

NOAA SMALL BOAT WORKSHOP

REFERENCE MATERIALS

October 6-10, 2003
NOAA Sand Point Campus
Seattle, Washington

NOAA Small Boat Workshop Reference Materials

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2003 NOAA Small Boat Workshop Draft Detailed Agenda
October 6 to 10, 2003
Seattle, Washington

DAY 1 - MONDAY - OPERATOR TRAINING

0800 - 0830 Coffee Talk

Meet the Next NOAA Small Boat Safety Program Coordinator
AMSEA Video "Maritime Casualties"

Operator Training Policy Development Framework

0830 - 0930 Why are we here? (Adams)

VADM Lautenbacher's Mandate
Current Requirements
Accidents and Lessons Learned
Safety, Liability and Standard of Care
2001 Small Boat Workshop B/O Group Findings
Basic Definitions & Nomenclature

0930 - 1045 How are we going to do it? (Adams)

Review of Agenda Items
Goals and Outcomes
Workshop Procedure
Assignment of duties in Break-out Groups

15 MINUTE BREAK

1100 - 1200 What are the other kids doing? (Adams)

Department of the Interior
Army Corps of Engineers
United States Coast Guard
University National Oceanographic Laboratory System
Canadian Coast Guard
Federal Law Enforcement Training Center
MRC, USCG, and 1984 LA Olympics
AMSEA, USCG, and Alaska

1200 - 1230 Training Program Aspects to Consider (Workshop)

Train the Trainer
Qualified Instructor Criteria (NVIC)
Designated Examiner Criteria (NVIC)
Grand Fathering Criteria
Hierarchy of Certification
Special Endorsements/Qualifications
Technical/OEM training

Establishing Work Groups

1230 - 1330 LUNCH

Defining a NOAA Coxswain Training Program

1330 - 1500 Training Delivery & Qualification Standards (Work Groups)

Scalability and Flexibility
Regional vs Centralized
In house vs Contracted vs In House & Contracted

Qualifications Standards
 Experience Thresholds
 Currency
 Reciprocity
 Continuing Education

Report Out/Summary

15 MINUTE BREAK

1515 - 1730 Basic Skills Curriculum (Shanahan/Workshop)

Review of NASBLA Educational Standard
Thinking Outside the Box - A Risk-based Curriculum
Review and Comment of NOAA Coxswain Basic Education Standard

Report Out/Summary

DAY 2 - TUESDAY - SETTING CURRICULUM STANDARDS

0800 - 0830 Coffee Talk

Chad Yoshinaga, Research Biologist, NMFS/SWFSC "Surf Ops, Risk, Training Needs and Solutions"

Defining a NOAA Coxswain Training Program (Continued)

0830 - 1000 Coxswain Training Pedagogical Attributes (Shanahan/Workshop)

Class Room, Demonstration, and Underway Time
Total Length of Basic Training Program
Training Materials and Equipment
Program Recognition/Accreditation
QSS for In-house Training

15 MINUTE BREAK

1015 - 1230 Beyond Basic Training (Work Groups)

Special Ops Training
Engineering Technician or OEM Training
Inspector Training
Qualifications Standards
 Experience Thresholds
 Currency
 Reciprocity
 Continuing Education

1230 - 1330 LUNCH

1330-1500 Boat SEP and Impact on Training (Sirois/Workshop)

Boat Standardized Equipment Program
ID of SEP Gear
Impact on Training Curriculum

15 MINUTE BREAK

1515 - 1700 PRESENTATION: Lee H. Ehrheart, Director, Havorn Marine Survey & Shipwright School, "The Surveyor's Eye - Training to Recognize Risk and Safety Concerns"

DAY 3 - WEDNESDAY - INSPECTION OF BOATS

0800 - 0830 Coffee Talk

"You're In Command" USCG Boating Safety Campaign

Inspection of Boats

0830 - 0900 Goals and Outcomes (Adams)

Purpose of Inspection
Purpose of Survey
Best of Both Worlds?
Basic Definitions & Nomenclature

0900 - 1000 Current Inspection Requirements (Sirois)

Strengths, Weaknesses, and Shortfalls
 Inspection Criteria
 Public Vessel Exemption
 Accident Reporting, Investigation, Data Analysis
2001 Small Boat Workshop Break Out Group Findings
Where are we now?

15 MINUTE BREAK

1015 - 1130 Strategies to Satisfy Inspection Need (Workshop)

Tweaking the NAO
Contracting
MOU w/ USCG
NMAO Fleet Inspectors
Training "Franchise Players"

1130 - 1230 PRESENTATION: Lynne Reister, AMS, Lodestar Marine
Surveying and Consulting, "The Marine Survey"

1230 - 1330 - LUNCH

1330 to 1730 - ABYC SEMINAR: Paul Michalczyk, Chairman, American Boat
and Yacht Council (ABYC) Electrical Project Technical Committee, "ABYC
History, Purpose, and Electrical Standards"

DAY 4 - THURSDAY - INSPECTION OF BOATS

0800 - 0830 Coffee Talk

Near Misses and Sea Stories - The need to collect and disseminate
lessons learned in order to improve safety.

Inspection and Survey of Boats

**0830 - 0930 Redefining an Improved Inspection Program (Adams/Roberts &
Workshop)**

How can inspection provide the most value toward safety?
Components of an Inspection System
Standards (a.k.a. "Alphabet Soup")
Experienced and Trained Inspectors
Reporting and Accountability

0930 - 1045 Qualifications to Inspect/Survey (Workgroups)

Experience
Training
Affiliation/Conflicts of Interest
Geographic Dispersion
Reporting and Accountability Procedures
Funding and NSBSP/NMAO FIO overview

15 MINUTE BREAK

1100 - 1230 Identifying Inspection Criteria (Workshop)

The Fallacy of Safety Gear
Review and Comment NAO 217-103 Requirements

Identification of Requirements by Boat Class
Role of Employment, Route, & # POB in requirements
Analogous Industries, Accident Data, Progress and Moving Targets
Identification of special requirements or exemptions

1230 - 1330 LUNCH

1330 - 1515 Standardized Boats and 10 Year Plans (Wilkes/Adams)

VADM Lautenbacher's PPS FY '06 Planning Memo
National Marine Sanctuary Program
NOAA Hull Registration Data
NMFS/NWFSC River Barges

15 MINUTE BREAK

1530 - 1730 The NOAA SBSP and You (Sirois/Roberts/Adams)

NDC Model for NSBSP
Identification of NOAA wide issues
Safety Driven (Biggest Room)
LO Coxswain/OIC/Master Owned
Personnel Structure
Services to be Provided
NOAA SB Safety Board
Nominations or Recruitment for NSBSB
FY Initiatives and the Health of the Program

DAY 5 - FRIDAY - SARSAT PEPiRB DEMO & WORKSHOP WRAP-UP

0800 - 0830 Coffee Talk

Workshop Evaluation & Feedback
Ask the NOAA Small Boat Safety Program Coordinator

NOAA/USCG PEPiRB Drill (Karlson)

0830 - 1000 SARSAT Overview

1030 - 1230 PEPiRB Demonstration at Ship Pier or USCG RCC Tour

1230 - 1330 LUNCH

1330 - 1630 Workshop Wrap Up (Roberts/Adams)

Action Items Summary, Next Steps
PFD Policy Review and Q & A

December 27, 2002

MEMORANDUM FOR: Jamison S. Hawkins
Acting Assistant Administrator
for Ocean Services and Coastal Zone Management

Louisa Koch
Acting Assistant Administrator
for Oceanic and Atmospheric Research

William Hogarth
Assistant Administrator
for Fisheries

Rear Admiral Evelyn J. Fields, NOAA
Director, Office of Marine and Aviation Operations

FROM: /s/ Scott B. Gudes, for
Conrad C. Lautenbacher, Jr.
Vice Admiral, U.S. navy (Ret)

SUBJECT: Board of Review Report - Fatality - NOAA Ship RAINIER S221

The safety report on the fatality of a NOAA Ship RAINIER crew member in a survey launch capsizing incident last August has been reviewed by me, my staff, and discussed with Office of Marine and Aviation Operations management. I am directing that the following actions be taken immediately to reduce the risk of such a small boat incident taking place again in any of OMAO's and Line Office small boat operations.

- (1) All ship Commands and NOAA laboratory managers are to strongly and unequivocally emphasize to all hands that safety is priority #1 for all NOAA operations and shall not be compromised under any circumstances (and especially to collect that last bit of data).
- (2) Personal Flotation Devices (PFDs) are to be worn at all times in all small boat operations without exception. With respect to survey launches and other closed cabin small boats, Type I and II PFDs are to be replaced by non-interfering suspender-type PFDs. Working with the Line Offices that operate small boats, OMAO will have the lead in fully revising and promulgating NOAA policy on PFD usage for all ship and NOAA small boat operations. This new PFD policy is to be in place by February 28, 2003.
- (3) OMAO will take the lead in developing and promulgating NOAA wide standard small boat operational procedures/guidelines including a universal training/qualification

protocol for all small boat coxswains and Officers-in-Charge (OIC). These procedures will also address the issue of Coxswain/OIC concurrence when operating near coasts. These procedures/protocols are to be in place by April 30, 2003.

- (4) Programs are to review the true requirements to operate small boats near shore, especially in the surf zone, for data collection and/or landing/retrieving personnel and equipment. If near shore operations are requested, then the small boat operators (ship's and laboratories) are to meticulously scrutinize and assess all available information about conditions before making the decision to go into a near shore area. Additional personnel and facilities are to be used as appropriate to watch for dangers. Go/no go conditions will be specified in the small boat operational procedures noted in (#3) above.
- (5) All small boat safety equipment is to be inspected and checked for condition and currency immediately and on a regular basis thereafter specified in the small boat operational procedures noted above. The initial inspection/reinspection must take place before small boat operations resume after the first of the year.

Several other recommendations in the safety report are being considered and further action steps may be required. In addition, I am forwarding the RAINIER Report to Deputy Secretary Bodman, the Commerce Inspector General, and the NOAA Safety Office and the DOC Safety Office for their review and comments.

[The following message was transmitted via email. Text of direct interest to the Workshop is highlighted.]

MEMORANDUM TO: All NOAA Employees and Team Members

FROM: Conrad C. Lautenbacher, Jr.
Vice Admiral, U.S. Navy (Ret.)
Under Secretary of Commerce for Oceans and
Atmosphere

SUBJECT: Safety Update!

Many thanks to the 800 NOAA employees that recently submitted recommendations aimed at improving safety at NOAA. The over 1,200 comments can be categorized as follows:

Lack of safety awareness by management	16.2%
Noted specific safety deficiencies	11.3%
Lack of funding to correct deficiencies	10.6%
Additional safety training needed	10.5%
Security issues	10.4%
Specific health and air quality issues	8.1%
Ship-board safety issues	7.8%
Occupant emergency/evacuation issues	5.4%
Unsafe sidewalks (at SSMC)	4.4%
Aircraft safety issues	0.7%
Miscellaneous issues	14.6%

Safety issues ranged from such concerns as replacing hydrogen with safer helium for balloon use and replacing small ship two-cycle engines with more environmentally friendly 4-cycle engines, to replacing a crossing light with a stop light, fear about a disgruntled employee, and improved officer on-deck training.

Again, many thanks to so many of you for making the effort to respond to an issue that is critical to everyone at NOAA. There is nothing more important than your safety. Your feedback will now be integrated into a plan designed to address safety issues. I appreciate your work in guiding this effort and will keep you informed as work progresses. Please stay vigilant, report safety concerns to supervisors and safety coordinators promptly - and stay safe!

This message was generated for the Under Secretary of Commerce for Oceans and Atmosphere by the NOAA Information Technology Center/Financial and Administrative Computing Division

[The following message was transmitted via email. Text of direct interest to the Workshop is highlighted.]

MEMORANDUM FOR: All NOAA Employees

FROM: Conrad C. Lautenbacher, Jr.,
Vice Admiral, U.S. Navy (Ret.)
Under Secretary of Commerce for Oceans and
Atmosphere

SUBJECT: Annual Guidance Memorandum FY 06

NOAA's Strategic Plan presents a vision for serving America in four critical areas: ecosystems, climate, weather and water, and commerce and transportation. The Plan also emphasizes six core capabilities which underpin our ability to serve our nation. It directs us to carry out NOAA's missions in ways which benefit the environment, public safety and the economy. In these ways, the Plan articulates a long-term destination for NOAA.

As we enter the FY 06 programming phase, we need to look closely at all our programs to ensure that our current path will lead us to our goals. This Guidance aims to help us accomplish this task. It builds upon our Strategic Plan and should be read in tandem with it. It sets out specific directions for consideration as we look to the future. It provides a road map by suggesting new approaches we should add to our repertoire, enablers to consider in examining alternative paths, and strategies to help discriminate among a range of possible tactics.

This Guidance also has a second purpose. Events around us continue to shape what we do, and we must maintain our readiness to address new challenges as they arise. The Future Directions set out below provide a bridge between the Strategic Plan and important new developments outside of NOAA.

Key themes which run through this Guidance include integration (at both the organizational and systems levels), partnership, and early identification of the essential support requirements implicit in our long-range plans. Scientific research, advanced technology development and operations remain the cornerstones of everything we do. Our talented work force is our most important asset.

Performance measures will clarify how each member of our NOAA team helps us to address vital national needs. You are an indispensable part of our mission to serve "every American every day."

1. Context for this Guidance

A. The Importance of Sound Decisions

The quality of life of the American people is greatly affected by decisions governing human interactions with oceans and the atmosphere. These decisions are made by governments, corporations and individuals, in response to issues on spatial scales ranging from global (e.g., climate change), to regional (e.g., fisheries management), to local (e.g., response to a tornado warning).

More than ever, these decisions are difficult and controversial. The risk of poor decisions is fueled by (a) population and business expansion in highly vulnerable areas like coasts, (b) competing demands for access to marine resources, (c) technologies that modify the environment in unanticipated ways, and (d) high expectations about public health and safety, environmental quality and ecosystem health.

B. NOAA's Contribution to Sound Decision-making

Sound decision-making by others depends on NOAA's ability to deliver the information needed for objective analysis of alternatives. NOAA's own decision-making processes must be transparent, participatory, and information-based, taking account of diverse societal values. In short, the Nation needs NOAA as an honest broker when it comes to oceanic and atmospheric issues.

NOAA has the capability to lead the way in responding to, identifying, and changing human impacts on the environment, from the headwaters of estuaries and the Great Lakes, through the coastal zone, over 3.4 million square miles of the U.S. Exclusive Economic Zone, and throughout the global oceans. NOAA has over one hundred legal mandates that give us responsibilities to promote sound decisions, and in some cases place responsibility for sound decisions squarely on our shoulders. Taken together, NOAA's mandates apply holistically because our responsibilities for upper trophic levels (fish and mammals) require integration of atmospheric-terrestrial-water conditions. NOAA has the largest cadre of scientists engaged in marine ecosystem issues of any federal Agency, with a history of more than 125 years of research. We have vast experience in conducting decision-making processes that translate scientific information and public input into public policy.

NOAA also has the capability to support life-saving decision-making in response to environmental conditions. We are

the only agency with a mandate to issue adverse weather and flood warnings. Short and longer-term forecasts assist economic decision-making in weather and climate sensitive sectors such as agriculture. We have the ability to use our relationships with external partners to bring to bear the full weight of our expertise to achieve our defined programs.

2. Future Directions

This section sets out specific directions to consider as we assess our current path and look to the future.

...

3. Approaches

To promote acceptance of decisions made or supported by NOAA, we need to do more of the following:

...

4. Enablers

To move in the directions set out above, NOAA must have a sound foundation in several areas, described here as "Enablers" because they underlie our ability to produce results across the board. These areas must receive attention in every aspect of our programs to ensure that our ability to deliver products and services to America is not compromised.

A. Environmental Modeling:

Sound, state of the art, environmental models are the centerpiece of NOAA's operational and research enterprise. In particular, they are essential for fulfilling NOAA's assessment and prediction mission. We should build, improve upon and apply our capabilities for operational modeling and forecasting in support of all mission-critical aspects of atmospheric and hydrologic systems, estuaries, coastal and open ocean, the Great Lakes and living marine resources. This should be a coordinated, comprehensive NOAA effort.

B. Data Management:

NOAA and its customers have a critical need for readily available and quality-controlled environmental data to move us in the strategic future directions set out above. To meet this need, we should develop a comprehensive, cost-effective, NOAA-wide data collection, quality control, storage and retrieval program.

C. Technology:

NOAA is critically dependent upon sophisticated information technology for internal operations and external service delivery. We should move toward a comprehensive and secure NOAA enterprise IT architecture, pursuing a cost effective investment plan. Additionally, NOAA should make every effort to seek and adopt new technologies of all kinds (biotechnology, nanotechnology etc.) to yield better approaches and improved understanding of natural processes and phenomena.

D. Human Capital:

NOAA's people remain our most critical asset. Their safety at work is a primary concern. We should also begin to implement a long-range human resources and education strategy stressing (1) broader interdisciplinary occupational categories in the personnel system and associated training needs (2) changing demographics of the NOAA work force and (3) the link between education and NOAA's future workforce needs.

E. Facilities:

NOAA has a decentralized field structure of facilities often requiring special design and construction (e.g. laboratories or docks). NOAA should begin to implement a long-range strategy that addresses our need for the safe, well maintained and secure facilities that our employees deserve.

F. Platforms:

Ten-year requirements plans for ships and aircraft should be carefully synchronized with the long-range needs of NOAA programs and should take account of new technology to make data collection more efficient and less costly.

G. Administrative Services:

To ensure efficiency and accountability, NOAA should adopt best practices across the full range of our administrative functions.

5. General Strategies

NOAA should institute processes to optimize our current program. Given the current budget climate, we should focus more sharply on integrating our efforts to achieve efficiencies, on redirecting current assets and on building strategic alliances to leverage external resources. Among alternatives, we should emphasize those which provide the greatest or most certain return on investment. We should focus on those geographical areas where

risk is highest or severity of a problem is greatest. NOAA strategies should also take account of: degree to which sound decision-making depends upon the proposed activity, economic importance of resource being studied or managed, urgency of problem or need, clarity of NOAA's mandate in relation to the issue at hand, quality of NOAA's resources and expertise to address the problem, indispensability of NOAA's involvement, potential for alliance-building both within the Department of Commerce and externally, and visibility of the issue.

6. Achievements and Outlook

In recent months, we have put in place a number of important reforms, including goal teams and councils aligned to Strategic Plan goals and cross-cut priorities, a program structure based upon fiscal resources, and matrix management policies and procedures. The power of these changes was evident to me in the analytical team work on which my guidance is based. As background for this Memorandum, each of the four NOAA Goal Teams produced papers identifying urgent national needs in their mission areas, relevant NOAA capabilities, and criteria for setting program priorities. I congratulate them for adopting an unprecedented, high-level, corporate perspective during their deliberations.

NOAA Goal Teams and Councils should support Program Managers to help ensure that our future directions and approaches, cross-cutting priorities and long-range support requirements are factored into programming decisions. NOAA must continue to evolve to serve the rapidly changing world of which we are part. I have asked that the Strategic Plan be revisited to identify any necessary updates in light of this guidance and its analytical underpinnings.

With this guidance and our new management principles, the NOAA team can serve America with distinction as we face the challenges of the 21st century.

This message was generated for the Under Secretary of Commerce for Oceans and Atmosphere by the NOAA Information Technology Center/Financial and Administrative Computing Division

July 12, 2001

MEMORANDUM FOR: Small Boat Task Team Members

FROM: Lieutenant Jeremy M. Adams, NOAA
OMAO Small Boat Coordinator

SUBJECT: First NOAA Small Boat Workshop Summary

On July 10th through 12th, 2001 OMAO Program Services and Outsourcing Division hosted the first NOAA Small Boat Workshop. Nineteen people from OAR, NMFS, NOS, and OMAO, who are involved with the operation of small boats in the field, attended. The interactive dialog conducted during the workshop was extremely valuable toward attaining the goal of improving NOAA small boat management and safety.

The following topics were addressed in break out groups or by the entire workshop:

- Operator Training and Certification
- Small Research Vessel Definition and Standards
- OMAO and Line Office Interaction in Developing Operational Risk Management Plans
- Responsible Person - Definition and Function
- Resource Requirements
- Small Boat Inspection Program
- Small Boat Visual Identification and Numbering
- Small Boat Program Website
- General Comment on Current Draft Policy

Detailed findings from these agenda items are presented in the attached summary.

The next steps in development of a strengthened and tenable safety policy will include:

- Specific case studies to determine and better quantify resources required to implement and comply with the draft NOAA Administrative Order (NAO). Findings will be presented to Line Office Management.
- Inclusion of the significant proceedings from the workshop in the draft NAO. Final review and comment of this post-workshop draft will be solicited from the Task Team prior to initiating the administrative review process.

I will be contacting several Senior Field Managers immediately

after completing the next draft of the NAO to solicit information regarding estimated additional resources required by Line Office programs.

Input from the Task Team field representatives has provided perspectives and insights which will be crucial to development of a tenable safety policy. Task Team members who were unable to attend the workshop are encouraged to send comments to me via email. I sincerely thank you for attending and encourage you to continue to provide your input during this policy development process. I also encourage you to share the detailed workshop summary with your Senior Field Managers.

Enclosure: Detailed Workshop Summary

Distribution:

Alix	Donahue	Jacobs	McMillan	Thompson
Asato	Emmett	Jacobson	Parsons	Watson
Baumgartner	Govoni	Jarvis	Pierson	White
Blake	Hansford	Kuester	Rigby	Wilkes
Buckley	Hoffman	Krepp	Sirois	Wilmot
Byrne	Hoggard	Laidig	Smith	
Cunningham	Hoss	Mays	Taylor	
Delich	Hutton	McClellan		

DETAILED SMALL BOAT WORKSHOP SUMMARY

Break Out Groups and Topics

Operator Training Standards and Certification

OMAO: Beth White (facilitator)
NMFS: John Pierson, Wade Blake
NOS: Jeff Govoni, Larry Krepp

Due to the heterogenous nature of boat operations through out NOAA, the need to mandate additional training requirements was not viewed as being practical or cost effective. Specifying additional training requirements (such as weather interpretation training) or skill-based proficiency should remain the responsibility of the specific program Senior Field Manager.

The topic of requiring CPR and First Aid training for all boat operators was discussed. The USCG requires CPR and First Aid for all documented merchant mariners, from Able-bodied Seaman to licensed Deck Officers. Based on NOAA's intent to meet or exceed all applicable regulations or standards, it was decided that the policy requiring all NOAA boat operators to maintain CPR and First Aid qualification was not deemed to be unreasonable and therefore will continue to be required.

Small Research Vessel (SRV) Definition and Standards

OMAO: Bob Taylor (facilitator), Paul Parsons, Jamie Hutton
NMFS: Scott Sirois
OAR: Dennis Donahue
NOS: Dave Score

The discussion of standards for SRVs addressed the difficulties in applying existing regulations to research vessels less than 300 gross tons. There are no existing USCG regulations pertaining to oceanographic research vessels less than 300 gross tons. Applicable regulations based on an evaluation of operational risk can and should be drawn from several sources. The regulations and standards which will be applied to SRVs will be extracted from at least the following sources:

- 46 CFR Subchapter T - Small Passenger Vessels less than 100 tons
- 46 Subchapter L - Offshore Supply Vessels
- 46 Subchapter U - Oceanographic Research Vessels
- 33 CFR - Navigation and Navigable Waters

- ABS Rules for Pleasure Yachts less than 20 meters
- ABYC Standards and Recommended Practices
- ABYC Rules and Regulations for Recreational Boats
- Industry Standards
- United States Coast Guard
- International Maritime Organization

The definition of an SRV was proposed to be a vessel of greater than 50 gross tons but less than 300 gross tons and capable of conducting 24 hour operations. Gross tonnage is determined by the following formula: $((L \times B \times D) \times 0.67) \div 100$, where L = length, B = beam, D = depth (not draft). The tonnage limits of this definition may be lowered. Additional discussion and regulatory research is in order to further refine and establish the gross tonnage parameters of this definition. However, boats meeting the motorboat class length definitions and able to be classified as an SRV will be managed under the guidelines for SRVs.

The group recommended the formation of a Small Research Vessel Committee. Membership of the committee would be composed of persons nominated from Line Offices and OMAO. The Small Research Vessel Committee would be tasked with developing uniform resolutions to conflicts regarding the intent of regulatory and safety requirements applied to small research vessels, developing a compendium of applicable regulation for SRVs, addressing applications of new technology to marine safety, and assisting in the determination of content for a Small Boat Program website.

OMAO and Line Office Interaction and Responsibilities in Developing Operational Risk Management Plans

OMAO: Mel Asato (facilitate), Jerry Adams

NMFS: Bob Emmett, David McClellan, Wayne Hoggard

NOS: Todd Jacobs

The break out group recognized the need to keep the authority and responsibility for boat safety together, in one location. It was unanimously decided to keep authority and responsibility for safety with the line offices while tasking OMAO with technical assistance and inspection oversight and reporting functions. Even if OMAO had resources to assume responsibility and authority of line office small boats, it would be inefficient and disruptive to add a third party to the routine operational management of small boats. Occasional technical support, iterative risk analysis and scheduled inspections should provide the most appropriate and cost effective assurance of safety.

There was discussion regarding possible exemptions for Class II boats

from individualized risk management plans, i.e., Vessel Operations Manuals. It was decided that Class II boats should be exempt, at the discretion of the Senior Field Manager, from an individualized risk management plan if they are of an open design, powered by outboard engine(s), unmodified for special mission requirements, operated within 3 miles of the shoreline on a 12 hour or less day trip basis, and do not have AC electrical generating capability. It was felt that the risks involved in operating a boat meeting these criteria would be adequately addressed by a program Vessel Policy which would already be based on the principles of operational risk management.

The group recognized that boats smaller than Class II may be involved in high risk operations and may therefore require an individualized operational risk management plan. If a boat is Class A or I and is:

- engaged in overnight trips, or
- engaged in night operations, or
- conducts operations for greater than 12 hours, or
- transporting students, observers, VIPs, guests, or visitors and outnumber qualified crew by a ratio of greater than 2 to 1, or
- operating over 3 miles from shore, or
- altered for specific mission requirements, or
- engaged in an operation for which the boat was not originally intended, i.e., trawling from a center console outboard boat, or
- has been involved in a reportable incident,

it should have an individual risk assessment and corresponding risk management plan.

Although OMAO's role in developing operational risk management plans is intended to be advisory in nature, the paper trail generated during dialog with a program could have the potential to generate a de facto authority. As such, the potential for disputes in the interpretation of applicable regulations and requirements may arise. It was decided that such disputes should be addressed by binding arbitration through either a Small Research Vessel Committee or through a marine safety organization such as the USCG Marine Safety Office.

An administrative flow diagram was developed to detail the role of OMAO in assisting programs with the development of risk management plans. The flow diagram may be added as an appendix to the draft NAO.

The group tasked with this item, as well as most of the workshop attendees, felt that the interaction between OMAO and the Line Offices must be kept at the lowest management level possible in order to eliminate excess structure which may impede safety. This concept is advocated by the USCG through their "Prevention Through People" program. A lower level interaction is not intended to keep Senior Field Managers unaware of the management of their small boats. It is

intended to facilitate the dialog and actions necessary to attain an efficient and effective small boat safety program by placing authority, responsibility and action with the persons most concerned with safe marine operations - the boat operators.

Entire Workshop Topics

OMAO: Jerry Adams (facilitate), Bob Taylor, Beth White, Paul Parsons, Jamie Hutton, Jack Burks, Mel Asato

NMFS: Scott Sirois, Wayne Hoggard, Wade Blake, David McClellan, Bob Emmett, John Pierson

NOS: Jeff Govoni, Larry Krepp, Todd Jacobs, Dave Score

OAR: Dennis Donahue

Definition and Function of a Responsible Person

It was recognized that a Responsible Person may not be cost effective for programs that operate only one or two Class I boats. For this reason, the basic functions of a responsible person were defined and listed to allow senior field management the discretion to either create and fill a position to manage small boats, or delegate these responsibilities to several people, or delegate the responsibilities to an existing staff member.

The need to assign responsibility to a person for a boat, or fleet of boats, was unchallenged and viewed as critical to the success of the NOAA Small Boat Program. An analogy to management of GSA vehicles was drawn to illustrate the current state of small boat management within NOAA. An analogy to the professional maritime community was drawn to illustrate the ideal, and hopefully future, condition of small boat management.

The Responsible Person must not be assigned responsibility without having unquestionable direct access to dedicated resources, and final authority as to the readiness of a boat. The Responsible Person must hold the authority to change or reschedule operations and the resources to assure safe operations. The Marine Superintendent position may be a reasonable model of a responsible person, or a reasonable model for supervising responsible persons, in most organizations which have a boat over 65 feet or a boat which meets the SRV criteria.

It was noted that the lack of a Responsible Person was common to all activities where management was not committed to preserving material condition or maintaining the highest level of safety. Furthermore, several field activities had, based on their need to adequately address boat safety and material condition, created either a Marine Superintendent or Field Operations Manager through their own

initiative.

Resource Requirements to Meet Draft NAO

An estimate of additional resources required to meet the draft NAO will be presented to Line Office Managers. A small sample of boats will be examined in accordance with the draft policy in order to determine resource requirements. The requirement for a Responsible Person will have to be evaluated and quantified by Senior Field Managers on a case by case basis. The need in OMAO for two Small Boat Engineers (specification writing, procurement management experience, and program liaison) and one Small Boat Inspector/Coordinator (inspection, operations and NOAA related experience) was recognized by the workshop attendees as reasonable. Additional resources to support an effective inspection or engineering support program may be necessary as the Small Boat Program develops.

At activities where the need for a Responsible Person was recognized and a person was assigned, the condition of the boats and efficiency of their operations were in a better state than the field activities without a designated or clearly defined Responsible Person. However, in both instances where Responsible Persons positions were created, the designation and assignment of the Responsible Person resulted in the reassignment of a mission critical researcher to manage field operations.

A distinct and separate marine operations budget was identified as beneficial to supporting small boat material condition so that boats would not have to "compete" with science for essential safety, maintenance and repair funding. It was also noted that through a separate and distinct program marine operations budget, the ownership of a boat would effectively be transferred to the field unit and may be viewed as an asset for an entire activity rather than the sole property of a specific investigation or branch.

General costs associated with small research vessel operation and maintenance were discussed and listed to provide guidance to field operators wishing to estimate operating and maintenance budget requirements.

Small Boat Visual Identification and Numbering

There was general agreement for the need to maintain a uniform marking scheme for the purpose of greater public recognition and to credit NOAA.

The most cost effective approach for compliance with a uniform scheme was agreed to be a gradual implementation over time in accordance with a boat's normal maintenance painting schedule.

Guidance should be provided for appropriate sized flags to be flown from each class of boat and how flags should be flown.

It was noted that numbering of boats was not uniform due to the fact that the current NAO did not specifically state where program activities should attain hull identification numbers. A direct result of this problem with the current policy was manifest in the discovery of 10 uninventoried Class III boats during October and November of 2000. Most of these boats were not in compliance with the established inspection schedules because they did not exist on inventory records.

A uniform numbering scheme is required by United States Code. Many boat operators were unaware of this requirement. Hull identification numbers need to be issued to all unnumbered and improperly numbered boats.

Certain exemptions from the uniform visual identification marking scheme will have to be included in the draft policy. Exemptions should be allowed for aluminum and rigid hull inflatable boats, or when an established public image exists, or when identification as NOAA property is deemed to be hazardous to personnel.

Vessel Inspection

The need to increase the frequency and scope of inspections for Class II and III boats and SRVs was discussed. Typically, some operators could only justify boat related procurements when the required resource was noted as a deficiency in a Fleet Inspection Report. Fleet Inspection Reports are not intended to be procurement justifications and should not be relied upon as the sole basis for an efficient and tenable safety program. Unfortunately, inspection reports have commonly been the impetus driving the allocation of resources to correct material condition deficiencies after the material condition deficiency progresses to the point of becoming a safety concern.

The workshop identified the need to mandate a formal inspection program of all Class I and A boats. A Courtesy Marine Examination (CME) by the USCG Auxiliary was not deemed to be sufficient for all operating scenarios. A CME does not provide a certification of seaworthiness. Because of this, third party inspections utilizing boat specific attribute lists and conducted by either a marine surveyor, an experienced and trained government employee, or other marine safety expert should be employed in addition to the use of CMEs.

Some participants voiced the opinion that the best advocate for the safety and material condition of a boat is the regular operator of the boat. However, in a few field activities, there is the perception

that Senior Field Managers do not value the expertise of their regular operators. Because of this situation, the material condition, safety, or regulatory related and bona fide concerns of these regular operators were frequently dismissed or left unfunded.

Senior Field Managers should retain the option of designating an employee as an inspector. If such a designation should occur, the field manager and the designee must be aware of the rights and responsibilities of an inspector. This option may prove crucial to compliance with the draft NAO for remote field investigations where access to professional inspection services may be impractical.

The overall material condition of boats was identified as the greatest weakness in attaining 100% safety. The current triennial inspection program primarily addresses post accident survival equipment, not planned accident prevention, boat condition, operational planning, operator qualification, or configuration of vital systems.

Small Boat Program Website

During discussion a common comment was the value of the workshop in exchanging information and ideas across line offices. A Small Boat Program website has been created at the Marine Operations Center - Pacific Intranet for the purpose of acquiring and disseminating information applicable to NOAA small boats. Task Team members provided valuable input on potential website content and uses. Several ideas that will eventually be included as part of the site content include:

- Inspection Schedules
- Current Points of Contact
- Link to NAO
- Small Boat Inventory
- Pictures of Small Boat Operations in the Field
- Inspection Check Lists
- Sample Vessel Policies and Vessel Operations Manuals
- Surplus Equipment Lists
- Lessons Learned
- Bulletin Board Style Discussion Forum
- Training Vendors
- Best Practices or Equipment

The site is currently located at <http://intranet.pmc.noaa.gov/sbp/> and is still in the early development stage.

General Comment on Current Draft Policy

Concern was raised regarding terminology used to identify persons

assigned specific roles and responsibilities in the draft NAO. One of the initial issues identified as a serious weakness of the current NAO was that it lacked clear guidance and delegation of authority and responsibility. The current draft of the NAO will attempt to use unambiguous yet generic terms in order to specify, to the extent possible, analogous positions of authority and responsibility across all line offices. This approach is necessary in order to address the differences in management structures across line office field activities. One solution offered was to speak to the new risk based policy in general terms in the body of the NAO and to include specific details in appendices to the Order.

Differences in the level of formality for different types of risk assessments needs to be addressed. It is not the intent of the draft policy to require a formal OMAO and Line Office dialog with resultant written findings and guidelines for all risk assessments. Thus far, only the development of operational risk management documents requires an OMAO and Line Office dialog. Guidance or advice in determining potential risks involved in the acquisition or procurement of boats smaller than Class III should remain voluntary, at the discretion of the Senior Field Manager. A risk analysis and OMAO review was recommended prior to procurement, or finalizing acquisition, of Class II and smaller motorboats which will:

- engage in overnight trips, or
- engage in night operations, or
- conduct operations for greater than 12 hours, or
- operate greater than 3 miles from shore, or
- engage in operations for which the boat was not originally intended. For example, trawling from a center console outboard boat.

Department of the Interior Departmental Manual

Effective Date: 3/12/99

Series: Safety Management

Part 485: Safety and Occupational Health Program

Chapter 22: Watercraft Safety

Originating Office: Office of Managing Risk and Public Safety

485 DM 22

22.1 Purpose. To establish minimum requirements for the safe operation of Department of the Interior watercraft and other non-motorized boats, and for the training and certification of Departmental watercraft operators.

22.2 References.

- A. 33 CFR, Navigation and Navigable Waters, Subchapter S, Boating Safety.
- B. 46 CFR 2, Shipping, U.S. Coast Guard, Department of Transportation, Requirements.
- C. 410 DM, Department of the Interior Property Management Regulations.

22.3 Definitions.

- A. Motorboat. Any watercraft 65 feet or less in length, that does not require a U.S. Coast Guard license or certification to operate.
- B. Operator. The individual in physical control of the watercraft.
- C. Motorboat Classifications:
 - (1) Class A. Motorboat less than 16 feet in length.
 - (2) Class 1. Motorboat 16 feet to less than 26 feet in length.
 - (3) Class 2. Motorboat 26 feet to less than 40 feet in length.
 - (4) Class 3. Motorboat 40 feet to 65 feet in length.
- D. Watercraft. Boats and ships, collectively, including air boats, sailboats, and every description of watercraft, except seaplanes, which are used or capable of being used, as a means of transportation on water; and are propelled by machinery whether or not such machinery is the principle source of propulsion.

22.4 Requirements. Bureaus engaged in watercraft operations will establish a watercraft safety program that includes the following minimum requirements:

- A. Safe Watercraft Operation.
 - (1) Departmental watercraft will be operated in a safe and prudent manner and in accordance with recognized Federal, State, and local laws and standards, in addition to the requirements of this Chapter.
 - (2) Departmental watercraft will meet or exceed applicable U.S. Coast Guard design/equipment requirements.

(3) In addition to basic safety devices required by local, State, or Federal regulations, Departmental watercraft will be outfitted, based on expected conditions, with other equipment necessary for safe operation. This may include communications gear, navigation aids, and Satnav. Special consideration should be given for the use of emergency location devices such as Emergency Position Indicator Radio Beacon or personal locator beacons. Use of these devices is highly recommended where situations may warrant.

(4) Operators of Departmental watercraft shall be adequately trained, properly tested and certified, prior to official operation of any Departmental watercraft. Certification will be in accordance with Section 22.5 of this Chapter. Prior to certification, employees may practice motorboat operation under the supervision of a certified operator aboard the watercraft. Motorboat operation by non-certified employees will only be used to gain experience prior to completing the necessary training requirements and being certified.

(5) On Class A or Class 1 vessels, all persons must wear a U.S. Coast Guard-approved personal flotation device (PFD) at all times while on board. On Class 2 or Class 3 vessels, all persons must wear U.S. Coast Guard approved PFDs at all times when on an open space such as the deck, and at the discretion of the vessel operator at other locations on the vessel.

(6) PFDs will be international orange in color and equipped with retro reflective tape in accordance with 46 CFR 25.25-15. (See Appendix 3 of this Chapter.)

(7) Deviation from the requirements of Section 22.4A(6) of this Chapter may be permitted if special mission requirements, such as may be involved in special law enforcement operations, cannot be otherwise satisfied. Deviations must be authorized in writing by the supervisor of the organizational unit conducting the operation prior to the conduct of the activity. The written authorization will identify alternate safety measures to be taken. Deviations will be authorized on a case-by-case basis except where they have the concurrence of a regional (or equivalent) safety manager. In those cases, the deviation may be authorized for a period not to exceed one year. Deviation from other requirements of this Chapter is not permitted.

(8) Cold water protective equipment, such as exposure suits and/or immersion suits, will be provided where cold water conditions pose a hazard during watercraft operations. All personnel on board will be trained in the use of this equipment.

(9) Periodic inspection and maintenance programs will be established for all Departmental watercraft, as required by reference identified in Section 22.2C of this Chapter. Records of inspections and maintenance will also be kept in accordance with Section 22.2C.

(10) Departmental employees operating watercraft subject to U.S. Coast Guard licensing regulations will be licensed in accordance with the requirements of reference identified in Section 22.2B of this Chapter, notwithstanding the general exemption of Federal titled watercraft under that reference. Departmental watercraft will meet the applicable U.S. Coast Guard inspection and certification requirements.

B. Operator Training and Certification.

(1) Operators of Departmental watercraft will be trained in safe watercraft operation in accordance with the requirements of this Chapter.

(a) Operators of all motorboats, other than those requiring U.S. Coast Guard licensed operators (see reference identified by Section 22.4B(1)(b) of this Chapter), will successfully complete the Motorboat Operator Certification Course (MOCC) training requirements specified in Section 22.5C and Appendix 2 of this Chapter. All current operators will be trained and certified in accordance with these requirements.

(b) Operators of watercraft covered by U.S. Coast Guard requirements identified in Section 22.2A will complete all training and certification requisites for operation of those vessels.

(2) Motorboat operator certification will be valid for a period of five years, except that operators certified before October 1, 1995, will remain certified until October 1, 1999. Prior to recertification, operators will complete an 8-hour refresher course that addresses the minimum subject areas described in Section 2.4 of Appendix 2 of this Chapter.

(3) Operators of non-motorized boats are exempted from the requirements of Section 22.5 below. However, they must receive alternate appropriate training necessary for the safe operation of these boats, as determined by the bureau safety manager.

22.5 Training and Certification.

A. The Office of Managing Risk and Public Safety, in coordination with the bureaus, will develop and maintain standards for the Motorboat Operator Instructor Certification Course (MOICC), the MOCC, and the 8-hour refresher training.

B. Appendix 1 outlines the MOICC standards. Employees successfully completing the MOICC will be authorized to present the MOCC and to certify individuals to operate Departmental watercraft. Completion of the MOICC satisfies the requirements of Section 22.4B(1)(a) of this Chapter.

C. Appendix 2 outlines the authorized local MOCC standards. Appendix 2 details minimum requirements only; bureaus should add additional modules meeting specific bureau and local needs. Individuals successfully completing the MOCC will be certified for operation of Departmental watercraft. This course is to be instructed by persons trained in the MOICC as described in Appendix 1 of this Chapter. Training materials will be developed by the Department and distributed to bureaus as necessary for reproduction and use.

D. Other watercraft training programs may be substituted for the Departmental MOCC. Requests for substitution must be submitted to the bureau safety manager or, at his or her discretion, the bureau designated responsible person identified in Section 22.5E. Substituted training must demonstrate that it will meet the MOCC objectives, including on-water proficiency. (See Appendix 2.) Examples of acceptable training are the U.S. Army Corps of Engineers Boat Operators Training Course and the Federal Law Enforcement Training Center (FLETC) Marine Law Enforcement Training Program.

E. (1) Each bureau with watercraft operations will designate an individual as the responsible person for all watercraft training and certification activities within the organization. This individual will help coordinate watercraft safety activities and operator certification functions, and serve as a program point of contact with other bureaus and the Department. That individual must have successfully completed the Departmental approved 40-hour MOICC as outlined in Appendix 1. For implementation of this Chapter, this individual must complete the training prior to October 1, 1996. Additional instructors will be designated, as necessary to assist in motorboat operator certification training. All instructors must complete the Departmental MOICC.

(2) Watercraft Safety Work Group. A Departmental standing Watercraft Safety Working Group will be established to serve as a forum for peer group discussion of watercraft safety issues, and to provide policy and program recommendations and other input to the Department of the Interior Safety and Occupational Health Council. The work group membership will consist of the bureau coordinators identified in Section 22.5E(1) above, in addition to other designated individuals. The work group will meet as necessary, but generally at least once annually.

STANDARDS

1.1 **Course Description.** The MOICC is a course targeted toward experienced motorboat operators. It stresses the learning of specific motorboat handling techniques and knowledge through extensive hands-on practical exercises and instruction, with a minimum of classroom presentation. Since one objective of this course is to qualify individuals to present MOCC training to other Departmental personnel, there is additional training in instructional techniques and presentation.

1.2 **Course Objectives.** The MOICC objectives are to:

A. Provide attendees with specific skills and knowledge needed to safely operate watercraft.

B. Familiarize attendees with state-of-the-art watercraft safety equipment and other gear, through demonstration and actual use.

C. Train and qualify personnel to serve as instructors of the MOCC.

1.3 **Course Length.** The MOICC will include at least 36 instructional hours. Course instructional hours may be increased to address specific bureau operational needs.

1.4 **Minimum Subject Areas.** The following mandatory subject areas will be presented in the MOICC:

A. Bureau Watercraft Policies.

B. Required Safety Equipment.

C. Motorboats and Motorboat Maintenance.

D. Trailers and Trailer Maintenance.

E. Navigation Aids/Rules of the Road.

F. Emergency Operations.

G. Fire Suppression.

H. Motorboat Orientation/Marlinspike.

I. Motorboat At-Speed and Low-Speed Maneuvering.

J. Alongside Maneuvering.

K. Trailing

L. Towing.

M. Instructional Techniques.

1.5 **Other Standards.** A maximum student/instructor ratio of 3:1 will be maintained.

STANDARDS

2.1 **Course Description.** The MOCC is a course targeted toward individuals whose jobs require them to operate watercraft for the Department. It stresses the learning of specific motorboat handling techniques and knowledge through extensive hands-on practical exercises and instruction, with a minimum of classroom presentation.

2.2 **Course Objectives.** The MOCC objectives are to:

A. Provide attendees with specific skills and knowledge needed to safely operate watercraft.

B. Familiarize attendees with state-of-the-art watercraft safety equipment and other gear, through demonstration and actual use,

C. Allow attendees to demonstrate, through written examination and physical demonstration, that they have adequate grasp of motorboat handling techniques and knowledge to safely operate a motorboat.

2.3 **Course Length.** The MOCC will include at least 24 instructional hours. Course instructional hours may be increased to address specific bureau operational needs.

2.4 **Minimum Subject Areas.** The following mandatory subject areas will be presented in the MOCC:

A. Agency Watercraft Policies.

B. Required Safety Equipment.

C. Motorboats and Motorboat Maintenance.

D. Trailers and Trailer Maintenance.

E. Navigation Aids/Rules of the Road.

F. Emergency Operations.

G. Fire Suppression.

H. Motorboat Orientation/Marlinspike.

I. Motorboat At-Speed and Low-Speed Maneuvering.

J. Alongside Maneuvering.

K. Trailing.

L. Towing.

2.5 **Other Standards.**

A. A maximum student/instructor ratio of 3:1 should be maintained to ensure that attendees obtain necessary operating techniques and knowledge.

B. MOCC instructors will have successfully completed the MOICC. Instructors will participate in MOCC presentations at least once over any three year period to maintain proficiency.

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APPENDIX 3

**RETRO REFLECTIVE MATERIAL FOR PERSONAL FLOTATION DEVICES
(REFERENCE 46 CFR 25.25-15)**

“(a) Each life preserver, each marine buoyant device intended to be worn, and each buoyant vest carried on a vessel must have Type I retro reflective material that is approved under Subpart 164.018 of this chapter.

(b) Each item required to have retro reflective material must have at least 200 sq. cm. (31 sq. in.) of material attached to its front side, at least 200 sq. cm. of material on its back side, and, if the item is reversible, at least 200 sq. cm. of material on each of its reversible sides. The material attached on each side of the item must be divided equally between the upper quadrants of the side, and the material in each quadrant must be attached as closely as possible to the shoulder area of the item.”

3/12/99 #3252

Replaces 11/20/95 #485A-4

U.S. Department of the Interior



Motorboat Operators Certification Course



Introduction

- This program was written and designed by Daniel Pontbriand using Microsoft Power Point. It can to be presented using a computer and LCD project/TV/monitor, slide projector or an overhead projector. See the help menu for instructions on how to produce these products.
- An Instructor Guide produced with Power Point that will assist the instructor with each slide. A Student Guide produced with Power Point assists students with following the program and taking notes.
- MOCC instructors may use and share this program with other instructors. Users may not sell this program in part or in whole. If changes are made, please notify the author, Daniel Pontbriand, at dan_pontbriand@nps.Gov.

Course Content

- Agency watercraft policy
- Required safety equipment
- Boats and boat maintenance
- Trailers and trailer maintenance
- Rules of the road and aids to navigation
- Towing
- Fire suppression
- Motorboat orientation
- Marlinespike
- At speed and low speed maneuvering
- Alongside maneuvering
- Trailering
- Emergency operations

Objectives of the MOCC course

- Each trainee will be able to safely operator an agency owned motor boat.
- Each trainee will know how to launch, trailer and tow a vessel.
- Each trainee will know the rules of the road, laws, required equipment and basic boat maintenance .
- Each trainee will know water safety, rescue and emergency techniques.

AGENCY WATERCRAFT POLICY



DM-485 22

- **Departmental Manual 485 - Chapter 22 -Watercraft Safety**
- **Establishes minimum requirements for the safe operation of DOI watercraft and other non-motorized vessels**
- **Establishes training standards and certifications for DOI watercraft operators**

DM-485 22 Emphasizes

- **ALL DOI employees will wear approved USCG pfd's at ALL times while on boat a class A or class 1 vessel. (Exceptions are special law enforcement operations).**
- **ALL pfd's will be international orange in color and will be equipped with retro reflective tape.**
- **ALL DOI employees are required to complete an MOCC course.**
- **MOCC certification is valid for five years after course completion.**
- **An 8 hour refresher course will be required to maintain certification before expiration.**
- **FLETC marine LE course and U.S. Army corps of engineers boating course may be substituted.**

DRAFT

July XX, 2003

MEMORANDUM FOR: For the Record

FROM: RADM Nicolas A. Prahl, NOAA
Director, Marine Operations Center

SUBJECT: NMAO Small Boat Policy

The safety of the NOAA fleet is one of my top concerns. Accordingly, I am presenting this policy on Small Boat operations with the expectation that Commanding Officers will make every effort to understand this document in its entirety and make operational and administrative changes as necessary. This policy enhances the way we presently conduct business in several important ways including:

- A formal certification documentation process for all NOAA Small Boat Coxswains and Small Boat Crewmembers.
- Requirement for the embarked scientific party to provide proof of certification within cruise instructions
- Enhanced training requirements
- Establishing formal guidelines for the operation of science program provided small boats

All commands will have one year after the date of this memo to comply with the certification requirements of this policy.

Attachment

cc: Commanding Officer...

NOAA Marine and Aviation Operations Marine Operations Center

Subject: NOAA Fleet Small Boat Policy

1. **PURPOSE:** To provide requirements, guidelines, and information for boat crews to improve the safety and effectiveness of small boat operations on NOAA ships.
2. **REFERENCES:** This policy was modeled after and closely follows the spirit and format of the U.S. Coast Guard's Non-Standard Boat Operator's Handbook and Boat Operations Training Manual (Volumes I and II). Additional guidance was provided by Canadian Coast Guard and other maritime agency regulations. As a result, this policy is in compliance with applicable CFRs. The following references are also applicable:
 - a. NC Instruction 5100.1(series)
 - b. ES 08. Personal Flotation Device Policy for the NOAA Fleet
 - c. NOAA PFD Policy (draft 6/11/03)
 - d. SC-1. NOAA Fleet Small Craft Program
 - e. SC-4 Small Boat Operators and Operations
 - f. SC-5 Fast Rescue/Utility Boats
 - g. NAO 217-103. Management of NOAA Small Boats.
 - h. OPS 02. Cruise Planning, Scheduling, & Execution
 - i. Ship Standing Orders
 - j. Coxswain Training Workbook
2. **AUTHORITY AND APPLICABILITY:** Irrespective of NOAA program small boat policy, this document shall apply to all boats carried aboard NOAA ships either as part of the ship's outfitting and equipment or brought aboard for use by a research program. This policy does not apply to boats *in extremis* where a departure from the policy may be required. Furthermore, the NOAA Ship's Commanding Officer shall remain the final authority afloat regarding all matters pertaining to the operation from the ship of all small boats as defined by this document.
3. **DISCUSSION:** Through improved training and risk management procedures, the effectiveness of small boats can be improved and the probability of future mishaps can be minimized. When operated within the appropriate conditions and in the manner in which it is designed, small boats are inherently safe and useful tools for accomplishing NOAA's mission.
4. **DEFINITIONS:** Refer to NAO 217-103, Management of NOAA Small Boats.
 - A. Boat: As used in this policy, refers to all craft less than 300 gross registered tons propelled by any means and commonly used to carry people on a body of water, but does not include sea planes.

B. Motorboat Classifications: NOAA motorboat classifications are developed from USCG definitions for motorboats, and apply to all boats propelled by machinery as follows:

1. Class A: less than 16 feet length overall
2. Class I: from 16 feet to less than 26 feet overall
3. Class II: from 26 feet to less than 40 feet overall
4. Class III: from 40 feet to less than 65 feet overall
5. Small Research Ship (SRV): greater than 65 feet overall but less than 300 gross tons.

5. **RESPONSIBILITIES:**

A. The Director, Marine Operations Center shall be responsible for:

- 1) Ensuring that NOAA ships comply with this directive
- 2) The overall safety of the NOAA fleet
- 3) Maintaining this document and its Appendices.

B. NOAA Ship Commanding Officer shall be responsible for:

- 1) Ensuring that safety guidelines are adhered to under his/her command.
- 2) Maintaining up-to-date standing orders for the small boat use aboard his/her ship (As per appendix B)
- 3) Ensure policy is read by all personnel and is part of the Crewmember and Coxswain workbooks.
- 4) Ensuring this policy is adhered to by visiting program personnel

C. Small Boat Coxswain shall be responsible for:

- 1) Following and enforcing safety guidelines while underway on a small boat.
- 2) Completing the Small Boat Coxswain Personal Qualification Workbook
- 3) Completing the underway checklist, Appendix A, and reporting its status to the ship's bridge who will then enter it in the Ship's Log.
- 4) Training unqualified small boat crewmembers and coxswains.

D. Command's Designated Examiner shall be responsible for:

- see Standing Orders

6. **ATTACHMENTS:**

- A. Appendix A: Minimum Small Boat Underway Checklist
- B. Appendix B: Small Boat Standing Order Template
- C. Appendix C: Small Boat Coxswain Personal Qualification Workbook
- D. Appendix D: Small Boat Crewmember Personal Qualification Sheet
- E. Appendix E: NOAA Fleet Employee Coxswain Certificate Template

- F. Appendix F: NOAA Small Boat Crewman Certificate Template
- G. Appendix G: Unqualified small boat coxswain designation letter template

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	Small Boat Coxswain Certification Letter Template	<u>Appendix E: 5</u>
	Small Boat Crewmember Certification Letter Template	<u>Appendix F: 1</u>
	Temporary Coxswain Designation Memo	<u>Appendix G: 1</u>

I. GENERAL

- A. Safety: The purpose of this document is to improve the safety of small boats operating within the NOAA fleet and it applies to all boat operators, crew members and embarked scientific personnel and other passengers. Additional responsibility to provide a safe working environment and adequate safety training rests on the command. However, personal safety ultimately depends upon individuals and will not be compromised for any reason.
- B. Drugs and Alcohol: Alcohol and drug use cause slower reaction time, lack of coordination, slurred speech, drowsiness, and an overconfident attitude. In short, it provides all the attributes that can lead to an unwanted incident. Hangovers also cause irritability, drowsiness, sea sickness, and a lack of concentration. As a result, crew members who knowingly get underway for a NOAA mission while under the influence are violating NOAA policy and put themselves and others at risk.
- C. Operations: Procedures for the conduct of operations specific to NOAA ships remain outside of the scope of this document and shall be documented locally in the ship's standing orders. Examples of specific operations include: diving, hydrographic survey, marine mammal work, personnel transfer, etc.

II. CREW QUALIFICATIONS

- A. General: Qualification, certification, and assignment as coxswain and crewmember on any NOAA small boat requires considerable time, effort, and practice. The individual must learn the characteristics of the boat and its uses, as well as the adverse conditions of the sea and environment in which the boat operates. It is essential that the complete qualification process be used to certify small boat coxswains and crew. Skills and knowledge must be demonstrated on each platform and they must be honed through experience and training at every opportunity. Crew and cox who have been qualified prior to Oct 1 03 may be so designated.
- B. Standards: The guidelines listed below constitute the minimum acceptable requirements for NOAA small boat coxswain. Commands are strongly encouraged to provide additional training as available.
- C. Administration: Upon satisfactory completion of the requirements for Coxswain and or Crewmember, certification shall be issued by the command. This certification shall be maintained aboard the ship as long as the crewmember or scientist remains aboard. Copy to MOA OPS for official training file.

- D. Transfer: Under most circumstances, small boat certifications do not transfer to other ships. Upon reporting to a new ship, the seaman must complete a new Ship's Small Boat Coxswain Personal Qualification Workbook to the satisfaction of the new Commanding Officer and a new Coxswain Certification Letter, Appendix D, shall be issued by the command. Crew and scientists that have certification on the same type of small boats, on other NOAA ships, may be certified without retraining at the commands' discretion. These coxswains must produce qualification documentation, display small boat proficiency and familiarity with local procedures and equipment to the satisfaction of command's Designated Examiner. Any recertification will be issued in writing.
- E. Boat Deployment Crew: Boat Crew members must be qualified to deploy boats. Boat Crew members are considered qualified to deploy boats when he/she has been found capable to participate in boat deployments by the Command's Designated Examiner.
- F. Crewmember: Considered to be qualified to act as small boat crewmember when found capable by Command's Designated Examiner. Additionally, the member shall:
1. Complete Small Boat Crewmember qualification workbook worksheet (Appendix D).
 2. Complete other qualification requirements as determined by the command.
- G. Coxswain: Considered to be qualified to operate a boat when all the following conditions are met:
1. The crew member possesses a valid Merchant Mariner Document endorsed for service as Able Bodied Seaman or is a Commissioned Officer;
 2. or at the discretion of the Command, individuals will be crew members, preferably with sea going or small boat experience, and have full confidence by both the Command and Chief Bosun and have successfully completed the shipboard training course.
 3. The conditions for Boat Deployment Crew and Crewmember above have been met.
 4. The person meets or exceeds the appropriate minimum operator training and certification requirements as per NAO 217-103.
 5. The crew member successfully completed or will complete within one field season, an STCW Fast Rescue Boat or STCW Proficiency in Rescue Craft course or other NOAA certified small boat training course. Any incomplete training required for certification will result in issuance of a temporary certification letter. The anticipated training completion date will also be noted. Certification will be revoked if training is not completed.
 6. A minimum of 10 hours of supervised hands on training. Commands may require additional training including that for survey launches, special operations, etc.

7. Has completed the ship's Coxswain Personal Qualification Workbook and the person has been found qualified to operate the boat by the Command's Designated Examiner.

H. Unqualified Crewmember or Coxswain Appointments:

In certain rare and limited situations, the Commanding Officer may assign crewmember or coxswain duties to persons, either permanent ship's crew or embarked scientific party, not meeting the coxswain qualifications listed above in order to complete a specific mission. This assignment shall only be made after an in depth examination of the risks versus benefits of the specific case.

This temporary designation shall be made in writing as per Appendix G of this document and shall be copied to the Director, Marine Operations Center.

1. Minimum Factors Considered:

- a. Length of time that the boat will operate away from the parent ship.
- b. Distance from the ship that the boat will be operated.
- c. Waters where the boat will be operated.
- d. Nature and number of navigational hazards in the operations area.
- e. Environmental conditions, both present and forecasted, including sea state, visibility, currents, and temperature.
- f. Character, ability, and previous experience of the person who will be acting as a coxswain.
- g. Engineering design limitations of the boat.
- h. Experience of other personnel on board.

2. This temporary designation shall expire upon the completion of the assigned task or mission. Permanent certification must be earned in accordance with the requirements stated in this section above.

III. CREW DUTIES

A. General:

1. Safety is the responsibility of not only the coxswain, but of all passengers and crewmembers assigned to the small boat. At any time, any crewmember can and should voice safety concerns that must be addressed before continuing with operations.
2. Furthermore, each crewmember should be familiar with the duties of the other crewmembers in addition to their own duties. It is important for a crewmember to know and commit to memory all important characteristics of the boat and its equipment as well as all emergency procedures. Accordingly, the crew should get the boat underway to practice operational and emergency procedures whenever the opportunity is available.

3. As further described below, the qualified Coxswain, in the absence of an Officer in Charge, shall direct all crewmembers and passengers in the safe conduct of small boat operations. Failure to do so could result in disciplinary action.

B. Minimum Personnel:

1. There shall be a minimum of two qualified personnel aboard the small boat for every operation, namely one qualified coxswain and one qualified crewmember as defined by Section II above.
2. A qualified small boat crewmember need not be part of the ship's complement assuming that the qualifications above have been met.
3. Beyond the minimum crew stated above, Commanding Officers may at their discretion, add additional crew based on operational support, space aboard the small boat, mission of small boat, designed load limitations, and other criteria as defined by paragraph II.H.1 above.
4. Coxswains may be left alone in the boat for limited periods if crewmembers are involved with operations such as diving or scientific operations. Any such condition must be specifically approved in advance by the command.

C. Coxswain: The Commanding Officer places great trust in a coxswain's ability to accomplish the assigned missions in a safe and professional manner even under adverse conditions. Due to the extreme dynamic nature of these ships, the coxswain must be constantly attuned to the safety and comfort of the crew and shall adjust operations accordingly. NOAA boats underway must have a coxswain on board who is certified by the command to operate that particular type of boat.

1. Authority: In the absence of an Officer in Charge, the coxswain is the direct representative of the Commanding Officer. As such, he/she has the authority and responsibilities that are independent of rank or seniority in relation to other personnel embarked. The authority and responsibility of the coxswain exists, however, only when the boat is engaged on a specific sortie or mission and shall be limited to issues regarding the safety of the small boat or its crew and passengers.
2. Responsibility: The coxswain shall be responsible, in order of precedence, for the safety and conduct of passengers and crew, the safe operation and navigation of the boat assigned, and the completion of the sortie or mission(s) assigned or undertaken pursuant to NOAA policy and regulations (this may overlap with OIC duties). Within the limits of his or her capabilities and legal authority, an underway coxswain will at all times respond to observed hazards to life or property, and will not violate law or regulation. In the absence of an OIC, the coxswain may also be assigned the responsibilities of the OIC.

3. Relief: The only person embarked in the boat who may relieve the coxswain of the responsibility as stated above is:
 - a. The Coxswain's Commanding Officer, Executive Officer, or Chief Boatswain's Mate or other designee from the command.
 - b. A senior officer at the scene of a distress emergency or other abnormal situation who exercises authority under the provisions of NOAA regulations.
 - c. Chain of Command: In the event that the qualified Coxswain is incapacitated or otherwise unable to conduct his or her duties, the position of Coxswain shall pass the next most qualified person on board in a clear manner and all on board must be informed.

4. Duties:

- a. Demonstrate leadership that effectively coordinates, directs, and guides the performance of the boat crew during watches and tasks.
- b. Know's the boat's operational limits and keeps the boat out of danger at all times.
- c. Will be familiar with the local operating area with minimal reference to charts and publications.
- d. Demonstrate good boat handling skills to safely and prudently control the movement of the boat while underway.
- e. Demonstrate knowledge and ability required to use all equipment on board necessary to respond to emergencies.

D. Crew Members:

1. Duties: When qualified as per section II above, and under direct supervision of the coxswain, crewmembers may be responsible for the following duties:
 - a. Helm
 - b. Lookout
 - c. Towing watches
 - d. Anchor watches
 - e. Secure towing and mooring lines
 - f. Assist in scientific operations
 - g. Assist in emergency operations
 - h. Other duties as required by the coxswain
2. Most small boats do not require an additional engineer. Although the coxswain is in charge and responsible, every crewmember plays an important role as a part of the underway team. They must be actively involved in each activity including the vocalization of safety concerns or other hazards. Each crewmember must have a thorough knowledge of the boat's outfit equipment and stowage as well as a basic

understanding of the propulsion and control systems in order to support the coxswain. Basic engineering casualty control and troubleshooting, as applied to the various small boat platforms in the NOAA fleet, are skills and knowledge that must be integrated into the Ship's Training Program starting at the crew level.

E. Passengers:

1. The term "passenger" as defined by this document shall include, though be not limited to, all embarked scientists not acting in the capacity as a qualified crewmember as defined by section II of this document.
2. All hands aboard a small boat shall be familiar with small boat communication methods and emergency procedures.

F. Officer in Charge: When assigned, the Officer in Charge (OIC) shall retain situational operational authority for all issues involving the safety of the Small Boat or its crew and passengers. Officer in Charge qualification standards shall rest with the Command.

G. Command's Designated Examiner
Duties and authority are defined in ship's Standing Orders.

IV. BOAT MAINTENANCE, OUTFIT, INSPECTION, AND EQUIPMENT STOWAGE

A. General: Commanding Officers are responsible for regulating outfit and stowage polices in accordance with NOAA regulations. Specific maintenance requirements and responsibilities beyond those required by NC Instruction 5100.1(series) shall be documented by the ship's standing orders. Additionally, outfit requirements for each small boat vary slightly based on deck layout, stowage capacity, and mission focus and should be documented in the ship's standing orders.

B. Stowage: Proper stowage can become critical (even life threatening) if a small boat is involved in a mishap such as capsizing. General guidelines for stowage include:

1. Secure for sea reducing chance of lost gear or entanglement.
2. Ready access to equipment that relates to operations.
3. Protection from the elements thus prolonging equipment service life and reliability.
4. Unencumbered access to safety and emergency gear.

C. Outfit: Commanding Officers shall establish the minimum required equipment list for the small boats within their command. A minimum recommended outfit for small boats is provided in NAO 217-103 Appendix A, as well as NC 5100.1(series) Appendices D and H. These may be considered necessary for all multi-mission work with this type of platform. Commands should take a prudent but conservative approach in

adding extra equipment to these boats that are typically short on stowage space.

- D. Maintenance: Periodic small boat maintenance requirements shall be determined by the Chief Engineer and manufacturer documentation. Maintenance responsibilities shall be distributed as determined by the command.
- E. Inspection: Boats shall be inspected prior to every use in accordance with Appendix A of this document. Furthermore, boats shall inspected annually in accordance with NC 5100.1(series). Boats not meeting the inspection requirement shall be inspected prior to operation from a NOAA ship.
1. Inspections shall include examination of material condition and engineering systems (e.g. electrical, exhaust, cooling, fuel) in addition to the survey of minimum outfitting and safety gear.
 2. Minimum criteria for engineering systems is found in the American Boat and Yacht Council's "Standards and Technical Information Reports" (www.abycinc.org).

V. COMMUNICATIONS

- A. General: Mis-communication can prove deadly. Effective crew communications are a vital part of safe small craft operation. Since ship crews confront a variety of risks, a systematic approach to risk management is also essential.

All small boats shall be equipped with no fewer than two VHF/FM radios. Refer to NAO 217-103 for additional requirements for boat-to-shore and boat-to-ship communications. Some boats may be equipped with an inter-crew communications system. Boat crews should be familiar with the difficulties imposed by wind and engine noises. Proper communication language and verbiage must be used so not to confuse any orders, instructions, or other communications.

- B. Reports: Frequent operations and position reports shall be made by the small boat to the parent ship using pre-designated operating frequencies at intervals of no less than once per hour. The periodicity of the operational reports may be increased at the discretion of the Commanding Officer.

- C. Loss of Communications: Commands shall develop a plan to counter a loss of communication by either the Small Boat or parent ship. This plan may be documented in the ship's Standing Orders, Appendix B.

- D. Internal Communications: While underway, every maneuver should be verbalized to ensure that each member of the crew is aware of what the ship is about to do. Discuss the terms that are going to be used such as 1. Coming Up (throttling up) 2. Coming Down (throttling down) 3. Hard to port/starboard, etc.

Whether passing information to the crew and passengers or the parent unit, due consideration must be given that the message is received and understood. It is sometimes necessary to slow down or stop in order to overcome the shortfalls of the small boat communication system.

VI. HAZARDOUS WEATHER OPERATIONS

- A. Small Craft Warning: Operating while a small craft warning (defined as winds in excess of 21 knots or seas seven feet or greater) has been issued, with or without an experienced coxswain, can seriously jeopardize the safety of the boat, its crew, and the mission. The Commanding Officer must consider many factors when allowing operations during the small craft warning. These factors include case severity, experience of

the crew, water and air temperature, and weather forecast outlook. Even when forecast weather or on scene weather conditions do not meet the definition of a small craft warning, small boat coxswains must remain alert. Refer to section VIII of this document for small craft operating parameters and limits.

B. Surf Operations:

1. Small boats shall not be operated in environmental conditions which exceed the maximums as defined by the boat's manufacturer. Furthermore, coxswains shall maintain a safe distance from the surf zone (defined as the part of the coast zone between the shoreline and the breaker zone (the most seaward area of breaking waves)) as caused by a beach, sand bar, break water, shoal, reef, sea mount, tide rip or other oceanographic or physical feature where waves are breaking or have created surf in excess of one foot without having successfully attended the following training:
 - a. USCG heavy Weather Coxswain course at the National Motor Life Boat School, Ilwaco, WA or...
 - b. A surf boat coxswain course approved by the NOAA small boat program or...
 - c. NOAA Surf Coxswain Course of the NOAA Small Boat Program, Honolulu, HI (currently under development)
2. Furthermore, no coxswain regardless of training or experience shall enter that surf zone without expressed authority to do so from his/her Commanding Officer. This acknowledgment shall be entered into the ship's log.

VII. SAFETY EQUIPMENT

- A. Personal Flotation Devices: Refer to NOAA PFD Policy and ES 08--Personal Flotation Device Policy for the NOAA Fleet. During all small boat operations, PFDs shall be worn as prescribed by all persons aboard. PFDs shall provide a minimum of 22 pounds of positive buoyancy and must be USCG approved Type I, Type II, Type III, or Type V.
- B. Head Protection: During small boat deployment and recovery from a parent ship using a crane or other over the side recovery device, hard hats shall be worn. Furthermore, units should consider a policy regarding the use of helmets for use during high speed or heavy weather operations. Even if not required by other directives or policies, Commanding Officers should still consider requiring helmets when planning missions.
- C. Eye Protection: A risk-based decision should be undertaken by Commanding Officers in order to determine if eye protection should be worn.

Eye protection with appropriate lenses protect eyes from glare, wind, and spray. Rain or other particles in the air can cause eye injury during high speed operations.

- D. Cold Weather Protection: Protection from hypothermia is necessary to ensure the safety of small boat crews. Commands and crews shall ensure that adequate hypothermia protective equipment is provided to all boat crews and passengers.
- E. Personal Locator Beacons: When available, PLBs will be used aboard all small boats in accordance with manufacturer's instructions. PLBs must be registered with NOAA SARTSAT in Suitland, Maryland in order to be effective.
- F. Other Equipment: As per NAO 217-103 Appendix A and NC Instruction 5100.1(series) Appendices D and H, additional deck, rescue, and survival equipment is required.

VIII. OPERATING PARAMETERS

- A. General: Many of the ships in NOAA's small boat fleet are capable of high speeds. This is an asset only when used in a mature and professional manner and in consideration of crew and passenger comfort. A high number of small boat mishaps can be attributed to excessive speed. The experienced coxswain rarely operates at the maximum speed available and he or she knows that reserving some throttle will enable evasive maneuvering if necessary.

When operating a high-speed class A or B small boat, the operator must be able to read and to identify waves in order to prevent capsizing or launching. Too much speed at the wrong time could cause crew ejection, injury, or damage to the boat.

- B. Duration of Operations: To minimize fatigue induced accidents and to ensure compliance with STCW work hour requirements, boat operations shall not be conducted for more than:
1. Class II, Class III: Twelve (12) hours per day. Boat operations are said to have begun when boats are being readied prior to launch and are said to have been concluded when the boat has been secured.
 2. Class A, Class I: Eight (8) hours per day by the same coxswain. If multiple coxswains are used, total duration remains up to the Commanding Officer.
- C. Maximum Operating Limits: Maximum operating limits shall be established by

the commanding officer with consideration of the small boat's inherent design limitations. At a minimum, small boat operations shall not be conducted when environmental conditions meet or exceed the following U.S. Coast Guard operating limits as defined (Reference USCG District 13 Standard Operating Procedures):

1. Class II, Class III: Beaufort Condition 6
2. Class A, Class I: Beaufort Condition 5
3. Visibility: Limited to 2 nautical miles or less
4. If a water spout is observed
5. If freezing rain is forecast or observed
6. Lighting or severe storms at or near the small boat or working grounds.

IX. SCIENCE PROGRAM SPONSORED SMALL BOAT OPERATIONS

- A. General: As per NAO 217-103, rotating scientific personnel and the ship's permanent crew will be held to the same training and qualification standards. Given this, Commanding Officers may at their discretion permit embarked scientific personnel to operate either NOAA ship or Scientific Program Office provided small boats. Conversely, failing to provide proper qualification documentation or for any reason the Commanding Officer deems a situation unsafe, science team led small boat operations may be terminated.
- B. Qualification:
1. Crewmember: Qualification requirements of crewmember for any small boat launched or operated from a NOAA Ship shall be the same as those in section II above for crewmember. This qualification shall be documented by a Command's Designated Examiner using Appendix E of this document.
 2. Coxswain: Qualification requirements of coxswain for any small boat launched or operated from a NOAA Ship shall be the same as those in section II above for coxswain. This qualification shall be documented by a Command's Designated Examiner using Appendix D of this document. Coxswains that have met the requirements for equivalent training and designation in another program, may also be certified by the command on a case by case basis. An example would be a scientist who holds a coxswain certification from his/her lab and meets the minimum NAO 217-103 requirement.
- C. Administration:

1. As per OPS 02, Cruise Planning, Scheduling & Execution crewmember and coxswain qualifications shall be documented in the cruise instructions.
 2. Qualification certifications shall be presented to the Commanding Officer before embarkation and shall be maintained onboard the ship for the duration of the cruise.
- D. Planning: As per OPS 02, Cruise Planning, Scheduling & Execution, Chief Scientists are required to include in all planning and final cruise instructions a statement of intent with regards to Small Boat use. This statement will include information with regards to:
1. Mission and type of operations.
 2. Duration of operations.
 3. Special equipment needed or modifications to the small boat.
 4. Whether or not the line office wishes to augment the coxswain with a helmsman as per section IX, paragraph D of this document.
 5. Line office providing a small boat for use aboard a fleet ship.
 6. Fuel provisions and requirements.
 7. Certification that the boat has met the inspection requirements of NAO-217-103 Appendix A.
- E. Non-NMAO Boat Use: The use of non-NMAO provided small boats is authorized aboard NOAA fleet ships. However the following will be true:
1. The ship's Commanding Officer will retain operational authority over the small boat. In this capacity, he/she is shall decide, in consultation with the embarked chief scientist, when to commence and when to conclude operations.
 2. In the event of an emergency aboard the non-NMAO provided small boat, the ship's Commanding Officer shall retain authority and may direct the coxswain in an appropriate manner.
 3. The line office providing the small boat will remain responsible for fueling costs and costs incurred from repairs rendered.
 4. Small boats shall meet the inspection requirements of NAO-217-103 Appendix A.
- F. Launch/Recovery: Refer to SC 4, Small Boat Operators and Operations for complete small boat launch and recovery procedures.
- G. Helmsman: During some small boat operations, a helmsman in addition to the coxswain may be used to steer the boat. Namely, a helmsman may be appropriate when special knowledge or skills are required, and not possessed by the designated coxswain, to ensure mission success. The command may, however, require a qualified coxswain from the ship's crew to deploy, recover, and or conduct operations as required by the command, or to accompany the non-ship crew in the small boat.

1. Example: When approaching marine mammals for the purpose tagging or biopsy sampling, a scientist's experience may be better suited for maneuvering in such a way as to ensure sampling success.
2. Terminating Operations: During these operations, the coxswain maintains responsibility for the boat's safety and remains in charge in the event of an emergency. Furthermore, the coxswain (or Commanding Officer) may, at his/her discretion, terminate operations and return the boat to the parent ship if safety is compromised.

X. EMERGENCY PROCEDURES

- A. General: These procedures are presented as a guideline to follow in the event of a mishap aboard a Small Boat with the realization that in the event of a true emergency, deviation may be necessary as the case permits.
- B. Capsizing: In the event of capsizing outside of the surf zone, as defined in section VI, paragraph B of this document, all effort should be made to stay with the inverted craft and to use it for floatation.
- C. Abandoning: Great effort should be made to avoid abandoning a small boat. Vigorous and proficient firefighting or damage control is normally a preferred alternative to abandonment. However, the prudent coxswain should not hesitate to give the order to abandon the boat if he/she deems that survival is more likely in the water than on the boat. As time and the situation permit:
 1. Initiate a distress call
 2. Ensure all personnel have PFDs
 3. Throw all floating objects overboard
 4. Take the portable, waterproof radio
 5. Take the PLB and any extra signaling gear
- D. Rescue: At the first indication of a mishap, the parent ship should deploy the rescue boat and mobilize embarked rescue personnel while monitoring all working channels, as well as channels 13 and 16 for communications from the troubled craft. Additionally, the parent ship should post lookouts and, as conditions allow, maneuver rapidly towards the small boat.

MINIMUM PRE-UNDERWAY CHECKLIST

- G 1. Brief all crew members and passengers on the mission, preferably before getting underway, or as soon as possible afterwards. The briefing should be complete. State:
 - G a. Purpose of mission
 - G b. Special circumstances
 - G c. Working radio frequency for the mission
 - G d. Plan of action upon arrival at destination
 - G e. Weather and sea conditions
 - G f. Emergency equipment and procedures
- G 2. Ensure water tight integrity (as appropriate)
- G 3. Secure all loose gear
- G 4. Ensure that all gear necessary to perform the mission is on board. This includes supplemental equipment not normally on the boat but needed for the specific mission.
- G 5. Ensure crew members wear Personal Protective Equipment required for the environment (i.e. PFDs, helmets, anti-exposure suits, etc).
- G 6. Ensure that the boat engineer has checked the boats mechanical and electrical systems and has reported these conditions to the coxswain. This report should include the status of:
 - G a. Fuel levels
 - G b. Oil levels for engines and marine reduction gears
 - G c. Cooling water level
 - G d. Hydraulic steering oil
 - G e. Engine/marine reduction gear PSI/temperature gauges.
 - G f. Electrical systems energized
 - G g. Navigational lights operating
 - G h. Open sea suction (as required)
 - G i. Shore tie disconnected (as required)
 - G j. Overboard discharge (as required)
- G 7. Test the boat's electronic equipment and report the status to the coxswain:
 - G a. Radios
 - G b. Depth sounder
 - G c. RADAR (as required)
 - G d. All navigational systems
 - G e. Compass light
- G 8. Test the engine controls, both forward and reverse. Note the reaction time in each direction.
- G 9. Notify the command that the checklist has been completed and report the names of all passengers and crewmembers.
- G 10. Cast off all lines, stow the lines, and bring aboard any fenders.

Small Boat Standing Orders Template

NOAA Ship XXX, Standing Order X

Small Boat Operations

This template and the order of sections is for reference only and should not be thought of as a limit to what Commanding Officers may include in their Small Boat Operations Standing Orders. This documents highlights only those items specifically mentioned in the Small Boat Policy as required in ships' Standing Orders

Command Designated Responsibilities (in addition to policy):

- 1) Cox
- 2) OIC
- 3) Designated Examiner
- 4) CB
- 5) CME
- 6) Other

1. Coxswain Training Requirements: Commands may determine that small boat Crewmember and Coxswain hands on requirements should exceed those in found in the policy. This section should include min training requirements and on the job supervised training.
2. Unqualified Coxswain Appointments: Commanding Officer should enunciate the ability, in rare and limited cases, to issue unqualified coxswain appointments.
3. Minimum Crew: If Commands determine that a minimum crew in excess of that provided by the Policy is necessary, it should be included within the standing orders.
4. Certification Transfer: Small Boat Coxswain and Crewmember qualifications do not seamlessly transfer to a new vessel. Commanding Officers should codify the need (or in rare cases, lack thereof) for re-issuance of Certification Letter.
5. Maintenance: Commanding Officers may wish to use this format to describe the relationship of the Chief Bosun and the Chief Engineer with regards to small boat maintenance. Guidance to commands: Responsibility for maintenance should be clarified in this section.
6. Outfit and Storage: Outfit requirements for each small boat varies slightly based on deck layout, stowage capacity, and mission focus.
7. Small Boat Equipment list: In excess of required lists mentioned above.

8. Underway Checklist: Commands are now required to complete and log the completion of Small Boat underway checklists. This process should be locally codified as should any small boat checklist that deviates (i.e. there are more requirements) from the checklist included in the Policy.
9. Boat Deployment: PFDs and hard hats shall or shall not be worn by crewmembers deploying or recovering small boats as determined by deck layout and the Commanding Officer.
10. Operations: Procedures for the conduct of operations specific to NOAA ships shall be documented locally in the ship's standing orders. Examples of specific operations include: diving, hydrographic survey, marine mammal work, personnel transfer, etc.
11. Reports: Commands may determine that there is a need for greater reporting periodicity for small boat communications than provided in the Policy.
12. Operational Limits: Stated in the Policy are the maximum conditions in which operations are allowable. Commanding Officers should document their local policy for operating in hazardous conditions (this may be more stringent).
13. Surf Zone Operations: The Policy requires that surf zone operations be logged and only those qualified may perform them. This should be included in Standing Orders.
14. Scientific Operations: The ship's Commanding Officer will retain operational authority over all science team provided small boats. In this capacity, he/she shall decide, in consultation with the embarked chief scientist, when to commence and when to conclude operations. A variation of this should be documented in the standing orders.
15. Crew Fatigue: Commanding Officers may determine that more stringent crew fatigue requirements are required for their small boats. Furthermore, when multiple coxswains are used within a 24 period, Commands should document total allowable small boat operational time allowable.
16. Loss of Communication Plan: A plan is required to address communications loss between parent ship and the Small Boat.
17. Terminating Operations: During operations, the coxswain maintains responsibility for the boat's safety and remains in charge in the event of an emergency. Furthermore, the coxswain (or Commanding Officer) may, at his/her discretion, terminate operations and return the boat to the parent ship if safety is compromised.

COXSWAIN Workbook

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NOTE TO COMMANDS: This workbook is provided as a template only which is at your discretion to modify and tailor to your individual needs. The format of this template should be followed to ensure uniformity throughout the fleet, however the sectional content may be modified to suit your needs. You may also deem it necessary to add sections relevant to your operations.

1 Vessel Characteristics

- Knowing the physical characteristics a vessel is the first step to understanding what can be done in any given situation.

1.1 Small boat Characteristics:

a) What type of hull does the small boat have: Displacement or Planing?

b) What material is the small boat hull constructed of?

1) What are the advantages and disadvantages to this material?

c) The hull dimensions of the small boats:

	L O A	Be am	D r a f t	Weight	Mast Height
XX1					
XX2					

d) The propulsion systems of the Small boats:

	Engine Horse Power	Fuel Type	Fuel Capacity	Fuel Endurance
XX1				
XX2				

e) Expected Performance for the Small boats:

	Cruise RPM	Max Speed RPM	Cruising Speed
XX1			

XX2			
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f) Safe Operating Capacity

	Personnel Capacity	# of Life Preservers
XX1		
XX2		

1. What is the limiting factor that will determine the small boat’s capacity?

1.2 General arrangements and ship structure.

- General knowledge of the principal structural members of a ship and the proper names for the various parts
- Demonstrate knowledge of structural details including deck layout and the names. This may be accomplished by drawing sketches or demonstrating knowledge with a qualified ship operator.

- a) What does RHIB stand for?
- b) What is significant about the keel of a small boat?
- c) What are chine rails? What are their purposes?
- d) What flotation is built into a small boat hull?

1.3 Power Plant

- Knowledge of the operation of power plants and auxiliaries.
- General knowledge of marine engineering terms
- Demonstrate a working knowledge of the operation of all ship equipment and machinery.

- a) What basic information about marine engines, including terminology, is important for ship operators to know and understand?

1.4 Start up Procedures:

Describe, in detail, the start up procedures for XX1 and XX2. Include fluids to check, motor indicators, etc.

1.5 Shut Down Procedures:

Describe in detail the procedures for shutting down XX1 and XX2.

1.6 Troubleshooting

What are some things to look for if the following occurs in the field?

- a) Engine will not turn over.
- b) Starter turns engine over, but engine will not start.
- c) Overheating

1. Ship Characteristics - Check-off Sheet NAME:

Knowledge of the following has been satisfactorily demonstrated:

	Signature	Date
1. Ship Characteristics	_____	
2. Fuel capacity and consumption	_____	
3. Operational limits	_____	
4. Power	_____	
5. Auxiliary equipment	_____	
6. Steering Systems	_____	
7. Start up procedures	_____	
8. Shut down procedures	_____	
9. Troubleshooting	_____	

2. Administration - Check-Off List Name:

Knowledge of the ship's administrative procedures has been satisfactorily demonstrated:

	Signature	Date
1. Chain of command	_____	
2. Department responsibilities	_____	

3 Coxswain Underway Procedures

3.1 Communications.

- Demonstrate a working knowledge of all communications systems installed on the ships, internal and external.
- a) What equipment and frequency are used for small boat to Ship NAME communications?
 - b) List the station identifiers used aboard Ship NAME.
 - c) Describe the basic format of verbal traffic between ships.
 - d) What equipment is for ship-to-boat (non-NOAA) communications?
-Which channels?
 - e) List any other frequencies Ship NAME monitors. (handy to know if you have to contact the ship and you have radio problems)
 - f) Describe the emergency communications systems on board Small boats, including EPIRBS, RADAR reflectors etc. Describe when they would be used.

3.2 Lights.

- Demonstrate working knowledge of all lighting systems.
- a) Which lights should be displayed when the ship is underway? When should they be displayed?
 - b) Which lights are displayed when the ship is at anchor. When are they displayed?

3.3 Emergency procedures

There is always potential for emergencies when conducting small boat operations. As Coxswain you are responsible for emergency procedures followed aboard the Small boat.

- Precautions for the protection and safety of passengers in emergency situations
- Demonstrate a thorough knowledge of local conditions that could affect the safety of your ship

c) What steps would you take in case of fire?

3.3.4 Flooding

- Initial assessment of damage and damage control

a) What would you do if the ship began taking on water?

b) Where is the hand bilge pump located? How does it work?

c) Demonstrate the ability to repair a punctured air compartment in the field.

3.3.5 Collision & Grounding

- Initial action to be taken following a collision or grounding; initial damage assessment and control.

a) What should you do if the small boat is involved in a collision?

b) What should you do if the small boat is grounded?

3.3.6 Abandon Ship

- Knowledge of survival at sea techniques

a) Would you ever abandon a small boat in the event of flooding or capsizing?

b) What is “parbuckling”? When would you perform this action?

3.3.7 Man Overboard

- Demonstrate proficiency for rescuing persons from the sea.

a) As Coxswain , what should be your immediate actions if you saw a man fall overboard from a small boat?

c) What are the duties of the Coxswain during a man-overboard rescue?*

*NOTE - There are several acceptable "man-overboard" procedures

d) Describe the rescue/recovery procedure for a man overboard by a small boat (describe direct and indirect approach methods)

Direct Approach:

Indirect Approach

1) How would you bring an unconscious victim aboard?

3.3.8 Responding to external emergencies

- Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port.
- Arrangements for towing and for being taken in tow.

a) What should you do if another ship requests emergency help?

3. Underway Procedures - Check-Off List **Name:**

Knowledge of the following has been satisfactorily demonstrated:

	Signature	Date
Communications		
Radio, ship to small boat	_____	
Radio, ship to ship	_____	
Radio, portable	_____	
Radio, ship to shore	_____	
Lights	_____	
Emergency procedures	_____	
Emergency Devices	_____	
Fire Fighting	_____	
Collision and Grounding	_____	
Abandon ship	_____	
Man overboard	_____	
External Emergencies	_____	
All equipment not previously listed	_____	

4 NAVIGATION

The art of navigation has been addressed by thousands of books, and a complete course in this workbook would not be possible. The ship has extensive material that is available for study including structured learning programs. This basic list is the minimum STCW proficiency standard regarding navigation.

- Ability to operate safely and determine the ship's position by use of all navigational aids and equipment commonly fitted on board the ship concerned.

4.1 Terrestrial and coastal navigation

- Show proficiency in the ability to determine the ship's position by use of:
 1. Landmarks
 2. Aids to navigation, including lighthouses, beacons and buoys
 3. Dead reckoning, taking into account winds, tides, currents and estimated speed.
- a) Are electronic devices required to navigate a ship?
- b) What navigational equipment is available on the small boats?
- c) What are Aids to Navigation (ATONS)?
- d) How can you determine drift while in a buoyed channel?
- e) What are the options if caught in a reduced visibility situation with no electronic navigational aids?
- f) In general, what are your ship's guidelines for the distance a small boat can be from the ship?
- g) What is a traffic separation scheme? When would you use one?

Demonstrate the ability to navigate using “seaman’s eye”, basic navigational equipment and chart.

4.2 Electronic systems of position fixing and navigation

- Ability to determine the ship’s position by the use of electronic navigational aids.
- a) What are some examples of Electronic aids and how do they assist the navigator fix the ship’s position?

4.2.1 Global Positioning System

The Global Positioning System has become paramount to basic navigation. A basic understanding of the system, its operation and its limitations are needed to fully understand and apply GPS data.

- a) What is GPS?
- b) Can GPS be relied upon under all conditions to provide error free position information?

4.3 Echo-sounders (Fathometer)

- Ability to operate the equipment and apply the information correctly.
- a) Why do the small boats have echo sounders (non-mission related)?
- b) How can an echo sounder be used to help determine position?

c) When are the echo sounders required to be on?

4.4 Compass - magnetic

- Knowledge of the errors and corrections of magnetic compasses.
- Ability to determine errors of the compass using terrestrial means, and to allow for such errors.

a) How do you determine compass error using terrestrial means?

b) How do you get a true course from magnetic course?

c) When departing the ship for the working grounds, is there any information that can be obtained quickly from a compass to assist the small boat return to the ship in limited visibility?

d) List some basic do's and don'ts when using a magnetic compass.

e) COMPASS POINTS: How many degrees are in one compass point?

-If you are heading due east, and you are directed to come 3 points to starboard, what direction in degrees will you be heading?

4. Navigation - Check-Off List **Name:**

Knowledge of the following has been satisfactorily demonstrated:

	Signature	Date
1. Charts: Projections, Scales, Types	_____	
2. Terrestrial Navigation	_____	
3. Electronic Systems GPS	_____	
4. Echo Sounder	_____	
5. Compass - Magnetic	_____	
6. All equipment used for navigation and survey operations not Previously listed	_____	

c) Discuss the procedure for bringing XX1 or XX2 alongside (include line handling).

1) TRUE or FALSE: When coming alongside the your ship when she is underway at 5 kts, you should match speed just off her beam then increase speed slightly and come along side at a shallow angle.

d) Describe possible actions you could take if the motor stopped when the small boat was in a narrow channel.

5.3 Docking and Anchoring

- Proper procedures for anchoring and mooring
- Demonstrate a working knowledge of all ground tackle aboard your small boat.

a) How much scope should normally be used when anchoring?

b) What ground tackle is supplied aboard the small boats?

c) What is the total length of anchor line on the XX1 and XX2?

5.4 Towing:

- a) Can you use XX1 and XX2 for towing operations?
- b) Describe how to make a ship fast for side towing using XX1 or XX2. Can you use one piece of line for side towing?
- c) Stern towing: What should you watch for when towing astern.

5.5 Marlinspike Seamanship and purchases

Demonstrate a knowledge and understanding of knots and rigging.
[NOTE: Card Carrying ABs can skip this section.]

- a) Define the following:
 - Knot
 - Bend
 - Splice
 - Bight
 - Turn
 - Round turn

5.5.1 List of Knots (Demonstrate): When would you use these in the small boats?

- a) Bowline
- b) Square Knot
- c) Clove Hitch
- d) Half hitch
- e) Round Turn and 2 half hitches

6 RULES OF THE ROAD

A thorough knowledge of the Rules of the Road is mandatory. Be prepared to demonstrate to the Commanding Officer or his designated training officer such knowledge. This requirement may be verbal or written examination at the discretion of the Command.

- A thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea
- a) Is the small boat required to follow the rules of the road? If so why? If not, why not?
- b) **EXAMPLE: RULE 9:** Scientific operations require that you maneuver within a narrow channel or fairway. Describe your obligations with regards to traffic that can only navigate within the channel.
- c) **EXAMPLE: RULE 10:** Scientific operations near San Francisco require that you maneuver within a traffic separation scheme. Does Rule 10 apply to you? Given the length of XX1 and XX2, are you required to maneuver in any special way within a Ship Separation Scheme?
- d) What special indicators must be shown during over the side diving operations?

Verified:

Signature

Date

7 SAFETY

Safety is always important, but it is particularly crucial at sea because of remoteness. Safety procedures must be well understood and followed at all times. The following questions may seem overly detailed, but serious accidents occur from lack of attention to details.

- a) When is the Coxswain required to wear a Coast Guard Approved Life Preserver?
- b) When are passengers required to wear a Coast Guard Approved Life Preserver?
- c) Who is responsible for ensuring that the above two conditions are met?

7.1 General safety procedures

Everyone on the ship is responsible for safety, both for yourself and your shipmates. A thorough understanding of the safety policy in place on Ship NAME and in the small boats is mandatory.

- a) Outline the ship's safety rules for the following:
Goggles.

Gloves.

Shoes.

Hardhats.

Safety lines.

Life jackets/vests.

- b) Who is responsible for safety on a deployed small boat? Why?
- c) Explain safety procedures transferring personnel between a small boat and the ship.

7.2 Medical

- Practical applications of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship.
- a) Who is your ship's Medical Officer and EMT?

 - b) What medical equipment is available for use on the small boats?

a Pollution Control

The Coxswain is responsible for ensuring compliance with pollution-prevention regulations. Large fines and criminal charges can and will be brought against violators. A thorough understanding of the requirements is mandatory.

- Knowledge of the precautions to be taken to prevent pollution of the marine environment and anti-pollution procedures.
 - Anti-pollution procedures and all associated equipment.
- a) What would you do in the event of a fuel spill?

7. Safety - Check-Off List _____ **Name:** _____

Knowledge of the following has been satisfactorily demonstrated:

	Signature	Date
1. Ship's safety regulations	_____	_____
2. General safety procedures	_____	_____
3. First-aid equipment	_____	_____
4. Pollution control	_____	_____

8 Coxswain Qualifications

All personnel are encouraged to improve their knowledge of small boats and ships and seamanship.

A letter from the Commanding Officer will be issued to those who successfully complete this workbook and are recommended for qualification by the Chief Boatswain.

8.1 Coxswain of a Small Boat

The individual must demonstrate his/her knowledge of shipboard and small ship operations and have satisfactorily demonstrated a thorough knowledge of the appropriate Sections of this Workbook.

Additionally, an oral examination to be administered by a senior officer or department head and another qualified Coxswain may be required. The questions are to be developed by the command and oriented on topics, policies, and procedures not normally expected of persons not in a position of responsibility. The individual may be tested on, but not limited to, the subjects listed in the Suggested Oral Examination Topics.

Operational Qualifications **Name:**

The following ship maneuvering and handling proficiencies will be demonstrated to the Chief Boatswain or other senior officer.

	Signature	Date
Small boat and recovery operations	_____	_____
Maneuver ship from ship	_____	_____
Maneuver ship to ship	_____	_____
Maneuver ship to pickup objects in water	_____	_____
Maneuver to position and anchor ship	_____	_____
Operate the ship with backup steering system	_____	_____
Other operational procedures Heavy weather operations	_____	_____
Wake reduction	_____	_____
Towing Operations	_____	_____

Suggested Oral Examination Topics

Navigating and docking/undocking a ship in restricted waters, narrow passage, and river (currents).

Small boat deployment and recovery

Typical operations and heavy weather conditions

Heavy weather operations

Ship handling characteristics and constraints

Procedures and policies

In extremis conditions

Assisting a ship in distress

Emergency evolutions

Emergency communications, including GMDSS

Collision/Grounding/Fire

Loss of propulsion/Loss of steering

Man overboard

Loss of electronic navigation equipment

Abandon ship

Mission related operations

Fire arm usage while underway in a small boat

Diving procedures

Safe dive operations/Dive emergency procedures

Fueling procedures

Oil spill procedures

Beach Landing procedures

NOTE TO COMMANDS: This workbook is provided as a template only which is at your discretion to modify and tailor to your individual needs. The format of this template should be followed to ensure uniformity throughout the fleet, however the sectional content may be modified to suit your needs. You may also deem it necessary to add sections relevant to your operations.

Small Boat Crewmember Personal Qualification Sheet

SMALL BOAT CREWMEMBER COVERSHEET HERE

1. **Duties:** Describe in detail the duties that you may be called upon to perform.
 - A. Helm
 - B. Lookout
 - C. Towing watches
 - D. Anchor watches
 - E. Secure towing and mooring lines
 - F. Assist in scientific operations
 - G. Assist in emergency operations
 - H. Other duties as required by the coxswain

2. **Communications:** Demonstrate a working knowledge of all communications systems installed on the small boats, internal and external.
 - A. What equipment and channels are used for small boat to SHIP NAME communications?
 - B. List the station identifiers used aboard SHIP NAME.
 - C. Describe the basic format of verbal traffic between ships.
 - D. What equipment is for ship-to-boat (non-NOAA) communications?
 - E. List any other frequencies SHIP NAME monitors. (handy to know if you have to contact the ship and you have radio problems)
 - F. Describe the emergency communications systems on board the small boat, including EPIRBS, RADAR reflectors etc. Describe when they would be used.

3. **Emergency procedures:** There is always potential for emergencies when conducting small boat operations. As a small boat crewmember you are responsible for assisting the Coxswain in emergency procedures followed aboard the Small boat.
 - A. What equipment is on board for rescuing a person (conscious and unconscious) in the water?
 - B. What emergency signaling devices are stored aboard each small boat?
 - C. Describe the location of emergency signaling devices aboard each boat.
 - D. When and why would you expect to use the different types of signaling devices?

4. **Fire fighting:** Fire aboard any ship is a serious matter. Understanding how to act based on the type of fire and the equipment at hand is an important part of a crewmember's training.
 - A. What equipment is available for fire fighting on the various small boats?
 - B. Where is the fire fighting equipment located?
 - C. How would you combat each type of fire on a small boat?
 - D. What steps would you take in case of fire?
5. **Flooding:**
 - A. What would you do if the boat began taking on water?
 - B. Where is the hand bilge pump located? How does it work?
6. **Collision & Grounding:**
 - A. What should you do if the small boat is involved in a collision?
 - B. What should you do if the small boat is grounded?
7. **Abandon Ship:**
 - A. Would you ever abandon a small boat in the event of flooding or capsizing?
 - B. Describe your actions should the small boat capsize.
 - C. What is "parbuckling"? When would you perform this action?
8. **Man Overboard:**
 - A. As crewmember, what should be your immediate actions if you saw a man fall overboard from a small boat?
 - B. What are the duties of the Coxswain during a man-overboard rescue? NOTE - There are several acceptable "man-overboard" procedures
 - C. How would you bring an unconscious victim aboard?
9. **Towing:**
 - A. Can you use XX1 and XX2 for towing operations?
 - B. Describe how to make a ship fast for side towing using XX1 or XX2. Can you use one piece of line for side towing?
 - C. Stern towing: What should you watch for when towing astern?

10. Marlinspike Seamanship:

[NOTE: Card Carrying ABs can skip this section.]

- A. What ground tackle is supplied aboard the small boats?
- B. What is the total length of anchor line on the XX1 and XX2?
- C. Define the following:
 - 1) Knot
 - 2) Bend
 - 3) Splice
 - 4) Bight
 - 5) Turn
 - 6) Round turn
- D. List of Knots (Demonstrate): When would you use these in the small boats?
 - 1) Bowline
 - 2) Square Knot
 - 3) Clove Hitch
 - 4) Half hitch
 - 5) Round Turn and 2 half hitches

11. General safety procedures: Everyone on the ship is responsible for safety, both for yourself and your shipmates. A thorough understanding of the safety policy in place on SHIP NAME and in the small boats is mandatory.

- A. When are you required to wear a Coast Guard Approved Life Preserver?
- B. When are passengers required to wear a Coast Guard Approved Life Preserver?
- C. Who is responsible for ensuring that the above two conditions are met?
- D. Outline the ship's safety rules for the following:
 - 1) Goggles.
 - 2) Gloves.

- 3) Shoes.
 - 4) Hard hats.
 - 5) Safety lines.
 - 6) Life jackets/vests.
- E. Who is responsible for safety on a deployed small boat? Why?
- F. Explain safety procedures transferring personnel between a small boat and the ship.
12. **Medical:** Practical applications of medical guides and advice by radio, including the ability to take effective action based on such knowledge in the case of accidents or illnesses that are likely to occur on board ship.
- A. Who is your ship's Medical Officer and EMT?
 - B. What medical equipment is available for use on the small boats?
13. **Practical Demonstrations:** These demonstrations should be conducted to the satisfaction of a qualified small boat coxswain.
- A. Make a call to the parent ship on the small boat's radio; during the call, switch working frequencies.
 - B. Assist the coxswain in bringing a person (or equivalent) from the water into the boat.
 - C. Make fast the small boat to a pier.
 - D. Make fast the small boat to the parent ship while making way.
 - E. Assist the coxswain in 2 launch and recovery operations.
 - F. Demonstrate basic proficiency and understanding of the small boat's throttle controls.
 - G. Show where the fire extinguisher(s) are located.
 - H. Spend no less than 2 hours in a small boat under the supervision of a qualified crewmember and coxswain.

Small Boat Coxswain Certification Letter Template

Ship Name

Date

MEMORANDUM FOR: I.M Rizzo, Able Bodied Seaman

FROM: XXX, Name, NOAA
Commanding Officer, NOAA Ship XXX

SUBJECT: Certification as NOAA Ship XXX Small Boat Coxswain.

Congratulations! Effective this date, you are hereby designated as Small Boat Coxswain for any small boat deployed from the NOAA Ship [*ship name*].

This letter certifies that you possess all the skills required to maintain competent watch and to supervise others aboard our Small Boats and that you have met all the requirements for this position as defined by the NMAO Ship Small Boat policy.

This certification is non-transferable to other another NOAA ship without the consent of her Commanding Officer.

As with all of my Coxswains, I expect you to comply with my Standing Orders and to help me enforce them. Bear in mind that my responsibility as Commanding Officer is absolute. That means that any temporary delegation of authority does not relieve me of command responsibility for the safety of the ship and for all Small Boats operating from it.

I fully expect that all assigned tasks and missions will be carried out with vigilance, diligence, and dispatch and. I expect you to represent me with dignity, tact, and professionalism.

cc: MOP1
MOA1
Performance Record

Small Boat Crewmember Certification Letter Template

Ship Name

Date

MEMORANDUM FOR: I.M Rizzo, Able Bodied Seaman

FROM: XXX, Name, NOAA
Commanding Officer, NOAA Ship XXX

SUBJECT: Certification as NOAA Ship XXX Small Boat Crewmember.

Congratulations! Effective this date, you are hereby designated as Small Boat Crewmember for any small boat deployed from the NOAA Ship [*ship name*].

This letter certifies that you possess all the skills required to assist the Small Boat Coxswain in maintaining competent watch and that you have met all the requirements for this position as defined by the NMAO Ship Small Boat policy.

This certification is non-transferable to other another NOAA Ship without the consent of her Commanding Officer.

As with all of my Small Boat Crewmembers, I expect you to comply with my Standing Orders and to help me enforce them.. Bear in mind that my responsibility as Commanding Officer is absolute. That means that any temporary delegation of authority does not relieve me of command responsibility for the safety of the ship and for all Small Boats operating from it.

I fully expect that all assigned tasks and missions will be carried out with vigilance, diligence, and dispatch and. I expect you to represent me with dignity, tact, and professionalism.

cc: MOP1
MOA1
Performance Record

Temporary Coxswain Designation Memo

Ship Name

Date

MEMORANDUM FOR: RADM Nicolas A. Prahl, NOAA
 Director, Marine Operations Center

FROM: XXX, Name, NOAA
 Commanding Officer, NOAA Ship XXX

SUBJECT: Temporary Appointment of Non-Certified Coxswain

In accordance with the NMAO Fleet Small Boat Policy, I have temporarily assigned AB Rizzo as Coxswain of the [*small boat name*] Class [*x*] Small Boat. The purpose of this appoint is to perform [*mission*]. This appointment is necessary because [*reason*].

This designation will terminate on [*date*] when the mission will be complete.

Although AB Rizzo has not had the required training nor completed the full certification process, I have weighed the risks as listed in the NMAO Fleet Small Boat Policy against the benefits and am confident in the need of this temporary appointment.

cc: MOP1
 MOA1

IMPORTANT - DISCLAIMER

The following document has been edited by the NOAA Small Boat Safety Program.

THE DOCUMENT IS BEING PROVIDED FOR THE SOLE PURPOSE AS A REFERENCE FOR THE 2003 NOAA SMALL BOAT WORKSHOP ATTENDEES.

The document has been edited to remove extraneous information which is not applicable to workshop discussions.

The document may be NOAA policy, draft NOAA policy, or the policy, guidelines, standards, instructions, procedures, or orders of other public agencies or professional boating interests.

Every effort has been made to ensure that the following document is correct and current.

PREFACE

The mission of the Federal Law Enforcement Training Center (FLETC) is to provide the highest quality, state-of-the-art law enforcement training to meet the needs of its Federal Partner Organizations. The staff is proud of its creation and fostering of a world-class partnership with over 70 different Federal law enforcement agencies to produce basic and advanced law enforcement training.

This Catalog of Training Programs provides specific information concerning the many basic and advanced training programs available at the FLETC. A separate Schedule of Training Programs, which contains cost information, is published quarterly as a supplement. I hope this Catalog will be used to identify programs that will enhance individual law enforcement careers and serve to further the professionalism of law enforcement in the Federal Government. The contacts identified throughout the Catalog will be pleased to discuss the training program curricula and assist with any questions regarding FLETC and agency enrollment policies and procedures.

Many of our Partner Organizations also conduct specific, advanced programs for their own employees. For that purpose, more than 20 Partner Organizations have permanent training offices at Glynco, Georgia; Artesia, New Mexico; and Cheltenham, Maryland. Collectively, these organizations conduct almost 300 unique programs. The large number of these programs precludes publishing all of them in this Catalog; however, for information concerning this training, I refer you to the list of Partner Organizations and telephone numbers listed at the beginning of the Catalog.

As a new feature, this Catalog is available only on CD or via our web site, www.fletc.gov. We are happy to provide you with CDs of this catalog for use and distribution throughout the law enforcement community.

The staff of the FLETC strives to meet the needs of its Partner Organizations and constantly seeks ways to improve the quality of communications with its client agencies. This Catalog should be used to assist training officials in obtaining current information about the FLETC and its programs. It is updated and published on a continuing basis. If you have any suggestions for improvements to the Catalog, please write the Training Management and Coordination Division at:

Program Manager
Federal Law Enforcement Training Center
Training Management and Coordination Division
Townhouse 382
Glynco, GA 31524

If you have any questions concerning a specific program, please call the appropriate Program Manager listed under the Division offering the training program.

Thank you for your interest and support of the FLETC.



Connie L. Patrick
Director
June 2003

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GENERAL OVERVIEW

In 2003, the Federal Law Enforcement Training Center (FLETC) celebrated 33 years of progressive, cutting edge training. Our commitment to Excellence in Training also fulfills our Congressional mandate to provide a consolidated training facility for the benefit of all Federal law enforcement agencies. The FLETC employs a cadre of professional staff and instructors who conduct quality and cost efficient training in modern physical facilities with state-of-the-art techniques and equipment.

Mission

The FLETC, a bureau of the Department of Homeland Security, is the nation's lead organization for interagency training of Federal law enforcement personnel. Basic and advanced training is provided at the FLETC for personnel from over 70 Partner Organizations. Over 40,000 students train at the various FLETC sites annually from all 50 states and from the U.S. Territories.

A component of the FLETC, the National Center for the State and Local Law Enforcement Training, (OSL) also offers advanced and specialized programs in selected subject areas for employees of State and local law enforcement agencies. These programs are designed to develop specialized law enforcement knowledge and skills and encourage networking among Federal, State and local agencies. Participants benefit from the Federal expertise and training resources of the FLETC, and from guest instructors from Federal, State, local and private organizations. The OSL also conducts or coordinates training and provides technical assistance for international law enforcement personnel in areas such as antiterrorism, money laundering, and financial crime investigation.

Location

The FLETC's primary campus is located on the southeastern coast of Georgia near Brunswick at Glynco. Equidistant between Savannah, Georgia, and Jacksonville, Florida, it occupies 1500 acres of land and over 100 buildings devoted to training. The FLETC operates a campus at Artesia, New Mexico near Roswell where basic, advanced and specialized programs are conducted. The Bureau of Indian Affairs Indian Police Academy is located at the Artesia campus. A third FLETC training facility is located at Cheltenham, Maryland, serving as the home of the U.S. Capital Police Academy and providing refresher and advanced training for the Washington, D.C. area Federal law enforcement community. The FLETC also provides training and support to the U.S. Border Patrol Academy in Charleston, South Carolina.

Glynco, Artesia and Charleston are residential training centers, providing meals, housing, and recreational activities on a seven-day-a-week basis. The Cheltenham facility primarily serves residents of the greater Washington, D.C. area. The FLETC maintains a liaison office in Washington, D.C. Below are addresses and telephone numbers for the Glynco, Artesia, Cheltenham and Washington, D.C. locations.

Deputy Assistant Director
Office of Training Management
Federal Law Enforcement Training Center
Townhouse 381B
Glynco, GA 31524
Switchboard: 912-267-2100

Deputy Assistant Director
Office of Artesia Operations
1300 West Richey Street
Artesia, NM 88210
Telephone: 505-748-8000

Site Director
Office of Cheltenham Operations
9000 Commo Road
Cheltenham, MD 20623
Telephone: 301-868-5830

Senior Associate Director
FLETC
555 11th Street N.W.
Suite 400
Washington, D.C. 20004
Telephone: 202-927-8940

Partner Organizations

As stated previously, the Center serves over 70 Federal Partner Organizations. This designation means the head of the agency has signed a Memorandum of Understanding setting forth an agreement between the FLETC and the agency. Partner Organization status, granted by the FLETC's Board of Directors, offers several benefits, including top priority in training and a lower cost for the training than for non-Partner Organizations trained on a space-available basis.

Many Partner Organizations maintain training offices at the FLETC. Following the General Overview section of this catalog are lists of the FLETC Partner Organizations and those Partner Organizations with offices at FLETC.

Application Procedures and Program Schedules

All students are sent to the FLETC by their employing agencies. Individuals who are interested in attending one of the programs described in this catalog should talk to their agency training officers or the contact person noted in the program description.

Actual enrollment is accomplished by the agency training officer who will contact the FLETC at the following address and telephone number:

FLETC Admissions Coordinator
Training Management and Coordination Division
Townhouse 385
Glynco, GA 31524
Telephone: 912-267-2421 or 2269

Program Costs

The fee for a student attending a program is paid by that employee's agency. Because costs vary yearly, the fees are not published in this catalog. However, the latest information is available in the Schedule of Training and on the website at www.fletc.gov.

PARTNER ORGANIZATIONS

Agriculture

Animal Plant Health Inspection Service
Office of Inspector General
U. S. Forest Service

Amtrak

Northeast Corridor Police

Central Intelligence Agency

Office of Inspector General
Office of Security

Commerce

National Institute of Standards and Technology
National Marine Fisheries Services
Bureau of Industry and Security
Office of Inspector General
Office of Security

Defense

Defense Criminal Investigative Service
National Security Agency
Naval Criminal Investigative Service
Office of Inspector General
Pentagon Force Protection Agency
U.S. Air Force Office of Special Investigations

Education

Office of Inspector General

Energy

Office of Inspector General

Environmental Protection Agency

Office of Criminal Investigations
Office of Inspector General

Federal Deposit Insurance Corporation

Office of Inspector General

General Services Administration

Office of Inspector General

Health and Human Services

Food and Drug Administration
National Institutes of Health
Office of Inspector General

Homeland Security

- Border and Transportation Security Directorate
 - Bureau of Customs and Border Protection
 - U. S. Border Patrol
 - Bureau of Immigration and Customs Enforcement
 - Federal Protective Service
 - Office of Domestic Preparedness
 - Federal Emergency Management Agency
 - Transportation Security Administration
- Office of Inspector General
- U. S. Coast Guard
- U. S. Secret Service

Housing and Urban Development

- Office of Inspector General

Interior

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- National Park Service
- Office of Inspector General
- Office of Surface Mining, Reclamation and Enforcement
- U. S. Fish and Wildlife Service
- U. S. Park Police

Justice

- Bureau of Alcohol, Tobacco, Firearms and Explosives
- Bureau of Prisons
- Drug Enforcement Administration
- Office of Inspector General
- U.S. Marshals Service

Labor

- Office of Inspector General

National Aeronautics and Space Administration

- Office of Inspector General

Nuclear Regulatory Commission

- Office of Inspector General

Office of Personnel Management

- Office of Inspector General

Railroad Retirement Board

- Office of Inspector General

Small Business Administration
Office of Inspector General

Smithsonian
National Zoological Park
Office of Protection Services

Social Security Administration
Office of Inspector General

State
Agency for International Development – Office of Inspector General
Bureau of Diplomatic Security
Office of Inspector General

Supreme Court
Supreme Court Police

Tennessee Valley Authority
TVA Police
Office of Inspector General

Transportation
Office of Inspector General

Treasury
Bureau of Engraving and Printing
Financial Crimes Enforcement Network
Internal Revenue Service
Office of Inspector General
Treasury Inspector General for Tax Administration
U. S. Mint

U. S. Congress
Government Printing Office
Office of Inspector General
Office of Security
Library of Congress Police
U. S. Capitol Police

U. S. Postal Service
Office of Inspector General
Postal Inspection Service – Postal Police

Veterans Affairs
Office of Inspector General

FEDERAL ORGANIZATIONS WITH OFFICES AT FLETC

FLETC, Glynco

Phone

Address mail to: title, agency, and building number.

FLETC

Glynco, GA 31524

Telephone: 912-267- plus 4-digit number listed below (unless otherwise listed)

DEPARTMENT OF AGRICULTURE

Animal Plant Health Inspection Service (APHIS), Representative, Building 70 554-4905

U. S. Forest Service, Assistant Director, TH. 378A 2471

DEPARTMENT OF COMMERCE

National Marine Fisheries Service, Representative, 300 Kiefer Circle 280-5416

DEPARTMENT OF DEFENSE

Defense Criminal Investigative Service/DoD Inspector General

Director for Training, Bldg. 69 2273

Naval Criminal Investigative Service, Deputy Assistant Director, TH 377D 2975

U. S. Air Force Office of Special Investigations Academy, Commander, TH 395 280-5300

DEPARTMENT OF HOMELAND SECURITY

Border Patrol Academy, Chief, Patrol Agent, Bldg. 64 2980

Bureau of Customs and Border Protection Academy, Director, TH 386F 554-4902

Bureau of Immigration and Customs Enforcement Academy, Director, Bldg 70 554-4915

Federal Protective Service, Agency Representative, TH 377 2143

Transportation Security Administration, Director, Bldg. 680 4724

U.S. Secret Service, Assistant Special Agent in Charge, TH 386B 2127

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service, Special Agent in Charge, Bldg. 63 2370

National Park Service, Agency Representative, Bldg. 64 2246

U.S. Park Police, Commander/Agency Representative, 314 Command Circle 2489

DEPARTMENT OF JUSTICE

Alcohol, Tobacco, Firearms and Explosives Academy, Chief, Trlr. 761 2828

Associate Assistant Attorney General, Bldg. 70 2917

Bureau of Prisons, Director of Staff Training, Bldg. 21 2743

U.S. Marshals Service, Director, Bldg. 20 2731

DEPARTMENT OF STATE

Agency Representative, Bldg. 69 2864

DEPARTMENT OF THE TREASURY

Internal Revenue Service, National Criminal Investigation Training Academy,
Director, Bldg. 69 2123

U. S. Mint Police, Agency Representative, Bldg. 69 554-4836

FLETC, Glynco

Phone

ENVIRONMENTAL PROTECTION AGENCY
Special Agent in Charge, 318 Command Circle2726

INSPECTOR GENERAL ACADEMY
Director, TH 3843759

TENNESSEE VALLEY AUTHORITY
Captain Doug Norman - 865-632-3444, TH 378A2471

U.S. CAPITOL POLICE
Agency Representative, Bldg. 642464

FLETC, Artesia

Address mail to title and agency:

FLETC Artesia Center
1300 West Richey Street
Artesia, NM 88210
Telephone: 505-748- plus the 4-digit number below

DEPARTMENT OF HOMELAND SECURITY
Border Patrol Academy, Chief Deputy8032

DEPARTMENT OF THE INTERIOR
Bureau Of Indian Affairs, Director, Indian Police Academy8151
U. S. Park Police, Representative8060

DEPARTMENT OF JUSTICE
Bureau of Prisons, Coordinator8014

DRIVER AND MARINE DIVISION

The Driver and Marine Division (DMD) has a staff of approximately 85 instructors, mechanics, and training technicians. It consists of four branches including:

- Technical Skills and Concepts Branch
- Tactical Training Branch
- Marine Training Branch
- Driver and Marine Support Branch

The Technical Skills and Concepts Branch (TSC) and the Tactical Training Branch (TTB) support Center Basic training programs that require training in driving skills. In addition, they also support Agency Advanced, Agency In-Service, Agency Follow-On, and International training programs. These two branches also manage Center Advanced training programs including:

- Advanced Driver Instructor Training Program (ADITP)
- Driver Instructor Training Program (DITP)
- Police Bicycle Training Program (PBTP)
- Vehicle Accident Investigation Training Program (VAITP)
- Vehicle Ambush Countermeasures Training Program (VACTP)

The Marine Training Branch (MTB) primarily conducts Center Advanced training. The programs managed by the MTB include:

- Advanced Marine Law Enforcement Training Program (AMLETP)
- Marine Law Enforcement Training Program (MLETP)
- Small Craft Enforcement Training Program (SCETP)

In addition, the MTB also supports agency-advanced training like the Corps of Engineers Motorboat Operator License Examiner Training Program (COE-MOLETP). The MTB provides training support to basic programs like the National Park Ranger Integrated and Natural Resource Police Training programs.

The Driver and Marine Support Branch (DSB) provides support services to the three training branches within the division. The DSB employs 10 full-time automobile mechanics and technicians who maintain and repair nearly 300 training vehicles. They also create and fabricate modifications to training vehicles to enhance the learning experience and meet the training objectives of the various training programs. In addition, the DSB provides curriculum development and educational technology support to the division.

The DMD is in Building 210 and the driver training range complex is adjacent to that building. The range complex consists of three emergency response ranges, three non-emergency vehicle operation ranges and three skid pans.

For enrollment information, contact your agency training officer or your agency on-site representative at FLETC through the appropriate chain of command. Applicants from entities other than Federal agencies may contact the FLETC through:

Chief
Office of State and Local Law Enforcement Training
Federal Law Enforcement Training Center
Building 67
Glynco, GA 31524
Telephone Number: (912) 267-3145
Toll Free Number: (800) 74-FLETC or (800) 743-5382
FAX Number: (912) 267-2894

Program Title: ADVANCED DRIVER INSTRUCTOR TRAINING PROGRAM (ADITP)

Program Description: This program provides advanced training to instructors involved in driver training for law enforcement professionals. It enhances instructor skills and knowledge in the areas of technology, range design, tactical driving, and special purpose vehicles. In addition, it will help the instructor to design, develop, and validate training curriculum and evaluation standards.

The program includes:

- Advanced Electronic Media Presentations
- Developing Position Papers
- Emergency Response Refresher
- Identifying and Resolving Training Problems
- Protective Driving Techniques
- Pursuit Ideologies
- Pursuit Termination Techniques
- Range Design and Validation
- Skid Control Refresher
- Special Purpose Vehicles
- Training Technology

Length of Training: 9.5 class days

Prerequisites for Attending: Applicants must have completed or graduated from a recognized, law enforcement driver instructor training program.

Program Title: ADVANCED MARINE LAW ENFORCEMENT TRAINING PROGRAM (AMLETP)

Program Description: This program trains marine enforcement officers to operate safely and effectively fast, interceptor boats, and large, coastal patrol boats. The program includes advanced instruction in using electronic navigation equipment (e.g. radar, global positioning system, and chart plotters). Through classroom instruction and “hands-on” training, the students learn operational planning and tactics for marine narcotic interdiction and antiterrorism operations.

The program includes:

- Advanced Boarding Techniques
- Advanced Engineering Systems
- Electronic Navigation
- Hidden Compartments
- Large Boat Handling
- Long Range Communications
- MEDEVAC
- Piloting
- Pursuit Boat Handling
- Radar Navigation
- Rules of the Road

- Water Survival

Length of Training: 12.5 class days

Prerequisites for Attending: Applicants must have completed or graduated from FLETC's Marine Law Enforcement Training Program or some equivalent training.

Program Title: DRIVER INSTRUCTOR TRAINING PROGRAM (DITP)

Program Description: The DITP train instructors how to train law enforcement drivers. It equips these instructors with the skills, techniques, principles, legal considerations, and instructional methodologies to teach a comprehensive driver-training program. The courses provide fundamental and advanced skills to enhance the instructor's teaching proficiency.

The program includes:

- Instructional Aids
- Instructional Methods
- On-Range Instruction
- Presentation Procedures
- Range Facilities and Technology
- Systems Approach to Training
- Teaching Emergency Response Driving
- Teaching Evasive Driving and Accident Avoidance
- Teaching Night Pursuit Driving
- Teaching Non-Emergency Vehicle Operation (NEVO)
- Teaching Pursuit Driving
- Teaching Skid Control
- Vehicle Dynamics

Length of Training: 9 class days

Prerequisites for Attending: Applicants must have completed or graduated from a recognized, law enforcement instructor training program.

Program Title: MARINE LAW ENFORCEMENT TRAINING PROGRAM (MLETP)

Program Description: This program provides training in the highly technical and specialized areas of marine law enforcement and seaport security/antiterrorism. The major emphasis of this comprehensive training program is on safe operation of a marine patrol vessel, navigating using waterway charts and electronic charting systems, and tactical boardings of suspect vessels.

The program includes:

- Aids to Navigation
- Air and Sea Operations
- Arrest and Seizure

- Boarding Procedures
- Boat Handling
- Chart Interpretation
- Environmental Stress
- Global Positioning System
- Heavy Weather Operations
- Man Overboard
- Marine Communications
- Marlinespike Seamanship
- Nautical Terminology
- Officer Survival in the Marine Environment
- Orientation to the Coast Guard
- Piloting and Dead Reckoning
- Preventive Maintenance
- Pursuit, Stop, and Approach
- Radar
- Rules of the Road
- Safety and Emergency Procedures
- Survival Swimming
- Trailering
- Vessel Documentation/Vessel Theft

Length of Training: 20 class days

Prerequisites for Attending: None.

Program Title: POLICE BICYCLE TRAINING PROGRAM (PBTP)

Program Description: The PBTP trains police bicycle officers in the principles and techniques of conducting law enforcement patrols on bicycles. It equips police cyclists with the skills, techniques, operational principles, and legal considerations to ensure safety while patrolling on a police bicycle. Students learn cycling skills, defensive tactics, physical conditioning, and officer safety and survival tactics.

The program includes:

- Bicycle Injury Management
- Bicycle Maintenance
- Bicycle Nomenclature and Pre-ride Preparation
- Bicycle Patrol Procedures
- Bicycle Techniques and Tactics
- Bicycling Skills
- Handgun Stress Course for the Police Cyclist
- Hazard Recognition and Negotiation
- History and Uses of Police Bicycles
- Night Riding
- Physical Conditioning
- Rules of the Road

- Situation Response for the Police Cyclist
- Survival Shooting Tactics
- Use of Cover Drills for the Police Cyclist
- Vehicle Encounters

Length of Training: 8 class days

Prerequisites for Attending: None.

Program Title: SMALL CRAFT ENFORCEMENT TRAINING PROGRAM (SCETP)

Program Description: This program trains officers assigned to inland, marine enforcement units. It includes training on how to operate and navigate specialized enforcement boats, as well as marine enforcement tactics.

The program includes:

- Enforcement Vessel Operations
- Inland Rules of the Road
- Marine Electronics
- Marine Patrol Methods
- Marine Survival Techniques
- Marlinespike Seamanship
- Nautical Terminology
- Piloting and Aids to Navigation
- Preventative Maintenance
- Safety and Emergency Equipment
- Trailering
- Vessel and Equipment Theft
- Vessel Enforcement Stops
- Vessel Handling
- Waterborne Arrests

Length of Training: 10 class days

Prerequisites for Attending: None.

Program Title: VEHICLE ACCIDENT INVESTIGATION TRAINING PROGRAM (VAITP)

Program Description: This program teaches students the investigative techniques for conducting vehicle accident investigations. Students learn how to make and record accurate measurements. They learn how to use the traffic templates to make accurate scale diagrams of the accident scene.

This program includes:

- Accident Investigation Photography
- Accident Scene Procedures
- Determination of Speed from Skid Marks



MANAGEMENT SYSTEM MANUAL

OCN 6.4 R/V Oceanus Small Boat Operations

Originator:	Approved By:
Lawrence T. Bearse	J.L. Coburn, Jr.

1. Purpose

The purpose of this procedure is to set forth guidelines for small boat operations and the qualifications for small boat operators.

2. Responsibility

Small boat operations are conducted at the direction of the Master. The Chief Mate shall oversee the training of operators while qualified operators give the practical instruction.

The Bosun is in charge of the deck during launch and recovery of small boats. While a boat is underway, the boat operator is in command and responsible for the embarked personnel and safe operation of the boat.

3. General

The ship normally carries an Avon R.H.I.B. with outboard motor as a ship's boat. For special operations such as diving, an Achillies inflatable with outboard motor is available with an advance request. The Achillies is normally warehoused at the WHOI storage facility. The ship provides a boat operator as well as all required safety equipment for small boat operations. The ship's boats are intended to be used in support of the scientific effort and are not intended for recreation or shore launch services, although at the discretion of the Master, they may be used for other purposes as deemed appropriate.

The Bosun shall be responsible for checking the small boat on a daily basis while at sea to ensure that the Avon is always pressed up and ready for deployment.

4. Procedures

Although not required of ship's boats, every effort will be made to maintain the R.H.I.B. as a registered motorboat. A copy of the registration will be kept in the "Boat Box".

The Master/Bosun/Chief Mate will ensure that the operator has received adequate training and is certified as a boat operator. In some cases, personnel under training will be allowed to operate under supervision of a trained operator. Special care must be exercised to keep weights to a minimum during all hoisting operations so as not to over tax the lifting bridle or boatlift points.

The operator shall ensure:

- A. That the boat is in proper condition, adequately inflated and seaworthy.



MANAGEMENT SYSTEM MANUAL

OCN 6.4 R/V Oceanus Small Boat Operations

Originator:	Approved By:
Lawrence T. Bearse	J.L. Coburn, Jr.

- B. The boat contains the required equipment as required by the USCG for the size motor boat being operated and that the required equipment is in good condition and up to date as required and ready for immediate use. A watertight boat box is provided for those items that must be kept dry.
- C. That a VHF radio is on board, fully charged and tuned to the agreed upon frequency (normally 19A), is turned on and ready for use. In the case of a hand held radio, it shall be placed in a sealed plastic bag to protect it from moisture. A spare battery pack will also be kept in the bag.
- D. That the boat is operated in a safe manner observing all applicable rules of the road where required.
- E. That the number of persons and gear does not exceed the manufacturer's weight limits and that the weight is evenly distributed for proper operation under the prevailing conditions.
- F. That a radio check is conducted prior to getting underway from the ship.

The boat operator will follow all special instructions given by the ships watch officer.

The Chief Engineer, or his designee, shall be responsible for engine maintenance both periodic and planned whether done on board or contracted to an outside source as well as providing adequate quantities of stabilized gasoline and 2 cycle oil mix. Requests for work orders, spares and quantities and all maintenance records shall be processed through SafeNet.

The Bosun will be responsible for the general overall boat maintenance (except engine work) and readiness condition. The Bosun will collaborate with the Chief Mate and Chief Engineer as needed to address maintenance and repair issues to be implemented through SafeNet.

5. **Launch / recovery**

In general, the small boat will be launched and recovered from the ship's starboard side. A four-part spliced sling coupled to a single pear or sling ring is lead to a single lift pennant attached to the crane headache ball and hook is the preferred method for lifting. The four lift points are attached to the boat's lift rings. Tag lines are fair lead for and aft with positive control using cleats or other securing points. The crane operator and line handlers follow the directions of the Bosun for launch and recovery.

The usual procedure is as follows but may be modified to suit the situation at hand:

- A. The boat is raised from the deck, lifted over the bulwark rail and then swung inboard against the bulwark and made fast.
- B. Gear may be loaded and the operator climbs aboard with required safety gear and takes position on the outboard side facing the ship.



MANAGEMENT SYSTEM MANUAL

OCN 6.4 R/V Oceanus Small Boat Operations

Originator:	Approved By:
Lawrence T. Bearse	J.L. Coburn, Jr.

- C. On signal, the boat is swung out and lowered away. Once positively afloat, the operator releases the crane hook. As the hook is being raised, the line handlers provide long leads fore and aft to keep the boat safely along side.
- D. The boarding ladder is deployed over the side. Designated persons board the boat and additional gear is passed down if needed.
- E. Once all hands are seated and the motor is running the bridge will give permission for the boat to get underway.
- F. Upon recovery, the process is essentially reversed, the boat is returned to the deck and secured as before.

Note: Once the boat has been launched, the operator is in charge and responsible for all persons aboard. All lines are to be safely secured inside the boat.

The checklist appended to this procedure will be used in small boat operations aboard Oceanus.

6. Training

To become recognized as a qualified small boat operator, the individual shall:

- A. Understand the use and care of the equipment and the operations from prelaunch to recovery and securing.
- B. Receive practical training that includes observation of all aspects of the operation with qualified operators, then operating with a qualified operator supervising until the trainee is ready to solo. Readiness to solo is determined by the Chief Mate.
- C. Practical test = solo performance
- D. Written test

NOTE: The Master and the Chief Mate reserves the right to revoke any operator's certification if, in the opinion of either, an operator is in violation of safety standards or operating the boat in a manner which endangers personnel.

7. Reporting

Upon completion of the above requirements to the satisfaction of the Chief Mate, "Avon Operator" Qualification will be added to the Training Section of the crewmember's personnel record in SafeNet.



MANAGEMENT SYSTEM MANUAL

<h2 style="margin: 0;">OCN 6.4 R/V Oceanus Small Boat Operations</h2>	
Originator:	Approved By:
Lawrence T. Bearse	J.L. Coburn, Jr.

Small Boat Operations Checklist

All Boat Operators will complete the following checklist and present it to the ship's watch officer prior to commencing launch ops.

Name of Operator: _____ Certified: yes no

Reason for boat Op: Training Testing Trials Dive Ops
 Sci Ops Port Ops SAR Other (Describe)

To be checked off by Boat Operator

Proper inflation?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Required safety gear aboard?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Adequate PFDs for all aboard?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Conduct radio check?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Paddles aboard? ?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Anchor aboard (if needed)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yellow WT box w/spares etc. on board?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If at night, proper nav lights working?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

To be checked off by Duty Engineer

Is the engine in proper running condition?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Has the fuel been properly mixed?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
In your assessment is the boat ready to go?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

If you answered no to any of the above please explain briefly:

Comments: _____

Signature Operator: _____

Signature Duty Engineer: _____

Approved ships watch officer: _____

SECTION 3

Tom Smith

Small Boat Safety

I. General

Small boat safety covers a wide variety of boats. A small boat can range in size from a vessel of just less than 100 gross tons to a small open boat propelled by an outboard engine. Because of this variance, the safety regulations that apply to small boats also widely differ. To accurately determine what safety regulations apply to a specific boat, the vessel's size and/or its employment needs to be established. If the vessel is documented, its documentation papers will cite the employment (fishing, small passenger vessel, tanker, etc.) in which it is authorized to work. If it is not documented, then the regulations governing uninspected vessels will most likely apply.

II. Types of Small Boats

Motor Vessel. A vessel more than 65 feet in length that is equipped with propulsion machinery .

Motorboat. Motorboats are classified as: Class A -less than 16 ft.; Class 1 -16 to 26 ft.; Class 2 -26 to 40 ft.; and Class 3 -40 to 65 ft. Most undocumented boats, defined as small boats by this manual, will be this type of vessel.

Documented Vessel. A vessel greater than 5 net tons which is registered, enrolled or licensed as a vessel of the United States. This is a requirement for a vessel that will engage in trade or commerce. UNOLS research vessels are not engaged in trade or commerce but commercial vessels ordinarily are. Charter vessels, other than motor boats, would normally be a documented vessel.

Undocumented Vessel. Any vessel which is not required to, and does not have a marine document issued by the USCG.

Inspected Vessels. One inspected and certificated by the USCG. Motor vessels, tank vessels, passenger vessels and most vessels over 300 gross tons are required to be inspected.

Uninspected Vessel. A vessel not certified under the inspection laws or subjected to regular inspections by the USCG. Most motor boats, fishing boats and oceanographic research vessels under 300 gross tons will be this type vessel. Uninspected vessels, however, are still subject to the rules for safety cited in section III below that apply and, in some cases, the rules for licensed personnel.

Oceanographic Research Vessel. A vessel which the USCG determines is exclusively employed in instruction in oceanography or in oceanographic research.

Numbered Vessel. A vessel is numbered under the provisions of the Federal Boat Safety Act of 1971. Oceanographic research vessels not engaged in commerce are not required to be documented and may be a numbered vessel (except if owned by a State or the Federal Government). All undocumented motorboats are numbered unless owned by the State or Federal Government.

Public Vessel. A vessel which is owned, or chartered, and operated by the US Government and not engaged in commerce. (e.g. USCG & NOAA vessels)

III. Applicable Regulations

Based on the type of boat, its size and/or its employment, some or all of the below federal regulations will apply.

The Motor Boat Act of 1940. This law covers many aspects of safety for small crafts. This would include powered rafts and inflatables, small skiffs and other uninspected vessels 65 feet or less in length.

The Federal Boat Safety Act of 1971. This act sets forth certain safety and documentation requirements for small crafts. The regulations to carry out the intent of this Act and the Motor Boat Act, cited above, are found in 46CFR24 (Subchapter C -Uninspected Vessels). Most but not all motor boats will be governed by the provisions of this chapter.

Commercial Fishing Vessel Safety Act of 1988. This was enacted to stem the high accident and loss of life experienced aboard fishing vessels, and fishing support vessels. A vessel documented as a fishing vessel will be required to adhere to these regulations. The regulations to carry out this act are found in 46CFR188.

Passenger Carrying Vessel. A vessel whose documentation cites its employment as a passenger vessel will be required to adhere to the regulations contained in 46CFR175-187 (Subchapter T - Small Passenger Vessels Under 100 gross tons).

Research Vessel. A vessel whose documentation cites its employment as a research vessel will be required to adhere 46CFR188-196 (Subchapter U -Oceanographic Research Vessels).

IV. Safety Requirements

All boats used for research by UNOLS institutions will comply with the US Coast Guard Regulations that are applicable to the vessel's size and employment.

Small boats that will be used by UNOLS institutions will have either a current US Coast Guard safety inspection or be inspected by the institute ' s marine staff to insure that the vessel does meet the required safety regulations. A marine staff s inspection will not be accepted as a substitute for an "inspected vessel's" mandated US Coast Guard inspection.

Small boats that are chartered by UNOLS institutions will also meet the requirements of section 17 of the Research Vessel Safety Standards. Chartered boats will be either documented or numbered except for a chartered vessel that is classed as a public vessel.

All personnel aboard open boats (boats with no cabins) or when working on deck with over the side equipment will wear personnel flotation devices, work vests, exposure suits or float coats. The type of flotation will be dictated by the work environment.

Personnel engaged in launching/retrieving over the side equipment or moving weights on deck by cranes, booms, winches, davits, etc. will wear hard hats.

All science parties using a boat will prepare a float or cruise plan. This plan will be prepared by the person in charge of the science party and disseminated prior to departure. The plan will consist of at least the following;

1. Names of all personnel embarked on the vessel.
2. A brief statement of the work being performed.
3. The location of the research area and a brief description of the tracks the vessel intends to follow to and from the research area.
4. The estimated time of the boat to;
 - depart the dock enroute the research area,
 - reach the research area,
 - depart the research area enroute back to the dock, and return to the dock.
5. The type of communications devices aboard and the frequencies monitored or cell phone number.
6. The float plan will be disseminated to the Institute's marine staff and to a person ashore who will be responsible for monitoring the cruise's progress and alerting the science parties home institution, the US Coast Guard, harbor master or other marine safety organizations if the boat is more than 2 hours overdue from its estimated return to the dock.

7. The person in charge of the science party will communicate to the above individual any major changes (more than 1 hour) in its estimated return time, major breakdowns in propulsion equipment, emergencies, or change to the planned research work area. They shall also notify this person when they return ashore.

Vessels operating north of 32 Degrees North or South latitude in the Atlantic or between 35 Degrees North or South latitude in other waters will have an immersion suit aboard for each person embarked on the vessel(33CFR192.41).

Unless required to carry immersion suits, all boats will carry a US Coast Guard approved personal flotation device (PFD) for each person aboard. The specific type of PFD will be determined by the regulations applicable to the vessel (See 46CFR28.105 for specific requirements).

All PFDs, life rings, inflatable rafts, and life floats will be marked with the vessel' s name (46CFR28.135).

Life ring, personal flotation devices, life rafts, and life floats carried aboard a vessel will have retro-reflective tape applied as specified in Navigation and Vessel Inspection Circular 1-87 (Published by US Coast Guard).

All vessels operating beyond the coastal waters (3 miles offshore), will carry an EPIRB (46CFR28.150, 46CFR25.26).

All inboard gasoline engines will be equipped with a flame arrestor (46CFR25).

Engines fueled with gasoline require extra precaution. Prior to fueling gasoline-powered boats which have built in fuel tanks, bilges should be first checked for the presence of gasoline fumes and then ventilation blowers run. When fueling portable gasoline tanks, insure the fueling nozzle is in contact with the tank's fill port prior to starting and during the pumping of fuel. This will prevent a static electricity charge from being generated during fueling.

Vessel operators must be qualified as competent to operate the vessel. This is best met by requiring the operator to hold a current US Coast Guard license for a deck officer and for such license to be of sufficient tonnage to meet or exceed the gross tonnage of the vessel being operated. Institutions, however, may certify an operator is qualified to operate a small boat if the institution is satisfied that the operator has demonstrated sufficient experience to safely operate the boat.

The operator of a vessel will not operate a vessel for more than 12 hours in anyone day. To exceed this limit, a second qualified operator is required to be aboard.

The manning of any vessel will be sufficient to insure safe, efficient operations for the size vessel being operated and the type work being performed. The institution should make this determination prior to any voyage. A US Coast Guard inspected vessel (inspected under Subchapter T) must comply with the manning requirements listed on its Certificate of Inspection.

Personnel aboard a vessel should not exceed its passenger carrying capacity. This can be difficult to determine. Most motorboats will have a plate attached to the hull by the manufacturer that states the maximum number of people that the vessel can safely carry. A passenger carrying vessel, that carries more than six passengers for hire, will be inspected by the US Coast Guard and the number of passengers it can carry will be listed on its Certificate of Inspection. Un-inspected vessels cannot legally carry more than six passengers. Under 46CFR188.05-33 (Subchapter U), members of a science party are considered as "persons" and not counted as crew or passengers. This ruling, however, applies only to a vessel whose employment is as an oceanographic research vessel. If a vessel's documents do not list its employment as an oceanographic vessel then the science party is viewed as passengers. This limits the number of people aboard any uninspected, non- research vessels to six people or less. A problem exists with a vessel that is uninspected, does not have a manufacture's plate that states the maximum number of people it can carry, and its employment is shown as oceanographic vessel. Because the science party is not considered as either crew or passengers, a definite limit for personnel aboard cannot be established. Under such a situation, the limit must be logically established. The capacity of the vessel's life rafts, the number of personal flotation devices, the number of built in berths, and the carrying capacity of similar size vessels should all be considered to determine the vessel's carrying capacity .

All small boats are required to carry the below types of USCG approved distress signals (pyrotechnics). The expiration date stamped on the pyrotechnics will not be exceeded during the voyage.

(46CFR28.145)

<u>Area Q.f Operations</u>	<u>Signals Required</u>
More than 50 miles offshore	Parachute Flares -3 ea. Hand Flares -6 ea. Smoke Signals -3 ea.
Between 3 and 50 miles offshore	Parachute Flares -3 ea. Hand Flares -3 ea. Smoke Signals -3 ea.
Inside of 3 miles from shore	Electric distress light or 3 flares Distress Flag or 3 smoke signals

Vessels will carry at least the below fire extinguishing equipment (46CFR25.30);

Vessel Length

No. of BI Type Fire Extinguishers

Uninspected Vessel

Under 16 feet	One
16 feet but less than 26 feet	One
26 feet but less than 40 feet	Two but only 1 if fixed system in engine room.
40 feet to 65 feet	Three but only 2 if fixed system in engine room.
Over 65 feet	See Subchapter T and 46CFR25.30.

Inspected Vessel

Listed on Certificate of Inspection

All vessels 26 feet or more in length are required to post an oil pollution and garbage placard. A vessel 40 or more feet that is deployed on an ocean voyage (12 miles offshore) must have a written solid waste disposal plan (33CFR151.155).

All installed marine toilet facilities must be a US Coast Guard approved Marine Sanitation Device (MSD) (33CFR159).

If a vessel has Coast Guard licensed personnel aboard, the Master must notify the US Coast Guard if any casualty listed in 46CFR4.05 occurs. This includes groundings which cause a hazard to navigation, the environment or vessel safety, loss of maneuvering capability, injury rendering a person unfit for duty, or an occurrence resulting in property damage in excess of \$25,000. If a vessel is involved in a serious marine incident, it must be reported to the US Coast Guard whether licensed personnel are aboard or not. A serious marine incident consists of death, injury requiring professional medical treatment, property damage in excess of \$100,000, an oil discharge into the water of 10,000 gallons or more, or the discharge of a hazardous substance into the water. All personnel involved in a serious marine incident are subject to drug testing.

The regulations that require a vessel to carry a survival raft (life raft or boat) varies widely with the area of operation, type of employment, type of environment, and the number of people aboard. See 46CFR28.120 for the correct requirements.

At least one throwable flotation device is required aboard all vessels 16 feet and longer. See 46CFR28.115 for the correct requirements for a specific vessel.

Vessels operating outside the boundary line, as defined in 46CFR Part 7, that is to seaward of the coastline or entrances to small bays, inlets or rivers, must meet the following additional requirements;

A documented fishing boat or one with 16 or more people aboard, that has ammonia refrigerant, must carry a fireman's outfit and two self contained breathing apparatuses (46CFR28.200).

All vessels will carry charts, a first aid kit, navigational publications and charts for their operating area, an anchor, a radar reflector, a compass, a general alarm system, a high water alarm, and a bilge pumping system (46CFR28.210-255).

Vessels over 79 feet or having their keel laid after September 15, 1991 or undergoing major structural changes since September 15, 1991, should possess either a load line certificate or a current US Coast Guard Stability letter.

All boats will be equipped with a communications device that is of sufficient power to permit it to communicate ashore from the maximum distance offshore where the boat will operate. This can be satisfied by cell phone, portable VHF, SSB radio, etc. as long as the device's range will communicate from the maximum offshore distance that the vessel will reach. Vessels operating outside the boundary line will also comply with the communications regulations governing its type of vessel (46CFR28.245, 28.375; 33CFR26.03; 47CFR80).

All vessels 79 feet or longer must be equipped with an electronic positioning device (i.e. SATNAV, GPS, LORAN, OMEGA or RDF) (48CFR28.260). All vessels operating outside the boundary line will be so equipped.

A vessel less than 12 meters in length must carry an efficient sound signal. If more than 12 meters in length, a bell and whistle are required. All vessel will also have aboard the proper navigational lights and shapes required for the type of boat (33CFR81).

Documentation:

- _____ Ensure vessel can be legally chartered based on certificate of inspection, letter of designation or limitation of charter to less than 6 persons.
- _____ Ensure documentation, ownership, inspection certificate, load line certificate and stability letter are current and appropriate for planned mission.
- _____ Ensure Master's license is current and appropriate for vessel being chartered.
- _____ Ensure crew size and credentials are appropriate for charter's mission.
- _____ Ensure insurance coverage meets chartering Institutes minimum requirements for charter duration.

Life Saving Equipment:

- _____ PFDs
- _____ Immersion Suits
- _____ Inflatable Life Rafts
- _____ Lifering Buoys
- _____ Rescue Boats

**Inspection Check List for
Chartering Non-UNOLS Vessels**

Exterior Decks and Equipment:

- _____ Anchors and Associated Equipment
- _____ Watertight Doors and Hatches
- _____ Freeing Ports
- _____ Deck Vents
- _____ Cargo and Weight Handling Equipment (Safe Work Load posted & tested).
- _____ Deck Surfaces Non-Skid

_____ Life Lines and Safety Chains

Fire Fighting Equipment:

_____ Fixed and Portable Fire Extinguishers Inspection Dates Current? _____

_____ Smoke and Fire Detectors

_____ Fire Stations and Hoses

_____ Self Contained Breathing Apparatus

_____ Fire and Damage Control Locker

_____ Emergency Stations Bill

Engineering:

_____ Gas Engines. Check flame arrestor, vents, gas hoses, no sparking devices in bilges.

_____ Diesel Engines. Check oil and exhaust leaks, starting system, maintenance, hours since last overhaul.

_____ Inspect overall cleanliness and condition of power sources.

_____ Check emergency lights.

_____ Check bilge and ballast systems and pumps.

_____ Check fueling system and pumps.

_____ Check refrigeration systems.

_____ Check fire pump.

_____ Check engine room fire suppression capability.

_____ Check all manifolds for saltwater, fuel, etc.

_____ Check condition of switchboards, wiring and auxiliary generators.

Miscellaneous:

_____ First Aid Kits and Medical Supplies

_____ Damage Control Equipment

_____ Emergency Steering

_____ General Appearance and Cleanliness

_____ Oil Pollution Placard and other required notices are posted.

_____ Sanitary System Operations

_____ Assess vessel's overall stability

_____ Assess vessel's overall ability to perform charter mission. Include laboratory and deck space, berthing and feeding capability, scientific equipment and winches, etc.

<p>CESO/CECW Regulation No. 385-1-91</p>	<p>Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000</p>	<p>ER 385-1-91 28 Mar 83</p>
	<p>Safety TRAINING, TESTING, AND LICENSING OF BOAT OPERTAORS</p>	
	<p>Distribution Restriction Statement Approved for public release; distribution is unlimited.</p>	

CECW-ON
CESO-P

Regulation
No. 385-1-91

30 September 1994

Safety
TRAINING, TESTING, AND LICENSING
OF SMALL BOAT OPERATORS

1. Purpose. This regulation establishes policy and procedures for the training, testing and licensing of operators of U.S. Army Corps of Engineers (USACE) boats/vessels less than 26 feet in length.

2. Applicability. This regulation applies to HQUSACE/OCE elements, major subordinate commands (MSC), districts, laboratories, and field operating activities (FOA) having small boating operations.

3. Policy. It is the policy of the Corps of Engineers that all employees who operate USACE boats/vessels less than 26 feet in length, be trained, tested and licensed in accordance with this and other applicable regulations. Employees who operate USACE boats/vessels will do so in a safe and prudent manner and in accordance with recognized Federal, state, and local laws and standards.

4. References.

- a. 29 CFR 1910/1960, Occupational Safety and Health Act.
- b. ER 1125-2-304, Inspection, Maintenance, Operation, and Repair.
- c. EM 385-1-1, Safety and Health Requirements Manual.

5. Responsibilities.

a. The MSC, district, laboratory or FOA commander/director is responsible for:

- (1) Managing a boat training and licensing program in

This regulation supersedes ER 385-1-91, dated 1 Jan 1991

compliance with this regulation. The commander shall appoint, in writing, a director to organize, integrate and monitor the boat training and licensing program.

(2) Assuring that operators of USACE boats/vessels are adequately trained, properly tested, and licensed, prior to the official operation of any USACE boat/vessel.

b. Each district, laboratory or FOA command with boating operations shall:

(1) Designate an individual as the responsible person for all boat training and licensing activities within the organization and provide training to all small boat operators in compliance with this regulation.

(2) Assign additional instructors, as necessary, to assist in boat operator training.

c. Operators of USACE boats/vessels, less than 26 feet in length, will successfully complete a 24-hour training and be licensed prior to official operation of a USACE vessel. Licensed motorboat operators will complete an 8-hour refresher course every five years to retain the license.

d. HQUSACE. The HQUSACE Civil Works Directorate and the Safety and Occupational Health Office will jointly maintain, and offer to employees, a 40-hour instructor training course which will qualify attendees to teach, test and certify operators of small boats/vessels. Additionally, the HQUSACE will provide peer reviews of subordinate licensing programs to assure compliance with this regulation.

6. General.

a. Motorboat License Examiners and operators will be:

(1) Trained to be fully knowledgeable of prescribed safety procedures including the use of all equipment and/or tools necessary to safely perform assigned tasks.

(2) Be capable of swimming 100 yards with a Personal Floatation Device (PFD).

b. USACE commands, at their discretion may elect to implement and enforce more stringent requirements than stated herein, but under no circumstances will the requirements be less than specified in this regulation.

7. Training and Licensing Requirements.

a. District/lab/FOA Motorboat Director. The district/lab/FOA Motorboat Director must be a graduate of the 40-hour HQUSACE-approved Motorboat License Examiner Training Course.

b. District/lab/FOA Motorboat Instructors. District/lab/FOA motorboat instructors must be graduates of the 40-hour HQUSACE-approved Motorboat License Examiner Training Course. To maintain certification as a motorboat instructor, USACE employees must participate as an instructor in at least one 24-hour motorboat training course or 8-hour refresher course every three years. If an instructor fails to meet this requirement, their certification shall be revoked and shall not be reinstated until such time as the employee attends a HQUSACE-approved 40-hour Motorboat License Examiner Training course.

c. Motorboat operators. District/lab/FOA Motorboat Operators must complete a 24-hour HQUSACE-approved Motorboat Operator Training course and be licensed prior to official operation of vessels. A recommended 24-hour training/testing requirement is found in Appendix A. Additionally, all motorboat operators must attend an 8-hour refresher training course every five years to maintain certification. A recommended refresher training course outline is outlined in Appendix B. USACE employees meeting the following criteria are exempted from attending the 24-hour training course:

(1) USACE boat/vessel operators who pass the boat handling skills portion of the boating course and satisfactorily complete the final written examination, may be exempt from the training requirements in Appendix B. This demonstration of skills and knowledge will be on a case-by-case basis and will include the standard written examination and actual demonstration of boat and trailer skills.

(2) Corps of Engineers employees operating boats/vessels subject to U.S. Coast Guard restrictions will be licensed in accordance with that agency's requirements. Corps of Engineers boats/vessels in that category will meet the inspection and certification requirements of ER 1125-2-304.

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d. Optional Form 346 will be the licensing document issued to individuals who satisfactorily complete the required training requirements and/or demonstrate the required proficiency in accordance with this regulation.

8. Equipment Inspection. USACE motorboats and auxiliary equipment shall be inspected annually using the checklist at Appendix C. Inspection results shall be maintained at the project and shall be made available upon request during a program audit.

FOR THE COMMANDER:

3 Appendices
APP A - 24-Hour Operator
Course
APP B - 8-Hour Refresher
Course
APP C - Small Boat Inspection
Checklist

R.L. VANANTWERP
Colonel, Corps of Engineers
Chief of Staff

APPENDIX A
U.S. ARMY CORPS OF ENGINEERS
BOAT OPERATORS TRAINING COURSE
(24 HOURS)

The following outline will be used by local organizations to train employee operators of boats/vessels less than 26 feet in length. It is not necessary that course days run consecutively. The course schedule can be altered to meet local requirements as long as the subjects listed below are included in the total curriculum.

DAY ONE

0800-0815 Welcome and Purpose of Course
0815-0830 Written Boating Knowledge Pre Test
0830-1030 Required Boating Safety Equipment and
EM 385-1-1 Requirements
1030-1130 Boats/Trailers/Maintenance
1130-1230 Lunch
1230-1330 Boats/Trailers/Maintenance - Continued
1330-1530 Navigation and Rules of the Road/Aids to
Navigation
1530-1700 Demonstration of Emergency Procedures (Man
Overboard Drills)

DAY TWO

0800-0900 Fire Suppression (Practical)
0900-1000 Boat Orientation (Practical)
(1) Equipment Check
(2) Starting Procedures
(3) Getting Underway
1000-1030 Practical Boating Skills (Practical)
(1) Refueling Procedures
(2) Equipment Maintenance
(3) Marlinspike Seamanship
(4) Mooring and Tying Off
1030-1200 Course Familiarization with Instructor
(Practical)
(1) Boat Handling Familiarization

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(2) Docking Course
(3) Serpentine Course
(4) Transition Serpentine Course
(5) Obstacle Avoidance Course
1200-1300 Lunch
1300-1700 Boating Course with Instructor
(Same as Above)

DAY THREE

0800-1200 Boat Exercises
(1) Trailer, Backing, Launching, and
Retrieving
(2) Alongside Maneuvering
(3) Towing of Vessels
(4) Emergency Procedures (Man Overboard
Drills)
1200-1300 Lunch
1300-1430 Boat Exercises (continued)
1430-1600 Post Test/Review/Critique

APPENDIX B

U.S. ARMY CORPS OF ENGINEERS
BOAT OPERATORS REFRESHER TRAINING COURSE
(8 HOURS)

The following refresher training outline may be used by local organizations to train employee operators of boats/vessels less than 26 feet in length. The course schedule can be altered to meet local requirements.

CLASSROOM

0800-0810 USACE Boating Policy
0810-0830 Boating Laws/Rules and Regulations
0830-0850 Required Equipment/Equipment Inspection
0850-0910 Boat/Trailer Maintenance
0910-0930 Fire Suppression
0930-1000 Rules of the Road/Navigation Aids

PRACTICAL

1015-1200 Equipment Check
Starting Procedures
Getting Underway
Refueling Procedures
Mooring/Tying Off
1200-1230 Lunch
1230-1630 Maneuvering and Docking
Emergency Procedures (Man Overboard Drills)
Towing

APPENDIX C

U.S. ARMY CORPS OF ENGINEERS
SMALL BOAT INSPECTION CHECKLIST
(26 FEET AND LESS)

PROJECT: _____ DATE: _____
 TYPE BOAT: _____ TYPE MOTOR: _____
 HORSEPOWER: _____ INSPECTED BY: _____

INSPECTION CRITERIA	YES	NO	N/A	COMMENTS
1. Are periodic inspections and tests of all marine plant and equipment made to insure safe operating conditions? (19.A.01)				
2. Are marine plant and/or equipment found to be in unsafe condition, taken out of service and its use prohibited until unsafe conditions are corrected? (19.A.01)				
3. Are all items of floating plant or associated equipment stored or placed beyond 20 feet of overhead transmission or distribution lines?				
4. Was all marine plant and equipment put into use on the job, inspected, tested and found to be in safe operating condition before initial use? (19.A.01)				

INSPECTION CRITERIA	YES	NO	N/A	COMMENTS
5. Do inspection records maintained at the site become part of the official project file, and made available to designated authorities? (19.A.01)				
6. Is the maximum number of passengers that can be safely transported, posted on all launches, motorboats, and skiffs? (19.C.03)				
7. Does horsepower of engine meet hull specifications?				
8. Is a signal device provided on the vessel to give signals required by applicable navigation rules? (19.A.05)				
9. Are visual distress signaling devices (day and night) present and up to date?				
10. Is type and size of anchor and attached line suitable for size of boat?				
11. Are paddle and/or oars on board and in good condition?				
12. Is bilge pump and discharge (if so equipped) properly located and in good operating condition?				

INSPECTION CRITERIA	YES	NO	N/A	COMMENTS
13. Is a fully stocked First Aid kit of the proper size on board?				
14. Are navigation lights working properly?				
15. Has a Type III, Type V, or better USCG personal floatation device (PFD) been provided to all boat passengers? (05.I.01)				
16. Are PFDs inspected for defects which would alter their bouyancy before and after each use? (05.I.02)				
17. Are defective PFDs or PFDs with less than 13 pounds buoyancy, removed from service? (05.I.02)				
18. Are all PFDs equipped with retroreflective tape meeting EM 385-1-1, Appendix A.				
19. Is each boat equipped with at least one USCG-approved life ring or ring buoy with at least 90 feet of 3/8 inch solid braid polypropylene line or equal attached? (05 I 04)				
20. Is the motorboat equipped with a kill switch?				
21. Are boat seats securely bolted to the boat deck?				

INSPECTION CRITERIA	YES	NO	N/A	COMMENTS
22. Are all launches and motorboats equipped with fire extinguishers of at least the size and rating(s) specified? (19.C.04)				
23. Are provisions made for preventing accumulation of fuel/oils on floors, decks and in bilges? (19.A.07)				
24. Are all carburetors on gasoline engines equipped with a backfire trap or flame arrestor? (19.A.06)				
25. Are fuel tank overflow, fill and vent pipes so equipped that liquid or vapor cannot escape inside hull or cabin, and will flow overboard?				
26. Are automatic or remote controls provided where built-in fire extinguisher systems are installed? (19.C.04)				
27. Are boats powered by internal combustion engines, located within compartments or confined spaces, equipped with vent fans rated for Class I locations? (19.A.10)				
28. Are ventilator intakes extended to a distance not more than one foot from the engine compartment bottom?				

INSPECTION CRITERIA	YES	NO	N/A	COMMENTS
<p>29. Boat Trailering:</p> <p>A. Is the hitch secured to the tongue locking mechanism sounding and non-binding?</p> <p>B. Are safety chains and hooks adequate for the size of the load?</p> <p>C. Are all lights: brake, turning, and running operating properly?</p> <p>D. Are tires in good condition: adequate tread, free of dry rot, and properly inflated?</p> <p>E. Are wheel bearings properly lubricated and is the proper torque on the wheel nut?</p> <p>F. Are caps and/or buddy bearings installed properly and functional?</p> <p>G. Are brakes (if equipped), working properly?</p> <p>H. Is the trailer tongue weight proper for the boat carried?</p> <p>I. Are rollers and/or bunks properly aligned and in good condition?</p>				

US Army Corps of Engineers
Safety and Occupational Health

EM 385 SAFETY AND HEALTH REQUIREMENTS MANUAL

SECTION 19

19. FLOATING PLANT AND MARINE ACTIVITIES

19.A GENERAL

19.A.01 Floating plant inspection and certification.

a. All floating plant that are regulated by the USCG shall have current inspections and certificates issued by the USCG before being placed in service and a copy shall be posted in a public area on board the vessel. A copy of any USCG Form 835 issued to the vessel in the preceding year shall be available to the designated authority and a copy shall be on board the vessel.

b. All dredges and quarter boats not subject to USCG inspection and certification or not having a current American Bureau of Shipping (ABS) classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and having at least five years experience in commercial marine plant and equipment, All other plant shall be inspected annually by a qualified person. The inspection shall be documented, and a copy of the most recent inspection report shall be posted in a public area on board the vessel and a copy shall be furnished to the designated authority upon request. The inspection shall be appropriate for the intended use of the plant and shall, as a minimum, evaluate structural integrity and compliance with NFPA 302, Fire Protection Standard for Pleasure and Commercial Motor Craft.

c. When any floating plant is brought onto the job site, before it is placed in service it shall be determined to be in safe operating condition.

d. Periodic inspections and tests shall assure that a safe operating condition is maintained.

e. Records of inspections shall be maintained at the site and shall be available to the designated authority.

f. Floating plant found in an unsafe condition shall be taken out of service and its use prohibited until unsafe conditions have been corrected.

19.A.02 Personnel qualifications.

a. Officers and crew shall be in possession of a current, valid USCG license, which shall be posted in a public area on board the vessel, or correctly endorsed document as required by the USCG.

b. Government operators shall be licensed or certified in accordance with the requirements outlined in ER 385-1-91.

Officers and crew of floating plant shall be licensed and/or documented by the USCG when the plant is subject to one or more of the following criteria:

(1) the vessel is inspected and certified by USCG in accordance with ER 1125-2-304, Appendix I, Inspection and Certification Agreement;

(2) the vessel is normally engaged in or near a channel or fairway in operations that restrict or affect navigation of other vessels and required by law to be equipped with radio-telephones of the 156-162 band frequency; or

(3) floating plant is engaged in the transfer of oil or hazardous material in bulk.

c. A USCG Radar Observers endorsement on licenses is required for all Operators of Uninspected Towing Vessels, Masters, and Pilots on radar-equipped vessels 8 m (26 ft) or more in length. Endorsements must be issued from a USCG approved training facility.

d. Government operators of floating plant which does not meet the criteria of paragraph 19.A.02b(1) shall be licensed and certified in accordance with the requirements of ER 385-1-91. Licensing and certification will be performed by a qualified individual designated as the USACE Command's marine licensing official.

19.A.03 Severe weather precautions.

a. Where floating plant may be endangered by severe weather - including sudden and locally severe weather, storms, high winds, hurricanes, and floods - plans shall be made for removing or securing plant and evacuation of personnel in emergencies. This plan shall be part of the activity hazard analysis and shall include at least the following:

(1) a description of the types of severe weather hazards the plant may potentially be exposed to and the steps which will be taken to guard against the hazards,

(2) the time frame for implementing the plan (using as a reference the number of hours remaining for the storm to reach the work site if it continues at the predicted speed and direction), including the estimated time to move the plant to the safe harbor after movement is started,

(3) the name and location of the safe location,

(4) the name of the vessels which will be used to move any non-self-propelled plant, and their type, capacity, speed, and availability, and

(5) river gage readings at which floating plant must be moved away from dams, river structures, etc., to safe areas.

b. Extended movement of floating plant and tow shall be preceded by an evaluation of weather reports and conditions by a responsible person to ascertain that safe movement of the plant and tow can be accomplished.

c. Work or task orders shall be preceded by an evaluation of weather reports and conditions by a responsible person to ascertain that safe working conditions exist and safe refuge of personnel is assured.

d. USCG approved PFD (type I, II, III, or V) shall be worn by all personnel on decks exposed to severe weather, regardless of other safety devices used.

e. A sufficient number of vessels of adequate size and horsepower, each designed, outfitted, and equipped for towing service, shall be available at all times to move both self- and non self-propelled plant against tides, current, and winds during severe weather conditions.

f. Contractors working in an exposed marine location shall monitor the NOAA marine weather broadcasts and shall use other local commercial weather forecasting services as may be available.

g. Floating plant will not operate in a channel entrance or in open or exposed waterways that experience known changes in sea state conditions that could exceed the plant's seaworthy capability.

19.A.04 Emergency planning.

a. Plans shall be prepared for response to marine emergencies such as fire, sinking, flooding, severe weather, man overboard, hazardous materiel incidents, etc. > See Section 01.E

b. A station bill, setting forth the special duties and the duty station of each crew member for various emergencies, shall be prepared and posted in conspicuous locations throughout the vessel.

c. Each crew member shall be given a written description of, and shall become familiar with, his/her emergency duties and shall become familiar with the vessel's emergency signals.

d. "Abandon ship/boat" and "person overboard" procedures shall include instructions for mustering personnel.

e. On all floating plant which have a regular crew or on which people are quartered, the following drills shall be held at least monthly during each shift (unless the vessel is required, under USCG regulations, to be drilled more frequently): abandon ship/boat drills, fire drills, and person overboard or rescue drills.

(1) The first set of drills shall be conducted within 24 hours of the vessel's occupancy or commencement of work.

(2) Where crews are employed or quartered at night, every fourth set of drills shall be at night; the first set of night drills shall be conducted within the first two weeks of the vessel's occupancy.

(3) Drills shall include, where appropriate, how to handle a pump shell or pipe rupture or failure within the hull (proper shutdown procedures, system containment, etc.) and how to handle leaks or failures of the hull or portions of it (what compartments to secure, how to handle power losses, pulling spuds to move to shallow water, etc.).

f. Person overboard or rescue drills shall be held at least monthly at boat yards, locks, dams, and other locations where marine rescue equipment is required.

g. Emergency lighting and power systems shall be operated and inspected at least monthly to ensure proper operation.

(1) Internal combustion engine driven emergency generators shall be operated under load for at least 2 hours each month.

(2) Storage batteries for emergency lighting and power systems shall be tested at least once every 2 months.

h. A record of all drills and emergency system checks, including any deficiencies noted in equipment and corrective action taken, shall be made in the station log.

19.A.05 Equipment requirements.

a. Fenders shall be provided to prevent damage and sparking and to provide safe areas for workers exposed to pinching situations caused by floating equipment.

b. Axes or other emergency cutting equipment shall be provided in accessible positions on all towing vessels for use such as freeing lines.

c. A signal device shall be provided on all vessels to give signals required by the navigation rules applicable to the waters on which the vessel is operated.

d. All controls requiring operation in cases of emergency - such as boiler stops, safety valves, power switches, fuel valves, alarms, and fire extinguishing systems - shall be located so that they are protected against accidental operation but are readily accessible in an emergency.

e. Electric lights used on or around gasoline and oil barges or other marine locations where a fire or explosion hazard exists shall be explosion-proof.

f. General alarm systems shall be installed and maintained on all floating plant where it is possible for either a passenger or crewman to be out of sight or hearing from any other person.

(1) Where general alarm systems are used they shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical-system failure.

(2) A sufficient number of signaling devices shall be placed on each deck so that they can be distinctly heard above the normal background noise at any point on the deck.

(3) All signaling devices shall be so interconnected that actuation can occur from at least one strategic point on each deck.

h. Smoke alarms are required for all living quarters of floating plant; smoke alarms, if wired, should use the same electrical system as that of the electrical alarms.

I. All doors shall be capable of being opened from either side and provided with positive means to secure them in both the open and closed position.

j. Escape hatches and emergency exits shall be marked on both

sides with letters, at least 2.5 cm (1 in) high, stating "EMERGENCY EXIT - KEEP CLEAR."

k. Each prime mover (engine, turbine, motor) driving a dredge pump shall be capable of being stopped by controls remote from the prime mover locations.

l. Shore power receptacles shall have a grounding conductor to prevent potential difference between the shore and the vessel.

m. Circuits with GFCI protection shall be provided in grounded 120 volt or 240 volt systems in toilet/shower spaces, galley, machinery spaces, weather deck, exterior, or near any sinks.

n. Where appropriate, vessels should have watertight compartments readily identified and properly maintained in a watertight condition (i.e., sealable doors in place and fully functional) and all penetrations maintained in a watertight condition.

19.A.06 Fuel systems and fuel transfers.

a. Gauge glasses or try cocks shall not be installed on fuel tanks or lines unless they meet the requirements of 46 CFR 58.50-10.

b. A shutoff valve shall be installed at the fuel tank connection: arrangement shall be made for operating this valve from outside the compartment in which the tank is located and from outside the engine compartment and outside the house bulkheads at or above the weather deck of the vessel.

c. A shutoff valve shall be installed at the engine end of the fuel line unless the length of the supply pipe is 1.8 m (6 ft) or less. Arrangement shall be made for operating this valve from outside the house bulkheads, at or above the weather deck on the vessel.

e. All carburetors on gasoline engines shall be equipped with a backfire trap or flame arrestor.

f. All carburetors, except down draft type, shall be provided with a drip pan, with flame screen, which is continuously emptied by suction from the intake manifold or by a waste tank.

g. Fuel and lubricant containers and tanks shall be diked or curbed to contain the tank contents in case of leakage in accordance with NAVFAC DM-22, Petroleum Fuel Facilities. In lieu of a dike or curb, other means complying with USCG requirements in 46 CFR Parts 64, Marine Portable Tanks, and 98.30, Handling and Storage of Portable Tanks, may be used.

h. Fuel oil transfers for floating plant shall be in accordance with the provisions of USCG regulations, 46 CFR and 33 CFR Parts 155 and/or 156. For uninspected vessels, USCG regulations in 33 CFR 156.120 and 33 CFR 155.320 for fuel coupling devices and fuel oil discharge containment apply. Venting fuel tanks is necessary when using the couplings prescribed by 33 CFR 156.120(1) or (2).

19.A.07 Safe practices.

a. Obstructing cables/lines which cross waterways between floating plant or between plant and mooring shall be clearly marked.

b. On all floating plant where people are quartered, one person shall be on watch at all times to guard against fire and provide watch person service. In lieu of a watch person, an automatic fire detection and fire and emergency warning system(s) may be used.

c. Provisions shall be made to prevent accumulation of fuel and grease on floors and decks and in bilges.

d. Swimming shall be prohibited for all personnel on floating plant and other marine locations, except certified divers in the performance of their duties, unless necessary to prevent injury or loss of life.

e. A person in the water shall be considered as a person overboard and appropriate action taken.

f. When barriers or blanks are installed in piping systems as a lock-out procedures, positive means - such as protruding handles - shall be used to easily recognize their presence. All barriers shall be marked - including name of installer, name of inspector, and date of installation - and accounted for prior to installation and subsequent to removal.

g. Deck loading will be limited to safe capacity. Loads will be secured and holdbacks or rings will be provided to secure loose equipment during rough weather.

h. Guardrails, bulwarks, or taut cable guardlines shall be provided for deck openings, elevated surfaces, and similar locations where persons may fall or slip from them. Guardrails and taut cable guardlines shall comply with the requirements for standard guardrails. > See Section 21.B

I. Projection and tripping hazards shall be removed, identified with warning signs, or distinctly marked with safety yellow.

j. Deck cargo carried on fuel barges shall be placed on dunnage.

k. When two or more pieces of floating plant are being used as one unit, they shall be securely fastened together to prevent openings between them or the openings shall be covered or guarded.

l. All anchor points shall be clearly identified and shall be inspected prior to applying a load or putting cables under tension. Anchor points not structurally sound shall be cut out, removed, and/or welded over to preclude usage. Visual checks and "all clear" warnings shall be made prior to tensioning cables.

19.A.08 Confined spaces. > See Section 06.I

a. Every floating plant shall be surveyed for the presence of confined spaces. A list of all confined spaces shall be maintained on board the vessel/floating plant: on those vessels without a location to maintain the list (e.g., a barge), the list shall be maintained at the worksite.

b. All permit-required confined spaces on floating plant shall be indicated with a sign or placard, or similar device.

19.A.09 When there is a potential for marine activities to interfere with or damage utilities or other structures, including those underwater, a survey shall be conducted to identify the utilities or structures in the work area, analyze the potential for interference or damage, and recommend steps to be taken to prevent the interference or damage.

19.A.10 Ventilation.

a. All motor vessels or boats powered by internal combustion engines having electric spark ignition systems or having auxiliary engines of this type in cabins, compartments, or confined spaces shall be equipped with an exhaust fan(s) for ventilating engine space and bilges.

b. At least two ventilators fitted with fans capable of ventilating each machinery space and fuel tank compartment, including bilges, shall be provided to remove any flammable or explosive gases, except those vessels constructed with the greater portions of the bilges open or exposed to the natural atmosphere at all times. > Note this requirement does not apply to diesel engines

c. Other compartment spaces within a vessel, not covered in this section, may be naturally vented.

d. All living spaces, including the galley, shall be adequately ventilated in a manner suitable to the purpose of the space.

e. For launches and motorboats having diesel power plants not equipped with fans, ventilating shall be by natural draft through permanently open inlet and outlet ducts extending into the bilges. Inlet and exhaust ducts shall be equipped with cowls or exhaust heads.

f. Vent and ventilator requirements.

(1) Fans shall be rated for Class I hazardous locations and located as remotely from potential explosive areas as practical.
> See Section 11.G

(2) The vent intake shall extend to within 0.3 m (1 ft) of the bottom of the compartment.

(3) Means shall be provided for stopping all fans in ventilation systems serving machinery components and for closing all doorways, ventilators, chases, and annular spaces around tunnels and other openings from outside these spaces in case of fire.

g. Engines shall not be started until the engine space and bilges have been ventilated to remove fuel vapor.

19.A.11 The latest information published by the USCG regarding aids to navigation shall be maintained aboard vessels 8 m (26 ft) or more in length.

19.B ACCESS

19.B.01 General. > See also 19.A.07h

a. All means of access shall be properly secured, guarded, and maintained free of slipping and tripping hazards. > See Section 21

b. Nonslip surfaces shall be provided on all working decks, stair treads, ship ladders, platforms, catwalks, and walkways, particularly on the weather side of all doorways opening on deck.

c. Grab bars shall be provided on the sides of superstructure of tugs, tenders, and launches except where railing is present. Grab bars will be placed as close as possible to 42 inches above the deck.

d. Double rung or flat tread type Jacob's ladders shall be used

only when no safer form of access is practical: when in use, they shall hang without slack and be properly secured.

19.B.02 Access to/from vessels.

a. Safe means for boarding or leaving a floating plant shall be provided and guarded to prevent persons from falling or slipping thereon.

b. A stairway, ladder, ramp, gangway, or personnel hoist shall be provided at all personnel points of access with breaks of 48 cm (19 in) or more in elevation.

c. Ramps for access of equipment and vehicles to or between vessels shall be of adequate strength, provided with side boards, and be well maintained.

d. Gangways and ramps shall be:

(1) secured at one end by at least one point on each side with lines or chains to prevent overturning,

(2) supported at the other end in such a manner to support them and their normal loads in the event they slide off their supports,

(3) placed at an angle no greater than that recommended by the manufacturer, and

(4) provided with a standard guardrail (toeboards are optional depending on their usefulness and the hazard involved). > See Section 21.B

19.B.03 Access on vessels.

a. Vertical access shall be provided between various decks by means of stairs or permanent inclined ladders.

b. Employees shall not be permitted to pass fore and aft, over, or around deck loads unless there is a safe passage.

c. If cargo or materials are stored on deck of barges, scows, floats, etc., the outboard edge shall not be used as a passageway unless at least 0.6 m (2 ft) of clearance is maintained.

19.B.04 Emergency access.

a. All vessels, except those easily boarded from the water, shall provide at least one portable or permanent ladder of sufficient length to rescue a person overboard.

- b. Two means of escape shall be provided for normal work, assembly, sleeping, and messing areas on floating plants.
- c. Means of access shall be maintained safe and functional.

19.B.05 Access on floating pipelines.

- a. All floating pipelines used as accessways shall be equipped with a walkway and handrail on at least one side.
- b. Walkways shall be at least 50 cm (20 in) wide and anchored to the pipeline. The use of PFDs is also required. > See Section 05.I
- c. When walkways and handrails are not provided (i.e., the pipeline is not intended for access), the pipeline shall be barricaded at both ends to prevent access by any person.

19.C LAUNCHES, MOTORBOATS, AND SKIFFS

19.C.01 Crew requirements.

a. In the following circumstances a qualified employee shall be assigned to assist with deck duties:

(1) when extended trips including overnight trips are made from the work site,

(2) when conditions of navigation make it hazardous for an operator to leave the wheel while underway,

(3) when operations being performed, other than tying-in, require the handling of lines,

(4) when operating at night or during inclement weather, or

(5) when towing.

b. A qualified employee is any individual who has established, to the satisfaction of the operator of the vessel, that he/she is physically and mentally capable of adequately performing the deck duties to which he/she may be assigned.

19.C.02 Personnel and cargo requirements.

a. The maximum number of personnel and weight that can safely be transported shall be posted on all launches, motorboats, and skiffs. The number of personnel (including crew) shall not exceed

the number of PFDs aboard.

b. Each boat shall have sufficient room, freeboard, and stability to safely carry the cargo and number of passengers allowed with consideration given to the weather and water conditions in which it will be operated.

19.C.03 Fire protection.

a. The minimum number and rating of fire extinguishers which shall be carried on all launches and motorboats, including outboards, are as follows:

Table: Fire Extinguishers

b. All launches and motorboats having gasoline or liquid petroleum gas power plants or equipment in cabins, compartments, or confined spaces shall be equipped with a built-in automatic CO2 or other equally effective type of fire extinguishing system.

19.D DREDGING

19.D.01 Prior to repair or maintenance on the pump, suction or discharge lines below the water line, or within the hull, the ladder (or drag arm) shall be raised (above the waterline) and positively secured. This provision is in addition to the normal securing of hoisting machinery. Blank or block plates shall also be set in suction or discharge lines as appropriate.

19.D.02 Dredge pipelines that are floating or supported on trestles shall display appropriate lights at night and in periods of restricted visibility in accordance with USCG regulations and 33 CFR 88.15.

19.D.03 Submerged and floating dredge pipeline.

a. Submerged pipeline shall rest on the channel bottom where a pipeline crosses a navigation channel and while submerged; the top of the pipeline and any anchor securing the pipe shall be no higher than the required project depth for the navigation channel in which the pipe is placed.

(1) Whenever buoyant or semi-buoyant pipeline is used, the dredge operator will assure that the pipeline remains fully submerged and on the bottom; whenever it is necessary to raise the pipeline, proper clearances shall be made and maintained and the entire length of the pipeline will be adequately marked.

(2) The location of the entire length of submerged pipeline shall be marked with signs, buoys, lights, or flags as required by the USCG and as approved by the Designated Authority.

(3) Routine inspections of the submerged pipe shall be conducted to ensure anchorage.

(4) All anchors and related material shall be removed when the submerged pipe is removed.

b. Floating pipeline is any pipeline which is not anchored on the channel bottom. Floating pipeline, to include rubber discharge hoses, shall be clearly marked.

c. Pipelines shall not be permitted to fluctuate between the water surface and the channel bottom or lie partially submerged.

19.D.04 Dredges shall be designed so that a failure or rupture of any of the dredge pump components, including dredge pipe, shall not cause the dredge to sink. Data or plans supporting this capability must be available to the government representative upon request.

19.D.05 Mobilization, demobilization, and relocation of dredges, support barges, support tenders, tugs, and heavy equipment shall be by qualified persons under the direct supervision of a responsible individual.

19.D.06 Hopper dredges shall offer a safe means and process to load and unload personnel.

19.D.07 Any dredge which has a dredge pump below the waterline shall have a bilge alarm or shutdown interface.

19.D.08 Covers of "stone boxes" shall be secured with at least two positive means when the boxes are working under positive pressure.

19.E NAVIGATION LOCKS AND LOCKING

19.E.01 Smoking, the use of open flame equipment, or other ignition sources shall be prohibited on lock structures within 50 feet of vessels containing flammable or hazardous materials during lockage.

19.E.02 Pleasure and commercial recreational craft shall not be locked through a lock chamber with a vessel containing dangerous, flammable, or hazardous cargo.

a. Simultaneous lockage of two vessels or tows carrying dangerous cargoes containing flammable vapors, or simultaneous lockage of another vessel or tow carrying non-dangerous cargoes and vessel or tow carrying dangerous cargoes, shall not be permitted when river traffic in the approaches to a lock is light.

b. When the river approaches to a lock are congested, simultaneous lockage of the aforementioned vessels or tows, other than pleasure craft, shall be permitted provided:

(1) the first vessel or tow in and the last vessel or tow out are secured before the other enters or leaves;

(2) any vessel or tow carrying dangerous cargoes is not leaking; and

(3) all masters involved have agreed to the joint use of the lock chamber.

Vessels with flammable or highly hazardous cargo will be passed separately from all other vessels. Hazardous materials are described in Part 171, Title 49, Code of Federal Regulations; flammable materials are defined in the National Fire Code of the NFPA.

DEFINITIONS

Floating plant: includes marine vessels use to transport personnel, work boats, floating cranes and derricks, barges, patrol boats, etc.

Gangway: any ramp, stairway, or ladder provided for personnel to board/leave a vessel.

Vessel: every type of watercraft or artificial contrivance used, or capable of being used, as a means of transportation on water, including special-purpose floating structures not primarily designed for or used as a means of transportation on water.



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IMPORTANT - DISCLAIMER

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THE DOCUMENT IS BEING PROVIDED FOR THE SOLE PURPOSE AS A REFERENCE FOR THE 2003 NOAA SMALL BOAT WORKSHOP ATTENDEES.

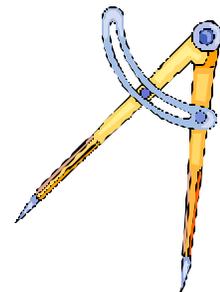
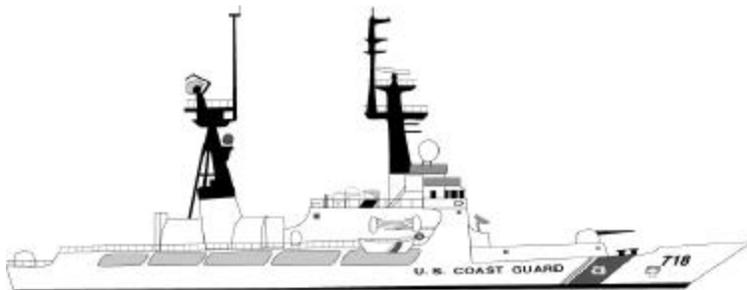
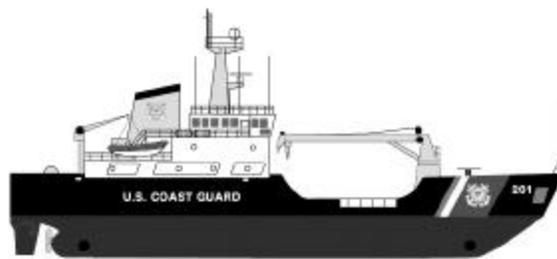
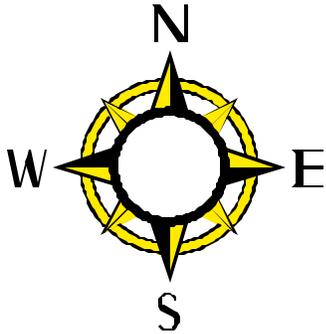
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U.S. Department
of Transportation

United States
Coast Guard



Coast Guard Navigation Standards

COMDTINST M3530.2A

COMDTINST M3530.2A
MAY 16 2002

COMMANDANT INSTRUCTION M3530.2A

Subj: COAST GUARD NAVIGATION STANDARDS MANUAL

- Ref:
- (a) U. S. Coast Guard Regulations, COMDTINST M5000.3 (series)
 - (b) Cutter Training and Qualification Manual, COMDTINST M3502.4 (series)
 - (c) Cutter Organization Manual, COMDTINST M5400.16 (series)
 - (d) Boat Crew Training Manual, COMDTINST M16114.9 (series)
 - (e) Boat Crew Seamanship Manual, COMDTINST M16114.5 (series)
 - (f) Boat Crew Qualification Guide, Vol I-Crew Member, COMDTINST M16114.10 (series)
 - (g) Boat Crew Qualification Guide, Vol II-Coxswain, COMDTINST M16114.11 (series)
 - (h) Group and Stations Communications Watchstander Qualification Guide, COMDTINST M16120.7 (series)
 - (i) Operational Risk Management, COMDTINST 3500.3 (series)
 - (j) Procedures for the Preparation and Disposition of Cutter Logs, COMDTINST M3123.12 (series)

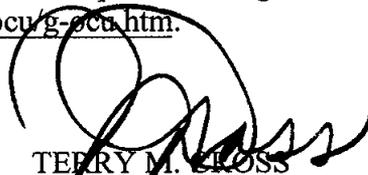
1. PURPOSE. This Manual promulgates navigation policies and procedures for all cutters and shore based boats.
2. ACTION. Area and district commanders, commanders of maintenance and logistics commands, and unit commanding officers and officers-in-charge (CO/OIC) shall ensure the requirements of this manual are included as appropriate in the area and district training team curricula, TSTA, SEOPS, STANTEAM and other training and inspection programs. Internet release is not authorized.

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3. DIRECTIVES AFFECTED. Cutter Navigation Standards and Procedures, COMDTINST 3530.2 is hereby canceled.
4. SUMMARY.
 - a. This Manual is designed to assist the CO/OIC, navigator and coxswain in carrying out their responsibilities as outlined in reference (a). Chapter one provides guidance, policy and procedures for safe cutter navigation. Chapter two provides guidance, policy and procedures for safe shore based boat navigation.
 - b. This Manual is not all inclusive on cutter navigation due to many variables such as differing cutter types, personnel qualification and experience, operating areas, etc. Development and implementation of sound command navigation standards and proper risk management is imperative.
5. CHANGES. Change recommendations should be routed via the chain of command to Commandant (G-OCU) for cutters and (G-OCS) for shored based boats.
6. FORMS AVAILABILITY. The "CG" forms discussed in this manual, Deck Logs (CG-4380A, CG-4380B and CG-4380C), are available in Jetform Filler and through the stock system. Jetform Filler templates may be downloaded from <http://www.uscg.mil/hq/g-s/g-si/g-sii/forms/formindx.htm>. A sample Deck Log is available on the web at <http://cgweb.comdt.uscg.mil/g-ocu/g-ocu.htm>.



TERRY M. CROSS
Assistant Commandant for Operations

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- (1) Helm Commands
- (2) Linehandling Commands
- (3) Navigation Plotting Symbols
- (4) Paper Chart Usage/Maintenance Requirement Flowchart
- (5) Standard Getting Underway Checklist
- (6) Standard Entering Port/Approaching Restricted Waters Checklist
- (7) Unit Level Guidance For Shore Based Boats

CHAPTER 2. SHORE BASED BOAT PILOTING AND NAVIGATION

A. Discussion

1. Results of Standardization Team (STANTEAM) readiness assessments and boat mishap reviews have highlighted the need for a shore based boat piloting and navigation policy. Unlike navigating a ship with an established navigation team and well-equipped bridge, boat navigation rests primarily with the coxswain. STANTEAM readiness assessments have shown a decline in basic skill sets related to navigation such as plotting a position, recognizing when the vessel is being set off the anticipated DR track, and maneuvering to a plotted position within a specified standard. Whether using a fully integrated electronic navigation system or the most basic manual navigation tools, the coxswain must use all resources and information to assess the vessel's position, course, and speed with a high degree of accuracy. In addition to navigating the vessel, the coxswain must track and avoid known hazards and other marine traffic, as well as execute the intended mission.
2. Most mishaps occur because coxswains and crews failed to use or properly interpret available information. Among the most common factors are:
 - a. Lack of in-depth knowledge of hazards within the local operating area, coupled with minimal underway experience.
 - b. Failure to recognize the significance or properly evaluate all available navigation information (i.e. soundings, cross track error, natural ranges) while operating in close proximity to shoals.
 - c. Excessive speed in the vicinity of shoals or other navigation hazards.
 - d. Coxswain's focus or reliance on only one source of navigation information.
 - e. Improper identification of an aid to navigation.
 - f. Failure to utilize a chart or maintain a plot.
3. Advances in Electronic Charting Systems (ECS) have revolutionized boat navigation. GPS and ECS equipment display real time data with a high degree of accuracy. This gives the coxswain a perpetual fix enabling the coxswain to quickly determine the boat's position and orientation to their immediate surroundings. However, the use of ECS is not a total replacement for paper charts.

B. Purpose.

1. Definitions. This section contains definitions that have specific meanings unique to this chapter.
2. Command Responsibilities. This section outlines specific responsibilities for each key member of the command structure.
3. Command Navigation Standards. This section outlines the minimum information required for inclusion in the command navigation standards.
4. Navigation Requirements. This section states the minimum requirements for safe navigation.
5. Non-standard Boat (NSB) Operations. This section discusses the navigation requirements for Non-standard Boats.

C. Definitions.

1. Navigational Zones - The following two types of navigation zones are to be used during shore based boat operations:
 - a. Harbor and Near Coastal (restricted waters): Narrow canals, channels, rivers, estuaries, sounds, bays, harbor entrances, traffic schemes, and up to two miles from shore.
 - b. Coastal and Offshore (open waters): Two miles or more from shore or other known hazard.
2. Electronic Chart System (ECS) - A navigational aid meeting the recommended standards established by the Radio Technical Commission for Maritime Services for displaying vessel position and relevant navigational and nautical chart information on an electrical display. "The Cap'n" is an example of a Coast Guard approved ECS that is commonly used. An ECS is a situational awareness tool and is neither equivalent to nor a replacement for paper charts.
3. Up-to-date chart - A chart that has been corrected through the latest available update issued by the cognizant hydrographic office and Coast Guard Local Notice to Mariners.

D. Command Responsibilities.

1. Commanding Officers/Officers in Charge (CO/OIC) shall:

- a. Develop and publish guidance for boat crews that outline key operating areas, principle navigation routes, established waypoints, and other important information necessary for safe and reliable navigation within the unit's Area of Responsibility (AOR). An example of unit level guidance is provided in enclosure (7).
- b. State the areas within the unit's AOR where boat crews shall conduct frequent area familiarization transits. These designated areas correlate to the semi-annual currency maintenance requirements of the Boat Crew Training Manual, COMDTINST M16114.9 (series)
- c. Identify specific areas within the unit's Area of Responsibility (AOR) that pose significant navigational or environmental risks to boats. The CO/OIC shall mitigate these risks by imposing specific operating restrictions such as speed limits, establishing safe operating distances from known hazards, increasing frequency of fixes, and restricting operating areas for specific boat types. Each unit shall maintain a chart on display in the operations/planning space that highlights known hazardous and special operating areas within the unit's AOR.
- d. Publish a list of ready charts for the unit's AOR that must remain on each boat, and be kept up-to-date.
- e. CO/OIC's of units conducting surf operations shall establish navigation and piloting requirements for use during surf operations (i.e. use of natural ranges, radar ranges, waypoints, etc.).

2. Coxswains:

- a. Ultimate responsibility for the safety of boat and crew (including safe navigation) rests with the coxswain.
- b. Coxswains shall permanently mark their paper charts with standard track-lines, courses, and turn bearings along established routes and waypoints.
- c. Coxswains shall ensure paper and electronic charts are up-to-date.
- d. The coxswain must know the advantages and limitations of all electronic navigation equipment available. The coxswain should become proficient with those onboard tools that act as quick references for safely determining the boat's current and projected position such as the cross track error, danger and turn ranges, minimum depth alarms, waypoint display on the radar, and best use of electronic bearing lines.
- e. The coxswain must hone the selection and use of ranges (natural and man made), and other basic reliable visual cues within their own AOR and practice their use during day and night area familiarization runs required for currency maintenance.

f. Coxswains transiting close to navigation hazards and shoals, or running during restricted visibility or darkness, shall operate the vessel with extreme caution, which may include:

(1) Reducing speed.

(2) Stopping to review the navigation picture.

(3) Utilizing navigational data such as soundings, danger ranges, or bearings to verify position.

(4) Coordinating the boat crew as a navigation team to specifically observe the compass heading, fathometer, radar, ECS, or otherwise augment the coxswain's navigational ability.

(5) Any time the coxswain is uncertain of his/her position, he/she shall stop all way, or anchor if necessary and fix the boat's position.

3. Boat Crews:

- a. Boat piloting is very reliant on the team effort of the entire boat crew. Input from all members is needed by the coxswain for safe piloting. Boat crew involvement includes lookout reporting, helm watch, plotting, or use of onboard electronics. Unit training should strengthen confidence in these areas.
- b. A significant amount of boat piloting occurs in familiar waters that hold known dangers. It is critical that all boat crewmembers maintain vigilance and provide timely feedback to the coxswain. Extra caution while piloting should be taken during long missions and during mission wrap-up as fatigue or reduced stress can lead to judgment errors and misidentification of important information.

E. Command Navigation Standards.

1. Commanding officers /officers-in-charge shall publish Command Navigation Standards to incorporate the navigation requirements in U. S. Coast Guard Regulations, COMDTINST M5000.3 (series) and this manual. Command Navigation Standards shall include:
 - a. List of AOR key waypoints.
 - b. Command definition of Harbor/Near Coastal waters and Coastal waters.
 - c. Standard navigation fix intervals and methods.
 - d. Underway navigation expectations.
 - e. Specific guidance concerning navigation in caution or danger areas.

F. Navigation Requirements:

1. General. Boat configuration, navigation equipment, controls, and space available for navigation work varies greatly. Some boat types or missions place them in distinctly hazardous areas. For these reasons, this instruction will provide procedural guidance based on boat type, equipment available, and area of operation. This must be adapted or considered when drafting the Command Navigation Standards as required by Chapter 2, Section E.
2. Fixes. One of the following criteria must be met in order to constitute a proper “fix” of reasonable accuracy:
 - a. Electronic fix in the form of latitude and longitude from a GPS system plotted on a paper chart.
 - b. Boat position as plotted by an ECS using GPS input and confirmed with either visual or radar information. (If equipped with ECS, the CO/OinC will determine, with regard to urgency of mission and platform, the necessity of recording the vessel’s position on a up-to-date paper chart.).
 - c. The intersection of two or more radar ranges from prominent points of land or fixed objects with a bearing spread of over 60 degrees.
 - d. The intersection of two or more bearing lines from fixed objects.
 - e. The boat’s alignment along a range (established or natural) combined with a measured radar range to a prominent object.
 - f. Intersection of Lines of Position (LOP’s) from a radar bearing and range to a single fixed object. The radar is the only instrument that can give simultaneous range and bearing information to the same object. This is not an ideal fix, but is an acceptable option.
3. Estimated Position (EP). An EP is a DR position modified by additional information, which in itself is insufficient to establish a fix. All EPs shall be compared to charted depth of water, and other available navigation devices. The following criteria constitute an EP:
 - a. Radar range and bearing information established from a single identified floating aid to navigation.
 - b. Passing abeam of a fixed object or floating aid to navigation without an established radar range and bearing.

4. Harbor and Near Coastal: The coxswain must be able to ascertain the boat's position at all times with a high degree of accuracy. The frequency of establishing fixes or EP's in restricted waters is dependent on the proximity of shoals/hazards and the boat's speed over ground. In restricted waters, the position should be determined at least every 15 minutes. Fixes should become more frequent whenever the boat is operated in an unfamiliar area.
5. Coastal: GPS is the most efficient means of fixing position. Fixes may be timed to coincide with ops/position reporting to the operational commander (OPCON). Having the communications watch ashore re-plot the boats position serves as a back up for the boat's crew. This is especially critical during inclement weather. A DR plot shall be plotted for 30-minute intervals and adjusted as needed based on updated fix information or course changes. Fixes shall be obtained at 30-minute intervals. Fixes shall become more frequent whenever the coxswain is uncertain of the boat's position or is operating in an unfamiliar area.
6. Piloting Using ECS: An ECS can be used as a primary means of navigation while using approved up-to-date electronic charts. Since ECS automatically plots the boat's GPS position against an electronic chart, it is perhaps the most efficient navigation tool for a coxswain. Use of waypoints and routes further assist the coxswain in rapidly comparing the planned DR track with the actual track-line. The information presented is real time. The coxswain must continually verify the validity of the displayed position against other observations such as the radar, fathometer, visual ranges, and aids to navigation.
 - a. The coxswain will carry a up-to-date paper chart onboard to be used as a visual reference while navigating with an ECS.
 - b. The coxswain must remain wary of the shortcomings of ECS. These include:
 - (1) Lack of updated aids to navigation (ATON) changes published in Local Notice to Mariners (LNTM).
 - (2) Various scales that add or omit details.
 - (3) The possibility of electronic lines covering or obscuring charted hazards.
 - (4) No course adjustments for hazards.
 - (5) The boat's advance/transfer that occurs as the ECS updates position.
 - c. As with poor chart work on paper, improper inputs for waypoint positions will lead to improper track lines and other errors.

7. Piloting Using GPS: As the most popular navigation tool, the GPS provides the basic information of present position, course, and speed required by a coxswain for navigation. Proper mission planning or unit navigation standards ensure the coxswain makes the best use of waypoints entered into the GPS. The automatic calculations for course and times must be compared to a paper plot to verify accuracy of each. Though the GPS displays the boat's position, it must also be plotted in order to compare with charted references and hazards. Unit navigation standards and sortie preparation shall include command decisions regarding paper-plotting frequency. As with the ECS, GPS accuracy is subject to equipment faults but more often improper input of waypoint information or set up function can lead to significant errors in navigation.
8. Piloting Using Radar: The radar provides a visual navigation picture as well as hazards such as vessel traffic. Its information may be used in conjunction with other tools (ECS, GPS) to provide a complete situational picture.
9. Piloting Using Fathometer: While not an accurate means of navigation by itself, the soundings provided by the fathometer can help confirm the accuracy of other tools. It can be used to follow a fathom curve or as a warning to alert the crew. Since the greatest risk in navigation comes from grounding, the fathometer is considered essential and should be monitored at all times, especially when in the vicinity of shoal water.

G. Non-standard Boat (NSB) Operations.

1. Various types of NSB's are used to meet the diverse missions for which they are employed. Some NSB's are minimally equipped with navigation gear, which restricts the coxswain's ability to maintain an active navigation plot. Additional factors such as limited workspace and exposure to environmental conditions further restrict the coxswain's ability to maintain an active navigation plot. Boats operating at higher speeds must balance the accuracy of fixes or EP's against the anticipated dangers with consideration for advance, transfer, and set. A safe speed should always be observed especially when operating near shoal waters or hazards. At a minimum, the following provisions shall apply to NSB (does not include work/flood punts and ice skiffs) operations:
 - a. Operational Commanders shall ensure that all NSB's have the capability to obtain a fix by electronic means (i.e. GPS (handheld or installed), radar, chart plotter, etc.).
 - b. When operating NSB's, coxswains shall carry up-to-date paper charts with permanent standard track-lines, courses, and turn bearings along established routes and waypoints for immediate reference. These charts can be folded and must be immediately available for reference during underway missions.

HELM COMMANDS

This enclosure provides a list of commonly used helm commands and may be tailored as appropriate to meet the requirements of Chapter 1, Section C. Standard phraseology governing orders to the helmsman is required to ensure orders are understood and promptly executed. The helmsman shall repeat each command word-for-word and shall report when the ordered action is complete. The conning officer shall acknowledge the helmsman's responses with "VERY WELL".

COMMAND	ACTION
RIGHT (LEFT) STANDARD (FULL) RUDDER	Apply the ordered rudder. Standard rudder is the amount required to turn the ship on its standard tactical diameter. The rudder angle varies from ship to ship. Full rudder is normally the amount required for reduced tactical diameter.
RIGHT (LEFT) ## DEGREES RUDDER	Apply the ordered rudder. This order may be followed by a new course for the helmsman to steer, such as "STEADY ON COURSE 256" or another rudder command. If no course is specified the helmsman shall call out the heading at 10 degree increments, such as "PASSING 150, PASSING 160", until a course is ordered by the conning officer.
INCREASE YOUR RUDDER TO RIGHT (LEFT) ## DEGREES	Increase the rudder angle the amount specified to cause the ship to turn more rapidly. This order may be followed by a new course for the helmsman to steer or another rudder command. If no course is specified the helmsman shall call out the heading at 10 degree increments until a course is ordered by the conning officer.
EASE YOUR RUDDER/EASE YOUR RUDDER TO RIGHT (LEFT) ## DEGREES	Decrease the rudder angle by half the amount currently applied or by the amount ordered. This order may be followed by a new course for the helmsman to steer or another rudder command. If no course is specified the helmsman shall call out the heading at 10 degree increments until a course is ordered by the conning officer.
RUDDER AMIDSHIPS	Place the rudder at zero degrees.
MEET HER	Use the rudder as necessary to check the swing of the ship without steadying on any specific course.
STEADY, STEADY AS SHE GOES, STEADY ON COURSE ###	Steer the course on which the ship is currently headed or the ordered course. If the ship is turning and the command STEADY or STEADY AS SHE GOES is given, the helmsman notes the heading and brings the ship back to the heading. The helmsman should then reply "STEADY; COURSE ###".

COMMAND	ACTION
SHIFT YOUR RUDDER	Move the rudder to the same angle in the opposite direction from where it is currently ordered. This order may be given only when a specific rudder angle is in effect.
NOTHING TO THE RIGHT (LEFT) OF COURSE ###	Steer nothing to the right (left) of the course specified.
HOW'S YOUR RUDDER	This is a query from the conning officer to ascertain the current rudder placement. The helmsman replies, "MY RUDDER IS RIGHT(LEFT) ## DEGREES".
MARK YOUR HEAD	Respond "MARK ###". A command to the helmsman to state the heading of the ship at the moment the command was given.
COMMAND	The helmsman's response to the conning officer if he/she did not hear a command, misunderstood a command or believes a command is improper.
STEER ON	The helmsman steers on a range or object identified by the conning officer.

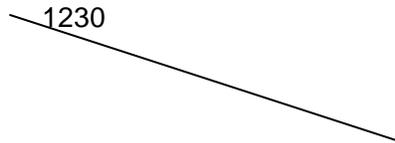
LINEHANDLING COMMANDS

This enclosure provides a list of standard linehandling commands and may be tailored as appropriate to meet the requirements of Chapter 1, Section C.

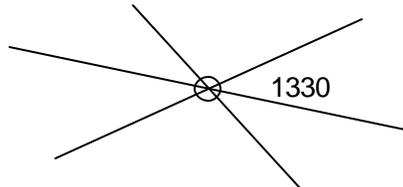
COMMAND	ACTION
PUT OVER/PASS (line number)	Pass the specified line to the pier and provide enough slack to allow linehandlers to place the line over the bitt, cleat or bollard.
HOLD (line number)	Do not let any more line out even though the risk of parting may exist.
CHECK (line number)	Hold heavy tension on the specified line but render it as necessary to prevent parting the line.
SURGE (line number)	Hold moderate tension on a line but render it enough to permit movement of the ship.
EASE (line number)	Let a line out until it is under less tension, but not slacked.
SLACK (line number)	Take all tension off a line and let it hang slack.
TAKE THE SLACK OUT OF (line number)	Take all the slack out of a line, but do not take a strain.
SHIFT (line number)	Shift a line to the specified location.
HEAVE AROUND ON (line number)	Take a strain on a line with the capstan.
TAKE (line number) TO POWER	Take the specified line to the capstan.
SINGLE UP (line number)	Take in all but one bight so there remains a single part to the line. May also be used to single up all normal mooring lines.
DOUBLE UP (line number)	Pass an additional bight on the specified line so there are three parts to the line. This may also be used to double up all normal mooring lines. Cutters without sufficient mooring line for three parts should just pass the bitter end of the single up to the pier.
AVAST or AVAST HEAVING	Stop taking a strain on a line with capstan.

COMMAND	ACTION
TAKE IN (line number)	Allow the pier linehandler enough slack to take the line off the fitting and bring the line aboard. Used when secured with your own line.
CAST OFF (line number)	When you are secured with another ship's lines, it means to cast off the ends of their lines.

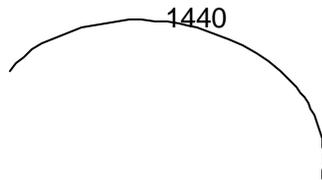
NAVIGATION PLOTTING SYMBOLS



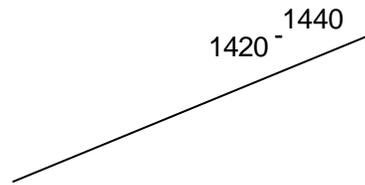
Single line of position
(Same for visual and electronic LOP)



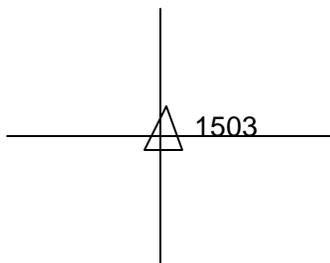
Visual fix



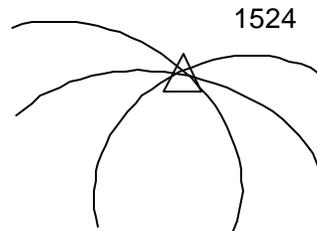
Distance arc or range



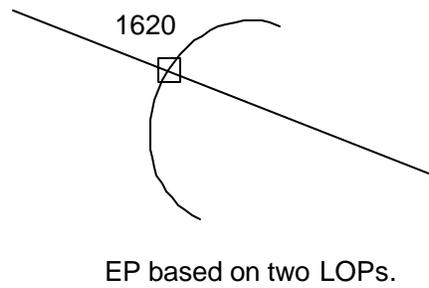
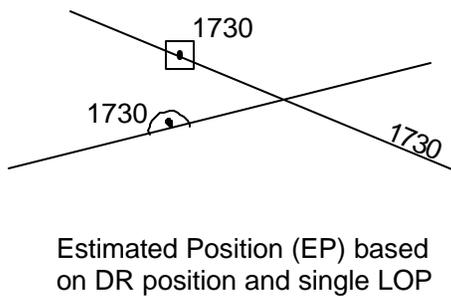
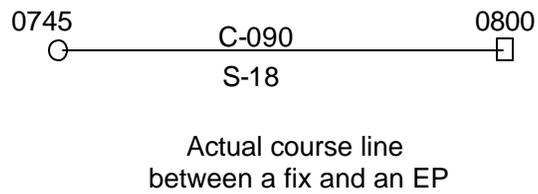
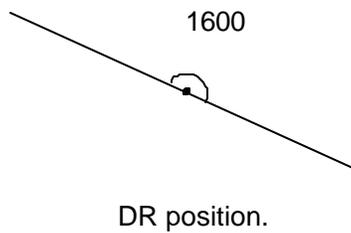
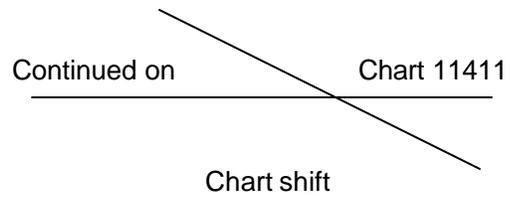
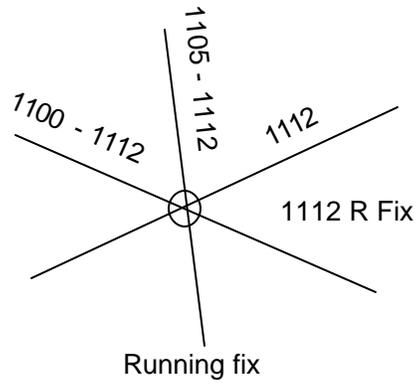
Advanced LOP
Original time and time LOP advanced to



Electronic fix

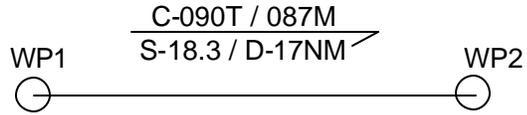


Electronic fix
using radar ranges

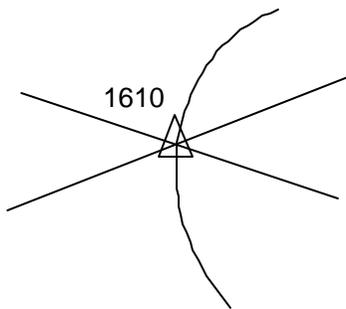




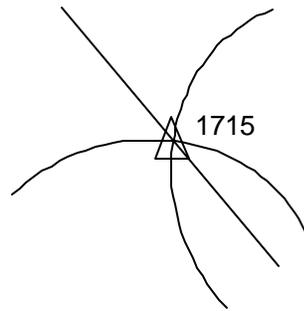
DR course line



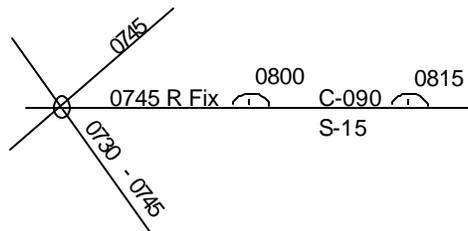
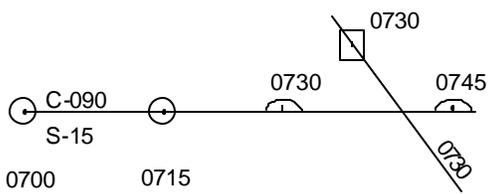
Trackline. Used between intended waypoints.



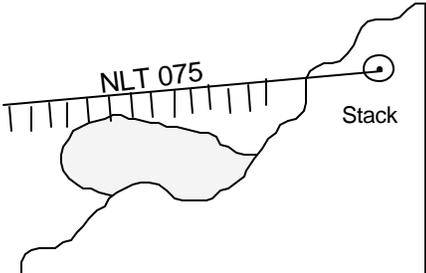
Two visual bearings and one radar range



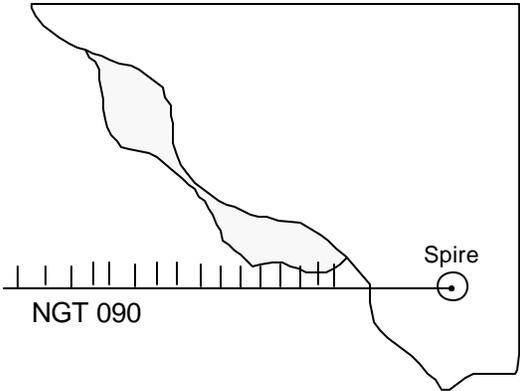
Two radar ranges and one visual bearing.



Examples of a DR course line with an EP and a DR course line with a running fix

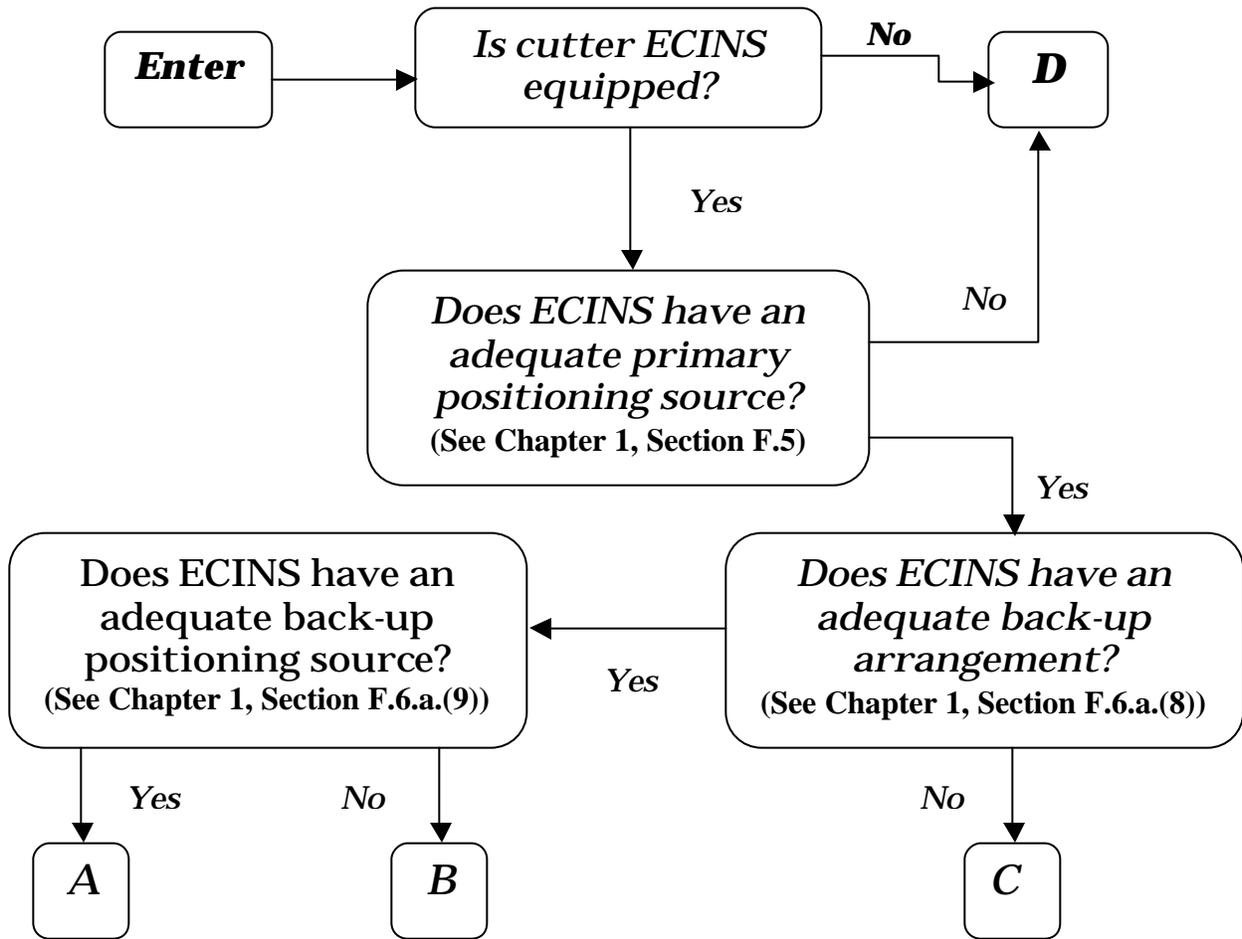


Danger bearing No Less Than 075 Deg T



Danger bearing No Greater Than 090 Deg T

PAPER CHART USAGE/MAINTENANCE REQUIREMENT FLOWCHART



A = Carry uncorrected paper chart. Use ECINS as primary means of navigation.

B = Carry uncorrected paper chart of the area. Use ECINS as primary means of navigation. Cutter shall correct and use paper charts in the event of positioning source failure.

C = Carry corrected paper chart of the area. Use ECINS as primary means of navigation.

D = Use corrected paper charts. ECINS/ECS (if so equipped) is to be used only as a situational awareness tool.

UNIT LEVEL GUIDANCE FOR SHORE BASED BOATS

A. Unit preparations for navigation should:

1. Discuss coxswain's personal navigation kit (as supplement to the boat outfit).
2. Discuss creation of a master chart (known by various names, i.e. compass card) of the local area by each coxswain.
3. Discuss operations petty officer responsibility to maintain a master corrected paper chart for the unit and the need to provide a like copy to the Group Operations Center.
4. Discuss unit standardization of GPS waypoints that will be used and maintained on the unit boats.
5. List unit AOR key waypoints. Name or Description (LAT - LONG)

B. Unit qualification and certification should:

1. Discuss key operating areas frequented during normal unit operations. Relate them to the area familiarization requirements of the Boat Crew Training Manual, COMDTINST M16114.9 (series). Though currency maintenance may generically require only 1 day and 1 night "fam" trip each 6 months, the CO/OIC may specify increased trips in certain areas to reinforce knowledge necessary to safe navigation.
2. Discuss the local knowledge level relationships between all boat crew and communications watchstanders. Discuss the unit boat crew examining board and unit training program role in reinforcing thorough knowledge of these "key areas" as an important element in reducing risk (basis for Operational Risk Management (ORM), and principles of Team Coordination Training (TCT)).

C. Underway navigation expectations:

1. Prepare before launching if possible. Discuss expectations for pre-sortie navigation planning, plotting, and electronics input. This preplanning will reduce the underway work load, make immediate reference information available, establish waypoints that may be required for the sortie, and allow an opportunity to conduct ORM.
2. Discuss expectations for navigating in the key operating areas within the unit AOR. This would involve use of pre-established tracklines or operations within well-marked channels as the normal means of determining position verified by visual observations, GPS and/or radar. This encompasses the use of all-available information and tools. The coxswain must remain constantly cognizant of the boat's position and keep it in safe water and out of danger.

3. Discuss expectations for navigating outside the above listed key areas. This could involve requirements for an active plot maintained on a chart or with the electronic chart plotter. This may be as simple as using Estimated Positions (EP's) as validation of the pre-planned DR tracks or as difficult as paper plotting of positions depending on circumstances. The coxswain must execute the proper level of team coordination to ensure safety and mission success.
4. Discuss navigation expectations in the surf environment. Surf operations are inherently dangerous so prudent use of ranges, depth sounder, sound seamanship, and teamwork is required. The heavy weather coxswain/surfman must use the electronic tools and visual cues available to determine the boat's current position with verifiable accuracy. They must also accurately recognize the effects of leeway, swell, and current on relative boat movement making proper compensation to allow for a safe transit. This must often be accomplished without additional paper plotting.
5. Discuss boat to shore communications as it might relate to navigation. The navigation demands on the boat crew may be tempered through prudent teamwork with shoreside assets (tower, beach party, vehicle).
6. Discuss operations at night or during periods of restricted visibility.
7. Whenever the position of the boat is in question or the information available is conflicting, discuss the immediate prudent measures to resolve. Normally, this will involve a reduction in speed, station keeping or anchoring long enough to get an accurate plotted fix.

D. Caution or danger areas:

1. Describe areas that pose significant dangers to a boat. A command may direct coxswains to avoid transit in these areas if not necessary to the sortie and always use extreme caution in piloting when operations require work nearby.
2. Describe areas where unit boats must adhere to no wake zones or speed limits during operations. It is typical that unit boats will observe the no wake requirement as well as take extra caution to lower speed and wake near marina entrances and in areas with high-density traffic. A command may remind coxswains to conduct normal operations or transits at cruising speed (xxxx RPM).
3. Discuss operating in areas of hazards or increased risks (wash rocks, crab pots, low visibility etc.).
4. Describe areas where known communications gaps exist in the area of responsibility. Command may require alternatives to operations and position reports when missions take boats into those areas to ensure safety.



United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-MSO-1
Phone: (202) 267-0218

COMDTPUB P16700.4
NVIC 6-97

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 697

Subj: POLICY ON QUALIFIED INSTRUCTORS AND DESIGNATED EXAMINERS
WHO TRAIN OR ASSESS THE COMPETENCE OF MERCHANT MARINERS

- Ref: (a) Interim Rule, Federal Register, Vol. 62, No. 123, pp. 34505, dated June 26, 1997
 (b) Navigation and Vessel Inspection Circular 5-95 "Guidelines for Organizations offering Coast Guard Approved Courses"
 (c) Navigation and Vessel Inspection Circular No. 7-97, "Guidance on STCW Quality Standards Systems (QSS) for Merchant Mariner Courses or Training Programs"
 (d) Navigation and Vessel Inspection Circular No. 5-97 "Guidelines on STCW Training Record Books"

1. PURPOSE. This circular provides policy guidance on Qualified Instructors and Designated Examiners for training and assessment programs meeting requirements of the 1995 amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978.
2. DIRECTIVES AFFECTED. None.
3. BACKGROUND.
 - a. Regulation I/6 of the STCW Convention requires that "those responsible for the training and assessment of competence of seafarers, as required under the Convention" must be "appropriately qualified...for the type and level of training or assessment involved." The requirements for Qualified Instructors and Designated Examiners have been introduced into U.S. regulations in reference (a), particularly Sections 10.302, 10.304, 10.309 of 46 CFR Part 10, and in Section 12.01 of 46 CFR Part 12.

DISTRIBUTION – SDL No. 134

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
A																											
B	*	2	2											30													
C					*								*														
D											1																
E														1	2												
F																											
G																											
H																											

NON-STANDARD DISTRIBUTION: (See page 8)

- b. The regulations in reference (a) provide for the possibility that training or assessment of competence can take place either on board a ship or at a shore-side facility, and either as part of a Coast Guard-approved course (reference (b)), or as part of a Coast Guard-accepted training and assessment program (reference (c)). In some cases, the regulations require a Qualified Instructor and/or a Designated Examiner to make entries in a training record book (references (a) and (d)).
- c. The regulations establish requirements for Qualified Instructors and Designated Examiners, and set general standards of qualification. This NVIC promotes consistency in criteria used for identifying such instructors and examiners when they perform functions relating to STCW requirements.

4. DISCUSSION.

- a. The Coast Guard will use demonstrated competencies and formalized training, in addition to approved sea service and examinations, as criteria for issuing STCW certificates and endorsements. Only qualified individuals can conduct training or assessment of competence to meet STCW requirements. The following question-and-answer format is intended to provide guidance to:
 - assist individuals in determining whether they are qualified to perform the training and assessment functions;
 - enable those offering training to merchant mariners to ensure they are adequately staffing their programs with qualified individuals; and
 - assist those conducting monitoring of training programs under a Quality Standards Systems (QSS) in evaluating whether the program is achieving its stated objectives and meeting regulatory requirements.
- b. The following questions and answers provide information on Qualified Instructors.

(1) *What is a Qualified Instructor?*

The term “Qualified Instructor” is defined in regulations 46 CFR 10.103 and 46 CFR 12.01-6 as “a person who has been trained or instructed in instructional techniques and is otherwise qualified to provide required training to candidates for licenses, documents, and endorsements.” All training conducted to meet requirements for STCW certificates or endorsements must be provided by a Qualified Instructor.

(2) *How can I become a Qualified Instructor?*

To become a Qualified Instructor, you must provide documentary evidence that you:

- have experience, training or been instructed in effective instructional techniques;
- are qualified in the task for which the training is being conducted and have relevant operational experience; and
- hold the level of license, endorsement, or other professional credential required for those who would apply on board a vessel the relevant level of knowledge, skills and abilities described in the training objectives.

Documentary evidence may be in the form of performance evaluations which include an evaluation of effectiveness in on-the-job organization and delivery of training and/or a certificate of successful completion from a “train-the-trainer” course. A train-the-trainer course must be based on International Maritime Organizations (IMO) model course 6.09 (Training Course for Instructors), or another Coast Guard accepted syllabus covering the following areas:

- identification of training needs;
- learning processes;
- course design;
- teaching methods;
- recognition of individual capacity;
- identification of performance standards;
- presentation techniques and use of media;
- measurement of progress toward training objectives and of adequate performance;
- favorable and unfavorable conditions for learning;
- the role of incentive and motivation in learning;
- use of feedback for performance improvement; and
- course evaluation.

A specialist in a particular field of non-maritime education (such as mathematics or first aid) or a person with at least three years of service as a member of the Armed Forces of the United States, specializing in the field in which the training is conducted, need not hold a maritime license or document to conduct training in that field.

A faculty member employed at a State maritime academy or the U.S. Merchant Marine Academy operated in accordance with 46 CFR Part 310 and instructing in a navigation or engineering course is qualified to serve as a Qualified Instructor in their area(s) of specialization without individual evaluation by the Coast Guard.

(3) *Does use of a simulator in training or assessment activities affect the requirements I must meet to become a Qualified Instructor ?*

Yes. If a simulator is used, you must gain practical operational experience on the particular type of simulator being used and receive guidance in instructional techniques involving the use of simulators. Such guidance or instruction should include

development of and sequencing of simulated scenarios which have specific learning objectives.

(4) *Is it necessary for the Coast Guard to certificate me as a Qualified Instructor?*

No, a Coast Guard Certificate or Letter is not required. You must be identified as a Qualified Instructor as part of a Coast Guard course approval or as part of a Coast Guard-accepted program of training. In these cases, the review of your qualifications takes place at the time the Coast Guard approves a course (see reference (b)), or during an audit conducted under a quality standards system (see reference (c)).

c. The following questions and answers provide information on Designated Examiners.

(1) *What is a Designated Examiner?*

The term “Designated Examiner” is defined in regulations 46 CFR 10.103 and 46 CFR 12.01-6 as meaning “a person who has been trained or instructed in techniques of training or assessment and is otherwise qualified to evaluate whether a candidate for a license, document, or endorsement has achieved the level of competence required to hold the license, document, or endorsement. This person may be designated by the Coast Guard or by a Coast Guard-approved or accepted program of training or assessment.”

A Designated Examiner assesses the ability of an individual to perform a task, duty or responsibility properly, using established criteria and professional judgment in determining whether an acceptable level of proficiency and competence has been demonstrated. A Designated Examiner must always personally witness the performance of the task, duty or responsibility by the person whose competence is to be assessed. This performance is called a “practical demonstration” which is defined in regulations 46 CFR 10.103 and 46 CFR 12.01-6 as meaning “the performance of an activity under the direct observation of a Designated Examiner for the purpose of establishing that the performer is sufficiently proficient in a practical skill to meet a specified standard of competence or other objective criterion.” For purposes of assessment of competence of a skill or ability required for an STCW endorsement, the assessment criteria are set out in the standards of competence contained in the tables in the STCW Code.

(2) *How can I become a Designated Examiner?*

To become a Designated Examiner you must have documentary evidence to establish that you:

- have experience, training or been instructed in assessment techniques;
- are qualified in the task for which the assessment is being conducted; and

- hold the level of license, endorsement, or other professional credential required for those who would apply on board a vessel the relevant level of knowledge, skills and abilities to be assessed.

Documentary evidence of training or instruction may be in the form of performance evaluations which include an evaluation of effectiveness in on-the-job conduct of assessment activities; and/or a certificate of successful completion from a “train-the-trainer” course. A train-the-trainee course must be based on IMO model course 6.09 (Training Course for Instructors) or another Coast Guard-accepted syllabus which covers the following areas:

- identification of training needs;
- learning processes;
- course design;
- teaching methods;
- recognition of individual capacity;
- identification of performance standards;
- presentation techniques and use of media;
- assessment of knowledge;
- assessment of skills and abilities;
- measurement of progress toward training objectives and of adequate performance;
- favorable and unfavorable conditions for learning and assessment;
- the role of incentive and motivation in learning;
- use of feedback for performance improvement;
- and course evaluation.

Special instruction or experience involving use of simulators in assessment is necessary if the Designated Examiner is to use simulators when conducting assessments.

A specialist in a particular field of non-maritime education (such as mathematics or first aid), is not required to hold a maritime license or document to conduct assessment in that field. A specialist is someone whose expertise, experience and current practice are concentrated within a particular subject matter.

A faculty member employed at a State maritime academy or the U.S. Merchant Marine Academy operated in accordance with 46 CFR Part 310 and instructing in a navigation or engineering course is qualified to serve as a Designated Examiner in their area(s) of specialization without individual evaluation by the Coast Guard. This reflects the fact that faculty members at these institutions undergo a rigorous evaluation process before being employed as instructors.

- (3) *Does use of a simulator in training or assessment activities affect the requirements I must meet to become a Designated Examiner?*

Yes. If a simulator is used, you must gain practical assessment experience on the particular type of simulator being used under the supervision and to the satisfaction of an experienced assessor, and receive guidance in instructional techniques involving the use of simulators. Such guidance or instruction should include development of and sequencing of simulated scenarios which have specific assessment objectives and which ensure that a mariner's performance can be measured against the relevant assessment criteria.

(4) *Is it necessary for the Coast Guard to certificate me as a Designated Examiner?*

No, a Coast Guard Certificate or Letter is not required. You may be identified as a Designated Examiner as part of a Coast Guard course approval or as part of a Coast Guard-accepted program of training and assessment. In these cases, the review of your qualifications takes place at the time the Coast Guard approves a course (see reference(b)), or during an audit conducted under a quality standards system (see reference (c)).

However, if you have a certificate of completion from a "train-the-trainer" course approved by the Coast Guard or based on IMO Model Courses or other Coast Guard-accepted training program, and have evidence that you have at least 36 weeks of experience as an instructor in the maritime field, you may obtain a letter from the Coast Guard stating your special qualification as a Designated Examiner. The letter may be limited to your field of experience. The letter will include a special reference to allow for assessments with certain classes of simulator when there is evidence to support this qualification. Procedures for receiving such a letter are discussed below.

(5) *How can I obtain a Coast Guard letter of qualification as a Designated Examiner?*

You must send a request, along with supporting documentation, to:

Director, National Maritime Center
NMC-4B
4200 Wilson Boulevard, Suite 510
Arlington, VA 22203-1804
Telephone Number: (703) 235-1864/74

Documentation should include:

- (a) a certificate of completion from a "train-the-trainer" course which is approved by the Coast Guard or based on IMO Model Courses or other Coast Guard-accepted training program;

- (b) evidence that you have at least 36 weeks of experience as an instructor in a maritime field; and
- (c) evidence of operational experience relevant to the field of maritime training in which you wish to act as a Designated Examiner. The letter will be limited to your documented field of experience and will include a special reference to allow for assessments with certain classes of simulator when there is documentation to establish this qualification. Enclosure (1) is a sample Letter of Recognition.

(6) *Is there a fee for processing this letter?*

No, there is no application or processing fee for a letter of recognition as a Designated Examiner.

(7) *How long will my Coast Guard letter of qualification as a Designated Examiner be valid?*

Your letter of recognition is valid for five years. It will be revoked, however, if you sign or initials a statement attesting to an individual's competence without having personally witnessed a practical demonstration of the individual's skill or ability, which in your professional judgment, meets an acceptable level of performance.

(8) *What must I do to renew my letter of recognition?*

To renew your letter of recognition, you must submit evidence of your most recent experience as a Designated Examiner, and of your continued ability to assess the competence of merchant mariners in the appropriate fields of maritime training.

(9) *Can I serve as both a Qualified Instructor and Designated Examiner?*

Instruction and assessment are separate activities. The regulations in 46 CFR Parts 10 and 12 do not prohibit you from conducting both activities. It is essential, however, for you to :

- (a) be qualified as both a Qualified Instructor and a Designated Examiner, and
- (b) for you to maintain clear separation between activities conducted to meet learning objectives, and activities conducted for the purpose of assessing competence in a skill or ability.

Routine tests, quizzes, examinations, problems, and practical exercises conducted to assess student progress during an on-going training program are not considered assessments of competence for the purposes of meeting a regulatory qualification and may be given by a Qualified Instructor.

5. ACTION. OCMI's should use this circular as guidance for oversight of training and assessment programs offered in their zone.

R. C. NORTH
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Marine
Safety and Environmental Protection

Encl: (1) Sample of Letter of Recognition

Non-Standard Distribution:

B:a G-MSO(4); G-MOC(4); G-MOA(2); G-MSE(1); G-MSR(1); G-M(1); G-MS(1)

C:e New Orleans (90); Hampton Roads (50); Baltimore (45); San Francisco (40); Philadelphia, Port Arthur, Honolulu, Puget Sound (35); Miami, Houston, Mobile, Morgan City, Los Angeles/Long Beach (25); Jacksonville, Portland OR, Boston, Portland ME, Charleston, Galveston, Anchorage, Cleveland, Louisville, Memphis, Paducah, Pittsburgh, St. Louis, San Juan, Savannah, Tampa, Chicago, Buffalo, Detroit, Duluth, Milwaukee, San Diego, Juneau, Valdez, Providence, Huntington, Wilmington, Corpus Christi, Toledo, Guam (20).

C:m New York (70); Sturgeon Bay (4).

D:l CG Liaison Officer MILSEALIFTCOMD (Code N-7CG) (1).

RSPA (DHM-22), CG Liaison Officer MARAD (MAR-720.2) (1).

NOAA Fleet Inspection Officer (1).

Commandant

United States Coast Guard

4200 Wilson Boulevard, Suite 510
Arlington, VA 22203-1804
Staff Symbol: NMC-4B
Phone: (703202) 267-0214
Fax: (703)235-1062

16700
Seq. No./CY
DD mmm yy

LETTER OF RECOGNITION DESIGNATED EXAMINER

Individual's name
Address
Address
City, State ZIP

Dear :

Your credentials have been evaluated and the Coast Guard has determined that you are qualified for recognition as a "designated examiner" in accordance with Navigation and Vessel Inspection Circular XX-97. Your qualifications are subject to the conditions set out below.

You are entitled to conduct assessments of individual competence in the following areas of maritime training:

[Enter name of course or training and assessment program and code used for identifying the course or program in the Coast Guard records system.] [Add any special qualification for using a type of simulator for assessment, if applicable

As merchant mariners must now demonstrate their competency in a host of areas to obtain an STCW certificate or endorsement, and, eventually, a Coast Guard license or document, the U.S. Coast Guard is placing a good deal of trust in your professional competence, judgment and behavior.

In performing your function as a designated examiner, you may only use your signature or initials to indicate you have personally witnessed the demonstration of a skill or ability by the person being assessed and have found that individual, in your professional judgment, to be competent under the relevant criteria and using good professional judgment. This letter will be revoked if you sign or initial a statement attesting to an

individual's competence without having personally witnessed a practical demonstration of the individual's skill or ability, which in your professional judgment, meets an acceptable level of performance.

When acting as a designated examiner to meet a regulatory requirement, you should include in the record of assessment your full name as well as an identification number using the first three digits of your last name and the date of issue of this letter (i.e., [insert first three digits of addressee's last name and the date of the letter as: XXXmmdyy]).

This letter is valid for five years. At the time of renewal you should be prepared to submit evidence of your continued ability to assess the competence of merchant mariners in the above identify fields of maritime training in accordance with NVIC X-97.

We greatly appreciate your willingness to serve as a designated examiner. This role is critical to maintaining high professional standards among U.S. merchant mariners.

Sincerely,

Director, National Maritime Center
By direction



COMDTPUB 16700.4
NVIC 9 01
NOV 30 2001

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 9 01

Subj: GUIDANCE ON STCW QUALITY STANDARDS SYSTEMS (QSS) FOR MERCHANT MARINER COURSES OR TRAINING PROGRAMS

1. PURPOSE.

- a. This NVIC provides information for organizations that wish to serve as a QSS on behalf of the U. S. Coast Guard.
- b. Training and assessment activities required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) must be monitored as part of a QSS. The U. S. Coast Guard's course-approval process described in Title 46, Code of Federal Regulations (46 CFR), section 10.302 and the oversight program described in Commandant Instruction 16721.1, *Standards for Oversight of Licensing and Seaman's Certification Activities*, comprise the U. S. Coast Guard's QSS for training courses or programs required by the STCW.

2. ACTION. Officers in Charge, Marine Inspection should bring this NVIC to the attention of maritime interests within their areas of responsibility. Internally, it will be distributed electronically. It will also be available on the World Wide Web at <http://www.uscg.mil/hq/g-m/nvic/index.htm>.

3. DIRECTIVES AFFECTED. NVIC 7-97, COMDTPUB 16700.4 is superseded and cancelled.

4. BACKGROUND.

- a. In 1993, the International Maritime Organization embarked on a comprehensive revision of the STCW to reduce human error as a major cause of marine casualties. On July 7, 1995, a conference of Parties to the International Convention on Standards of Training,

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Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) adopted amendments which entered into force on February 1, 1997.

- b. The U. S. Coast Guard implemented the 1995 amendments by publishing an interim rule on June 26, 1997, that modified 46 CFR parts 10, 12, and 15 and incorporated the 1995 amendments into the domestic regulations. Title 46 CFR 10.309 and 46 CFR 12.03-1 now require entities offering training required by STCW to be monitored “in accordance with a U. S. Coast Guard-accepted quality standards system.”
- c. The STCW details the training required for masters, officers and ratings and then broadens its scope to those activities that directly impact that training. It recognizes that training, both on-the job and formal, is an integral and vital part of career development. It acknowledges that on-the-job training has taken place between senior and junior personnel and has been a part of a long-standing maritime tradition. It formally captures training in a training record book or other record of training and establishes responsibilities for companies operating seagoing vessels. It recognizes the criticality of all training, and requires the establishment of criteria for those conducting training and assessing skills. It also requires organizations offering training required by the STCW to be monitored by a QSS, the subject of this NVIC. This function can be accomplished either by the U. S. Coast Guard or by a U. S. Coast Guard-accepted QSS.

5. DISCUSSION.

- a. The STCW seeks to ensure the highest standards for functions and processes relating to a mariner’s competence. To do this, all training, assessments of competence, certification, endorsement, and revalidation activities regarding STCW certificates must be monitored by a QSS. The U. S. Coast Guard’s QSS encompasses the above plus the processes of applying for, obtaining, issuing, upgrading, and renewing a U. S. Coast Guard-issued license or document.
- b. The U. S. Coast Guard’s course approval system described in 46 CFR 10.302 and NVIC 5-95, *Guidelines for Organization Offering Coast Guard Approved Course*, satisfies the mandatory requirements of the STCW for a QSS in the area of training. However, due to the scope of the STCW’s training requirements, the U. S. Coast Guard decided to expand its partnerships with industry. Enclosure (1) lays out the criteria for an entity that seeks acceptance as a QSS to review and monitor training on behalf of the U. S. Coast Guard. These entities will be called U. S. Coast Guard-accepted QSS organizations.
- c. The STCW’s recommended guidance for a QSS, contained in the STCW Code B-1/8, describes a quality management system paralleling ISO 9000 guidelines. Elements of quality management are part of the guidelines for becoming a U. S. Coast Guard-accepted QSS organization. While these are not mandatory requirements for organizations offering training, the U. S. Coast Guard agrees with the concepts of quality management and has made these recommendations a voluntary option for training organizations.
- d. The implementation of the STCW ushered in a number of new concepts and terms. Additionally, the STCW works in concert with the International Safety Management (ISM) Code. These concepts, terms, and interactions are defined and discussed below:

- (1) **QUALITY STANDARDS SYSTEM (QSS)** A system that provides for, and ensures through, the acceptance and monitoring of mariner training that such training provides the highest standards of merchant mariner competence. The existing U. S. Coast Guard course approval process is part of the U. S. Coast Guard's overall QSS; it ensures training is designed, offered, and monitored in accordance with the U. S. Coast Guard's standards.
 - (2) **U. S. COAST GUARD-ACCEPTED QSS ORGANIZATION** An organization meeting the standards contained in this NVIC and recognized by the U. S. Coast Guard as competent to act in lieu of the U. S. Coast Guard for the purposes of review, acceptance, and oversight of training courses and programs.
 - (3) **ACCEPTED TRAINING** Training that has been reviewed and accepted by a U. S. Coast Guard-accepted QSS organization will be termed "U. S. Coast Guard-accepted." This training will have the same weight and acceptance as U. S. Coast Guard-approved training within the licensing and documentation process.
 - (4) **ON-BOARD TRAINING**
 - (a) In some areas, the STCW requires on-board training as a requirement for an STCW certificate. An approved or accepted training program that includes on-board training must have the details of the on-board training included in the overall program approval issued by the U. S. Coast Guard or the acceptance by a U. S. Coast Guard-accepted QSS organization.
 - (b) ISM Code-certified, shipping companies should refer to paragraph 5.f to assess their options. Non-ISM Code-certified shipping companies wishing to offer their crews on-board training creditable toward an STCW certificate must ensure the training conforms to U. S. Coast Guard standards or have it reviewed and accepted by a recognized QSS.
 - (5) **QUALIFIED INSTRUCTORS AND DESIGNATED EXAMINERS** Training and assessments required by the STCW must be conducted by persons trained and qualified to perform these tasks. A qualified instructor is an individual who has been trained or instructed in instructional techniques of training. A designated examiner is an individual who has been trained or instructed in techniques of training and assessment and is qualified to evaluate whether a candidate has achieved the required level of competence. Information about the acceptance of ships' officers serving as assessors of practical skills that can only be completed aboard ship are available on the STCW web site, <http://www.uscg.mil/STCW/s-home.htm>.
- e. Enclosure (2) is a list of all training that a QSS may review and accept on behalf of the U. S. Coast Guard. Enclosure (3) is a list of all training reserved for review and approval only by the U. S. Coast Guard. Enclosure (4) lists training required by the STCW, but which does not require either approval or acceptance. New training required by statute, treaty, regulation or new technology will be reviewed by the U. S. Coast Guard to determine which agencies will be authorized to serve as the QSS for such training.
 - f. The ISM Code also contains requirements for training; however, it does not prescribe specific requirements for the training program. Therefore, a training program simply by

virtue of being under the ISM umbrella may not necessarily meet the STCW criteria. Specifically, the U. S. Coast Guard requires an enhanced level of detail before approving a course as well as periodic oversight by either the U. S. Coast Guard or an organization accepted as a QSS. For a shipping company certified under the ISM Code that wishes to have ISM-required training meet the STCW, it must be approved by the U. S. Coast Guard or accepted by a QSS.

- (1) An organization that conducts ISM Code certification on behalf of the U. S. Coast Guard may also serve as a QSS for training if accepted as such in accordance with enclosure (1).
- (2) The ISM Code requires newly assigned crewmembers to be familiarized with the vessel to which they are reporting. This ISM Code requirement is identical to STCW regulation I/14. Satisfying the ISM Code for shipboard familiarization also satisfies STCW regulation I/14-1.4. This training does not have to be U. S. Coast Guard-accepted or -approved.
- (3) The ISM Code requirement for shipboard familiarization is not sufficiently detailed to meet the requirements for training required by STCW regulation V/1-1.2 (Tanker familiarization). This training must be approved or accepted by a QSS.
- (4) STCW regulations V/2-5 and V/3-5 require familiarization training for personnel serving on passenger vessels. This training is not required to be approved or accepted by a QSS, and providing familiarization training is a responsibility of the vessel's operator. ISM Code familiarization training may also meet the STCW's requirements for familiarization training if it covers the areas set forth in the respective sections of part A of the STCW Code.

6. IMPLEMENTATION.

- a. All training creditable towards STCW certification must meet standards established by the U. S. Coast Guard, or it must be accepted by a U. S. Coast Guard-accepted QSS organization. The QSS will also monitor that training. In accepting training, the QSS will, at a minimum, ensure the training covers the subject areas in the model courses developed by the International Maritime Organization (IMO) and listed in enclosure (2).
- b. Organizations wishing to serve as a QSS, and accept and monitor training on behalf of the U. S. Coast Guard, should apply to the U. S. Coast Guard's National Maritime Center (NMC) in accordance with enclosure (1). An organization submitting an application may not act as a U. S. Coast Guard-accepted QSS until it has received its letter of acceptance. Review of an application to serve as a QSS normally requires 60 to 90 days.
- c. Except for the courses listed in enclosure (3), training organizations may elect to have the U. S. Coast Guard or a U. S. Coast Guard-accepted QSS serve as its QSS. Training currently approved by the U. S. Coast Guard retains that approval until its expiration date. At that time, a training organization may either have the training re-approved by the U. S. Coast Guard or accepted by a U. S. Coast Guard-accepted QSS organization.
- d. A training organization wishing to switch its QSS must ensure that it receives approval from the organization to which they are switching before the expiration of the current

approval or acceptance. The NMC must be notified in writing of the change and include the name of the new QSS organization, the effective date of the change, and the courses accepted by the new QSS.

- e. NVIC 5-95 provides information about the submittal of courses to the U. S. Coast Guard for approval. Courses submitted to a U. S. Coast Guard-accepted QSS organization should conform to the standards established by the U. S. Coast Guard-accepted QSS organization and should encompass the same content as submissions to the U. S. Coast Guard as described in NVIC 5-95.
- f. A list of U. S. Coast Guard-accepted QSS organizations is available on the World Wide Web at <http://www.uscg.mil/STCW/m-achome.htm>.
- g. U. S. Coast Guard-accepted QSS organizations must be completely independent and may not exercise direct or indirect managerial or financial control through contract or understanding over any training organization for which they serve as the QSS. Likewise, a training organization may not exercise direct or indirect managerial or financial control through contract or understanding over any U. S. Coast Guard-accepted QSS organization that serves as its QSS.
- h. A training organization choosing to be monitored by U. S. Coast Guard-accepted QSS organization must grant the QSS the same access granted to the U. S. Coast Guard. A U. S. Coast Guard-accepted QSS organization must have convenient access to all appropriate documents and facilities, and opportunities both to observe all appropriate activities and to conduct confidential interviews when necessary. Arrangements must be such that persons representing the U. S. Coast Guard-accepted QSS organization are not rewarded, directly or indirectly, by the training organization for making any particular observations or for reaching any particular conclusions.



PAUL J. PLUTA
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Marine Safety
and Environmental Protection

- Encl : (1) Guidance for becoming a U. S. Coast Guard-accepted QSS organization
 (2) Training that may be accepted by a U. S. Coast Guard-accepted QSS
 (3) Training that may be approved only by the U. S. Coast Guard
 (4) Training that is not required to be approved or accepted

GUIDANCE FOR BECOMING A U. S. COAST GUARD-ACCEPTED QSS
ORGANIZATION

1. INTRODUCTION. An organization wishing to become a U. S. Coast Guard-accepted QSS organization must have processes for reviewing, accepting, and monitoring training that is equal or superior to the U. S. Coast Guard's course approval and oversight processes. This enclosure describes the processes an organization must establish to be acknowledged as a U. S. Coast Guard-accepted QSS organization.

2. SUBMISSION REQUIREMENTS. An organization wishing to become a U. S. Coast Guard-accepted QSS organization should send their documentation to:

Commanding Officer, National Maritime Center (NMC-4B)
U. S. Coast Guard
4200 Wilson Boulevard, Suite 630
Arlington, VA 22203-1804

Prospective QSS organizations may contact the NMC to discuss the scope and depth of their documentation prior to final submission.

3. ELEMENTS REQUIRED TO BE SUBMITTED FOR REVIEW. The documentation submitted to the U. S. Coast Guard must contain the elements listed below. An organization approved as a recognized classification society in accordance with 46 CFR part 8, subpart B, need not present evidence of compliance with paragraphs 3.a and 3.k below.
 - a. Identification of the Organization.
 - (1) Name of the organization and its organizational structure. If it is an independent organization, provide an organizational chart of senior management down to the auditor level. If it is part of a larger organization, chart the QSS department and its chain of responsibility up to the Chief Executive Officer and down to the auditor level; and
 - (2) Name, address, contact information (telephone and fax numbers and e-mail address), and organizational position of the person who will serve as the point of contact with the U. S. Coast Guard.

 - b. Scope and Background of the Organization.
 - (1) Areas of maritime training and assessment which the organization wishes to monitor;
 - (2) Examples of situations, if any, in which the organization is being employed, or has been employed previously, as the accepting agent for review and acceptance of training and/or assessment activities;

- (3) Samples of audits, if any, of training or assessment activities previously completed by the organization; and
 - (4) Criteria for selection of sub-contractors. A U. S. Coast Guard-accepted QSS organization may use persons not exclusively affiliated with the QSS organization provided such persons are subject to the quality assurance system of the QSS organization.
- c. Staffing for the Organization.
- (1) Names and qualifications of the individuals who would actually review, accept, and monitor maritime training and assessment, [see 46 CFR 10.309(a)(10)(ii)];
 - (2) Description of any training given to individuals who will be conducting review, acceptance, and monitoring activities; and
 - (3) Staffing must be adequate to perform the duties the organization must perform in carrying out review and oversight functions.
- d. Support Infrastructure. Include technical and support resources within the organization that support the review, acceptance, and monitoring activities.
- e. Submission Guidelines. Provide guidelines required for client organizations to submit courses, assessments, or other functions for review and acceptance. These guidelines should include criteria on course design, instructor/evaluator qualifications, syllabi, equipment, and facilities.
- f. Liaison Between the Organization and the NMC. Provide information about on-going liaison between the organization and the NMC. Organizations are urged to allow NMC participation in the development of new, or revision of existing, submission criteria; training review; and acceptance procedures. This will support information exchange between the organization and the NMC. The NMC will send any changes of relevant regulations or instructions to the organization, and the organization must provide to the NMC any changes in its submission criteria or review and acceptance procedures.
- g. Review and Acceptance Procedures.
- (1) Descriptions of the methods of evaluation of the physical, administrative and infrastructure support aspects of client organizations [see 46 CFR 10.309(a)(2)];
 - (2) Descriptions of the methods of evaluation of the instructors and designated examiners of a client organization and the maintenance of their records [see 46 CFR 10.309(a)(3), (4) and (7)];
 - (3) Description of format for accepting training material, including training record books [NOTE: The U. S. Coast Guard has accepted the IMO Model Course format. Any variations from this format must be justified. NVIC 6-97 may be used for guidance on training record books.];

- (4) Once training has been accepted, the period of its validity [NOTE: If different for initial acceptance and renewal, state reasons.];
 - (5) Sample document showing training acceptance;
 - (6) Descriptions of the methods by which the course acceptance process responds to requests for modification of the training curriculum by a client organization;
 - (7) Descriptions of the methods by which the course acceptance process responds to requests for changes in instructors or examiners by a client organization;
 - (8) Descriptions of the methods by which the course acceptance process responds to requests for changes in the physical, administrative, and infrastructure support aspects of a client organization; and
 - (9) Descriptions of the procedures for renewal of an acceptance of a training course that is nearing expiration.
- h. External and Internal Auditing Procedures. Descriptions of the methods of auditing client organizations including:
- (1) Specimen forms which will be used in conducting audits (initial evaluation and periodic audits);
 - (2) Instructions issued to those conducting the audits;
 - (3) Guidance issued to the client organization to prepare for an announced audit;
 - (4) Procedures used when a client organization is either unable to pass an initial evaluation or is found not to comply with established procedures during a periodic audit. This should include disenrollment procedures;
 - (5) Procedures for following up on deficiencies;
 - (6) Sample report for submitting audit results to the client organization and the NMC. These reports must be submitted within 30 days of completion of the audit [46 CFR 10.309(a)(11)]; and
 - (7) Frequency of audits.
- i. Record Keeping. Address the records required for internal and external audits. Record keeping requirements for the training organization must ensure compliance with 46 CFR 10.309(a)(9).

j. Contractual Relationship with Training Organizations. Provide a specimen agreement(s) used to establish a contractual relationship between a client organization and the QSS organization. This agreement should ensure compliance with 46 CFR 10.309(a)(10)(i) and (ii) in that it contains a binding commitment to provide access to:

- (1) Training sites, syllabi, material, aids, manuals, equipment, and facilities;
- (2) Instructor qualifications and evaluations;
- (3) Designated examiner qualifications and evaluations;
- (4) Examination and assessment protocols;
- (5) Student records; and
- (6) Relevant administrative policies and procedures including, but not limited to, student admission requirements, staff recruitment and appraisal, and functions of, or performed by, subcontractors.

The agreement(s) must also ensure:

- (7) Adequate opportunities for visiting the training facility, observing activities, and discussing training and assessment activities with students, instructors, assessors and administrators. This includes the freedom to make unannounced audits;
 - (8) Unconditional release of information to be included in the audit report submitted to the U. S. Coast Guard;
 - (9) Complete independence for those performing audit activities and report preparation;
 - (10) Adequate procedures for removing acceptance from specific training or functions that have documented deficiencies [NOTE: 46 CFR 10.309(c) describes procedures for removal of specific training acceptance through a U. S. Coast Guard appeal process and may be incorporated into the contractual agreement. However, the procedure in 46 CFR 10.309(c) does not preclude a U. S. Coast Guard-accepted QSS organization from describing its own terms for removal of specific training acceptance.];
 - (11) Procedures for dis-enrolling a client organization from acceptance; and
 - (12) Procedures for addressing grievances between a client organization and the U. S. Coast Guard-accepted QSS organization. This should include an appeal process.
- k. Quality Commitment. Provide evidence of a firm commitment to the operation of a high quality organization. Commitment of senior management is critical to the success of quality management. Organizations that are ISO 9000 certified already demonstrate this commitment, and proof of ISO 9000 certification will satisfy this requirement. The breadth and scope of the elements in a quality management system are dependent upon the

objectives, methods, and administrative practices unique to an organization. This commitment can be demonstrated by establishing a quality management system that includes the following key elements:

- (1) Quality Policy – Senior management must clearly articulate and document its quality policy. As all employees impact the quality of the acceptance and monitoring of training, this policy must be understood by all members of the organization.
- (2) Responsibility and Authority – The personnel who manage and perform work affecting the quality of the monitoring function (review, acceptance, and auditing) should be identified. Adequate authority should be delegated to individuals to allow them to identify, record, and resolve problems within their areas of responsibility.
- (3) Management Representative – Management shall appoint an individual to ensure that the quality practices are established, implemented, and maintained. This individual is the recommended choice for liaison with the U. S. Coast Guard.
- (4) Management Review – Management should review the effectiveness of the quality management efforts at routine intervals and make appropriate revisions when necessary. The scope and timetable for these internal quality assurance reviews should be established between management and the U. S. Coast Guard. In no case should it be less than twice in five years with a minimum of two years between reviews. The review should include:
 - (a) The organizational structure (monitoring and support systems), including the adequacy of staffing and resources;
 - (b) How well quality management is being implemented;
 - (c) Reviews of information about customer satisfaction, internal feedback, evaluation results, assessment criteria and documented improvements;
 - (d) A listing of discrepancies and a plan of action for correcting them; and
 - (e) Conclusions and recommendations for improving the effectiveness of the organization.
- (5) Documentation of Quality Management Procedures – A quality management system includes the organizational structure, responsibilities, procedures, and resources which ensure quality monitoring. The range and detail of these procedures are dependent upon the complexity of the work, the methodology used, and the skill and training required by the personnel carrying out the activity. These procedures should be documented in a quality manual as set forth in ISO standard 10013, *Guidelines for Developing Quality Manuals*. It is recommended that the QSS organization consult the U. S. Coast Guard on the scope of their quality management implementation prior to final drafting of the quality manual.

- (6) Document and Data Control – Clear identification of what is to be controlled, and who is responsible for controlling the approval, issue, distribution, modification, and administration of documentation, including the removal of obsolete documents. This applies to internal and external documents.
 - (7) Assessment of Sub-Contractors – Clear identification of how sub-contractors are chosen. This should include a review of previous performance in supplying similar products or services, and assessment of the supplier's commitment to quality, and periodic review of supplier performance.
 - (8) Process Control – The characteristics that are most critical to the quality of the monitoring-of-training function should be identified and controlled. This includes the procedures for reviewing, accepting, and auditing training.
 - (9) Oversight Issues – Procedures should be established and maintained to determine when the monitoring-of-training function is not in conformance. This involves the performance of those individuals who review, accept, and audit training. It should address how deviations from standards are identified and what corrective actions must occur.
 - (10) Records – Records should be maintained to demonstrate effective operation of quality management. This includes audit records, training submissions and their evaluations/responses, auditor qualifications, and auditor-training.
 - (11) Training – Establish and maintain documented procedures for identifying training needs and providing training for all personnel performing activities affecting quality.
 - (12) Code of Ethics – The organization should be governed by the principles of ethical behavior contained in a published Code of Ethics. This Code should recognize the inherent responsibility associated with this delegation of authority.
4. COURSE/TRAINING PROGRAM IDENTIFICATION. When an organization receives approval as a U. S. Coast Guard-accepted QSS organization, it will be given a unique identifier to be used when identifying the courses it accepts. Details for complete course identification will be provided when an organization is approved.
 5. U. S. COAST GUARD NOTIFICATION. U. S. Coast Guard-accepted QSS organizations must notify the NMC of the training they have accepted within 14 days of the acceptance date. The notification must include the name and address of the client institution, the course's title, the STCW or regulatory requirement the course meets, and a one-paragraph description of the course's content.
 6. CHANGE OF OWNERSHIP. Any time a U. S. Coast Guard-accepted QSS organization changes ownership, the new senior management of the organization must, within 90 days of the change of ownership, reconfirm the processes and organization used to conduct acceptance of merchant mariner training. Failure to reconfirm with the NMC within 90 days of the change of ownership will result in the disenrollment of the organization as a U. S. Coast Guard-accepted QSS organization.

7. REQUIRED AUDITS OF U. S. COAST GUARD-ACCEPTED QSS ORGANIZATIONS.

- a. Internal Quality Assurance Reviews. An organization must conduct internal quality assurance reviews (audits) not less than twice in five years with a minimum of two years between reviews. Record keeping requirements and reporting formats for these reviews should be established by the organization.
- b. Independent Evaluations – Each U. S. Coast Guard-accepted QSS organization will be audited at least once every five years by the NMC. Continued service as a U. S. Coast Guard-accepted QSS organization is contingent upon satisfactory results of these audits. Audit procedures are available from the NMC. The U. S. Coast Guard will send the audit results to the QSS organization within 60 days of the completion of the audit. Audit results should be kept with the organization's original approval letter.

8. REQUIRED REPORTS.

- a. Internal quality assurance reviews – Results of the internal quality assurance reviews must be submitted to the NMC within 60 days of their completion.
- b. Independent evaluations – Results of an independent evaluation done by the NMC will be available to the audited organization within 60 days of the completion of the audit.
- c. U. S. Coast Guard-accepted QSS organization audits – Results of audits of client organizations conducted by the QSS organization must be submitted to the NMC within 30 days of completion of the audit [46 CFR 10.309(a)(11)].

9. U. S. COAST GUARD OVERSIGHT.

- a. Oversight is integral to ensuring the integrity of this program. The U. S. Coast Guard reserves the right to audit training organizations that are served by U. S. Coast Guard-accepted QSS organizations in the same way it audits the client organizations for which it provides course approval.
- b. The U. S. Coast Guard will provide in writing the results of its audits of client organizations that are served by U. S. Coast Guard-accepted QSS organizations to both the client organization and the U. S. Coast Guard-accepted QSS organization.

10. ENROLLMENT AS A U. S. COAST GUARD-ACCEPTED QSS ORGANIZATION. Once an organization has been approved as a U. S. Coast Guard-accepted QSS organization, it will receive a letter from the NMC granting it the authority to accept the training listed in this NVIC for which it qualifies. No organization may act as a U. S. Coast Guard-accepted QSS organization until it has received its letter of acceptance.

11. DISENROLLMENT AS A U. S. COAST GUARD-ACCEPTED QSS ORGANIZATION.

- a. Voluntary – A U. S. Coast Guard-accepted QSS organization must give each client organization it serves a 180-day notice of its intention to disenroll the client organization

as a U. S. Coast Guard-accepted QSS organization. This enables the client organization time to take the necessary steps to have their training accepted by another U. S. Coast Guard-accepted QSS organization or approved by the NMC.

- b. Involuntary -If the U. S. Coast Guard determines that a U. S. Coast Guard-accepted QSS organization is not meeting its obligations, the NMC will notify the organization in writing and enclose information about the events that led to this determination. The organization will then have a specified period to correct the deficiencies or appeal the conclusions to the Director of the Field Activities Directorate (G-MO) in U. S. Coast Guard Headquarters. If the organization appeals and the appeal is denied, or the deficiencies are not corrected within the allotted time, the NMC will disenroll the organization from the list of U. S. Coast Guard-accepted QSS organizations. The NMC will notify all client organizations affected by this decision so that they may make arrangements to transfer to another U. S. Coast Guard-accepted QSS organization or seek NMC approval for their training. This transfer must take place within 180 days of notification that their U. S. Coast Guard-accepted QSS organization has been disenrolled.

TRAINING THAT MAY BE ACCEPTED BY A COAST GUARD-ACCEPTED QSS

TRAINING FOR INDIVIDUAL CERTIFICATION

NAME OF TRAINING	STCW REF.	COMMENTS
Automatic Radar Plotting Aid (ARPA)	A-II/1 A-II/2	Required by deck officers serving on vessels equipped with ARPA. A CG-accepted QSS may approve a course if the simulator(s) conforms to STCW standards and the protocol developed by the Coast Guard's Research and Development Center. ¹ IMO model course 1.07
Bridge resource management (i.e., bridge team training)	A-II/1 A-II/2	Completion of formal training course is not required by STCW; however, many deck officers elect to complete a course in lieu of on-the-job training.
Global Maritime Distress and Safety System (GMDSS)	A-IV/2	Required for deck officers on vessels equipped with GMDSS systems. IMO model courses 1.25 and 1.26
Medical first aid provider	A-VI/4-1	IMO model course 1.14
Person in charge of medical care	A-VI/4-2	Required for applicants as officer in charge of a navigational or engineering watch. IMO model course 1.15
Proficiency in survival craft and rescue boats other than fast rescue boats/lifeboatman	A-VI/2-1Reg VI/	Required for able seaman (AB) endorsement where service is not limited to non-lifeboat equipped vessels; applicants for lifeboatman endorsements; and applicants for certification as an officer in charge of a navigational or engineering watch. All applicants for lifeboatman must meet standards for proficiency in survival craft. See 46 CFR 12.10. IMO model course 1.23
Proficiency in fast rescue boats	A-VI/2-2	See NVIC 3-00
Radar observer	A-II/1; A-II/2	See 46 CFR 10.305 and 15.815. Course may be accepted if simulator(s) conforms to STCW standards and the protocol developed by the Coast Guard's Research and Development Center. ¹ Courses using other simulators must be approved by the U. S. Coast Guard. IMO model courses 1.07, 1.08, and 1.09
Rating forming part of an engineering watch	A-III/4	Required for applicants for a qualified engineering watchstanding rating.
Rating forming part of a navigational watch	A-II/4	Required for applicants for an AB endorsement.
Signaling	A-II/1	
Training program for officer in charge of a navigational watch	A-II/1	IMO model course 7.03
Training program for officer in charge of an engineering watch	A-III/1	IMO model course 7.04

Note 1. Available from the National Maritime Center (NMC-4B)

TRAINING THAT MAY BE ACCEPTED BY A COAST GUARD ACCEPTED QSS
VESSEL SPECIFIC TRAINING

NAME OF TRAINING	STCW REF.	COMMENTS
TRAINING FOR PERSONS SERVING ON TANKERS ²	A-V/1	Formal training is also required for persons serving on vessels not subject to the STCW. See 46 CFR part 13. IMO model courses 1.01, 1.02, 1.04, and 1.06
Tankerman - PIC - DL		See 46 CFR 13.121 and STCW A-V/1 paragraphs 8 - 21
Tankerman - PIC - LG		See 46 CFR 13.121 and STCW A-V/1 paragraphs 22 - 34
Tankerman assistant - DL or LG		See 46 CFR 13.121 and STCW A-V/1 paragraphs 1 - 7
Tankerman engineer - DL or LG		See 46 CFR 13.121
TRAINING FOR CERTAIN PERSONS ON RO-RO PASSENGER SHIPS	A-V/2	The four subordinate elements of required training are listed. See STCW cite to determine which personnel are required to complete each element of training
Crowd management		IMO model course 1.29
Safety training		IMO model course 1.29
Passenger safety, cargo safety, and hull integrity training		IMO model course 1.28
Crisis management and human behavior		IMO model course 1.28
TRAINING FOR CERTAIN PERSONS ON PASSENGER SHIPS OTHER THAN RO-RO PASSENGER SHIPS	A-V/3	The four subordinate elements of required training are listed. See STCW cite to determine which personnel are required to complete each element of training
Crowd management		IMO model course 1.29
Safety training		IMO model course 1.29
Passenger safety		IMO model course 1.28
Crisis management and human behavior		IMO model course 1.28

Note: 2 PIC is person-in-charge; DL is dangerous liquid; LG is liquefied gas

TRAINING THAT MAY BE ACCEPTED BY A COAST GUARD-ACCEPTED QSS

OTHER REQUIRED TRAINING

NAME OF TRAINING	STCW REF.	COMMENTS
BASIC SAFETY TRAINING		Comprises the following four training elements
Personal survival techniques	A-VI/1-1	IMO model course 1.19
Personal safety and social responsibility	A-VI/1-4	IMO model course 1.21
Elementary first aid including CPR	A-VI/1-3	IMO model course 1.13
Fire Prevention and firefighting	A-VI/1-2	IMO model course 1.20

TRAINING THAT MAY BE APPROVED ONLY BY THE U. S. COAST GUARD

NAME OF TRAINING	STCW REF.	COMMENTS
Radar observer	A-II/1; A-II/2	See 46 CFR 10.305 and 15.815 Courses in which the simulators do not meet either the STCW's standards or the protocol developed by the U. S. Coast Guard's Research and Development Center must be approved by the U. S. Coast Guard.
Any training for which sea service credit is given for completion of the training		Does not include signaling.
Any training that substitutes in whole or in part for a professional examination		Required for applicants as officer in charge of a navigational or engineering watch. IMO model course 2.03
Firefighting - advanced	A-VI/3	
Firefighting - basic for tankerman	V/1	See 46 CFR 13.121 for the scope of this training. IMO model course 1.20

REQUIRED TRAINING THAT IS NOT REQUIRED TO BE APPROVED OR ACCEPTED

NAME OF TRAINING	STCW REF.	COMMENTS
Familiarization training	A-VI/	See STCW A-I/14 and 46 CFR 15.1105
Training for persons serving on Ro-Ro passenger ships and passenger ships other than Ro-Ro passenger ships	A-V/2 paragraph 2 A-V/3 paragraph 2	All training for persons serving on passenger ships other than that specified in the reference must be approved or accepted.

IMPORTANT - DISCLAIMER

The following document has been edited by the NOAA Small Boat Safety Program.

THE DOCUMENT IS BEING PROVIDED FOR THE SOLE PURPOSE AS A REFERENCE FOR THE 2003 NOAA SMALL BOAT WORKSHOP ATTENDEES.

The document has been edited to remove extraneous information which is not applicable to workshop discussions.

The document may be NOAA policy, draft NOAA policy, or the policy, guidelines, standards, instructions, procedures, or orders of other public agencies or professional boating interests.

Every effort has been made to ensure that the following document is correct and current.



Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-MSO-1
Phone: (202)267-0229
FAX: (202)267-4570

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NVIC 3 02
4 JANUARY 2002

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 3 02

Subj: GUIDELINES FOR ASSESSMENT OF MERCHANT MARINERS' PROFICIENCY IN SURVIVAL-CRAFT OR RESCUE-BOATS THROUGH DEMONSTRATIONS OF SKILLS

- Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulation VI/2 and Section A-VI/2 of STCW Code, incorporated into regulations at 46 CFR 12.01-3
 (b) Federal Register dated May 3, 2000, Docket No. USCG-2000-7288-1, Guidelines for Assessing Merchant Mariners' Proficiency Through Demonstrations of Survival-Craft Skills
 (c) Guidelines for Assessing Merchant Mariners' Proficiency Through Demonstrations of Survival-Craft Skills, Docket No. USCG-2000-7288, Available at: <http://dms.dot.gov>

- PURPOSE.** This Circular provides the national performance assessment guidelines for the assessment of merchant mariners' proficiency through demonstrations of survival-craft or rescue-boat skills. These guidelines are for use in training programs approved or accepted by the Coast Guard as meeting reference (a) and by designated examiners (DEs) when carrying out their assessments.
- ACTION.** Officers in Charge, Marine Inspection (OCMIs), should use this Circular when establishing that candidates are entitled to hold STCW-95 certificates attesting proficiency in either survival-craft or rescue-boat skills. OCMIs should also bring this Circular to the attention of the appropriate people in the maritime industry within their zones. This Circular is available on the World Wide Web at <http://www.uscg.mil/hq/g-m/nvic/>. Within the Coast Guard, it will be distributed by electronic means only.

DISTRIBUTION – SDL No. 137

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3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

- a. The guidance from the International Maritime Organization (IMO) on shipboard assessments of proficiency, MSC/Circular 853, suggests that administrations should develop standards and measures of performance for practical tests as part of a program of training and assessment of mariners. These standards and measures ensure that mariners will be uniformly assessed without regard to individuality of the DEs and will result in standardization, fairness, and consistency. Enclosure (1) provides an overview of the Coast Guard's policy on assessments of mariners as required by the STCW.
- b. The Coast Guard tasked the Merchant Marine Personnel Advisory Committee (MERPAC) to make recommendations for national assessment criteria for certification attesting proficiency in either survival-craft or rescue-boat skills. The National Maritime Center (NMC) then used MERPAC's recommendations to develop proposed national guidelines which were published for public comment in references (b) and (c). There was one response to the request for public comment. MERPAC's recommended guidelines included "knowledge" competencies not included within the national guidelines. The national guidelines focus solely on the practical demonstrations of a mariner's competency. As a result of this process, the final version of the national guidelines contained in enclosures (2) and (3) came about.

5. DISCUSSION.

- a. All merchant mariners who commence training or sea service required by the STCW on or after August 1, 1998, or all merchant mariners applying for STCW certification attesting proficiency in either survival-craft or rescue-boat skills on or after February 1, 2002, are required by 46 CFR 12.10-5(d) or 12.10-9(a) to present documentation demonstrating competence in those skills specified in the appropriate tables of enclosures (2) or (3). The practical demonstrations of skills must otherwise be completed in the presence of, and certified by, a DE. Unless a mariner demonstrates proficiency in the survival-craft or rescue-boat skills required in either enclosure (2) or (3), the OCMI will not issue the STCW certification,
- b. A person assessing mariners for STCW certification attesting proficiency in either survival-craft or rescue-boat skills should use the guidelines in either enclosure (2) or (3) or an alternative as discussed in paragraph 5. c when assessing practical demonstrations of proficiency.
- c. Those who assess the proficiency of mariners may refine these published guidelines and develop innovative alternatives; however, any deviations from these guidelines must be submitted to the NMC for Coast Guard approval before use. A training institution submitting a course that leads to certification attesting proficiency in survival-craft or rescue-boat skills should either state that the guidelines in enclosure (2) or (3) will apply or otherwise identify the guidelines to be used.

- d. Merchant mariners required to demonstrate proficiency through demonstrations of either survival-craft or rescue-boat skills should use these guidelines for self-study and self-assessment.



PAUL J. PLUTA
ASSISTANT COMMANDANT FOR MARINE
SAFETY & ENVIRONMENTAL PROTECTION

- Encl: (1) Assessments of Mariners
(2) Assessment Guidelines for Table A-VI/2-1, Proficiency in Survival-Craft Skill Demonstrations
(3) Assessment Guidelines for Table A-VI/2-1, Proficiency in Rescue-Boat Skill Demonstrations

Non-Standard Distribution:

B:a G-M(1); G-MS(1); G-MSO (4)

D:1 CG Liaison Officer MILSEALIFTCOMD (Code N-7CG) (1); CG Liaison Officer MARAD (MAR-720.2) (1).

ASSESSMENTS OF MARINERS

1. ASSESSMENT OF SKILLS.

- a. All mariners who commence training or sea service required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), on or after August 1, 1998, or all mariners who apply for STCW certification attesting proficiency in survival-craft or rescue-boat skills on or after February 1, 2002, must demonstrate to a designated examiner (DE) minimum competency in certain knowledge, understandings, and proficiencies. Without evidence to this effect, no endorsement will be issued.
- b. Traditionally, in the United States, the Coast Guard has measured mariners' competency through assessments of knowledge. Knowledge-based components of this competency usually involve the recalling of facts or concepts, and written examinations are normally valid and reliable instruments for assessing such components. Historically, the Coast Guard has issued licenses and documents based predominantly on written essay and multiple-choice examinations. Currently, the Coast Guard employs a bank of over 25,000 multiple-choice questions to examine mariners.
- c. Assessment of understanding is more complex than assessment of knowledge. Understanding involves specific principles and information processes necessary to analyze alternatives, make conclusions, make choices and decisions, or affect outcomes. Because it is a covert characteristic, understanding must be ascertained through assessment of an overt behavior that demonstrates understanding. Ascertainment can employ a variety of mechanisms, ranging from written problems involving calculations or analysis of facts to practical demonstrations requiring diagnostic or analytical reasoning. Many of the Coast Guard's 25,000 written questions for multiple-choice examinations involve problems that assess an understanding; but, in many instances, complete understanding is best measured through actual assessment of a mariner's performance.
- d. Guidance provided by the IMO on certain assessments of proficiency requires development of standards and measures of performance for practical tests as part of seafarers' training programs. This is a new requirement for many flag-state administrations and their maritime industries. Performance assessment is part of a larger, well established body of knowledge called instructional system design (ISD). Within this body, assessment methodologies range from the simple and straightforward to the complex and difficult. For the purposes of STCW, the Coast Guard believes the simplest and most straightforward approach works best and has decided to develop a set of national guidelines. In these, a performance standard has three components: the condition, the behavior, and the criteria. The first establishes the conditions under which the candidate must demonstrate the knowledge, understanding or proficiency.

The second specifies the precise set of knowledge, understandings, or skills (the 'behaviors') that must be recalled, demonstrated or performed. The third is the particular acts against which we measure an applicant's behavior to determine if the performance can be considered minimally competent.

- e. The third component is normally expressed in terms of "measures" or combinations of "measures," such as a time limit or requirement, a specific sequence, a number or a percentage, a tolerance, or a degree of conformance or accuracy required. For highly critical skills, the criteria may require precise answers, require exact sequences of actions, or have very small tolerances of errors or degrees of conformance. For instance, missing just one step of a sequence may constitute failure because that step was critical to achieving the final outcome. In less-critical skills, wider tolerances or degrees of conformance may pass; however, in every case the applicant must demonstrate the minimal level of competence set forth in the criteria.

2. DEVELOPMENT OF STANDARDS.

- a. While the STCW Code gives broad guidance on the standards of performance and methods of assessment, the responsibility for the development of specific performance standards for each competency lies with the training provider. Development of valid and reliable performance standards is a resource-intensive effort. To minimize cost to the industry, promote uniformity, expedite the development process, and provide valid examples of these new performance standards, the Coast Guard asked that the Merchant Marine Personnel Advisory Committee (MERPAC) develop recommendations for a set of these standards.
- b. MERPAC developed the core elements of a set of these standards and forwarded them to the Coast Guard. We reviewed the initial recommendations and compared them to the requirements of the STCW. We incorporated the final products into the proposed national assessment guidelines and published them in the Federal Register for public comments. After considering the comments, we have made them the standards for identifying minimum levels of competence during demonstrations of a mariner's proficiency.
- c. We encourage companies and maritime training institutions to use the national guidelines for assessment of STCW proficiencies in training programs submitted for our approval or for acceptance by a recognized quality-standards system. They should use them during STCW proficiency assessments conducted by their DEs. They may develop alternative assessment standards; however, they may not use these in accepted or approved training programs until we have reviewed and approved them.

3. WRITTEN EXAMINATIONS.

- a. Written examinations used in training programs under the STCW deserve particular emphasis. Companies and maritime training institutions should review their written instruments for assessing each knowledge-based and understanding-based competency from the STCW to ensure they include at least one question for each competency in the appropriate table from Part A of the STCW Code.
- b. Companies and maritime training institutions should also have multiple questions for addressing each knowledge-based and understanding-based competency from the STCW to afford candidates a fair opportunity to demonstrate minimum ability. If only one question assessed a required knowledge or understanding, an incorrect answer would constitute a failure to have demonstrated the knowledge or understanding and would leave the candidate ineligible to have that competency certified by the DE, unless the DE used an alternative method. Accordingly, it would be preferable for the assessment to contain several questions. For example, in a written multiple-choice examination, if four questions concerned the same critical knowledge, three correct answers and one incorrect answer would meet the requirements for minimum competency if the performance standard was a 70% score. In this case the mariner would qualify as competent for that knowledge.

Assessment Guidelines for TABLE A-VI/2-1

Proficiency in Survival-Craft Skill Demonstrations

Skills that must be demonstrated:

1. Give correct commands for launching and boarding a survival-craft
2. Prepare and safely launch a survival-craft
3. Safely recover survival-craft
4. Start and operate a survival-craft engine
5. Steer (command) a survival-craft under oars
6. Row a survival-craft
7. Use of survival-craft equipment
8. Rig devices to aid location

Knowledge based competencies may be assessed through a written multiple-choice examination. The student must achieve a minimum-passing grade of 70%.

Skill demonstrations

As part of an approved Proficiency in Survival-Craft course, students must meet the standards of competence set out in STCW Code Table A-VI/2-1. Each student must perform each required demonstration.

Using actual equipment, students must correctly demonstrate the skills listed above. The students will demonstrate their ability to steer (command) a lifeboat under oars and carry out rowing commands in a survival-craft. Students steering the lifeboat will demonstrate getting underway, steering a straight course, turning to port in the shortest possible distance, turning to starboard in the shortest distance, stopping, and going astern while steering as straight a course as possible using both rudder and oars. For candidates for proficiency in survival-craft other than fast rescue-boats who serve on vessels that don't carry lifeboats, the assessment criteria should be modified as required to evaluate the launch, operation, and recovery of rescue-boats. Assessment guidelines for launching and recovery of rescue-boats are included here. If candidates only demonstrate the launching and recovery of rescue-boats other than fast rescue-boats, the certificate issued will be restricted to service on vessels that are not required to carry lifeboats. The assessment guidelines for rescue-boats follow those for lifeboats.

1. DEMONSTRATION: Give correct commands for launching and boarding a survival-craft

Given a lifeboat properly stowed on a gravity davit system, when hearing the abandon ship signal or the order to lower the lifeboat, the student will give the correct commands to launch the boat.

Following each performance objective is the same expression in a columnar format:

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Take care of a survival-craft during and after launch.	Command launching the lifeboat.	Using a lifeboat properly stowed on gravity davits, when hearing an abandon ship signal or the order in English to lower the lifeboat,	the candidate will command launching the boat.	<ol style="list-style-type: none"> 1. Commands were issued in proper sequence. 2. All tasks to launch the boat were verified. 3. The boat was launched in ten minutes.

If the candidate properly carries out all the tasks listed, and launches the lifeboat in ten minutes, he or she passes. If the candidate fails to properly carry out any task, or fails to launch the boat in ten minutes, he or she fails the practical examination. If the candidate fails, he or she should receive remedial training and be re-examined.

2. DEMONSTRATION: Prepare and safely launch a survival-craft

Given a lifeboat properly stowed on a gravity davit system, when given orders to perform tasks necessary to prepare and launch a lifeboat, the candidate will correctly perform the tasks.

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Take care of a survival-craft during and after launch.	Launch the lifeboat.	Using a lifeboat properly stowed on gravity davits,	<p>the candidate will perform the following tasks:</p> <ol style="list-style-type: none"> 1. ready the boat for launch; 2. pass the sea painter; 3. secure the sea painter; 4. attend the frapping lines; 5. release tricing pendants; and 6. operate winch and brake. 	<p>The candidate:</p> <ol style="list-style-type: none"> 1. removed boat cover and strong backs; plugged drain; readied man ropes; shipped tiller; checked that the painter was secure to thwart; and removed gripes; 2. led the painter inside falls and outboard of all obstructions; 3. removed slack and secured well forward by a round turn and figure eights on the bits; 4. passed frapping lines around falls after the tricing pendants pulled boat into side of the ship, and slacked as ordered during the boat's descent; 5. on command, let go tricing pendants; and 6. on command, lifted brake release and lowered boat.

2. DEMONSTRATION: Safely recover survival-craft

Given a lifeboat in the water, the candidate will command bringing the lifeboat under the falls, hooking the boat to the falls, raising the boat to the embarkation deck, raising the boat to its stowed position, and securing the boat.

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Take charge of a survival-craft during and after launch.	Safely recover a lifeboat.	Using a lifeboat in the water,	the candidate will command: <ol style="list-style-type: none"> 1. bringing the lifeboat under the falls; 2. hooking the boat to the falls; 3. raising the boat to the embarkation deck; 4. raising the boat to its stowed position; and 5. securing the boat. 	<ol style="list-style-type: none"> 1. Commands were issued in proper sequence. 2. All tasks needed to recover the boat were verified. 3. The boat was recovered and secured within 15 minutes.

3. DEMONSTRATION: Start and operate a survival-craft engine

Given a lifeboat equipped with an inboard engine, the candidate will start and operate the engine.

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Operate a survival-craft engine.	Start and operate a lifeboat engine.	In a lifeboat equipped with an inboard engine,	the candidate will start and operate the lifeboat engine.	<ol style="list-style-type: none"> 1. The oil and cooling water levels were in accordance with manufacturer's recommendations. 2. Actions taken to start the engine were in accordance with operator's manual for the type of engine, hand crank, electric, or hydraulic. 3. The engine was operated in forward, neutral, and reverse.

7. DEMONSTRATION: Rig devices to aid the location of a lifeboat

Given a lifeboat radar reflector, the candidate will correctly rig the lifeboat radar reflector and position the SART.

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Use locating devices, including communication and signaling apparatus and pyrotechnics.	Use signaling apparatus.	Given a survival-craft radar reflector and a SART,	the candidate will correctly rig the following devices to aid location: 1. the boat's radar reflector; and 2. the survival-craft SART.	1. The radar reflector was rigged to maximize its radar return. 2. The SART was positioned to maximize its signal output.

8. DEMONSTRATION: Use of survival-craft equipment

Given a SOLAS approved lifeboat, the candidate will demonstrate the correct use of the lifeboat equipment.

STCW competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Use locating devices, including communication and signaling apparatus and pyrotechnics.	Demonstrate correct use of survival-craft equipment.	Using a SOLAS approved lifeboat,	the candidate will demonstrate the correct use of the following equipment: 1. bilge pump; 2. rainwater collection device; 3. sea anchor; and 4. thermal protective aids.	1. The bilge pump was readied for pumping. 2. The rain-water collection device was correctly deployed. 3. The deployment of the sea anchor was simulated. 4. A TPA was correctly donned.

Assessment Guidelines for TABLE A-VI/2-1

Proficiency in Rescue-Boat Skill Demonstrations

STCW Competence	Knowledge, understanding and proficiency (KUP)	Performance Condition	Performance Behavior	Performance Standard
Take charge of a rescue-boat during and after launch.	Command launching the rescue-boat.	Using a rescue-boat properly stowed on single-arm davit, mounted on a pier or a ship, when hearing an order in English to lower the rescue-boat,	the candidate will command the launching of a rescue-boat.	<p>The candidate issued the following orders in proper sequence and verified they were properly carried out:</p> <ol style="list-style-type: none"> 1. remove boat cover and securing lines; put in drain plugs if fitted, check fuel- and lube-oil levels, test engine, and make sure all rescue gear is aboard; 2. check that the sea painter is properly attached; 3. secure control lines (if fitted) at rescue-boat bow and stern; 4. check that the out drive has been lowered; 5. swing rescue-boat to the embarkation position; and 6. lower rescue-boat to water*. <p>* If it is unsafe for the rescue-boat crew to ride the rescue-boat from the embarkation position to the water, this task should be simulated.</p>
Launch the rescue-boat.	Launch the rescue-boat.	Using a rescue-boat properly stowed on single-arm davit, mounted on a pier or a ship, when hearing the orders in English to prepare and lower the rescue-boat,	<p>the candidates, acting as members of the launch crew, will prepare and launch a rescue-boat.*</p> <p>*Candidates will be rotated through all assigned tasks to determine if they have achieved competence.</p>	<p>When ordered, the candidate correctly performed the following tasks:</p> <ol style="list-style-type: none"> 1. readied the rescue-boat for launch; 2. properly passed and secured the sea painter and control lines (if fitted); 3. lowered the outdrive; 4. positioned the rescue-boat at the embarkation site; and 5. lowered the boat on command.

STCW Competence	Knowledge, understanding and proficiency (KUP)	Performance Condition(s)	Performance Behavior	Performance Standard
Operate a rescue-boat engine.	Operate the rescue-boat during launch.	Using a rescue-boat, when hearing the order in English to man the rescue-boat,	the candidate will act as coxswain and operate the rescue-boat during launch.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. boarded the rescue-boat; 2. when afloat, started the engine; 3. ordered the release of the releasing hook, after control line (if fitted), forward control line (if fitted), and painter; and 4. departed the ship's side at a shallow angle.
Operate the rescue-boat during launch.	Operate the rescue-boat during launch.	Using a rescue-boat, when hearing the order in English to man the rescue-boat,	the candidate will act as a member of the rescue-boat crew and will carry out all commands during launch.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. boarded the rescue-boat; 2. released the releasing hook, after control line (if fitted), forward control line (if fitted), and painter; and 3. fended off as ordered.
Take charge of a rescue-boat during recovery.	Recover the rescue-boat.	Given a rescue-boat in the water connected to the fall of a single-arm davit, mounted on a pier or a ship, when hearing the orders in English to recover and stow a rescue-boat,	<p>the candidate will act as a member of the recovery crew and will recover and stow the rescue-boat.*</p> <p>*Candidates will be rotated through all assigned tasks to determine if they have achieved competence.</p>	<p>When ordered, the candidate correctly performed the following tasks:</p> <ol style="list-style-type: none"> 1. lowered the painter and control lines to the appropriate height above the water; 2. tended the forward and after control lines (if fitted); 3. lowered the hook; 4. hoisted the rescue-boat to the disembarkation position while tending the control lines (if fitted)*; 5. disembarked the rescue-boat crew; 6. swung the rescue-boat to its stowed position; and 7. properly secured the rescue-boat. <p>* If it is unsafe for the rescue-boat crew to ride the rescue-boat from the water to the disembarkation position, this task should be simulated.</p>

Knowledge, understanding and proficiency	Knowledge, understanding, and proficiency (KUP)	Performance Condition(s)	Performance Behavior	Performance Standard
	Operate the rescue-boat during recovery.	Using a rescue-boat in the-water and connected to the fall of a single-arm davit, mounted on a pier or a ship, when hearing the order in English to return to the ship,	the candidate will operate the rescue-boat during recovery.	<p>The candidate:</p> <ol style="list-style-type: none"> 1. positioned the rescue-boat under the sea painter eye; 2. directed the crew to grab the sea painter; 3. rode the painter until the boat was in the appropriate position; 4. directed the crew to secure the sea painter on his/her command; 5. directed the crew to secure the forward control line (if fitted), and the after control line (if fitted); 6. directed the crew to secure the releasing hook to the rescue-boat bridle; and 7. secured the engine properly as safety required.
	Command the recovery and stowage of the rescue-boat.	Given a rescue-boat in the water connected to the fall of a single-arm davit, when hearing the order in English to recover the rescue-boat,	the candidate will command the recovery and stowage of the rescue-boat.	<p>The candidate issued the following orders in proper sequence and verified they were properly carried out:</p> <ol style="list-style-type: none"> 1. lower the painter and control lines to the appropriate height above the water; 2. tend the forward and after control lines (if fitted); 3. lower the hook when he/she signals for it; 4. hoist the rescue-boat to the disembarkation position while tending the control lines (if fitted)*; 5. disembark the rescue-boat crew; 6. swing the rescue-boat to its stowed position; and 7. properly secure the rescue-boat. <p>* If it is unsafe for the rescue-boat crew to ride the rescue-boat from the water to the disembarkation position, this task should be simulated.</p>

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-95

Electronic Version for Distribution on the World Wide Web

Subj: GUIDELINES FOR ORGANIZATIONS OFFERING COAST GUARD APPROVED COURSES

1. PURPOSE.

- a. A Focus Group was established in 1993 to advise the Chief of Marine Safety, Security and Environmental Protection on ways to improve the marine licensing program. The resulting report, Licensing 2000 and Beyond, recommended an increased emphasis on formal training through Coast Guard approved courses and strengthened oversight of the approved courses.
- b. This Circular provides guidance to organizations concerning:
 - (1) Application procedures for approval of a course,
 - (2) Required administrative procedures and record keeping for course offerors,
 - (3) Coast Guard oversight procedures to ensure the courses are taught in accordance with the established guidelines, and
 - (4) Renewal procedures.

2. DISCUSSION.

- a. A course may be approved by the Coast Guard for three reasons: the course is required by regulations (e.g. radar, firefighting, first aid, etc.); the course may substitute for a Coast Guard examination; or the course may substitute for a portion of the sea service required for obtaining a license or merchant mariner's document.
- b. Coast Guard approval of a training course is authorized in Title 46, Code of Federal Regulations, Part 10, Subpart C (46 CFR 10, Subpart C).

3. IMPLEMENTATION.

- a. Requesting Approval of a Course.
 - (1) Training Institutions. An organization desiring to have a course approved by the Coast Guard must submit a written request to the Merchant Vessel Personnel Division at Coast Guard Headquarters (G-MVP-3) via the Officer in Charge, Marine Inspection (OCMI) of the nearest Regional Examination Center (REC) listed in enclosure (1). The request must meet the requirements specified in the model course outline (enclosure (2)).

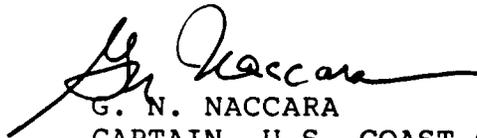
- (2) OCMI. The OCMI reviews the application package to ensure it is complete and in accordance with the model course outline, visits the training facility, and interviews the intended instructors.
 - (3) Commandant (G-MVP-3). Headquarters reviews the application package to ensure the course meets the standards for the type of training intended and that all submissions are evaluated consistently.
 - (4) Additional Information. Specific, course-content requirements have been developed for courses required by regulations. Copies of the requirements can be obtained through the local REC.
 - (5) International Maritime Organization (IMO) Model Course Format. The model course outline contained in enclosure (1) was developed using the IMO model course format. Any variations from the model shall be justified in the cover letter.
- b. Operation of the Course.
- (1) Approved Curriculum. Approved courses must be taught from an approved curriculum. Any changes to the approved curriculum must be submitted to Commandant (G-MVP-3) via the OCMI for evaluation and written approval.
 - (2) Acceptance of New Instructor. After initial course approval, review for acceptance of additional or replacement faculty is done at the REC level.
 - (3) Records. A training facility offering a Coast Guard approved course must maintain a file at the training facility for at least one year after the end of each student's enrollment. The file must contain the student's examinations, a report of practical tests administered, and a record of classroom attendance. If a course is approved to be taught in more than one location, the records may be maintained at one central location identified in the course approval package.
 - (4) New Training Site. Review for acceptance of a facility is done at the REC level.
 - (5) Course Completion Certificates. Course completion certificates must contain the signature of the approved course instructor/director or equivalent, the name of the course, the name of the school and the date of completion.
- c. Coast Guard Oversight.
- (1) Purpose of Coast Guard Oversight. The Coast Guard considers oversight of training programs to be of critical importance in ensuring compliance with the course approval letter and ensuring that seafarers are provided training that meets at least the minimum requirements. Oversight audits verify that stipulations of the Coast Guard approval letter and 46 CFR 10.303 are followed, and that only accepted instructors teach the approved course.
 - (2) Types of Audits. There are three types of audits: announced, unannounced and customer survey. An announced audit may be conducted either with or without prior notification. The purpose of an announced audit is to review the records

and to monitor a course with the knowledge of school personnel. An unannounced audit is conducted when representatives from the Coast Guard, either civilian or military, attend the course anonymously. A customer survey audit is conducted by REC personnel who interview applicants when a certificate of completion from an approved course is submitted with a license application.

- (3) Results. All audits are followed-up by a letter discussing the results of the audit. If an announced audit is conducted, the results will be discussed with school personnel prior to the auditors departing the school.

d. Renewal.

- (1) Period of Approval. Initial approvals are effective for a period of two years. Subsequent five-year renewal periods may be granted subject to a written request to Commandant (G-MVP-3), U.S. Coast Guard, via the OCMI.
- (2) Approval Renewal Requests. A request for the renewal of an approved course should be submitted to the responsible REC at least 90 days before the current approval expires. Courses submitted for renewal shall be in the same format as original submittal. To facilitate the renewal process, all changes should be highlighted. If there have been no changes since the last approval, a statement to the effect that the curriculum, instructors and facilities are the same should accompany the submittal.
- (3) Coast Guard Visit. When a school with an existing approved course submits a renewal request, Coast Guard representatives will visit the school as part of their evaluation and note their findings in the forwarding letter to Commandant (G-MVP-3).



G. N. NACCARA
 CAPTAIN, U.S. COAST GUARD
 ACTING CHIEF, OFFICE OF MARINE SAFETY,
 SECURITY AND ENVIRONMENTAL PROTECTION

U.S. COAST GUARD REGIONAL EXAMINATION CENTERS

U.S. Coast Guard
 Marine Safety Office
 510 L. St.
 Suite 100
 Anchorage, AK 99501-1946
 (907)271-6735

Commanding Officer (REC)
 U.S. Coast Guard
 Marine Safety Office
 2760 Sherwood Lane, Suite ~
 Juneau, AK 99801-5845
 (907)463-2450

Commanding Officer (REC)
 U.S. Coast Guard
 Marine Safety Office
 6767 N. Basin Ave.
 Portland, OR 97217-3992
 (503)240-9346

Commanding Officer (REC)
 U.S. Coast Guard

Commanding Officer (REC)
 U.S. coast Guard

Commanding Officer (REC)
 U.S. Coast Guard

Marine Safety Office
Customhouse
Baltimore, MD 21202-4022
(410)962-5132

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
455 Commercial Street
Boston, MA 02109-1045
(617)223-3040

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
196 Tradd Street
Charleston, SC 29401-1817
(803)724-7693

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
433 Ala Moana Blvd. Rm 1
Honolulu, HI 96813-4909
(808)522-8259

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
8876 Gulf Freeway, Suite 210
Houston, TX 77017-6595
(713)947-0044

Marine Safety Office
165 N. Pico Avenue
Long Beach, CA 90802-1096
(562) 980-4485

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
200 Jefferson Ave.
Suite 1301
Memphis, TN 38103-2300
(901)544-3297

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
6th Floor, Federal Bldg.
51 S.W. 1st Avenue
Miami, FL 33130-1608
(305)536-6548

Commanding Officer (REC)
U.S. coast Guard
Marine Safety Office
1440 Canal Street, Eighth Floor
New Orleans, LA 70112-2711
(504)589-6183

Commanding Officer (REC)
U.S. Coast Guard
Marine Inspection Office
Battery Park Bldg.
New York, NY 10004-1466
(212)668-6395

Marine Safety Office
Room 1.211
1222 Spruce Street
St. Louis, MO 63101-2835
(314)539-2657

Commanding Officer
U.S. Coast Guard (REC)
Marine Safety Office
Building 14,
Coast Guard Island
Alameda, CA 94501-5100
(510)437-3096

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
1519 Alaska Way S., Bldg. 1
Seattle, WA 98134-1192
(206)217-6115

Commanding Officer (REC)
U.S. Coast Guard
Marine Safety Office
Federal Bldg., Rm. 101
234 Summit St.
Toledo, OH 43604-1590
(419)259-6395

MODEL COURSE OUTLINE

INTRODUCTION: The course curriculum package must include the following:

- a. Cover Letter.
- b. Course Framework.
- c. Course Schedule.
- d. Detailed Teaching Syllabus.
- e. Course Outline.
- f. Instructor Manual.
- g. Examination.
- h. Course critique.

COVER LETTER: The cover letter from the school must contain the name of the course, the location where it will be held, a general description of the course, and what type of approval is being sought:

- a. To satisfy a specific regulatory requirement (e.g. radar, firefighting, first aid, etc.).
- b. To qualify for sea service credit.
- c. To substitute for an examination requirement.

COURSE FRAMEWORK: This section provides an overview of the purpose, nature, and individual components of the course.

Scope. A brief description of the course.

Objective. A statement discussing the goal(s) and learning objective(s) of the course.

Entry standards. A list of the prerequisites for a student to attend the course.

Class limitations.

Class size: State the maximum class size for classroom lessons and, if appropriate, for practical demonstrations or simulation program lessons, along with the number of the students per simulator.

Student/teacher ratio: State the student/teacher ratio and discuss the organization's policy for circumstances when more than one instructor will be present during any of the lessons.

Instructors. A list of instructors with a description of their experience, background and qualifications to demonstrate they have the capability to impart the required information to the students. Instructors should have experience in teaching or have attended a course in instruction techniques. In addition, the instructor must hold a valid Coast Guard license, document or certificate appropriate to the course(s) being taught or have experience specific to the subject(s) being taught.

Teaching facilities and equipment.

Facility: The address and a description of the facility at which the training will be held.

Course equipment: A description of the equipment that will be used during the course. This includes all equipment to be used during hands-on training and/or testing, and any simulators or

simulation programs to be used. If a simulator or simulation program is to be used, include technical specifications and brochures provided by the manufacturer.

Teaching aids.

Visual aids: Copies of all visual aids and a discussion of how audiovisual and other aids will be used during the training course, and which performance objectives they will impact. This information may be a part of the curriculum documentation that discusses the make up of the lesson plans.

Textbooks: Copies of all student handouts, homework assignments, workbooks, and a bibliography of the student textbooks to be used. The Coast Guard may ask for copies of textbooks it does not have access to, and will return the texts after the course has been evaluated.

DETAILED TEACHING SYLLABUS: The Detailed Teaching Syllabus is written in learning objectives format in which the objective describes what the student must do to demonstrate that the specific knowledge or skill has been learned. References should be made against the learning objectives to indicate which publications and teaching aids the instructor may use when preparing and presenting the course material. The syllabus shall include the total length of each subject area in hours. See figure (1) for a sample detailed teaching syllabus.

COURSE SCHEDULE: The course schedule is submitted in a format similar to figure (2). The course schedule shall include the length of each lesson and indicate whether the lesson is a classroom lecture, practical demonstration, simulator exercise or examination. Each subject matter in the course schedule is prefaced by a number that corresponds to the subject area listed in the Detailed Teaching Syllabus and Course Outline. For example, all lessons prefaced by "8" in the course schedule directly relates to the Planning and Carrying Out a voyage subject area listed in the Detailed Teaching Syllabus and Course Outline.

COURSE OUTLINE: The course outline is a summary of the syllabus by subject area with the number of hours for each lecture, practical demonstrations, or simulation program. This shows the focus of the course while highlighting how the course meets IMO and Coast Guard time requirements. See figure (3) for a sample course outline.

INSTRUCTOR MANUAL: The instructor's manual provides specific guidance on teaching strategies and techniques used during course instruction. The manual shall address the presentation strategies for each lesson identified in the course schedule.

EXAMINATION AND ASSESSMENT:

Method of examination: An explanation shall be included of how the students' performance will be evaluated throughout the course. Include whichever is applicable:

Written examinations: Copies of all written examinations, the grading procedure to be used, frequency of revision, and what will be considered a passing score.

Practical demonstrations: Detailed descriptions of all practical or simulator examinations, tests, or exercises that describe the situation presented to the student; what the students must do to successfully complete each test; and how each student's performance will be evaluated and recorded. Provide a separate checklist to evaluate each practical examination and what is considered a passing score.

Note: Instructors shall not assist students in any way during the evaluation process.

Determination of final grade. A discussion of how the instructor(s) will determine final grades by proportioning written and practical examination scores as appropriate.

Re-test procedures: A description of the school's policy on re-tests of failed examinations.

COURSE CRITIQUE: Student course evaluation form(s) are a necessary method by which students are given the opportunity to provide feedback to the school on the suitability of the course.

FIGURE 1

SAMPLE DETAILED TEACHING SYLLABUS

USING A SHIPHANDLING COURSE AS AN EXAMPLE

**Detailed Teaching
Syllabus**

The detailed teaching syllabus has been written in learning-objective lot-mat in which the objective describes what the trainee must do to demonstrate that the specific knowledge or skill has been transferred.

All objectives are understood to be prefixed by the words *the expected learning outcome is that the trainee -----*

In order to assist the instructor, references are shown against the learning objectives to indicate IMO references and publications and teaching aids, which the instructor may wish to use when preparing and presenting the course material. The material listed in the course framework has been used to structure the detailed teaching syllabus:
in particular,

Teaching aids (indicated by A). and

IMO references (indicated by R)

will provide valuable information to instructors. The abbreviations used are:

App.: appendix

p.,pp.: page, pages

Para.: paragraph

Reg.: regulation

Learning Objectives

- 1 Review of basic principles (2 hours)
 - .1 states the basic principles to be observed in keeping a navigational watch as set out in regulation 11/1 of STCW 1978 regarding:
 - watch arrangements
 - navigation
 - navigational equipment
 - navigational duties and responsibilities
 - navigation with pilot embarked
 - .2 describes the properties of the different chart projections used for navigation

- .3 states the datums used on charts for:
 - position
 - height
 - depth
 - direction
- .4 lists methods commonly available for position fixing, with an indication of their accuracy
- .5 e-w - corrections for datum shift must be a-led to the position obtained by certain navigational aids to agree with the position obtained by visual or radar observations
- .6 states the accuracy of range and bearing measurements required by the performance standards for radar equipment
- .7 describes factors affecting radar detection, including blind and shadow sectors
- .8 explains how the characteristics of targets influence their detection range
- .9 demonstrates how to obtain fix based on radar observations and c-Ins possible errors and how to minimize them
- .10 demonstrates the use of parallel indexing technique: for monitoring a ship's movement
- .11 demonstrates the use of nautical publications ions, including:
 - tide tables
 - current charts
 - notices 10 mariners
 - lists of lights
 - sailing directions
- 2 familiarization with the bridge (1.5 hours)
 - .1 demonstrates the operation of the different instruments on the bridge
 - .2 uses the rudder and the engine controls
 - .3 describes and allows for the parallax in the visual system (if any)
- 3 Standard manoeuvres (3.5 hours)
 - .1 carries out a turning-circle trial with given initial speed and rudder angle in the loaded condition
 - .2 describes how to carry out zig-zag manoeuvres
 - .3 carries out a crash stop
 - .4 carries out a coasting stop

- .5 repeats one manoeuvre from objectives 3.1 to 3.4 for the same ship in the ballast condition
 - .6 records times, positions, headings. speed and other relevant data
 - .7 plots the manoeuvres from the recorded data
 - .8 compares plots for loaded and ballast conditions
 - .9 describes how trim affects the pivot point during turns
 - .10 demonstrates how to make a pilot card and a wheelhouse poster
 - .11 explains how the information in the manoeuvring information booklet can be used when planning a manoeuvre
- 4 Wind and current effects (2 hours)
- .1 repeats a standard manoeuvre with wind and current present for the loaded condition
 - .2 repeats the manoeuvre in objective 4.1 for the ballast condition
 - .3 records times, positions, headings. speeds and other relevant data
 - .4 plots the manoeuvres from the recorded data
 - .5. compares the result with that of the same manoeuvre without wind and current
 - .6 compares the results for loaded and ballast conditions
 - .7 compares the difference in ship behavior under the influence of wind. of current and of both wind and current
 - .8 for various conditions of loading. investigates the effect of wind in slow speed situations
- 5 Shallow-water effects (4 hours)
- .1 defines shallow water
 - .2 states that, in shallow water, a ship:
 - has increased directional stability
 - has an increase in turning radius
 - carries her way longer and responds slowly to changes in engine speed
 - has a smaller fall of speed during turns
 - experiences a change of trim, usually by the head for a full hull form
 - .3 states that shallow-water effects become more marked as the depth decreases
 - .4 defines squat

- .5 determines the squat in a-given.set of circumstances from the manoeuvring information supplied
 - .6 repeats a standard manoeuvre in shallow water
 - .7 records times. positions, headings, speeds and other relevant data
 - .8 plots the manoeuvre from the recorded data
 - .9 compares the resulting plot with that of the same manoeuvre carried out in deep water
 - .10 describes the reduction in under-keel clearance resulting from rolling and pitching
- 6 Bank, channel and interaction effects (1.5 hours)
- .1 describes the moments and forces affecting a ship's behavior when navigating close to a bank or in narrow channel
 - .2 states that speed should be moderate in rivers, estuaries and similar channels to reduce shallow-water effects and to provide reserve power for correcting a sheer
 - .3 explains the need for speed reduction to prevent damage being caused by the ship's bow wave or stem wave
 - .4 describes how a passing ship affects a moored ship
 - .5 describes the interaction between passing and overtaking ships
 - .6 describes how to pass or overtake another ship safely in a narrow channel
 - .7 applies a knowledge d bank effect and interaction in exercises in confined channels
- 7 Anchoring and single-buoy mooring (2.5 hours)
- .1 selects the position to anchor in a given area
 - .2 takes account of advice contained in sailing directions, of the wind and Of current or tidal stream in the approach' to the anchorage
 - .3 using the ship's manoeuvring data, prepares an anchoring containing:
 - approach tracks and courses to steer
 - “wheel-over” positions
 - points at which to reduce speed
 - the position at which to reverse the engine
 - the position to drop the anchor
 - means of monitoring progress and determining arm- at critical points
 - .4 prepares a contingency -I outlining the actions to take in the event of an engine failure or steering failure at various stages of the approach
 - .5 uses a checklist for readiness for anchoring

- .6 carries out the prepared anchoring
 - .7 modifies the plan, if necessary, to take account of other ships already anchored
 - .8 maintains a record of engine movements and makes appropriate entries in the log-book
 - .9 when anchoring is complete. fixes the .ship's position and enters check bearings in the log-book
 - .10 prepares a planned approach to a single-buoy mooring. taking account of the relevant factors in objectives 7.2 to 7.4
 - .11 carries out the planned mooring
- 8 Planning and carrying out a voyage (13 hours)
- .1 prepares a complete passage plan from harbour to harbour, taking account of the following:
 - information from sailing directions and other navigational publications
 - draught, squat and depth of water
 - tide and current
 - weather
 - available navigational aids
 - means of monitoring progress and determining arrival at critical points
 - expected traffic
 - traffic separation schemes
 - requirements of vessel traffic services
 - contingency plans for critical points of the passage
 - .2 makes use of checklists for departure. for arrival and for coastal waters
 - 3 using the ship's manoeuvring information. prepares a detailed ~ for approach to and departure from a pilot station
 - .4 carries out the planned passage and monitors the progress
 - .5 complies at all times with the requirements of regulation 11/1 of STOW 1978 and COLREG 1972
 - .6 demonstrates compliance with Rule 10 of COLREG 1972 when joining, leaving or navigating in a traffic separation scheme
 - .7 demonstrates correct procedures when communicating with a vessel traffic service
 - .8 demonstrates the approach to or departure from a pilot station, using plan prepared in objective 3
 - .9 demonstrates skill in approaching or leaving berth under various conditions of wind and tide
 - 10 maintains a record of engine movements and makes appropriate entries in the log-book

FIGURE 2
SAMPLE COURSE SCHEDULE

Hours	Day 1	Day 2	Day 3	Day 4	Day 5
	(1) Review of basic Principles	(3) Simulator exercise (3) Debriefing (4) Wind & current (lecture)	(5) Preparation (5) Simulator exercise (6) Bank, channel & interaction effects (lecture)	(8) Preparation (8) Simulator exercise	(8) Preparation (8) Simulator exercise
Break					
	(1) Review of basic Principles (cont'd) (2) Familiarization with the bridge	(4) Simulator exercise (4) Debriefing (4) Simulator exercise	(6) Bank, channel & interaction effects (demonstration) (7) Anchoring (lecture)	(8) Simulator exercise (cont'd) (8) Debriefing & preparation	(8) Simulator exercise (cont'd) (8) Debriefing & preparation
Lunch					
	(2) Familiarization (cont'd) (3) Standard Maneuvers (3) Simulator exercise	(4) Debriefing (5) Shallow-water effects (lecture) (5) Simulator exercise	(7) Anchoring (demonstration) (7) Preparation (7) Simulator exercise	(8) Simulator exercise (8) Debriefing	(8) Simulator exercise (8) Debriefing
Break					
	(3) Debriefing & Preparation	(5) Simulator exercise (5) Debriefing (5) Simulator exercise	(7) Debriefing (8) Planning a voyage (lecture)	(8) Preparation (8) Simulator exercise	(8) Debriefing (cont'd) (8) Final debriefing
		(5) Debriefing		(8) Debriefing	

() Numerical values relate to Course Syllabus numbering

FIGURE 3
SAMPLE COURSE OUTLINE

Subject Area	Hours	
	Lecture	Simulator
1 Review of basic principles	2	-
2 Familiarization with the bridge	-	1.5
3 Standard maneuvers	0.5	3
4 Wind and current effects	0.5	1.5
5 Shallow-water effects	1	3
6 Bank, channel and interaction effects	0.5	1
7 Anchoring and single-buoy mooring	0.5	2
8 Planning and carrying out a voyage	1	12
TOTAL	6	24
GRAND TOTAL	30	



NATIONAL ASSOCIATION OF STATE BOATING LAW ADMINISTRATORS

National Boating Education Standards

With updates as of January 1, 2003

Produced under a grant from the Aquatic Resources
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***In Memorial of V/C Carl Mahnken
U.S. Power Squadron and Key Member of the
Boating Education Standards Advisory Board***



Boating Education Standards Advisory Board

John Malatak	U.S. Coast Guard
Fred Messmann	Education Committee Chair, NASBLA
Carl Mahnken	U.S. Power Squadron
Rod Allen	U.S. Power Squadron
Dan Maxim	U.S. Coast Guard Auxiliary
Virgil Chambers	National Safe Boating Council
Marty Law	Oregon State Marine Board
Emily King	Ohio DNR, Division of Watercraft
Harry Munns	American Sailing Association
Sarah Barker	NASBLA Staff

In Consultation and Contract With

The Pennsylvania State University
College of Health and Human Development
School of Management, Restaurant and Recreation Management

by

J. William Hugg
Stuart P. Cottrell
Alan R. Graefe

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Disclaimer

NASBLA and affiliated organizations do not undertake to verify the continuous adherence by courses or instructors to every applicable standard or guideline. Nor does the National Association of State Boating Law Administrators warrant, guarantee, or insure that compliance with these standards will prevent any or all injury or loss that may be caused by or associated with any person's use of boats, facilities, equipment, or other items or activities that are the subjects of these standards; nor does the National Association of State Boating Law Administrators assume any responsibility or liability for any such injury or loss.

Further, the National Association of State Boating Law Administrators hereby expressly disclaims any responsibility, liability or duty to affiliated courses, organizations, instructors, boaters or their families, for any such liability arising out of injury or loss to any person by the failure of such organizations, courses, or instructors to adhere to these standards.

Adapted from: American Camping Association. (1998). Accreditation Standards for Camp Programs and Services. American Camping Association: Martinsville, IN.

The National Association of State Boating Law Administrators

Since its inception, the National Association of State Boating Law Administrators, Inc. has functioned effectively as the voice of the states and territories regarding state boating law enforcement and boating safety. Today, NASBLA coordinates approval of state and private boating education programs, promotes uniform boating regulations through the adoption of model acts and policies, develops methods to improve the nation's boating accident database, fosters cooperation between the U.S. Coast Guard and the states, and strives for the general advancement of boating safety. Since the implementation of the state assistance program, the U.S. Coast Guard has relied on NASBLA to assist in the efficient and effective management of the federal funds.

Membership in the association consists of state officials responsible for administering and/or enforcing state boating laws. "State" means a state of the United States, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, Northern Mariana Islands and the District of Columbia. Officers of the association consist of a President, Vice-President, Secretary-Treasurer, and an executive board composed of the officers, two other members-at-large, the immediate Past President, and the Presidents of the three regional boating administrators associations. The Board is augmented with an Executive Director and an Executive Secretary. Officers are elected annually and take office on the first day following the conference at which they were elected, and hold office until the last day of the conference at which their successors are chosen.

The association is recognized for its stewardship of recreational boating safety. For more than 35 years, NASBLA has worked closely with the U.S. Coast Guard, the States and others to insure that the intent of the congress to promote uniformity, reciprocity and comity among the various states was given priority. Testimony of this is the many resolutions and model acts that have been generated by the association. In doing this NASBLA brings to the table, highly qualified personnel in the fields of boating law enforcement, education, boating safety and on-the-water search and rescue.

Preamble

The purpose of these standards is to educate boating education professionals regarding the practices and procedures followed generally within the boating education community. That purpose is furthered to the extent that the standards provide a basis for accreditation of boating education courses by the National Association of State Boating Law Administrators (NASBLA). It is not the intention of The National Association of State Boating Law Administrators to attempt to include every practice or procedure that might be desirable or implemented within a boating education course since the conditions, facilities, and goals of all courses are not identical or uniform.

The accreditation programs of the National Association of State Boating Law Administrators are designed to be applied only to those boating education courses that are consistent with the stated definitions and eligibility requirements. Courses outside of these definitions or criteria are not subject to our standards and are not considered for accreditation.

Standards Development - NASBLA developed its minimum content for boating education courses over a decade ago. These standards have served as a guide for state, non-profit and commercial providers to follow in developing boating education materials. In July of 1998, NASBLA contracted with a research team anchored at the Pennsylvania State University to evaluate the existing guidelines and develop a new minimum “standard of care” for boating education. This new set of standards is intended to prescribe the minimum body of knowledge necessary to effect safe, legal, and enjoyable boating. In addition, the proposed standard of care is predicated on reducing risk in recreational boating based on empirical accident and boating violation statistics.

Relevant documents listed in the reference section of this document were reviewed and interviews were conducted with nationally prominent and recognized boating educators. A working draft of the standards was written and submitted to the Standards Advisory Committee for review and comment. Several more drafts of the standards were completed, each going through a revision process. In December of 1998, the Penn State team met with the Standards Advisory Committee for two days of review and comment. The result of that meeting was a draft set of standards to be validated and pilot tested in the second phase of the study.

Phase 2 involved three separate tasks carried out between January and August, 1999. . Task 1 solicited the input of almost 150 boating educators representing major national boating organizations. This survey asked boating experts whether or not each proposed standard should be included as a minimum boating education standard, as well as the relative importance of each standard. Task 2 involved a review of nine boating education course/texts using the draft standards. This task used volunteers who evaluated their own course materials against the standards, along with independent reviews by the research team and NASBLA representatives. The purpose of Task 2 was to simulate the NASBLA function of reviewing boating courses submitted to NASBLA for compliance with each of the National Boating Education Standards. Task 3 of the evaluation sought to understand how instructors, presented with the draft standards, dealt with the design, implementation, and teaching of a boating safety course using these standards. In this task the purpose was to gain a deeper understanding of the standards through intensive observations and discussions with boating educators using the standards. Each of the three tasks was structured to gain information that would be useful in revising the standards.

Briefly, the results of these three tasks showed a strong consensus among boating educators that the draft standards represent the minimum information that should be taught in an eight hour boating

safety course. The evaluation uncovered several standards that should be moved from the recommended section to the required section. Also, there were many wording changes that increased the clarity of the standard or illuminated aspects of the standard not emphasized in the previous draft. The information gathered in this evaluation is extensive and is summarized in a separate detailed

report submitted to NASBLA. The final step in the standards development process was another full day meeting with the Standards Advisory Committee to review the phase 2 findings and resulting standards. The current document presents the final standards, as approved by the Standards Advisory Board, approved by the Education Committee and overall membership of NASBLA on September 22, 1999.

Intended Audience - These standards were developed for use by boating education course instructors, boating education text authors, and other boating education professionals who intend to submit course materials for NASBLA review and accreditation. It is anticipated that materials submitted for NASBLA course accreditation based on these standards will require less revisions than similar materials submitted in the past. It is hoped that this document will clearly communicate with prospective authors what must be included to provide a minimum standard of care, resulting in a more efficient course review process.

Applicability and Definitions - These standards apply to courses for operators of recreational motorized boats and sailboats. It is recognized that there are different types of boating courses with different target audiences. These standards identify the core topics that must be covered in most courses, and this single set of standards replaces NASBLA's previous separate standards for general boating courses and PWC courses.

The standards use the term, "course," to refer to all components of a boating education course, including instruction, texts, supplemental materials, and tests. A boating course may be presented in various formats, including classroom instruction, home study, video, distance learning, CD-ROM, or any combination of these formats. "Boat" is used to refer to all types of recreational watercraft. It is expected that any unique words or terminology used in courses submitted will be clearly defined in the course materials.

MINIMUM Standards - These standards were intended to convey to organizations and individuals the **minimum body of knowledge that must be included in a short, 6-8 hour, boating education course**. Instructors, text authors, boating professionals, and organizations are encouraged to go beyond the standards when in their judgment and experience it assists the boat operator to boat more safely. In addition, the standards are intended to show just the minimum content of the course materials, not the sequence or organization of the material. Although the standards are organized in a particular way, course/text developers are welcome to organize their information as they prefer.

Required Materials for NASBLA Review - It is assumed that the standards will be met in various ways and that materials submitted to NASBLA may include course texts, supplemental texts, instructor guidelines or outlines, and handout materials. State-specific and localized information that is relevant to the particular course audience may be provided through any of these media (see standard 8.2 for the required content of this material). To assist in the determination of whether the standards are met, the learning objectives and exams must be included in the package of materials submitted to NASBLA for review.

Accuracy Requirement – It is mandatory that all information contained in course materials receiving NASBLA accreditation be factually correct.

Standards Revision - At this point in time procedures for the revision of the National Boating Education Standards are being developed. It is expected that any new proposed standards or revisions to the standards will be subject to the same rigorous review that the present standards have undergone.

The National Boating Education Standards

NASBLA accredited boating education courses and texts will address at least the following minimum standards.

The Boat

Standard 1.1 - Boat Capacities

The course will describe how to determine acceptable loading based on locating and determining a boat's gross load capacity (total weight and # persons) from the boat capacity plate and horsepower recommendations.

Rationale - A boat operator must be able to avoid capsizing situations by adhering to boat capacity limits and properly distributing the weight in the boat for safe operation. Coast Guard accident statistics indicate that capsizing was the leading cause of boater fatalities in the last five years. Many capsizing incidents have resulted from overloaded boats.

Standard 1.2 - Boat Registration Requirements

The course will describe:

1. that all motorized boats and many other boats are required to be registered (check state requirements),
2. requirements for hull identification number,
3. the required certificate of number (registration documentation), and external display of numbers,
4. the requirements for federally documented vessels,
5. reciprocity regulations, and
6. registration requirements in the boat's state of principal use.

Rationale - In a recent survey of state boating law administrators (NASBLA 1998), 20% of boating citations were due to improper display of vessel registration numbers. Understanding the legal requirements for boat registration will help boaters to avoid unnecessary violations and resulting fines.

Boating Equipment

Standard 2.1 - Personal Flotation Device Types and Carriage

The course will describe the types of Coast Guard approved personal flotation devices (PFDs) and their respective uses, advantages, and disadvantages. The course will also describe the number and types of PFDs that must be carried on the boat according to applicable regulations.

Rationale - U. S. Coast Guard statistics consistently show that at least 85% of the people who died in boating accidents were not wearing PFDs. Nationally, carrying improper PFDs for the number and types of passengers on board is the second highest category of citations issued to

boaters. Special attention must be given to the use of hybrid Type 5 inflatable PFDs and special restrictions for totally inflatable PFDs.

Standard 2.2 – Personal Flotation Device Sizing and Availability

The course will communicate that PFDs must be readily accessible and correctly sized for the persons using them.

Rationale - Capsizing and falls overboard accounted for 488 fatalities in 1997 – nearly 60% of all boating fatalities. Proper use of PFDs is essential for boater safety. The participant needs to understand how to adjust PFDs of various types and styles for themselves and other passengers.

Standard 2.3 – Wearing Personal Flotation Devices

The course must inform boat operators of the advisability of wearing PFDs at all times. The course must emphasize the need for boat operators to be alert to changing boating conditions and to inform all persons on board they should be wearing PFDs in dangerous conditions such as high boat traffic, severe weather, dangerous water conditions, dangerous local hazards, distance from shore, operation at night, boating alone, etc. The course will address the difficulty of putting PFDs on in the water.

Rationale - Nine out of 10 drowning victims in 1997 were not wearing lifejackets. It is essential that boater safety education repeatedly emphasize the importance of wearing PFDs, along with constant vigilance and attention to changing conditions and adapting behavior to those conditions. Hazardous waters and weather are major causes of deaths in boating accidents. In 1997 these two factors caused nine percent of reported boating accidents but accounted for 21% of all boating fatalities.

Standard 2.4 - Personal Flotation Device Serviceability

The course will describe the characteristics of serviceable (good) PFDs and when to replace PFDs due to excessive wear or damage. Special attention must be given to the maintenance of inflatable PFDs as per manufacturer recommendations.

Rationale - PFDs are often subjected to rough handling, ultra violet sunlight, and improper storage. These conditions reduce the ability of the PFD to perform its intended function. The operator should be able to distinguish serviceable PFDs and identify the key conditions that necessitate replacing the PFD. Regular maintenance checks are essential to ensure the proper functioning of all PFDs and especially the inflatable PFD.

Standard 2.5 - Fire Extinguishers

The course will describe the legal requirements for fire extinguishers on recreational boats, the kind of fire extinguishers needed for different types of fires, the importance of placing fire extinguishers in a readily accessible location, and the need for regular inspection of fire extinguishers.

Rationale - U.S. Coast Guard requirements specify the number and types of fire extinguishers that must be carried for class “B” fires on boats of various sizes. Boat operators must be able to respond quickly in the event of fire. Anticipating the emergency by outfitting the vessel with the appropriate equipment and understanding how to use it reduces exposure to danger.

Standard 2.6 - Back-Fire Flame Control Device

The course will describe the purpose and maintenance of a back-fire flame control device (a required device on all enclosed engines with a carburetor).

Rationale - The U. S. Coast Guard requires that boats with gasoline engines be equipped with an acceptable means of backfire flame control.

Standard 2.7 – Ventilation Systems

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

Rationale – The U. S. Coast Guard requires that all recreational boats which “use gasoline engines for electrical generation, mechanical power or propulsion” must be equipped with a ventilation system. Gasoline vapors can collect in the bilge and explode. “Boat owners are responsible for keeping their boats’ ventilation in operating condition.”

Standard 2.8 – Navigation Light Equipment

The course will cover the navigation light requirements for recreational boats from applicable sections of Navigation Rules (Part C) as summarized in Federal Requirements and Safety Tips for Recreational Boats. (Also see standard 5.3.7)

Rationale – Recreational boats are required to display navigation lights between sunset and sunrise and during periods of reduced visibility. Boating accident statistics indicate that nighttime collisions account for a significant proportion of total boat collisions. Boat operators who know and follow navigation and anchorage light requirements can help reduce nighttime collisions. Many of the navigation rules are devoted to navigation lights. The Coast Guard pamphlet, Federal Requirements and Safety Tips for Recreational Boats, provides a summary of the most relevant lighting requirements for recreational boaters.

Standard 2.9 - Sound Signaling Equipment

The course will describe the types and use of sound producing devices required on recreational boats. (Also see standard 5.3.6)

Rationale – Sound devices are required equipment on recreational boats. In certain boating conditions, boat operators must be able to alert other boats to their presence or operation intentions. The number one type of reported boating accident is “collision with another vessel,” underscoring the importance of carrying the appropriate sound warning equipment on board.

Also see Standard 5.3.10 – Visual Distress Signals

Trip Planning and Preparation

Standard 3.1 - Checking Local Weather And Water Conditions

The course will describe how to make informed boating decisions based on forecasted local weather and water conditions. It will also describe dangerous weather conditions such as strong wind, storms, lightning, hurricanes, fog, and their importance in trip planning.

Rationale - Capsizing continues to be reported as one of the leading or contributing causes of boater fatalities. Boat operators must be able to use weather information to make judgments about probable water conditions and decisions about whether to continue with the float plan. Often poor weather in combination with other unexpected emergencies accelerates the danger to boat operators and their passengers.

Standard 3.2 - Checking Local Hazards

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

Rationale - Boating accidents continue to indicate that a lack of understanding of local conditions contributes to boating fatalities. Hazards requiring special attention include: low-head dams, rapids, sudden winds, tides, currents, white water, overhead cables, bridges, waves, and heavy boating traffic.

Standard 3.3 - Filing a Float Plan

The course will describe the importance of notifying someone of your boating plans and the basic information that should be included.

Rationale - In the event of an accident, rescue authorities can respond much faster and in a more focused way if a float plan has detailed information about the expected destination, boat description, course, time of departure, and time of expected return.

Standard 3.4 - Boat Preventive Maintenance

The course will communicate the need for regular inspection and maintenance of the boat and its key components (e.g., through-hull fittings, motor, electrical system, fuel system).

Rationale - Keeping a boat in good working order is as much a part of the boating experience as boating itself. Almost all elements of safety revolve around the fact that the boat has been maintained and all its parts and systems are able to perform as they were designed. Negligence in this area will eventually lead to an unsafe or disastrous experience. In the last few years, 27% of vessels in reported accidents involved boat equipment/maintenance related factors. In addition, 34% of boating citations issued were due to boat equipment-related violations.

Standard 3.5 – Transporting and Trailering

The course will describe procedures to prevent trailering accidents and resulting injury and property damage. The course will cover safe trailering procedures including: 1) safe towing preparation, 2) road handling factors when pulling a trailer, 3) launching a boat, and 4) retrieving a boat from the water.

Rationale – The majority of recreational boats in the U.S. are trailered to and from the water. A boat trailer is one part of the entire boating package, which includes boat, trailer, hitch, and towing vehicle. Neglecting the trailer’s maintenance can result in damage to a boat, the towing vehicle, or both, as well as create a hazard for other boats and vehicles

Standard 3.6 - Fueling Procedures

The course will provide information on proper procedures for fueling, ventilation during fueling, and protection of the marine environment during fueling.

Rationale - Gasoline and gasoline vapors are extremely explosive. Ignition of spilled fuel or vapors continues to cause boating accidents, injuries, and fatalities. Following safe fueling procedures reduces the opportunity for gasoline explosions.

Standard 3.7 - Pre-Departure Checklist & Passenger Communication

The course must describe the importance of using a pre-departure checklist and conducting an onboard safety discussion with passengers. Passengers should be informed about the location of PFDs, fire extinguishers, flares, first-aid kit, discharge and management of waste procedures, anchoring procedures, emergency radio operation (if applicable), storm/rough weather procedures, line handling, emergency boat operation, and falls overboard procedure.

Rationale - The mental and physical rehearsal of procedures for various boating emergencies can reduce the time passengers, crew and operators are exposed to dangerous conditions and increase the efficiency of rescue operations. Boat operators should inform passengers of relevant safety information to prevent accidents, increase safety, and reduce response time in the event of an emergency.

Marine Environment

Standard 4.1 – Environmental Laws and Regulations

The course will describe the environmental laws and regulations concerning littering (e.g., garbage and plastic), waste management plans, and display of information placards (where applicable) and aquatic nuisance species.

Rationale - Boat operators should remember that water pollution ruins not only the aesthetic beauty of the area, but harms human life, marine life and damages boating equipment. The degree and amount of garbage adrift on our coastal waterways continues to increase. Plastic, which many species mistake as food, is a big threat to marine life. Birds are found entangled in plastic rings, fishing line, or nets. Various federal and state laws prohibit throwing, discharging or depositing any sort of refuse matter in the waters of the U.S. Other acts

require boats of various sizes to display placards and keep records of their refuse disposal. A person who violates any of the requirements is liable to civil penalties, fines, and imprisonment. Regional, state, and local laws may also have specific restrictions on refuse disposal.

The spread of aquatic nuisance species (ANS) by recreational boaters is an increasing concern across the country. Milfoil, zebra mussels, and other ANS are being increasingly regulated by states to prevent their spread, with specific regional, state and local laws.

Standard 4.2 - Human Waste Disposal

The course will describe the proper procedure for disposal of human waste from recreational boats and how to identify no discharge zones and pumpout station locations.

Rationale - It is illegal to discharge raw sewage from a vessel within territorial waters (within the three-mile limit), the Great Lakes, and navigable rivers. Recreational boats are not required to be equipped with a toilet. However, the Clean Water Act requires that, if a toilet is installed, it must be equipped with a Coast Guard approved and operable Marine Sanitation Device (MSD).

Standard 4.3 – Disposal of Toxic Substances

The course will describe procedures for the prevention of spills and improper disposal of toxic substances such as fuels, oils, and cleaning products into the marine environment and the associated fines for non-compliance.

Rationale – Oil residue tends to build up in the bilges of boats and can easily be discharged directly in the water. The federal Water Pollution Control Act prohibits the discharge of oil or hazardous substances into navigable waters. Powerboats must have the capacity to retain oily mixtures on board and to transfer them to an approved reception facility.

Safe Boat Operation

Standard 5.1 - Operator Responsibilities

The course will describe a boat operator's ultimate responsibility for safety and all activity aboard the boat. This responsibility extends to other water users and includes: controlling boat speed, obeying no wake/limited wake restrictions, refraining from careless, reckless, or negligent operations on the water, controlling boat noise, observing and operating in accordance with homeland security measures, and other general boater courtesy.

Rationale – Boaters need to respect the rights of other people who live, recreate, or work on the water. Approximately 80% of all reported boating accidents involve operator controllable factors. The most common types of such factors include operator inattention or carelessness, operator inexperience, excessive speed, and failure to maintain a proper lookout. According to the Nighttime Boating Accident & Fatality Study, operator error is to blame for the majority of nighttime boating accidents and fatalities.

Negligent operation of a recreational boat which endangers lives or property is illegal. Nationally, 32% of boating citations in recent years were due to improper boat handling (e.g., negligent operation, excessive speed, operating in restricted areas, no wake area violations, collisions, going too fast at night, etc.).

In light of new security measures brought about by the events of September 11, 2001, it is critical that all boaters be aware of and comply with new homeland security measures set forth by federal, state and local governments. These should include, but are not limited to, keeping a safe prescribed distance from military and commercial ships and avoiding commercial port operations areas, observing all security zones, following guidelines for appropriate conduct such as not stopping or anchoring beneath bridges or in a channel, and observing and reporting suspicious activity to proper authorities.

Standard 5.2 - Influence of Drugs and Alcohol on Boat Operation

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

Rationale – One-third of all boating fatalities are drug or alcohol related. It is illegal to operate a boat while under the influence of such substances. Further, according to the Nighttime Boating Accident & Fatality Study, alcohol was by far the leading contributing cause (53%) of nighttime boating accidents and fatalities.

Standard 5.3 - Navigation Rules of the Road

The course will describe safe boating operation and good seamanship, including at least the following navigation rules:

- 5.3.1 - Definitions relevant to understanding the navigation rules [Navigation Rule 3]
- 5.3.2 – Rule of responsibility (to act in a reasonable and prudent manner consistent with the ordinary practices of recreational boating) [Navigation Rule 2]
- 5.3.3 – Proper lookout [Navigation Rule 5]
- 5.3.4 – Safe speed [Navigation Rule 6]
- 5.3.5 – Collision avoidance rules [Navigation Rules 7, 8, 11-18]
- 5.3.6 – Operation within narrow channels [Navigation Rule 9]
- 5.3.7 – Sound signals [Navigation Rules 32-37]
- 5.3.8 – Navigation light display and recognition [Navigation Rules 20-25]
- 5.3.9 – Restricted visibility [Navigation Rule 19]
- 5.3.10 – Visual distress signals [Navigation Rules 36-37]
- 5.3.11 – Rendering Assistance [Chapter 23]

Rationale: - According to 1997 boating accident statistics, “collision with another vessel” was the most reported type of accident, resulting in 1,309 injuries, 80 fatalities, and 7.3 million dollars in property damage. “Excessive speed” and “no proper lookout” were the third and fourth most common factors in boating accidents involving operator controllable factors. The Navigation Rules were designed to reduce accidents by standardizing boat navigation. Various laws

require recreational boaters to operate according to established rules such as those mentioned above. More than two-thirds of boating accidents involving operator controllable factors are caused by violations of one or more of these navigation rules.

Standard 5.4 - Aids to Navigation

The course will describe the Federal U.S. Aids to Navigation (USATONS) and the Uniform State Waterway Marking System (USWMS). The course must provide information about regulatory/informational markers (identified by orange bands on the top and bottom of each buoy) used to advise of situations, dangers, or directions indicating shoals, swim areas, speed zones, etc.

Rationale - Citations are regularly issued due to failure to obey regulatory markers. In order to navigate safely from place to place on the water, boat operators must depend on road signs just as we do on land. Aids to navigation are the road signs of the water. There are two systems of marking the waterways in the United States – U.S. Aids to Navigation (USATONS) and the Uniform State Waterway Marking System (USWMS). USATONS is a system prescribing regulatory markers and aids to navigation that mark navigable waters of the United States. USWMS is a system that prescribes regulatory markers and aids to navigation for navigable state waters. The USWMS may also mark the non-navigable internal waters of a state.

Note: Effective July 20, 1998, the United States Coast Guard commenced a five-year phased-in merger of the Uniform State Waterway Marking System with the United States Aids to Navigation System. This merger eliminates distinctions between the two systems and will ultimately create safer, less confusing waterways.

Standard 5.5 - Docking and Mooring

The course will describe common practices for docking and mooring a boat relative to boat size, type of boat, location, weather, and current.

Rationale – Significant boat/property damage, accidents and injuries result from docking and mooring of boats in marinas and boat ramp areas, particularly in adverse weather conditions. Docking techniques vary depending on wind, current, location, degree of boat traffic in the harbor, type of boat, size of boat and skills/abilities of the boater and crew.

Standard 5.6 - Anchoring

The course will describe the selection of anchors, related ground tackle, and their use for different types of boats in various boating conditions. The course must describe procedures for anchoring, use of anchors as safety devices in emergency situations, and the hazards of stern anchoring.

Rationale – Anchoring skills and decisions of where to anchor can make the difference between a successful or unsuccessful boating experience. Significant property and environmental damage can occur when improperly anchored boats slip anchor and drift into reefs, boats, marinas, or run aground.

Emergency Preparedness

Standard 6.1 - Rendering Assistance

The course will explain that, according to the Navigation Rules, boat operators are required to render assistance to a boat in distress to the extent they are able. (Also see standard 5.3.11)

Rationale – In the event of an emergency, individuals in charge of a vessel are required to provide assistance so far as they can do so without serious danger to their own vessel or the individuals on board their vessel. Assistance from other boaters can reduce the loss of life, injury or property damage resulting from boating accidents.

Standard 6.2 - Capsizing Emergencies

The course will describe how to prevent and respond to capsizing emergencies. These responses will include at least the following: donning lifejackets, taking a head count, staying with the craft when appropriate, signaling for assistance, using improvised floating aids, and initiation of procedures to recover people in the water.

Rationale – Every year, capsizing emergencies are the leading cause of boating fatalities. More significantly, in nearly half of the capsizing emergencies there was at least one fatality. These statistics underscore the need for boater education courses to stress the proper response/action in a capsizing emergency.

Standard 6.3 - Falls Overboard Emergencies

The course will describe procedures for preventing and responding to falls-overboard, including the proper response of persons on board for retrieval of a person in the water.

Rationale – Falls overboard are the second leading cause of boating fatalities. In 1997, 30% of total boating fatalities (243 deaths) resulted from falls overboard situations. Overloading, passenger movement on smaller crafts, and standing up contribute to many of the falls overboard accidents.

Standard 6.4 - Hypothermia Prevention

The course will describe the conditions under which hypothermia is likely to occur as well as its signs, symptoms, and prevention.

Rationale – Boaters have a much greater risk of dying when involved in a cold water immersion accident. Boaters' risk of dying increases with colder water temperatures. Sportsmen who hunt or fish from boats in cold weather are at greater risk of fatalities from capsizing or falling overboard. Water temperature varies by season and location.

Standard 6.5 - Fire Emergency Preparedness

The course will describe procedures to prevent and respond to boating fires such as proper use of fire extinguishers and basic knowledge of fire suppression principles.

Rationale - The potential for catastrophic emergencies from fire requires that boat operators take measures to prevent and be prepared to deal quickly and efficiently with fires. A key to understanding fire suppression is to know that eliminating one of the fire's key ingredients, fuel, oxygen, or heat, can extinguish the fire.

Standard 6.6 - Running Aground Prevention and Response

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

Rationale – In 1997, groundings accounted for 15 fatalities, 217 injuries, and \$1.3 million in property damage. Preventing running aground is an important boat operator competence. Following proper procedures in the event of a grounding can reduce or minimize fatalities, boat damage, submerged object damage, and responses by public and private entities for salvage operations.

Standard 6.7 - Accident Reports

The course will describe what kinds of boating accidents require an accident report as well as how, when, and where to file the report.

Rationale – Accident reports are legally required when the accident involves: 1) loss of life; or 2) personal injury requiring medical treatment beyond first aid; or 3) property damage in excess of \$500.00; or 4) complete loss of the boat. Proper filing of accident reports provides information that can be used to assist boating safety professionals to address the most serious concerns to boater safety.

Standard 6.8 - Boating Accident Report Form

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

Rationale – U.S. Coast Guard reports indicate that only 5 to 10 percent of non-fatal boating accidents are reported. Most accidents are not reported because of ignorance of the law and difficulty in enforcing the law. Every effort to assist boaters to report accidents may increase the rate of compliance in reporting accidents.

Other Water Activities

Standard 7.1 – Personal Watercraft and other Jet Propelled Watercraft

The course will state that a Personal Watercraft is defined as a boat and must observe all boating regulations. It must describe the unique characteristics of Personal Watercraft (PWC), including at least the following topics:

- 7.1.1 – Operational characteristics of PWCs , including steering, stopping and stability of PWC
- 7.1.2 – Off- throttle steering
- 7.1.3 – PWC load capacities as per manufacturer recommendations
- 7.1.4 – Re-boarding a PWC
- 7.1.5 – The purpose and use of a Lanyard/Cut (Shut) off switch
- 7.1.6 – The purpose and use of a fuel reserve tank
- 7.1.7 – Laws and regulations
- 7.1.8 – Accident prevention
- 7.1.9 – Noise control
- 7.1.10 – Hours of operation

Rationale - Recreational boaters share waterways with personal watercraft or may themselves be operators of personal watercraft. Understanding the handling characteristics of personal watercraft can help keep adequate navigational distances to limit collisions and fatalities. PWC sales are growing faster than any other type of recreational boat, accounting for 30% of all sales. Of the 4,555 injuries from boating accidents in 1997, 40% involved personal watercraft. In addition, 27 more fatalities were reported with the use of PWCs in 1997 than in 1996, for an all time high of 84 fatalities. For these reasons, special attention needs to be addressed to PWC accident prevention.

Each PWC model has its own unique characteristics. New operators must read their owner's manual to understand the characteristics of their particular PWC. Knowing how to effectively handle a PWC also takes practice. New operators should practice their skills with an experienced operator who can guide them on controlling the PWC and making safe boating decisions.

PWCs operate differently than other boats. Releasing the throttle completely eliminates the ability to steer the craft. This is an important operating characteristic that is difficult for novice operators to conceive, particularly in situations of potential collisions.

PWC are highly maneuverable. The jet drive propulsion system is extremely responsive to slight turns of the handlebars. The responsiveness in maneuvering encourages operators of PWCs to try unusual stunts. These actions can push the operators to attempt maneuvers that are dangerous and beyond the safe operation of the PWC.

Operators must be able to re-board the PWC in deep water after falling off. This is most easily done from the rear (stern) of the craft. This maneuver is more challenging when the operator is tired. The weight of the person re-boarding and the stability of the model PWC being used also affect the ease of re-boarding.

Many states and local areas have laws and regulations specific to PWC operation and safety, including laws that deal with the preservation of the environment. Operators must understand these regulations in order to boat safely and legally.

PWC have special operating concerns that relate to the type of accidents these craft are most commonly involved in. A review of these accidents and how they could be prevented should be provided. For example, a proper lookout must be maintained when turning (look all around and behind before turning). Many accidents involving PWCs are caused by operators who do not own the PWC.

Making excessive noise is one way to make PWC presence on the water unpopular. PWC operators should avoid operating continuously in one area and should stay a reasonable distance from home and cottage owners trying to relax and enjoy the waterfront.

PWCs are not equipped with lights and, according to manufacturer recommendations, are not intended for nighttime use. Many states and localities further limit the hours of operation of PWCs.

Standard 7.2 - Water Skiing

The course will describe procedures to follow when pulling water-skiers or operating in the vicinity of water-skiing or other activities using towed devices.

Rationale – The forces generated by water skiers and their possible trajectory in a fall necessitate that each boat maintain as much distance as possible with a minimum of a 200-foot wide “ski-corridor” (100 feet on either side of the boat). “Skier mishaps” constituted the fifth most common type of boating accident as measured by total boats involved (445 boats in 1997) and injuries were reported in all but one of these accidents.

Standard 7.3 - Diving and Snorkeling

The course will describe how to recognize a diver down flag and the legal requirements for operating a boat in the vicinity of snorkeling or scuba diving activities.

Rationale – Recreational boats can present a hazard to divers in the water. Federal and state navigation rules may require that diving flags be displayed during diving activities. Flags can help prevent injuries by informing boat operators to keep a respectful distance.

Standard 7.4 - Hunting & Fishing

The course will inform people who fish and hunt from boats that they are boaters and need to follow safe boating practices. Information must be provided about accident risks unique to this group of recreational boaters.

Rationale - Fishermen and hunters often don't consider themselves boaters and thus pay little attention to learning and observing boating safety rules. In a recent survey, 50% of those who purchased boats say they bought them to go fishing. Approximately one-third of national boating fatalities occurred while people were fishing from a boat. Likewise, more hunters die each year from drowning and the effects of hypothermia than from gunshot wounds. Many water-based hunting and fishing accidents occur when a hunter reaches for a decoy, or the boat capsizes from an unbalanced load, or a person falls overboard while standing up.

Boating Education Practices

Standard 8.1 - Continuing Education

The course will outline the need for additional boating safety education and staying informed of changes in boating safety requirements.

Rationale – It is important for boat operators to understand that one of their responsibilities is to keep up-to-date with new developments in boating laws and safety information. State laws vary with regard to licensing, equipment requirements, accident reporting procedures, etc. Boating equipment and safety information available to boat operators is constantly changing and improving. Boat operators who stay abreast of these changes will be ready for new situations, thus improving their own boating enjoyment as well as the safety of all boating participants.

Standard 8.2 - State Specific Boating Information

The course will contain (as part of the text or a separate handout) state specific information in regard to boating laws/regulations and local boating conditions. The course will include the following topics as applicable:

- 8.2.1 - registration and titling requirements such as number of years registration decals are valid, expiration date of registration, decal placement.
- 8.2.2 - laws for required wearing of PFD's for children, certain types of boats, and for special boating activities such as personal watercraft, skiers and others being towed.
- 8.2.3 - additional equipment requirements such as anchor, lanyard, bailing devices, visual distress signals.
- 8.2.4 - mufflers and noise levels.
- 8.2.5 - requirements for waste discharge, no discharge zones, and litter laws.
- 8.2.6 - special requirements for mandatory education, licensing, rental operation, and proficiency test certifications.
- 8.2.7 - age/horsepower restrictions and adult supervision requirements for children.
- 8.2.8 - laws further defining careless, reckless, unsafe, and negligent operations such as becoming airborne and operating less than specified distances behind a water skier.
- 8.2.9 - boat speed limits and operation in zoned and restricted areas.
- 8.2.10 - laws on operating under the influence of drugs and alcohol such as implied consent and BAC levels.
- 8.2.11 - law enforcement officer authority and boater responsibility to comply.
- 8.2.12 - boat accident reporting requirements.
- 8.2.13 - a state approved boating accident report form.
- 8.2.14 - other laws or regulations as required by the state approving authority.

Rationale - Although course materials intended for national distribution do not need to include state specific information, it is assumed that sponsoring boating organizations have procedures in place to assure that instructors provide supplemental materials and instruction to meet the

intent of this requirement. For state courses, the relevant state specific information must be included in the course materials.

Course Format and Testing Requirements

Standard 9.1 – Boat Operator Knowledge Course Formats

The course submitted for NASBLA review may be in any format that meets the standards as long as it can be reviewed easily by NASBLA. These may include but are not limited to classroom instruction, distance learning, or self-study programs.

Rationale – After extensive review of the relevant educational research literature, the overwhelming body of research suggests that there are significant differences in knowledge acquisition between traditional classroom formats and distance learning or self-study programs. Distance learning is thought of here as a wide range of learning formats usually involving the use of technology that includes Internet courses, tele-conferencing, and interactive video. Self-study programs can be home study courses and are usually thought of as an individual taking the initiative to learn material at their own pace. Consultations with researchers in the field confirmed that boat operator knowledge could be learned in many ways.

Any well designed course format for learning boat operator knowledge that results in the individual acquiring the essential knowledge is appropriate to submit for NASBLA review.

Standard 9.2 – Boat Operator Knowledge Exams

In order to receive NASBLA approval, all exams, whether administered as part of a course of study or as independent exams, must be submitted for review.

9.2.1 – The exam must be well designed and comprehensive in covering NASBLA’s standards for boat operator knowledge. Well designed comprehensive exams assess boat operator knowledge equally well as an independent exam or as an exam at the end of a course.

Rationale – Well-designed comprehensive exams, whether administered as part of a course of study or independently as a challenge test, are equal. Experts in educational testing recommend that once exam standards are established and an exam constructed, then that exam equally measures boat operator knowledge however it was obtained. A well designed exam has a variety of types of questions and covers the entire body of knowledge as outlined by the National Boating Education Standards. Certain standards carry more importance and should receive more attention within the exam. At first, NASBLA will use experienced boating educators to review exams to determine validity and will eventually consider adopting

additional review procedures that will increase the quality of boat operator knowledge exams nationwide.

9.2.2 – Each exam submitted for review must be accompanied with a plan that explains how the test administrator will seek to maintain exam integrity. The plan must address security issues commensurate with the purpose of the test and perceived opportunity to commit exam fraud.

Rationale – It is essential that test security be designed to be appropriate for the exam purpose and the context of the test. Exam security plans might address procedures such as: confirming the identity of the test taker, randomizing test items, using different versions of an exam, observing test takers during the exam, protecting the security of the test item answers, using distinctive, hard to duplicate certificates, maintaining test taker records, etc. Rather than mandate a single exam security procedure for all examinations regardless of format or context, reviewing exam security plans provides NASBLA with the opportunity to determine appropriate levels of security for varying levels of exam circumstances. Exam security can be thought of as an escalating series of procedures that respond in kind to potential threats to exam integrity. Experienced boating education experts that are asked to review exam security plans will determine these judgements.

Recommended Boating Safety Information

The following items contain recommended course content but are not considered part of the minimum standards for boater education courses.

R1 – Boat Types and Uses

The course should describe the common types of recreational boats, common hull designs, and their performance in various types of boating situations.

Rationale - Boat operators should understand the handling characteristics of various boat types so as to match the boat to the water and planned activity. Boat performance characteristics as determined by design features should be known to a boat operator and factored into their boating decisions.

R2 - Boating Terms

The course should describe commonly used boating terms in addition to those terms required to follow the Navigation Rules. (see also standard 5.3.1).

Rationale - Knowing common boating terms could save time and confusion in the event of an emergency by enabling boat operators to secure the situation efficiently and communicate clearly.

R3 - Boat Theft Prevention

The course should contain information that addresses actions the boat owner can take to deter or prevent boat theft.

Rationale - Statistics indicate that boat theft is increasing. Boat owners can deter theft and assist law enforcement authorities through their actions and observations.

R4 - Communication Procedures

The course should describe the protocol and use of VHF marine radios and other equipment for contacting the Coast Guard or other rescue personnel in the event of a boating emergency.

Rationale - In the event of an emergency the boat operator must be able to respond quickly and communicate his or her situation to relevant authorities. Understanding how to use marine communication procedures is an essential element of responding to emergencies.

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DRAFT

NOAA SMALL BOAT PROGRAM

COXSWAIN BASIC EDUCATION STANDARD

May 20, 2003

BACKGROUND AND DISCUSSION

Fundamental Principles of Marine Operations Training

1. Honor the mariner.
2. Share commitment.
3. Seek a quality approach.
4. Exceed the minimum when possible.
5. Value, respect, and learn from experience.
6. Encourage professional development through continuing education.
7. Share information and lessons learned.

Minimum Operator Training Requirements of NAO 217-103

Approved operator training for Class II and smaller boats in NOAA Administrative Order 217-103, "Management of NOAA Small Boats" is currently required to meet the education standards of the National Association of State Boating Law Authorities (NASBLA) National Boating Education Standards. NASBLA developed its minimum content for boating education courses more than a decade ago. These standards have served as a guide for state, non-profit and commercial providers to follow in developing boating education materials. In July of 1998, NASBLA contracted with a research team anchored at the Pennsylvania State University to evaluate the existing guidelines and develop a new minimum "standard of care" for boating education. Approved September 22, 1999, this new set of standards is intended to prescribe the minimum body of knowledge necessary to effect safe, legal, and enjoyable boating. In addition, the proposed standard of care is predicated on reducing risk in recreational boating based on empirical accident and boating violation statistics. These standards provide the standard of care for recreational boater education curriculum.

Operating boats in support of marine research involves many unique associated risks. Most of these risks are not even contemplated by the recreational boater and therefore are not included in the NASBLA boater education standards. For instance, recreational boaters typically do not:

- operate boats from ships
- run boats through surf and conduct beach landings,
- handle gear over the side of their boats with cranes, A-frames, davits, or booms,
- wrestle sea lions, tag seals, or conduct biopsy sampling
- modify their boats to accomplish a specific mission,
- install high tech survey gear,
- work in harsh weather conditions,
- engage in boardings, patrols, and law enforcement, or
- conduct field camp resupply/cargo missions.

These aspects of marine research, combined with the frequent inability of private sector training vendors to provide applicable, valuable, and timely training that meets the demanding schedules of many field activities lend weight toward the argument for establishing in-house NOAA training.

Furthermore, Vice Admiral Lautenbacher has provided support for this initiative in his Memorandum of December 27, 2003 that directs NMAO to lead the development of a Universal NOAA Coxswain Training/Qualification Protocol. Certain technical or specialty marine operations training may be contracted.

NOAA Senior Field Managers, in consultation with field personnel, must identify the operations that are conducted under their areas of responsibility that pose a considerable, unaddressed risk and seek abatement strategies to minimize risk. The Coxswain Basic Education Standard is intended to provide a fundamental and comprehensive level of knowledge for coxswains, helmsmen, crew, scientists, and managers. This fundamental level of training is a critical aspect in risk identification and abatement. Where a topic in this Education Standard is relevant to the risks encountered in a specific NOAA Activity, an in depth curriculum and training program can be presented.

In addition to meeting the minimum qualification standard to operate a small boat (Class II and smaller), field personnel and managers who successfully complete a course based on the Coxswain Basic Education Standard should be able to recognize, correct, or avoid unacceptable risks and excessively risky situations before an accident occurs. As the title of this standard indicates, this is a basic education standard and does not qualify a new, inexperienced coxswain to conduct operations involving advanced boat handling skills.

The Universal Standard of Marine Operations Training has been derived from, and based on:

- coarse assessment of common operational risks in NOAA,
- review of factors contributing to NOAA boat accidents,

- NASBLA National Boating Education Standards,
- Department of Treasury Federal Law Enforcement Training Center,
- United States Coast Guard Boat Crew Seamanship Manual,
- Department of the Interior Motorboat Operator Certification Course, and
- Canadian Coast Guard Boat Crew Training Manual

Applicability to Current NOAA Coxswains

Performance, safety record, and experience criteria should be developed to determine the proficiency of current NOAA Coxswains and whether or not they have met or surpassed this basic education standard. It is expected that in most NOAA activities the assessment criteria (whatever they may be) will be met and the current NOAA Coxswains will be found qualified for the operations that they have been conducting. Assessment should be conducted only by Designated Examiners. All new coxswains in NOAA, or cooperating agency coxswains should be expected to provide proof of meeting or exceed this minimum standard.

Coxswain Basic Education Standard

1. NAUTICAL NOMENCLATURE
 - a. Parts of Boats
 - b. Boxing the Compass and Relative Bearings
 - c. Lines, Ropes, Knots
 - d. Hardware
 - e. Motion of Boats
 - i. Linear
 - ii. Rotational
 - f. Persons and Authority/Responsibility
 - i. Coxswain
 - ii. Helmsman
 - iii. Crew
 - iv. Scientist
 - v. Crew/Scientist
 - g. Navigation and Boat Handling

2. THE BOAT
 - a. Boat Registration Requirements
 - i. Public Vessel Exemption
 - (1) USCG and State Authority
 - (2) Purpose
 - (3) What it isn't
 - ii. Measurement
 - iii. Numbering
 - (1) Documentation vs. Registration

- (2) NOAA Registration Card
 - (3) NAO Required Information
 - (a) HIN
 - (b) LOA
 - (c) Propulsion
 - (d) Responsible Person
 - (e) ...
 - (f) Additional Information
 - iv. Uses of Registration Data
 - (1) Legal Requirement
 - (2) Resource Estimation
 - (3) Homeland Security/Port Security Initiatives
 - (4) Cooperation w/ Other Agencies
 - b. Boat Identification
 - i. Color Schemes
 - ii. Uniform Corporate Image
 - iii. Exceptions to Identification Requirements
 - iv. Bristol Fashion/Appearances
- 3. EQUIPMENT REQUIREMENTS
 - a. Minimum Equipment
 - i. 46 CFR
 - ii. 33 CFR
 - b. DOES NOT CONSIDER Research Motorboat RISK
 - c. PFDS
 - i. Serviceability
 - ii. Lights/Whistles and Boundary Line (46 CFR 28.110)
 - iii. Use Requirement
 - (1) NOAA requirement from Koss fatality findings
 - (2) "Think Safe" Pamphlet/Risk
 - (3) Buoyancy
 - (4) Designs
 - iv. Carriage Requirement
 - d. Fire Extinguishers
 - i. Number and Type Required
 - ii. Serviceability & Inspection
 - (1) CO2
 - (2) Dry Chem
 - (3) Halon
 - (4) Foam
 - (5) Water
 - iii. Accessibility
 - iv. Extinguisher Class
 - e. Inboard and I/O Gas Engine Back Fire Flame Arrestor
 - f. Ventilation
 - g. Navigation Lights and Day Shapes
 - i. Display
 - ii. Interpretation
 - iii. Visibility
 - iv. RIAM

- v. Towing
 - vi. Fishing
 - vii. Trawling
 - h. Sound Signaling Equipment
 - i. Horn, Whistle, Bell
 - i. Risk Abatement and Additional Gear/Outfitting Requirements

- 4. TRIP PLANNING
 - a. Marine Weather and Environmental Hazards
 - i. Marine Weather Accuracy
 - ii. Atmospheric Pressure
 - iii. Waves - Wind, Fetch, Duration
 - iv. Swells and Surf
 - v. Water Temperature
 - vi. Storms, Hurricanes
 - vii. Lighting and Lightning Protection
 - viii. Fog, Rain, Sleet, Snow, Icing
 - ix. Tides, Tide Rips, and Currents
 - x. Rivers, Bars, Rapids, White water, and Currents
 - xi. Surf
 - xii. Marine Geology/Bathymetry
 - xiii. Oceanographic, Meteorological, and Geographic Phenomena
 - (1) Willawas/Orographic Effects
 - (2) North Wall/water mass and air mass interactions
 - (3) Standing Waves/wind and current effects
 - b. Navigational Hazards
 - i. Submerged Ruins
 - ii. Dams
 - iii. Deadheads/Debris
 - iv. Overhead cables
 - v. Bridges
 - vi. Other Vessel Traffic
 - vii. VTS, Separation Schemes, and Moorings/Anchorages
 - c. Float Plans
 - i. Minimum information in NAO
 - ii. Filing requirements
 - iii. When to notify the USCG
 - d. Underway Check Off List
 - i. Through-Hull Fittings
 - ii. Bilge system
 - iii. Fuel system
 - iv. Electrical System
 - v. Hydraulic System
 - vi. Standing Rigging
 - vii. Running Rigging
 - viii. Running Gear (Prop, outdrive, shaft, struts)
 - ix. Engine

- x. Nav Lights
- e. Trailering
 - i. Trailering Check off
 - (1) Trailer is registered
 - (2) Brake and Directional lights operable
 - (3) tires inflated
 - (4) bearings greased
 - (5) safety chains in place
 - (6) surge brakes
 - (7) Secure boat and gear
 - ii. Road Handling factors
 - (1) Stopping
 - (2) Acceleration
 - (3) Cross Winds
 - (4) Passing/Length
 - iii. At the Boat Ramp
 - (1) Overhead Clearance
 - (2) Ramp grade, condition, and growth
 - (3) Backing
 - (4) Launch Check Off
 - (5) Safety Briefing w/ Passengers
 - iv. Retrieving
 - (1) Positioning on Trailer
 - (2) Hauling
 - (3) Secure
 - (4) Maintenance
 - (5) Wash down

5. MARINE ENVIRONMENT

- a. NOAA Mission/Lead By Example
- b. Garbage
 - i. Display of Placards
 - ii. Waste Management Plan
 - iii. Plastic
- c. Aquatic Nuisance Species
- d. Toilet and Sewage Handling
- e. Engine Emissions
- f. Toxic and Hazardous Chemicals and Reactions
- g. Oily Bilges
- h. Spills

6. SEAMANSHIP

- a. Types and Characteristics of Line, Cable and Wire
- b. Inspection, Maintenance and Stowage
- c. Breaking Strength of Line, Hardware, Hooks
- d. Knots, Splices, and Stoppers
- e. Line and Wire Rope Handling
- f. Rigging Tows
- g. Deck Fittings, Belaying to a Cleat, Bitt, Crucible Bitt
- h. Water Tight Integrity

- i. Deploying Gear
 - j. Deck Hazards
7. OPERATION
- a. Operational Risk Management
 - i. MCO3500.27
 - ii. USCG Risk-Based Decision Making
 - iii. Team Coordination and Risk Management
 - b. Coxswain, Helmsman, Crew, Trainee
 - i. Hierarchy
 - ii. Skills
 - iii. Endorsements
 - iv. Continuing Education
 - v. Qualification Standards
 - c. Coxswain and Crew Endurance, Readiness, and Fatigue
 - i. STCW Work Hours and Rest Periods
 - ii. Alcohol and Drugs
 - iii. Environmental Factors
 - iv. Boat Design Factors
 - v. Mission Requirements
 - d. Coxswain Responsibilities
 - i. Safety of Boat and Crew
 - ii. Safety of Navigation/Navigation Rules
 - (1) Rule 2 - Rule of Responsibility (General Prudential Rule)
 - (2) Rule 3 - Definitions
 - (a) Restricted in Ability to Maneuver
 - (b) Fishing
 - (c) Trawling
 - (d) Underwater Operations
 - (3) Rule 4 - Applicability
 - (4) Rule 5 - Proper Lookout (RADAR)
 - (5) Rule 6 - Safe Speed
 - (6) Collision Avoidance Rules (RADAR)
 - (7) Operation within narrow channels
 - (8) Sound Signals
 - (9) Navigation Light and Shape Display and Recognition
 - (10) Restricted Visibility
 - (11) Visual Distress
 - (12) Rendering Assistance
 - iii. Accomplishment of Mission
 - (1) Situational Awareness
 - (2) Blurring of Coxswain/Scientist duties
 - iv. Homeland Security Measures and Suspicious Activity
 - v. Research Permits
 - e. Stability
 - i. Boat Loading and Capacity
 - ii. Free Surface and Tanks
 - iii. Heeling Moments

- (1) Weight Handling
 - (2) External Dynamic Forces
 - (3) Tow Points and Tripping
- f. Navigation
 - i. Compasses
 - (1) Magnetic Compass
 - (2) Fluxgate Compass
 - (3) GPS Compass
 - (4) Gyro Compass
 - (5) Deviation, Variation, Compass Error,
 - (6) Compass Adjustment
 - ii. Coordinate System
 - iii. Piloting
 - (1) Distance, Speed, Time
 - (2) Set and Drift
 - (3) RADAR
 - (4) GPS
 - (5) LORAN
 - (6) River Sailing
 - (7) DR, LOP, Fix, Track Lines
- g. Chart Interpretation
 - i. ATONS
 - ii. Chart Information
 - iii. Age of Survey and Dynamic Coasts
 - iv. Chart 1
 - v. Corrections
- h. Nautical Pubs
 - i. Coast Pilot
 - ii. Tide Tables
 - iii. NtoM
 - iv. Local NtoM
 - v. Light List
 - vi. ...
- i. Fuel, Range, HP, and GPH
 - i. Speed vs HP
 - ii. Speed vs RPM
 - iii. Speed vs GPH
 - iv. Weather, Bottom Fouling, and Loading vs GPH
- j. Boat Handling
 - i. Forces
 - (1) Environmental
 - (2) Vessel
 - (3) Shaft, Prop, Rudder
 - (4) O/B and I/Os
 - (5) Jet Drives
 - ii. The Controls
 - iii. Basic Skills
 - (1) Steering a Course
 - (2) Stopping
 - (3) Asymmetric Propulsion (twin-screwing)

- (4) Docking and Mooring
- (5) Anchoring
- (6) Maneuvering in Current
- (7) Maneuvering in High Winds
- (8) Maneuvering in Heavy Weather
- (9) Maneuvering alongside another vessel
- iv. Advanced Skills
 - (1) Station Keeping
 - (2) Steering Transects
 - (3) Dive Tending
 - (4) Towing
 - (5) Trawling
 - (6) Fishing
 - (7) Surf Ops/Beach Landings
 - (8) Shore Landings/Intentional Grounding
 - (9) Marine Mammal Ops
 - (10) Moorings
 - (11) Ship Ops
 - (12) Night Ops

8. EMERGENCY/DISTRESS/SURVIVAL

- a. Accident Reporting
 - i. NOAA boat accidents
 - ii. Witness to other Accidents
- b. Rendering Assistance
- c. Emergency Procedures
 - i. Capsizing
 - ii. Man Overboard
 - iii. Fire
 - iv. Unintentional Grounding
 - v. Collision
 - vi. Sinking
- d. Distress Communications
 - i. Signals/Pyrotechnics
 - ii. Radio Comms
 - iii. EPIRB, PLB
 - iv. SART
- e. Survival
 - i. Common Strategies
 - ii. Wilderness
 - iii. Tropical Waters
 - iv. Cold Waters/Hypothermia
 - v. Open Ocean
 - vi. Sea Water Poisoning

9. PERSONAL WATER CRAFT

- a. Precautions when Operating in Vicinity of PWC
- b. Handling Characteristics
- c. Potential Applicability to Research Ops
- d. Reboarding

10. RADIO COMMUNICATIONS
 - a. FCC Licensing Requirements
 - i. Individual License
 - ii. Ship Station Licenses
 - iii. Call Sign and MMSI
 - iv. FCC Forms and FCC Rules
 - b. DSC/GMDSS
 - c. NAVTEX
 - d. EPIRB
 - e. RADAR/SART
 - f. INMARSAT and Commissioning
 - g. Iridium
 - h. CBs and Cell Phones
 - i. Phonetic Alphabet
 - j. Phraseology
 - k. Routine, Safety, Urgency, and Distress Comms

11. ENGINEERING, MATERIAL CONDITION, and YOUR BOAT
 - a. Know your boat, be your boat (Attaining Zen Mastery of Boats)
 - b. FBS - Free Boat Syndrome
 - c. Impediments to High Engineering and Material Condition Standards
 - i. Experience in Uninspected Vessels
 - ii. Awareness and Knowledge
 - iii. Lack of resources
 - d. Standards for Repair/Construction/Modification
 - i. ABYC
 - ii. NMEA
 - iii. CFR Subchapters C, F, I, J, L, S, T, U
 - e. Contracted Maintenance and Repair Shop Standards
 - i. OEM Certifications
 - ii. ABYC Certifications
 - (1) Composite Fabricators
 - (2) Diesel Engines and Support Systems
 - (3) Electrical Systems Certification
 - (4) Standards Accreditation
 - iii. NMMA
 - iv. CFA
 - f. Modification of Boats
 - i. Closed Cell Foam Flotation
 - ii. Reinforcement
 - iii. Relieving Stress
 - iv. Rails, Guards, and Handrails
 - v. Naval Architecture and Marine Engineering services
 - g. Material Condition
 - i. Corrosion
 - (1) Galvanic
 - (2) Stray Current

- (3) Chemical
 - (4) Bonding
 - h. Water Tight Integrity
 - i. Cracking, Delamination and Hull Strength
 - ii. Hull Preservation
 - iii. UV deterioration
 - iv. Delignification
 - v. Penetrations and Closed Cell Foam Saturation
 - i. Wiring Standards and Common Pitfalls
 - j. Vital System Piping Standards and Common Pitfalls
 - i. Fuel
 - ii. Cooling Water
 - iii. Bilge
 - k. Other Common Boat System Pitfalls
 - i. Hydraulic Systems
 - ii. Mission Systems (CTD wiring)
 - l. Preventive Maintenance Guidelines
 - i. Propulsion
 - ii. Fuel System
 - iii. Cooling system
 - iv. Weight Handling
 - v. Hour Meter
 - vi. ...
 - m. Fuels
 - i. Diesel Fuel Hazards/Precautions
 - ii. Gasoline Fuel Hazards/Precautions
 - iii. Emergent Fuel Technology
12. TROUBLESHOOTING in the Field
- a. Electrical
 - b. Propulsion
 - c. Temporary Repairs
13. CONTINUING MARITIME EDUCATION
- a. Continuing Education
 - i. Rationale
 - ii. Many Coxswain Basic Education Standards are entire fields of professional study unto themselves.
 - iii. Trends in Marine Safety and Regulation
 - b. State Specific Laws
 - i. N/A to Public Vessels
 - ii. Generally N/A to NOAA boat ops
 - iii. Should at least review and be aware



MARINE RESCUE CONSULTANTS, LLC

PMB 355, 1048 IRVINE AVE., NEWPORT BEACH, CA 92660 • (714) 953-8055

22 MAY 2003

TO: Paul Parson, et. al., National Oceanic and Atmospheric Administration
FROM: Steven G. Wigely, Member, Marine Rescue Consultants, LLC (MRC)
SUBJ: Description of MRC's IRB/RHIB Surf Operations Training

ATTACHMENTS: (1) Pertinent References for Marine Rescue Consultants, LLC (hereinafter, "MRC")
(2) Partial List of Agencies and Units for which MRC has conducted this type of training.

I. Introduction. The following proposal is divided into four parts. They are:

1. Note about MRC
2. Need for Training
3. Sample Surf Operations Training Outline
4. Explanation of Curriculum and Statement of Minimum Proficiencies
5. Comments about Trainers.

II. Note about MRC. MRC has been providing RHIB and IRB (Inflatable Rescue Boat) training to federal, state, local, commercial, and foreign clients since 1983, including NOAA since around 1985. We were the first training organization in the U.S. to receive USCG approval to conduct STCW FRB training courses (1996).

More specifically, our experience with operating boats, especially 30' twin screw ocean rescue vessels, IRBs, and RHIBs, is vast and comprehensive. From 1983 to 1987, we were the sole source providers of surf operations training to the US Coast Guard (in-surf operations of RHIBs were suspended by the Coast Guard in 1987). MRC staff were the first Surf Lifesaving Association of America (SLSA, now USLA) IRB Inshore Rescue Boat Trainers and Master Trainers. We have conducted surf operations training for many agencies, and continue doing so on a regular basis at a multi-agency class hosted every year by the Palm Beach County (FL) Ocean Rescue department, and on request by other clients.

It may be of interest to note that during two decades of surf operations training, and literally thousands of hours of operational time, neither our instructors nor our students have suffered any serious injuries, nor have they ever caused catastrophic damage to our own or our clients' boats. MRC is expert in how to operate IRBs and RHIBs in the surf, how to train others to do so, and has helped introduce and standardize equipment and procedures for this task throughout the country. We also have experience as expert witnesses (for the defense) in surf operations related civil suits.

Description of MRC Surf Operations Training, page 2

Please see the attachments to this letter for references and a partial list of clients for whom we have conducted surf operations training.

II. Need for Training. Except for combat operations, operating IRBs and RHIBs in the surf is one of the most dangerous activities that can be assigned to these vessels. This inherent risk was recognized by the US Coast Guard in 1987 when, after several rollovers, but no fatalities, it virtually banned Coast Guard coxswains from operating RHIBs in the surf.

The other agencies that continue to operate in the surf, primarily public safety organizations, address the following issues:

- Uniform training that adheres to a recognized standard or the practices of other agencies (derived from the SLSA's [now the United States Lifesaving Association, USLA] initial IRB operations training program)
- Uniform configuration of boats and equipment that can be similarly referenced
- Minimum physical skills of the operators, crew members, and passengers of the boats entering the surf zone
- Administrative guidance concerning risk analysis and operational parameters pertaining to surf operations.

The training described in the following outline would allow NOAA, and its boat operators, address the same issues in a manner that can be justified by, and which is in accordance with, the practices at public safety agencies and USLA member organizations. However, it is important to realize that surf operations carry the inherent risk of mishaps, which no amount of training will eliminate. Indeed, rollovers and other accidents are inevitable, and always result in equipment damage and sometimes in injury or death. Mishaps also generally give rise to after action analyses, and occasionally to legal actions. Our experience in reviewing such analyses, including as court recognized expert witnesses, is that training is always considered as a central issue.

So the training described here cannot claim to eradicate risk from in-surf operations. It is instead aimed at a short, cost-effective introduction to relatively standardized procedures to promote safety, effectiveness, risk analysis, and survivability. Whether such training would *reduce* the incidence of mishaps is uncertain. What is certain is that it would provide skills for ameliorating their consequences, and help eliminate the issue of training as a contributory cause to their occurrence.

III. Sample Surf Operations Training Outline. The following 3 day training outline describes a very narrowly focused program is drawn from our standard curricula. The purpose of the training is to provide an introduction to, and baseline training level for, operating IRBs or small RHIBs in the surf. Skills and concepts conveyed by the training are applicable or adaptable to other types of surf-avoidance vessels that NOAA personnel might also operate in the surf.

Description of MRC Surf Operations Training, page 3

From a practical standpoint, this training would be conducted in IRBs, or IRBs and a small (4 meter) RHIB, equipped with 2 stroke outboard engines. In-surf operations would be limited to surf that is either unlikely to capsize the boats, or on the inside of larger surf in an area of white water that is also unlikely to capsize the boats, in the event of operator error or engine malfunction. Additionally, the narrow focus of the training, its short time frame, and the rigors of the surf environment suggest setting prerequisite skill standards for attendees in boat operations experience, physical fitness, and swimming ability. Attendance of inexperienced boat operators would require an additional training day. Attendance of personnel unable to survive by swimming in a moderate surf zone, or who are otherwise physically unable to perform the necessary operator and crew member functions in surf operations, should, of course, be avoided. MRC can offer suggested guidelines on these topics.

Where the training would occur, and whether the training boats would be supplied by NOAA or Marine Rescue Consultants, are matters that would need to be discussed if NOAA is interested in obtaining the described training.

Because of the live load restrictions of the types of boats used for this kind of training, MRC recommends that the student:instructor ratio not exceed 4:1.

Please see the training outline and explanation of the curriculum on the next two pages.

Description of MRC Surf Operations Training, page 4

SAMPLE SURF OPERATIONS TRAINING OUTLINE

DAY 1

- AM** Registration, introduction, and schedule
Lecture and discussion (with video): history and theory of IRBs and RHIs, and operational mishaps
Lecture (with video): launching and beaching IRBs and RHIBs through the surf
Field Lecture: boat familiarization, lay out, boat and personal protective equipment, start up and shut down procedures.
- PM** Field: Launching and beaching procedures in calm water
Field: High speed operations, pivot turn, turning time and radius, crew functions
Field Lecture: 2 stroke outboard engine systems and wet engine re-start procedures.

DAY 2

- AM** Lecture: Wave generation and behavior in the surf zone
Lecture: Basic principles and equipment of rescue swimming in the surf (conforming to USLA procedures)
Lecture: Procedures for approaching and rescuing a victim in open water with an IRB or RHIB
Lecture: Procedures for a failed engine in the surf; re-righting an IRB or small RHIB in the surf.
- PM** Field: Open water victim rescue (simulated and live)
Field: Rescue swimming exercises in the surf, including using a rescue buoy and fins
Field: Re-righting an IRB in the surf (with the engine removed).

DAY 3

- AM** Lecture with video: Operating IRBs and RHIBs in the surf
Field: Launching and beaching through the surf.
- PM** Field: Basic in-surf operations
Field: Attempting to rescue a person in the surf with an IRB or small RHIB
Review and critique.

The training is sequential and progressive. The first two days establish skill levels and procedures that are necessary for operating in the surf on the third day. How this fits together is described below:

Day 1 The focus of the training is on IRB and RHIBs as types of boats, what they can and cannot do, how they should be set up for surf operations, where the operator and crew should be stationed, reviews the common mishaps that result from improper operation, introduces an operational technique for avoiding these mishaps and which is a crucial prerequisite for operating in the surf, and addresses two other surf related topics: procedures for launching and beaching, procedures for re-starting a swamped outboard engine.

At the end of the first day, each participant will be able to:

- discern if an IRB or RHIB is properly rigged for surf operations
- perform pivot turns on command; that is, turn the boat up to 180 degrees in the shortest amount of time and space of which it is capable (necessary for operating during the period between waves)
- perform crew functions during surf operations
- launch and beach an IRB or RHIB in calm water
- describe how to re-start a 2 stroke outboard engine that has been swamped in the surf.

Day 2 The training is focused on survivability and basic rescue in the case of these common surf related mishaps: rollover and crew ejection. Skills from Day 1 are imbedded in the boat operations of Day 2. Special note on rescue swimming: while NOAA is not primarily a rescue agency, boat operators venturing into the surf need to be able to make an accurate risk analysis before doing so. This can only be accomplished if the operator can gage the likelihood of survivability of the people in the boat in the case of a mishap, and with an understanding of the difficulties and basic procedures of rescuing another person in the surf. Without this understanding, everyone in boat can by definition be placed at mortal risk without the possibility of rescue.

At the end of the second day, each participant will be able to:

- approach and rescue a person in open water as coxswain and crewmen
- deploy a swimmer from the boat in open water, and be deployed
- take the appropriate action in the case of a failed engine in the surf, or a rollover in the surf, as coxswain and crew
- re-right an IRB or small RHIB with available gear as coxswain and crew, and take the boat to shore
- swim in the surf
- rescue another person in the surf

Description of MRC Surf Operations Training, page 6

Day 3 The training is focused on performing basic operations in the surf, and demonstrating the difficulties of attempting to rescue a person in the surf with the boat.

At the end of Day 3, each participant will be able to:

- launch and beach an IRB or small RHIB from or into a surf environment
- transit the surf zone in the boat
- operate in a zone between the shore and the surf zone (“break” or “impact” zone)
- perform “parallel running” between a surf zone and shore
- demonstrate two procedures for attempting to rescue a person in the surf.

Cumulative Objectives. The general cumulative objectives of the training are:

- to evaluate the suitability of a given IRB or RHIB, and its crew, for in surf operations including boat, rescue, and personal protective equipment
- to accurately analyze the risk of operating a given boat in a given surf zone, transiting a given surf zone, and beaching and launching in ambient conditions
- to immediately take the appropriate actions as crewman or coxswain in the case of engine failure or rollover in the surf
- to acquire a basic understanding of the elements of, risks of, and solutions for mishaps inherent to, operating an IRB or RHIB in a surf environment.

IV. Comments about Trainers. In-surf operation of IRBs and RHIBs is a relatively esoteric subject which can pose difficulties to an administrator attempting to define the required qualifications of the training providers. Our experience in this field, including having been justified as a sole source provider for many federal agencies, suggests that such qualifications at least include:

1. USCG approval to conduct STCW FRB training and recognition as Designated Examiners
2. Extensive professional experience as an operator of surf-avoidance rescue boats for a USLA member rescue agency (as opposed to experience gained only by training or attending training classes)
3. Extensive professional experience as an in-surf rescue swimmer for a USLA member rescue agency (as opposed to training-based experience)
4. Extensive experience in providing this kind of training to public rescue agencies
5. SLSA certificate as an inshore rescue boat trainer
6. Provision of Personal Indemnity Insurance while conducting training in the boats, as opposed to General Liability insurance, which does not provide such coverage.

For further information on MRC surf operations training, please contact the undersigned.

Sincerely, Steven G. Wigely, Member (949) 497-2425; fax: 4425. mrc5346@att.net and marinerescue.com. Please see the following 2 attachments.

ABYC Standards Accreditation Course

The three-day Standards Accreditation course will provide the participant with a comprehensive and focused look at the major points from the Standards referenced in this outline. In addition, classroom discussion will address specific compliance issues relevant to engineering staff, installers, compliance inspectors and marine surveyors. In all relevant cases, US Code of Federal Regulation (CFR) compliance will also be discussed. This program will look at the how and why of key Standards, and point out common areas of non-compliance and how to address those issues in both the factory and field environments.

Day One:

- Welcome and introduction
- Explanation of ABYC's role and mission
- Overview of ABYC education programs
- Overview of standards development process

Review of fuel system Standards, gasoline and diesel:

- Standard H-2, Venting of Gasoline Fueled Boats*
- Standard H-24, Gasoline Fuel Systems*
- Standard H-25, Portable Gasoline Fuel Systems*
- Standard H-32, Ventilation of Boats Using Diesel Fuel*
- Standard H-33, Diesel Fuel Systems*

Review of exhaust system Standard:

- Standard P-1, Installation of Exhaust Systems for Propulsion and Auxiliary Engines*

Review of Carbon Monoxide detection Standard:

- Standard A-24, Carbon Monoxide Detection Systems*

Review of Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG) system Standards:

- Standard A-1, Marine LPG systems*
- Standard A-14, Gasoline and Propane Gas Detection Systems*
- Standard A-26, LPG and CNG appliances*

ABYC Standards Accreditation Course, Day Two:

Review of Electrical Standards, AC and DC:

- Standard E-9*, Direct Current systems on boats
- Standard E-8*, Alternating Current systems on boats
- Standard E-10*, Storage Batteries
- Standard A-20*, Battery Charging Devices
- Standard A-25*, Power Inverters
- Standard A-27*, Alternating Current Generator Sets
- Standard A-28*, Galvanic Isolators
- Standard E-2*, Cathodic Protection
- Standard E-4*, Lightning protection

ABYC Standards Accreditation Course, Day Three:

Review of Miscellaneous Standards:

- Standard A-4*, Fire Fighting Equipment, Fixed and Portable Systems (With emphasis on fixed, automatic systems.)
- Standard A-16*, Electric Navigation Lights
- Standard H-22*, Electric Bilge Pump Systems
- Standard H-27*, Seacocks, Thru-Hull Connections and Drain Plugs
- Standard P-24*, Electric/Electronic Propulsion Control Systems

Comprehensive 100 - Question Exam Covering All Material

“Basic Marine Electrical” Course Outline

This is a three day basic DC & AC marine electrical systems program. Text for the class will be “Boating Magazine’s Powerboater’s Guide to Electrical Systems” by Ed Sherman, the instructor.

DAY 1 – 8:30AM

- ✓ Direct Current Circuits
 - A Circuit
 - Ohm’s Law/How to use it
 - Load’s in Series/Parallel
 - Sources in Series/Parallel
 - Circuit Problems & Causes

- ✓ Direct Current Measurements
 - Digital Instruments
 - Troubleshooting with Testers

- ✓ Batteries
 - The Charge/Discharge Cycle
 - Battery Types & Design Features
 - Monitoring Batteries
 - Testing Batteries

- ✓ Batteries continued
 - Discharge/Charging Characteristics
 - Charging Recommendations
 - Sizing Storage Batteries
 - ABYC Standard E-10

DAY 2 – 8:00AM

- ✓ Alternators
 - Rotary-Current Machine
 - Diodes & Rectification
 - Controlling the Alternator
 - Type-P and Type-N Alternator
 - Powering the Regulator
 - Testing Charging Systems
 - ABYC Standards A-20

- ✓ Bonding
 - What is it?
 - Electrical System Grounding
 - Lightning Protection
 - Corrosion Protection
 - Stray-Current Corrosion
 - To Bond or Not to Bond
 - Testing Your Protection
 - Cathodic Protection
 - ABYC Standards E-2 and E-4

- ✓ DC Standards
 - Wiring Diagrams
 - Marine Wire
 - ABYC Load-Calculation Method
 - Allowable Amperage of Conductors
 - Conductor Sizes for Allowable Voltage Drops
 - Identification of Conductors
 - Installation of Wire runs
 - Over-current Protection
 - Making Connections
 - Ignition Protection
 - ABYC Standard E-9

DAY 3 – 8:00AM

- ✓ AC Basics
 - Alternate Current
 - AC Safety
 - Grounding
 - Conductor Identification
 - Ground-Fault Devices
 - Transformations
 - Measuring AC
 - Troubleshooting
 - Checking Polarity

- ✓ AC Standards
 - Shore Power
 - Generator & Inverter Sources
 - Main Panelboard
 - Load Calculations
 - Over-current Protection
 - Ground Fault Protection
 - Approved Wire & Cable
 - Conductor Installation
 - Ignition Protection
 - Galvanic Protection
 - Typical Shore-Power Circuits
 - ABYC Standard E-8 & A-28



Setting Standards for Safer Boating

Schedule

Basic Engines

The ABYC Basic Engines Course is a three-day program designed as a generic primer for both gasoline and diesel fueled engines and related systems. The course content is geared toward the less experienced engine technician or marine surveyor, or for anyone interested in learning the essentials surrounding inboard marine engines. Candidates for this course would include anyone with some mechanical background that is just entering into the marine field and wants to learn the basics for troubleshooting, maintaining and installing marine engines. Successful attendees will walk away from this class with a clear understanding of how engines work, what the differences between gas and diesel engines are and how marine engines may differ from their land based counter-parts. Engine fundamentals will be discussed at length, building a foundation for the successful troubleshooter to work from. As part of this course we'll look at fuel systems, both gas and diesel, ignition systems on gasoline fueled engines, and basic ABYC exhaust system requirements. In addition, engine cooling systems, both fresh and raw water will be explained in detail. Again, for both gas and diesel, extensive troubleshooting methods and procedures will be discussed in class, providing the successful attendee with the knowledge necessary to attack an engine's no run, or poor run conditions with confidence. Finally, We'll take a look at basic marine drive systems as part of this course with an emphasis on material required to prepare for either the ABYC Gas or Diesel Engine Certification exams. This course is an excellent pre-requisite for mastering the experiential elements for either of the ABYC Engine Certifications. Its important to note that the content for this course is primarily based on accepted industry best practices, vs. ABYC Standards, however some Standards based material will be presented.