Date: May 23, 2019
Attachment 23

To: State Board of Fire Services

From: Joe Bunn, Fire Service Training Specialist III, State Fire Training

SUBJECT/AGENDA ACTION ITEM:
FSTEP Open Water Rescue Boat Operator – Small Vessel and Open Water Rescue Boat Operator – Large Vessel Curriculums

Recommended Actions:
Seeking Approval of the Open Water Rescue Boat Operator – Small Vessel and Large Vessel FSTEP Curriculums

Background Information:
These curriculums are being presented for the second time to STEAC. During this presentation we are seeking approval on both curriculums. These courses have been to SBFS with no comment. They are both new to STEAC, however these curriculums have been utilized for training in the Northern portion of the State of California since 2015. These courses both originally were developed and facilitated under a firefighter grant through OES (Office of Emergency Services). This project is a joint effort between the California Office of the State Fire Marshal, State Fire Training, the Office of Emergency Services, Fire and Rescue Branch and CAL FIRE, Training Center (Ione). These two curriculums were put into the developmental format that all FSTEP and Certification Trainings Standards utilize for State Fire Training. The goal is to make these courses available to the Fire Service as soon as possible keeping in mind respect for the process and wanting buy in for all the stakeholders throughout the State of California.

The concept of developing new FSTEP course curriculum is with the purpose of continuing education and professional development, which was approved by STEAC on April 18, 2014. Accordingly, stakeholders identified the need for the creation of numerous courses. The Open Water Rescue Boat Operator Small Vessel and Large Vessel are to name a few.

"The Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California."
Therefore, a cadre of experienced subject matter experts with extensive technical expertise in the area of Open Water Rescue as it relates to Boat and/or Vessel operations were selected from various agencies and backgrounds with the mission to create the content for these two new FSTEP courses.

**Cadre Leadership**
Joe Bunn, Fire Service Training Specialist III, Deputy Chief (ret) US&R CA-TF8, Kevin Conant, Fire Service Training Specialist III, Battalion Chief (ret), US&R CA-TF3, Laura Garwood Meehan, Cadre Editor, Sacramento State.

**Development Cadre Members**
Matthew Bouchard, Fire Captain, Southern Marin FPD, Nicholas De La Torre, Fire Engineer, Alameda County Fire Department, Brent Jacobsen, Newport Beach Fire-Lifeguards, Battalion Chief, Kalan Richards, Fire Captain, CAL FIRE, CA-NEU, Jeff Riley, Fire Captain, San Jose Fire Department, Matthew Samson, Battalion Chief, South San Francisco Fire Department, Rob Styles, Battalion Chief, San Francisco Fire Department, Dave Winnacker, Fire Chief, Moraga Orinda Fire District
Several of the cadre members are State Fire Training Registered Instructors and all have extensive operational experience with special operations incidents as it relates to search and rescue operations in small and large vessels in open water. The development of the material required one multi-day session for both curriculums. Because these are FSTEP Course Plans, the development of a Certification Training Standards (CTS) was not required. However, Terminal Learning Objectives (TLO) were established from the authority from the below standards that typically would be in the CTS. The majority of the TLO’s and the supporting Enabling Learning Objectives (ELO) were developed from the authority of standards NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents (2017), and NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017.) Additionally, NFPA Standards were considered such as 1500, 1521 and 1561 aided as supporting documents when creating the Course Plans.

The breakdown of the FSTEP courses is as follows:

### Open Water Rescue Boat Operator – Small Vessel

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Didactic</td>
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</tr>
<tr>
<td>Activities and Testing</td>
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<td>Course Hour Totals</td>
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### Open Water Rescue Boat Operator – Large Vessel

<table>
<thead>
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<th>Duration</th>
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</thead>
<tbody>
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<td>Didactic</td>
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</tr>
<tr>
<td>Activities and Testing</td>
<td>31:15 Hours:Minutes</td>
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<td>Course Hour Totals</td>
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**Analysis/Summary of Issue:**
Following is an analysis of this new FSTEP courses.
1. Neither the old legacy SFT Fire Officer or Chief Officer courses, nor the NFPA Fire Officer I-IV standards addressed the specific hazards and risks faced by an initial
incident commander at the scene of a technical search and rescue incident nor any open water rescue operations or otherwise. The only curriculum developed in regards to command and control of special operations is the SFT course, Incident Management of Special Operations, which was created to provide awareness level training for incident commanders in recognizing and managing the initial actions of the technical search and rescue incident safely. This course is highly recommended for any new to special operations and may have the responsibility of command and control. Any career or volunteer fire service officer will benefit greatly from the design and content of that course as it relates to search and rescue in the open water environment.

2. These curriculums require vessels of different types and sizes of vessels to facilitate this course. For example: The small vessel is defined by these courses as a vessel that is up to 18 feet in size or operational equivalent. The large vessel is defined as a vessel that is 18 feet to 40 feet or again operational equivalent. In addition, this course is designed for open water and is not appropriate for the river, flood or surf environments. These are limitations that all organizations need to evaluate prior to facilitating this course.

3. Planning and Logistics are a huge piece to this course. Everything to the vessels of the appropriate size based on the course, to site location to ramps and fuel. The number of instructors to students with activities and the environment to support the open water search and rescue operations with all the safety elements i.e. weather can and will be challenging.

4. In addition, these courses require that all students have completed OSFM Open Water Rescuer – Basic or equivalent prior to taking this course. The other options are the AHJ (Authority Having Jurisdiction) has a standard swim test that meets or exceeds the International Association of Dive Rescue Specialists (IADRS) Annual Watermanship Test. This prerequisite is not an option for this course.

5. The instructors for this course need an extensive background in water rescue as it relates to the open water environment. Strong experience in search and rescue techniques in that environment using and operating small and/or large boat/vessel seamanship. Safety is paramount and having qualified instructor’s limits exposure to incidents in the open water environment.

6. The core content utilizes the authority NFPA 1006, 1670 standards, as well as 1500, 1521 and 1561 as supporting documents.

This curriculum was approved by STEAC on October 12, 2018.
Open Water Rescue Boat Operator—Small Vessel Course Plan

Course Details

Description: This course provides classroom instruction and practical application to develop competency for open water rescue boat operations. The course is designed specifically for open water environments and is not appropriate for environments with river and flood or surf environments. Upon completion, the student will be capable of operating small rescue boats (recommended length up to 18 feet or operational equivalent).

Designed For: Public safety members with open water surface rescue responsibilities

Authority: Office of the State Fire Marshal


Prerequisites: It is recommended that students have completed the OSFM Open Water Rescuer - Basic (or equivalent) course prior to taking this course. If students have not taken Open Water Rescuer - Basic, it is recommended that they have completed the requirements of the Authority Having Jurisdiction (AHJ) swim test that meets or exceeds the International Association of Dive Rescue Specialists (IADRS) Annual Watermanship Test.

Standard: Completion of all activities

Hours:

- Lecture: 8 hours
- Activities: 24 hours

Hours (Total): 32 hours
Small Vessel Operator

Maximum Class Size: 24
Instructor/Student Ratio: 1:8 for practical application portions
Restrictions: Students must possess the physical ability to conduct self-rescue on a rescue boat.

Required Resources

Instructor Resources

To teach this course, instructors need:

• [Identify any other resources the instructor needs in order to deliver the course, including, but not limited to: maps, training exercises, assessment tools, or codes and standards.]

Online Instructor Resources

The following instructor resources are available online at http://osfm.fire.ca.gov/training/SFTCurriculum

• Open Water Rescue Boat Operator—Small Vessel Course Plan
• [This list could include activities, student supplements, assessment tools, etc.]

Student Resources

To participate in this course, students need:

• Individual water rescue PPE (PFD and appropriate outer layers)
• [Identify everything the students need in order to participate in the course. This could include books and other documents, materials, equipment, etc.]

Facilities, Equipment, and Personnel

The instructor must evaluate the seaworthiness and safety of participating vessels, as well as their compatibility, operating characteristics, and performance, to ensure all are capable of
operating in the planned environment. Using vessels of incompatible performance will make it challenging to complete course objectives within the recommended timeframe.

The following facilities, equipment, or personnel are required to deliver this course:

**Facilities**
- Classroom
- Boat ramp with dock
- Open water environment

**Equipment**
- Rescue boat with tow vehicle (recommended 1:4 resource/student ratio)
- Rescue boats (recommended 1:2 resource/student ratio)
- At least one IRB or other small boat suitable for capsizing and righting exercises
- Water-rescue mannequins
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   - Restroom locations
   - Food locations
   - Smoking locations
   - Emergency procedures
2. Identify classroom requirements
   - Start and end times
   - Breaks
   - Electronic device policies
   - Special needs and accommodations
   - Other requirements as applicable
3. Review course syllabus
   - Course objectives
   - Calendar of events
   - Course requirements
   - Student evaluation process
   - Assignments
   - Activities
   - Required student resources
   - Class participation requirements

Discussion Questions
1. What are the students’ goals, and expected outcomes, for the course?

Activities
1. Student introductions and summary of their department’s Water Rescue program.

Unit 2: Pre- and Postoperational Considerations

Topic 2-1: Identifying Small-Rescue-Boat Capabilities and Limitations

Terminal Learning Objective
In a classroom setting, without the aid of reference and given a variety or boats or visual aids, the student will identify the inherent capabilities and limitations of small rescue boats in the open-water environment.
Enabling Learning Objectives
1. Identify advantages of a small rescue boat
   • Weight
   • Cost
   • Draft
   • Ease of training
2. Identify the disadvantages of a small rescue boat
   • Rough-water limitations
   • Durability
   • Range
   • Crew fatigue

Discussion Questions
1. What affects the suitability of a small rescue boat to the operating environment?
2. What are your prior experiences with boats?
3. In operational risk management, what are your go/no-go guidelines?

Activities
1. To be determined by the instructor.

Instructor Notes
1. The instructor should emphasize the various types of rescue boats used in the AHJ and their suitability for different responses.

Topic 2-2: Identifying Small-Rescue-Boat Components and Nomenclature

Terminal Learning Objective
At the end of this topic, given a variety of boats or visual aids, the student will identify the components of a small rescue boat and describe them using the appropriate nomenclature.

Enabling Learning Objectives
1. Identify hull components of a small rescue boat, such as:
   • Bow, stern, port, and starboard
   • Gunwale tubes/valves, as applicable
   • Transom
   • Drain plugs or scuppers
2. Identify components of a small rescue boat, such as:
   • Rigging
   • Lifelines
3. Identify propulsion (motor) components, such as:
   • Kill switch w/lanyard
   • Transom saver/motor latches
   • Fuel lines
   • Fuel tanks
   • Fuel/water separator
4. Identify components of a trailer, such as:
Small Vessel Operator

- Hitch types/sizes
- Trailer electrical connection
- Bearings
- Winch
- Bunks/rollers
- Tie downs

Discussion Questions
1. What are the differences between large and small rescue boats?
2. What are the differences between inflatable rescue boats and flat-bottomed rigid-hulled rescue boats?

Activities
1. To be determined by the instructor

Instructor Notes
1. Instructor should direct students to identify various components and then reinforce the use of proper nomenclature in the field, quizzing students on various components.

Topic 2-3: Identifying Small-Rescue-Boat Equipment

Terminal Learning Objective
At the end of this topic, given a variety of small-rescue-boat equipment, the student will identify the equipment carried on a rescue boat and describe the purpose.

Enabling Learning Objectives
1. Identify rescue boat equipment of the AHJ, including but not limited to:
   - Paddles
   - Towing bridle
   - Compass
   - Righting line
   - Handheld lights
   - Anchor
2. Identify rescue equipment of the AHJ, including but not limited to:
   - Throw bag
   - Rescue tube/can
   - Portable radio
   - GPS
   - Blanket
   - Spare PFDs
   - Knife
   - First Aid/EMS
     - Waterproof container
     - Space blanket
   - Helmets
Discussion Questions
1. What are the differences between boat equipment and rescue equipment?
2. What rescue equipment do boats in your AHJ carry?
3. What steps do you take to keep your equipment dry?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor may choose to teach this topic in the classroom or in the field.

Topic 2-4: Demonstrating Awareness of Basic Safety Considerations

Terminal Learning Objective
At the end of this topic, given a simulated emergency, the student will demonstrate awareness of basic safety considerations associated with small rescue-boat operations.

Enabling Learning Objectives
1. Identify the different types of U.S. Coast Guard (USCG)-approved PFDs and their applications
   • Inflatable
   • Swiftwater
   • Individual day and night emergency signaling requirements
   • Other
2. Describe self-survival considerations
   • Float plan
   • Crew overboard
   • Crew and passenger accountability
   • Dewatering emergency
   • On-board fire prevention, extinguishment, and control
   • Damage control procedures
   • Mayday procedures
   • Emergency signaling
   • Emergency anchoring
   • Abandon ship
3. Describe agency-specific PPE
   • Uniform and clothing selection for exposure considerations

Discussion Questions
1. Describe agency-specific PPE considerations and guidelines for water rescue incidents.
2. What immediate notifications should be made and actions performed and in the event of an emergency?
3. What are the benefits of seat assignments or preassigning roles and responsibilities for basic emergency procedures?
4. What PPE and uniform should be used for a water-based rescue to minimize exposure?
5. What land-based PPE and uniforms are not appropriate for water-based rescue?
Activities
1. The instructor must create an activity simulating an emergency while underway.

Instructor Notes
1. The instructor should give consideration to recreating simulated emergencies in the field throughout the course.
2. The instructor should consider using rescue-boat near-miss, close-call case studies.

Topic 2-5: Demonstrating Pre- and Postoperational Checks

Terminal Learning Objective
At the end of this topic, given a variety of small rescue boats, the student will demonstrate critical pre- and postoperational checks.

Enabling Learning Objectives
1. Demonstrate trailer inspection
2. Demonstrate hull inspection
3. Demonstrate how to inspect a motor mount
4. Demonstrate how to service a motor
   • Fuel line and connectors inspection
   • Oil level check
   • Spark plug inspection
   • Propeller inspection
   • Propeller guard inspection as applicable
   • Use of impeller intake flush device
   • Use of bypass flush connection
   • Fuel additives
5. Demonstrate weekly/monthly service and inspection
6. Demonstrate underway troubleshooting

Discussion Questions
1. What are your agency’s preventative maintenance service schedules?

Activities
1. The instructor must create an activity simulating an underway mechanical casualty requiring troubleshooting.

Instructor Notes
1. The activity needs to be relevant to the platform, the AHJ, the students’ abilities, and operating environment.

Topic 2-6: Demonstrating Trailering Considerations

Terminal Learning Objective
At the end of the topic, given a rescue boat, tow vehicle, and trailer, the student will demonstrate critical elements of trailering boats.

Enabling Learning Objectives
1. Describe safety factors associated with trailering operations
   • Pretrip inspection
Small Vessel Operator

- Trailer connections and lights
- Rescue boat secured properly
- Rescue boat equipment secured
- Use of backers
- Road travel considerations
- Speed
2. Demonstrate safe backing fundamentals of a trailered boat
3. Describe trailer positioning for launch/recovery
- Boat ramp etiquette

Discussion Questions
1. What are your agency’s trailering considerations?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor should consider using boat-ramp etiquette case studies.

Unit 3: Basic Boat Handling

Topic 3-1: Demonstrating Trailering

Terminal Learning Objective
At the end of this topic, given a rescue boat, tow vehicles, and trailer, the student will demonstrate pulling and backing a trailered rescue boat.

Enabling Learning Objectives
1. Demonstrate a pretravel inspection
2. Demonstrate road travel
3. Demonstrate backing

Discussion Questions
1. What risks are involved in trailering and launching a boat?

Activities
1. The instructor must create an activity directing students to complete a cone obstacle course with a trailer and tow vehicle. (As applicable to the AHJ)

Instructor Notes
1. If this topic does not pertain to the AHJ, the instructor can cover it in the classroom.

Topic 3-2: Demonstrating the Operation of a Small Rescue Boat

Terminal Learning Objective
At the end of this topic, given a small rescue boat, the student will demonstrate the operation of a rescue boat.
Enabling Learning Objectives
1. Identify safety issues associated with operating a boat
2. Demonstrate motor manipulation
   • Use of gears
   • Use of throttle
   • Use of steering inputs
   • Use of motor trim
   • Use of weight distribution
3. Demonstrate station keeping
4. Demonstrate approaching a stationary object
5. Demonstrate the use of dewatering equipment if applicable

Discussion Questions
1. What factors influence the drift rates of a boat?
2. What forces affect boat handling?

Activities
1. The instructor must create an activity directing students to perform basic station keeping and motor manipulation.

Instructor Notes
1. Instructor should select an operating area with minimal traffic, wind, and tide considerations (a controlled environment).

Topic 3-3: Demonstrating Launching and Recovering

Terminal Learning Objective
At the end of this topic, given a small rescue boat and a tow vehicle with trailer, the student will demonstrate the ability to safely launch and recover a rescue boat.

Enabling Learning Objectives
1. Demonstrate launching a boat from a trailer
   • Launch preparations
   • Crew position during backing and launch
   • Motor manipulation
2. Demonstrate recovery of a boat from a trailer
   • Recovery preparations
   • Motor manipulation
   • Crew position during recovery

Discussion Questions
1. How do wind and current influence launching and recovering a boat?

Activities
1. The instructor must create an activity directing students to launch and recover a rescue boat.

Instructor Notes
1. If this topic does not pertain to the AHJ, the instructor can cover it in the classroom.
Topic 3-4: Demonstrating Docking

Terminal Learning Objective
At the end of this topic, given a small rescue boat and a dock, the student will demonstrate maneuvering and docking a rescue boat.

Enabling Learning Objectives
1. Identify safety considerations when docking a boat
2. Demonstrate proper motor manipulation
3. Demonstrate docking
   • Preparation of docking lines and fenders
   • Allowance for wind and current
   • Tying off

Discussion Questions
1. What are safety considerations for an untrained crewmember or passenger?

Activities
1. The instructor must create an activity directing students to dock to the port and starboard sides.

Instructor Notes
1. Harbor etiquette is paramount and must be discussed and reinforced prior to this topic.
2. Prior to starting this topic, the instructor must ensure the dock location has been determined and confirmed. Coordinate with the marina or harbor staff prior to beginning activities.

Unit 4: Rules of the Road, Weather, Tides, and Maintenance

Topic 4-1: Identifying Rules and Regulations Governing Vessel Operation in Navigable Waters

Terminal Learning Objective
At the end of this topic, given a simulated surface-water rescue environment, the student will identify the navigation rules and regulations that govern operation of a vessel in navigable waters and how they apply to the rescue boat operator in local waters.

Enabling Learning Objectives
1. Describe the navigation rules and regulations that govern operation of a vessel in navigable waters
   • Overview
   • Applicable regions and waterways
   • Governing bodies or enforcement agencies
2. Determine rights of way for various types of vessels based on the navigation rules and regulations that govern operation of a vessel in navigable waters
3. Describe requirements of directional aids to navigation and how they relate to rights of way
   - Locations
   - Shapes, numbers, and colors
   - Meanings
   - Hazards

Discussion Questions
1. How is right of way determined on navigable waterways in the United States?
2. How is a rescue boat classified regarding vessel type when determining right of way?
3. Which rules and regulations apply to your operational area?

Activities
1. The instructor must prepare an activity simulating a number of right-of-way scenarios.

Instructor Notes
1. The student will be aware of how to determine the rights of way for vessels and be able to apply the required procedures to address situations that the student may experience, thereby enabling them to prevent collisions and provide an orderly system to protect the lives and safety of passengers and crew.
2. In California there are two governing bodies, USCG and The California Harbors and Navigation Code.
3. The instructor should reinforce these learning objectives on an ongoing basis throughout the field activities.

Topic 4-2: Identifying Tidal Conditions

Terminal Learning Objective
At the end of this topic, given a data source, the student will identify tidal conditions and how they affect local waters and local marine conditions.

Enabling Learning Objectives
1. Demonstrate knowledge of the effect of tides
   - Tidal changes
   - High tide and low tide (flood, ebb, and slack tide)
   - Water depth changes
   - Movement of water/tidal currents
2. Determine tidal change frequency, duration, and variation by referencing a tide chart
   - Tide charts
   - Internet-based tidal reference sites
3. Describe the effects tidal changes on rescue boat operation
   - Effects of tidal generated currents
   - Low tide – draft limitations

Discussion Questions
1. At what tide are depth soundings on a nautical chart given?
2. How can tides be estimated by observation of shoreline conditions?
3. How does tide affect your launching and recovery decisions?

Activities
1. The instructor must create an activity directing students to identify tidal change frequency, duration, and variation in the local area.

Instructor Notes
None

Topic 4-3: Identifying Weather Conditions and Their Impacts

Terminal Learning Objective
At the end of this topic, given a simulated surface-water rescue environment, the student will identify weather conditions and describe how they affect local waters and local marine conditions.

Enabling Learning Objectives
1. Describe the effect of weather on a rescue boat
   • Wind
   • Sea state
   • Adverse weather patterns or severe storms
2. Demonstrate locating current and weather forecasts
   • Television
   • Radio
   • Internet
   • Marine radio
   • Weather radio
   • USCG Marine Information Broadcasts (MIBs)
3. Demonstrate locating current and anticipated sea-state conditions
   • Internet
   • Weather radio
   • Marine radio
   • USCG Marine Information Broadcasts (MIBs)
4. Describe the sea-state limitation for the AHJ’s rescue boat
   • Manufacturer’s recommendations
   • Department-specific standard operating procedures or guidelines (SOPs or SOGs)
   • Other agencies’ SOPs or SOGs

Discussion Questions
1. How do microclimates affect operational decisions?
2. What sources can be referenced for weather forecasts?
3. What aspect of weather has the greatest effect on small rescue boat operations?
4. What are go/no-go criteria for your rescue boat and crew?

Activities
1. The instructor must create an activity directing students to listen to Marine Information Broadcasts and identify local conditions associated with risk analysis and management.
Instructor Notes
1. The instructor may choose to have students bring in local weather forecasts for the next day.

**Topic 4-4: Identifying Motor Maintenance Requirements**

**Terminal Learning Objective**
At the end of this topic, given a small rescue boat, the student will identify motor maintenance requirements necessary for operational readiness.

**Enabling Learning Objectives**
1. Identify equipment needed to perform motor maintenance
   - Tools
   - Reference materials
   - Fluids and replacement parts
2. Describe maintenance requirements for general use
   - After routine use
   - Monthly
   - Annually

**Discussion Questions**
1. What are your AHJ’s requirements for motor maintenance?
2. What are the manufacturer’s requirements for motor maintenance?

**Activities**
1. To be determined by the instructor

**Instructor Notes**
1. The instructor should discuss the effects of different water types (e.g., salt, different pH, turbid, containing harmful organisms) on the motor when appropriate.

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**Unit 5: Intermediate Boat Handling**

**Topic 5-1: Navigating a Predetermined Course**

**Terminal Learning Objectives**
At the end of this topic, given a boat and a known position, the student will navigate a predetermined course.

**Enabling Learning Objectives**
1. Demonstrate course planning
   - Identify course
2. Identifying course considerations
   - Identify and mitigate hazards
   - Estimate current and predicted water depths
   - Identify current and forecasted weather conditions and sea state
   - Other vessel traffic
3. Demonstrate navigation of the course

Discussion Questions
1. How can you determine safety considerations prior to attempting the exercise?
2. What is the estimated duration to the final destination?
3. What are the impacts of microclimates along the course?

Activities
1. The instructor must create an activity directing students to plan the course and then execute the tasks identified above.

Instructor Notes
1. The instructor must run the course prior to directing students to do so. Course duration should be predetermined by the instructor.

Topic 5-2: Operating the Vessel and Demonstrating Station Keeping

Terminal Learning Objective
At the end of this topic, given a boat and a stationary object, the student will operate the vessel and demonstrate station keeping in open water.

Enabling Learning Objectives
1. Demonstrate navigating to a predetermined stationary object in open water
2. Demonstrate station keeping
   - Determine the effects of wind and current
   - Maintain the position for a predetermined period of time

Discussion Questions
1. What are the benefits of maintaining or holding station?
2. What is the easiest way to hold station?
3. What are some challenging conditions for attempting to hold station?
4. What is the forecasted prevailing force?

Activities
1. The instructor must create an activity directing students to demonstrate station keeping in dynamic conditions.

Instructor Notes
1. The instructor should include approaching a stationary object with or against prevailing forces.
2. Dynamic conditions are recommended.

Topic 5-3: Operating in Shallow Water

Terminal Learning Objective
At the end of this topic, given a vessel and a shallow-water environment, the student will operate the vessel in shallow water.

Enabling Learning Objective
1. Demonstrate estimating water depths for a predetermined area
Small Vessel Operator

- Navigational charts
- Tide tables

2. Demonstrate determining water depths from the rescue boat
   - Shore water lines
   - Visualizing
   - Depth stick
   - Depth finder, if applicable
   - Chart plotter, if applicable

3. Demonstrate maneuvering the vessel in shallow water
   - Draft limitation
   - Motor operation to reduce draft – trimming
   - Beaching

Discussion Questions
1. What techniques can be used to free a vessel that has run aground?
2. How does bottom composition impact shallow-water operations?

Activities
1. The instructor must create an activity directing students to estimate and determine water depths and maneuver the vessel in shallow water.

Instructor Notes
1. Beaching is specific to AHJ and vessel limitations.

Unit 6: Communications, Navigation, and Local Area Orientation

Topic 6-1: Communicating in the Maritime Environment

Terminal Learning Objective
At the end of this topic, given a variety of marine communication devices, the student will communicate with other mariners, first responders, and USCG.

Enabling Learning Objectives
1. Identify various means of marine communication
   - Marine radios
   - Agency-specific radios
   - Cellular telephones
   - Hand signals
   - Flares
   - Voice amplifying devices, if applicable
   - Emergency position-indicating radio beacon (EPIRB)
   - Personnel-locating beacon (PLB)
2. Describe the applicable marine radio options
   - Portable versus mobile
   - Limitations (power, battery life, durability, channel limitations)
Environmental effects on transmitting and receiving clarity

3. Describe common marine frequencies and their uses
   - VHF versus UHF and fire department radios
   - International Hail and Distress Channel (VHF Marine 16)
   - How to communicate with other mariners

4. Describe communication procedures specific to the USCG
   - USCG radio terminology and communication procedures
   - USCG asset radio designators
   - How to relay emergency information to USCG
   - PAN-PAN

Discussion Questions
1. How can a rescue boat operator contact the USCG if needed?
2. How can rescue boat operators monitor calls for assistance from mariners?

Activities
1. To be determined by the instructor

Instructor Notes
1. Instructor should address local USCG radio etiquette, terminology, and procedures.

Topic 6-2: Describing Navigation Techniques for a Maritime Environment

Terminal Learning Objective
At the end of this topic, given a navigational plan including a variety of tools and equipment, the student will describe a variety of techniques to navigate through a maritime environment.

Enabling Learning Objectives
1. Identify various means of maritime navigation
   - Maritime charts
   - Compasses
   - Chart plotters
   - Electronic devices with mapping capabilities

2. Describe coastal piloting
   - Use of chart and navigation tools
   - Development of a navigation plan
   - Compass bearings to known landmarks
   - Navigation by identification of known landmarks

3. Describe aids to navigation
   - Identify locations and meanings
   - Uses for navigating into and out of protected channels
   - Hazard identification
   - USCG notice to mariners

Discussion Questions
1. How are aids to navigation numbered when returning to port?
2. What are the limitations of solely relying on dead reckoning for navigation?
3. What are the benefits of knowing how to chart?

Activities
1. The instructor must create an activity directing students to determine the latitude and longitude of a given point and to define a point given latitude and longitude.

Instructor Notes
1. The charts used should be current and specific to the area of operations. There should be one chart per boat.

Topic 6-3: Analyzing the Local Marine Environment

Terminal Learning Objective
At the end of this topic, given the local marine environment and the maritime reference materials applicable to the AHJ, the student will gather and analyze information on the environment for risk management.

Enabling Learning Objectives
1. Identify resources that can assist in local area orientation
   - Navigational charts
   - USGS Charts
   - Interviews with local maritime subject matter experts
2. Describe components of the local marine environment
   - Launch points
   - Recovery points
   - Depth of local waters
   - Heavily trafficked areas/lanes
   - Hazards
   - Landmarks for dead reckoning
   - Recreational areas
     - Sailing clubs
     - Kite boarders/windsurfers

Discussion Questions
1. What are some of the benefits of identifying numerous access points in the local marine environment?
2. What kinds of subject matter experts might be consulted for gaining situational awareness and hazard assessment?
3. What are hazards and operational considerations for your AHJ?

Activities
1. To be determined by the instructor

Instructor Notes
None

Unit 7: Advanced Boat Handling
Small Vessel Operator

Topic 7-1: Operating in Close Proximity to Other Vessels

Terminal Learning Objective
At the end of this topic, given multiple vessels, the student will operate in close proximity to other vessels while operating under the effects of environmental conditions.

Enabling Learning Objectives
1. Identify operational planning elements to coordinate with other vessels
   • Group travel patterns
   • Describe any safety concerns
   • Assess hazards
   • Estimate water depths
   • Assess environmental conditions
2. Demonstrate maneuvering the vessel
   • Establish a stand-on vessel, maintaining speed and course
   • Approach and depart from other vessels while underway
   • Transfer members or victims between vessels while underway

Discussion Questions
1. What safety considerations must be taken into account prior to operating in close proximity to other vessels?
2. What would be an operational situation requiring the transfer of members or victims?

Activities
1. The instructor must create an activity directing students to come alongside a vessel underway with the intent to transfer members or victims.

Instructor Notes
1. This activity may be limited by AHJ policies and procedures and the availability of a suitable platform.

Topic 7-2: Operating in Proximity to Docks, Piers, and Bridges

Terminal Learning Objective
At the end of this topic, given a vessel and an environment with docks, piers, and bridges, the student will operate the vessel in close proximity to docks, piers, and bridges while operating under the effects of environmental conditions.

Enabling Learning Objectives
1. Identify special considerations when operating in proximity to:
   • Marina dock
   • Launch ramp
   • Fishing pier
   • Abandoned pier or dock
2. Demonstrate operating in close proximity to docks, piers, and bridges while avoiding associated hazards

Discussion Questions
1. How do environmental conditions affect operations in proximity to docks, piers, and bridges (e.g., water dynamics, current, overhead obstructions)?

Activities
1. The instructor must create an activity directing students to operate in close proximity to docks, piers, and bridges while avoiding associated hazards.

Instructor Notes
1. Staffed bridges may present special communications needs.

Topic 7-3: Towing

Terminal Learning Objective
At the end of this topic the student, given two vessels of similar size, will demonstrate towing small boats.

Enabling Learning Objectives
1. Discuss safety considerations for towing
   • Conditions
   • Size of towing boat versus size of boat to be towed
   • Equipment available
   • Need for the tow
2. Demonstrate conducting a stern tow
3. Demonstrate conducting an alongside tow
4. Demonstrate docking a towed vessel

Discussion Questions
1. What are the safety considerations for towing a vessel?
2. What are examples of emergency situations that require towing?
3. What are the differences between emergency and nonemergency towing?

Activities
1. The instructor must create an activity directing students to assess, tow, and dock a disabled vessel.

Instructor Notes
1. Ensure that the activity is conducted in protected (calm) waters with minimal boat traffic.
3. For small-boat operations, instructors should bring ropes for towing.

Topic 7-4: Demonstrating Self-Recovery and Righting

Terminal Learning Objective
At the end of this topic, given an inflatable vessel with no motor and a righting line, a student will demonstrate self-recovery and righting of a capsized inflatable vessel.

Enabling Learning Objectives
1. Describe preparation of inflatable vessel for capsizing
   • Motor
Small Vessel Operator

- Fuel tanks
- Equipment
- Righting lines
2. Demonstrate self-recovery and crew accountability
3. Demonstrate righting and boarding an inflatable boat
   - Body position
   - Righting line placement

Discussion Questions
1. What are safety considerations when an inflatable boat has capsized?
2. What shore-based resource notifications are necessary?

Activities
1. The instructor must create an activity directing students to self-recover and right a capsized inflatable vessel.

Instructor Notes
1. The instructor must select a location with minimal vessel traffic and of sufficient water depth.

Topic 7-5: Recovering a Victim

Terminal Learning Objective
At the end of this topic, given a vessel, rescue adjuncts, and a victim, the student will demonstrate recovering a victim from the water.

Enabling Learning Objectives
1. Identify considerations for direct or indirect recovery
   - Direct: boat to victim
   - Indirect: rescue adjunct or swimmer to victim
2. Demonstrate a safe approach to the victim, considering:
   - Wind
   - Current
   - Swimmer’s motion
   - Motor manipulation
     - Controlling momentum
   - Motor neutral
     - When in proximity to the victim
3. Demonstrate use of rescue adjuncts
   - Throw bag
4. Demonstrate assessing victim’s condition
   - Head, neck, or back injury
   - Exposure
5. Demonstrate techniques to bring victim into boat
   - Stationary lift
6. Demonstrate communicating actions to a shore-based responder
• Develop care plan
• Develop transfer to ambulance plan

Discussion Questions
1. What are the safety considerations for operating a boat in proximity to persons in the water?
2. Under what conditions would you select direct or indirect recovery? Why?
3. What are your options for immobilizing a patient on a small boat? What are the risks?

Activities
1. The instructor must create an activity directing students to assess and recover a victim from the water.

Instructor Notes
1. Best practice is to use water-rescue mannequins rather than live victims.

Unit 8: Dynamic Boat Handling

Topic 8-1: Operating in Dynamic Conditions

Terminal Learning Objective
At the end of this topic, given a vessel, the student will operate in a variety of increasingly complex dynamic conditions.

Enabling Learning Objectives
1. Demonstrate launching and recovering the vessel
   • Prepare for launch
   • Launch
   • Place rescue boat in service
2. Demonstrate operating in a variety of conditions
   • Docking
   • Coordinated searches
   • Station keeping
3. Demonstrate maneuvering the vessel
   • Consider hazards
   • Estimate water depths
   • Consider environmental conditions
4. Demonstrate advanced operator skills
   • Swimmer deployment
   • Swimmer recovery
   • Transfer members between rescue boats while underway
   • Operate in restricted areas

Discussion Questions
1. What are transfer considerations in inclement weather?
Activities
1. The instructor must create an activity directing students to demonstrate the above skills in increasingly dynamic conditions.

Instructor Notes
1. The demonstration of transfer of members (ELO 4) may be limited by AHJ policies and procedures and the availability of a suitable platform.
2. Best practice is to use water-rescue mannequins rather than live victims.

Topic 8-2: Developing and Executing Search and Rescue Operations

Terminal Learning Objective
At the end of this topic, given a vessel, a simulated emergency, and a search area, the student will develop and execute water-based search and rescue operations.

Enabling Learning Objectives
1. Identify the required resources
2. Demonstrate coordination of multivessel rescue activities
3. Demonstrate communicating actions to a shore-based IC
4. Demonstrate mitigating the simulated scenario
5. Describe the transfer of victims to shore-based responders

Discussion Questions
1. What are specific safety considerations during incidents with multiple responding vessels?
2. What are the most effective methods of communication between vessels?

Activities
1. The instructor must create an activity directing students to mitigate a scenario with a simulated victim.

Instructor Notes
None
## Time Table

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<th>Activity Time</th>
<th>Total Unit Time</th>
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**Unit 4 Totals** 1:50 0:25 2:15

**Unit 5: Intermediate Boat Handling**

**Topic 5-1: Navigating a Predetermined Course**

Lecture | 0:00 |
Activity 5-1: Planning and Navigating a Course | 2:00 |

**Topic 5-2: Demonstrating Station Keeping**

Lecture | 0:00 |
Activity 5-2: Demonstrating Station Keeping | 2:00 |

**Topic 5-3: Operating in Shallow Water**

Lecture | 0:00 |
Activity 5-3: Estimating and Determining Depth and Maneuvering in Shallow Water | 1:45 |

**Unit 5 Totals** 0:00 5:45 5:45

**Unit 6: Communications, Navigation, and Local Area Orientation**

**Topic 6-1: Communicating in the Maritime Environment**

Lecture | 0:30 |
Activity 6-1: To be determined by instructor | 0:00 |

**Topic 6-2: Describing Navigation Techniques for a Maritime Environment**

Lecture | 0:40 |
Activity 6-2: Determining Points’ Latitude and Longitude | 0:20 |

**Topic 6-3: Analyzing the Local Marine Environment**

Lecture | 0:25 |
Activity 6-3: To be determined by instructor | 0:00 |

**Unit 6 Totals** 1:35 0:20 1:55

**Unit 7: Advanced Boat Handling**
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**Unit 8: Dynamic Boat Handling**

| Topic 8-1: Operating in Dynamic Conditions                             |              |               |                 |
| Lecture                                                                | 1:00         |               |                 |
| Activity 8-1: Operating in Dynamic Conditions                          |              | 3:00          |                 |
| Topic 8-2: Developing and Executing Search and Rescue Operations       |              |               |                 |
| Lecture                                                                | 1:00         |               |                 |
| Activity 8-2: Mitigating a Scenario                                   |              | 3:00          |                 |
| **Unit 8 Totals**                                                      | 2:00         | 6:00          | 8:00            |

**Lecture, Activity, and Unit Totals:**

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Open Water Rescue Boat Operator—Large Vessel Course Plan

Course Details

Description: This course provides classroom instruction and practical application to develop competency for open-water rescue boat operations. The course is designed specifically for open-water environments and is not appropriate for environments with river and flood or surf environments. Upon completion, the student will be capable of operating large rescue boats (recommended length 18 to 40 feet or operational equivalent).

Designed For: Public-safety members with open-water surface rescue responsibilities

Authority: Office of the State Fire Marshal


Prerequisites: It is recommended that students have completed the OSFM Open Water Rescuer - Basic (or equivalent) and Open Water Rescue Boat Operator—Small Vessel courses prior to taking this course. If students have not taken Open Water Rescuer - Basic, it is recommended that they have completed the requirements of the Authority Having Jurisdiction (AHJ) swim test that meets or exceeds the International Association of Dive Rescue Specialists (IADRS) Annual Watermanship Test.

Standard: Completion of all activities

Hours: Lecture: 8 hours 45 minutes

Activities: 31 hours 15 minutes

Hours (Total): 40 hours

Maximum Class Size: 24
Large Vessel Boat Operator

Instructor/Student Ratio: 1:4 for practical application portions

Restrictions: Students must possess the physical ability to conduct self-rescue on a rescue boat.

Required Resources

Instructor Resources
To teach this course, instructors need:
- [Identify any other resources the instructor needs in order to deliver the course, including, but not limited to: maps, training exercises, assessment tools, or codes and standards.]

Online Instructor Resources
The following instructor resources are available online at http://osfm.fire.ca.gov/training/SFTCurriculum
- Open Water Rescue Boat Operator—Large Vessel Course Plan
- [This list could include activities, student supplements, assessment tools, etc.]

Student Resources
To participate in this course, students need:
- Individual water rescue PPE (PFD and appropriate outer layers)
- [Identify everything the students need in order to participate in the course. This could include books and other documents, materials, equipment, etc.]

Facilities, Equipment, and Personnel
The instructor must evaluate the seaworthiness and safety of participating vessels, as well as their compatibility, operating characteristics, and performance, to ensure all are capable of operating in the planned environment. Using vessels of incompatible performance will make it challenging to complete course objectives within the recommended timeframe.
The following facilities and equipment are required to deliver this course:

**Facilities**
- Classroom
- Boat ramp with dock
- Open water environment
- Jet Dock, if available

**Equipment**
- Rescue boat with tow vehicle (recommended 1:4 resource/student ratio)
- Rescue boats (recommended 1:4 resource/student ratio)
- Water-rescue mannequins
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   - Restroom locations
   - Food locations
   - Smoking locations
   - Emergency procedures
2. Identify classroom requirements
   - Start and end times
   - Breaks
   - Electronic device policies
   - Special needs and accommodations
   - Other requirements as applicable
3. Review course syllabus
   - Course objectives
   - Calendar of events
   - Course requirements
   - Student evaluation process
   - Assignments
   - Activities
   - Required student resources
   - Class participation requirements

Discussion Questions
1. What are the students’ goals, and expected outcomes, for the course?

Activities
1. Student introductions and summary of their department’s Water Rescue program.

Unit 2: Pre- and Postoperational Considerations

Topic 2-1: Identifying Large-Rescue-Boat Capabilities and Limitations

Terminal Learning Objective
In a classroom setting, without the aid of reference and given a variety or boats or visual aids, the student will identify the inherent capabilities and limitations of large rescue boats in the open-water environment.
Enabling Learning Objectives
1. Identify advantages of a large rescue boat
   • Rough-water handling
   • Crew fatigue
   • Capacity
   • Durability
   • Electronics
2. Identify the disadvantages of a large rescue boat
   • Cost
   • Training requirements
   • Draft

Discussion Questions
1. What affects the suitability of a large rescue boat to the operating environment?
2. What are your prior experiences with boats?
3. In operational risk management, what are your go/no-go guidelines?

Activities
1. To be determined by the instructor.

Instructor Notes
1. The instructor should emphasize the various types of rescue boats used in the AHJ and their suitability for different responses.

Topic 2-2: Identifying Large-Rescue-Boat Components and Nomenclature

Terminal Learning Objective
At the end of this topic, given a variety of boats or visual aids, the student will identify the components of a large rescue boat and describe them using the appropriate nomenclature.

Enabling Learning Objectives
1. Identify hull components of a large rescue boat, such as:
   • Bow, stern, port, and starboard
   • Sponson tubes/foam collar
   • Gunwales
   • Transom
   • Bilge plugs
   • Trim tabs
2. Identify components of a large rescue boat, such as:
   • Rigging
   • Deck hardware
   • Lifelines
3. Identify electronic components, such as:
   • Antennas
   • Radios
• AIS
• GPS
• Lights
  o Running lights
  o Anchor light
  o Spot lights
  o Emergency lighting
• Bilge pump
• Battery systems

4. Identify propulsion (motor) components, such as:
• Kill switch w/lanyard
• Transom saver/motor latches
• Fuel lines
• Fuel tanks
• Fuel/water separator

5. Identify components of a trailer, such as:
• Hitch types/sizes
• Trailer electrical connection
• Bearings
• Winch
• Bunks/rollers
• Tie downs

Discussion Questions
1. What are the differences between large and small rescue boats?

Activities
1. To be determined by the instructor

Instructor Notes
1. Instructor should direct students to identify various components and then reinforce the use of proper nomenclature in the field, quizzing students on various components.

Topic 2-3: Identifying Large-Rescue-Boat Equipment

Terminal Learning Objective
At the end of this topic, given a variety of large-rescue-boat equipment, the student will identify the equipment carried on a rescue boat and describe the purpose.

Enabling Learning Objectives
1. Identify rescue boat equipment of the AHJ, including but not limited to:
  • Paddles
  • Towing bridle
  • Compass
  • Handheld lights
  • Anchor, rode, and chain
2. Identify rescue equipment of the AHJ, including but not limited to:
   - Throw bag
   - Rescue tube/can
   - Portable radio
   - Blanket
   - Spare PFDs
   - Knife
   - First Aid/EMS
     - Waterproof container
     - Space blanket
   - Helmets

Discussion Questions
1. What are the differences between boat equipment and rescue equipment?
2. What rescue equipment do boats in your AHJ carry?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor may choose to teach this topic in the classroom or in the field.

Topic 2-4: Demonstrating Awareness of Basic Safety Considerations

Terminal Learning Objective
At the end of this topic, given a simulated emergency, the student will demonstrate awareness of basic safety considerations associated with large rescue-boat operations.

Enabling Learning Objectives
1. Identify the different types of U.S. Coast Guard (USCG)-approved PFDs and their applications
   - Inflatable
   - Swiftwater
   - Individual day and night emergency signaling requirements
   - Other
2. Describe self-survival considerations
   - Float plan
   - Crew overboard
   - Crew and passenger accountability
   - Dewatering emergency
   - On-board fire prevention, extinguishment, and control
   - Damage control procedures
   - Mayday procedures
   - Emergency signaling
   - Emergency anchoring
   - Abandon ship
3. Describe agency-specific PPE
   • Uniform and clothing selection for exposure considerations

Discussion Questions
1. Describe agency-specific PPE considerations and guidelines for water rescue incidents.
2. What immediate notifications should be made and actions performed and in the event of an emergency?
3. What are the benefits of seat assignments or preassigning roles and responsibilities for basic emergency procedures?
4. What PPE and uniform should be used for a water-based rescue to minimize exposure?
5. What land-based PPE and uniforms are not appropriate for water-based rescue?

Activities
1. The instructor must create an activity simulating an emergency while underway.

Instructor Notes
1. The instructor should give consideration to recreating simulated emergencies in the field throughout the course.
2. The instructor should consider using rescue-boat near-miss, close-call case studies.

Topic 2-5: Demonstrating Pre- and Postoperational Checks

Terminal Learning Objective
At the end of this topic, given a variety of large rescue boats, the student will demonstrate critical pre- and postoperational checks.

Enabling Learning Objectives
1. Demonstrate trailer inspection
2. Demonstrate hull inspection
3. Demonstrate how to inspect a motor mount
4. Demonstrate how to service a motor
   • Fuel line and connectors inspection
   • Oil level check
   • Spark plug inspection
   • Propeller inspection
   • Use of impeller intake flush device
   • Use of bypass flush connection
   • Fuel additives
5. Demonstrate weekly/monthly service and inspection
6. Demonstrate underway troubleshooting

Discussion Questions
1. What are your agency’s preventative maintenance service schedules?

Activities
1. The instructor must create an activity simulating an underway mechanical casualty requiring troubleshooting.
Instructor Notes
1. The activity needs to be relevant to the platform, the AHJ, the students’ abilities, and operating environment.

Topic 2-6: Demonstrating Trailering Considerations

Terminal Learning Objective
At the end of the topic, given a rescue boat, tow vehicle, and trailer, the student will demonstrate critical elements of trailering boats.

Enabling Learning Objectives
1. Describe safety factors associated with trailering operations
   • Pretrip inspection
     o Trailer connections and lights
     o Rescue boat secured properly
     o Rescue boat equipment secured
   • Use of backers
   • Road travel considerations
   • Speed
2. Demonstrate safe backing fundamentals of a trailered boat
3. Describe trailer positioning for launch/recovery
   • Boat ramp etiquette

Discussion Questions
1. What are your agency’s trailering considerations?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor should consider using boat-ramp etiquette case studies.

Unit 3: Basic Boat Handling

Topic 3-1: Demonstrating Trailering

Terminal Learning Objective
At the end of this topic, given a rescue boat, tow vehicles, and trailer, the student will demonstrate pulling and backing a trailered rescue boat.

Enabling Learning Objectives
1. Demonstrate a pretravel inspection
2. Demonstrate road travel
3. Demonstrate backing

Discussion Questions
1. What risks are involved in trailering and launching a boat?
Large Vessel Boat Operator

Activities
1. The instructor must create an activity directing students to complete a cone obstacle course with a trailer and tow vehicle. (As applicable to the AHJ)

Instructor Notes
1. If this topic does not pertain to the AHJ, the instructor can cover it in the classroom.

Topic 3-2: Demonstrating the Operation of a Large Rescue Boat

Terminal Learning Objective
At the end of this topic, given a large rescue boat, the student will demonstrate the operation of a rescue boat.

Enabling Learning Objectives
1. Identify safety issues associated with operating a boat
2. Demonstrate motor manipulation
   - Use of gears
   - Use of throttle
   - Use of steering inputs
   - Use of motor trim
   - Use of weight distribution
3. Demonstrate station keeping
4. Demonstrate approaching a stationary object
5. Demonstrate the use of dewatering equipment (e.g., bilge pump)

Discussion Questions
1. What factors influence the drift rates of a boat?
2. What forces affect boat handling?

Activities
1. The instructor must create an activity directing students to perform basic station keeping and motor manipulation.

Instructor Notes
1. Instructor should select an operating area with minimal traffic, wind, and tide considerations (a controlled environment).

Topic 3-3: Demonstrating Jet Dock Use

Terminal Learning Objective
At the end of this topic, given a rescue boat and a Jet Dock-style dock, the student will demonstrate launching and recovering the vessel from the dock, identify equipment used to secure the vessel to the dock, and identify preventative maintenance requirement.

Enabling Learning Objectives
1. Demonstrate the ability to safely launch the vessel from the dock
   - Cast off lines
   - Use auxiliary winch to aid in launching
Large Vessel Boat Operator

- Trim motors to allow vessel to launch

2. Demonstrate the ability to safely recover the vessel to the dock
   - Position vessel appropriately for placement onto dock
   - Describe any safety concerns
   - Recover vessel to identified position for a “safety pause”
   - Trim motors and recover vessel onto the dock
   - Secure vessel onto dock using lines and auxiliary winch

3. Demonstrate the ability to identify specific equipment used to secure the vessel to the dock
   - Demonstrate port and starboard line tie-offs
   - Use auxiliary winch
   - Consider weather conditions

4. Demonstrate the ability to identify maintenance needs that prevent safe dock use
   - Secure guidance tubes
   - Ensure adequate buoyancy of flotation equipment
   - Secure tie-offs and auxiliary winch

Discussion Questions
1. What is the main benefit of performing a “safety pause” while recovering the vessel onto the dock?

Activities
1. The instructor must create an activity directing students to launch and recover a rescue boat from a Jet Dock-style dock.

Instructor Notes
1. An agency-specific boat lift may be used if no Jet Dock-style dock is available. If this topic does not pertain to the AHJ, the instructor can cover it in the classroom.

Topic 3-4: Demonstrating Launching and Recovering

Terminal Learning Objective
At the end of this topic, given a large rescue boat and a Jet Dock or a tow vehicle with trailer, the student will demonstrate the ability to safely launch and recover a rescue boat from a towed trailer or Jet Dock.

Enabling Learning Objectives
1. Demonstrate launching a boat from a trailer or Jet Dock
   - Launch preparations
   - Crew position during backing and launch
   - Motor manipulation
2. Demonstrate recovery of a boat from a trailer or Jet Dock
   - Recovery preparations
   - Motor manipulation
   - Crew position during recovery

Discussion Questions
1. How do wind and current influence launching and recovering a boat?
Activities
1. The instructor must create an activity directing students to launch and recover a rescue boat.

Instructor Notes
1. If this topic does not pertain to the AHJ, the instructor can cover it in the classroom.

Topic 3-5: Demonstrating Docking

Terminal Learning Objective
At the end of this topic, given a large rescue boat and a dock, the student will demonstrate maneuvering and docking a rescue boat.

Enabling Learning Objectives
1. Identify safety considerations when docking a boat
2. Demonstrate proper motor manipulation
3. Demonstrate docking
   - Preparation of docking lines and fenders
   - Allowance for wind and current
   - Tying off

Discussion Questions
1. What are safety considerations for an untrained crewmember or passenger?

Activities
1. The instructor must create an activity directing students to dock to the port and starboard sides.

Instructor Notes
1. Harbor etiquette is paramount and must be discussed and reinforced prior to this topic.
2. Prior to starting this topic, the instructor must ensure the dock location has been determined and confirmed. Coordinate with the marina or harbor staff prior to beginning activities.

Unit 4: Rules of the Road, Weather, Tides, and Maintenance

Topic 4-1: Identifying Rules and Regulations Governing Vessel Operation in Navigable Waters

Terminal Learning Objective
At the end of this topic, given a simulated surface-water rescue environment, the student will identify the navigation rules and regulations that govern operation of a vessel in navigable waters and how they apply to the rescue boat operator in local waters.

Enabling Learning Objectives
1. Describe the navigation rules and regulations that govern operation of a vessel in navigable waters
   - Overview
   - Applicable regions and waterways
   - Governing bodies or enforcement agencies
2. Determine rights of way for various types of vessels based on the navigation rules and regulations that govern operation of a vessel in navigable waters
3. Describe requirements of directional aids to navigation and how they relate to rights of way
   - Locations
   - Shapes, numbers, and colors
   - Meanings
   - Hazards

Discussion Questions
1. How is right of way determined on navigable waterways in the United States?
2. How is a rescue boat classified regarding vessel type when determining right of way?
3. Which rules and regulations apply to your operational area?

Activities
1. The instructor must prepare an activity simulating a number of right-of-way scenarios.

Instructor Notes
1. The student will be aware of how to determine the rights of way for vessels and be able to apply the required procedures to address situations that the student may experience, thereby enabling them to prevent collisions and provide an orderly system to protect the lives and safety of passengers and crew.
2. In California there are two governing bodies, the USCG and The California Harbors and Navigation Code.
3. The instructor should reinforce these learning objectives on an ongoing basis throughout the field activities.

Topic 4-2: Identifying Tidal Conditions

Terminal Learning Objective
At the end of this topic, given a data source, the student will identify tidal conditions and how they affect local waters and local marine conditions.

Enabling Learning Objectives
1. Demonstrate knowledge of the effect of tides
   - Tidal changes
   - High tide and low tide (flood, ebb, and slack tide)
   - Water depth changes
   - Movement of water/tidal currents
2. Determine tidal change frequency, duration, and variation by referencing a tide chart
   - Tide charts
Large Vessel Boat Operator

- Internet-based tidal reference sites
3. Describe the effects tidal changes on rescue boat operation
   - Effects of tidal generated currents
   - Low tide – draft limitations

Discussion Questions
1. At what tide are depth soundings on a nautical chart given?
2. How can tides be estimated by observation of shoreline conditions?
3. How does tide affect your launching and recovery decisions?

Activities
1. The instructor must create an activity directing students to identify tidal change frequency, duration, and variation in the local area.

Instructor Notes
None

Topic 4-3: Identifying Weather Conditions and Their Impacts

Terminal Learning Objective
At the end of this topic, given a simulated surface-water rescue environment, the student will identify weather conditions and describe how they affect local waters and local marine conditions.

Enabling Learning Objectives
1. Describe the effect of weather on a rescue boat
   - Wind
   - Sea state
   - Adverse weather patterns or severe storms
2. Demonstrate locating current and weather forecasts
   - Television
   - Radio
   - Internet
   - Marine radio
   - Weather radio
   - USCG Marine Information Broadcasts (MIBs)
3. Demonstrate locating current and anticipated sea-state conditions
   - Internet
   - Weather radio
   - Marine radio
   - USCG Marine Information Broadcasts (MIBs)
4. Describe the sea-state limitation for the AHJ’s rescue boat
   - Manufacturer’s recommendations
   - Department-specific standard operating procedures or guidelines (SOPs or SOGs)
   - Other agencies’ SOPs or SOGs

Discussion Questions
1. How do microclimates affect operational decisions?
2. What sources can be referenced for weather forecasts?
3. What aspect of weather has the greatest effect on large rescue boat operations?
4. What are go/no-go criteria for your rescue boat and crew?

Activities
1. The instructor must create an activity directing students to listen to Marine Information Broadcasts and identify local conditions associated with risk analysis and management.

Instructor Notes
1. The instructor may choose to have students bring in local weather forecasts for the next day.

**Topic 4-4: Identifying Motor Maintenance Requirements**

**Terminal Learning Objective**
At the end of this topic, given a large rescue boat, the student will identify motor maintenance requirements necessary for operational readiness.

**Enabling Learning Objectives**
1. Identify equipment needed to perform motor maintenance
   - Tools
   - Reference materials
   - Fluids and replacement parts
2. Describe maintenance requirements for general use
   - After routine use
   - Monthly
   - Annually

**Discussion Questions**
1. What are your AHJ’s requirements for motor maintenance?
2. What are the manufacturer’s requirements for motor maintenance?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor should discuss the effects of different water types (e.g., salt, different pH, turbid, containing harmful organisms) on the motor when appropriate.

**Topic 4-5: Identifying Considerations for Near-Shore Operations**

**Terminal Learning Objective**
At the end of this topic, given a large rescue boat and a near-shore environment, the student will identify the unique aspects of operating a large rescue boat in near-shore areas.

**Enabling Learning Objectives**
1. Identify the considerations of operating within a marina
   - Speed limits
Large Vessel Boat Operator

- Vessel traffic
- Identifying aids to navigation
- Protected entrances and exits
- Tidal influences on launching and recovering

2. Identify near-shore hazards to operating a rescue boat
- Water depth
- Tidal or wave action
- Natural hazards
- Humanmade hazards

3. Describe equipment for operating in near-shore environments
- Navigational charts
- Depth sounder
- Depth stick
- Watermarks (shore)

Discussion Questions
1. Why is it important to identify the tidal conditions prior to operating a rescue boat in a near-shore environment?
2. What is your vessel’s depth sounder calibrated to?
3. What are boat-positioning considerations in shallow water (bow to or stern to)?

Activities
1. The instructor must create an activity directing students to identify the depth using multiple means.

Instructor Notes
None

Topic 4-6: Describing Navigation Techniques for a Maritime Environment

Terminal Learning Objective
At the end of this topic, given a navigational plan including a variety of tools and equipment, the student will describe a variety of techniques to navigate through a maritime environment.

Enabling Learning Objectives
1. Identify various means of maritime navigation
   - Maritime charts
   - Compasses
   - Chart plotters
   - Electronic devices with mapping capabilities

2. Describe coastal piloting
   - Use of chart and navigation tools
   - Development of a navigation plan
   - Compass bearings to known landmarks
   - Navigation by identification of known landmarks
3. Describe aids to navigation
   • Identify locations and meanings
   • Uses for navigating into and out of protected channels
   • Hazard identification
   • USCG notice to mariners

Discussion Questions
1. How are aids to navigation numbered when returning to port?
2. What are the limitations of solely relying on dead reckoning for navigation?
3. What are the benefits of knowing how to chart?

Activities
1. The instructor must create an activity directing students to determine the latitude and longitude of a given point and to define a point given latitude and longitude.

Instructor Notes
1. The charts used should be current and specific to the area of operations. There should be one chart per boat.

Unit 5: Intermediate Boat Handling

Topic 5-1: Navigating a Predetermined Course

Terminal Learning Objectives
At the end of this topic, given a boat and a known position, the student will navigate a predetermined course.

Enabling Learning Objectives
1. Demonstrate course planning
   • Identify course
2. Identifying course considerations
   • Identify and mitigate hazards
   • Estimate current and predicted water depths
   • Identify current and forecasted weather conditions and sea state
   • Other vessel traffic
3. Demonstrate navigation of the course

Discussion Questions
1. How can you determine safety considerations prior to attempting the exercise?
2. What is the estimated duration to the final destination?
3. What are the impacts of microclimates along the course?

Activities
1. The instructor must create an activity directing students to plan the course and then execute the tasks identified above.
**Instructor Notes**

1. The instructor must run the course prior to directing students to do so. Course duration should be predetermined by the instructor.

**Topic 5-2: Operating the Vessel and Demonstrating Station Keeping**

**Terminal Learning Objective**

At the end of this topic, given a boat and a stationary object, the student will operate the vessel and demonstrate station keeping in open water.

**Enabling Learning Objectives**

1. Demonstrate navigating to a predetermined stationary object in open water
2. Demonstrate station keeping
   - Determine the effects of wind and current
   - Maintain the position for a predetermined period of time

**Discussion Questions**

1. What are the benefits of maintaining or holding station?
2. What is the easiest way to hold station?
3. What are some challenging conditions for attempting to hold station?
4. What is the forecasted prevailing force?

**Activities**

1. The instructor must create an activity directing students to demonstrate station keeping in dynamic conditions.

**Instructor Notes**

1. The instructor should include approaching a stationary object with or against prevailing forces.
2. Dynamic conditions are recommended.

**Topic 5-3: Operating in Shallow Water**

**Terminal Learning Objective**

At the end of this topic, given a vessel and a shallow-water environment, the student will operate the vessel in shallow water.

**Enabling Learning Objective**

1. Demonstrate estimating water depths for a predetermined area
   - Navigational charts
   - Tide tables
2. Demonstrate determining water depths from the rescue boat
   - Shore water lines
   - Visualizing
   - Depth stick
   - Depth finder
   - Chart plotter

[month year]
3. Demonstrate maneuvering the vessel in shallow water
   • Draft limitation
   • Motor operation to reduce draft – trimming
   • Beaching

Discussion Questions
1. What techniques can be used to free a vessel that has run aground?
2. How does bottom composition impact shallow-water operations?

Activities
1. The instructor must create an activity directing students to estimate and determine water depths and maneuver the vessel in shallow water.

Instructor Notes
1. Beaching is specific to AHJ and vessel limitations.

Unit 6: Communications, Navigation, and Local Area Orientation

Topic 6-1: Communicating in the Maritime Environment

Terminal Learning Objective
At the end of this topic, given a variety of marine communication devices, the student will communicate with other mariners, first responders, and USCG.

Enabling Learning Objectives
1. Identify various means of marine communication
   • Marine radios
   • Agency-specific radios
   • Cellular telephones
   • Hand signals
   • Flares
   • Voice amplifying devices
   • Emergency position-indicating radio beacon (EPIRB)
   • Personnel-locating beacon (PLB)
2. Describe the applicable marine radio options
   • Portable versus mobile
   • Limitations (power, battery life, durability, channel limitations)
   • Environmental effects on transmitting and receiving clarity
3. Describe common marine frequencies and their uses
   • VHF versus UHF and fire department radios
   • International Hail and Distress Channel (VHF Marine 16)
   • How to communicate with other mariners
4. Describe communication procedures specific to the USCG
   • USCG radio terminology and communication procedures
   • USCG asset radio designators
   • How to relay emergency information to USCG
Large Vessel Boat Operator

- PAN-PAN

Discussion Questions
1. How can a rescue boat operator contact the USCG if needed?
2. How can rescue boat operators monitor calls for assistance from mariners?

Activities
1. To be determined by the instructor

Instructor Notes
1. Instructor should address local USCG radio etiquette, terminology, and procedures.

Topic 6-2: Developing a Navigation Plan

Terminal Learning Objective
At the end of this topic, given a variety of navigational tools and equipment, the student will develop a navigation plan.

Enabling Learning Objectives
1. Identify the tools required to develop a navigation plan
   - Maritime chart
   - Dividers
   - Parallel rule
   - Speed wheel
2. Identify the units of measure used to develop a navigation plan
   - Magnetic versus true north
   - Compass rose
   - Nautical miles versus statute miles
   - Knots versus miles per hour
   - Feet versus fathoms
   - Common latitude/longitude formats and conversions

Discussion Questions
1. What are some route planning considerations?
2. What latitude/longitude formats are applicable to your AHJ?
3. How do you convert latitude/longitude formats?

Activities
1. The instructor must create an activity directing students to convert latitude and longitude into a variety of formats.
2. The instructor must create an activity directing students to develop a navigation plan involving eight way points.
3. The instructor must create an activity directing students to calculate speed/time/distance equations.

Instructor Notes
1. The instructor must bring in a full set of charting tools and charts for each boat and develop worksheets for calculations.
Topic 6-3: Using an Electronic Chart Plotter

Terminal Learning Objective
At the end of this topic, given an electronic navigation device, the student will demonstrate the use of an electronic chart plotter.

Enabling Learning Objectives
1. Identify the capabilities of a chart plotter
   - Maritime charts
   - Current speed and direction
   - Tides
2. Identify the settings used on a chart plotter
   - Magnetic versus true north
   - Compass rose
   - Nautical miles versus statute miles
   - Knots versus miles per hour
   - Feet versus fathoms
   - Common latitude/longitude formats and conversions
   - Heads up versus north up
   - Day versus night display
3. Build a route using the waypoints developed in Topic 6-2
   - Follow route
   - Advance waypoint
   - Restart route
4. Demonstrate ability to use the man overboard (MOB) button
   - Set a MOB alert
   - Navigate to a MOB point
   - Clear a MOB point

Discussion Questions
1. What are your AHJ’s specific chart plotter models?
2. What are their capabilities?

Activities
1. The instructor must create an activity directing students to use their chart plotting equipment.

Instructor Notes
1. This topic will be reinforced on an ongoing basis throughout the field activities.

Topic 6-4: Analyzing the Local Marine Environment
Terminal Learning Objective
At the end of this topic, given the local marine environment and the maritime reference materials applicable to the AHJ, the student will gather and analyze information on the environment for risk management.

Enabling Learning Objectives
1. Identify resources that can assist in local area orientation
   - Navigational charts
   - USGS Charts
   - Interviews with local maritime subject matter experts
2. Describe components of the local marine environment
   - Launch points
   - Recovery points
   - Depth of local waters
   - Heavily trafficked areas/lanes
   - Hazards
   - Landmarks for dead reckoning
   - Recreational areas
     - Sailing clubs
     - Kite boarders/windsurfers

Discussion Questions
1. What are some of the benefits of identifying numerous access points in the local marine environment?
2. What kinds of subject matter experts might be consulted for gaining situational awareness and hazard assessment?
3. What are hazards and operational considerations for your AHJ?

Activities
1. To be determined by the instructor

Instructor Notes
None

Unit 7: Advanced Boat Handling

Topic 7-1: Operating in Close Proximity to Other Vessels

Terminal Learning Objective
At the end of this topic, given multiple vessels, the student will operate in close proximity to other vessels while operating under the effects of environmental conditions.

Enabling Learning Objectives
1. Identify operational planning elements to coordinate with other vessels
   - Group travel patterns
   - Describe any safety concerns
• Assess hazards
• Estimate water depths
• Assess environmental conditions
2. Demonstrate maneuvering the vessel
   • Establish a stand-on vessel, maintaining speed and course
   • Approach and depart from other vessels while underway
   • Transfer members or victims between vessels while underway

Discussion Questions
1. What safety considerations must be taken into account prior to operating in close proximity to other vessels?
2. What would be an operational situation requiring the transfer of members or victims?

Activities
1. The instructor must create an activity directing students to come alongside a vessel underway with the intent to transfer members or victims.

Instructor Notes
1. This activity may be limited by AHJ policies and procedures and the availability of a suitable platform.

Topic 7-2: Operating in Proximity to Docks, Piers, and Bridges

Terminal Learning Objective
At the end of this topic, given a vessel and an environment with docks, piers, and bridges, the student will operate the vessel in close proximity to docks, piers, and bridges while operating under the effects of environmental conditions.

Enabling Learning Objectives
1. Identify special considerations when operating in proximity to:
   • Marina dock
   • Launch ramp
   • Fishing pier
   • Abandoned pier or dock
2. Demonstrate operating in close proximity to docks, piers, and bridges while avoiding associated hazards

Discussion Questions
1. How do environmental conditions affect operation in proximity to docks, piers, and bridges (e.g., water dynamics, current, overhead obstructions)?

Activities
1. The instructor must create an activity directing students to operate in close proximity to docks, piers, and bridges while avoiding associated hazards.

Instructor Notes
1. Staffed bridges may present special communications needs.

Topic 7-3: Towing
Large Vessel Boat Operator

Terminal Learning Objective
At the end of this topic the student, given two vessels of similar size, will demonstrate towing small boats.

Enabling Learning Objectives
1. Discuss safety considerations for towing
   • Conditions
   • Size of towing boat vs. size of boat to be towed
   • Equipment available
   • Need for the tow
2. Demonstrate the ability to conduct a stern tow
3. Demonstrate the ability to conduct an alongside tow
4. Demonstrate docking a towed vessel

Discussion Questions
1. What are safety considerations when towing a vessel?
2. What are examples of emergency situations that require towing?
3. What are differences between emergency and nonemergency towing?

Activities
1. The instructor must create an activity directing students to assess, tow, and dock a disabled vessel.

Instructor Notes
1. The activity must be conducted in protected (calm) waters with minimal boat traffic.

Topic 7-4: Recovering a Victim

Terminal Learning Objective
At the end of this topic, given a vessel, rescue adjuncts, and a victim, the student will demonstrate recovering a victim from the water.

Enabling Learning Objectives
1. Identify considerations for direct or indirect recovery
   • Direct: boat to victim
   • Indirect: rescue adjunct or swimmer to victim
2. Demonstrate a safe approach to the victim, considering:
   • Wind
   • Current
   • Swimmer’s motion
   • Motor manipulation
     o Controlling momentum
   • Motor neutral
     o When in proximity to the victim
3. Demonstrate use of rescue adjuncts
• Throw bag
• Life ring
• Boat hook

4. Demonstrate assessing victim’s condition
   • Head, neck, or back injury
   • Exposure

5. Demonstrate techniques to bring victim into boat
   • Stationary lift

6. Demonstrate communicating actions to a shore-based responder
   • Develop care plan
   • Develop transfer to ambulance plan

Discussion Questions
1. What are the safety considerations for operating a boat in proximity to persons in the water?
2. Under what conditions would you select direct or indirect recovery? Why?
3. What blind spots does your vessel have that might cause the operator to lose sight of the victim?

Activities
1. The instructor must create an activity directing students to assess and recover a victim from the water.

Instructor Notes
1. Best practice is to use water-rescue mannequins rather than live victims.
2. Instructor may refer to the current edition of *Small-Boat Seamanship Manual*, “Person in the Water Recovery.”

Unit 8: Night Operations (Classroom)

Topic 8-1: Demonstrating Radar Use

Terminal Learning Objective
At the end of this topic, given a vessel equipped with radar, the student will demonstrate the use of radar.

Enabling Learning Objectives
1. Describe radar operating principles
   • Height of antenna
   • Curvature of the earth
   • Power output
   • Duty cycle
   • Resolution
     o Effect of rain
     o Closely grouped target identification
   • Gain
Large Vessel Boat Operator

- Clutter

2. Describe target tracking
   - MARPA lists
   - Multiple target identification
   - AIS integration
   - Waypoint integration

3. Describe the ways in which radar can be used to aid in navigation
   - Distance to landmark
   - Low light operations
   - Vessel location
   - Radar beacons (RACON)

4. Demonstrate using radar to identify range to an object

Discussion Questions
1. How is using radar in daytime different than using it at night?
2. Does your electronic chart plotter have the ability to display radar overlay?
3. What is your contingency plan for radar failure during low-light or limited-visibility operations?

Activities
1. The instructor must create an activity directing students to present their agency-specific radar configurations.

Instructor Notes
1. The instructor must review Rule 5 and Rule 6 in the International Regulations for Preventing Collisions at Sea (COLREGS).

Topic 8-2: Describing Night and Low-Visibility Operations

Terminal Learning Objective
At the end of this topic, given a variety of simulated environments, the student will describe the differences between day and night or low-visibility operations.

Enabling Learning Objectives
1. Identify differences between day and night or low-visibility operations
   - Visibility
   - Operating speeds
   - Communications limitations
   - Understanding navigational lights
   - Dead reckoning at night with illuminated objects
   - Agency limitations for rescue boat use at night or with low visibility

2. Describe equipment for night or low-visibility operations
   - Navigational lights
   - Searchlights
   - Light sticks
   - Signal flares
• Sound-producing device
• FLIR
• Light-amplifying devices

3. Describe the search and rescue considerations for night or low-visibility operations
   • Pros and cons of using searchlights
   • Effects of motor noise on search ability

Discussion Questions
1. How can an rescue operator distinguish the direction of another vessel using running lights?
2. How do local considerations impact night or low-visibility operations?

Activities
1. To be determined by the instructor.

Instructor Notes
1. In preparation for Unit 9, the instructor must review accountability, safety, and lost-boat plan.

Topic 8-3: Developing Search Patterns

Terminal Learning Objective
At the end of this topic, given a variety of simulated scenarios, the student will demonstrate the development of search patterns in the maritime environment.

Enabling Learning Objectives
1. Describe search patterns used by local government agencies
   • Track line
   • Parallel
   • Expanding square
2. Demonstrate the ability to report search actions and SITREPS
   • SITREPS
     o SITREP number
     o Situation
     o Action taken
     o Future plans
     o Amplifying information
     o Case status
   • Search action reporting
     o Search pattern
     o Single or multiunit
     o Supplementary information
3. Explain additional factors to consider
   • Accuracy of datum
   • Size of search object
   • Time available
Large Vessel Boat Operator

- Number of resources available
- Weather
- Navigational ability of resources

Discussion Questions
1. What local resources are available to assist in search efforts?
2. What are the best practices in your home operational area?

Activities
1. To be determined by the instructor

Instructor Notes
1. The instructor may refer to the current edition of *Small-Boat Seamanship Manual, Search and Rescue.*

Unit 9: Night Operations (Practical Application)

Topic 9-1: Developing Nighttime Search Patterns

Terminal Learning Objective
At the end of this topic, given a vessel and a nighttime search area, the student will demonstrate the development and execution of search patterns.

Enabling Learning Objectives
1. Demonstrate the execution of single-resource search patterns
   - Track line
   - Parallel
   - Expanding square
2. Demonstrate the execution of coordinated, multiunit search patterns
   - Track line
   - Parallel
3. Demonstrate reporting search actions and SITREPS
   - SITREPS
     - Sitrep number
     - Situation
     - Action taken
     - Future plans
     - Amplifying information
     - Case status
   - Search action reporting
     - Search pattern
     - Single or multiunit
     - Supplementary information

Discussion Questions
1. What are the advantages and disadvantages of electronic navigation devices?
2. How do you determine proximity and scale of other vessels and landmarks at night?

Activities
1. The instructor must create an activity directing students to plan and conduct searches with given coordinates.

Instructor Notes
1. It is recommended that the instructor use inexpensive or expendable objects for the search and rescue exercise.
2. The instructor should consider the challenges of controlling multiple vessels underway at night.

Topic 9-2: Conducting an Organized Search

Terminal Learning Objective
At the end of this topic, given a vessel and a simulated search-and-rescue incident in a nighttime environment, a student will conduct an organized search.

Enabling Learning Objectives
1. Identify the required resources
2. Demonstrate coordination of multivessel rescue activities
3. Demonstrate communicating actions to a shore-based IC
4. Demonstrate mitigating the simulated scenario
5. Describe the transfer of victims to shore-based responders

Discussion Questions
1. What are specific safety considerations during low-light operations?
2. What are the most effective methods of communication between water and shore assets?

Activities
1. The instructor must create an activity directing students to mitigate a scenario with a simulated victim at night.

Instructor Notes
1. To meet the objectives of this topic, the scenario must be conducted on the water at night.
2. The instructor may consider integrating the use of pyrotechnic signaling devices with proper notification(s).

Unit 10: Dynamic Boat Handling

Topic 10-1: Operating in Dynamic Conditions

Terminal Learning Objective
At the end of this topic, given a vessel, the student will operate in a variety of increasingly complex dynamic conditions.

Enabling Learning Objectives
1. Demonstrate launching and recovering the vessel
   - Prepare for launch
   - Launch
   - Place rescue boat in service
2. Demonstrate operating in a variety of conditions
   - Docking
   - Coordinated searches
   - Station keeping
3. Demonstrate maneuvering the vessel
   - Consider hazards
   - Estimate water depths
   - Consider environmental conditions
4. Demonstrate advanced operator skills
   - Anchoring
   - Swimmer deployment
   - Swimmer recovery
   - Transfer members between rescue boats while underway
   - Operate in restricted areas

Discussion Questions
1. What are anchoring considerations? When would you use this skill?
2. What are transfer considerations in inclement weather?

Activities
1. The instructor must create an activity directing students to demonstrate the above skills in increasingly dynamic conditions.

Instructor Notes
1. The demonstration of transfer of members (ELO 4) may be limited by AHJ policies and procedures and the availability of a suitable platform.
2. Best practice is to use water-rescue mannequins rather than live victims.

Topic 10-2: Developing and Executing Search and Rescue Operations

Terminal Learning Objective
At the end of this topic, given a vessel, a simulated emergency, and a search area, the student will develop and execute water-based search and rescue operations.

Enabling Learning Objectives
1. Identify the required resources
2. Demonstrate coordination of multivessel rescue activities
3. Demonstrate communicating actions to a shore-based IC
4. Demonstrate mitigating the simulated scenario
5. Describe the transfer of victims to shore-based responders

Discussion Questions
1. What are specific safety considerations during incidents with multiple responding vessels?
2. What are the most effective methods of communication between vessels?

**Activities**
1. The instructor must create an activity directing students to mitigate a scenario with a simulated victim.

**Instructor Notes**

**Time Table**

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<td>Topic 8-3: Developing Search Patterns</td>
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<td>Topic 9-1: Developing Nighttime Search Patterns</td>
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<td>Topic 9-2: Conducting an Organized Search</td>
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Course Totals

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Open Water Rescue Boat Operator – Small and Large Vessel Implementation of New Curriculums

This document is intended to provide information for all State Fire Training (SFT) stakeholders on the new Open Water Rescue Boat Operator – Small and Large Vessel Curriculums (2018). This was a collative effort with the Office of the State Fire Marshal, State Fire Training, the Office of Emergency Services, Fire and Rescue Branch and CAL FIRE, Training Center (Ione) to develop these curriculums requested by you the Stakeholders. Stakeholders are encouraged to study this information carefully and seek clarification from SFT if questions arise. NOTE: Special attention should be paid to these new FSTEP courses, as they are NOT included in any of SFT certification tracks at this time.

Open Water Rescue Boat Operator – Small and Large Vessel (2018) The new Course Plans have been developed based on the authority of the current National Fire Protection Association (NFPA) Standards, which includes NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications (2017), Additionally, NFPA 1500, 1521, 1561 aided as supporting documents when creating these Course Plans. The Course Plans will be available on the SFT website.

FULL IMPLEMENTATION ........................................................................................................ Effective January 1, 2019

January 1, 2019

Full Implementation

Open Water Rescue Boat Operator – Small Vessel (32:00 hrs/min)
Open Water Rescue Boat Operator – Large Vessel (40:00 hrs/min)
INSTRUCTOR REQUIREMENTS ............................................................................ Effective January 1, 2019

Current registered instructors with State Fire Training that presently are instructors for the Office of Emergency Services (OES) Course titled: Surface Rescue Boat Technician and/or Surface Rescue Boat Specialist (2015) are authorized to deliver both the Open Water Rescue Boat Operator – Small Vessel and Open Water Rescue Boat Operator – Large Vessel (2018) course.

New instructors for both the Open Water Rescue Boat Operator – Small Vessel and Open Water Rescue Boat Operator – Large Vessel (2018) course shall meet the SFT requirements for Registered Instructor, and will be required to either take the course or apply for a Pace II review of their instructor qualifications, including appropriate education and practical experience relating to course content.

Additionally, a new instructor of the FSTEP courses, the following shall apply: the Open Water Rescue Boat Operator – Small Vessel and Open Water Rescue Boat Operator – Large Vessel (2018)

1. Rank and Professional Experience:
   a. Held the rank of suppression firefighter within a Recognized Fire Agency in California for a minimum of three years or;
   b. Worked as a volunteer suppression firefighter or paid call firefighter with a Recognized Fire Agency in California for a minimum of five years.
   c. Specific expertise in Technical Rescue as it relates to Open Water Search and Rescue Boat Operations and Seamanship. Expertise must be relative to the size of the vessel and power configuration and qualify based on the scope required for the curriculum chosen to facilitate.

SFT STAFF COORDINATION

This FSTEP courses are new to State Fire Training.

POTENTIAL AGENCY IMPACTS

Fire agencies utilizing the existing OES (Office of Emergency Services) Surface Rescue Boat Technician and Surface Rescue Boat Specialist should have little or no impacts making the transition from those courses to the new update curriculum format for training or operational implementation.

NOTE: Special attention should be paid to these new updated FSTEP courses, are NOT included in any of SFT certification tracks at this time.

Accredited Regional Training Programs (ARTP), Accredited Local Academies (ALA), community colleges and all other local delivery venues need to review the curriculum and seek approval from their curriculum committee/program sponsor, as appropriate.