

Nonprofit Organization Grants:  
Coast Guard Office of Auxiliary and Boating Safety  
Recreational Boating Safety

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Grant Title: Advancing Boating Education and On-Water Core Competency Standards

Award Amount: \$190,000.00

Synopsis:

This grant provides support for the National Boating Education Standards Panel (ESP) for development and maintenance of boating education standards. It also facilitates a level of technology and communication support – ensuring a fuller, more robust and open, consensus-based process, capable of quick response to new data and direction such as that published in the Strategic Plan of the National Recreational Boating Safety Program 2012-2016 – and other research and educational methodology shown effective in reducing risk and casualties.

**Advancing Boating Education and On-Water Core Competency Standards**  
**Grant No. 1402.14 - Final Report**  
**Submitted by the National Association of State Boating Law Administrators**

**Grant Period October 1, 2014 – March 31, 2016<sup>1</sup>**

**Executive Summary**

In its continuing efforts to achieve national agreement and consistency in boating education program content and course delivery for the nation’s boaters, NASBLA established the National Boating Education Standards Panel in 2010. The 15-member Panel, designed to represent a range of stakeholder interests, is charged with reviewing, developing, and revising the Standards using open, consensus-based procedures conforming to the [Essential Requirements for Due Process](#) of [American National Standards Institute \(ANSI\)](#). NASBLA’s Education Standards Panel received recognition as an [ANSI Accredited Standards Developer](#) body in September 2014. Its ANSI-recognized scope statement reads: *“NASBLA’s standards development scope of activity covers knowledge and competencies for the recreational boater and boating professionals working within or on behalf of the recreational boating community in North America.”*

ANSI, a 501(c)(3) not-for-profit organization, is comprised of government agencies, organizations, companies, academic and international bodies, and individuals representing the interests of more than 125,000 companies and 3.5 million professionals. Widely recognized by state and federal government, ANSI is the official U.S. representative to the International Organization for Standardization (ISO). ANSI is also a member of the International Accreditation Forum (IAF). In addition, in support of the [National Technology Transfer and Advancement Act of 1995 \(P.L. 104-113\)](#)<sup>2</sup> (NTTAA) as well as the [Office of Management and Budget Circular A-119](#), ANSI facilitates government agency use of voluntary consensus standards created by the private sector as an alternative to agency-developed standards.

The National Education Standards Panel Rules outline its consensus-based development process for voluntary standards, conforming to the ANSI Essential Requirements for due process<sup>3</sup>. Panel membership is comprised of individuals representing five distinct interest categories, each materially affected by the Standards and none comprising more than one-third of the total Panel.

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<sup>1</sup> Grant period extension authorized by Grant Technical Manager in December 2015.

<sup>2</sup> NTTAA codified existing policies in OMB Circular A-119, which establishes policies on Federal use and development of voluntary consensus standards and on conformity assessment activities. Federal agencies must use voluntary consensus standards in regulatory activities in lieu of government-unique standards unless use of such standards would be inconsistent with applicable law or otherwise impractical.

<sup>3</sup> ANSI “Due Process” means that any person (organization, company, government agency, individual, etc.) with a direct and material interest has a right to participate by: a) expressing a position and its basis, b) having that position considered and c) having the right to appeal. The following constitute the minimum acceptable due process requirements for the development of consensus: openness; lack of dominance; balance; coordination and harmonization; notification of standards development; consideration of views and objections; consensus vote; and appeals.

Interest categories are: Commercial, Non-Governmental/Nonprofit Organization, Federal Boating Agency, State Boating Agency, and Public. *(Note: All approved minutes, including meeting agendas, attendance, and work documents for this grant project were submitted to the USCG Grant Technical Manager with quarterly grant reports.)*

The work of the National Boating Education Standards Panel focused on the development of a national agreement and consistency in boating education program content and course delivery for the nation's boaters. Work for this project focused predominately in two areas: 1) Advancement of the standards through the ANSI process for confirmation as American National Standards, and 2) Harmonization of the knowledge standards with on-water competency standards.

### **1) Advancement of the standards through the ANSI process for confirmation as American National Standards**

The Panel completed revision of the draft Basic Boating Knowledge Standard disposing of nearly 200 technical and editorial comments received during its initial 'call for proposed revisions' and additional public review period *"based on available, relevant, and reliable information such as boating accident statistics, boater survey and participation data; and on other applicable boating safety and education research studies, scientific resources, and subject matter expertise."*<sup>4</sup>

A key component of the Panel Rules states: *"There shall be no undue financial barriers to participation on the Standards Panel."*<sup>5</sup> Grant support provided funding for two in-person meetings of the full Panel, meeting in conjunction with the 2015 International Boating and Water Safety Summit and the 2015 NASBLA Annual Conference.

Support funded the [EZ-ESP website](#) used to provide public input to the standard development/revision process per ANSI Essential Requirements and partial funding for use of existing NASBLA technology (e.g., teleconference systems, web services, and Basecamp, the project management network). The EZ-ESP administrative system at <http://esp.nasbla.org/esp/admin/index.cfm> lists active accounts for 355 users and potential commenters on this system.

As a result of the considerable volunteer efforts of panel members, commenters, and others, [ANSI/NASBLA 103-2016: Basic Boating Knowledge – Power](#) received recognition as an American National Standard in November 2015 (Appendix A).

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<sup>4</sup> Education Standard Panel Rules (amended Feb. 2014) Part VII, Section A6.

<sup>5</sup> Education Standard Panel Rules (amended Feb. 2014) Part IV, Section 17.

## 2) Harmonization of the knowledge standards with on-water competency standards

Besides the work on the American National Standard for Power, the National Boating Education Standards Panel drafted additional standards for consideration including knowledge standards for Human-Propelled, Sailing, Water-Jet Propelled, Trailering, and Passenger Safety (see Appendix B for links to draft documents and the status of each).

Alignment matrices were developed by selected members of the Education Standards Panel and the National On-Water Standards Team. Work will continue to move forward to ensure seamless use of these standards (*See Appendix C for Draft Alignment Matrices for Power, Sail and Human-Propelled*). In addition, considerable collaboration efforts were made by an organized team of stakeholders to organize the marketplace for implementation of on-water and knowledge standards (*See Appendix D for Final set of Collaboration Meeting Minutes – March 7, 2016*).

Extensive work has been completed and continues to harmonize the knowledge standards with skill standards developed under a grant to US Sailing. NASBLA and the Education Standards Panel have been fully involved with this effort which has included in-person meetings, teleconferences, multiple public presentations, and a [national webinar](#).

Conducted by:

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Attachments:

- *Appendix A:* ANSI/NASBLA 103-2016: Basic Boating Knowledge – Power
- *Appendix B:* Human-Propelled, Sailing, Water-Jet Propelled, Trailering, and Passenger Safety - links to draft documents and the status of each
- *Appendix C:* Draft Alignment Matrices for Power, Sail and Human-Propelled
- *Appendix D:* Collaboration Meeting Minutes – March 7, 2016

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

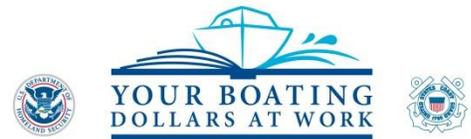


This National Boating Education Standard, as overseen by the National Boating Education Standards Panel (ESP), is the product of voluntary consensus of representatives of federal and state government, industry, nonprofit organizations, and public sectors. It is intended as a guide to aid the boating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

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

# American National Standard

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



*Produced under a grant from the Sport Fish Restoration and Boating Trust Fund, administered by the U.S. Coast Guard.*

# American National Standard (ANS)

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer. Consensus is established when, in the judgment of the ANSI Board of Standards Review (BSR), substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution. The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether that person has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards. The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.



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## ***National Boating Education Standards Panel***

### **Joseph Gatfield, Chair**

Chris Edmonston  
Ed Huntsman  
Kim Jackson  
Richard Jepsen

Cynthia Kalkomey  
Ernie Lentz  
MariAnn McKenzie  
Harry Munns  
Robin Pope

Jeff Riecks  
Tim Spice  
Jeffrey Wheeler  
Betsy Woods

This list represents the membership at the time the standard was presented for final consensus ballot in August and September 2015.

*NOTE: Membership on a panel or committee shall not in and of itself constitute an endorsement of the National Association of State Boating Law Administrators (NASBLA) or any document developed by the panel or committee on which the member serves.*

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

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

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.

<b>Contents</b>	<b>Page</b>
Foreword (not part of standard).....	i
Scope.....	1
Purpose.....	1
<b>1.0 The Boat</b> .....	<b>1</b>
1.1 Boat Capacities.....	1
1.2 Personal Watercraft (PWC).....	1
<b>2.0 Boating Equipment</b> .....	<b>1</b>
2.1 Personal Flotation Devices (Wearable Life Jackets and Throwable Devices) Types and Carriage.....	1
2.2 Personal Flotation Device Availability and Sizing.....	2
2.3 Wearing Life Jackets.....	2
2.4 Personal Flotation Device Serviceability.....	2
2.5 Fire Extinguisher Equipment.....	2
2.6 Back-Fire Flame Control Device.....	3
2.7 Ventilation Systems.....	3
2.8 Navigation Light Equipment.....	3
2.9 Sound Signaling Equipment.....	3
2.10 Visual Distress Signal Equipment.....	3
<b>3.0 Trip Planning and Preparation</b> .....	<b>3</b>
3.1 Checking Local Weather and Water Conditions.....	3
3.2 Checking Local Information.....	4
3.3 Filing a Float Plan.....	4
3.4 Boat Preventive Maintenance.....	4
3.5 Launching and Retrieving from a Trailer .....	4
3.6 Fueling Procedures.....	4
3.7 Pre-Departure Checklist and Passenger Communication.....	5
<b>4.0 Safe Boat Operation</b> .....	<b>5</b>
4.1 Operator Responsibilities.....	5
4.2 Influence of Drugs and Alcohol on Boat Operation.....	6
4.3 Navigation Rules.....	6
4.4 Aids to Navigation.....	7
4.5 Docking and Mooring.....	7
4.6 Anchoring.....	7
4.7 Carbon Monoxide .....	8
4.8 Propeller Intervention and Awareness .....	8

<b>5.0</b>	Emergency Preparedness.....	8
5.1	Rendering Assistance.....	8
5.2	Capsizing/Falls Overboard .....	8
5.3	Cold Water Immersion.....	8
5.4	Fire Emergency Preparedness .....	9
5.5	Running Aground Prevention and Response.....	9
<b>6.0</b>	Other Water Activities.....	9
6.1	Water-Jet Propelled Watercraft .....	9
6.2	Water Skiing, Towed Devices and Wake Sports.....	9
6.3	Diving and Snorkeling .....	10
6.4	Hunting and Fishing.....	10
6.5	Small Boats.....	10

# American National Standard

## Basic Boating Knowledge - Power

### Scope

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

### Purpose

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

## 1.0 The Boat

### 1.1 Boat Capacities

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

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

### 1.2 Personal Watercraft (PWC)

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

## 2.0 Boating Equipment

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

2.1.1 The course shall explain the:

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

2.1.2 The course shall also:

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

## **2.2 Personal Flotation Device Availability and Sizing**

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

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

## **2.3 Wearing Life Jackets**

The course shall inform boat operators of the importance of:

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

## **2.4 Personal Flotation Device Serviceability**

2.4.1 The course shall describe:

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

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

## **2.5 Fire Extinguisher Equipment**

The course shall describe:

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

## **2.6 Back-Fire Flame Control Device**

2.6.1 The course shall describe:

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

## **2.7 Ventilation Systems**

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

## **2.8 Navigation Light Equipment**

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

## **2.9 Sound Signaling Equipment**

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

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

## **2.10 Visual Distress Signal Equipment**

The course shall describe:

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

## **3.0 Trip Planning and Preparation**

### **3.1 Checking Local Weather and Water Conditions**

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

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

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

3.1.2 It shall describe:

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

### **3.2 Checking Local Information**

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

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

### **3.3 Filing a Float Plan**

The course shall describe:

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

### **3.4 Boat Preventative Maintenance**

The course shall communicate the need for:

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

### **3.5 Launching and Retrieving from a Trailer**

The course shall cover safe trailering procedures including:

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

### **3.6 Fueling Procedures**

The course shall provide information on proper procedures for:

- fueling, and
- ventilation during fueling.

### **3.7 Pre-Departure Checklist and Passenger Communication**

3.7.1 The course shall describe:

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

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

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

3.7.3 Passengers should be informed about:

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

## **4.0 Safe Boat Operation**

### **4.1 Operator Responsibilities**

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

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

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

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

4.1.3 The course shall describe homeland security measures, including:

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

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

## 4.2 Influence of Drugs and Alcohol on Boat Operation

The course shall describe:

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

## 4.3 Navigation Rules

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

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

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

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

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

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

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

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

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

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

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

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

#### **4.5 Docking and Mooring**

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

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

#### **4.6 Anchoring**

4.6.1 The course shall describe the importance of:

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

4.6.2 The course shall describe:

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

#### **4.7 Carbon Monoxide**

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

#### **4.8 Propeller Intervention & Awareness**

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

### **5.0 Emergency Preparedness**

#### **5.1 Rendering Assistance**

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

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

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

5.2.2 The prevention responses shall include:

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

5.2.3 The responding procedures shall include:

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

#### **5.3 Cold Water Immersion**

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

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

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

#### **5.4 Fire Emergency Preparedness**

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

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

#### **5.5 Running Aground Prevention and Response**

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

### **6.0 Other Water Activities**

#### **6.1 Water-Jet Propelled Watercraft**

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

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

#### **6.2 Water Skiing, Towed Devices and Wake Sports**

The course shall describe safety practices specific to:

- pulling water skiers,

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

### **6.3 Diving and Snorkeling**

The course shall describe:

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

### **6.4 Hunting and Fishing**

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

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

### **6.5 Small Boats**

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

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

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

- *Appendix B: Human-Propelled, Sailing, Water-Jet Propelled, Trailering, and Passenger Safety* - links to draft documents and the status of each



## Appendix B: DRAFT National Boating Education Standards - Links and Status

- [BSR/NASBLA-101-20XX Basic Boating Knowledge - Human-Propelled Boats](#)  
Public Review – opened 2/12/16, end date 3/27/16 – Now in Panel Disposition
- [BSR/NASBLA 102-201X: Basic Boating Knowledge – Sailing](#)  
90-Day Call for Comment Period ended 12/3/15 – Now in Panel Disposition
- [BSR/NASBLA 106-201X: Basic Boating Knowledge - Trailering](#)  
90-Day Call for Comment Period ended 12/3/15 – Now in Panel Disposition
- [BSR/NASBLA 103.1 - 201X: Supplement- Basic Boating Knowledge – Water-Jet Propelled Boats](#)  
Call for Comment Period – end date 5/12/16

Note: The 'BSR' designation means it is now under the oversight of the ANSI Board of Standards Review



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# American National Standard

(DRAFT for Public Review and Comment - Not yet approved)

## BSR/NASBLA-102-201X Basic Boating Knowledge – SAILING



*Produced under a grant from the Sport Fish Restoration and Boating Trust Fund, administered by the U.S. Coast Guard.*

# American National Standard (ANS)

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## ***National Boating Education Standards Panel***

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<b>CONTENTS</b>	Page
Foreword ( <i>NOT considered Part of the Standard</i> ).....	i
<b>DRAFT STANDARD</b>	
Scope.....	1
Purpose.....	1
Description.....	1
1.0 Sailing Terminology and Wind Awareness.....	1
2.0 Sailboat Features and Performance.....	1
3.0 Points of Sail and Maneuvers.....	1
4.0 Trip Preparation.....	2
5.0 Seamanship and Safe Operation.....	2
6.0 Navigation Rules.....	3
7.0 US Aids to Navigation System.....	3
8.0 Emergency Preparedness and Response.....	3

## NASBLA-102-20XX

**Basic Boating Knowledge – Sailing**

**Scope:** This Standard applies to basic sailing knowledge education and proficiency assessment in the United States, U.S. territories, and the District of Columbia.

**Purpose:** This document establishes the national standard for basic recreational sailing knowledge with a primary focus on safety and mitigation of risks associated with recreational sail boating.

**Description:** This Standard contains the basic knowledge elements that a beginner (entry-level) operator should have in order to safely operate a small sailboat of less than 26 feet in length by day in light winds (up to 12 knots) and sea conditions. Auxiliary power knowledge is not included. On-water skills elements are not included.

**1.0 Sailing Terminology & Wind Awareness**

*The course content shall:*

- 1.1 Identify and describe the functions of the parts of a typical small sailboat.
- 1.2 List and define directional terms relating to the sailboat.
- 1.3 List and define directional terms relating to the wind.
- 1.4 Describe visual and non-visual indicators that may be used to provide a sense of wind direction and strength.

**2.0 Sailboat Features & Performance**

*The course content shall:*

- 2.1 Describe the purpose and functions of the tiller, tiller extension, and rudder, as well as the relationship between boat speed and rudder control.
- 2.2 Describe the functions of, and differences between, a ballasted keel and a centerboard or daggerboard.
- 2.3 Define the basic force generated as air flows over a sail when sailing upwind and describe how this force propels the sailboat forward. Describe how the sail works differently when sailing straight downwind.
- 2.4 Describe what adjustments to the sails and rudder must be made to accommodate changes in wind direction and wind speed.

**3.0 Points of Sail & Maneuvers**

*The course content shall:*

- 3.1 Describe and identify using diagrams the following points of sail and sailboat positions relative to the wind:

- Close hauled
- Close Reach
- Beam Reach
- Run / Directly Downwind
- By the Lee
- No Sail Zone

- 3.2 Describe the purpose and identify using diagrams the following course and tack changing maneuvers and their results:

- Heading Up

- Bearing Away
- Tacking
- Gybing (Jibing)

3.3 Describe the causes and risks associated with an accidental gybe and ways in which it can be prevented.

3.4 Describe methods of accelerating, decelerating, and stopping a sailboat.

3.5 Describe methods for getting the sailboat out of irons and under control onto a desired tack.

3.6 Describe how to place the sailboat in the safety position or how to heave-to, and the circumstances under which these maneuvers could be used.

3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.

## 4.0 Trip Preparation

*The course content shall:*

4.1 List all required equipment and examples of recommended equipment to be carried aboard a sailboat of less than 26 feet.

4.2 List the tasks that must be accomplished when setting up or rigging a small sailboat.

4.3 Describe critical preventive maintenance that should be performed periodically on a typical small sailboat.

4.4 State a minimum of two maintenance issues that, if found during a pre-trip inspection, would require cancellation of the trip if not corrected before departure.

4.5 Describe benefits and methods of stowing and securing gear and equipment properly aboard a sailboat.

4.6 List sources of local knowledge concerning weather, tides, currents, and hazards and provide examples of important local information to obtain.

4.7 Describe the purpose and contents of a Float Plan, to whom it should be submitted, and when it should be cancelled.

4.8 List important considerations for personal readiness before embarking on a daysail lasting several hours.

4.9 Provide examples of factors that would lead to a no-go decision and state the reasons why.

4.10 List all critical topics that should be included in a pre-departure safety briefing for crew/passengers and describe how the briefing could be delivered.

## 5.0 Seamanship and Safe Operation

*The course content shall:*

5.1 Describe proper methods for boarding while keeping the sailboat reasonably stable.

5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.

5.3 Give examples of actions to be taken when a temporary increase in wind speed occurs. Describe the actions to be taken if sustained increased winds appear imminent.

5.4 List three items that must be checked periodically to avoid dangerous failures while sailing.

5.5 List three important responsibilities of a sailboat operator.

5.6 Describe the operator's responsibility for the safe behavior of passengers/crew.

5.7 State the proper procedure for accepting a single line or side tow and safely maneuvering a sailing dinghy while under tow.

- 5.8 State the regulations to be followed when operating in the vicinity of military vessels.
- 5.9 Give reasons why boating under the influence of drugs or alcohol is unsafe.
- 5.10 Provide examples of suspicious activities that should be reported to proper authorities, and where to look for those activities.
- 5.11 Describe the purpose and usage of each of the following knots:
- Figure-8 knot
  - Square/Reef knot
  - Clove hitch
  - Round Turn & 2 Half Hitches
  - Cleat hitch
  - Bowline
  - Sheet Bend

## 6.0 Navigation Rules

*The course content shall:*

- 6.1 State the purpose of the Navigation Rules, list sources where information regarding the Rules may be obtained, and, using diagrams, apply the Rules to recreational sailboats and powerboats (Rules 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, and 19).
- 6.2 Describe and identify required navigation lights for recreational sailboats and powerboats of less than 26 feet in length (Rules 20, 21, 23, 25, 27, and 30).
- 6.3 Describe and identify basic navigation sound signals (Rules 32, 33, 34, and 35).
- 6.4 Describe the duty to provide assistance at sea.

## 7.0 US Aids to Navigation System

*The course content shall:*

- 7.1 Identify and state the purpose of lateral aids to navigation by color, shape & numbering, including preferred channel markers.
- 7.2 Identify and state the purpose of safe water, regulatory and information markers by color, shape & numbering.

## 8.0 Emergency Preparedness & Response

*The course content shall:*

- 8.1 Describe why it is critical to wear lifejackets and know the location and correct operation of all safety equipment, particularly in an emergency.
- 8.2 Describe capsizing and how to prevent and recover from a capsize.
- 8.3 Describe how to prevent running aground and recovery procedures from a grounding.
- 8.4 Describe the proper deployment of an anchor and rode and how to determine appropriate scope.
- 8.5 Describe means for prevention of, and procedures for recovering, a person in the water, a.k.a. Man Overboard (MOB), including how to maneuver the sailboat safely back to the person.
- 8.6 List appropriate precautions to prevent sudden cold water immersion, and actions to recover a person who is immersed in cold water.



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## BSR/NASBLA 106-201X Basic Boating Knowledge – Trailering



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<b>CONTENTS</b>	<b>Page</b>
Foreword ( <i>NOT considered Part of the Standard</i> ).....	i
<b>DRAFT STANDARD</b>	
Purpose and Scope.....	1
1.0 Trailering System Components .....	1
1.1 Boat on Trailer.....	1
1.2 Trailer.....	1
1.3 Tow Vehicle.....	2
1.4 Hitch System.....	2
1.5 Accessories.....	2
2.0 Preparing to Trailer the Boat.....	3
2.1 Federal/State/Local regulations.....	3
2.2 Loading.....	3
2.3 Tongue Weight.....	3
2.4 Trailer Ball.....	3
2.5 Tie Downs.....	3
2.6 Safety Chains/Cables.....	3
2.7 Transom Saver.....	3
2.8 Pre-Trailering Checklist.....	3
3.0 Trailering.....	3
3.1 Turning.....	3
3.2 Backing.....	3
3.3 Observing Traffic.....	3
3.4 Inspection of Rig.....	3
3.5 Parking.....	3
3.6 Securing Overnight.....	3
4.0 Launching.....	4
4.1 Launch Ramp Courtesy.....	4
4.2 Plan Launch.....	4
4.3 Disconnecting Trailer Lighting Cable.....	4
4.4 Aligning the Trailer.....	4
4.5 Prelaunch Checklist.....	4
4.6 Launching the Boat.....	4
4.7 Releasing the Boat.....	4
5.0 Recovering.....	4
5.1 Launch Ramp Courtesy.....	4
5.2 Plan Recovery.....	4
5.3 Aligning the Trailer.....	4

5.4 Assure Trailer Bunks/Rollers are Sufficiently in Water.....	4
5.5 Driving Boat onto Trailer.....	4
5.6 Pre-departure Checklist.....	5
6.0 Maintenance.....	5
6.1 Wheel Attachment.....	5
6.2 Wheel Bearings.....	5
6.3 Jack Stand.....	5
6.4 Winch.....	5
6.5 Tires.....	5
6.6 Electrical System.....	5
6.7 Changing Tires.....	5
6.8 Cleaning Boat and Trailer.....	5
7.0 Transporting Paddlecraft.....	5
7.1 Responsibility.....	5
7.2 Transporting – Car Top.....	5
7.3 Transporting – Pick Up Truck.....	5
7.4 Carrier Rack – Choosing a Rack.....	5
7.5 Securing Paddlecraft.....	5
7.6 Straps/Tie Downs.....	5
Note.....	5

**Purpose and Scope:** To recommend minimum standards for instructing boaters how to select the proper trailing components, and to safely launch, recover, transit, and store boats on trailers.

## **1.0 Trailing System Components** (description, specs, requirements, and selection criteria)

### **1.1 Boat on Trailer**

#### 1.1.1 Dimensions of boat vs dimensions of trailer

1.1.1.1 State/local regulations

1.1.1.2 Wide load/long road permits

#### 1.1.2 Weight

1.1.2.1 Boat, motor and trailer

1.1.2.2 Weight distribution

1.1.2.3 Fuel, water, gear

### **1.2 Trailer**

#### 1.2.1 Sized to boat and accessories

1.2.1.1 Ratings

1.2.1.1.1 Gross Trailer Weight Rating (GTWR)

#### 1.2.2 Construction

1.2.2.1 Steel

1.2.2.1.1 Galvanized

1.2.2.2 Aluminum

#### 1.2.3 Axle configurations

1.2.3.1 Gross Axle Weight Rating (GAWR)

#### 1.2.4 Suspension

1.2.4.1 Leaf springs

1.2.4.2 Torsion bars (shocks)

#### 1.2.5 Tongue

1.2.5.1 Chain/cable mounts

1.2.5.2 Coupler

#### 1.2.6 Bow Stop

1.2.6.1 Winch

1.2.6.1.1 Manual winch

1.2.6.1.2 Electric winch

1.2.6.2 Bow pad

#### 1.2.7 Boat Support

1.2.7.1 Positioning

1.2.7.2 Types

1.2.7.2.1 Bunk

1.2.7.2.2 Rollers

- 1.2.7.2.3 Combination
- 1.2.8 Jack stand
- 1.2.9 Wheels
  - 1.2.9.1 Bearings
    - 1.2.9.1.1 Bearing protectors
    - 1.2.9.1.2 Waterproof grease
  - 1.2.9.2 Tires
    - 1.2.9.2.1 Selection
    - 1.2.9.2.2 Maintenance
      - 1.2.9.2.2.1 Inspection
      - 1.2.9.2.2.2 Proper inflation
    - 1.2.9.2.3 Changing
  - 1.2.9.3 Tie Down Points
  - 1.2.9.4 Brakes
    - 1.2.9.4.1 Surge brakes
    - 1.2.9.4.2 Electronically controlled brakes
    - 1.2.9.4.3 Drum or disk brakes
  - 1.2.9.5 Lights
    - 1.2.9.5.1 Trailer electrical connector
  - 1.2.9.6 Accessories
    - 1.2.9.6.1 Loading guides
    - 1.2.9.6.2 Guide lights
    - 1.2.9.6.3 Spare tire
- 1.3 Tow vehicle**
  - 1.3.1 Sized to boat, trailer, & accessories
  - 1.3.2 Load capacity
    - 1.3.2.1 Gross Trailer Weight (GTW)
    - 1.3.2.2 Trailer Tongue Weight (TTW)
  - 1.3.3 Cooling
  - 1.3.4 Braking system
  - 1.3.5 Tires
  - 1.3.6 Mirrors
  - 1.3.7 Electrical connections
- 1.4 Hitch system**
  - 1.4.1 Class of hitch
  - 1.4.2 Mounting on vehicle
  - 1.4.3 Weight distributing hitches
  - 1.4.4 Sway control
- 1.5 Accessories**
  - 1.5.1 Side mirror extensions
  - 1.5.2 Back up lighting

- 1.5.3 Back up camera
- 2.0 Preparing to trailer the boat** (regulations, procedures, checklists to prep to go on road)
- 2.1 Federal/State/Local regulations**
- 2.2 Loading**
  - 2.2.1 VIN certification label
  - 2.2.2 GVWR
- 2.3 Tongue weight**
- 2.4 Trailer ball**
- 2.5 Tie downs**
- 2.6 Safety chains/cables**
- 2.7 Transom saver**
- 2.8 Pre-Trailering checklist**
  - 2.8.1 Trailer condition
  - 2.8.2 Tire pressure
  - 2.8.3 Bearings
  - 2.8.4 Lights
  - 2.8.5 Brakes
  - 2.8.6 Hitch ball
  - 2.8.7 Coupler and chains/cables
  - 2.8.8 Fasteners
  - 2.8.9 Winch line
  - 2.8.10 Tie downs
  - 2.8.11 Wheel lug nuts
  - 2.8.12 Trailer jack
  - 2.8.13 Gear
- 3.0 Trailering** (process of safely transporting the boat on a trailer to/from launch area)
- 3.1 Turning**
- 3.2 Backing**
- 3.3 Observing traffic**
- 3.4 Inspection of rig**
  - 3.4.1 Check temperature of hubs
  - 3.4.2 Check tie-downs
  - 3.4.3 Ensure all items secured
- 3.5 Parking**
- 3.6 Securing overnight**

- 3.6.1 Trailer receiver locks
- 3.6.2 Coupler lock
- 4.0 Launching (process of safely launching boat)**
- 4.1 Launch ramp courtesy**
- 4.2 Plan launch**
  - 4.2.1 Check wind & current
  - 4.2.2 Plan securing launched boat
  - 4.2.3 Stowing pre-launch gear
- 4.3 Disconnecting trailer lighting cable**
- 4.4 Aligning the trailer**
- 4.5 Prelaunch checklist**
  - 4.5.1 Release tie-downs
  - 4.5.2 Ensure drain plug is secure
  - 4.5.3 Ensure dock lines and fenders are ready
- 4.6 Launching the boat**
  - 4.6.1 Check the ramp grade, water depth
  - 4.6.2 Prepare for launching
  - 4.6.3 Backing trailer
  - 4.6.4 Launching
  - 4.6.5 Bunk trailer vs. Roller trailer
  - 4.6.6 Securing the tow vehicle
- 4.7 Releasing the boat**
- 5.0 Recovering (process of safely retrieving boat from water onto trailer)**
- 5.1 Launch ramp courtesy**
- 5.2 Plan Recovery**
  - 5.2.1 Check ramp slope, depth
  - 5.2.2 Check wind and current
  - 5.2.3 Plan securing launched boat
- 5.3 Aligning the trailer**
- 5.4 Assure trailer bunks/rollers are sufficiently in water to accept boat**
- 5.5 Driving boat onto trailer**
  - 5.5.1 Tilting engine up (outboard or stern-drive)
  - 5.5.2 Connecting winch cable to bow eye
  - 5.5.3 Winching boat on to trailer
  - 5.5.4 Assuring boat properly positioned
  - 5.5.5 Driving trailer and boat to parking area to complete securing boat for transit

**5.6 Pre-departure checklist**

- 5.6.1 Boat properly aligned on trailer
- 5.6.2 Boat drained of residual water
- 5.6.3 Wash down if possible, remove any plant debris on boat and trailer
- 5.6.4 Secure gear in boat
- 5.6.5 Secure engine with transom buddy if needed
- 5.6.6 Reconnecting trailer light connector, check lights

**6.0 Maintenance** (general maintenance of trailer and components)**6.1 Wheel attachment**

- 6.1.1 Lug nuts
- 6.1.2 Lubrication
- 6.1.3 Tire pressure

**6.2 Wheel bearings****6.3 Jack stand****6.4 Winch****6.5 Tires****6.6 Electrical system****6.7 Changing tires****6.8 Cleaning boat and trailer**

- 6.8.1 Drain and dry
- 6.8.2 Invasive species

**7.0 Transporting Paddlecraft****7.1 Responsibility****7.2 Transporting – car top****7.3 Transporting – pick-up truck****7.4 Carrier rack – choosing a rack****7.5 Securing paddlecraft****7.6 Straps/tie downs**

Note: Although trailers are available, most canoes and kayaks are transported to waterways on a carrier rack mounted on the top of a vehicle. To prevent accidents and property damage, the vehicle's driver is responsible for ensuring that the carrier rack and the boat are secured properly.



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NOTE: Membership on a panel or committee shall not in and of itself constitute an endorsement of the National Association of State Boating Law Administrators (NASBLA) or any document developed by the panel or committee on which the member serves.

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

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<b>Contents</b>	<b>Page</b>
Scope.....	1
Purpose.....	1
Description .....	1
<b>1.0 Water-Jet Propelled Personal Watercraft (PWC) Features and Performance</b>	<b>1</b>
1.1 Specifications	1
1.2 How the water-jet vessel propulsion system works	1
1.3 The purpose, functions and differences of PWC hull characteristics, operation capability and passenger and weight capacity	1
<b>2.0 Specific PWC Topics</b>	<b>1</b>
2.1 How to start and turn-off the vessel’s engine	1
2.2 Stopping the vessel’s motion	1
2.3 Functions of off throttle steering	2
2.4 Slow (idle speed) operation and maneuvering	2
2.5 Braking	2
2.6 Reverse	2
2.7 Neutral	2
2.8 Mooring and line attachment(s)	2
2.9 Towing activities	2
2.10 Passenger placement and special considerations	2
2.11 Fueling and fuel management	2
2.12 Shallow water operation	2
2.13 Specialized clothing, gear and equipment	2
2.14 Digitized ignition keys	2
2.15 Capsizing awareness and issues	2
2.16 Boarding and disembarking	2
2.17 Modifications	3
2.18 High Performance PWC characteristics	3
<b>3.0 Specific Jet-Boat Watercraft Topics</b>	<b>3</b>
3.1 Individual operator responsibility for required maintenance	3
3.2 Operational characteristics and considerations	3
3.3 Steering system and steerage	4

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**Title: BSR/NASBLA 103.1-201X: Supplement - Basic Boating Knowledge – Water-Jet Propelled Boats**

**Scope:** This supplement applies to basic boating knowledge education and proficiency assessment in the United States, U.S. Territories, and the District of Columbia.

**Purpose:** This document provides supplementary content for BSR/NASBLA 103-201X: Basic Boating Knowledge – Power to address basic recreational Water-Jet Propelled knowledge with a primary focus on safety and mitigation of risks associated with recreational boating. Developed for optional use with BSR/NASBLA 103-201X: Basic Boating Knowledge – Power, this supplement contains the basic knowledge elements that a beginner (entry-level) operator should have in order to safely operate a water-jet propelled watercraft.

**Description:** *This supplement focuses on operational characteristics of two principle water-jet propelled vessels currently available to the recreational boating public; Personal Watercraft (PWC) and Jet Boats. Water Jet-Pack types of vessels such as Jet-Lev, Fly-Boards and Hover Boards are not addressed in this education standard.*

## **1.0 Water-Jet Propelled Personal Watercraft (PWC) Features and Performance**

### **1.1 Specifications**

1.1.1 The course shall identify, describe and, where appropriate, illustrate the watercraft's:

1.1.1.1 model year; make (manufacturer) of vessel; engine type (e.g. four stroke, two stroke or electric) and

1.1.1.2 towing capacity and related information.

### **1.2 Water-jet Propelled Propulsion**

1.2.1 The course shall identify, describe and illustrate how a water-jet propelled propulsion system works.

### **1.3 PWC Hulls**

1.3.1 The course shall describe the purpose, functions and differences of PWC hull characteristics, operational capability and passenger and weight capacity of:

1.3.1.1 standup model (one-passenger);

1.3.1.2 sport model (up to two passengers);

1.3.1.3 run about model (up to three-passenger); and

1.3.1.4 sport-utility vessel (up to four passengers).

## 2.0 Specific PWC Topics

### 2.1 Personal Watercraft

2.1.1 The course shall identify, describe and, where appropriate, illustrate:

2.1.1.1 How to start and turn-off the vessel's engine

2.1.1.2 Stopping the vessel's motion

2.1.1.3 Functions of off throttle steering

2.1.1.3.1 Definition of "Off-throttle steering," and

2.1.1.3.2 How to determine if feature is on vessel

2.1.1.3.3 Potential for operator confusion of off-throttle steering feature.

2.1.1.4 Slow (idle speed) operation and maneuvering

2.1.1.5 Braking (for those vessels so equipped)

2.1.1.6 Reverse (for those vessels so equipped)

2.1.1.7 Neutral (for those vessels so equipped)

2.1.1.8 Mooring and line attachment(s)

2.1.1.8.1 Docking,

2.1.1.8.2 Anchoring, and

2.1.1.8.3 Towing.

2.1.1.9 Towing activities

2.1.1.9.1 Capacity, and

2.1.1.9.2 Legal requirements for observer and seating placement.

2.1.1.10 Passenger placement and special considerations

2.1.1.11 Fueling and fuel management

2.1.1.11.1 Issues with fuel containing ethanol

2.1.1.12 Shallow water operation

2.1.1.13 Specialized clothing, gear and equipment

2.1.1.13.1 Appropriate U.S. Coast Guard approved life jacket wear, and

2.1.1.13.2 Other personal protective gear

2.1.1.13.2.1 Life jacket use when swimming near vessel (WEAR IT!),

2.1.1.13.2.2 Gloves,

2.1.1.13.2.3 Eye protection, and

2.1.1.13.2.4 Foot protection.

2.1.1.14 Digitized ignition keys

2.1.1.14.1 Use and importance of Lanyards;

2.1.1.14.2 Other remote vessel starting / stopping / operational devices;

2.1.1.14.3 Use of an aftermarket rather than original equipment

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manufacturer; and

2.1.1.14.4 (OEM) lanyard and potential for resulting operational problems.

2.1.1.15 Capsizing awareness and issues

2.1.1.15.1 Stern wake,

2.1.1.15.2 Environmental conditions (water state & wind),

2.1.1.15.3 Turning,

2.1.1.15.4 Occupant balance points, and

2.1.1.15.5 Righting a capsized watercraft.

2.1.1.15.1 Identifying the direction to turn capsized vessel

2.1.1.16 Boarding and disembarking

2.1.1.16.1 Use of retractable rear step, if so equipped, to board a PWC and its stowage;

2.1.1.16.2 Boarding and disembarking vessel safely; and

2.1.1.16.3 Maintaining manufacturer's recommended minimum water depth.

2.1.1.17 Modifications

2.1.1.17.1 Other recreational activity such as fishing

2.1.1.18 High performance PWC characteristics

2.1.1.18.1 High speed operational control issues, and

2.1.1.18.2 Dangers of operating beyond skill and ability of operator.

### **3.0 Specific Jet-Boat Watercraft Topics**

#### **3.1 Required Maintenance**

3.1.1 The course shall describe a boat operator's responsibility of required maintenance on the following:

3.1.1.1 Jet pump

3.1.1.1.1 Impeller wear,

3.1.1.1.2 Reverse bucket,

3.1.1.1.3 Bowl and stator vanes, and

3.1.1.1.4 Shift linkage.

3.1.1.2 Drive Train

3.1.1.2.1 Linkage

3.1.1.2 Engine

3.1.1.2.1 Hydro-lock concerns, and

3.1.1.2.2 Exhaust system.

3.1.1.3 Hull

## **3.2 Operational Characteristics and Considerations**

### **3.2.1 This course shall explain:**

- 3.2.1.1 Situational awareness
- 3.2.1.2 Start-up, shut down and operating controls
  - 3.2.1.2.1 Operational controls and characteristics;
    - 3.2.1.2.1.1 Single control, and
    - 3.2.1.2.1.2 Dual control.
  - 3.2.1.2.2 Engine interruption cut-off lanyard; and
  - 3.2.1.2.3 Cold weather considerations.
- 3.2.1.3 Understanding the tachometer
- 3.2.1.4 Carbon Monoxide Risk
- 3.2.1.5 Constant Motion when Engine Is Running (Transmission In Neutral)
- 3.2.1.6 Operation at Slow Speeds and Stopping
- 3.2.1.7 Operation in Shallow Water
- 3.2.1.8 Clearing intake grate blockages
- 3.2.1.9 Towing Issues
  - 3.2.1.9.1 Mooring and line attachments
  - 3.2.1.9.2 Passenger / Operator Placement
    - 3.2.1.9.2.1 Twin Engines,
    - 3.2.1.9.2.2 Hull Design,
    - 3.2.1.9.2.3 Fueling with a portable fuel tank, and
    - 3.2.1.9.2.4 Aquatic Invasive Species.

## **3.3 Steering system and steerage**

- 3.3.1 This course shall describe the basic safe boating operation steering system for a tiller controlled jet-boat.



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

(Not yet approved)

## BSR/NASBLA 101-201X: Basic Boating Knowledge – Human Propelled



*Produced under a grant from the Sport Fish Restoration and Boating Trust Fund, administered by the U.S. Coast Guard.*

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<b>Contents</b>	<b>Page</b>
Foreword .....	i
Scope.....	5
Purpose.....	5
<b>1 The Boat .....</b>	<b>5</b>
1.1 Boat Capacity.....	5
<b>2 Boating Equipment.....</b>	<b>5</b>
2.1 Personal Floatation Devices (Wearable Life Jackets and Throwable Devices) Types and Carriage.....	5
2.2 Personal Floatation Device Availability and Sizing.....	5
2.3 Wearing Life Jackets.....	6
2.4 Personal Floatation Device Serviceability.....	6
2.5 Navigation Light Equipment.....	6
2.6 Sound Signaling Equipment.....	6
2.7 Visual Distress Signal Equipment.....	6
2.8 Recommend Additional Safety Equipment .....	7
<b>3 Trip Planning and Preparation.....</b>	<b>7</b>
3.1 Checking Local Weather and Water Conditions.....	7
3.2 Checking Local Information .....	7
3.3 Filing a Float Plan.....	7
3.4 Preventative Maintenance .....	8
3.5 Pre-Departure Checklist and Passenger Communication.....	8
<b>4 Safe Boat Operation.....</b>	<b>8</b>
4.1 Operator Responsibilities.....	8
4.2 Influence of Drugs and Alcohol on Boat Operation.....	9
4.3 Navigation Rules.....	9
4.4 Aids to Navigation.....	9
4.5 Boarding, Exiting and Securing the Boat .....	10
<b>5 Emergency Preparedness .....</b>	<b>10</b>
5.1 Rendering Assistance.....	10
5.2 Capsizing/Falls Overboard .....	10
5.3 Cold Water Immersion.....	11
5.4 Accident Reports .....	11
5.5 Boating Accident Report Form .....	11
<b>6 Other Water Activities.....</b>	<b>11</b>
6.1 Hunting and Fishing.....	11

## Basic Boating Knowledge -Human-Propelled **Boats\***

### 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

1.1.1. The course shall describe:

- 1.1.1.1. how to determine acceptable loading capacity; and
- 1.1.1.2. 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

2.1.1. The course shall explain the:

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

### 2.2. Personal Flotation Device Availability and Sizing

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

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

### **2.3. Wearing Life Jackets**

- 2.3.1. The course shall inform boat operators of the importance of:
  - 2.3.1.1. selecting the proper life jacket for the activity and everyone wearing life jackets at all times while aboard;
  - 2.3.1.2. showing passengers how to select the correct size of life jacket and properly put on and wear their life jackets;
  - 2.3.1.3. emphasizing the need to be aware that conditions can change quickly while boating (i.e., weather and water conditions, boat traffic, etc.); and
  - 2.3.1.4. 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:
  - 2.4.1.1. the characteristics of serviceable PFDs/life jackets, and
  - 2.4.1.2. 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**

- 2.5.1. 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**

- 2.6.1. 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:
  - 2.6.1.1. sound-producing requirements; and
  - 2.6.1.2. the use of sound signals.

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

- 2.7.1. The course shall describe:
  - 2.7.1.1. when U.S. Coast Guard approved visual distress signals are required to be carried on board,
  - 2.7.1.2. the types of visual distress signals required on boats; and
  - 2.7.1.3. the use of visual distress signals when required on boats operating on
    - 2.7.1.3.1. coastal waters, and
    - 2.7.1.3.2. 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:

- 2.8.1.1. helmet, whistle, river knife, rescue throw bag, rescue hardware (webbing, carabineers, z-drag kit), leash, first aid kit, signal mirror, flotation bags, and dry bags;
- 2.8.1.2. dewatering equipment – pump, sponge or bucket; and
- 2.8.1.3. a map or chart (if applicable) of the area.

## **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:

- 3.1.2.1. dangerous weather conditions such as strong winds, storms, lightning, hurricanes and fog;
- 3.1.2.2. dangerous water conditions such as strong currents, waves, hydraulics and high water;
- 3.1.2.3. 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
- 3.1.2.4. 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**

3.3.1. The course shall describe:

- 3.3.1.1. the importance of filing a float plan, and
- 3.3.1.2. the basic information that should be included.

### **3.4. Preventative Maintenance**

3.4.1. The course shall describe and illustrate where possible:

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

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

3.5.1. The course shall describe:

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

### **3.6. Transporting**

3.6.1. The course shall describe proper procedures for transporting a non-motorized boat to prevent accidents and property damage, including:

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

## **4. Safe Boat Operation**

### **4.1. Operator Responsibilities**

4.1.1. The course shall describe:

- 4.1.1.1. a boater's ultimate responsibility for his or her personal safety;
- 4.1.1.2. the safety of anyone else on board and all activity aboard the boat; and
- 4.1.1.3. 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:
  - 4.1.2.1. refraining from careless, reckless, or negligent operations on the water;
  - 4.1.2.2. abiding by other general boater courtesy;
  - 4.1.2.3. crossing a channel as a group;
  - 4.1.2.4. understanding the impact of waves and wakes on boat handling; and
  - 4.1.2.5. sharing water features such as eddies and rapids with other paddlers.

## **4.2. Influence of Drugs and Alcohol on Boat Operation**

- 4.2.1. The course shall describe:
  - 4.2.1.1. the effects of drinking alcohol or using drugs while boating, and
  - 4.2.1.2. 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:
  - 4.3.1.1. generally avoiding channels used by larger boats and, if navigating in a channel, giving way to vessels constrained by the channel;
  - 4.3.1.2. avoiding collision with powerboats by keeping a sharp lookout, using light and sound signals to identify your presence, and maneuvering out of the way;
  - 4.3.1.3. 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;
  - 4.3.1.4. observing restricted areas near dams, power plants and bridges; and
  - 4.3.1.5. 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, such as International Waters and Western Rivers, and operation in relation to commercial vessels and other watercraft. For a complete listing of the navigation rules, refer to the latest version of the NAVIGATION RULES AND REGULATIONS HANDBOOK by the U.S. Coast Guard. 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**

- 4.4.1. The course shall describe:
  - 4.4.1.1. the U.S. Aids to Navigation (USATONS) as they are relevant to boaters, including:
    - 4.4.1.1.1. understanding channel markers;

- 4.4.1.1.2. understanding regulatory markers, such as those marking dams, submerged objects and other hazards; and
- 4.4.1.1.3. homeland security restrictions.

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

- 4.5.1. The course shall describe:
  - 4.5.1.1. how to safely board and exit a small boat;
  - 4.5.1.2. sufficient clearance or proper fit so that entry into and exit from the boat is not impeded; and
  - 4.5.1.3. 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**

- 5.1.1. 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 these emergencies. The prevention recommendations will include at least the following:
  - 5.2.1.1. stay centered and low,
  - 5.2.1.2. avoid standing and sudden moves,
  - 5.2.1.3. maintain three points of contact,
  - 5.2.1.4. never overload, and
  - 5.2.1.5. avoid rough water.
- 5.2.2. The responding procedures shall include at least the following:
  - 5.2.2.1. wearing life jackets,
  - 5.2.2.2. taking a head count,
  - 5.2.2.3. staying with the boat when appropriate,
  - 5.2.2.4. signaling for assistance,
  - 5.2.2.5. using improvised floating aids,
  - 5.2.2.6. initiation of procedures to recover people in the water, and
  - 5.2.2.7. proper procedures to use when boating ~~in moving water.~~

### **5.3. Cold Water Immersion**

- 5.3.1. The course shall describe the effects of cold water immersion and how to prepare for, prevent, and respond to a cold water immersion event, including:
  - 5.3.1.1. Stages and the physiological effects of cold water immersion:
    - 5.3.1.1.1. Initial reaction (cold shock response; gasping and hyperventilation);
    - 5.3.1.1.2. Short-term response (cold incapacitation; swim failure, functional loss);  
and
    - 5.3.1.1.3. Long-term response (immersion hypothermia).
  - 5.3.1.2. Preparation and Prevention:
    - 5.3.1.2.1. Wearing a life jacket enhances chances of survival during each stage;
    - 5.3.1.2.2. Carrying communication and signaling devices on person; and
    - 5.3.1.2.3. Preventing capsizes, swamping and falls overboard.
  - 5.3.1.3. Response:
    - 5.3.1.3.1. Initial reaction (first 1-5 minutes) - airway protection and breath control;
    - 5.3.1.3.2. Short-term (first 30 minutes) – performing the most important functions first (emergency communication, situational assessment, decision making, and self-rescue activities); and
    - 5.3.1.3.3. Long-term (after 30 minutes or more) – slow body core heat loss and be prepared at all times to signal rescuers.

### **5.4. Accident Reports**

- 5.4.1. The course shall describe:
  - 5.4.1.1. what kinds of boating accidents require an accident report, and
  - 5.4.1.2. how, when and where to file the report.

### **5.5. Boating Accident Report Form**

- 5.5.1. The course shall include a sample accident report form, which can be included in the textbook or as a separate handout.

## **6. Other Water Activities**

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

- 6.1.1. The course shall inform people:
  - 6.1.1.1. who hunt and fish from human-propelled boats that they are boaters, and
  - 6.1.1.2. 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: Draft Alignment Matrices for Power, Sail and Human-Propelled*

# POWER Knowledge & Skills Standards Alignment Matrix



This matrix is designed to help line up POWER KNOWLEDGE and SKILLS Standards elements side-by-side in order to better understand their relationship with each other. The objective is to identify potential **Conflicts**, **Overlaps**, and **Gaps** that might occur between the two sets of standards within the domain. *Please note: No changes have been made to the standards at this time. Future work may consider how best to respond to any potential Conflicts, Overlaps or Gaps that are determined necessary to address.*

## Definitions

**Standard Element:** A single item contained within the standard, e.g., (Example from SKILLS Standard) "1.3 A: Board the boat... B: using three points of contact and distributing persons/gear while maintaining stability. Or (from KNOWLEDGE Standard) "4.6.2.2 use of anchors as safety devices in emergency situations." Note: Only actual standard elements have been addressed, not the header text associated with them. For example, the header text "The course will describe how to..." was not analyzed. The Conflict, Overlap, Gap recommendation column has been grayed out as a reminder to skip header text.

**CONFLICT:** Standard elements that contradict each other. These will eventually need to be resolved.

**OVERLAP:** Standard elements that address the same topic. They may use different language and might possibly benefit from slight adjustments to make the knowledge and skills standards more complimentary.

**GAP:** Element from Knowledge Standard has no counterpart in the Skills Standard or vice versa. In many situations these gaps will likely be acceptable, although if anything is glaringly absent, it would need to be addressed.

## Steps for completing the Standards Alignment matrix

**Step 1:** Copy and paste a SKILLS Standard element from the **Waiting Area** on the right into the side-by-side matrix below.

If possible, place the SKILLS Standard element in a row with a KNOWLEDGE standard element of the same topic (See example A below). It is acceptable to place a SKILLS Standard element multiple times if it contains the same topic as multiple elements within the SKILLS Standard. If multiple SKILLS elements associate with the same KNOWLEDGE element, add a row under the KNOWLEDGE element, copy and paste the KNOWLEDGE element into the new row, and then copy and paste the SKILLS element next to it. Where a SKILLS Standard element does not have a corresponding KNOWLEDGE Standard element, place the SKILLS Standard element at the end of the SKILLS Standard elements column.

**Step 2:** Identify potential **CONFLICTS** between elements across both standards. Indicate a potential conflict by making the cell fill color light **Red**.

Conflict

**Step 3:** Identify potential **OVERLAPS** across elements within both standards. Indicate a potential overlap by making the cell fill color light **Blue**.

Overlap

**Step 4:** Identify potential **GAPS** across both standards. Indicate which gaps are recommended to be filled at some point in the future by making the cell fill color light **Orange**.

Gap (Fix)

If the GAP is acceptable and does not need to be filled, then make the cell fill color light **Green**.

Gap (OK)

*Note: The cell fill colors may be copied and pasted from the examples to the left.*

Remember, it is acceptable to place a standard element multiple times if it **conflicts** or **overlaps** with multiple elements from the corresponding standard. There is a COMMENTS/REASONING column for providing any notes you may want to include to explain a particular recommendation. There are two examples shown below.

KNOWLEDGE		SKILLS		Conflict Overlap Gap (Fix) Gap (OK)	Comments / Reasoning
Ref # and Element		Ref # and Element			
<b>Example A:</b>					
2.3.1.2 showing passengers how to correctly select the right size of life jacket and put on their life jackets;		7.4 A: Put on a life jacket... B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.		Overlap	[Complimentary. No change needed.]
<b>Example B:</b>					
2.5.1.4 the need for following manufacturer's recommendations for inspection and maintenance of fire extinguishers.				Gap (OK)	[No need for a skill element to maintain fire extinguisher - beyond the scope of an entry-level course]

POWER Standards Alignment Matrix content:

- Skills Standard: Version 4 of 5

- Knowledge Standard: NASBLA-103-2015 Basic Boating Knowledge—Power

Distribution Date: March, 2015

Page 1

## POWER KNOWLEDGE & SKILLS Standards Alignment Matrix

KNOWLEDGE		SKILLS		Conflict Overlap Gap (Fix) Gap (OK)	
Ref # and Element		Ref # and Element			Comments / Reasoning
<b>1.0 The Boat</b>					
<b>1.1 Boat Capacities</b>					
1.1.1 The course will describe how to determine acceptable loading based on:					
1.1.1.1 locating and determining a boat's gross load capacity (total weight and number of persons) from the boat capacity plate; and				Gap (OK)	
1.1.1.2 horsepower recommendations.				Gap (OK)	
1.1.2 Personal Watercraft (PWCs) or other boats without capacity plates should reference the owner's manual and state laws.				Gap (OK)	
<b>2.0 Boating Equipment</b>					
<b>2.1 Personal Flotation Devices (Wearable Life Jackets and Throwable Devices) Types and Carriage</b>					
2.1.1 The course will explain the:					
2.1.1.1 different classifications and types of U.S. Coast Guard approved personal flotation devices (PFDs), including inflatable life jackets and throwable Type IV devices;		<b>7.4 A: Put on a life jacket...</b>	B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	Recommend adding the phrase "US Coast Guard approved" to the skill standard.
2.1.1.2 different sizes of U.S. Coast Guard approved PFDs; and				Gap (OK)	

2.1.1.3 respective uses, advantages, and disadvantages of life jackets based upon the activity for which they are intended.	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	"based upon the activity" overlaps with "is appropriate for boat/activity".
2.1.2 The course will also:			
2.1.2.1 describe the number and types of PFDs/life jackets that must be carried aboard the boat according to applicable regulations;		Gap (OK)	
2.1.2.2 discuss and clarify label restrictions; and		Gap (OK)	
2.1.2.3 emphasize that the best life jacket is the one that will be worn all the time.		Gap (OK)	
<b>2.2 Personal Flotation Device Availability and Sizing</b>			
2.2.1 The course will communicate that PFDs/life jackets must be:			Recommend that the Skills Standard checklist include simulated demonstration of all required equipment
2.2.1.1 readily accessible, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	This is an overlap if the checklist referenced in the skill standard includes the requirement to make the life jacket readily accessible; i.e., "readily accessible" overlaps with "legally required." Note that this approach is different than what was used for the HUMAN matrix. Recommend the Skills Standard checklist include simulated demonstration of all required equipment.
2.2.1.2 correctly sized for the persons using them.	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	
<b>2.3 Wearing Life Jackets</b>			
2.3.1 The course will inform boat operators of the importance of:			

2.3.1.1 selecting the proper life jacket for the activity and everyone wearing life jackets at all times while aboard, skiing, or otherwise being towed;	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	
2.3.1.2 showing passengers how to correctly select the right size of life jacket and put on their life jackets;	<b>7.5 A: Confirm that all others on the boat put on their life jacket ...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	
2.3.1.3 emphasizing the need to be aware that conditions can change quickly while boating (i.e., weather and water conditions, boat traffic, etc.); and		Gap (OK)	
2.3.1.4 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.		Gap (OK)	
<b>2.4 Personal Flotation Device Serviceability</b>			
2.4.1 The course will describe:			
2.4.1.1 the characteristics of serviceable PFDs/life jackets, and	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	
2.4.1.2 when to replace PFDs/life jackets due to excessive wear or damage.		Gap (OK)	
2.4.2 Special attention will be given to the maintenance of inflatable life jackets as per manufacturer recommendations.		Gap (OK)	
<b>2.5 Fire Extinguisher Equipment</b>			
2.5.1 The course will describe:			

2.5.1.1 the legal carriage requirements for fire extinguishers on recreational boats;	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include simulated demonstration of all required equipment
2.5.1.2 the type and size of fire extinguishers needed for different types of fires;	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	
2.5.1.3 the importance of placing fire extinguishers in readily accessible locations; and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	
2.5.1.4 the need for following manufacturer's recommendations for inspection and maintenance of fire extinguishers.		Gap (OK)	
<b>2.6 Back-Fire Flame Control Device</b>			
2.6.1 The course will describe:			
2.6.1.1 the purpose, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include simulated demonstration of all required equipment
2.6.1.2 maintenance of a back-fire flame control device (a required device on all enclosed engines with a carburetor).		Gap (OK)	

<b>2.7 Ventilation Systems</b>			
2.7.1 The course will discuss the ventilation system requirements for different types of boats.		Gap (OK)	
<b>2.8 Navigation Light Equipment</b>			
2.8.1 The course will cover the navigation light requirements for recreational boats as set forth in the most recent version of the NAVIGATION RULES for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series), Part C.	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include demonstration of required equipment.
<b>2.9 Sound Signaling Equipment</b>			
2.9.1 The course will cover sound signal requirements for recreational boats as set forth in the most recent version of the NAVIGATION RULES for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series), Part D, describing:			
2.9.1.1 the types of sound-producing devices required on recreational boats, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include simulated demonstration of all required equipment
2.9.1.2 the use of such devices on recreational boats.		Gap (OK)	
<b>2.10 Visual Distress Signal Equipment</b>			
2.10.1 The course will describe:			
2.10.1.1 the types of visual distress signals required on recreational boats, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include simulated demonstration of all required equipment
2.10.1.2 the use of visual distress signals required on recreational boats operating on		Gap (OK)	

POWER Standards Alignment Matrix content:

- Skills Standard: Version 4 of 5

- Knowledge Standard: NASBLA-103-2015 Basic Boating Knowledge–Power

Distribution Date: March, 2015

2.10.1.2.1 coastal waters, and		Gap (OK)	
2.10.1.2.2 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 for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series), Part D.		Gap (OK)	
<b>3.0 Trip Planning and Preparation</b>			
<b>3.1 Checking Local Weather and Water Conditions</b>			
3.1.1 The course will describe how to make informed boating decisions based on:			
3.1.1.1 forecasted local weather,	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	Overlap	
3.1.1.2 water conditions,	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	Overlap	
3.1.1.3 boater skill level,		Gap (OK)	
3.1.1.4 boat range, and		Gap (OK)	
3.1.1.5 capability of the operator and the boat pertinent to those conditions.		Gap (OK)	
3.1.2 It will describe:			
3.1.2.1 dangerous weather (i.e., strong winds, storms, lightning, hurricanes, fog),	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	Overlap	

3.1.2.2 water conditions (i.e., high water, sand bars, currents, large waves), and	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	Overlap	
3.1.2.3 their importance in trip planning.		Gap (OK)	
<b>3.2 Checking Local Hazards</b>			
3.2.1 The course will describe how to obtain information about local hazards that may impede the safe operation of a recreational boat.	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	Overlap	
<b>3.3 Filing a Float Plan</b>			
3.3.1 The course will describe:			
3.3.1.1 the importance of notifying someone of your boating plans, and		Gap (OK)	
3.3.1.2 the basic information that should be included.		Gap (OK)	
<b>3.4 Boat Preventative Maintenance</b>			
3.4.1 The course will communicate the need for:			
3.4.1.1 regular inspection, and		Gap (OK)	
3.4.1.2 maintenance of the boat and its key components (e.g., through-hull fittings, motor, electrical system, fuel system, operation of engine cutoff device [if installed]).	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/anchoring point.	Overlap	We see this as an overlap if the checklist includes these items for inspection. CONSIDER REWRITING HUMAN VERSION. Recommend that the Skills Standard checklist include simulated demonstration of all required equipment.
<b>3.5 Transporting and Trailing</b>			
3.5.1 The course will cover safe trailering procedures including:			
3.5.1.1 safe towing preparation,		Gap (OK)	

POWER Standards Alignment Matrix content:

- Skills Standard: Version 4 of 5

- Knowledge Standard: NASBLA-103-2015 Basic Boating Knowledge–Power

Distribution Date: March, 2015

Page 8

3.5.1.2 road handling factors when pulling a trailer,		Gap (OK)	
3.5.1.3 launching a boat, and		Gap (OK)	
3.5.1.4 retrieving a boat from the water.		Gap (OK)	
<b>3.6 Fueling Procedures</b>			
3.6.1 The course will provide information on proper procedures for:			
3.6.1.1 fueling, and	<b>1.5 A: Start the engine...</b> B: safely and ensure it is running properly.	Gap (Fix)	Recommend adding "checking for adequate fuel quantity" in the Skills standard.
3.6.1.2 ventilation during fueling.		Gap (Fix)	Recommend adding fueling procedures (including environmental considerations) into the Skills standard.
<b>3.7 Pre-Departure Checklist &amp; Passenger Communication</b>			
3.7.1 The course will describe:			
3.7.1.1 the importance of using a pre-departure checklist, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	Recommend that the Skills Standard checklist include simulated demonstration of all required equipment.
3.7.1.2 conducting an onboard safety discussion with passengers.		Gap (Fix)	Recommend adding a safety briefing for passengers to the Skills Standard.
3.7.2 Passengers should be informed about the location and use of:			
3.7.2.1 PFDs/life jackets (and shown how to put them on),	<b>7.5 A: Confirm that all others on the boat put on their life jacket ...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	

3.7.2.2 fire extinguishers, and	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	
3.7.2.3 visual distress signals and first-aid kit.	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	Overlap	
3.7.3 Passengers should be informed about:			
3.7.3.1 anchoring procedures,		Gap (Fix)	Recommend including the topic of "anchoring" in the safety briefing (because of important safety ramifications)
3.7.3.2 emergency radio operation (if applicable),		Gap (Fix)	Recommend including the topic of emergency radio operation in the safety briefing (because of important safety ramifications)
3.7.3.3 storm/rough weather procedures,		Gap (Fix)	Recommend including the topic of storm/rough weather procedures in the safety briefing (because of important safety ramifications)
3.7.3.4 line handling,	<b>1.4 A: Prepare the boat for departure...</b> B: by readying lines, equipment and crew for intended departure maneuver.	Overlap	
3.7.3.5 emergency boat operation, and falls overboard procedure.		Gap (Fix)	Recommend including the topic of emergency boat operation, and falls overboard procedures in the safety briefing (because of important safety ramifications)
<b>4.0 Safe Boat Operation</b>			
<b>4.1 Operator Responsibilities</b>			
4.1.1 The course will describe:			
4.1.1.1 A boat operator's ultimate responsibility for:			

POWER Standards Alignment Matrix content:

- Skills Standard: Version 4 of 5

- Knowledge Standard: NASBLA-103-2015 Basic Boating Knowledge–Power

Distribution Date: March, 2015

Page 10

4.1.1.1.1 operator proficiency,		Gap (OK)	
4.1.1.1.2 situational awareness,		Gap (OK)	
4.1.1.1.3 safety of boaters aboard and anyone coming into contact with the boat, and		Gap (OK)	
4.1.1.1.4 all activity aboard the boat.		Gap (OK)	
4.1.2 The course will describe a boat operator's responsibility regarding the impact of the boat's operation on other water users, including, but not limited to, the need for:			
4.1.2.1 controlling boat speed,		Gap (OK)	
4.1.2.2 obeying no wake/limited wake restrictions;		Gap (OK)	
4.1.2.3 refraining from careless, reckless, or negligent operations on the water; and		Gap (OK)	
4.1.2.4 observing and operating in accordance with homeland security measures.		Gap (OK)	
4.1.3 The course will describe homeland security measures, including:			
4.1.3.1 keeping a safe prescribed distance from military and commercial ships;		Gap (OK)	
4.1.3.2 avoiding commercial port operations areas;		Gap (OK)	
4.1.3.3 observing all security zones; and		Gap (OK)	
4.1.3.4 observing and reporting suspicious activities to proper authorities.		Gap (OK)	
4.1.4 The course will indicate that it is the beginning of the boater's education and that other courses are available.		Gap (OK)	
<b>4.2 Influence of Drugs and Alcohol on Boat Operation</b>			
4.2.1 The course will describe:			

4.2.1.1 the effects of drinking alcohol or using drugs while boating, and		Gap (OK)	
4.2.1.2 the boating laws pertinent to operating a boat while under the influence.		Gap (OK)	
<b>4.3 Navigation Rules</b>			Aspects of seamanship and navigation rules are addressed in more detailed elements below. The Skills standard elements for navigation rules are covered at a more general level (" <i>avoid collisions...</i> ") than the knowledge standard, which lists the individual rule numbers. This seems appropriate given the inherent differences between knowledge and skills. Conversely, safe boating operation skills are listed in detail in sections 3 and 4 of the Skills standard, and are addressed in more generally in the knowledge standard. In the Knowledge standard, it is recommended to separate the actual navigation rules and safe boat operation into different major sections, and also to consider if there are more specific safe boat operation Knowledge elements that should be added to the Knowledge standard.
4.3.1 This course will describe basic safe boating operation and good seamanship for recreational boaters.		Gap (OK)	
4.3.2 The course will be designed to assist the recreational boater when encountering typical navigation rules of the road situations.		Gap (OK)	

4.3.3 Although boat operators are responsible to be knowledgeable of the Navigation Rules in their entirety, this course will focus on only the following Inland Rules*:			Note 1: Unless otherwise stipulated, the Navigation Rules Part A and B are addressed in detail in the Knowledge Standard. The Skills standard addresses them in a general level in 3.4, 4.8, 4.9 and 7.3 and are applied on the water as applicable situations arise.
*In those states that Inland Rules do not apply, the equivalent International, Western Rivers or Great Lakes rule(s) may be substituted by the Course Provider.			
4.3.3.1 Rule of responsibility – Rules 2(a) and 2(b)		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.2 Proper lookout – Rule 5	<b>3.4 A: Maintain proper lookout...</b> B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.	Overlap	"Maintain proper lookout" element appears in three different places within the Skills Standard.
4.3.3.2 Proper lookout – Rule 5	<b>4.8 A: Maintain proper lookout...</b> B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.	Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.2 Proper lookout – Rule 5	<b>7.3 A: Maintain proper lookout...</b> B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.	Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.3 Safe speed – Rule 6(a)		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4 Collision avoidance rules	<b>4.9 A: Avoid collisions...</b> B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.	Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.1 Rules 7(a),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.2 7(d),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.2.1 7(d)(i),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.2.2 7(d)(ii),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.3 Rule 8,		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.4 Rules 13(a),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.5 13(b),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.6 Rule 16,		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.4.7 Rule 17,		Overlap	See Note I next to Knowledge Element 4.3.3

4.3.3.4.8	Rule 18 (a-d)		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.5	Inland Rules		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.5.1	14(a),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.5.2	14(b),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.5.3	14(c),		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.5.4	Rule 15(a)		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.6	Restricted visibility – Rules 19(a) through (e)		Overlap	See Note I next to Knowledge Element 4.3.3
4.3.3.7	Disclaimer (Include verbatim in course materials.)			
4.3.3.7.1	<i>“The navigation rules contained in this course summarize basic navigation rules for which a boat operator is responsible on inland waterways.</i>			
4.3.3.7.2	<i>Additional and more in-depth rules apply regarding various types of waterways, such as</i>			
4.3.3.7.2.1	<i>International Waters and</i>			
4.3.3.7.2.2	<i>Western Rivers, and</i>			
4.3.3.7.2.3	<i>operation in relation to commercial vessels and other watercraft.</i>			
4.3.3.8	<i>For a complete listing of the navigation rules, refer to the document “Navigation Rules” published by the U.S. Coast Guard (COMMANDANT INSTRUCTION 16672.2 Series)</i>			Note: Navigation Rules are now available on line.
4.3.3.9	<i>For State specific navigation requirements, refer to the state laws where you intend to boat.”</i>			
<b>4.4</b>	<b>Aids to Navigation</b>			Note 2: The Skills Standard cover page note addresses Aids to Navigation. There are no Skills standard elements that address them specifically. However, they can be demonstrated on the water as applicable situations arise.
4.4.1	The course will describe the Federal U.S. Aids to Navigation System (USATONS).		Overlap	See Note 2 next to Knowledge Element 4.4.

4.4.2	The course will provide information about regulatory/informational markers (identified by orange bands on the top and bottom of each buoy) used to advise of:		
4.4.2.1	situations,	Overlap	See Note 2 next to Knowledge Element 4.4.
4.4.2.2	dangers, or	Overlap	See Note 2 next to Knowledge Element 4.4.
4.4.2.3	directions indicating:		
4.4.2.3.1	shoals,	Overlap	See Note 2 next to Knowledge Element 4.4.
4.4.2.3.2	swim areas, and	Overlap	See Note 2 next to Knowledge Element 4.4.
4.4.2.3.3	speed zones, etc.	Overlap	See Note 2 next to Knowledge Element 4.4.
<b>4.5</b>	<b>Docking and Mooring</b>		
4.5.1	The course will describe common practices for docking and mooring a boat relative to:		<b>Note 3:</b> Although the Knowledge and Skills Standards taxonomy does not appear to directly align in the category of docking and mooring," the Skills Standard does address the category in Skills elements 5.1, 5.2, 5.3, 5.4, and 6.1."
4.5.1.1	boat size,	Gap (OK)	
4.5.1.2	type of boat,	Gap (OK)	
4.5.1.3	location,	Gap (OK)	
4.5.1.4	weather, and	Gap (OK)	
4.5.1.5	current.	Gap (OK)	
<b>4.6</b>	<b>Anchoring</b>		
4.6.1	The course will describe the importance of:		
4.6.1.1	carrying an anchor, and	Gap (OK)	
4.6.1.2	the selection of:	Gap (OK)	
4.6.1.2.1	anchors,	Gap (OK)	
4.6.1.2.2	related ground tackle, and	Gap (OK)	
4.6.1.2.3	their use for different types of boats in various boating conditions.	Gap (OK)	
4.6.2	The course will describe:		

POWER Standards Alignment Matrix content:

- Skills Standard: Version 4 of 5

- Knowledge Standard: NASBLA-103-2015 Basic Boating Knowledge–Power

Distribution Date: March, 2015

Page 15

4.6.2.1	procedures for anchoring,		Gap (OK)	
4.6.2.2	use of anchors as safety devices in emergency situations, and		Gap (Fix)	<b>Note 4:</b> It is recommended that the Skills Standard include Anchoring since it can be an emergency/safety issue.
4.6.2.3	the hazards of stern anchoring.		Gap (OK)	
<b>4.7 Carbon Monoxide</b>				
4.7.1	The course will describe the:			
4.7.1.1	dangers,		Gap (OK)	
4.7.1.2	symptoms, and		Gap (OK)	
4.7.1.3	avoidance practices associated with carbon monoxide (CO) poisoning in recreational boating.		Gap (OK)	
<b>4.8 Propeller Intervention &amp; Awareness</b>				
4.8.1	The course will describe the:			
4.8.1.1	dangers,		Gap (OK)	
4.8.1.2	unsafe activities,		Gap (OK)	
4.8.1.3	safety equipment (e.g., engine cutoff device), and		Gap (Fix)	Recommend adding "Appropriate use of engine interruption (cutoff) device" as a Skills Standard Element.
4.8.1.4	avoidance practices to mitigate or prevent propeller strikes in recreational boating.	<b>2.4 A: Leave from the ground...</b> B: without damaging the propulsion unit and avoiding people in the water.	Overlap	
<b>5.0 Emergency Preparedness</b>				
<b>5.1 Rendering Assistance</b>				
5.1.1	The course will explain that, according to the Navigation Rules, boat operators are required to render assistance to a boat in distress to the extent they are able.		Gap (OK)	
<b>5.2 Capsizing/Falls Overboard</b>				
5.2.1	The course will describe how to prevent and respond to these emergencies.			

5.2.2 The prevention responses will include:			
5.2.2.1 stay centered and low,		Gap (OK)	
5.2.2.2 avoid standing and sudden moves,		Gap (OK)	
5.2.2.3 maintain three points of contact,		Gap (OK)	
5.2.2.4 never overload,		Gap (OK)	
5.2.2.5 balance your load, and		Gap (OK)	
5.2.2.6 avoid rough water.		Gap (OK)	
5.2.3 The responding procedures will include:			
5.2.3.1 wearing life jackets,	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	"wearing a life jacket" = "put on a life jacket... appropriate for an activity."
5.2.3.1 wearing life jackets,	<b>7.5 A: Confirm that all others on the boat put on their life jacket ...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	"wearing a life jacket" = "put on a life jacket... appropriate for an activity."
5.2.3.2 taking a head count,		Gap (OK)	
5.2.3.3 staying with the craft when appropriate,		Gap (OK)	
5.2.3.4 signaling for assistance,		Gap (OK)	
5.2.3.5 using improvised floating aids, and		Gap (OK)	
5.2.3.6 initiation of procedures to recover people in the water.	<b>7.1 A: Return to man overboard...</b> B: within 10 feet and less than 1 minute.	Overlap	
5.2.3.6 initiation of procedures to recover people in the water.	<b>7.2 A: Retrieve man onboard...</b> B: without further injury to the person.	Overlap	
<b>5.3 Cold Water Immersion</b>			
5.3.1 The course will describe the effects of cold water immersion and how to prepare for, prevent, and respond to a cold water immersion event, including:			
5.3.1.1 Stages and the physiological effects of cold water immersion:		Gap (OK)	
5.3.1.1.1 Initial reaction (cold shock response; gasping and hyperventilation),		Gap (OK)	

5.3.1.1.2 Short-term response (cold incapacitation; swim failure, functional loss), and		Gap (OK)	
5.3.1.1.3 Long-term response (immersion hypothermia).		Gap (OK)	
5.3.1.2 Preparation and Prevention:			
5.3.1.2.1 Wearing a life jacket enhances chances of survival during each stage;		Gap (OK)	
5.3.1.2.2 Carrying communication and signaling devices on person; and		Gap (OK)	
5.3.1.2.3 Preventing capsize, swamping, and falls overboard.		Gap (OK)	
5.3.1.3 Response:			
5.3.1.3.1 Initial reaction (first 1-5 minutes) – airway protection and breath control;		Gap (OK)	
5.3.1.3.2 Short-term (first 30 minutes) – performing the most important functions first (emergency communication, situational assessment, decision making, and self-rescue activities); and		Gap (OK)	
5.3.1.3.3 Long-term (after 30 minutes or more) – slow body core heat loss and be prepared at all time to signal rescuers.		Gap (OK)	
<b>5.4 Fire Emergency Preparedness</b>			
5.4.1 The course will describe:			
5.4.1.1 procedures to prevent and respond to boating fires such as:			
5.4.1.1.1 proper use of fire extinguishers, and		Gap (Fix)	Recommend Skills Standard include elements for simulated demonstration of all required equipment.
5.4.1.1.2 basic knowledge of fire suppression principles.		Gap (OK)	
<b>5.5 Running Aground Prevention and Response</b>			
5.5.1 The course will describe:			
5.5.1.1 how to prevent, and		Gap (OK)	

5.5.1.2 respond to running aground for recreational boats.	<b>2.4 A: Leave from the ground...</b> B: without damaging the propulsion unit and avoiding people in the water.	Overlap	
<b>6.0 Other Water Activities</b>			
<b>6.1 Water-Jet Propelled Watercraft</b>			Knowledge section 6.1 not addressed for matrix alignment analysis because it is out of scope for Skills Standard.
6.1.1 The course will inform all operators of jet-propelled and personal watercraft about:			
6.1.1.1 safe boating practices, and		Gap (OK)	
6.1.1.2 special accident risks unique to personal watercraft (PWC), such as:		Gap (OK)	
6.1.1.2.1 off throttle loss of steering,		Gap (OK)	
6.1.1.2.2 stopping (including braking and reverse systems),		Gap (OK)	
6.1.1.2.3 re-boarding a PWC, and		Gap (OK)	
6.1.1.2.4 the use of a lanyard cutoff switch.		Gap (OK)	
<b>6.2 Water Skiing, Towed Devices and Wake Sports</b>			Knowledge section 6.2 not addressed for matrix alignment analysis because it is out of scope for Skills Standard.
6.2.1 The course will describe safety practices specific to:			
6.2.1.1 pulling water skiers,			
6.2.1.2 towing anyone behind a vessel, and			
6.2.1.3 allowing anyone to participate in an activity using the wake of the vessel (wake boards, tubes, etc.).			
<b>6.3 Diving and Snorkeling</b>			Knowledge section 6.3 not addressed for matrix alignment analysis because it is out of scope for Skills Standard.
6.3.1 The course will describe:			

6.3.1.1 how to recognize a diver down flag, and the International Code Flag A, and			
6.3.1.2 the legal requirements for operating a boat in the vicinity of snorkeling or scuba diving activities.			
<b>6.4 Hunting &amp; Fishing</b>			Knowledge section 6.4 not addressed for matrix alignment analysis because it is out of scope for Skills Standard.
6.4.1 The course will inform people who fish and hunt from boats that they:			
6.4.1.1 are boaters, and			
6.4.1.2 need to follow safe boating practices.			
6.4.2 Information will be provided about accident risks			
<b>6.5 Small Boats</b>			
6.5.1 The course will describe that all boat operators should be aware of their interactions around small boats including the effect of boat wakes.		Gap (OK)	
6.5.2 Additionally, the course will provide information about the safety considerations inherent to all small watercraft, as to:			
6.5.2.1 the importance of donning a life jacket prior to entering the watercraft,	<b>7.4 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	
6.5.2.1 the importance of donning a life jacket prior to entering the watercraft,	<b>7.5 A: Confirm that all others on the boat put on their life jacket ...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	
6.5.2.2 stabilizing a small boat for entering,	<b>1.3 A: Board the boat...</b> B: by using three points of contact and distributing persons/gear while maintaining stability.	Overlap	
6.5.2.3 boarding a small boat safely,	<b>1.3 A: Board the boat...</b> B: by using three points of contact and distributing persons/gear while maintaining stability.	Overlap	

6.5.2.4 proper loading for stability,	<b>1.3 A: Board the boat...</b> B: by using three points of contact and distributing persons/gear while maintaining stability.	Overlap	
6.5.2.5 moving around in the boat (e.g., keeping the weight centered from side-to-side and bow-to-stern),	<b>4.1 A: Trim the boat...</b> B: while underway by adjusting position of persons/gear and engine/drive trim or trim tabs.	Overlap	
6.5.2.6 maintaining stability while underway, and	<b>4.1 A: Trim the boat...</b> B: while underway by adjusting position of persons/gear and engine/drive trim or trim tabs.	Overlap	
6.5.2.7 being prepared for unintended water entry.		Gap (OK)	

	<b>SKILLS Standard elements with no corresponding KNOWLEDGE Standard element:</b>		
	<b>2.1 A: Get underway ...</b> B: by using shift, throttle and steering, giving consideration to wind and current, while properly managing lines and maintaining a proper lookout throughout all activities.	Gap (OK)	
	<b>2.2 A: Check for a clear departure...</b> B: by confirming there are no conflicts with boat's intended actions in relation to other boats or activities in the vicinity.	Gap (OK)	
	<b>2.3 A: Depart a mooring...</b> B: by avoiding contact with the mooring line and buoy.	Gap (OK)	
	<b>3.1 A: Turn the boat...</b> B: by safely executing a	Gap (OK)	
	<b>3.2 A: Hold position of the boat...</b> B: near an object in the water for at least a minute within two boat lengths.	Gap (OK)	
	<b>3.3 A: Maintain directional control at minimum control speed...</b> B: keeping boat on a predetermined course for a distance of at least five boat lengths.	Gap (OK)	
	<b>3.5 A: Bring the boat from idle speed* to a complete stop...</b> B: within one boat length.	Gap (OK)	
	<b>3.6 A: Back the boat...</b> B: in a predetermined direction for five boat lengths.	Gap (OK)	
	<b>4.2 A: Turn the boat at high speed...</b> B: by assuming a new heading 45 degrees to port and starboard using appropriate throttle control.	Gap (OK)	
	<b>4.3 A: Steer a straight course...</b> B: at high speed in a predetermined direction for 50 boat lengths.	Gap (OK)	
	<b>4.4 A: Throttle up to and down from slow speed to high speed to slow speed...</b> B: smoothly and with consideration of passengers/crew and gear.	Gap (OK)	

	<b>4.5 A: Stop the boat...</b> B: from planing or normal operating speed to within five boat lengths ensuring the wake does not over take the stern and with consideration of passengers/crew and gear.	Gap (OK)	
	<b>4.6 A: Make course alterations...</b> B: by smoothly changing direction 45 degrees.	Gap (OK)	
	<b>4.7 A: Cross waves or wakes...</b> B: by using appropriate angle of approach and controlling boat speed for the given wake/wave size and frequency.	Gap (OK)	
	<b>6.2 A: Prepare to depart...</b> B: having checked and/or secured systems and equipment.	Gap (OK)	"Prepare to depart" sounds like the boat leaving the dock. May wish to consider "Prepare to disembark" or "Ready boat for leaving unattended."
	<b>6.3 A: Depart the boat...</b> B: by disembarking using three points of contact.	Gap (OK)	"3 points of contact" was being changed in human & sail domains
	<b>7.6 A: Stop the boat in "emergency" mode...</b> B: from planing or normal operating speed in less than 2 boat lengths, turning to ensure stern wave passes behind the boat with consideration of passengers and gear.	Gap (OK)	
	<b>7.7 A: Start the engine...</b> B: safely and ensure it is running properly.	Gap (OK)	
	<b>Results:</b>		
	<b>0 Conflicts</b>		
	<b>61 Overlaps</b>		no repeats on Knowledge Elements
	<b>132 Total Gaps (OK &amp; Fix)</b>		
	94 Gap OK Knowledge side		
	18 Gap OK Skills side		
	10 Gap Fixes - Knowledge side		

<b>Waiting Area: SKILLS Standard elements</b>		
The following are the current standards that are being placed into the Standards Side-by-Side matrix. Please copy and paste them into the matrix according to the directions at the top of the matrix.		
<b>Ref # and Element</b>		
<b>Operation #1: Prepare to depart. <i>The operator will be able to:</i></b>		
1.1	<b>1.1 A: Inspect boat systems and safety equipment...</b> B: by completing a pre-departure checklist noting legally required (state, federal) equipment, and manufacturer recommendations appropriate for the intended voyage and forecasted weather; identify mooring/towing/ anchoring point.	
1.2	<b>1.2 A: Obtain (recite), weather conditions, forecasts and evaluate hazards to navigation and other environmental factors...</b> B: by assessing whether conditions are favorable for the voyage for length/time of trip.	
1.3	<b>1.3 A: Board the boat...</b> B: by using three points of contact and distributing persons/gear while maintaining stability.	
1.4	<b>1.4 A: Prepare the boat for departure...</b> B: by readying lines, equipment and crew for intended departure maneuver.	
1.5	<b>1.5 A: Start the engine...</b> B: safely and ensure it is running properly.	
<b>Operation #2: Leave a dock/slip/mooring/ramp/shoreline. <i>The operator will be able to:</i></b>		
2.1	<b>2.1 A: Get underway ...</b> B: by using shift, throttle and steering, giving consideration to wind and current, while properly managing lines and maintaining a proper lookout throughout all activities.	
2.2	<b>2.2 A: Check for a clear departure...</b> B: by confirming there are no conflicts with boat's intended actions in relation to other boats or activities in the vicinity.	
2.3	<b>2.3 A: Depart a mooring...</b> B: by avoiding contact with the mooring line and buoy.	
2.4	<b>2.4 A: Leave from the ground...</b> B: without damaging the propulsion unit and avoiding people in the water.	
<b>Operation #3: Maneuver in close quarters. <i>The operator will be able to:</i></b>		

3.1	<b>3.1 A: Turn the boat...</b> B: by safely executing a pivot turn of at least 180-degrees within a space of 1 to 2 boat lengths.	
3.2	<b>3.2 A: Hold position of the boat...</b> B: near an object in the water for at least a minute within two boat lengths.	
3.3	<b>3.3 A: Maintain directional control at minimum control speed...</b> B: keeping boat on a predetermined course for a distance of at least five boat lengths.	
3.4	<b>3.4 A: Maintain proper lookout...</b> B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.	
3.5	<b>3.5 A: Bring the boat from idle speed* to a complete stop...</b> B: within one boat length.	
3.6	<b>3.6 A: Back the boat...</b> B: in a predetermined direction for five boat lengths.	
<b>Operation #4: Operate in open water. The operator will be able to:</b>		
4.1	<b>4.1 A: Trim the boat...</b> B: while underway by adjusting position of persons/gear and engine/drive trim or trim tabs.	
4.2	<b>4.2 A: Turn the boat at high speed...</b> B: by assuming a new heading 45 degrees to port and starboard using appropriate throttle control.	
4.3	<b>4.3 A: Steer a straight course...</b> B: at high speed in a predetermined direction for 50 boat lengths.	
4.4	<b>4.4 A: Throttle up to and down from slow speed to high speed to slow speed...</b> B: smoothly and with consideration of passengers/crew and gear.	
4.5	<b>4.5 A: Stop the boat...</b> B: from planing or normal operating speed to within five boat lengths ensuring the wake does not overtake the stern and with consideration of passengers/crew and gear.	
4.6	<b>4.6 A: Make course alterations...</b> B: by smoothly changing direction 45 degrees.	

4.7	<b>4.7 A: Cross waves or wakes...</b> B: by using appropriate angle of approach and controlling boat speed for the given wake/wave size and frequency.	
4.8	<b>4.8 A: Maintain proper lookout...</b> B: by demonstrating frequent 360-degree visual checks and identifying potential hazards.	
4.9	<b>4.9 A: Avoid collisions...</b> B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.	
<b>Operation #5: Arrive at a dock/slip/mooring/ramp/shoreline (make first contact).</b> <i>The operator will be able to:</i>		
5.1	<b>5.1 A: Prepare the boat for arrival...</b> B: by readying lines, equipment and passengers/crew for intended arrival maneuver.	
5.2	<b>5.2 A: Check for clear approach...</b> B: by confirming there are no conflicts between boat's intended actions and other boats and activities in the vicinity.	
5.3	<b>5.3 A: Bring the boat to a predetermined point...</b> B: by using a stopping procedure; giving consideration to wind, current and boat traffic; and coming to a full, safe stop within 12 inches of the dock/slip/mooring/ ramp/shoreline (point of contact).	
5.4	<b>5.4 A: Arrive at the shoreline...</b> B: without damaging the propulsion unit and avoiding people in the water.	
<b>Operation #6: Secure the boat (preparing to leave the boat unattended).</b> <i>The operator will be able to:</i>		
6.1	<b>6.1 A: Secure the boat to the dock/slip mooring/ shoreline...</b> B: by using appropriate knots and lines, anticipating winds, currents and tides expected.	
6.2	<b>6.2 A: Prepare to depart...</b> B: having checked and/or secured systems and equipment.	
6.3	<b>6.3 A: Depart the boat...</b> B: by disembarking using three points of contact.	
<b>Operation #7: Perform general safety/emergency procedures/maneuvers that fit across all three domains.</b> <i>The operator will be able to:</i>		

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

<b>SAIL Knowledge &amp; Skills Standards Matrix</b>									
This matrix is designed to help line up SAIL KNOWLEDGE and SKILLS Standards elements side-by-side in order to better understand their relationship with each other. The objective is to identify potential <b>Conflicts</b> , <b>Overlaps</b> , and <b>Gaps</b> that might occur between the two sets of standards within the domain. <i>Note: No changes will be made to the standards at this time. Future work may consider how best to respond to any potential conflicts, overlaps or gaps that are determined necessary to address.</i>									
<b>Definitions</b>									
<b>Standard Element:</b> A single item contained within the standard, e.g., (from SKILL Standard) "1.1 <b>A: Determine suitability for departure...</b> B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip ." Or (from KNOWLEDGE Standard) "4.6 List sources of local knowledge concerning weather, tides, currents, and hazards and provide examples of important local information to obtain." The Conflict, Overlap, Gap recommendation column has been grayed where there is header text.									
<b>CONFLICT:</b> Standard elements that contradict each other. These will eventually need to be resolved.									
<b>OVERLAP:</b> Standard elements that address the same topic using different language that would benefit from slight tweaking of the language to make the knowledge and skill standards more complimentary.									
<b>GAP:</b> Element from Knowledge Standard has no counterpart in the Skill Standard or vice versa. In most situations these gaps will likely be perfectly acceptable, although if anything is glaringly absent, it would need to be addressed.									
<b>Steps for completing the Standard Side-by-Side matrix</b>									
<b>Step 1:</b> Copy and paste a SKILL Standard Element from the Waiting Area on the right into the side-by-side matrix below.									
If possible, place the SKILL Standard element in a row with a KNOWLEDGE standard element of the same topic. It is acceptable to place a SKILL Standard element multiple times if it contains the same topic as multiple elements within the SKILL Standard. If multiple SKILL elements associate with the same KNOWLEDGE element, add a row under the KNOWLEDGE element, copy and paste the KNOWLEDGE element into the new row, and then copy and paste the SKILL element next to it. Where a SKILL Standard element does not have a corresponding KNOWLEDGE Standard element, place the SKILL Standard element at the end of the SKILL Standard Elements column.									
<b>Step 2:</b> Identify potential <b>CONFLICTS</b> between elements across standards. Indicate a potential conflict by making the cell fill color light <b>Red</b> .	Conflict				<i>Note: The cell fill colors may be copied and pasted from the examples to the left.</i>				
<b>Step 3:</b> Identify potential <b>OVERLAPS</b> across elements within standards. Indicate a potential overlap by making the cell fill color light <b>Blue</b> .	Overlap								
<b>Step 4:</b> Identify potential <b>GAPS</b> across both standards. Indicate which gaps are recommended to be filled at some point in the future by making the cell fill color light <b>Orange</b> .	Gap (Fix)								
If the GAP is acceptable and does not need to be filled, then make the cell fill color light <b>Green</b> .	Gap (OK)								
The "Observed" column allows check marks to be entered during observation of skills validation events, where knowledge elements are being observed. The "Comments" column is provided to write any notes needed to explain a particular observation or recommendation.									
<b>SAIL KNOWLEDGE &amp; SKILLS Standards Alignment Matrix</b>									
<b>KNOWLEDGE</b>		<b>SKILLS</b>		<b>Conflict</b>		<b>Observed</b>		<b>Comments</b>	
<b>Ref # and Element</b>		<b>Ref # and Element</b>		<b>Overlap</b>		<b>Gap (Fix)</b>			
				<b>Gap (OK)</b>		<b>Yes</b>		<b>No</b>	
<i>The course content shall...</i>		<i>The operator will...</i>							
<b>1.0 Sailing Terminology &amp; Wind Awareness</b>									

SAIL Standards Alignment Matrix content:

- Skill Standard: Version 2b of 5

- BSR/NASBLA-102-201X Basic Boating Knowledge - Sailing

Date: 4/29/2016

Page 1

1.1 Identify and describe the functions of the parts of a typical small sailboat.	1.5 <b>A: Inspect the sailboat...</b> B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.	Overlap			
1.2 List and define directional terms relating to the sailboat.	1.7 <b>A: Ready the sailboat for departure...</b> B: using appropriate boat position relative to the departure point (e.g., dock, mooring, shoreline, etc.) and docklines/fenders (if applicable), taking wind and current into consideration	Overlap			
1.3 List and define directional terms relating to the wind.	1.7 <b>A: Ready the sailboat for departure...</b> B: using appropriate boat position relative to the departure point (e.g., dock, mooring, shoreline, etc.) and docklines/fenders (if applicable), taking wind and current into consideration	Overlap			
(Repeat) 1.3 List and define directional terms relating to the wind.	4.4 <b>A: Turn the sailboat away from the wind...</b> B: adjusting sails and tiller	Overlap			
(Repeat) 1.3 List and define directional terms relating to the wind.	4.5 <b>A: Turn the sailboat toward the wind...</b> B: adjusting sails and tiller	Overlap			
1.4 Describe visual and non-visual indicators that may be used to provide a sense of wind direction and strength.	1.7 <b>A: Ready the sailboat for departure...</b> B: using appropriate boat position relative to the departure point (e.g., dock, mooring, shoreline, etc.) and docklines/fenders (if applicable), taking wind and current into consideration	Overlap			
<b>2.0 Sailboat Features &amp; Performance</b>					
2.1 Describe the purpose and functions of the tiller, tiller extension, and rudder, as well as the relationship between boat speed and rudder control.	2.1 <b>A: Secure proper positions of rudder and centerboard (if applicable)...</b> B: adjusting centerboard and rudder for departure, ensuring neither comes in contact with the ground or objects in the water	Overlap			

2.2 Describe the functions of, and differences between, a ballasted keel and a centerboard or daggerboard.	2.1 <b>A: Secure proper positions of rudder and centerboard (if applicable)...</b> B: adjusting centerboard and rudder for departure, ensuring neither comes in contact with the ground or objects in the water	Overlap			
2.3 Define the basic force generated as air flows over a sail when sailing upwind and describe how this force propels the sailboat forward. Describe how the sail works differently when sailing straight downwind.	4.1 <b>A: Steer the sailboat in a straight line (hold a steady course)...</b> B: using sail trim and tiller and adjusting the boat's heading for changes in the wind (speed or direction) to maintain course within +/- 10 degrees for 10 boat lengths	Overlap			
2.4 Describe what adjustments to the sails and rudder must be made to accommodate changes in wind direction and wind speed.	4.1 <b>A: Steer the sailboat in a straight line (hold a steady course)...</b> B: using sail trim and tiller and adjusting the boat's heading for changes in the wind (speed or direction) to maintain course within +/- 10 degrees for 10 boat lengths	Overlap			
(Repeat) 2.4 Describe what adjustments to the sails and rudder must be made to accommodate changes in wind direction and wind speed.	3.1 <b>A: Turn the sailboat in a 360-degree circle...</b> B: using proper tiller, sail, and weight positioning, and turning within a distance of four boat lengths	Overlap			
<b>3.0 Points of Sail &amp; Maneuvers</b>					
3.1 Describe and identify using diagrams the following points of sail and sailboat positions relative to the wind: Close Hauled, Close Reach, Beam Reach, Run/Directly Downwind, By the Lee, No Sail Zone	4.9 <b>A: Steer the sailboat close-hauled, on a beam reach, and on a run...</b> B: using proper sail trim and tiller movements	Overlap			
3.2 Describe the purpose and identify using diagrams the following course and tack changing maneuvers and their results: Heading Up, Bearing Away, Tacking, Gybing (Jibing)	4.4 <b>A: Turn the sailboat away from the wind...</b> B: adjusting sails and tiller	Overlap			

(Repeat) 3.2 Describe the purpose and identify using diagrams the following course and tack changing maneuvers and their results: Heading Up, Bearing Away, Tacking, Gybing (Jibing)	<b>4.5 A: Turn the sailboat toward the wind...</b> B: adjusting sails and tiller	Overlap			
(Repeat) 3.2 Describe the purpose and identify using diagrams the following course and tack changing maneuvers and their results: Heading Up, Bearing Away, Tacking, Gybing (Jibing)	<b>4.8 A: Tack the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap			
(Repeat) 3.2 Describe the purpose and identify using diagrams the following course and tack changing maneuvers and their results: Heading Up, Bearing Away, Tacking, Gybing (Jibing)	<b>4.11 A: Jibe the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap			
3.3 Describe the causes and risks associated with an accidental gybe and ways in which it can be prevented.	<b>4.10 A: Sail directly downwind...</b> B: <i>avoiding an unintentional jibe by identifying imminent jibe indicators (e.g. jib collapsing, boom lifting, etc.).</i>	Overlap			
3.4 Describe methods of accelerating, decelerating, and stopping a sailboat.	<b>7.3 A: Depower the sailboat quickly...</b> B: adjusting sails and tiller appropriately to control the boat	Overlap			
(Repeat) 3.4 Describe methods of accelerating, decelerating, and stopping a sailboat.	<b>4.6 A: Slow and then accelerate the sailboat while maintaining constant heading...</b> B: adjusting sails and tiller	Overlap			
(Repeat) 3.4 Describe methods of accelerating, decelerating, and stopping a sailboat.	<b>4.7 A: Stop the sailboat and then resume sailing on a constant heading...</b> B: adjusting sails and maintaining control of tiller and boat position relative to wind	Overlap			
3.5 Describe methods for getting the sailboat out of irons and under control onto a desired tack.	<b>3.2 A: Turn the sailboat out of a head-to-wind position (i.e., get out of irons)...</b> B: <i>properly adjusting sails and tiller</i>	Overlap			
3.6 Describe how to place the sailboat in the safety position or how to heave-to, and the circumstances under which these maneuvers could be used.	<b>4.3 A: Place the sailboat in the safety position (or heave to if applicable) and then resume sailing on a specific tack...</b> B: using proper control of sails and tiller	Overlap			

3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	2.4 <b>A: Get underway and start sailing...</b> B: pushing or turning boat in appropriate direction and coordinating sails and tiller adjustments to get boat under control.	Overlap			
(Repeat) 3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	4.4 <b>A: Turn the sailboat away from the wind...</b> B: adjusting sails and tiller	Overlap			
(Repeat) 3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	4.5 <b>A: Turn the sailboat toward the wind...</b> B: adjusting sails and tiller	Overlap			
(Repeat) 3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	4.8 <b>A: Tack the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap			
(Repeat) 3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	4.11 <b>A: Jibe the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap			
(Repeat) 3.7 Describe commands and responses for maneuvers such as heading up, bearing away, tacking, gybing, departure from and return to a dock/beach/mooring/slip.	5.1 <b>A: Ready the sailboat for arrival...</b> B: using appropriate boat position relative to arrival point (e.g., dock, mooring, shoreline, etc.), sail configurations, and docklines/fenders (if applicable), taking wind and current into consideration	Overlap			
<b>4.0 Trip Preparation</b>					
4.1 List all required equipment and examples of recommended equipment to be carried aboard a sailboat of less than 26 feet.	1.5 <b>A: Inspect the sailboat...</b> B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.	Overlap			

4.2 List the tasks that must be accomplished when setting up or rigging a small sailboat.	1.6 <b>A: Rig sails and lines...</b> B: following rigging procedures for specific boat, ensuring sail controls are operational and using proper knots.	Overlap		
4.3 Describe critical preventive maintenance that should be performed periodically on a typical small sailboat.		Gap (OK)		
4.4 State a minimum of two maintenance issues that, if found during a pre-trip inspection, would require cancellation of the trip if not corrected before departure.	1.5 <b>A: Inspect the sailboat...</b> B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.	Overlap		
4.5 Describe benefits and methods of stowing and securing gear and equipment properly aboard a sailboat.	1.4 <b>A: Board and move about the sailboat...</b> B: maintaining balance while keeping boat reasonably stable (e.g., minimal rocking) while boarding and distributing persons/gear appropriately	Overlap		
(Repeat) 4.5 Describe benefits and methods of stowing and securing gear and equipment properly aboard a sailboat.	6.2 <b>A: Prepare the sailboat to be left unattended...</b> B: stowing properly all equipment/gear, lines, and sails.	Overlap		
4.6 List sources of local knowledge concerning weather, tides, currents, and hazards and provide examples of important local information to obtain.	1.1 <b>A: Determine suitability for departure...</b> B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip	Overlap		
4.7 Describe the purpose and contents of a Float Plan, to whom it should be submitted, and when it should be cancelled.		Gap (OK)		
4.8 List important considerations for personal readiness before embarking on a daysail lasting several hours.	1.1 <b>A: Determine suitability for departure...</b> B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip	Overlap		

4.9 Provide examples of factors that would lead to a no-go decision and state the reasons why.	1.1 <b>A: Determine suitability for departure...</b> B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip	Overlap		
4.10 List all critical topics that should be included in a pre-departure safety briefing for crew/passengers and describe how the briefing could be delivered.	7.1 <b>A: Communicate effectively with others on board...</b> B: briefing passengers and crew prior to departure (e.g., location of safety items, rescue procedures, key safety concerns, anticipated weather and water conditions, departure plan, etc.), keeping passengers informed (e.g., awareness of changing conditions, expected behaviors, etc.), and providing direction to crew (e.g., expectations, commands, etc.).	Overlap		
<b>5.0 Seamanship and Safe Operation</b>				
5.1 Describe proper methods for boarding while keeping the sailboat reasonably stable.	1.4 <b>A: Board and move about the sailboat...</b> B: maintaining balance while keeping boat reasonably stable (e.g., minimal rocking) while boarding and distributing persons/gear appropriately.	Overlap		
5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.	4.8 <b>A: Tack the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap		
(Repeat) 5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.	4.9 <b>A: Steer the sailboat close-hauled, on a beam reach, and on a run...</b> B: using proper sail trim and tiller movements	Overlap		
(Repeat) 5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.	4.11 <b>A: Jibe the sailboat...</b> B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate	Overlap		

(Repeat) 5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.	3.1 <b>A: Turn the sailboat in a 360-degree circle...</b> B: using proper tiller, sail, and weight positioning, and turning within a distance of four boat lengths	Overlap		
(Repeat) 5.2 Describe dynamic crew locations to help prevent capsizing a centerboard/daggerboard sailboat and to enhance performance of a keelboat.	7.11 <b>A: Recover a capsized sailboat...</b> B: returning boat to upright position, re-entering boat, and readying boat for sailing using proper techniques	Overlap		
5.3 Give examples of actions to be taken when a temporary increase in wind speed occurs. Describe the actions to be taken if sustained increased winds appear imminent.	4.1 <b>A: Steer the sailboat in a straight line (hold a steady course)...</b> B: using sail trim and tiller and adjusting the boat's heading for changes in the wind (speed or direction) to maintain course within +/- 10 degrees for 10 boat lengths	Overlap		
5.4 List three items that must be checked periodically to avoid dangerous failures while ...		Gap (OK)		
5.5 List three important responsibilities of a sailboat operator.	7.1 <b>A: Communicate effectively with others on board...</b> B: briefing passengers and crew prior to departure (e.g., location of safety items, rescue procedures, key safety concerns, anticipated weather and water conditions, departure plan, etc.), keeping passengers informed (e.g., awareness of changing conditions, expected behaviors, etc.), and providing direction to crew (e.g., expectations, commands, etc.).	Overlap		

5.6 Describe the operator's responsibility for the safe behavior of passengers/crew.	7.1 <b>A: Communicate effectively with others on board...</b> B: briefing passengers and crew prior to departure (e.g., location of safety items, rescue procedures, key safety concerns, anticipated weather and water conditions, departure plan, etc.), keeping passengers informed (e.g., awareness of changing conditions, expected behaviors, etc.), and providing direction to crew (e.g., expectations, commands, etc.).	Overlap		
5.7 State the proper procedure for accepting a single line or side tow and safely maneuvering a sailing dinghy while under tow.	7.7 <b>A: Accept a single line or side tow...</b> B: maneuvering safely for at least 20 boat lengths	Overlap		
5.8 State the regulations to be followed when operating in the vicinity of military vessels.		Gap (OK)		
5.9 Give reasons why boating under the influence of drugs or alcohol is unsafe.		Gap (OK)		
5.10 Provide examples of suspicious activities that should be reported to proper authorities, and where to look for those activities.		Gap (OK)		
5.11 Describe the purpose and usage of each of the following knots: Figure-8 Knot, Square/Reef Knot, Clove Hitch, Round Turn & 2 Half Hitches, Cleat Hitch, Bowline, Sheet Bend	1.6 <b>A: Rig sails and lines...</b> B: following rigging procedures for specific boat, ensuring sail controls are operational and using proper knots.	Overlap		
(Repeat) 5.11 Describe the purpose and usage of each of the following knots: Figure-8 Knot, Square/Reef Knot, Clove Hitch, Round Turn & 2 Half Hitches, Cleat Hitch, Bowline, Sheet Bend	6.1 <b>A: Secure the sailboat...</b> B: using appropriate lines, knots, and proper fender positioning (if applicable), allowing for possible changes in wind, current and tide	Overlap		
<b>6.0 Navigation Rules</b>				

6.1 State the purpose of the Navigation Rules, list sources where information regarding the Rules may be obtained, and, using diagrams, apply the Rules to recreational sailboats and powerboats (Rules 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, and 19).	7.4 <b>A: Avoid collisions...</b> B: maintaining a proper lookout, assessing potential risk of collision and taking early and substantial action	Overlap		
6.2 Describe and identify required navigation lights for recreational sailboats and powerboats of less than 26 feet in length (Rules 20, 21, 23, 25, 27, and 30).	1.5 <b>A: Inspect the sailboat...</b> B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.	Overlap		
6.3 Describe and identify basic navigation sound signals (Rules 32, 33, 34, and 35).		Gap (OK)		
6.4 Describe the duty to provide assistance at sea.		Gap (OK)		
<b>7.0 US Aids to Navigation System</b>				
7.1 Identify and state the purpose of lateral aids to navigation by color, shape & numbering, including preferred channel markers.		Gap (OK)		
7.2 Identify and state the purpose of safe water, regulatory and information markers by color, shape & numbering.		Gap (OK)		
<b>8.0 Emergency Preparedness &amp; Response</b>				
8.1 Describe why it is critical to wear lifejackets and know the location and correct operation of all safety equipment, particularly in an emergency.	1.2 <b>A: Put on a life jacket...</b> B: ensuring it is appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.	Overlap		
(repeat) 8.1 Describe why it is critical to wear lifejackets and know the location and correct operation of all safety equipment, particularly in an emergency.	1.3 <b>A: Confirm that all others on the boat put on their life jackets...</b> B: ensuring the life jackets are appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.	Overlap		

8.2 Describe capsizing and how to prevent and recover from a capsize.	7.10 <b>A: Re-board the sailboat from the water...</b> B: using appropriate techniques (if boat type allows re-boarding without assistance)	Overlap			
(Repeat) 8.2 Describe capsizing and how to prevent and recover from a capsize.	7.11 <b>A: Recover a capsized sailboat...</b> B: returning boat to upright position, re-entering boat, and readying boat for sailing using proper techniques	Overlap			
8.3 Describe how to prevent running aground and recovery procedures from a grounding.	7.12 <b>A: Re-float a grounded sailboat*...</b> B: using appropriate techniques for the boat. <i>*Note: This skill to sailing dinghies only. Recovering a grounded keelboat is not an entry-level skill</i>	Overlap			
8.4 Describe the proper deployment of an anchor and rode and how to determine appropriate scope.		Gap (OK)			
8.5 Describe means for prevention of, and procedures for recovering, a person in the water, a.k.a. Man Overboard (MOB), including how to maneuver the sailboat safely back to the person.	7.8 <b>A: Return to [simulated] man overboard (MOB)...</b> B: using a suitable method to maneuver boat (e.g., Figure-8, Quick Stop, Quick Turn) and stopping the boat within arm's reach of [simulated] MOB in a reasonable period of time for the situation (i.e., boat size/configuration, wind/water conditions).	Overlap			
8.6 List appropriate precautions to prevent sudden cold water immersion, and actions to recover a person who is immersed in cold water.		Gap (OK)			
	Unused Skills Elements				
	<i>The Operator will...</i>				



# HUMAN Knowledge & Skills Standards Matrix - FINAL



This matrix is designed to help line up HUMAN KNOWLEDGE and SKILLS Standards elements side-by-side in order to better understand their relationship with each other. The objective is to identify potential **Conflicts**, **Overlaps**, and **Gaps** that might occur between the two sets of standards within the domain. *Note: No changes will be made to the standards at this time. Future work may consider how best to respond to any potential conflicts, overlaps or gaps that are determined necessary to address.*

## Definitions

**Standard Element:** A single item contained within the standard, e.g., (from SKILL Standard) "2.1 A: Enter and launch the craft from a dock/slip or shoreline, B: keeping the craft upright with minimal wobbling or loss of control." Or (from KNOWLEDGE Standard) "6.1.1.1 who hunt and fish from human-propelled boats that they are boaters." Note: Please work only with the genuine topics of the element, not the header text associated with them. For example, do not work on header text such as, "The course will describe how to...". The Conflict, Overlap, Gap recommendation column has been grayed out as a reminder to skip header text.

**CONFLICT:** Standard elements that contradict each other. These will eventually need to be resolved.

**OVERLAP:** Standard elements that address the same topic using different language that would benefit from slight tweaking of the language to make the knowledge and skill standards more complimentary.

**GAP:** Element from Knowledge Standard has no counterpart in the Skill Standard or vice versa. In most situations these gaps will likely be perfectly acceptable, although if anything is glaringly absent, it would need to be addressed.

## Steps for completing the Standard Side-by-Side matrix

**Step 1:** Copy and paste a SKILL Standard Element from the Waiting Area on the right into the side-by-side matrix below.

If possible, place the SKILL Standard element in a row with a KNOWLEDGE standard element of the same topic (See example A below). It is acceptable to place a SKILL Standard element multiple times if it contains the same topic as multiple elements within the SKILL Standard. If multiple SKILL elements associate with the same KNOWLEDGE element, add a row under the KNOWLEDGE element, copy and paste the KNOWLEDGE element into the new row, and then copy and paste the SKILL element next to it. Where a SKILL Standard element does not have a corresponding KNOWLEDGE Standard element, place the SKILL Standard element at the end of the SKILL Standard Elements column.

**Step 2:** Identify potential **CONFLICTS** between elements across standards. Indicate a potential conflict by making the cell fill color light **Red**.

Conflict

**Step 3:** Identify potential **OVERLAPS** across elements within standards. Indicate a potential overlap by making the cell fill color light **Blue**.

Overlap

**Step 4:** Identify potential **GAPS** across both standards. Indicate which gaps are recommended to be filled at some point in the future by making the cell fill color light **Orange**.

Gap (Fix)

If the GAP is acceptable and does not need to be filled, then make the cell fill color light **Green**.

Gap (OK)

*Note: The cell fill colors may be copied and pasted from the examples to the left.*

Remember, it is acceptable to place a standard element multiple times if it conflicts or overlaps with multiple elements from the corresponding standard. There is a COMMENTS/REASONING column for providing any notes you may want to include to explain a particular recommendation. There are two examples shown below.

KNOWLEDGE		SKILLS		Conflict	Overlap	Comments / Reasoning
Ref # and Element		Ref # and Element		Gap (Fix)	Gap (OK)	
<b>Example A:</b>						
2.3.1.2 showing passengers how to correctly select the right size of life jacket and put on their life jackets;		1.1 A: Put on a life jacket... B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.			Overlap	
<b>Example B:</b>						
3.4.1.2.4 storing the boat in accordance with manufacturer recommendations;					Gap (OK)	

## HUMAN KNOWLEDGE & SKILLS Standards Alignment Matrix

KNOWLEDGE		SKILLS		Conflict Overlap Gap (Fix) Gap (OK)	
Ref # and Element	Ref # and Element				Comments / Reasoning
<b>1.0 The Boat</b>					
<b>1.1 Boat Capacity</b>					
1.1.1 The course will describe:					
1.1.1.1	how to determine acceptable loading capacity; and			Gap (OK)	
1.1.1.2	how to properly balance the load.			Gap (OK)	
<b>2.0 Boating Equipment</b>					
<b>2.1 Personal Flotation Devices (Wearable Life Jackets and Throwable Devices) Types and Carriage</b>					
2.1.1 The course will explain the:					
2.1.1.1	different classifications and types of U.S. Coast Guard approved personal flotation devices (PFDs), including inflatable life jackets, hybrids, and throwable Type IV devices;			Gap (OK)	
2.1.1.2	the number and types of PFDs/life jackets that must be carried aboard the boat according to applicable regulations; and			Gap (OK)	
2.1.1.3	label information, how to read and understand them.			Gap (OK)	
<b>2.2 Personal Flotation Availability and Sizing</b>					
2.2.1 The course will communicate that PFDs/life jackets must be:					
2.2.1.1	readily accessible, and			Gap (OK)	

2.2.1.2	correctly sized for the persons using them.	<b>1.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	"correctly sized" overlaps with "fits properly".
<b>2.3 Wearing Life Jackets</b>				
2.3.1	The course will inform boat operators of the importance of:			
2.3.1.1	selecting the proper life jacket for the activity and everyone wearing life jackets at all times while aboard;	<b>1.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	"appropriate for boat activity" overlaps with "selecting proper life jacket for activity"; Suggest aligning within the Knowledge standard (2.3.1.2): "everyone" and "passengers" for consistency.
2.3.1.1	selecting the proper life jacket for the activity and everyone wearing life jackets at all times while aboard;	<b>7.1 A: Confirm that all others on the craft put on their life jackets...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	"passengers" overlaps with "all others"; "correctly sized" overlaps with "fits properly"
2.3.1.2	showing passengers how to select the correct size of life jacket and properly put on and wear their life jackets;	<b>7.1 A: Confirm that all others on the craft put on their life jackets...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	Overlap	"passengers" overlaps with "all others"; "correctly sized" overlaps with "fits properly".
2.3.1.3	emphasizing the need to be aware that conditions can change quickly while boating (i.e., weather and water conditions, boat traffic, etc.); and		Gap (OK)	
2.3.1.4	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.		Gap (OK)	
<b>2.4 Personal Flotation Device Serviceability</b>				
2.4.1	The course will describe:			

2.4.1.1 the characteristics of serviceable PFDs/life jackets, and	<b>1.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	"characteristics of serviceable" overlaps with "ensuring it is serviceable".
2.4.1.2 when to replace PFDs/ life jackets due to excessive wear or damage.		Gap (OK)	
2.4.2 The course will cover the importance of the maintenance of inflatable life jackets as per manufacturer recommendations.		Gap (OK)	
<b>2.5 Navigation Light Equipment</b>			Recommend adding the following note to make consistent with POWER Matrix: <i>Recommend that the Skills Standard checklist include simulated demonstration of all required equipment (if applicable)</i>
2.5.1 The course will cover the applicable navigation lights and shapes requirements as set forth in the most recent version of the NAVIGATION RULES for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series).	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	"requirements" overlaps with "requirements"
<b>2.6 Sound Signaling Equipment</b>			
2.6.1 The course will cover the applicable navigation sound signaling requirements as set forth in the most recent version of the NAVIGATION RULES for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series), describing:			Recommend adding the following note to make consistent with POWER Matrix: <i>Recommend that the Skills Standard checklist include simulated demonstration of all required equipment (if applicable)</i>
2.6.1.1 sound-producing requirements; and	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	"requirements" overlaps with "requirements"
2.6.1.2 the use of sound signals.		Gap (OK)	Note: We assume the hand signals in 7.8 are not about Nav rules but are about receiving directions in a group.

<b>2.7 Visual Distress Signal Equipment</b>			
2.7.1 The course will describe:			Recommend adding the following note to make consistent with POWER Matrix: <i>Recommend that the Skills Standard checklist include simulated demonstration of all required equipment (if applicable)</i>
2.7.1.1 when U.S. Coast Guard approved visual distress signals are required to be carried on board,	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	"required" overlaps with "requirements"
2.7.1.2 the types of visual distress signals required on boats; and		Gap (OK)	types not included in skills
2.7.1.3 the use of visual distress signals when required on boats operating on			
2.7.1.3.1 coastal waters, and		Gap (OK)	
2.7.1.3.2 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 for International and Inland Waters, COMMANDANT INSTRUCTION M16672.2 (series).		Gap (OK)	
<b>2.8 Recommend Additional Safety Equipment</b>			
2.8.1 The course will recommend boaters carry additional safety equipment appropriate for the circumstances, such as:			
2.8.1.1 helmet, whistle, river knife, rescue throw bag, rescue hardware (webbing, carabineers, z-drag kit), leash, first aid kit, signal mirror, flotation bags, and dry bags; and	<b>7.9 A: Use essential safety equipment...</b> 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.	Overlap	
2.8.1.2 dewatering equipment – pump, sponge or bucket.		Gap (OK)	

<b>3.0 Trip Planning and Preparation</b>			
<b>3.1 Checking Local Weather and Water Conditions</b>			
3.1.1 The course will describe how to make informed boating decisions based on forecasted local weather and water conditions.	<b>1.3 A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...</b> B: assessing if conditions are favorable for the voyage for length/time of trip.	Overlap	
3.1.2 The course will also describe:			
3.1.2.1 dangerous weather conditions such as strong winds, storms, lightning, hurricanes and fog; and	<b>1.3 A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...</b> B: assessing if conditions are favorable for the voyage for length/time of trip.	Overlap	
3.1.2.2 their importance in trip planning.		Gap (OK)	
<b>3.2 Checking Local Hazards</b>			
3.2.1 The course will describe how to obtain information about local hazards that may impede or endanger a boating trip.	<b>1.3 A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...</b> B: assessing if conditions are favorable for the voyage for length/time of trip.	Overlap	
<b>3.3 Filing a Float Plan</b>			
3.3.1 The course will describe:			
3.3.1.1 the importance of filing a float plan; and		Gap (OK)	
3.3.1.2 the basic information that should be included.		Gap (OK)	
<b>3.4 Preventative Maintenance</b>			
3.4.1 The course will describe and illustrate where possible:			
3.4.1.1 the need for regular inspection; and		Gap (OK)	
3.4.1.2 maintenance of the boat, gear and related equipment, including:			
3.4.1.2.1 inspecting the boat for water tightness, including hull integrity, gaskets, and all hatch covers;	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	We see this as an overlap if the checklist includes these items for inspection.

3.4.1.2.2	patching holes with a material suited to the composition of the hull;		Gap (OK)	
3.4.1.2.3	cleaning the boat to remove all foreign bodies, mud and aquatic invasive species;		Gap (OK)	
3.4.1.2.4	storing the boat in accordance with manufacturer recommendations;		Gap (OK)	
3.4.1.2.5	checking, replacing as necessary, and tightening all screws and deck fittings;	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	
3.4.1.2.6	treating the hull with an appropriate UV inhibitor as recommended by the manufacturer;		Gap (OK)	
3.4.1.2.7	checking flotation air bags to be sure they are effectively secured and don't leak;	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	
3.4.1.2.8	checking lines and grab handles for fraying;	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	
3.4.1.2.9	checking paddles/oars; and	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	
3.4.1.2.10	all other equipment to ensure it conforms to manufacturer performance guidelines and specifications.	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	
<b>3.5 Pre-Departure Checklist and Passenger Communication</b>				
3.5.1	The course will describe:			
3.5.1.1	the importance of using a pre-departure checklist, and	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.	Overlap	

3.5.1.2 conducting a safety discussion with all in the party.		Gap (Fix)	Recommended skill standard include an element to cover safety discussion (briefing)
<b>4.0 Safe Boat Operation</b>			
<b>4.1 Operator Responsibilities</b>			
4.1.1 The course will describe:			
4.1.1.1 a paddler's ultimate responsibility for his or her personal safety; and		Gap (OK)	
4.1.1.2 the safety of anyone else on board and all activity aboard the boat.		Gap (OK)	
4.1.2 This responsibility extends to other water users and includes but is not limited to:		Gap (OK)	
4.1.2.1 refraining from careless, reckless, or negligent operations on the water; and		Gap (OK)	
4.1.2.2 abiding by other general boater courtesy.		Gap (OK)	
<b>4.2 Influence of Drugs and Alcohol on Boat Operation</b>			
4.2.1 The course will describe:			
4.2.1.1 the effects of drinking alcohol or using drugs while boating, and		Gap (OK)	
4.2.1.2 the boating laws pertinent to operating a boat while under the influence.		Gap (OK)	
<b>4.3 Safe Navigation</b>			Recommend adding the following note to make more consistent with the POWER matrix: " <i>Knowledge Elements 4.3.1 through 4.3.7 are applied on the water as applicable situations arise.</i> "

4.3.1 The course will describe the actions boaters should take in order to navigate safely including:			There seems to be a mix in this section between Nav rules and Safe Operation. We believe the standard would be improved in Section 4.3 if it were separated out the elements associated with official Nav Rules and have a separate section for Safe Operation.
4.3.1.1 generally avoiding channels used by larger boats and, if navigating in a channel, giving way to vessels constrained by the channel;		Gap (OK)	
4.3.1.2 crossing the channel as a group;		Gap (OK)	
4.3.1.3 avoiding collision with powerboats by keeping a sharp lookout, using light and sound signals to identify your presence, and maneuvering out of the way;	<b>4.5 A: Avoid collisions...</b> B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.	Overlap	
4.3.1.4 turning the bow into the wake of powerboats to prevent capsize;		Gap (OK)	
4.3.1.5 sharing water features such as eddies and rapids with other paddlers;		Gap (OK)	
4.3.1.6 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;		Gap (OK)	
4.3.1.7 observing restricted areas near dams, power plants and bridges; and		Gap (OK)	
4.3.1.8 rendering assistance to other paddlers in the event of a mishap, to the extent that a boater can do so safely.	<b>7.5 A: Rescue a person in the water and capsized craft...</b> B: using an appropriate assisted rescue technique and standard practice for rescue priorities.	Overlap	
4.3.2 The course will include, verbatim, the following disclaimer:			

<p><i>“The navigation rules contained in this course summarize basic navigation rules for which a boat operator is responsible on inland waterways. Additional and more in-depth rules apply regarding various types of waterways, such as International Waters and Western Rivers, and operation in relation to commercial vessels and other watercraft. For a complete listing of the navigation rules, refer to the document “Navigation Rules” published by the U.S. Coast Guard (COMDTINST 16672.2 Series). For State-specific navigation requirements, refer to the rules and laws that apply in the state where you intend to boat.”</i></p>			
<p><b>4.4 Aids to Navigation</b></p>			<p>The Skills Standard cover page note addresses Aids to Navigation. There are no Skills standard elements that address them specifically. However, they can be demonstrated on the water as applicable situations arise.</p>
<p>4.4.1 The course will describe:</p>			
<p>4.4.1.1 the U.S. Aids to Navigation (USATONS) as they are relevant to boaters, including:</p>			
<p>4.4.1.1.1 understanding channel markers;</p>	<p><b>7.8 A: Propel an appropriate course...</b> B: using information provided by navigation markers and hand/whistle signals.</p>	<p>Overlap</p>	
<p>4.4.1.1.2 understanding regulatory markers, such as those marking dams, submerged objects and other hazards; and</p>	<p><b>7.8 A: Propel an appropriate course...</b> B: using information provided by navigation markers and hand/whistle signals.</p>	<p>Overlap</p>	
<p>4.4.1.1.3 homeland security restrictions.</p>		<p>Gap (OK)</p>	
<p><b>4.5 Boarding, Exiting and Securing the Boat</b></p>			
<p>4.5.1 The course will describe:</p>			
<p>4.5.1.1 how to safely board and exit a small boat, emphasizing the need to maintain three points of contact, and</p>	<p><b>2.1 A: Enter and launch the craft from a dock/slip or shoreline ...</b> B: keeping the craft upright with minimal wobbling or loss of control.</p>	<p>Overlap</p>	

4.5.1.1	how to safely board and exit a small boat, emphasizing the need to maintain three points of contact, and	<b>5.2 A: Arrive at dock/slip or shoreline and exit the craft...</b> B: using a minimum of three points of contact.	Overlap	
4.5.1.2	sufficient clearance or proper fit so that entry into and exit from the boat is not impeded.		Gap (OK)	
4.5.2	The course will explain how to secure the boat at the shore to prevent it from drifting away.	<b>6.1 A: Secure the craft and equipment...</b> B: using appropriate techniques and anticipating winds, currents and tides.	Overlap	
<b>5.0 Emergency Preparedness</b>				
<b>5.1 Rendering Assistance</b>				
5.1.1	The course will describe methods of and tools for assisting a paddler in difficulty.	<b>7.5 A: Rescue a person in the water and capsized craft...</b> B: using an appropriate assisted rescue technique and standard practice for rescue priorities.	Overlap	5.1.1 is similar to 4.3.1.8. Are both elements necessary?
<b>5.2 Capsizing/Falls Overboard</b>				
5.2.1	The course will describe how to prevent and respond to these emergencies. The prevention recommendations will include at least the following:			
5.2.1.1	stay centered and low,	<b>7.3 A: Avoid capsizing the craft...</b> B: maintaining proper body position and paddle/oar techniques.	Overlap	
5.2.1.2	avoid standing and sudden moves,	<b>7.3 A: Avoid capsizing the craft...</b> B: maintaining proper body position and paddle/oar techniques.	Overlap	
5.2.1.3	maintain three points of contact,	<b>7.3 A: Avoid capsizing the craft...</b> B: maintaining proper body position and paddle/oar techniques.	Overlap	The skill standard is being modified to remove the phrase <i>Three points of contact</i> since that phrase is more of a technique rather than an outcome (see skill element 2.1 for example). Consider changing this phrase here for the Knowledge element to create consistency between HUMAN Skill and Knowledge.

5.2.1.4 never overload,		Gap (Fix)	Recommend clarification of the Knowledge language to include reference to people and equipment overloading (5.2.1.4). Element 5.2.1.4 may be repetitive to element 1.1.1.1. Also, recommend skill standard team consider adding equipment to overloading/ balancing.
5.2.1.5 balance the load, and		Gap (Fix)	Recommend clarification of the Knowledge language to include reference to people and equipment balancing (5.2.1.5). Element 5.2.1.5 may be repetitive to element 1.1.1.2. Also, recommend skill standard team consider adding equipment to overloading/balancing.
5.2.1.6 avoid rough water.		Gap (OK)	
5.2.2 The responding procedures will include at least the following:			
5.2.2.1 wearing life jackets,	<b>7.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	Overlap	
5.2.2.2 taking a head count,		Gap (OK)	
5.2.2.3 staying with the boat when appropriate,		Gap (OK)	
5.2.2.4 signaling for assistance,		Gap (OK)	
5.2.2.5 using improvised floating aids,		Gap (OK)	
5.2.2.6 initiation of procedures to recover people in the water, and	<b>7.5 A: Rescue a person in the water and capsized craft...</b> B: using an appropriate assisted rescue technique and standard practice for rescue priorities.	Overlap	
5.2.2.7 proper procedures to use when boating in moving water.		Gap (OK)	

<b>5.3 Cold Water Immersion</b>	<b>7.7 A: Avoid cold water shock and hypothermia...</b> B: by wearing appropriate clothing for the venue and using a documented safety technique.		The topics of Knowledge section 5.3 are related but we do not find any direct correlations to Skill elements.
5.3.1 The course will describe the effects of cold water immersion and how to prepare for, prevent, and respond to a cold water immersion event, including:			
5.3.1.1 Stages and the physiological effects of cold water immersion:		Gap (OK)	
5.3.1.1.1 Initial reaction (cold shock response; gasping and hyperventilation),		Gap (OK)	
5.3.1.1.2 Short-term response (cold incapacitation; swim failure, functional loss), and		Gap (OK)	
5.3.1.1.3 Long-term response (immersion hypothermia).		Gap (OK)	
5.3.2.1 Preparation and Prevention:			
5.3.2.1.1 Wearing a life jacket enhances chances of survival during each stage.		Gap (OK)	
5.3.2.1.2 Carrying communication and signaling devices on person; and		Gap (OK)	
5.3.2.1.3 Preventing capsize, swamping and falls overboard.		Gap (OK)	
5.3.3.1 Response:			
5.3.1.3.1 Initial reaction (first 1-5 minutes) – airway protection and breath control		Gap (OK)	
5.3.1.3.2 Short-term (first 30 minutes) – performing the most important functions first (emergency communication, situational assessment, decision making, and self-rescue activities); and		Gap (OK)	
5.3.1.3.3 Long-term (after 30 minutes or more) – slow body core heat loss and be prepared at all time to signal rescuers.		Gap (OK)	
<b>5.4 Accident Reports</b>			
5.4.1 The course will describe:			

5.4.1.1 what kinds of boating accidents require an accident report, and		Gap (OK)	
5.4.1.2 how, when and where to file the report.		Gap (OK)	
<b>5.5 Boating Accident Report Form</b>			
5.5.1 The course will include a sample accident report form, which can be included in the textbook or as a separate handout.		Gap (OK)	
<b>6.0 Other Water Activities</b>			
<b>6.1 Hunting and Fishing</b>			
6.1.1 The course will inform people:			
6.1.1.1 who hunt and fish from human-propelled boats that they are boaters, and		Gap (OK)	
6.1.1.2 that they need to follow safe boating practices.		Gap (OK)	
6.1.2 Information must be provided about accident risks relevant to this group of boaters.		Gap (OK)	

	<b>SKILL elements with no corresponding KNOWLEDGE element:</b>		
	<b>1.4 A: Prepare the craft for departure...</b> B: readying equipment and individuals for intended departure.	Gap (OK)	
	<b>2.2 A: Check for a clear departure...</b> 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.	Gap (OK)	
	<b>3.1 A: Stop the craft...</b> B: within two boat lengths, using the appropriate strokes.	Gap (OK)	
	<b>3.2 A: Turn the craft from a stationary position...</b> B: 180° to the right and left, within 1-2 boat lengths.	Gap (OK)	
	<b>3.3 A: Propel the craft in a figure of 8 course (*if applicable) ...</b> B: around markers 3-4 boat lengths apart using a variety of strokes. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.	Gap (OK)	
	<b>3.4 A: Move the craft sideways (*if applicable) ...</b> B: 10 feet (to each side) using proper draw and/or pushaway techniques. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.	Gap (OK)	
	<b>3.5 A: Propel the craft...</b> B: while maintaining proper grip and paddle/oar orientation along with trim and balance of the craft.	Gap (OK)	
	<b>4.1 A: Move the craft sideways (*if applicable)...</b> B: 10 feet (to each side) using proper draw and/or pushaway techniques. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.	Gap (OK)	
	<b>4.2 A: Move the craft backwards...</b> B: 3-4 boat lengths using reverse strokes while maintaining directional control.	Gap (OK)	



<b>Waiting Area: SKILLS Standard Elements</b>	
	The following are the current standards that are being placed into the Standards Side-by-Side matrix. Please cut and paste them into the matrix according to the directions at the top of the matrix.
	<b>Ref # and Element</b>
<b>Operation #1: Prepare to depart. The operator will be able to:</b>	
	<b>1.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.
1.2	<b>1.2 A: Inspect craft systems and safety equipment...</b> B: by completing a pre-departure checklist noting state, federal, and manufacturer requirements for the intended voyage and weather.
1.3	<b>1.3 A: Obtain (recite), weather conditions, forecasts, and evaluate hazards to navigation and other environmental factors...</b> B: assessing if conditions are favorable for the voyage for length/time of trip.
1.4	<b>1.4 A: Prepare the craft for departure...</b> B: readying equipment and individuals for intended departure.
1.5	<b>1.5 A: Confirm that all others on the craft put on their life jackets...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.
<b>Operation #2: Leave a dock/slip/mooring/ramp/shoreline. The operator will be able to:</b>	
2.1	<b>2.1 A: Enter and launch the craft from a dock/slip or shoreline ...</b> B: keeping the craft upright with minimal wobbling or loss of control.
2.2	<b>2.2 A: Check for a clear departure...</b> 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.
<b>Operation #3: Maneuver in close quarters. The operator will be able to:</b>	
3.1	<b>3.1 A: Stop the craft...</b> B: within two boat lengths, using the appropriate strokes.
3.2	<b>3.2 A: Turn the craft from a stationary position...</b> B: 180° to the right and left, within 1-2 boat lengths.
3.3	<b>3.3 A: Propel the craft in a figure of 8 course (*if applicable) ...</b> B: around markers 3-4 boat lengths apart using a variety of strokes. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.
3.4	<b>3.4 A: Move the craft sideways (*if applicable) ...</b> B: 10 feet (to each side) using proper draw and/or pushaway techniques. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.

3.5	<b>3.5 A: Propel the craft...</b> B: while maintaining proper grip and paddle/oar orientation along with trim and balance of the craft.	
<b>Operation #4: Operate in open water. The operator will be able to:</b>		
4.1	<b>4.1 A: Move the craft sideways (*if applicable)...</b> B: 10 feet (to each side) using proper draw and/or pushaway techniques. *This standard is applicable when paddling a canoe, kayak, raft, or stand-up paddleboard.	
4.2	<b>4.2 A: Move the craft backwards...</b> B: 3-4 boat lengths using reverse strokes while maintaining directional control.	
4.2	<b>4.2 A: Move the craft backwards...</b> B: 3-4 boat lengths using reverse strokes while maintaining directional control.	
4.3	<b>4.3 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.	
4.4	<b>4.4 A: Propel the craft in a straight line...</b> B: 15-20 boat lengths using proper strokes to maintain a constant heading.	
4.5	<b>4.5 A: Avoid collisions...</b> B: by maintaining a proper lookout, assessing potential hazardous situations and taking early and decisive action.	
<b>Operation #5: Arrive at a dock/slip/mooring/ramp/shoreline (make first contact). The operator will be able to:</b>		
5.1	<b>5.1 A: Check for clear approach...</b> 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	<b>5.2 A: Arrive at dock/slip or shoreline and exit the craft...</b> B: using a minimum of three points of contact.	
<b>Operation #6: Secure the boat (preparing to leave boat unattended). The operator will be able to:</b>		
6.1	<b>6.1 A: Secure the craft and equipment...</b> B: using appropriate techniques and anticipating winds, currents and tides.	
<b>Operation #7: Perform general safety/emergency procedures/maneuvers that fit across all three domains. The operator will be able to:</b>		
7.1	<b>7.1 A: Put on a life jacket...</b> B: ensuring it is serviceable, fits properly, and is appropriate for the boat/activity.	
7.2	<b>7.1 A: Confirm that all others on the craft put on their life jackets...</b> B: ensuring the life jackets are serviceable, fit properly, and are appropriate for the boat/activity.	
7.3	<b>7.3 A: Avoid capsizing the craft...</b> B: maintaining proper body position and paddle/oar techniques.	
7.4	<b>7.4 A: Exit the craft after capsize...</b> B: using proper body position and contact with the craft and paddle/oar (wet-exit).	
7.5	<b>7.5 A: Rescue a person in the water and capsized craft...</b> B: using an appropriate assisted rescue technique and standard practice for rescue priorities.	



## About this Work

### Standards Collaboration Initiative

#### National System of Standards for Recreational Boat Operation

The US Coast Guard started the Standards Collaboration Initiative on June 23, 2015 with a meeting involving NASBLA, US Sailing, NSBC, and NMMA/Discover Boating. These organizations were involved at the start because each received 2014 USCG grant funding focused on on-the-water training standards. The purpose of the Standards Collaboration Initiative is to develop collaboration approaches across 2014 grants focused on on-the-water instruction standards. The goal is to maximize the impact each grant has on raising the overall quality and availability of entry-level recreational boating instruction across the country. The initiative involves grantees working together to ensure that the Knowledge and Skills-based Standards currently under development are *Finished, Organized, and Distributed/Used*. The desired outcome is that individuals and organizations involved in recreational boating instruction use the menu of Skills & Knowledge-based Standards in the development of high-quality, entry-level recreational boating programs that ultimately increase the level of safety and enjoyment boaters experience on our nation's waterways.

An objective grant facilitator, funded by the US Sailing On-Water Standard Grant, was involved to design and manage the collaborative process by which these organizations work together to accomplish the objectives of the Initiative.

For more information, please visit the On-Water Standards Initiative website at: [www.onwaterstandards.org](http://www.onwaterstandards.org). Or, contact K. Brian Dorval, Collaboration Facilitator at 716-994-2842. You can also email him at: [grantfacilitator@gmail.com](mailto:grantfacilitator@gmail.com).



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- *Appendix D: Collaboration Meeting Minutes – March 7, 2016*



# Meeting Minutes *(Updated)*

## Standards Collaboration Leadership Team Meeting

### USCG Standards Collaboration Initiative

#### FY14 RBS Nonprofit Organization Grant Recipients National On-The-Water Training Standards

The following minutes were taken during the September Standards Collaboration Leadership Team meeting, which took place in San Diego, CA on March 7, 2016 from 5:30-8:00 pm during IBWSS. Included with the notes is the presentation that was shared during the meeting.

### Meeting participants

In attendance at the meeting were the following:

- Pam Dillon – NASBLA
- Joanne Dorval – US Sailing
- Chris Edmonston – NSBC
- Stu Gilfillen – US Sailing
- Rich Jepsen (by phone) – US Sailing
- Emily King – NSBC
- Jeff Riecks (by phone) – ASA
- Tom Knighten – NMMA/Discover Boating
- Capt. Boross – USCG
- Jeff Hoedt – USCG
- K. Brian Dorval – Facilitator

### Focus

To develop a shared understanding of current progress on projects and to use the power of the group to remove potential barriers to moving forward.

### Agenda

5:30 pm Welcome

- Welcome, Purpose, Agenda
- Set the Stage
  - Collaboration vision and strategy confirmation
  - Review outcomes of previous Collaboration meeting

5:50 pm Working Current Projects

- Objectives:
  - a) Share progress made since last meeting (e.g., including results of any actions steps from the last meeting), and
  - b) Examine barriers that need help from Collaboration Leadership Team

On-going Projects

- Development SAIL Knowledge Standard (Jeff/Rich)
- Common Portal (Tom/Stu/Rachel)

New projects added during last meeting

- Conformity Assessment/Marketing Program (Pam)
- SAIL Validation Program/ BLA integration (Joanne)
- SAIL NVP: Interaction of Knowledge and Skills (Jeff)
- Getting existing groups to use the Standards [e.g., messaging, conformity, attending meetings, etc.] (Chris)

7:00 pm Short break

7:10 pm Development session: Collaboration Concept

- Context: There is a small window of opportunity to submit a grant to the USCG for acquiring funding that supports continued collaboration activities. This session will involve reviewing a proposed collaboration grant



## Meeting Minutes (*Updated*)

# Standards Collaboration Leadership Team Meeting

### USCG Standards Collaboration Initiative

#### FY14 RBS Nonprofit Organization Grant Recipients National On-The-Water Training Standards

to strategically advance the National System of Standards to facilitate a culture shift toward a future where safe boating behaviors are the norm in the general boating public. Toward that end, we will:

- Share the concept
- Engage in Q&A and provide feedback to develop and strengthen

7:45 pm Looking ahead:

- Next Steps
- Next Standards Collaboration Initiative meeting
  - Date/time/Location?

8:00 pm Close

## Meeting Preparation

In preparation for the meeting, work groups were asked to prepare a short 5-minute update on the project. The briefing should include:

- a. Progress made since we last met (e.g., including results of any actions steps from the last meeting), and
- b. Any barriers that need help or attention from the rest of the Collaboration Leadership Team.

## Notes taken about Collaboration Projects

### SAIL Knowledge Standard Project

- HUMAN/POWER Standards. We should think about how to update/improve other standards already developed?
- Do we work in three year time periods or do we wait for five years to improve POWER/HUMAN Standards?
  - Start with SAIL... Learn about what it will take for POWER
  - The community learns about what it will take to use new approach to standards
  - Will get back to others later
- HUMAN allowed to go through ANSI process as is.
- By design – we will use a clean sheet of paper for other standards
- There is a concern about losing credibility from boating public (e.g. course developers)

#### Next Steps:

We need to consider the timing for changing/updating standards.

We need to plan for how to manage credibility with course developers.

For now, the message needs to be, *“keep using versions that are available as they get improved.”*

### Common portal Project

- There are a few challenges we need to address:
  - How to get content into the system?
    - The system is up and running but needs content.
  - How to fill the gap of delivering on water skills training?
    - There is a gap between the interest in receiving instruction and our capacity to make the instruction available.
  - How to promote the portal to the marketplace? We need to get people using it
    - This is a marketing tool to promote/ sell business of training
    - Sell the advantages

### Conformity Assessment Marketing Program Project

- How to determine the best forms of measurement? What should we measure?
  - We need to ensure we are asking for the right data to collect.
    - Number of students
    - Link to students evaluation of course



## Meeting Minutes (*Updated*)

### Standards Collaboration Leadership Team Meeting

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- Number of registered versus number that get certified
- Need to clarify what information organizations would be willing to share as part of the program?
  - Number of students
  - Number of classes
  - Number of instructors
- Expectations to be involved must be clarified. For example:
  - Will verification be provided if the data is not provided?
  - What is in it for me? (Need to answer the question)
  - How to manage the hassle of being involved?
- Need to create a package of incentives to promote the reason to participate. For example:
  - Marketing materials access with certification
  - Variable pricing
  - Free boat US membership
  - Free marketing

#### **SAIL National Validation Program/BLA Involvement Project**

We need to contact BLAs from the states in which the remaining events will take place and invite them to be involved.

Action item: Create a personal invitation to BLA from the remaining states to be involved in the program.

#### **Observation: Interaction between Knowledge and Skills Standards Project**

- We have four remaining SAIL NVP events. The following Collaboration Leadership Team member volunteered to be involved at following venues:
  - Annapolis: Stu, Pam
  - Buffalo: Emily, Chris
  - Texas: Stu
  - NC: Pam

Action item: Confirm your involvement in the event with Brian Dorval.

#### **New Collaboration Concept**

During the meeting a new concept was shared with the team. The concept was designed to formalize and expand the Collaboration initiative going forward. The following is the feedback that was provided on the concept.

##### *General comments about the concept*

- Timeline: Is it just for this grant cycle?
  - Designed to fuel ongoing effort
- Configuration management: USCG knows standards are key and belong to all groups
  - Need to organize so the standards work together and all can use them
- Vision: what does successful collaboration look like?
  - Both knowledge and skills training available 24/7
  - Across the country people want to take the courses/ desire culture of safety: Seek education
  - Organization of all our efforts in one place
- Is it marketing and straight oversight?
  - Policy and assessment



# Meeting Minutes (*Updated*)

## Standards Collaboration Leadership Team Meeting

### USCG Standards Collaboration Initiative

#### FY14 RBS Nonprofit Organization Grant Recipients National On-The-Water Training Standards

- Marketing
- We need to create awareness of what is there and consensus conformity assessment

#### *Advantages of the new concept*

- We are elevating the standards
- Helps keep context
- Allows us to have the right people working on the right projects
- Formalizes the work into funded projects: for example, channel developments, demand creation, etc.
- Organizes the standards so they can move forward
- Potential to increase collaboration
- Keeps us talking
- Helps prioritize activities going forward
- Help us create safety culture going forward

#### *Limitations of the new concept (how to...)*

- How to create delivery skills?
- How to maintain credibility?
  - We need to ensure people know the standards exist through marketing
- How to get boaters to use the standards?
- How to grow instructors?
- How do you determine what projects to work on?
- How to keep content fresh if the content that has been already created?
  - The source of the standards; ensure fresh content
- How to use intelligence and marine industry to answer questions?
- How to ensure we involve the right leadership?
- How to expand beyond just US sailing/NASBLA?
- How to transition from working on product to working on demand (i.e., user/course provider developer; channels and demand)?
- How to generate funding?
- How to transition from grant money sources to commercial sources of funding (options)
- How to ensure we involve a broader circle of people/organizations?
  - People not traditionally involved
- How to communicate the value of the initiative to target audience and industry?
- How to ensure a configuration management of standards grant package?

#### *Unique qualities of the new concept*

- It is a joint grant from US Sailing/NASBLA
- Might be expanded beyond just these two organizations (US Sailing/NASBLA)
- Has multiple components:
  - Configuration management - maintains the content
  - Supply/demand – Channel development

#### **Action steps:**

Take feedback into consideration and update the grant concept.

#### **General Questions**

- When do we start using the standards to help with Grant program (question from the Coast Guard)?
  - Need to determine timeline for this



## Meeting Minutes *(Updated)*

### Standards Collaboration Leadership Team Meeting

#### USCG Standards Collaboration Initiative

##### FY14 RBS Nonprofit Organization Grant Recipients National On-The-Water Training Standards

- We need to differentiate products that use the standards
  - Not all organizations use curriculum – therefore curriculum vs. standards

### Looking Ahead

#### Action steps:

- We need to articulate scalability of this work
- Need to have a vision for the standards
- Develop a framework for governing board concept (Chris, Tom, Joanne, Rich)

#### Date/time for next meeting

- Next collaboration leadership team meeting will take place at the NASBLA conference in Seattle on Monday, September 12, 2016.