuries and fatalities that take place each year in recreational boating accidents. In the plan, they referenced a significant lack of On-Water instruction in recreational boat operation and set one of the objectives of the plan to fill that gap. The National On-Water Standards (NOWS) Program is the direct result of that strategic initiative.

At the same time, along with the knowledge standards work, a growing body of work has identified best practices for instruction in hands-on skilled operation of SAIL, POWER, and HUMAN-propelled boat. Some of the work produced best practices for basic recreational boat education while others identified advanced boat handling skills. Some identified comprehensive knowledge objectives, while others identified practical skills; and in some, a combination of both. The result is a wide range of information and resources about what ‘needs’ to be taught, how best to teach it. This includes the qualities of the environment in which it should be taught and the people who need to teach it. This collection of independent educational work products identifying standards and best practices across a broad spectrum has yet to be organized into one comprehensive set of core skills necessary for safe and proficient recreational boat operation.

The Need

The need is two fold. First and foremost, the Coast Guard wants to have a set of national standards for On-Water, skills-based education for entry-level recreational boat operation that it can make freely available to the general public. They want this set of standards to be consensus-built by the experts, and to include standards for the domains of POWER, HUMAN and SAIL recreational boat operation.

Second, the Coast Guard wants the national On-Water skills-based standards to be designed in such a way that they can be integrated (along with knowledge-based standards) within one *National System of Standards for Recreational Boat Operation*. They want this system of standards to serve as one central source of information that contains the fundamental building blocks people can freely and voluntarily integrate within their design and delivery of instruction for recreational boat operation. The system should be designed to help ensure there is a coordinated and consistent platform of skills and

knowledge that people throughout the country have as a result of receiving entry-level instruction in recreational boat operation. To accomplish this:

- There needs to be a shared understanding of the basic entry-level skills provided through skill-based on-water instruction that individuals need to perform that demonstrates their ability to safely and effectively engage in recreational boat operation.
- There needs to be a consistent set of performance proficiency standards people and organizations across the country use to design, develop, implement and evaluate instructional programming for recreational boat operation that has a comprehensive impact on boating safety. These standards should help different people design instructional programming that works for their unique and particular situations, while at the same time, enabling them to deliver instruction that results in proficient and safe performance from students who are at a basic level of recreational boat operation.
- A core set of skills-based standards needs to be established that can be used as the common foundation for designing and delivering more advanced levels of training in recreational boat operation to a wider range of recreational boat operators.
- These entry-level skills-based standards need to be used to guide recreation boat operation instruction that takes place on-water, as well as in conjunction with knowledge-based instruction standards currently in existence.
- The standards need to be constructed using a common framework, structure and language that allows them to be more effectively developed, maintained, coordinated, and integrated.

The Desired Outcome

The desired outcome of this work is to produce:

- **A Set of Entry-level Skills-based Performance Standards:** The standards that identify entry-level performance students can demonstrate who have a foundational skill set in recreational boat operation. Skills-based standards include skills (*behaviors, actions*) that students can demonstrate or execute. This includes understanding why the skill is required, when to apply it and the steps needed to successfully apply it. It also includes how best to instruct those skills to ensure safe and proficient recreational boaters as a result.
- **For On-Water Instruction:** the location in which instruction takes place is in-situ (within the natural situation, context or environment that the boat typically operates).
- **In Recreational Boat Operation:** for any on-water vessel or watercraft that operates from energy produced by *SAIL* (wind), *POWER* (engine), or *HUMAN* (manual) for purposes of pleasure and non-commercial activity.

Concepts and definitions

The following provides further explanation of the parameters and deliverables for this work:

Entry-level, Skills-based Performance Standards. Arguably, there are a certain number of skills people need to have in order safely engage in recreational boat operation. People also need to engage in these

skills in a particular manner to demonstrate they actually possess the skill to an acceptable level of proficiency.

Establishing a set of performance (skills-based) standards is designed to create a common or shared answer to the question; *What skills should entry-level recreational boat operators be able to demonstrate that makes them a safe recreational boat operator?* The focus is on establishing the *core* or primary set of skills individuals *must* be able to demonstrate to show they can successfully engage in safe and proficient recreational boat operation (at the beginner level).

Therefore, a skills-based performance standard needs to contain two critical pieces of information:

- 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.

In the following POWER Standard example of skills-based performance standards, the part in **Bold** is the skill; while the part in *Italics* is the condition needed to demonstrate a successful level of proficiency of the skill.

The boat operator will be able to:

A: Turn the boat 180 degrees ... *B: within a one to two boat length circle.*

On-Water Instruction. As we know, people need to complete many different kinds of tasks to engage effectively and safely in recreational boat operation. They can learn these skills and knowledge in a variety of ways including reading books, attending classroom instruction, even trial and error. Some of these tasks rely more heavily on thinking, problem solving or figuring things out and can be accomplished effectively through book knowledge or classroom instruction; such as plotting a course, deciding when to set sail or stay home, determining what is needed to be safe on a trip. Other tasks require skills that are best developed through active learning, hands-on approaches that involve direct experience with the boat and equipment in an environment consistent with one in which they will typically be used. The latter is the priority set the Coast Guard's strategic plan and the focus of this work. An outcome of the program is to develop standards for the approach used to deliver on-water instruction in entry-level recreational boat operation.

Instruction designed to develop entry-level skills is most effectively delivered using an experiential or active approach to learning. Experiential learning enables students to create new understanding as they engage in learning new skills and as they develop a history of experiences, they can refer to when operating a boat on their own. Therefore, the performance skill-based standards developed in this project are for recreational boat operation instructional programming that includes the following conditions:

- *The primary method of instruction is experiential or active learning.* Students learn from experience by engaging in actual hands-on and real-time experience in the use of the boat and related equipment to develop and/or deepen skills and understanding associated with safe and appropriate recreational boat operation.
- *Instruction takes place in an environment consistent with typical boat operation.* The environment in which instruction takes place affects the quality of learning and training transfer. Instruction takes place on-water, under conditions consistent with real-life application of skills being developed.
- *Instruction involves equipment consistent with learning objectives.* The equipment on which students learn is consistent with the equipment they are learning to operate. The equipment is in

good working order and promotes effective and safe application of knowledge and skills for successful boat operation. As a result, students gain actual experience with a boat consistent to one they intend to operate.

- *Instructors have appropriate qualifications, experience, and credentials for delivering on-water instruction.* Experiential learning taking place in-situ requires instructors who have knowledge and experience with boat operation, as well as an understanding of how to provide training using experiential learning techniques.
- *Students have the appropriate pre-requisites for participating in the instruction.* Students have a level of ability associated with recreational boat operation that enables them to engage safely and productively in the planned experiential learning activities.

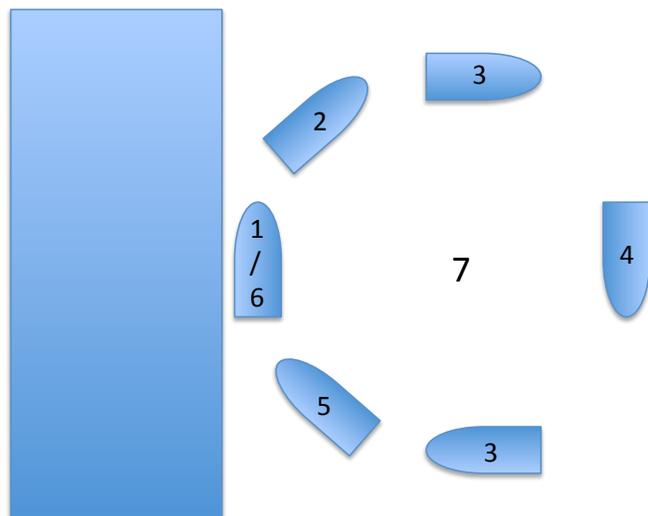
Recreational Boat Operation. Recreational boat operation includes boats that are powered using the following sources of energy:

- **POWER** – primary energy source is motor/engine. For example: open powerboat; cabin powerboat; personal watercraft; houseboat.
- **SAIL** – primary energy source is wind. For example: sail (only); auxiliary sail; windsurfer.
- **HUMAN** – primary energy source is human (the person or people on the craft). For example: pontoon; canoe; kayak; rowboat; stand-up paddleboard.

Recreational Boat Operations

Since the purpose of this work is to develop *entry-level skills-based* standards, the focus will be on identifying standards for the seven basic operations associated recreational boating. Although standards will be developed for all seven operations, the priority focus will be on operations 3, 4, and 7.

1. *Prepare to depart* – readying the people, the boat, and the equipment for travel.
2. *Leave a departure point (e.g., dock, slip, shoreline, etc.)* – beginning travel from a standard safe departure location.
3. *Maneuver in close quarters* – traveling through confined or congested waterways.
4. *Operate in open water* – operating and navigating in open waters under standard and safe operating conditions, and including anchoring.
5. *Arrive at the destination (e.g., dock, slip, shoreline, etc.) making first contact* – bringing the boat to a complete stop at a steady, safe, and secure arrival location.
6. *Secure the boat* - preparing the boat, equipment, and people to remain safely at rest.
7. *Perform general safety/emergency procedures or maneuvers* – applying to all stages of boat operation.



Entry-level Application Conditions

The following conditions identify the context for which entry-level skills-based standards are being developed that enable safe and proficient recreational boat operation:

| Domain of Application: POWER |
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| Boat Characteristics: Less than 26 feet |
| Wind/Water Conditions: Less than 10 knots of wind; waves 1 foot or less |
| Operation Conditions: Daytime with no restricted visibility or threatening weather |

| Domain of application: HUMAN |
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| Boat Characteristics: 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, hole pins, crutches, or similar arrangements. |
| Wind/Water Conditions: Flat water, with current less than 1 knot, protected from the wind and waves |
| Operation Conditions: Daytime with no restricted visibility or threatening weather |

| Domain of Application: SAIL |
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| Boat Characteristics: Boat Characteristics: Small keelboat or sailing dinghies to include daysailers, centerboard/daggerboard boats, or multihulls at a maximum of 26 feet with tiller steering and with no auxillary power in operation |
| Wind/Water Conditions: 10 knots or less; maximum 12 knot gusts; 2 feet or less waves |
| Operation Conditions: Daytime with no restricted visibility or threatening weather |