

What is the long-term direction of the National On-Water Standards Program? What approach is the On-Water Standards SME Team taking to develop On-Water, skills-based Standards for national application?

There are many different ingredients associated with helping individuals learn how to engage in safe and enjoyable recreational boat operation. A great deal of work has been done to educate, train and prepare people to operate recreational crafts, with much progress made in the area of classroom education. In recent years, experiential learning has become increasingly recognized as a highly effective approach to teaching recreational boating operation. The United States Coast Guard (USCG) understands the value of a combination of approaches to learning. Accordingly, acquiring boat operator skills through *learning by doing* augmented with knowledge acquisition on-land, is the long-term goal to be achieved through the development of a set of national standards for On-Water instruction in recreational boat operation.

The primary focus of the first phase of the National On-Water standards Program is to produce an agreed upon set of entry-level skills-based standards for recreational boat operation. These standards will identify the outcome skills that recreational boat operators will be able to demonstrate as a result of engaging in On-Water instruction in recreational boat operation. Identifying the “skill or behavior” is the first step in pursuing a systemic and integrated approach to developing a comprehensive, consensus-driven National System of Standards for Recreational Boat Operation. The Coast Guard’s intention is for this system of standards to serve as a central source of information that contains the fundamental building blocks people can freely access and voluntarily use 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.

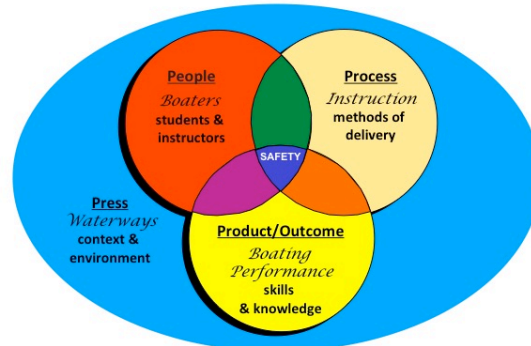
The Big Picture: A System of Standards

The skills-based standards being identified in the current On-Water Standards work is only one part of a larger system. Any approach to learning and development needs to examine four core elements in what is called a System of Standards. The four parts of the system (see Figure 1) include: 1—standards associated with the People involved (e.g., instructors, students); 2—standards related to the Process used to stimulate learning and development (e.g., teaching, training methods); 3—standards for the Press in which development takes place (e.g., context, environment, place); and 4—Product standards associated with the outcomes of learning and development (e.g., awareness, understanding, skills, behavior). For recreational boat operation, safety standards fit in all four parts of the system.

The work to identify On-Water standards has begun with a focus on generating agreement about the Product or outcome part of the system (entry-level skills individual are able to demonstrate) because the skills eventually selected and targeted for entry-level recreational boat operation will determine the standards that are most appropriate for inclusion in the other parts of the system.

Figure 1: Core elements of a system.

National System of Standards for Recreational Boat Operation
 Bringing together USCG recreational boating safety partners into one organizing framework that
Complements • Incorporates • Integrates • Creates



Prepared for the USCG grant: National On-Water Standards Program (SAIL, POWER, HUMAN)
 Graphic adapted from The Creative Problem Solving Group



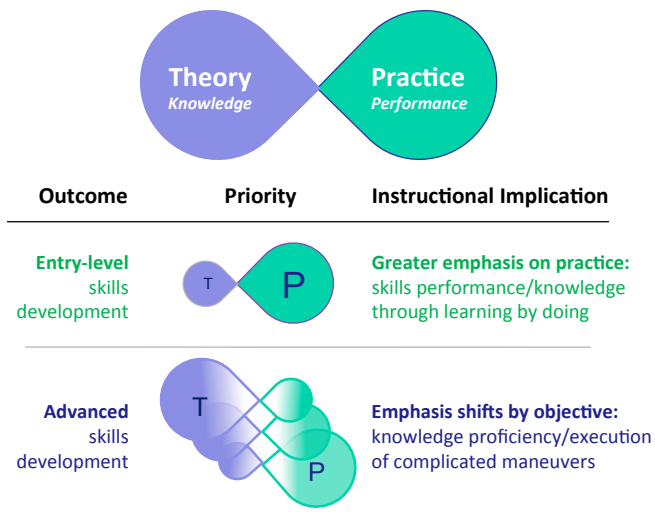
Some Benefits of a Systemic Approach

Taking a systemic approach to developing national On-Water, skills-based standards will have a variety of benefits. It will:

- a. *Complement work previously completed* (e.g., previous standards and On-Water standards). As we pointed out earlier, the USCG’s boating safety partners have already completed much work on the development of recreational boating standards. This systemic approach provides a framework that enables the current work being conducted by a broad representation of Subject Matter Experts (SMEs) to develop On-Water standards to complement previous work done on standards development, as well as to provide new contributions to recreational boater education.

Figure 2: A dynamic balance of theory and practice.

- b. *Integrate different methods for teaching and instructing safe and enjoyable recreational boat operation* (e.g., On-Water instruction and classroom teaching). Learning and developing recreational boat operation skills requires knowledge and understanding of theory, as well as the ability to demonstrate behavior and skills associated with practice (see Figure 2). Different teaching and learning approaches lend themselves to more efficient and effective development and learning. This System of Standards will help ensure a productive and complementary integration of all these different methods to produce a higher level of performance in the safe and enjoyable operation of recreational watercraft.



Research has shown that individuals develop skills, especially at the entry-level, most effectively through hands-on practice, “learning by doing”, complemented by knowledge acquisition “theory” during the practical experience. Once these entry-level skills are acquired, a greater emphasis on instruction of theory allows individuals to further enhance proficiency of the skill—in this case, recreational boat operation.

- c. *Include the variety of components associated with high quality standards for learning and development* (e.g., credentials of instructors, qualities of the instructional environment). During our work to develop the outcome standards (skills), SMEs have also been identifying some instructional standards and ways to assess the outcomes. Although these non-outcome based standards and/or key success factors are not the focus of the On-Water Standards work to identify *Outcome*, skills-based standards, they

Figure 3: Elements within the System of Standards

| People Standards (students/instructors) | Process Standards (methods of delivery) | Press Standards (context/environment) | Product Standards (outcomes: knowledge/skill) |
|--|---|--|--|
| <ul style="list-style-type: none"> Students (incoming level of skills and experience) Instructors (qualifications, experiences, credentials) Master trainers (qualifications, experiences, credentials) Evaluation & development | <ul style="list-style-type: none"> Curriculum strategy and design Course design (goals & objectives) Instructional design and activities Evaluation & development | <ul style="list-style-type: none"> Location Conditions (weather, waves, etc.) Equipment and resources Evaluation & development | <ul style="list-style-type: none"> Knowledge and Understanding Skills able to be performed Behaviors to be demonstrated Evaluation & development |
| Safety Standards | | | |

are important and essential factors that should be incorporated within the overall system of instructional standards for recreational boat operators (see Figure 3). Accordingly, SME inputs that are not confirmed as outcome/skills-based standards (e.g. method of instruction, environmental considerations, etc.) will be collected and stored for later use in development of the overall System of Standards for recreational boat operation.

- d. *Provide a framework for future developments in On-Water standards for the domain of recreational boating.* The current On-Water Standards work is focused specifically on identifying *entry-level* skills for On-Water instruction. More specifically, the focus is on *entry-level skills* associated *with* operating recreational boats in *clear weather with no restricted visibility or threatening weather*. To complete the Product (skills/outcomes) set of standards, future work needs to take place that develops new, or integrates existing skills-based standards for intermediate and advanced recreational boat operation; for night time operation, or operation in inclement weather.

Eventually, a comprehensive System of Standards that can be recognized by the USCG as key components of boater education programs nationwide would involve national consensus-driven development of the People, Process and Press (environment) standards to complement the Product (skills) standards being generated by the current work. Hopefully, long-term work will also continue on the development (refinement) and integration of performance-based standards for beginner, intermediate and advanced skills across the domains of POWER, SAIL and HUMAN recreational boat operation.

Employing this systemic approach to developing national On-Water standards, beginning with an emphasis on the Outcome skills, enables an inclusive and collaborative approach in which all affected parties (USCG boating safety partners) can and are encouraged to play a vital role in the process. Leveraging the vast expertise of SMEs throughout the recreational boating community will ensure that the resulting System of Standards represents the highest quality, consensus-based, developmental framework that the USCG can recognize on a national scale. Once established and made freely available, on-going voluntary participation by boating safety partners in maintaining and updating of the System of Standards will facilitate continued collaboration on the evolution of the system over time. Most importantly, this approach will help the USCG implement its strategic plan aimed at promoting increased safety through education both On-land and On-Water, while facilitating an enjoyable recreational boating experience for more than 80 million people across the United States.