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U.S. Department of  
Homeland Security

United States  
Coast Guard



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MSSTINST 3530 A  
05 MAY 2006

MARITIME SAFETY & SECURITY TEAM ANCHORAGE INSTRUCTION 3530 A

Subj: MSST ANCHORAGE (91111) COMMAND NAVIGATION STANDARDS

- Ref:
- (a) U. S. Coast Guard Regulations, COMDTINST M5000.3(series)
  - (b) U. S. Coast Guard Boat Training Manual, COMDTINST M16114.9 (series)
  - (c) U. S. Coast Guard Navigation Standards Manual, COMDTINST M3530.2 (series)
  - (d) Navigation Rules - International -Inland, COMDTINST M16672.2C (series)
  - (e) Operational Risk Management, COMDTINST M3500.3 (series)
  - (f) Boat Crew Seamanship Manual, COMDTINST M16114.5 (series)
  - (g) Boat Crew Qualification Guide, Vol II-Coxswain, COMDTINST M16114.11 (series)
  - (h) Boat Crew Qualification Guide, Vol II-Crew Member, COMDTINST M16114.10 (series)
  - (i) Group and Station Communications Watchstander Qualification Guide, COMDTINST M16120.7 (series)

1. **PURPOSE.** To establish uniform standard navigation policies and ensure safe navigation for all MSST ANCHORAGE boats.
2. **ACTION:** All Members of MSST ANCHORAGE shall read and adhere to the provision of this instruction.
3. **DISCUSSION:** This instruction is designed to assist MSST ANCHORAGE in carrying out Command Expectation's and establish its responsibilities and accountability as outlined in the above references. Chapter one provides Command Expectation's, your responsibility and procedures for safe shore based boat navigation in our Area of Responsibility (AOR). Due to the vast expanse of MSST ANCHORAGE's AOR the Navigation Standards of any supported command will be adhered to when away from homeport if not established as an appendix. Deployed Team Leaders shall ensure that all Coxswains are furnished with a copy of the most up-to date local navigation standard in sufficient time to execute any OPORDER. 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, coxswains must have the skills to plot a position, recognize when the vessel is being set off an anticipated DR track, and maneuver 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. It is my

expectation that all MSST ANCHORAGE members uphold the highest levels of professionalism, honesty, and integrity while operating in the field.

#### 4. COMMAND RESPONSIBILITIES:

- 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).
- b. State the areas within the unit's AOR where boat crews shall conduct frequent area familiarization transits. These designated areas correlated to the semi-annual currency maintenance requirements of the Boat Crew Training Manual, COMDTINST M16114.9
- c. Identify specific areas within the unit's (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 detachment shall maintain a chart on display in the operations/planning space that highlights known hazardous and special operating areas within MSST ANCHORAGE's AOR
- d. Publish a list of ready charts for MSST ANCHORAGE's AOR that must remain on each boat, and be kept up-to-date.

#### 5. COXSWAINS RESPONSIBILITIES:

- a. All coxswains shall ensure the daily boat checks and pre-underway check-off lists have been completed prior to getting underway each time.
- b. Observe the Navigation Rules of the Road.
- c. We operate in diverse environments. As we gain experience, ensure you forward recommendations for updates to the unit's Navigation Standards via your chain of command.
- d. Always maintain a proper lookout. Coxswains may post a lookout on the bow at anytime.
- e. Utilize proper risk management and team coordination skills at all times, to include maintaining situational awareness and effective communications among the boat crew and TACON.
- f. Conduct a GAR model risk assessment with your team prior to getting underway and before any major evolution or operation.
- g. It is your responsibility to listen to any concern voiced by a member of your team when time and operations permits. When a member of your team is assertive and voices his/her concern, it is your duty and

responsibility as a leader to listen and address it as necessary if time permits.

- h. Coxswains shall permanently mark their paper charts with standard track-lines, courses and turn ranges along established routes and waypoints.
- i. Coxswains shall ensure paper and electronic charts are up-to-date.
- j. The coxswain must know the advantages and limitations of all electronic navigation equipment available. The coxswains 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. Not doing so may jeopardize the mission or your team members.
- k. 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.
- l. **Kill Switches Requirement:** Kill switches shall be worn by the coxswain or break-in coxswain at **all times** while the MSST ANCHORAGE boats are underway.
- m. Unless conducting an intercept, evasive maneuvers or other extenuating circumstances, MSST ANCHORAGE boat RPM's shall be limited to 4000 during daytime operations and 3000 RPM's during nighttime operations. The safe speed rule for the current conditions is always in effect in accordance with rule 6 in ref (d) which from time to time might mean taking all way off or bare steerage way until the conditions or position of MSST ANCHORAGE boats has been determined to be safe. Proper planning for missions based on time, speed and distance is essential to completing missions within these parameters.
- n. During training maneuvers while conducting high-speed tactics (i.e. J-turns), speed will be limited to 5000 RPM's with personnel outside the cabin. If RPM's exceed 3500 but are below 5000, all personnel on deck must be strapped *in to the pad-eyes for the lifting points and/or the brackets for the gun mounts*. No personnel, under any circumstance, are allowed outside the cabin if RPM's exceed 5000 while training. With all personnel inside the cabin, RPM's are limited to 5800. Belts for gunners and helmets for the entire boat crew **shall** always be available and the coxswain **shall** direct their use while engaged in any type of security operations or during high speed tactical training scenarios. The coxswain may direct their use if at anytime the conditions (such as heavy wx) warrant the donning of this safety gear. At all other times helmets may be worn at the crew's discretion.
- o. During underway operations the ECP display screen shall normally be "split" with radar and electronic chart displayed simultaneously.

Coxswains may deviate from this requirement when they determine that it will aid navigation to do so (i.e. better radar picture) when transiting from a specific point to another point at cruising speed, a track line shall normally be displayed on the ECP between the two points. When a track line is not in use, speed shall be reduced according to the local conditions, proximity of shoal water, and overall risk assessment.

- p. 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, they shall stop all way, or anchor if necessary and plot the boat's position on the appropriate paper chart.
- q. Coxswains shall ensure that a unit cell phone is available on board for secondary operational communications only. At no time will personal cell phones or personal calls be allowed on board MSSF Anchorage boats, or while performing operational missions on boats belonging to any other unit.

## 6. BOAT CREWS:

- a. If at anytime you observe, think, believe or feel something is unsafe or not within standard operating procedures it is your duty to speak-up and say something. It is your duty and responsibility to be assertive regardless of rank or position. In return the coxswain shall take your input into consideration. If time permits the coxswain will explain what he or she is doing and why. If time does not permit you shall do as instructed by the coxswain.
- b. Safe boat piloting is very reliant on the team effort of the entire boat crew. Boat crew involvement includes lookout reporting, helm watch, plotting, or use of onboard electronics. Unit training should strengthen confidence in these areas.
- c. A significant amount of boat piloting occurs in familiar waters that hold 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 complacency can lead to judgment errors and misidentification of important information.

## 7. NAVIGATION EXPECTATIONS:

- a. **Operating Within Local Key Operating Areas:** When MSST ANCHORAGE boats are operating within the "key operating areas" listed in section 9, the Electronic Chart System (ECS) shall be used as the primary means of navigation. The coxswain shall constantly verify the validity of the displayed position through the use of "Seaman's eye" and against observations such as the radar, Fathometer, visual ranges and aids to navigation. The coxswain must remain constantly cognizant of the boat's position and keep it out of harm.
- b. **Operating Outside of Local Key Operating Areas:** If operating outside the "key operating areas" ECS shall be used for piloting. In addition the use of waypoints and established routes will be used to establish a planned DR track that can be compared with the actual track-line by the use of the XTE data box. This preplanning will reduce the underway work load, make immediate reference information available, and allow an opportunity to conduct operational risk management.
- c. **Operating Outside of the Local Area:** When operating outside of the local area the Coxswain shall request a copy of the local Coast Guard unit's Navigation Standard and a set of required-corrected charts. The coxswain shall review the local unit's Navigation Standard and charts prior to getting underway. ECS shall be used for piloting. The use of waypoints and established routes will be used to establish a planned DR track that can be compared with the actual track-line by the use of the XTE data box.
- d. **Fixes:** Fixes shall normally be taken every 15 minutes to cross check the ECS. If operating without the ECS, fixes shall normally be taken every 5 minutes. One of the following criteria must be met in order to constitute a proper "fix" of reasonable accuracy:
  1. Electronic fix in the form of latitude and longitude from a GPS system plotted on a paper chart.
  2. Boat position as plotted by an ECS using GPS input and confirmed with either visual or radar information. (If equipped with ECS, the CO/OIC will determine, with regard to urgency of mission and platform, the necessity of recording the vessel's position on an up-to-date paper chart.)
  3. The intersection of two or more radar ranges from prominent points of land or fixed objects with a bearing spread of over 60 degrees.
  4. The boat's alignment along a range (established or natural) combined with a measured radar range to a prominent object.
  5. 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.

- e. **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:
1. Radar range and bearing information established from a single identified floating aid to navigation.
  2. Passing abeam of a fixed object or floating aid to navigation without an established radar range and bearing.
- f. **Piloting Using ECS:** MSST ANCHORAGE's boats are equipped with an approved ECS. The ECS shall be used as the primary means of navigation. The information presented is real time. The coxswain must continually verify the validity of the displayed position with the use of "Seaman's Eye" and against other observations such as the radar, Fathometer, visual ranges and aids to navigation. The coxswain will carry up to date charts onboard to be used as a visual reference while navigating with the ECS. The coxswain must remain wary of the shortcomings of ECS. These include:
1. Lack of updated aids to navigation changes published in the Local Notice to Mariners
  2. Various scales that add or omit details
  3. The possibility of electronic lines covering or obscuring charted hazards
  4. No trackline course adjustments for navigational hazards
  5. The boat's advance/transfer that occurs as the ECS updates position
  6. As with poor chart work on paper, improper inputs for waypoint positions will lead to improper track lines and other errors.
- g. **Communication Requirements:** In the Anchorage AOR, MSST ANCHORAGE boats underway will make operations reports (including position) every 30 minutes to MSST ANCHORAGE or to Coast Guard Air Station (CGAS) Kodiak when directed. When operating in SE Alaska, MSST ANCHORAGE boats will make operations reports to RADIO Juneau. When operating in Prince William Sound MSST ANCHORAGE boats will make operations reports to VTC Valdez. When several boats are working together, and within visual range, the Patrol Leader may give the report for the group. If higher risks are expected then the Detachment Officers In Charge may require reports every 15 minutes.
- h. **Operating at Night or in Reduced Visibility:** Any operations at night or during periods of restricted visibility will require the display screen to be in split display with the radar screen and electronic chart displayed simultaneously. A track-line shall be displayed on the ECS. The

coxswain must ensure significant attention is given to the safe navigation of the boat without developing tunnel vision or depending on any single piece of equipment. The coxswain must also be cognizant of set and drift and make the correct compensations. Whenever the position of the boat is in question or the information is conflicting, the coxswain must take immediate and prudent measures to resolve this. This should include a reduction in speed; station keeping or anchoring until the boat's position is plotted accurately. In addition, the coxswain shall operate the vessel with extreme caution which may include:

- i. Reducing speed
- j. Stopping to review the navigation picture
- k. Utilizing navigational data such as soundings, danger ranges, or bearing to verify position.
- l. 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.
- m. Any time the coxswain is uncertain of his/her position, he/she shall stop all way, or anchor if necessary, and plot the boat's position.

#### 8. UNIT PREPARATIONS FOR NAVIGATION:

- a. **Navigation Kit:** All MSST ANCHORAGE boats shall have a navigation kit onboard. The kit shall consist of 2 ea. #2 pencils, one eraser, one speed wheel, one weems plotter and one compass/divider.
- b. **Required Charts:** The Operations Officer shall ensure that all MSST ANCHORAGE boats have the appropriate corrected, up-to-date charts onboard. All Coxswains shall verify this before getting underway. While operating in our local AOR, the following charts are appropriate.
  1. 16665: Cook Inlet-Approaches to Anchorage
  2. 16663: Cook Inlet-East Foreland to Anchorage
  3. 16660: Cook Inlet northern part
- c. **GPS Waypoint List:** The operations officer shall ensure that all MSST ANCHORAGE boats have the same set of GPS waypoints installed and a reference sheet kept as part of the boat's navigation kit. The following points will be maintained on each boat.

(100) Floating dock to Phillips "A"	61-14.65N / 149-53.10W
(101) Boat launch	61-13.55N / 149-54.45W
(102) South crossing point	61-14.32N / 149-55.00W
(103) Pt. Mackenzie mid-channel	61-13.43N / 150-00.00W
(104) Buoy "5" SE	61-12.14N / 150-05.00W
(105) Buoy "5" SW	61-11.62N / 150-07.03W
(106) North Pt. mid-channel	61-11.33N / 150-10.00W

(107) Race Pt. mid-channel	61-10.88N / 150-15.00W
(108) West AOR boundary	61-10.40N / 150-20.00W
(109) Susitna Delta long 30	61-09.47N / 150-30.00W
(110) N. Beluga Shoal long. 40	61-08.53N / 150-40.00W
(111) W. Beluga Shoal long. 50	61-06.24N / 150-50.00W
(112) Phillips platform "A"	61-04.60N / 150-57.00W
(113) Cairn Pt. mid-channel	61-15.47N / 149-54.20W
(114) Eagle River turn	61-20.00N / 149-51.00W
(115) Eagle River	61-20.00N / 149-45.00W
(116) Pt. No Name ferry dock	61-16.05N / 149-55.00W
(117) Lighted bell buoy "4"	61-09.00N / 150-05.40W
(118) Security zone N. pier	61-15.14N / 149-52.78W
(119) Security zone N. channel	61-15.14N / 149-53.84W
(120) Security zone S. channel	61-14.17N / 149-54.42W
(121) Security zone S. pier	61-13.94N / 149-53.55W

**9. UNIT QUALIFICATIONS AND CERTIFICATION:**

- a. **Area Familiarization requirements:** The following areas are identified as this MSST ANCHORAGE's Key Operating Areas. The focus on these frequently traveled areas does not eliminate the need for coxswains and crews to travel and observe other portions of the unit AOR but the need is not as great. Operations in unfamiliar areas shall be approached cautiously. All boat crew certified personnel must meet the below requirements to meet the area familiarization requirements of reference (c).

**LOCAL KEY OPERATING AREAS**

- (1) West Pt. Fire Island to Eagle River flats
- (2) Woronzof Shoal cut between the shoal/mud flats
- (3) Ship Creek upstream to drainage pipes

**CURRENCY MAINTENANCE**

- 1day/1night every 6 months
- 2day/2night every 6 months
- 2day/2night every 6 months

- b. **Boat Crew Examining Board:** The MSST ANCHORAGE Boat Crew Examining Board will establish questions relative to these areas that test a coxswain's knowledge during qualification. The unit training program will reinforce the local knowledge level of all boat crew as well. Thorough knowledge of these key areas is important to reduce risk and allow for useful input from the entire crew.

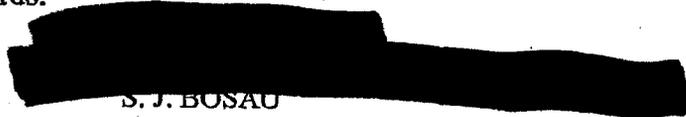
**10. CAUTION OR DANGER AREAS:**

- a. The following areas pose significant dangers to a boat during navigation. Coxswains shall use extreme caution in piloting during these conditions. This may include:

1. The additional tasking of crewman to observe the Fathometer and/or ECS.
  2. The posting of a lookout on the bow.
  3. Reduced speed.
  4. Reference to paper charts.
- b. **Danger Areas:**
1. The area from Pt. MacKenzie to No Name Pt. 2.5NM to the North East has numerous house size boulders that are submerged during high tide. MSST ANCHORAGE boats shall maintain a distance of no closer than .6 NM from this area to avoid potential grounding.
  2. The area North of No Name across from Eagle River on the West bank of Knik Arm has numerous boulders. MSST ANCHORAGE boats shall maintain a distance of no closer than 1.0 NM from this area to avoid potential grounding.
  3. The area between Fire Island and PT Woronzof is considered "no man's land." All MSST ANCHORAGE boats shall maintain a distance of no closer than .5 NM from shoal water.
  4. All MSST ANCHORAGE boats shall maintain a distance of no closer than .5 NM from Susitna River Flats, and maintain a depth of no less than 15 feet.
  5. Turnagain Arm has not been surveyed since 1912 due to the highly changeable nature of the bottom. All MSST ANCHORAGE boats shall remain clear of Turnagain Arm.
  6. Due to the quicksand like characteristics of the silt, if any MSST ANCHORAGE boat runs aground, no one shall disembark without the Coxswain's consent.

**11. 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 hazards.

  
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