

SAIL National Validation Program Research Project
National System of Standards for Recreational Boat Operation - USCG OnWater Standards Grant III (SAIL, HUMAN, HUMAN)



Executive Summary

As part of a National On-Water Standards project, the draft SAIL Standard (Version 3) and its performance Rubrics were field-tested during a National Validation Program which took place from August 2015 through June 2016. The purpose of the field-test program was to assess the effectiveness with which the SAIL Standard and its Rubrics could be used to differentiate safe from unsafe recreational sailboat operation at a beginner level of skill. If the SAIL Standard and Rubrics effectively differentiate safe from unsafe sailboat operation, they could be used to help raise the overall level of quality and availability of safety-related, performance-based courses designed to instruct students in skills associated with entry-level recreational sailboat operation. More specifically, they can be used by course developers and providers to design curriculum and instructional programing as well as by course instructors to more effectively train and assess student performance as entry-level sailboat operators.

This national research project involved 62 beginner-level Sailboat Operators engaging in data collection sessions that lasted up to 4 hours each. Sessions involved individuals engaging in a number of on-land preparation activities and operating a sailing dinghy or keelboat on the water through a series of maneuvers under the conditions of a "typical Sunday afternoon" of recreational boating for an entry-level Operator. 69 Standard Evaluators (54 certified sailing instructors; 15 non-certified sailing instructors) observed Operators using a SAIL Standard and Rubrics Checklist containing the SAIL Standard Elements and performance Rubrics. 28 individuals operated a Sailing Dinghy and 34 operated a Keelboat. The SAIL Checklist was used 197 times during the study.

Results of the study indicate that the SAIL Standard Elements and their related Rubrics successfully differentiate safe and unsafe sailboat operation at the beginner level. The Standard and Rubrics enable different Evaluators to reach strong and substantial agreement on the level of proficiency demonstrated by beginner-level sailboat operators regardless of the Evaluator's level of experience (certified or not certified) as a sailing instructor. These results indicate that the draft SAIL Standard Elements and Rubrics function as effective tools for successfully differentiating safe from unsafe beginner-level sailboat operation. Based on these results, it is recommended that the National On-Water Standards Oversight Committee recommend to the US Coast Guard that the updated draft SAIL Standard enter the final stage of development and publication as an American National Standard and be included within the USCG's National System of Standards for Recreational Boat Operation.

Recommendations for changes to the SAIL Standard and SAIL Rubrics resulting from this study are included in the attachments.





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Summary of Specific Observations & Recommendations

- Results indicate a strong, substantial, and meaningful level of agreement between sailing instructors who use
 the SAIL Standard Checklist to make observations about entry-level recreational sailboat operation. Sailing
 instructors (certified or not) reach strong agreement about what they observe to be a safe or unsafe level of
 proficiency in overall recreational sailboat operation at the entry-level.
- When both dinghies and keelboats used in the study are considered together, 26 of the 37 SAIL Standard Elements demonstrated a significant and meaningful relationship to overall safe/unsafe recreational sailboat operation.
- The 11 Elements that did not demonstrate a significant and meaningful relationship were:
 - o Determine suitability for departure
 - Put on a life jacket
 - o Confirm that all crew and passengers put on their life jackets
 - Secure positions of rudder and centerboard (if applicable) (for departure)
 - Steer the sailboat in a straight line (hold a steady course)
 - Secure positions of rudder and centerboard (if applicable) (for arrival)
 - Get off the sailboat
 - o Toss a line
 - o Receive an accurately tossed line
 - o Return to man overboard (MOB); and
 - Recover a capsized sailboat
- Three Elements demonstrated significant and meaningful relationships to safe/unsafe recreational sailboat operation for either a sailing dinghy or a keelboat (*Avoid collisions* for a dinghy; *Board and move about the sailboat*, and *Communicate safety-related information to others on board* for a keelboat).
- When taking into account specific Rubric dimensions, 31 of 37 Elements demonstrated some form of significant and meaningful relationship to safe/unsafe recreational sailboat operation. Of the 6 Elements remaining, 4 focus on ancillary activities associated with direct operation of the boat (*Determine suitability for departure, Put on a life jacket, Confirm that all crew and passengers put on their life jackets, and Get off the sailboat*) and two are some of the more complex skills identified within the SAIL Standard (*Recover a capsized boat* and *Return to man overboard [MOB]*).
- Although no statistical relationship was reported between 7.6 Return to man overboard (MOB) and 7.7
 Recover a capsized sailboat with overall safe/unsafe performance, both are fundamental safety skills
 associated with entry-level recreational boating. The recommendation is that both remain within the SAIL
 Standard and that further investigation of their relationship to overall safe/unsafe recreational sailboat
 operation be considered.
- 2 of the Elements (7.3 Toss a line and 7.4 Receive an accurately tossed line) that did not demonstrate a significant statistical relationship to overall safe/unsafe boat operation appear to be specific behaviors associated with Elements that focus on use of lines (i.e., 5.3 Bring sailboat to a stop at a specific location and 7.5 Accept a single line or side tow). It is recommended that these Elements be modified and integrated within the 5.3 and 7.5.
- All of the Elements and most of the Rubric dimensions were able to be successfully demonstrated by some portion of the beginner Sailboat Operators involved in the study, suggesting they are set at a level that is





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appropriate for entry-level operators. 7 Rubric dimensions were demonstrated less frequently at the Successful level than at the Needs Improvement/Unacceptable levels. The only pattern found in those 7 is that 4 focused on managing sails. However, the pattern is not a strong enough to recommend changes to these Rubric dimensions as a group.

- The Rubric dimension Adjusts all sail controls for Element 4.2 Achieve effective sail shape was demonstrated less frequently as a Successful level of proficiency than at a Needs improvement or Unacceptable/unsuccessful level of proficiency. This result, along with observations during the data collection sessions by Team Leaders, suggests that 4.2 Achieve effective sail shape is beyond an entry-level skill. It is recommended that Element 4.2 be modified and integrated within Rubric dimensions of other Elements associated with setting up and raising sails; and that it be removed as an Element on its own.
- The Rubric dimension Consistently trims sails properly within Element 4.8 Steer the sailboat close-hauled, on a beam reach, and on a run was demonstrated less frequently as a Successful level of proficiency than at a Needs improvement or Unacceptable/unsuccessful level of proficiency. This result, in conjunction with Team Leader observations during data collection, suggests this skill is less about turning the sailboat to a particular direction and more about the skill of sailing the boat in a specific direction relative to the wind. Also, it is observed that the Element as currently written contains three skills in one. The recommendation is to modify 4.8 Steer the sailboat close-hauled, on a beam reach, and on a run to focus on sailing the boat in specific directions and to divide it into three separate Elements so that each Element contains one specific skill. The recommendation is to also include additional information about these Elements within the TSD to support their use within the design and application of instructional programming.
- A small (weak) but significant relationship was observed between receiving an Unacceptable/unsuccessful level of proficiency (Level 1 on the Rubric) on one of the Rubric dimensions and overall safe/unsafe boat operation. It suggests that demonstrating an Unacceptable/unsuccessful level of proficiency on a Rubric is related to being observed as unsafe overall as a Sailboat Operator. However, given the small (weak) correlation, it does not automatically suggest the operator will be identified as unsafe overall should they receive an Unacceptable/unsuccessful lever of proficiency on one Rubric dimension.
- There is a moderate to strong relationship observed between the number of Unacceptable/unsuccessful level
 of proficiency (Level 1) received and overall safe/unsafe boat operation. The more "1's" received on individual
 Rubric dimensions, the more likely the person will be observed as engaging in unsafe sailboat operation
 overall.
- A relationship was observed between the venue in which the data was collected and overall performance as a
 safe/unsafe boat operator. Sailboat Operators at Venues 3 and 5 performed significantly different from each
 other. This is explained by the general level of skills associated with operators who volunteered at each
 venue. A larger number of observations were made at the advanced level at Venue 3 than at Venue 5. This is
 due to the fact that the recruiting process for volunteer sailboat operators was changed after Venue 3 to
 attract a great number of less skilled operators.
- Wind, gusts, and waves at the different venues did not demonstrate any significant or meaningful relationship to observed safe/unsafe boat operation overall.
- Based on the examination of performance on the SAIL Standard Elements and natural thinking preference, no
 evidence of bias in the standard was observed. This supports the intention of using the SAIL Standard at a
 national level.





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• In considering what it takes to ensure safe and enjoyable recreational sailboat operation, it is important to include skills that involve the direct maneuvering of the sailboat *and* skills that involve ancillary activities associated with safe operation of the sailboat.

General Recommendations

According to the results of SAIL National Validation Program:

- 31 out of 37 SAIL Standard Elements effectively discriminated the level of overall proficiency of a recreational sailboat operation for at least one of the different types of sailboats used in the study.
- There was a significant, substantial, and meaningful level of agreement reached between different Evaluators who used the SAIL Standard Checklist to differentiate safe from unsafe overall sailboat operation.
- Most the SAIL Standard Elements and their related Rubrics could be successfully demonstrated by a most entry-level Sailboat Operators under the conditions established for the scope of the SAIL domain standard.
- Recommended changes to 4 Elements are made that will strengthen application of the skills within the SAIL Standard and Rubrics.
- Since the SAIL Standard is designed to increase safety and enjoyment in entry-level recreational sailboat operation, those skills associated with both the direct *operation of the sailboat* and *ancillary activities* associated with safely operating the sailboat should remain in the SAIL Standard.

Therefore, the following recommendations are made for moving forward on the SAIL Standard and Rubrics:

- <u>Recommendation 1: Implement the recommended changes to the Sail Standard Elements.</u> The recommendation is to update the SAIL Standard Elements according to the findings of the study.
- Recommendation 2: Use the updated list of SAIL Standard Elements as Version 4 of the SAIL Standard. The recommendation is to use the updated list of SAIL Standard Elements as Version 4.
- Recommendation 3: Employ the ANSI process to approve their use as an American National Standard and engage in continuous improvement. The recommendation is to move the resulting updated version of the SAIL Standard into the ANSI (American National Standards Institute) consensus process so that it can be approved and published as an American National Standard.
- Recommendation 4: Update the SAIL Standard Rubrics according to the findings so as to develop Version 4; and include them within the SAIL Technical Support Document (TSD). The recommendation is to update the SAIL Standard Rubrics according to the findings of the study and to make the updated list (Version 4) available as part of the accompanying SAIL Standard Technical Support Document (TSD) for use in designing and delivering entry-level instruction in recreational sailboat operation.





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Research Questions Answered as a Result of the Study

The following questions were answered as a result of this study:

- Question 1: How much <u>agreement</u> was there between observations made <u>by different Evaluators</u>?
- Question 2: Does an Evaluator's <u>skill level</u> (certified instructor vs. not certified) impact their observations of Sailboat Operators?
- Question 3: What is the relationship between proficiency on a particular <u>Standard Element</u> and proficiency with overall safe/unsafe sailboat operation?
- Question 4: What is the relationship between behaviors contained within the <u>Rubrics'</u> proficiency descriptions and overall safe/unsafe sailboat operation?
- Question 5: Are any SAIL Standard Elements or <u>Rubrics too difficult</u> to be demonstrated at a Successful level of proficiency by entry-level sailboat operators?
- Question 6: What is the relationship between performing at an <u>Unsuccessful/Unacceptable level</u> of proficiency on the Rubrics and being observed as a safe/unsafe sailboat operator overall?
- Question 7: Is there a relationship between a person's <u>natural preferences</u> for decision making and problem solving and overall performance in safe/unsafe recreational sailboat operation?
- Question 8: What is the relationship between data collection <u>venue and performance</u> on the SAIL Standard Elements or Rubrics?
- Question 9: What is the relationship between <u>weather conditions and performance</u> on the SAIL Standard Elements or Rubrics?





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Question 1: How much agreement was there between observations made by different Evaluators?

Question 2: Does an Evaluator's <u>skill level</u> (certified instructor vs. not certified) impact observations of Sailboat Operators?

Summary

A Kappa Test was conducted to assess the level of agreement across evaluators who made observations of the same sailboat operator. The Kappa Test is a commonly used procedure for testing reliability across different observers because it identifies the strengths of the agreement as well as accounting for the likelihood of achieving that level of agreement by chance. The Kappa scale is from 0.0 to 1.0 with the number closer to 1 as demonstrating the stronger level of agreement. If there is a significant level of agreement across evaluators, it provides evidence that the SAIL standard is a reliable method of assessing safe from unsafe recreational boat operation.

The level of agreement across all 69 evaluators (54 certified sailing instructors; 15 non-certified sailing instructors) involved in the study, as indicated by Kappa, was .719, indicating a "substantial agreement" between evaluators. This result demonstrates a strong level of agreement between randomly selected observers. This means we have a strong substantial level of agreement across evaluators who made overall observations about which beginner-level sailboat operators demonstrated a safe versus unsafe level of proficiency in sailboat operation according to the SAIL Standard and its performance Rubrics.

As Dr. Risto Marttinen, National On-Water Standards field research specialist team member who analyzed the SAIL data, indicated, "regardless of if the observers are certified or not certified sailing instructors, they have strong agreement in classifying participants as safe or unsafe when using the observation tool [SAIL Standard and Rubrics Checklist] you created". This result is a meaningful and significant strong/substantial level of agreement and demonstrates that the relationship is not likely to be happening by chance or luck. As Dr. Marttinen also indicated, "This is a strong and reliable result given that we did not put Evaluators through an intensive training program on the use of the SAIL Standard and Rubrics Checklist and that the Evaluators had different levels of experience as instructors coming into the data collection sessions."

Observation/Interpretation

These results provide clear evidence that the SAIL Standard Elements and Rubrics provide a very reliable means to help different evaluators observe what is safe versus unsafe entry-level recreational sailboat operation.

Using the Standard Elements and Rubrics enables evaluators to "see the same thing" when it comes to observing and differentiating levels of skills performance of sailboat operation. Regardless of their level of certification as instructors, observers reach meaningful and significant levels of strong agreement regarding what they observe to be safe or unsafe levels of proficiency in beginner-level sailboat operation.





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Question 3: What is the relationship between proficiency on a particular <u>Standard Element</u> and proficiency with overall safe/unsafe sailboat operation?

Summary

Spearman's Rho analysis was used to examine the strength of relationship or connection between performance on each Standard Element (as demonstrated by performance on the Rubrics for each Element) and performance overall in safe/unsafe sailboat operation. This statistical tool was used to understand the strength of the relationship (i.e., no, small, moderate, or strong relationship) as well as the likelihood of a relationship being observed by chance. This analysis was conducted for all the data combined and for each type of sailboat (sailing dinghy, keelboat) separately.

Results Based on All Sailboats

The following relationships emerged between performance on specific Elements and overall performance in safe/unsafe sailboat operation when considering sailing dinghies and keelboats together:

- 23 out of 37 Elements demonstrated a moderate, significant relationship to overall safe/unsafe performance
- 3 out of 37 Elements demonstrated a small, significant relationship
- 11 out of 37 Elements demonstrated no meaningful, significant relationship

The 11 Elements that did not report a statistically significant meaningful relationship in these data between overall safe/unsafe sailboat operation when considering all sailboats together were the following:

- 1.1: Determine suitability for departure
- 1.2: Put on a life jacket
- 1.3: Confirm that all crew and passengers put on their life jackets
- 2.1: Secure positions of rudder and centerboard (if applicable) (for departure)
- 4.1: Steer the sailboat in a straight line (hold a steady course)
- 5.2: Secure positions of rudder and centerboard (if applicable) (for arrival)
- 6.3: Get off the sailboat
- 7.3: Toss a line
- 7.4: Receive an accurately tossed line
- 7.6: Return to man overboard (MOB)
- 7.7: Recover a capsized sailboat

Of those 11 Elements:

- 4 appear to be ancillary activities supportive of, but not directly focused on the operation of the sailboat (e.g.,
 Determine suitability for departure, Put on a life jacket, Confirm that all crew and passengers put on their life
 jackets, and Get off the sailboat). Although they may not be focused on the direct operation of the boat, they
 are an important part of the preparation to be safe during boat operation.
- 2 Elements (7.3 Toss a line and 7.4 Receive an accurately tossed line) appear to be a subset of specific behaviors that function within other Elements associated with use of lines (i.e., 5.3 Bring sailboat to a stop at a specific location and 7.5 Accept a single line or side tow).





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Recommendation: Modify and include Elements 7.3 *Toss a line* and *7.4 Receive an accurately tossed line* as Rubric dimensions [Toss a line (if applicable) and Receive a tossed line (if applicable)] as part of the Rubrics for *5.3 Bring sailboat to a stop at a specific location* and *7.5 Accept a single line or side tow.*

- The same Element is repeated twice (Secure positions of rudder and centerboard [if applicable]) with neither occurrence demonstrating a significant meaningful relationship to overall safe/unsafe performance on its own. These also might be considered ancillary activities associated with other Elements (i.e., Get underway and start sailing; Bring the sailboat to a stop at a specified location). Also, the result might have been an artifact of the data collection process in that much of the set up of the sailboats, including the rudder and center board was completed prior to the involvement of the Sailboat Operator. Therefore, the activities were not frequently observed during the process.
- The result that Steer the sailboat in a straight line (hold a steady course) was not significantly related to safe/unsafe overall performance might be understood in that changing the direction and speed of the boat (i.e. NOT holding a steady course) appears to have the clearest relationship to safe/unsafe sailboat operation. Even though data suggest there is not significant relationship, steering the sailboat in a straight line is a fundamental safety skill that enables prevention of collision and other safety-related activities that derive from the ability to hold a steady course.
- The lack of statistical relationship between *Return to man overboard (MOB)* and *Recover a capsized sailboat* with overall safe/unsafe boat operation was explored further by examining the frequencies with which different levels of proficiency were demonstrated on Rubric associated with each. The frequencies show a less clear pattern of relationship between performance overall and performance on these two Elements. For example, more than 25% of those Sailboat Operators who demonstrated safe entry-level performance overall also demonstrated an Unacceptable/unsuccessful level of proficiency on the Rubric associated with *Return to man overboard*. In addition, at least 30% of the observations of *Return to man overboard* Rubrics were at a Successful level in proficiency in situations where the same operator was observed to be unsafe overall. A similar pattern exists for the Element *Recover a capsized sailboat* as well.

Recommendation: Although no statistical relationship was reported between *Return to man overboard (MOB)* and *Recover a capsized sailboat* with overall safe/unsafe performance, both are fundamental safety skills associated with entry-level recreational boating and therefore, should remain within the SAIL Standard. They may benefit from further investigation into their relationship with overall safe operation of a sailboat. (Also, see the results for Question 5 for further examination of the results for *Return to man overboard [MOB]*).

Results Based on Type of Sailboat

Data was collected on 28 Dinghy Operators (95 observations) and 34 Keelboat Operators (102 observations). The following Elements demonstrated moderate significant and meaningful relationships for sailing dinghy and for keelboat independently:

- 1.8 Ready the sailboat (and crew if applicable) for departure
- 2.2 Raise the sails
- 4.4: Turn the sailboat away from the wind
- 4.5: Turn the sailboat toward the wind
- 4.6: Slow and then accelerate the sailboat maintaining constant heading
- 4.7: Tack the sailboat





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• 4.8: Steer the sailboat close-hauled, on a beam reach, and on a run
Of these 7 Elements that demonstrated a significant relationship to safe/unsafe overall performance:

- 5 focus on changing direction or speed of the sailboat (*Turn the sailboat away from the wind; Turn the sailboat toward the wind; Slow and then accelerate the sailboat maintaining constant heading; Tack the sailboat; Steer the sailboat close-hauled, on a beam reach, and on a run*).
- The other 2 Elements focus on the final preparation of the boat, crew (if applicable), and sails just before getting underway (*Ready the sailboat (and crew if applicable) for departure; Raise the sails*).

The following Elements demonstrated a moderate significant and meaningful relationship to overall safe/unsafe performance based on the type of sailboat:

For sailing dinghy only:

7.2: Avoid collisions

For keelboat only:

- 1.4: Board and move about the sailboat
- 1.7: Communicate safety-related information to others on board

Observation/interpretation

These results provide strong support for the conclusion that the SAIL Standard Elements differentiate safe from unsafe recreational sailboat operation at the entry-level. Most of the Elements demonstrated a significant relationship to overall safe/unsafe boat operation. For those that did not, a plausible explanation exists for the result. The recommendation to include two of the Elements that did not demonstrate a significant relationship with overall safe/unsafe boat operation (*Toss a line* and *Receive an accurately tossed line*) within the Rubrics of two other Elements will keep the benefit of those safety behaviors within the assessment of the Standard.

These results also support the notion that the SAIL Standard works across the different types of sailboats included in this study. However, the type of sailboat does influence the nature of the relationship between the specific Elements and overall safe/unsafe sailboat operation.





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Question 4: What is the relationship between behaviors contained within the Rubrics proficiency descriptions and overall safe/unsafe sailboat operation?

Summary

In addition to using the Rubrics to understand the relationship between the Standard Elements and overall safe/unsafe sailboat operation, analysis was conducted on specifics contained within the Rubrics to more deeply

explore the performance of the Rubrics. Each Rubric contains three proficiency descriptions: 3—Successful; 2— Needs Improvement; and 1—Unacceptable/ Unsuccessful. These are reflected in the three columns within the figure to the right. Specific topics that cut across the three levels of proficiency description are called dimensions. These are reflected in the rows within the figure to the right. Rubric dimensions are identified as 4.1a, 4.1b, and 4.1c.

General Findings

The collection of Rubric proficiency dimensions for 26 of the 37 Elements produced significant and meaningful relationships between the Element and overall safe/unsafe recreational sailboat operation. Results also indicate that 74 of the 132 individual proficiency dimensions demonstrated significant and meaningful relationships with overall safe/unsafe sailboat operation.

While sailing upwind, please steer the sailboat in a straight line, holding a steady course for 10 boat lengths. After you have gone 10 boat lengths, please raise your hand.		
sting the boat's heading for changes	in the wind (speed or direction) to	
ted.		
	Does not steer straight within +/- 20	
Steers straight within +/- 20 degrees.	degrees.	
Uses sall trim to maintain stearly course	Does not use sail trim to maintain steady course.	
	O	
Moves tiller more than necessary to maintain steady course.	Moves tiller excessively.	
0	0	
	e 10 boat lengths, please raise you I line (hold a steady course) sting the boat's heading for changes es for 10 boat lengths. ted. Steens straight within +/- 20 degrees. Uses sail trim to maintain steady course.	

Performance of Rubrics in Elements with no reported relationship to safe/unsafe operation

Of the 11 Elements that did not report a significant and meaningful relationship to safe/unsafe sailboat operation on any type of sailboat, 5 had at least one dimension of proficiency within their Rubrics that demonstrated a significant and meaningful relationship to safe/unsafe boat operation overall.

- 1.1: A: Determine suitability for departure... B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip. The dimensions significantly related are the level to which the operator gathers information about other environmental factors and gathers information relative to the time and duration of the trip.
 - NOTE: Results on specifics for this Rubric may have been impacted by the design of the data collection process in that boat operator's determination about suitability of departure may have been influenced by the fact that the data collection team was present and ready to proceed.
- 1.3: A: Confirm that all crew and passengers put on their life jackets... B: ensuring the life jackets are appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly. The dimension significantly related is the level to which the operator confirms all others on the boat have adjusted life jackets to fit.





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NOTE: This dimension was significant for keelboat only as no competent crew was involved for sailing dinghies.

- 4.1: A: Steer the sailboat in a straight line (hold a steady course)... 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. The dimensions significantly related are the level to which the operator steers straight within "X" degrees and uses effective sail trim to maintain a steady course.
- 5.2: A: Secure positions of rudder and centerboard (if applicable)... B: adjusting centerboard and rudder for arrival, ensuring neither comes in contact with the ground or objects in the water. The dimension significantly related was the level to which the operator adjusts rudder correctly so that there is no contact with the ground or objects in the water during arrival.
- 7.3: A: Toss a line... B: using appropriate method, a distance of one boat length toward intended receiver to within a length equal to one outstretched arm. The dimension significantly related was the level to which the operator uses appropriate method to toss line.

Performance of Rubrics for other Elements

Whereas skills associated with changing direction of the sailboat demonstrate a moderate significant relationship, one Element (4.10 A: Jibe the sailboat... B: using proper sail control, tiller movement, and body movement; and communicating to crew [e.g., 2-part command], if appropriate,) demonstrate a small yet significant meaningful relationship with safe/unsafe overall sailboat operation. In exploring its Rubric dimensions, results indicate that the Rubric dimension identifying the level to which the operator jibes boat from a downwind point of sail on one tack to a downwind point of sail on the opposite tack, and vice versa, demonstrate a small but significant relationship to safe/unsafe operation consistent with the Element overall. However, the other two Rubric dimensions (coordinates proper sail control, tiller movement, body movement throughout the maneuver and communicates properly to crew (if appropriate) demonstrate a moderate significant meaningful relationship to overall safe/unsafe boat operation.

Observation/Interpretation

There is strong support for use of the Rubrics to assess and differentiate level of performance on SAIL Standard Elements, with 26 out of 37 Rubrics resulting in significant meaningful relationship between Standard Elements and safe/unsafe recreational sailboat operation.

5 of the 11 Elements that do not demonstrate a significant and meaningful relationship to safe/unsafe sailboat operation have specific dimensions of proficiency within their Rubrics that do demonstrate a meaningful relationship. Also, one Element that demonstrates a small yet significant relationship with overall safe/unsafe boat operation has Rubric dimensions that demonstrate moderate significant and meaningful relationships. This suggests the relationships between performance on these Elements and overall safe/unsafe sailboat operation may be stronger than indicated by examining only the relationship of the Element overall. Specific dimensions of performance within the Rubric indicate a more specific relationship between the skill within the Element and overall safe/unsafe boat operation.

The combination of Rubrics across all the Elements provides support in observing and differentiating safe/unsafe recreational sailboat operation at an entry level. The pattern of results indicates strong support for using Rubrics to assess the Elements, understanding that the type of sailboat being operated has a subtle influence on the overall profile of skills associated with safe/unsafe recreational sailboat operation.





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Question 5: Are any SAIL Standard Elements or Rubrics too difficult to be demonstrated at a Successful level of proficiency by entry-level sailboat operators?

Summary

The focus of this question was to help determine if any particular level of proficiency identified within the Standard might be too difficult for an entry-level sailboat operator to perform safely and successfully. To answer this question, an analysis was conducted on the frequency with which Sailboat Operators who were identified as safe overall were able to demonstrate a successful level of proficiency on different Rubrics associated with each Element. If operators observed to be safe overall were not able to demonstrate a successful level of proficiency on a particular Rubric, it would suggest that the proficiency identified within the Element might be set beyond the scope of entry-level operation. Results of the analysis indicated the following:

- All 132 Rubrics' proficiency dimensions were demonstrated successfully by at least a subset of the Sailboat Operators at the entry level.
- The sailboat operators observed to be at an Entry-level demonstrated most of the Rubrics' proficiency dimensions more frequently at the Successful level than at the Needs Improvement or Unacceptable/Unsuccessful level.
- Only 6 Elements contained Rubric proficiency dimensions that were demonstrated less frequently at the Successful level than at the Needs Improvement or Unacceptable/Unsuccessful level of proficiency by operators observed to be at entry-level overall. They are:

Element	Rubric dimension demonstrated
1.1: Determine suitability for departures	Gathers information about hazards to navigation
4.2: Achieve effective sail shape	Adjusts all sail controls (e.g. boom vang, outhaul, halyard, downhaul/cunningham, etc.) when available on boat
4.4: Turn the sailboat away from the wind	Eases sails in coordination with turn
4.8: Steer the sailboat close-hauled, on a beam reach, and on a run	Consistently trims sails properly
4.10: Jibe the sailboat	 Jibes boat from a downwind point of sail (broad reach or run) on one tack to a downwind point of sail on the opposite tack, and vice versa; and Coordinates proper sail control, tiller movement, and body movement throughout maneuver
7.6: Return to man overboard (MOB) — (note: for keelboat only)	Stops boat at a reasonable distance from MOB (e.g., arms' reach for sailing dinghy, 1/2 boat length for keelboat)

4 of the 6 Elements had Rubrics focused on adjusting or controlling sails (4.2: Achieve effective sail shape; 4.4:
 Turn the sailboat away from the wind; 4.8: Steer the sailboat close-hauled, on a beam reach, and on a run; and
 4.10: Jibe the sailboat). Considering that 16 Elements have Rubrics associated with managing sails and only 4
 were demonstrated less frequently at the Successful level than at the Needs Improvement or Unacceptable/
 unsuccessful level of proficiency, there is no recommendation to make a general change to levels of
 proficiency based on the theme associated with managing sails.





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Results for adjusts all sail controls might be due to notion that the proficiency is set too high for entry-level sailboat operation. Whereas setting up the sails controls (e.g., during rigging the sailboat/raising the sail) to operate correctly (e.g., pulling the sail up all the way) before getting underway is an entry-level skill, tweaking the sails controls while the boat is underway and has been sailing is more of an intermediate or advanced skill.

The result for 4.2 Achieve effective sail shape may have also been influenced by a misunderstanding of the intent of this skill by the Evaluators of what was meant by a sail control. Evaluators may have thought that sail controls included mainsheet or jib sheet rather than actual sail controls such as boom vang, outhaul, halyard, downhaul/ cunningham, etc. Therefore, behaviors of adjusting the main or jib sheet may have been included in their observations and contributed to the small significant relationship for keelboat operation between Achieve effective sail shape and overall safe/unsafe operation.

Recommendation: Modify and integrate 4.2 Achieve effective sail shape within the Rubric dimensions for 1.6 Rig the sailboat and 2.2 Raise the sail; and to remove Element 4.2 as an Element on its own. This makes the goal of the skill to ensure sail controls are operational so that sail shape is adequate for safe sailing at the entry level. The recommendation is also to include more information in SAIL TSD about expectations associated with an entry-level operator "putting their hands on" the sail controls during preparation to make the sail shape good enough to sail on a Sunday afternoon, rather than a focus on making it a 'perfect' sail shape.

4.8 Steer the sailboat close-hauled, on a beam reach, and on a run is less about turning the sailboat to a particular direction and more about the skill of sailing the boat in a specific direction relative to the wind. Also, one of the reasons it may have been demonstrated less frequently at a Successful level of proficiency is that this Element contains three skills in one.

> **Recommendation:** Modify 4.8 Steer the sailboat close-hauled, on a beam reach, and on a run to focus on sailing the boat in specific directions and divide it into three separate Elements so that each Element contains one specific skill. These are:

- Sail the boat upwind (i.e., close-hauled or shallow close reach)... B: using proper sail trim and tiller control.
- Sail the boat on a reach (across the wind; i.e., deep close reach, beam reach or shallow broad reach)... B: using proper sail trim and tiller control.
- Sail the boat downwind (i.e., deep broad reach or run)... B: using proper sail trim and tiller control.

Include the following explanations within the SAIL TSD to help ensure a clear understanding of what is included within each Elements.

- Using "sail the boat" instead of "steer the sailboat" gets more toward what we want actual sailing on those points of sail, not just steering to them. It also helps to eliminate the tendency for the operator to go in the no sail zone or head-to-wind when asked to sail upwind.
- Including the points of sail as parentheticals helps to clarify for the course provider what is meant by the three terms of upwind, downwind, and across the wind (or reaching). Reaching and "across the wind" should be used together so that there is no confusion.





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Further qualifying the reaches with "deep" and "shallow" serves to indicate more precisely what we are looking for. Sailing a deep close reach is technically sailing upwind, but you are not going to achieve your upwind destination by being 85 degrees off the wind. A shallow close reach is not that far from close hauled, so the operator will make it to the upwind destination more quickly.

Include a Rubric for each Element. The recommended Rubrics are identified in Attachments C and D.

- The three Rubric dimensions used to assess 7.6 Return to man overboard (MOB) were demonstrated at a Successful level or proficiency by operators observed to be safe entry-level operators overall at the following percentages:
 - o 56%: Uses suitable method (e.g., Figure-8, Quick Stop, Quick Turn) to maneuver boat.
 - o 31%: Stops boat at a reasonable distance from MOB (e.g., arms' reach sailing dinghy, 1/2 boat length for keelboat).
 - 52%: Returns to MOB within a reasonable period of time for the situation.

Although all three dimensions show low percentages, stops the boat at a reasonable distance to the MOB was demonstrated at a Successful level the least at 31%. It was also demonstrated at an Unacceptable/ unsuccessful level 55% of the times it was attempted by operators observed to be safe overall.

These results may be related to the notion that Return to man overboard (MOB) is a complex maneuver that involves a collection of skills. However, the results may also be an artifact of the data collection process and environment. Although the instruction given to Operators was to 'stop' at a reasonable distance from the MOB, beginner Sailboat Operators may have interpreted the goal of the activity as pass by the MOB at a reasonable distance. This may have come from that fact that time passed between hearing the instruction and reaching the MOB. Also, a competent crew member was on board with a boat pole ready to pick up the MOB object once the maneuver was completed.

Recommendation: 7.6 Return to man overboard (MOB) (including the Rubric dimension stop the boat at a reasonable distance to the MOB), is a fundamental safety skill that is also an amalgamation of individual skills associated with operating a sailboat. It involves tacking or jibing; sailing straight upwind or downwind; bringing the sailboat to a stop at a specified location, to name a few. As a result, the recommendation is to keep Return to man overboard (MOB) within the SAIL Standard, keep stop the boat at a reasonable distance to the MOB as a Rubric dimension. Also it is recommended that more detailed information on this Element and Rubric dimension be included within the SAIL TSD that:

- Indicates this maneuver should be designed to take place toward the end of instructional programming to help ensure the individual pieces of the maneuver are learned before integrating them within one maneuver.
- Elaborates on what is meant by "stopping" vs. "passing" to ensure students have a clear understanding of the specific skill in the maneuver. Stopping is a relative and situational concept on the water during this maneuver. The quality of the "stop" is influenced by a combination of distance (how far away you are from the MOB) and speed (how fast you are traveling when you reach the MOB. The goal of stopping should remain in the standard
- Identifies the importance of managing 'factors of convenience' that can emerge during instruction and influence the level of skill developed during instruction of this maneuver.





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• 1.1: Determine suitability for departures; performance on the Rubric dimension gathers information about hazards to navigation might have also been influenced by the data collection process in that beginner Sailboat Operators may have assumed that the research team would manage any potential hazards in the environment and not let the Operator leave under unsuitable conditions. No specific recommendation is made for this finding.

Observation/Interpretation

Results of the frequency analysis indicate that no Rubric proficiency dimension was too difficult to be accomplished by all sailboat operators observed to be at an entry-level. Most of the Rubric dimensions were demonstrated more frequently at a Successful level of proficiency than at a Needs Improvement or Unacceptable/unsuccessful level. For those Elements with Rubrics demonstrated more frequently or at the same percentage as the Needs Improvement/unsuccessful levels, a small theme focused on the topic of managing sails but was not strong enough to warrant any potential changes to the Rubrics.

Results on two Rubric dimensions produced recommended changes to their respective Elements that create more targeted application of their content. One results in Element content woven into the Rubrics for other Elements. The other results in dividing the Element into three more focused Elements.

One Rubric dimension associated with 7.6 Return to man overboard (MOB) might benefit from an examination of the level of difficulty set forth within its Rubric proficiency given the high percentage of operators observed to be safe overall that were observed to be Unacceptable/unsuccessful with their attempt to demonstrate the skill.





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Question 6: What is the relationship between performing at an <u>Unsuccessful/unacceptable level</u> of proficiency on the Rubrics and being observed as a safe/unsafe sailboat operator overall?

Summary

The Rubrics used to assess performance on the Standard Elements contained 3 levels: Level 3—Successful, Level 2—Needs Improvement, and Level 1—Unacceptable/unsuccessful performance. The purpose of this question is to help determine the impact of receiving an Unacceptable/unsuccessful level of proficiency observation (Level 1) on any one of the Rubric dimensions of proficiency in relationship to overall safe/unsafe entry-level sailboat operation.

Results indicate a small but significant correlation between receiving an Unacceptable/unsuccessful level of performance on any dimension of proficiency and overall safe/unsafe sailboat operation. This finding was significant when both dinghies and keelboats were included. When type of sailboat was considered, the relationship was significant (yet still relatively weak) for dinghies but not for keelboats.

This suggests that demonstrating an Unacceptable/unsuccessful level of proficiency on a Rubric is related to being observed as unsafe overall as a sailboat operator. However, given the small (weak) correlation, it does not automatically suggest the operator will be identified as unsafe overall. The observation is more likely related to dinghies than to keelboats.

This point is emphasized by the finding during the frequency analysis that observations of safe entry-level operation of the sailboat overall were accompanied by specific observations of Unacceptable/Unsuccessful on particular Rubric dimensions and that observations of unsafe overall sailboat operation were accompanied by a Successful level of proficiency demonstrated on specific Rubric dimensions.

Pattern of "1's" on Rubrics

An analysis was also conducted to determine whether or not the number of Unacceptable/Unsuccessful observations made across different Rubrics related to observations of overall safe/unsafe sailboat operation. Whether considering all sailboats together or dinghies and keelboats separately, the overall relationship between the number of Unacceptable/Unsuccessful proficiency received on specific Rubrics' behaviors and overall safe/unsafe sailboat operation was a moderate and significant negative correlation. This indicates that the more Unacceptable/Unsuccessful level proficiency observations an operator receives on individual Rubrics, the more likely the operator will also be seen as a engaging in unsafe sailboat operation overall.

Observation/Interpretation

The more an Unacceptable/Unsuccessful level of proficiency is demonstrated on individual Rubrics, the more likely an operator will be seen overall as an unsafe recreational sailboat operator. This is in the expected direction and provides evidence that the Rubrics work. However, one implication is that being observed as unsuccessful on any individual Rubric proficiency does not automatically mean the Operator will be observed as unsafe overall. Being successful or unsuccessful with one Rubric does not guarantee success or failure on another Rubric or overall.

Therefore, when used for observation and assessment purposes, the Rubrics need to be considered independently from each other and used as a profile or collection of skills to get a complete picture of an operator's performance as a safe/unsafe Sailboat Operator.





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Question 7: Is there a relationship between a person's <u>natural preferences</u> for decision making and problem solving and overall performance in safe/unsafe recreational sailboat operation?

Summary

A psychological assessment called *VIEW:* An Assessment of problem-solving style was included in the study to gather data on Sailboat Operators' preferences for thinking, decision making, and problem solving in order to ensure no bias exists in the draft SAIL Standard associated with any particular naturally occurring problem-solving preference. Finding such a relationship would suggest certain operators have a natural advantage for being safe sailboat operators and thus would make it unfair to use this standard as a national standard.

An analysis was done to examine the relationship between sailboat operators' scores on this assessment and their overall performance as safe/unsafe sailboat operators. Results indicate no meaningful or significant relationship exists between an operator's natural thinking, decision-making, and problem-solving preferences and their performance on the Standard.

Observation/Interpretation

The lack of meaningful or significant relationship between a sailboat operator's problem-solving preferences and level of proficiency exists for all three dimensions of thinking style and for each type of sailboat. This indicates no significant or meaningful relationship exists between performance of the skills associated with safely operating a sailboat (according to the SAIL Standard under development) and the operator's natural thinking preferences.

This provides strong evidence to support the notion that there is no thinking preference bias in the SAIL domain Standard or its performance Rubrics and suggests the standard is more likely to work on a national level for the full range of natural preferences that exist across the nation.





SAIL National Validation Program Research Project
National System of Standards for Recreational Boat Operation - USCG OnWater Standards Grant III (SAIL, HUMAN, HUMAN)



Question 8: What is the relationship between data collection <u>venue and performance</u> on the SAIL Standard Elements or Rubrics?

Summary

A series of statistical procedures was used to examine the impact that the venue might have had on performance of the skills within the SAIL Standard. The goal was to determine whether or not location of the data collection (i.e., venue) had an impact on the proficiency of operators to safely perform the skills identified within the SAIL Standard. A Pearson chi-squared test was performed to determine any relationship exists. Results indicated that a pattern based on venue did, in fact, exist.

A one-way ANOVA (Analysis of Variance) was performed to see if the pattern was significant. Results of the ANOVA indicated that there was a significant pattern in the data and, therefore, the data needed to be examined further. Follow-up post hoc tests were used to understand the nature of the pattern. Results indicated that Venues 3 and 5 showed a meaningful and significant difference from each other in the performance of operators on the SAIL Standard.

Observations/Interpretations

Results indicate that something was different in the performance of Sailboat Operators between Venues 3 and 5 only. The difference may be explained by the quality of the Operators at each venue. Evaluators' overall observations of safe/unsafe sailboat operation indicated that the overall level of Sailboat Operators who participated in Venue 3 data collection had a higher occurrence of observations at Level 3: Advanced than did Venue 5.

As the table to the right indicates, there are similarities between Venues 3 and 5 with respect to the number of Sailboat Operators involved, number of observations made using the SAIL Checklist, and number of overall observations on unsafe sailboat operation. However, the last two rows of the table indicate a much larger number of observations of

Venue 3	Venue 5	Observation
10	9	Number of Sailboat Operators involved
43	35	Number of Observations made
11	11	Number of overall observations as Unsafe
		Number of Operators received at least two overall
3	4	observations as Unsafe
18	1	Number of overall observations as Advanced
		Number of Operators received at least two overal
3	0	observations as Advanced

Advanced proficiency made at Venue 3 than at Venue 5.

At Venue 3, 18 of the 43 (42%) total observations indicated Operators demonstrating overall Advanced proficiency. At Venue 5, 1 observation out of 35 (3%) indicated Advanced overall proficiency by an Operator. This finding can be explained by the fact that the selection process used to identify potential Operators to involve in the study was modified after Venue 3 to include individuals with less experience in operating sailboats. The purpose of the change was to increase the likelihood of having more individuals who were potentially unsafe operators so that we could ensure a more balanced representation of beginner sailboat operators at a safe and unsafe levels of proficiency.

Given there was no significant or meaningful difference in the performance of operators across the other venues, and the difference between Venues 3 and 5 appears to be explainable, there is evidence to support that the SAIL Standard works effectively well for differentiating safe from unsafe recreational sailboat operation across the venues in which the data were collected.





SAIL National Validation Program Research Project
National System of Standards for Recreational Boat Operation - USCG On-Water Standards Grant III (SAIL, HUMAN, HUMAN)



Question 9: What is the relationship between <u>weather conditions and performance</u> on the SAIL Standard Elements or Rubrics?

Summary

The weather conditions for which the SAIL Standard has been developed are set for wind 10 knots or less; maximum 12 knot gusts; and with waves 2 feet or less. Since sailboat operation is heavily influenced by weather conditions, a Spearman's Rho correlation was run to examine the potential relationship between the wind, gusts, and wave conditions on overall observation of safe/unsafe performance. All correlations were weak to non-existent, and none showed significance.

Observations/Interpretations

According to these results, varying levels of wind, gusts, and wave conditions experienced at the 5 different venues in which data were collected did not have a significant impact on the level of proficiency demonstrated by the sailboat operators during data collection.

Also, since the full range of wind conditions was experienced across the different data collection sessions at different venues, yet had no significant relationship to safe/unsafe operation overall, it would suggest that the wind/gusts and wave conditions set for application of the SAIL Standard are appropriate in that they did not have a significant relationship to performance of the skills identified within the draft SAIL Standard.





SAIL Standard (Version 4)

National System of Standards for Recreational Boat Operation



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July 25, 2016

This document includes recommended changes resulting from the SAIL National Validation Program that took place from August 2015 through June 2016. It is Version 4 of 5 eventual versions of the Skills-based SAIL Standard being developed to support the USCG's National System of Standards for Recreational Boat Operation. It does not contain the final version of the SAIL Standard and therefore is being distributed for information purposes only. Additional work needs to be done to complete the final version.

Title: On-Water Skills-based SAIL Standard (Version 4 of 5)

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

Sailboat operation.

Scope: This is the core voluntary standard designed to apply to entry-level SAIL on-water

skills-based courses in the U.S. states and territories and District of Columbia and function within a national system of standards for recreational boat operation.

SAIL

Domain of application

Boat Characteristics: Boat Characteristics: Small keelboat or sailing dinghies to include daysailers,

centerboard/daggerboard boats, or multihulls at a maximum of 26 feet with tiller steering and with no auxillary power in operation

Wind/Water Conditions: 10 knots or less; maximum 12 knot gusts; 2 feet or less waves **Operation Conditions:** Daytime with no restricted visibility or threatening weather

Stages of entry-level recreational boat operation

NOTE: For those recreational boat operations where the boat is <u>underway</u>, individual skill-based standard elements in this On-Water SAIL Standard are <u>to be</u> accomplished <u>in accordance with any aids</u> to navigation, navigational rules, and <u>any</u> regulations applicable to the location in which the skill is being executed.

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Operation #1: Prepare to depart

The operator will be able to:

- 1.1 **A: Determine suitability for departure...** *B: using information gathered about weather conditions, hazards to navigation and other environmental factors relative to departure time and duration of trip.*
- 1.2 **A: Put on a life jacket...** *B: ensuring it is appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.*
- 1.3 **A: Confirm that all crew and passengers put on their life jackets...** *B: ensuring the life jackets are appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.*
- 1.4 **A: Board and move about the sailboat...** *B: maintaining balance while keeping boat reasonably stable (e.g., minimal rocking) while boarding and distributing persons/gear appropriately.*
- 1.5 **A: Inspect the sailboat...** *B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.*
- 1.6 **A:** Rig sails and lines... B: following rigging procedures for specific boat, ensuring sail controls are operational, and using proper knots.
- 1.7 A: Communicate safety-related information to others on board... B: briefing passengers and crew prior to departure (e.g., location of safety items, key safety concerns, anticipated weather and water conditions, expected behaviors, rescue procedures, etc.).
- 1.8 A: Ready the sailboat (and crew if applicable) for departure... B: positioning boat properly using lines/fenders (if applicable), considering wind and current and communicating departure plan (if applicable).

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

The operator will be able to:

- 2.1 A: Secure positions of rudder and centerboard (if applicable)... B: adjusting centerboard and rudder for departure, ensuring neither comes in contact with the ground or objects in the water.
- 2.2 A: Raise the sails.... B: positioning boat correctly relative to the wind and conditions (e.g., current), using appropriate sail_raising techniques, and maintaining control of the boat and sails throughout.
- 2.3 **A: Get underway and start sailing...** *B: checking for clear departure, pushing or turning boat in appropriate direction and coordinating sails and tiller adjustments to get boat under control.*

Operation #3: Maneuver in close quarters

The operator will be able to:

- 3.1 **A: Turn the sailboat in a 360-degree circle...** *B: using proper tiller, sail, and weight positioning, and turning within a distance of four boat lengths.*
- 3.2 A: Turn the sailboat out of a head-to-wind position (i.e., get out of irons)... B: getting boat sailing again on intended tack, properly adjusting sails and tiller.

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Operation #4: Operate in open water

The operator will be able to:

- 4.1 **A: Steer the sailboat in a straight line (hold a steady course)...** *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.*
- 4.2 A: Place the sailboat in the safety position (or heave to if applicable for boats with two sails) and then resume sailing on a specific tack... B: using proper control of sails and tiller.
- 4.3 A: Turn the sailboat away from the wind... B: adjusting sails and tiller and communicating to crew if appropriate.
- 4.4 A: Turn the sailboat toward the wind... B: adjusting sails and tiller and communicating to crew if appropriate.
- 4.5 A: Slow and then accelerate the sailboat maintaining constant heading... B: adjusting sails and tiller.
 - 4.6 A: Tack the sailboat... B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate.
 - 4.7 A: Sail the boat upwind (i.e., close-hauled or on a shallow close reach)... B: using proper sail trim and tiller control.
 - 4.8 A: Sail the boat on a reach (across the wind; i.e., deep close reach, beam reach or shallow broad reach)... B: using proper sail trim and tiller control.
 - 4.9: A: Sail the boat downwind (i.e., on a deep broad reach or run)... B: using proper sail trim and tiller control.
 - 4.10. A: Sail directly downwind... B: avoiding an unintentional jibe for 10 boat lengths.
 - 4.11 A: Jibe the sailboat... B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate.

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

The operator will be able to:

- 5.1 **A: Ready the sailboat for arrival...** *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.*
- 5.2 **A: Secure positions of rudder and centerboard (if applicable)...** *B: adjusting centerboard and rudder for arrival, ensuring neither comes in contact with the ground or objects in the water.*
- 5.3 **A:** Bring the sailboat to a stop at a specified location... *B:* checking for a clear approach, turning boat in the appropriate direction and using proper control of tiller and sails (if applicable) to arrive smoothly.
- 5.4 **A: Lower the sails...** *B: positioning boat correctly relative to the wind using appropriate sail lowering techniques and maintaining control of the boat and sails throughout.*

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

The operator will be able to:

- 6.1 **A: Secure the sailboat...** B: using appropriate lines, knots, and proper fender positioning (if applicable), allowing for possible changes in wind, current and tide.
- 6.2 A: Ready the sailboat to be left unattended... B: stowing properly all equipment/gear, lines, and sails.
- 6.3 **A: Get off the sailboat...** *B:* keeping the boat reasonably stable (e.g., minimal rocking) while offloading persons and gear.

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

The operator will be able to:

- 7.1 A: Depower the sailboat quickly... B: adjusting sails and tiller appropriately to control the boat.
- 7.2 **A:** Avoid collisions... *B:* by maintaining a proper lookout, assessing potential risk of collision and taking early and substantial action.
- 7.3. A: Accept a single line or side tow... B: maneuvering safely for at least 20 boat lengths.
- 7.4. A: Return to man overboard (MOB)... B: using a suitable method to maneuver boat (e.g., Figure-8, Quick Stop, Quick Turn) and stopping the boat at a reasonable distance from mob (e.g., arms' reach for sailing dinghy; ½ boat length for keelboat) in a reasonable period of time for the situation (i.e., boat size/configuration, wind/water conditions).
- 7.5. A: Recover a capsized sailboat... B: using proper techniques to return the boat to an upright position, re-enter boat, and ready boat for sailing). *†

*Note: This skill applies to boat types that allow for unaided capsized recovery and re-boarding without assistance
†Note: Persons with disabilities may require assistance to complete this skill

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4.2 **A: Achieve effective sail shape...** *B: adjusting basic sail controls (e.g., boom vang, outhaul, halyard, downhaul/ cunningham, etc.) if available on boat.*

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- 7.3 **A: Toss a line...** B: using appropriate method, a distance of one boat length toward intended receiver to within a length equal to one outstretched arm.
- 7.4 **A:** Receive an accurately tossed line... *B:* using proper body positioning and without injury.



National System of Standards for Recreational Boat Operation: USCG On-Water Standards Grant III (SAIL, POWER, HUMAN)



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July 26, 2016

This document includes recommended changes resulting from the SAIL National Validation Program that took place from August 2015 through June 2016. It is Version 4 of 5 eventual versions of the Skills-based SAIL Rubrics being developed to support the USCG's National System of Standards for Recreational Boat Operation. It does not contain the final version of the SAIL Rubrics and therefore is being distributed for information purposes only. Additional work needs to be done to complete the final version.

SAIL

Domain of application

Boat Characteristics: Boat Characteristics: Small keelboat or sailing dinghies to include daysailers, centerboard/daggerboard boats, or multihulls at a maximum of 26 feet with tiller steering and with no auxiliary power in operation

Wind/Water Conditions: 10 knots or less; maximum 12 knot gusts; 2 feet or less waves

Operation Conditions: Daytime with no restricted visibility or threatening weather

Stages of entry-level recreational boat operation

NOTE: For those recreational boat operations where the boat is <u>underway</u>, individual skill-based standard elements in this On-Water SAIL Standard are to be accomplished <u>in accordance with any</u> aids to navigation, navigational rules, and <u>any</u> regulations applicable to the location in which the skill is being executed.

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Deleted: NOTE: During the assessment of these Standard elements as part of the SAIL Standard National Validation Program, all individuals on, in, or near the water shall wear a USCG approved life jacket that is serviceable, fits properly and is appropriate for the individuals' body type and size, boat and activity.



1.1

SAIL Rubrics (Version 4)

National System of Standards for Recreational Boat Operation: USCG On-Water Standards Grant III (SAIL, POWER, HUMAN)



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Operation #1: Prepare to depart

The operator will be able to:	
A: Determine suitability for departure	B: using information gathered about weather conditions, hazards to navigation and other
	environmental factors relative to departure time and duration of trip.

Level	Proficiency Description
3 Successful Performance	The operator: 1.1a Gathers information about weather conditions (e.g., wind speed/direction, air temperature, precipitation, cloud cover, water conditions, etc.). 1.1b Gathers information about hazards to navigation. 1.1c Gathers information about other environmental factors. 1.1d Accurately determines suitability for the trip (makes correct go/no go decision) before trip. 1.1e Gathers information relative to time and duration of trip.
2 Needs Improvement	The operator: 1.1a Gathers incomplete or inaccurate information about-weather conditions (e.g., wind speed and direction, air temperature, precipitation, cloud cover, water conditions, etc.). 1.1b Gathers incomplete or inaccurate information about hazards to navigation. 1.1c Gathers incomplete or inaccurate information about other environmental factors. 1.1d Accurately determines suitability for the trip (makes correct go/no go decision) without considering all the information. 1.1e Gathers information relative to time of departure, but not for duration of trip.
1 Unacceptable (unsuccessful) Performance	The operator: 1.1a Does not gather information about weather conditions. 1.1b Does not gather information about hazards to navigation. 1.1c Does not gather information about other environmental factors. 1.1d Makes inappropriate determination about suitability for the trip (makes incorrect go/no go decision). 1.2e Does not gather information relative to time or duration of trip.



National System of Standards for Recreational Boat Operation: USCG On-Water

Standards Grant III (SAIL, POWER, HUMAN)



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A: Put on a life jacket... *B: ensuring it is appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.*

Level	Proficiency Description
3 Successful Performance	The operator: 1.2a Selects life jacket appropriate for boat/activity. 1.2b Ensures life jacket is sized correctly. 1.2c Ensures life jacket is serviceable. 1.2d Puts on life jacket. 1.2e Adjusts life jacket to proper fit.
2 Needs Improvement	The operator: 1.2a Selects life jacket appropriate for the boat and activity. 1.2b Ensures life jacket is sized correctly. 1.2c Ensures life jacket is in good working order, but may miss non-critical flaws (e.g., torn pocket) that do not affect flotation. 1.2d Puts on life jacket. 1.2e Adjusts life jacket to fit for effective flotation but adjusts too loosely or in a way that may affect ability to swim.
1 Unacceptable (unsuccessful) Performance	The operator: 1.2a. Selects a life jacket not appropriate for the boat or activity. 1.2b Does not ensure life jacket is sized correctly. 1.2c. Does not ensure life jacket is serviceable. 1.2d. Does not put on life jacket. 1.2e. Does not adjust life jacket for proper fit (e.g. life jacket may slip off, affect breathing, or inhibit swimming).



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1.3	The operator will be able to:
1.5	The operator will be able to.

A: Confirm that all crew and passengers put on their life jackets... B: ensuring the life jackets are appropriate for the boat/activity, sized correctly, serviceable, and adjusted to fit properly.

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



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1.4 The operator will be able to:

A: Board and move about the sailboat... *B: maintaining balance while keeping boat reasonably stable (e.g., minimal rocking) and distributing persons/gear appropriately.*

Level	Proficiency Description
3 Successful Performance	The operator: 1.4a Maintains balance (e.g., no sudden recovery motions) while boarding and moving about the sailboat 1.4b Keeps boat reasonably stable (e.g., minimal rocking) while boarding and moving about the boat. 1.4c Distributes all persons/gear appropriately (e.g., boat has minimal list after distribution of persons/gear).
2 Needs Improvement	The operator: 1.4a Boards and moves about boat but may require sudden recovery motions. 1.4b Moves or positions body in a way that causes boat to heel slightly. 1.4c Distributes most persons/gear appropriately (e.g., causes boat to list slightly after distribution of persons/gear).
1 Unacceptable (unsuccessful) Performance	The operator: 1.4a Loses balance, stumbles or falls while boarding or moving about. 1.4b Does not board boat, falls in water, or causes boat to rock excessively or capsize while boarding or moving about. 1.4c Does not keep boat stable while distributing persons/gear (e.g., causes boat to list excessively after distribution of persons/gear).





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1.5	The operator will be able to:
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A: Inspect the sailboat... B: using a pre-departure checklist to confirm a safe platform and verify required equipment is on board.

Level	Proficiency Description
3 Successful Performance	The operator: 1.5a Completely inspects the sailboat (e.g., hull, rigging, sails, lines, cleats, etc.). 1.5b Verifies all required equipment (e.g., certificate number, life jackets, signal devices, etc.). 1.5c Uses a written or memorized checklist.
2 Needs Improvement	The operator: 1.5a Partially inspects the sailboat (e.g., hull, rigging, sails, lines, cleats, etc.). 1.5b Verifies most but not all required equipment (e.g., certificate number, life jackets, signal devices, etc.). 1.5c Uses a written or memorized checklist.
1 Unacceptable (unsuccessful) Performance	The operator: 1.5a Does not inspect the sailboat. 1.5b Verifies a few or none of the required equipment (e.g., certificate number, life jackets, signal devices, etc.). 1.5c Does not use a written or memorized checklist.



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1.6	The operator will be a	ple to:
	A: Rig sails and lines	B: following rigging procedures for specific boat, ensuring sail controls are operational, and using proper knots.

Level	Proficiency Description
3 Successful Performance	The operator: 1.6a Correctly rigs sail(s). 1.6b Correctly rigs all lines. 1.6c Uses all proper knots. 1.6d Ensures all sail controls (e.g., boom vang, downhaul, outhaul, mainsheet, etc.) are operational. 1.6e Ensures all equipment (e.g., winches, cleats, etc.) is operational. 1.6f Achieves an effective sail shape (if appropriate).
2 Needs Improvement	The operator: 1.6a Correctly rigs sail(s) with difficulty 1.6b Correctly rigs some lines. 1.6c Uses some proper knots. 1.6d Ensure some but not all sail controls (e.g., boom vang, downhaul, outhaul, mainsheet, etc.) are operational. 1.6e Ensures some but not all equipment (e.g., winches, cleats, etc.) is operational. 1.6f Achieves an adequate sail shape (if appropriate).
1 Unacceptable (unsuccessful) Performance	The operator: 1.6a Incorrectly rigs sail(s). 1.6b Incorrectly rigs lines. 1.6c Uses improper knots or does not tie knots. 1.6d Does not check sail controls (e.g., boom vang, downhaul, outhaul, mainsheet, etc.). 1.6e Does not check equipment (e.g., winches, cleats, etc.). 1.6f Does not achieve adequate sail shape (e.g., loose outhaul leads to large sail draft; loose halyard or downhaul leads to scallops in luff of sail, etc.) (if appropriate)



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17	The operator will be able to:
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A: Communicate safety-related information to others on board (if applicable)... B: briefing passengers and crew prior to departure (e.g., location of safety items, key safety concerns, anticipated weather and water conditions, expected behaviors, rescue procedures, etc.).

Level	Proficiency Description
3 Successful Performance	The operator: 1.7a Communicates all relevant safety-related information to others on board.
2 Needs Improvement	The operator: 1.7a Communicates some safety-related information to others on board.
1 Unacceptable (unsuccessful) Performance	The operator: 1.7a Does not communicate safety related information to others on board.





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1.8	The operator will be able to:
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A: Ready the sailboat (and crew if applicable) for departure... B: positioning, the boat properly, using lines/fenders (if applicable), considering wind and current, and communicating departure plan (if applicable).

Level	Proficiency Description
3 Successful Performance	The operator: 1.8a Positions boat appropriately considering wind and current. 1.8b Properly uses docklines/fenders (if applicable). 1.8c Communications comprehensive departure plan (e.g., sequence of events, crew assignments, etc.)
2 Needs Improvement	The operator: 1.8a Positions boat somewhat appropriately considering wind and current. 1.8b Uses docklines/fenders (if applicable) but sets them up incorrectly. 1.8c Communications departure plan (e.g., sequence of events, crew assignments, etc.) but omits important items.
1 Unacceptable (unsuccessful) Performance	The operator: 1.8a Does not consider wind and current when positioning boat. 1.8b Does not use docklines/fenders when they should be used. 1.8c Does not communicate departure plan (e.g., sequence of events, crew assignments, etc.).





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

2.1	The o	perator	will be	able	to:
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A: Secure positions of rudder and centerboard (if applicable)... *B: adjusting centerboard and rudders for departure, ensuring neither comes in contact with the ground or objects in the water.*

Level	Proficiency Description
3 Successful Performance	The operator: 2.1a Secures rudder position correctly so that there is no contact with the ground or objects in the water. 2.1b Secures centerboard position correctly with little to no contact with the ground or objects in the water.
2 Needs Improvement	The operator: 2.1a Secures rudder position in a way that results in slight contact with the ground or objects in the water but makes adjustments to correct. 2.1b Secures centerboard position in a way that results in slight contact with the ground or objects in the water but makes adjustments to correct.
1 Unacceptable (unsuccessful) Performance	The operator: 2.1a Positions rudder so that it contacts the ground or objects in the water and does not make corrections, which may impede forward motion or cause damage to boat. 2.1b Positions centerboard so that it contacts the ground or objects in the water and does not make corrections, which may impede forward motion or cause damage to boat.





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2.2 The operator will be able to:

A: Raise the sails.... B: positioning boat correctly relative to the wind and conditions (e.g., current), using appropriate sail_raising techniques, and maintaining control of the boat and sails throughout.

	Level	Proficiency Description		
F	3 Successful Performance	The operator: 2.2a Positions boat correctly relative to the wind and conditions. 2.2b Raises sails using appropriate sail raising techniques. 2.2c Achieves an effective sail shape (if appropriate). 2.2d Maintains control of boat and sails throughout the process.		
lı	2 Needs mprovement	The operator: 2.2a Positions boat correctly relative to the wind and conditions. 2.2b Raises sails but uses inefficient techniques or trial and error resulting in starts and stops. 2.2c Achieves an adequate sail shape (if appropriate). 2.2d Maintains control of boat and sails throughout most of the process.		
(ι	1 Jnacceptable unsuccessful) Performance	2.2b Raises sails using inappropriate techniques or does not raise sails.		

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A: Get underway and start sailing... B: checking for clear departure, pushing or turning boat in appropriate direction and coordinating sails and tiller adjustments to get boat under control.

Level	Proficiency Description	
3 Successful Performance	The operator: 2.3a Performs complete 360-degree scan to confirm a clear path of departure. 2.3b Identifies all potential conflicts between intended departure path and other boats/activities in the vicinity. 2.3c Pushes or turns boat in appropriate direction. 2.3d Coordinates proper sail control, tiller movement, and body movement throughout maneuver. 2.3e Gets boat under control right away.	
2 Needs Improvement	The operator: 2.3a Performs an incomplete scan (less than 360 degrees) of the departure area. 2.3b Identifies some but not all potential conflicts between intended departure path and other boats/activities in the vicinity 2.3c Pushes or turns boat in appropriate direction. 2.3d Uses proper sail control, tiller movement, and body movement, but lacks full coordination. 2.3e Gets boat under control after slight delay.	
1 Unacceptable (unsuccessful) Performance	uccessful) 2.3b Does not identify potential conflicts between intended departure path and other boats/activities in the vicinity.	



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Operation #3: Maneuver in close quarters

3.1 The operator will be able to:

A: Turn the sailboat in a 360-degree circle... *B: using proper tiller, sail, and weight positioning, and turning within a distance of four boat lengths.*

Level	Proficiency Description
3 Successful Performance	The operator: 3.1a Turns boat through one tack and one jibe and returns to initial point of sail. 3.1b Completes circle within a distance of four boat lengths. 3.1c Consistently uses tiller properly to turn boat. 3.1d Consistently adjusts sails to proper trim. 3.1e Consistently positions body weight properly.
2 Needs Improvement	The operator: 3.1a Turns boat through one tack and one jibe but does not return to the initial point of sail. 3.1b Completes the circle within a distance of six boat lengths. 3.1c Inconsistently uses tiller properly to turn boat. 3.1d Inconsistently adjusts sails to proper trim. 3.1e Inconsistently positions body weight.
1 Unacceptable (unsuccessful) Performance	The operator: 3.1a Does not complete a full circle turn. 3.1b Does not complete the turn within six boat lengths. 3.1c Does not use tiller properly. 3.1d Does not adjust sails to correct trim. 3.1e Does not adjust body weight.



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3.2 The operator will be a	able to:
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A: Turn the sailboat out of a head-to-wind position (i.e., get out of irons)... *B: getting boat sailing again on intended tack, properly adjusting sails and tiller.*

Level	Proficiency Description
3 Successful Performance	The operator: 3.2a Turns boat away from wind and gets sailing again on intended tack on first attempt*. 3.2b Properly adjusts sails. 3.2c Properly adjusts tiller. 3.2b Uses tiller and sail(s) in a coordinated motion.
2 Needs Improvement	The operator: 3.2a Turns boat away from wind and gets sailing again on intended tack on seconds. 3.2b Properly adjusts sails. 3.2c Properly adjusts tiller. 3.2b Uses tiller and sail(s) in a coordinated motion but not well timed for the maneuver.
1 Unacceptable (unsuccessful) Performance	The operator: 3.2a Does not turn boat away from the wind (i.e., remains in irons), or gets sailing again on unintended tack, or takes more than 2 attempts to get sailing again. 3.2b Does not properly adjust sails. 3.2c Does not properly adjust tiller. 3.2 b Does not use tiller and sail(s) in a coordinated motion.



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Operation #4: Operate in open water

4.1 The operator will be able to:

A: Steer the sailboat in a straight line (hold a steady course)... 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.

Level	Proficiency Description					
3 Successful Performance	The operator: 4.1a Steers straight within +/- 10 degrees. 4.1b Uses effective sail trim to maintain steady course. 4.1c Uses minimal tiller movement to maintain steady course. 4.1d Consistently adjusts boat's heading to accommodate changes in wind speed and wind direction. 4.1e Maintains course for 10 boat lengths.					
2 Needs Improvement	The operator: 4.1a Steers straight within +/- 20 degrees. 4.1b Uses sail trim to maintain steady course. 4.1c Moves tiller more than necessary to maintain steady course. 4.1d Inconsistently adjusts boat's heading to accommodate changes in wind speed and wind direction. 4.1e Maintains course for between 5 and 10 boat lengths.					
1 Unacceptable (unsuccessful) Performance	The operator: 4.1a Does not steer straight within +/- 20 degrees. 4.1b Does not use sail trim to maintain steady course. 4.1c Moves tiller excessively. 4.1d Does not adjusts boat's heading to accommodate changes in wind speed and wind direction. 4.1e Maintains course for less than 5 boat lengths.					



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4.2. The operator will be able to:

A: Place the sailboat in the safety position (or heave to if applicable for boats with two sails) and then resume sailing on a specific tack... B: using proper control of sails and tiller.

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Level	Proficiency Description
3 Successful Performance	The operator: 4.2a Places boat in the safety position (heaves to if applicable). 4.2b Adjusts sails as needed to resume sailing on prescribed tack. 4.2c Properly adjusts tiller.
2 Needs Improvement	The operator: 4.2a Places boat in the safety position (heaves to if applicable). 4.2b Inconsistently adjusts sails to resume sailing on prescribed tack. 4.2c Does not coordinate sail adjustments with tiller movement.
1 Unacceptable (unsuccessful) Performance	The operator: 4.2a Does not place boat in the safety position (does not heave to if applicable). 4.2b Does not adjust sails to resume sailing on prescribed tack. 4.2c Does not use tiller movement properly.

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4.3. The operator will be able to:

A: Turn the sailboat away from the wind... B: adjusting sails and tiller, and communicating to crew if appropriate.

Level	Proficiency Description
3 Successful Performance	The operator: 4.3a Turns the boat away from the wind. 4.3b Eases sails in coordination with turn. 4.3c Adjusts tiller in a smooth continuous motion. 4.3d Communicates properly to crew if appropriate.
2 Needs Improvement	The operator: 4.3a Turns the boat away from the wind. 4.3b Eases sails too little or too much. 4.3c Adjusts tiller inconsistently. 4.3d Uses some communication if appropriate.
1 Unacceptable (unsuccessful) Performance	The operator: 4.3a Does not turn the boat away from the wind. 4.3b Pulls sails in or does not ease sails. 4.3c Adjusts tiller erratically or does not adjust tiller. 4.3d Communicates poorly or does not give commands.

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4.4 The operator will be able to:

A: Turn the sailboat toward the wind... B: adjusting sails and tiller, and communicating to crew if appropriate.

Level	Proficiency Description
3 Successful Performance	The operator: 4.4a Turns boat toward the wind. 4.4b Pulls sails in smoothly in coordination with turn. 4.4c Adjusts tiller in a smooth, continuous motion. 4.4d Communicates properly to crew if appropriate.
2 Needs Improvement	The operator: 4.4a Turns boat toward the wind. 4.4b Pulls sails in too little or too much. 4.4c Adjusts tiller inconsistently. 4.4d Uses some communication if appropriate.
1 Unacceptable (unsuccessful) Performance	The operator: 4.4a Does not turn boat toward the wind. 4.4b Eases sails, or does not pull sails in. 4.4c Adjusts tiller erratically, or does not adjust tiller. 4.4d Communicates poorly or does not give commands.

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4.5 The operator will be able to:

A: Slow and then accelerate the sailboat maintaining constant heading... B: adjusting sails and tiller.

Level	Proficiency Description
3 Successful Performance	The operator: 4.5a Slows boat down then accelerates boat. 4.5b Maintains a constant heading. 4.5c Consistently adjusts sails effectively, coordinating with tiller movement. 4.5d Adjusts tiller in a smooth continuous motion.
2 Needs Improvement	The operator: 4.5a Slows boat down then accelerates boat. 4.5b Causes boat to go In a slightly different heading but makes course correction. 4.5c Inconsistently adjusts sails. 4.5d Does not coordinate tiller movement with sail adjustments.
1 Unacceptable (unsuccessful) Performance	The operator: 4.5a Does not slow and then accelerate boat. 4.5b Causes boat to go in different heading than planned without course correction. 4.5c Does not adjust sails to control boat speed. 4.5d Does not adjust tiller to maintain heading.

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4. $\underline{6}$ The operator will be able to:

A: Tack the sailboat... B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate.

Level	Proficiency Description
3 Successful Performance	The operator: 4.6a Tacks boat from an upwind point of sail on one tack to an upwind point of sail on the other tack (close haul or close reach) and visa-versa. 4.6b Coordinates proper sail control, tiller movement, and body movement throughout maneuver. 4.6c Communicates properly to crew if appropriate (e.g., uses 2-part command, during both tacks).
2 Needs Improvement	The operator: 4.6a Completes tack but does not start from an upwind point of sail (close haul or close reach) or finish on an upwind point-of sail, or completes tack from tack to the other in only one direction (i.e., tacks from port to starboard tack or tacks from starboard to port tack, but not both). 4.6b Utilizes proper sail control, tiller movement, and body movement, but lacks full coordination. 4.6c Uses some communication if appropriate (e.g., uses only one part of 2-part command, or communicates only during one of the tacks).
1 Unacceptable (unsuccessful) Performance	The operator: 4.6a Does not complete the tack, or significantly over steers to downwind point of sail upon completion of tack. 4.6b Does not properly control sails, tiller movement or body movement. 4.6c Communicates poorly or does not give commands.

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4.7	The	0	perator	will	be	able	to:

A: Sail the boat upwind (i.e., close-hauled or on a shallow close reach)... B: using proper sail trim and tiller control.

Level	Proficiency Description
3 Successful Performance	The operator: 4.7a Sails the boat upwind (i.e., close-hauled or on a shallow close reach). 4.7b Consistently trims sails properly. 4.7c Moves tiller just enough to maintain upwind direction of the boat. 4.7d Avoids unintentional tack or jibe.
2 Needs Improvement	The operator: 4.7a Steers boat approximately upwind (i.e., close-hauled or shallow close reach), but tends to pinch into no-sail zone, or sail too far off the wind to efficiently achieve an upwind destination. 4.7b Inconsistently trims sails properly. 4.7c Moves tiller inconsistently or oversteers but maintains upwind direction of the boat. 4.7d Avoids unintentional tack or jibe.
1 Unacceptable (unsuccessful) Performance	The operator: 4.7a Does not steer boat upwind (i.e., close-hauled or shallow close reach). 4.7b Does not trim sails properly. 4.7c Moves tiller in wrong direction or excessively. 4.7d Unintentionally tacks or jibes.



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1.8	The operator will be able to:	
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A: Sail the boat on a reach (across the wind; i.e., deep close reach, beam reach or shallow broad reach)... B: using proper sail trim and tiller control.

Level	Proficiency Description	
Successful Performance	The operator: 4.8a Sails the boat on a reach (across the wind; i.e., deep close reach, beam reach or shallow broad reach). 4.8b Consistently trims sails properly. 4.8c Moves tiller just enough to maintain sailing on a reach. 4.8d Avoids unintentional tack or jibe.	
2 Needs Improvement	The operator: 4.8a Steers boat approximately on a reach (across the wind; i.e., close reach, beam reach or broad reach). 4.8b Inconsistently trims sails properly. 4.8c Moves tiller inconsistently or oversteers but maintains boat sailing on a reach. 4.8d Avoids unintentional tack or jibe.	
1 Unacceptable (unsuccessful) Performance	The operator: 4.8a Does not steer boat on a reach (across the wind; i.e., deep close reach, beam reach or shallow broad reach). 4.8b Does not trim sails properly. 4.8c Moves tiller in wrong direction or excessively. 4.8d Unintentionally tacks or jibes.	





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4.9

4.9: A: Sail the boat downwind (i.e., on a deep broad reach or run)... B: using proper sail trim and tiller control.

Level	Proficiency Description
Successful Performance	The operator: 4.9a Sails the boat downwind (i.e., on a deep broad reach or run). 4.9b Consistently trims sails properly. 4.9c Moves tiller just enough to maintain sailing downwind. 4.9d Avoids unintentional tack or jibe.
2 Needs Improvement	The operator: 4.9a Steers boat approximately downwind (i.e., deep broad reach or run), but tends to head up to a shallow broad reach, or sails by-the-lee. 4.9b Inconsistently trims sails properly. 4.9c Moves tiller inconsistently or oversteers but maintains downwind direction of the boat. 4.9d Avoids unintentional tack or jibe.
1 Unacceptable (unsuccessful) Performance	The operator: 4.9a Does not steer boat downwind (i.e., deep broad reach or run). 4.9b Does not trim sails properly. 4.9c Moves tiller in wrong direction or excessively. 4.9d Unintentionally tacks or jibes.





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4. $\underline{10}$ The operator will be able to:

A: Sail directly downwind... *B: avoiding an unintentional jibe for 10 boat lengths.*

Level	Proficiency Description
3 Successful Performance	The operator: 4.10a Sails boat directly downwind for 10 boat lengths. 4.10b Identifies imminent jibe indicators (e.g. jib collapsing, boom lifting, sailing by the lee). 4.10c Proactively avoids unintentional jibe (e.g., anticipates changes in wind direction, etc.).
2 Needs Improvement	The operator: 4.10a Sails boat directly downwind for 5 to 10 boat lengths. 4.10b Does not identify imminent jibe indicators (e.g. jib collapsing, boom lifting, sailing by the lee). 4.10c Reactively avoids (e.g., head up slightly, adjust course to accommodate change in wind direction, etc.) to avoid unintentional jibe (moves tiller suddenly to keep boom from crossing over, etc.).
1 Unacceptable (unsuccessful) Performance	The operator: 4.10a Does not sail directly downwind. 4.10b Does not identify imminent jibe indicators (e.g. jib collapsing, boom lifting, sailing by the lee). 4.10c Unintentionally jibes.

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4.11 The operator will be able to:

A: Jibe the sailboat... B: using proper sail control, tiller movement, and body movement; and communicating to crew (e.g., 2-part command), if appropriate.

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Level	Proficiency Description
3 Successful Performance	The operator: 4.11a Jibes boat from a downwind point of sail (broad reach or run) on one tack to a downwind point of sail on the opposite tack, and vice versa. 4.11b Coordinates proper sail control, tiller movement, body movement throughout maneuver. 4.11c Communicates properly to crew if appropriate (e.g., uses 2-part command, during both jibes).
2 Needs Improvement	The operator: 4.11a Completes jibe but does not start from a broad reach or finish on a broad reach, or completes jibe from one tack to the other in only one direction (i.e., jibes from port tack to starboard tack or from starboard tack to port tack, but not both). 4.11b Utilizes proper sail control and body movement, but turns too fast or too slowly, or lacks full coordination. 4.11c Uses some communication if appropriate (e.g., uses only one part of 2-part command, or communicates only during one of the jibes).
1 Unacceptable (unsuccessful) Performance	The operator: 4.11a Does not complete jibe. 4.11b Does not properly coordinate or control sails (e.g., mainsail slams across boat), tiller movement (e.g., significantly over steers to upwind point of sail) or body movement (e.g., boat heels too far). 4.11c Communicates poorly or does not give commands.

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

5.1 The operator will be able to:

A: Ready the sailboat for arrival... B: using appropriate boat position relative to arrival point (e.g., dock, mooring, shoreline, etc.), sail configurations, and lines/fenders (if applicable), taking wind and current into consideration.

Level	Proficiency Description
3 Successful Performance	The operator: 5.1a Positions boat appropriately for arrival, considering wind and current. 5.1b Configures sails appropriately for arrival, considering wind and current. 5.1c Properly uses docklines/fenders (if applicable).
2 Needs Improvement	The operator: 5.1a Positions boat for arrival but not optimally for wind and current. 5.1b Configures sails for arrival but not optimally for wind and current. 5.1c Uses docklines/fenders (if applicable) but sets them up incorrectly.
1 Unacceptable (unsuccessful) Performance	The operator: 5.1a Does not position boat appropriately for arrival. 5.1b Does not configure sails appropriately for arrival. 5.1c Does not use docklines/fenders when they should be used.





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5.2	The operator	will be	able to

A: Secure positions of rudder and centerboard (if applicable)... *B: adjusting centerboard and rudder for arrival, ensuring neither comes in contact with the ground or objects in the water.*

Level	Proficiency Description	
3 Successful Performance	The operator: 5.2a Adjusts rudder correctly so that there is no contact with the ground or objects in the water during arrival. 5.2b Adjusts centerboard correctly with little to no contact with the ground or objects in the water. 5.2c Causes no damage to boat during arrival.	
2 Needs Improvement		
1 Unacceptable (unsuccessful) Performance	The operator: 5.2a Adjusts rudder resulting in contact with the ground or objects in the water that impedes forward motion of boat during arrival. 5.2b Adjusts centerboard resulting in contact with the ground or objects in the water that impedes forward motion of boat during arrival. 5.2c Causes damage to boat during arrival.	



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	5.3	•	g the sailboat to a stop at a specified location B: checking for a clear approach, turning boat in the appropriate direction and using proper control of tiller and sails (if applicable) to arrive smoothly.
Level Proficiency Description		Proficiency Description	
shoreline, etc.).		5.3a Performs complete 360-degree scan of arrival area. 5.3b Identifies all potential conflicts between intended arrival path and other boats/activities in the vicinity. 5.3c Turns boat in appropriate direction. 5.3d Uses tiller and sail(s) in a coordinated motion. 5.3e Stops boat smoothly (e.g., slight contact or no contact at all with dock; does not run over mooring ball; boat just touches shoreline, etc.). 5.3f Stops within a distance allowing boat to be secured easily (e.g., dock within a 1 foot; mooring ball within boat hook reach; shoreline where operator can step out on to beach or into shallow water). 5.3g Uses appropriate method to toss a line (if applicable).	
	Ne	2 eds vement	The operator: 5.3a Performs an incomplete scan (less than 360-degrees) of arrival area. 5.3b Identifies some but not all potential conflicts between intended departure path and other boats/activities in the vicinity. 5.3c Turns boat in appropriate direction. 5.3d Uses tiller and sail(s) in a coordinated motion but not well timed for the maneuver. 5.3e Stops boat abruptly, but without damage (e.g., bumps dock abruptly; boat touches mooring ball; stops abruptly at shoreline, etc.). 5.3f Stops within a distance allowing boat to be secured with slight difficulty (e.g., dock within a 2-3 feet; mooring ball just outside of comfortable boat hook reach; shoreline where operator steps out into knee-deep water). 5.3g, Uses appropriate method to toss a line (if applicable). 5.3h Uses appropriate method to receive a tossed line (if applicable).
	1	l	The operator:



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Unacceptable (unsuccessful) Performance 5.3a Does not scan arrival area.

5.3b Does not identify potential conflicts between intended departure path and other boats/activities in the vicinity.

5.3c Does not turn boat in appropriate direction.

5.3d Does not use tiller and sail(s) in a coordinated motion.

5.3e Stops boat abruptly, resulting in possible damage or injury (e.g., boat slams into dock, impact causes operator to be thrown off balance; hard ramming stop at shoreline, etc.).

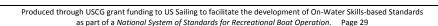
5.3f Does not stop boat within a distance allowing boat to be secured.

5.3g. Does not use appropriate method to toss line, or line becomes tangled during toss (if applicable).

5.3h Does not receive an accurately tossed line, or drops line (if applicable).

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5.4	The operator will be able to:
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A: Lower the sails... B: positioning boat correctly relative to the wind using appropriate sail lowering techniques and maintaining control of the boat and sails throughout.

Level	Proficiency Description
3 Successful Performance	The operator: 5.4a Positions boat correctly relative to the wind. 5.4b Lowers sails using appropriate sail lowering techniques. 5.4c Maintains control of boat and sails throughout the process.
2 Needs Improvement	The operator: 5.4a Positions boat correctly relative to the wind. 5.4b Lowers sails but uses inefficient techniques or trial and error resulting in starts and stops. 5.4c Maintains control of boat and sails and throughout most of the process.
1 Unacceptable (unsuccessful) Performance	The operator: 5.4a Does not position boat correctly relative to wind. 5.4b Lowers sails using inappropriate techniques or does not lower the sails. 5.4c Loses control of boat or sails during the process (e.g., boat continues to sail without control).



6.1

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

The operator will be able to:		
A: Secure the sailboat	B: using appropriate lines, knots, and proper fender positioning (if applicable), allowing for possible changes	
	in wind, current and tide.	

Level	Proficiency Description	
3 Successful Performance	The operator: 6.1a Secures boat. 6.1b Uses appropriate lines and knots. 6.1c Uses appropriate line lengths allowing for possible changes in wind, current and tide. 6.1d Uses proper fender positioning (if applicable).	
2 Needs Improvement	The operator: 6.1a Secures boat. 6.1b Utilizes some appropriate lines and knots. 6.1c Does not use appropriate line lengths that would allow for possible changes in wind, current and tide. 6.1d Uses fenders but does not position them correctly (if applicable).	
1 Unacceptable (unsuccessful) Performance	The operator: 6.1a Does not secure boat. 6.1b Does not use appropriate lines and knots. 6.1c Does not set lines to allow for changes in wind, current and tide. 6.1d Does not use fenders (if applicable).	



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6.2 The operator will be able to:

A: Ready the sailboat to be left unattended... *B:* stowing properly all equipment/gear, lines, and sails.

Level	Proficiency Description	
3 Successful Performance	The operator: 6.2a Properly stows all equipment/gear, lines and sails.	
2 Needs Improvement	The operator: 6.2a Properly stows some but not all equipment/gear, lines and sails.	
1 Unacceptable (unsuccessful) Performance		



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6.3	The operator will be able to:
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A: Get off the sailboat... B: keeping the boat reasonably stable (e.g., minimal rocking) while offloading persons and gear.

Level	Proficiency Description	
3 Successful Performance	The operator: 6.3a Gets off boat keeping it reasonably stable with no sudden recovery motions. 6.3b Keeps boat reasonably stable while offloading persons/gear.	
2 Needs Improvement	The operator: 6.3a Gets off boat keeping it somewhat stable, but may require sudden recovery motions. t 6.3b Keeps boat somewhat stable while offloading persons/gear.	
1 Unacceptable (unsuccessful) Performance	6.3b Does not keep boat stable while offloading persons/gear.	



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

7.1	The operator will be able to:	
	A: Depower the sailboat quickly	B: adjusting sails and tiller appropriately to control the boat.

Level	Proficiency Description	
3 Successful Performance		
2 Needs Improvement	The operator: 7.1a Depowers boat after slight delay. 7.1b Adjusts sails after slight delay. 7.1c Adjusts tiller inappropriately but effectively to maintain control of boat (e.g., moves tiller slightly more than needed if sailing upwind, heads upwind after slight delay, etc.).	
1 Unacceptable (unsuccessful) Performance	7.1b Does not adjust sails.	





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7.2	The operator will be able to:		
	A: Avoid collisions	B: by maintaining a proper lookout, assessing potential risk of collision and taking early and substantial action.	

Level	Proficiency Description	
3 Successful Performance	The operator: 7.2a Maintains a proper lookout. 7.2b Consistently maintains safe speed. 7.2c Assesses potential risks of collision. 7.2d Consistently takes appropriate action (e.g., maintains course and speed if stand-on vessel, takes early and substantial action to keep well clear if give-way vessel, etc.). 7.2e Keeps well clear of other boats and completely avoids potential collision.	
2 Needs Improvement	The operator: 7.2a Inconsistently maintains a proper lookout (infrequent or incomplete horizon scan). 7.2b Inconsistently maintains safe speed. 7.2c Assesses potential risks of collision. 7.2d. Inconsistently takes appropriate action (e.g., maintains course and speed if stand-on vessel, takes early and substantial action to keep well clear if give-way vessel, etc.). 7.2e Avoids potential near potential collision, or may cause stand-on vessel to alter course.	
1 Unacceptable (unsuccessful) Performance	7.2b Inconsistently maintains safe speed.	



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7. $\frac{3}{4}$ The operator will be able to:

A: Accept a single line or side tow... *B: readying boat for tow, securing it to tow, and maneuvering safely for at least 20 boat lengths.*

Level	Proficiency Description	
3 Successful Performance	The operator: 7.3a Readies boat for tow by demonstrating safety and hazard awareness of sails, booms, sheets, and centerboard/daggerboards. 7.3b Catches/throws tow line. 7.3c Properly secures boat to tow, including fenders, spring lines, etc., if needed. 7.3d Safely maneuvers behind towboat for at least 20 boat lengths.	
2 Needs Improvement	The operator: 7.3a Readies boat for tow by demonstrating safety and hazard awareness of sails, booms, sheets, and centerboard/daggerboards. 7.3b Makes more than one attempt to catch/throw towline. 7.3c Improperly secures boat to tow, including fenders, spring lines, etc., if needed. 7.3d Inconsistently maneuvers safely behind towboat for 10-20 boat lengths.	
1 Unacceptable (unsuccessful) Performance	uccessful) 7.3b Does not catch/throw tow line.	

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7.4 The operator will be able to:

A: Return to man overboard (MOB)... B: using a suitable method to maneuver boat (e.g., Figure-8, Quick Stop, Quick Turn) and stopping the boat at a reasonable distance from MOB (e.g., arms' reach for sailing dinghy; ½ boat length for keelboat) in a reasonable period of time for the situation (i.e., boat size/configuration, wind/water conditions).

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Level	Proficiency Description	
3 Successful Performance	The operator: 7.4a Uses suitable method (e.g., Figure-8, Quick Stop, Quick Turn) to maneuver boat 7.4b Stops boat at a reasonable distance from MOB (e.g., arms' reach for sailing dinghy; ½ boat length for keelboat). 7.4c Returns to MOB within a reasonable period of time for the situation.	
2 Needs Improvement	The operator: 7.4a Uses suitable method (e.g., Figure-8, Quick Stop, Quick Turn) to maneuver boat. 7.4b.Slows boat to a near stop (i.e., boat speed less than 1 knot) at a reasonable distance from MOB (e.g., arms' reach for sailing dinghy; ½ boat length for keelboat) MOB. 7.4c Returns to MOB within a reasonable period of time for the situation.	
1 Unacceptable (unsuccessful) Performance	7.4b Does not stop boat, stops boat at a distance of more than one-half boat length from MOB, OR collides with MOB	

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7.5. The operator will be able to:

A: Recover a capsized sailboat... B: using proper techniques to return the boat to an upright position, re-enter boat, and ready boat for sailing *†

*Note: This skill applies to boat types that allow for unaided capsized recovery and re-boarding without assistance

†Note: Persons with disabilities may require assistance to complete this skill

Level	Proficiency Description	
3 Successful Performance Performance The operator: 7.5a Returns boat to upright position without assistance in one attempt using appropriate and effective technique positions front of boat toward wind prior to righting). 7.5b Re-enters boat on first attempt without assistance, using proper techniques. 7.5c Completely readies boat for sailing (e.g., removes all water, re-stows gear, readies lines, etc.).		
2 Needs Improvement	The operator: 7.5a Returns boat to upright position without assistance using more than one attempt or using inappropriate but effective techniques. 7.5b Re-enters boat using proper techniques after more than one attempt, without assistance using proper techniques. 7.5c Mostly readies boat for sailing (e.g., partially removes water, puts gear in boat but not stowed properly, lines are disorderly, etc.).	
1 Unacceptable (unsuccessful) Performance	cceptable 7.5a Does not return boat to upright position or requires assistance to right boat. 7.5b Does not re-enter boat or requires assistance to enter boat OR uses inappropriate re-boarding techniques, possibly	

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4.2 The operator will be able to:

A: Achieve effective sail shape... B: adjusting basic sail controls (e.g., boom vang, outhaul, halyard, down available on boat.

Level	Proficiency Description
3 Successful Performance	The operator: 4.2a Achieves effective sail shape. 4.2b Adjusts all sail controls (e.g. boom vang, outhaul, halyard, downhaul/cunningham, etc.) whe
2 Needs Improvement	The operator: 4.2a Achieves adequate sail shape. 4.2b Adjusts some but not all sail controls (e.g. boom vang, outhaul, halyard, downhaul/cunningl boat.
1 Unacceptable (unsuccessful) Performance	The operator: 4.2a Does not achieve adequate sail shape (e.g., loose outhaul leads to large sail draft; loose haly scallops in luff of sail, etc.). 4.2b Does not adjust sail controls (e.g. boom vang, outhaul, halyard, downhaul/cunningham, etc.

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7.3 The operator will be able to:

A: Toss a line... *B: using appropriate method, a distance of one boat length toward intended receiver to outstretched arm.*

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Level	Proficiency Description	
3 Successful Performance	 The operator: 7.3a Uses appropriate method to toss line. 7.3b Tosses line a distance of one boat length. 7.3c Tosses line to within one outstretched arms length (i.e., requires no reaching or leaning by remaining to the content of the conte	
2 Needs Improvement	The operator: 7.3a Uses appropriate method to toss line. 7.3b Tosses line a distance of one-half to one boat length. 7.3c Tosses line within two outstretched arms lengths (i.e., causes reaching or leaning by receive	
1 Unacceptable (unsuccessful) Performance	The operator: 7.3a Does not use appropriate method to toss line, or line becomes tangled during toss. 7.3b Does not toss line at least one-half boat length. 7.3c Tosses line to more than two outstretched arms lengths (i.e., causes intended receiver to stefall, or tosses line directly at face of receiver).	

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	7.4	The operator will be able to:			

A: Receive an accurately tossed line... *B: using proper body positioning and without injury.*

Level	Proficiency Description			
3	The operator:			
Successful	7.4a Receives an accurately tossed line.			
Performance	7.4b Uses proper body positioning (i.e., a balanced stance with one arm outstretched to the side)			
	7.4c Remains safe and without injury.			
2	The operator:			
Needs	7.4a Receives an accurately tossed line.			
Improvement	7.4b Reaches or leans unnecessarily to receive line.			
	7.4c Remains safe and without injury.			
1	The operator:			
Unacceptable	7.4a Does not receive an accurately tossed line, or drops line.			
(unsuccessful)	7.4b Does not position body properly (e.g., sitting or kneeling; off balance; arms down at side, et			
Performance	7.4c May fall or become injured.			