# Chapter 1: Boat Crew Duties and Responsibilities

**Introduction**
State Parks employee and volunteer boat crews perform duties requiring both skill and knowledge. This chapter discusses general crew duties and related procedures for Watchstanding necessary for the successful completion of Parks missions. The general duties for crewmembers are outlined in this chapter. Assignments and procedures for specific tasks, such as towing or retrieving people from the water, are found in other chapters.

**In This Chapter**
This chapter contains the following sections:



# Section A. The Boat Crew

**Introduction**
There are two basic boat crew positions on Division vessels:

- Boat Operator (may also be a Vessel Officer)
- Crew Member

For operations on Great Salt Lake a third position, that of navigator, may possibly be added.

**A.1. Determining Crew Size**
There are several factors in determining crew size:

- Boat type
- Body of water
- Operational need
- Minimum crew size prescribed by higher authority

**A.2. Minimum Crew Size**
The mission and the conditions likely to be encountered will determine crew size. Some missions may be of such a simple nature that it will only require a boat operator. Others may require a minimum of three members. Action Plans may dictate minimum crew member size.

The Great Salt Lake Action Plan sets minimum crew sizes for rescue vessel operating on Great Salt Lake. For example, Rescue One would carry a minimum of three crew on Category II through IV operations. Rescue Four would carry a minimum of two crew on Category II through IV operations. On Category I operations the minimum crew size may be one but it is recommended that crew size be similar to those on Category II.

**A.3. Qualification and Certification**
Boat Crew Members are qualified and certified in accordance with this manual and the Boat Crew Certification Manual.

**A.4 Great Salt Lake Volunteer Search & Rescue Team Member**
The Mission Statement of the Great Salt Lake Volunteer Search & Rescue Team is to provide maritime safety education to the public, and prompt, professional emergency services under the guidance of Utah State Parks for people who are lost, injured, stranded, or in need of rescue. Our team is comprised of a group of people who are dedicated to saving lives and serving the public. The team is committed to providing the highest level of response readiness to any maritime emergency on the Great Salt Lake.

The mission is to provide operational, logistic, and training support to Division employees stationed at the Great Salt Lake State Marina.

# Section B. Boat Crew Duties

**Introduction**
The boat crew training program is based on the concept that crew members receive the best training while underway. This Manual, and specifically this chapter, is designed to provide an outline of duties typically performed by various members of boat crews and the skills and knowledge required to perform tasks assigned. For people seeking to be members of a boat crew, it is fundamental that they understand these duties and the importance of crewmembers working together as a team.

**In This Section**
In this section contains the following information:

## Trainee

**B.1 Description**
A trainee can be a full-time employee, seasonal employee or volunteer with State Parks. Volunteers must have completed their volunteer paperwork and pass a background check. A trainee may also be a member of the Great Salt Lake Volunteer Search & Rescue Team that has also completed his volunteer paperwork and has passed a background check. The trainee rides onboard to observe actual operational missions and to gain "hands on" experience under the close tutelage of a qualified crew member or Vessel Officer. The trainee cannot be counted as a member of the crew until completing training and all requirements spelled out in the *Boat Crew Member Certification Manual*.

**B.2 Knowledge and Performance Skills**
The duties of a trainee are to learn and safely perform the practical tasks prescribed for crew members. These duties are described in this manual and are performed under the supervision of a qualified crew member or Vessel Officer assigned to a vessel.

## Boat Crew Member

**B.3 Description**
Crew members safely perform their duties under the supervision of a Boat Operator or Vessel Officer: They stand:

- Lookout
- Towing watches
- Anchor watch.

They also:

- Rig towing and mooring lines.
- Act as a surface swimmer.
- Administer first aid.
- Operate damage control equipment
- Operate division equipment under the direction of a boat operator or Vessel Officer

This position provides valuable training for future duties and responsibilities.

**B.4 Knowledge and Performance Skills**
To be effective, boat crew members must execute orders quickly and must have the following knowledge and performance skills:

- Marlinspike seamanship and line handling
- Basic navigation (including radar, chartplotter) and boat handling
- Survival, safety, and damage control equipment
- Emergency and casualty control
- Watchstanding and communications.
- First aid.

**B.5 Risk Management**
A keen knowledge of boat's characteristics and limitations as well as the boat's equipment outfit and stowage plan will be invaluable in times of crisis. Frequent drills practicing the procedures for different

emergency circumstances will teach crew members how to react correctly to each situation. All crew members must continuously think about emergency situations and answer the hypothetical question, "What should I do if…?" So that it can be instantly put into action when the question becomes, "What do I do now?"

**B.6 Knowing the Operating Area**
Boat crew members must have knowledge of their local operating area (OPAREA), also called area of responsibility (AOR).

## Boat Operator

**B.7 Boat Operator**
A Boat Operator is a Division employee or volunteer who has completed the following:

- Boat Crew Certification
- Close Quarters Vessel Operation Training
- Open Water Vessel Operation Training
    - Towing
    - Basic Electronics Navigation
    - Capsizing
    - Basic SAR Pattern Training
- Emergency Responder or First Responder Training (annually)
- Professional CPR

Boat Operator Certification is good for five years and can be renewed by documenting 20 hours of vessel operations per training year.

**B.8. Vessel Officer**
A Vessel Officer is a full-time employee with the Division who has completed the following training and maintains a minimum of daytime and nighttime vessel operations annually as spelled out in Division policy:

- All the requirements of the Boat Operator
- Advanced Electronics and Nighttime operations
- Advanced SAR Planning
- FEMA ICS-100 Introduction to Incident Command System

Vessel Officer Certification is good for five years and can be renewed by documenting 5 hours of low light visibility vessel operation per training year.

Great Salt Lake rescue vessels underway must have a Division Vessel Officer onboard during vessel assists and SAR's in accordance to the Great Salt Lake Action Plan. The Vessel Officer is in charge of the boat and crew. The extent of the VO's responsibility are addressed in Division policy, the Great Salt Lake Pre-Plan and the Great Salt Lake Action Plan. The VO shall be responsible, in order of priority, for the following:

- Safety and conduct of passengers and crew.
- Safe operation and navigation of the boat.
- Completion of the mission.

A Boat Operator will respond to the following:

- Hazards to life or property
- Vessel Assists
- Violations of laws or regulations (LE DIVISION OFFICER ONLY)
- Discrepancies in aids to navigation.

**B.9 Knowledge and Performance Skills**

The knowledge and performance skills required for a Boat Operator are extensive. Boat Operators must apply good judgment, intelligence, and initiative. They must make decisions with the safety of their crew and boat in mind. In addition to basic crew member skills, a Boat Operator must have the following knowledge and performance skills:

- Demonstrate leadership that effectively coordinates, directs and guides the performance of the boat crew during watches and tasks (e.g., towing, fog navigation, and man overboard)
- Demonstrating correct application of regulations, policy, and guidance delineated by the Division and/or Incident Command to the circumstances at hand (e.g., safe navigation, safe speed, law enforcement, and rendering assistance).
- Knowing the boat's limitations:
    - Maximum sea conditions in which a boat can operate,
    - Maximum wind conditions which boat can operate, and
    - Maximum size of boat that can be towed by your boat.
- Navigation and piloting a boat.
- Knowing the local OPAREA with minimal reference to charts and publications.
    - Reefs and hazards
    - Currents
- Demonstrating boat handling skills to safely and prudently control the movement of a boat while underway.
- Understanding the principles of risk management and incorporating them into the decision-making process. These principles include detection, identification, evaluation, and mitigation or control risk as part of making decisions (e.g., slow to safe speed in restricted visibility, cast off a tow because the assisted vessel is losing stability.

# Section C. Watchstanding Responsibilities

**Introduction**
Under the direction of the Boat Operator, crew members are assigned various watches which are described in this section

**In This Section**
This section contains the following information:



## Lookout Watch

**C.1 Description**
The *Navigation Rules, International – Inland,* states that "Every vessel shall at all times maintain a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and of the risk of collision"

NOTE: Although not specifically assigned the duty of lookout, the entire crew must perform lookout duties unless directed otherwise.

**C.2 Assign and Station**
A Boat Operator must assign station lookouts, properly in order to comply with the requirements noted above. Lookouts must report to the Boat Operator everything seen, smelled, or heard as well as everything they think they see, smell, or hear. If in doubt, report it! A sharp lookout is often the first means of protection for the boat to avoid trouble, not to mention locating situations to investigate (e.g., vessels/people in distress, law enforcement, or deadheads). Some examples are:

- Land.
- Obstructions.
- Lights.
- Buoys,
- Discolored water.
- Reefs.
- Barges,
- Other vessels.

Note: It is important for the Boat Operator to consider the experience level and abilities of individual crewmembers when making assignments.

Note: More in-depth information on lookout duties and responsibilities can be found in the *Great Salt Lake Shipboard Lookout Manual.*

**C.3 Guidelines**
The following guidelines must be used to stand a proper lookout watch.

- Remain alert and give full attention to the assigned duty.
- Remain at Station until relieved
- Do not distract others with excessive conversation. (However, some conversation among crewmembers may be beneficial in reducing fatigue and maintaining alertness.)
- Speak loudly and distinctly when making a report.
- If the object sighted, smelled or heard cannot be positively identified, report what is believed at that moment.
- Repeat report until it is acknowledged by the Boat Operator.
- When conditions impair ability to see, smell, or hear, report the condition so the Boat Operator (BO) can take corrective action.
- Report everything seen including floating material, even if it has to be reported several times. (Seagulls do not need to be reported)
- Make sure duties are understood. If duties are not understood, ask for more information.

**C.4 Lookout Positioning**
Lookouts must be posted by the BO so they have the best possible chance of seeing and hearing an approaching vessel or searching for an object in the water. The BO should perform the following procedures when positioning lookouts.

| Step | Procedure |
|---|---|
| 1 | Choose a boat speed that enables lookouts to effectively and safely perform their duties. |
| 2 | Position lookouts so they can effectively and safely perform their duties under the operating conditions (e.g., restricted visibility, boat speed, sea sate, weather). |
| 3 | During periods of rain, sleet, and snow or when taking spray over the bow, select lookout positions that minimize impairment of vision. |
| 4 | Select a stable location that will not place the lookouts in danger of being blown or swept overboard. |
| 5 | During a search, post two lookouts when able. Lookouts should be positioned on each side of the vessel so that each can scan a sector from dead ahead to directly aft. |

**C.5 Lookout Equipment**
Standing a proper lookout watch means using all available equipment to improve chance of early detection. These items include binoculars, sunglasses, night vision, FLIR, and a good flashlight.

Binoculars are the lookout's best tool to increase their distance vision capabilities. They are very good for identifying contacts far off and obtaining detailed information when they get closer. While they do increase the distance the eye can see, the also reduce a person's field of vision or how much the eye can see. It is important to remember to switch between using binoculars and just eyes to make sure nothing goes unnoticed.

On a sunny day, a large portion of the horizon might be difficult to observe due to the sun's reflection on the surface of the water. A good pair of sunglasses will reduce eyestrain and glare allowing vision where normally it would be difficult. A polarized lens with either blue or grey tinting is best for observing on the water.

Use of night vision equipment increases the chance of detecting objects in the dark. This equipment easily detects even the faintest source of light. They can also be very useful when looking for an unlit object if there is sufficient background lighting. Care should be taken when using this equipment since pointing it at a bright light might diminish night vision and damage the equipment.

**C.6 Object Identification**

Lookouts must report what they see, smell, or hear with as much detail as possible. Object type is immediately important (vessel, buoy, or breaking waves), but additional details may help the BO in decision-making. The following are some obvious characteristics of objects.

- Color
- Shape
- Size

At night, lookouts must identify the color of all lights. This is the specific reason why all boat crew members must have normal color vision.

**C.7 Relative Bearing**

Lookouts make reports using relative bearings only. The relative bearing of another object depends on its location in relation to the vessel's hull. They start off with 000°, which is straight off the bow or dead ahead. The bearings increase moving clockwise around the vessel all the way to 359°. Straight out from the starboard beam of the vessel would be 090°, dead astern would be 180°, and straight out from the port beam of the vessel would be 270°. (See **Figure 1-1**)

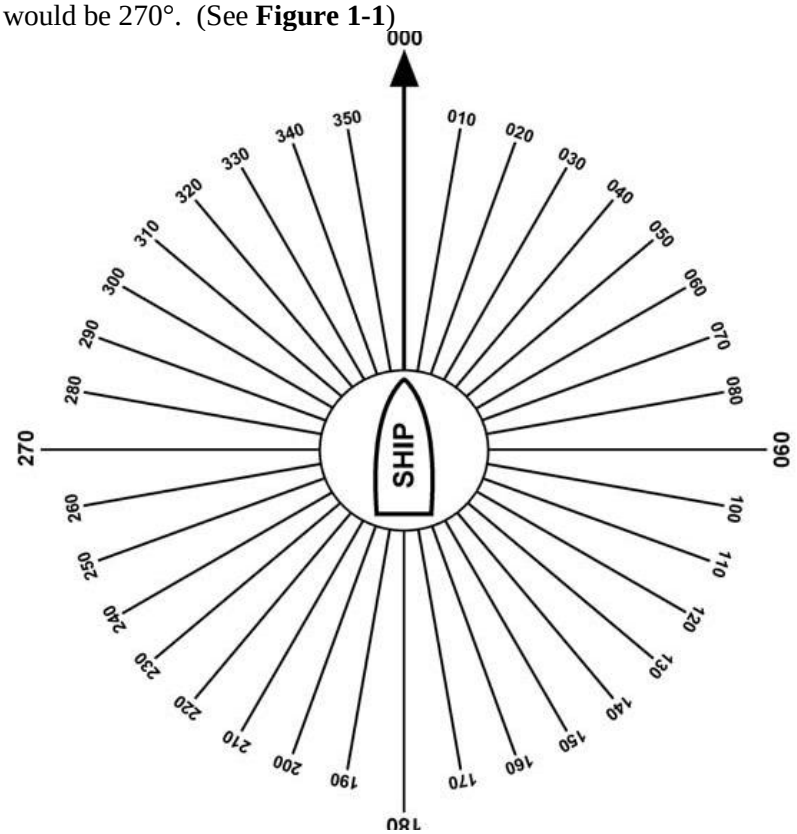


**Figure 1-1**
**Relative Bearings**

The following procedures are important in reporting bearings:

| Step | Procedure |
|---|---|
| 1 | Study the diagram on major reference points in relative bearings. Picture in your mind the |

<table>
<tr><td></td><td>complete circle of relative bearings around the boat in 10° increments.</td></tr>
<tr><td>2</td><td>Bearings are always reported in three digits and distinctly spoken digit by digit. To ensure one number is not mistaken for another, the following pronunciation is recommended:
<table>
<tr><th>Number spoken as</th><th>Number spoken as</th></tr>
<tr><td>0 = ZERO</td><td>5 = FI-YIV</td></tr>
<tr><td>1 = WON</td><td>6 = SIX</td></tr>
<tr><td>2 = TOO</td><td>7 = SEVEN</td></tr>
<tr><td>3 = THUH-REE</td><td>8 = ATE</td></tr>
<tr><td>4 = FO-WER</td><td>9 = NINER</td></tr>
</table></td></tr>
<tr><td>3</td><td>The following procedures are important in reporting relative bearings:
<table>
<tr><th>Bearing</th><th>Reported As</th></tr>
<tr><td>000°</td><td>ZERO ZERO ZERO</td></tr>
<tr><td>010°</td><td>ZERO WUN ZERO</td></tr>
<tr><td>045°</td><td>ZERO FO-WER FI-YIV</td></tr>
<tr><td>090°</td><td>ZERO NINER ZERO</td></tr>
<tr><td>135°</td><td>WUN THUH-REE FI-YIV</td></tr>
<tr><td>180°</td><td>WUN ATE ZERO</td></tr>
<tr><td>225°</td><td>TOO TOO VI-YIV</td></tr>
<tr><td>260°</td><td>TOO SIZ ZERO</td></tr>
<tr><td>270°</td><td>TOO SEVEN ZERO</td></tr>
<tr><td>315°</td><td>THUH-REE ONE FI-YIV</td></tr>
</table></td></tr>
</table>

**C.8 Position Angle**

Objects in the sky are located by their relative bearing and position angle. The position angle of an aircraft is its height in degrees above the horizon as seen from the boat. The horizon is 0° and directly overhead is 90° or "Zenith." The position angle can never be more than 90°. Position angles are reported in on or two digits and the word "Position Angle" is always spoken before the numerals. (See **Figure 1—2**)

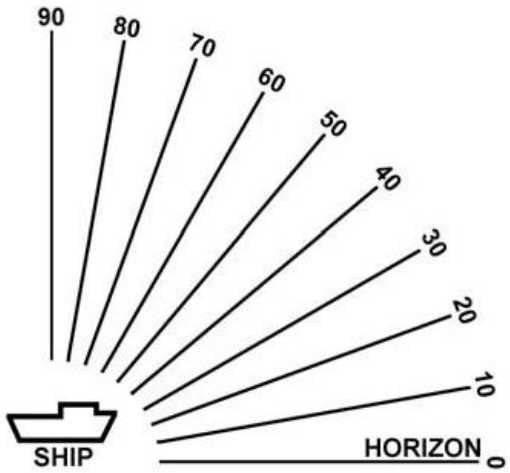


**Figure 1-2**
**Position Angles**

**C.9 Distance**

Report distances in yards. Knowing the distance to the horizon, land, or other reference point, will help estimate distance. Dividing the distance from the starting point to the point of reference, provides an estimate of distance to another object. Ranges in yards are reported digit by digit, except when reporting yards in hundreds or thousands, which are spoken as listed below:

| Number in Yards | Spoken as |
|---|---|
| 50 | FI-YIV ZERO |
| 500 | FI-YIV HUNDRED |
| 5000 | FI-YIV THOUSAND |

**C.10 Making Reports**

When making reports, the lookout names or provides a description of the object sighted, the direction (in relative degrees), the position angle (if an air contact), and the range to the object (in yard) are required and must be reported in the following format:

- Object name or description.
- Bearing.
- Position Angle (an air contact only).
- Range.

For Example:

Discolored water on a bearing of 340° relative to the bow of the boat and at a distance of 2,000 yards.

Reported as: "Discolored water Bearing THUH-REE FO-WER ZERO, Range TOO THOUSAND".

An aircraft bearing 280° relative to the bow of the ship 30° above the horizon, and at a distance of 9,000 yards.

Reported as: "Aircraft Bearing TOO ATE ZERO, Position Angle THUH-REE ZERO, Range NINER THOUSAND.

**C.11 Scanning**

The lookout's method of eye search is called scanning. Scanning is a step-by-step method of visually searching for objects. Good scanning techniques will ensure that objects are not missed. Scanning also reduces eye fatigue. Development of a systematic scanning technique is important. There are two common scanning methods:

- Left to right and back again.
- Top to bottom and bottom to top.

In either case, move eyes in increments. This creates overlaps in field of vision and fewer objects will be missed.

| Step | Procedure |
|---|---|
| 1 | When looking for an object, scan the sky, sea, and horizon slowly and regularly. Scan from left-to-right and back again or from top-to-bottom and bottom-to-top. |
| 2 | When scanning, do not look directly at the horizon; look above it. Move ahead from side to side and keep eyes fixed. This will give any stationary objects in the field of vision the appearance of moving and make them easier to see. One technique is to scan in small steps of |

| | |
|---|---|
| | about 10° and have them slightly overlap while moving across the field of view. |
| 3 | Fatigue, boredom, and environmental conditions affect scanning. For example, after prolonged scanning, with little or no contrast, the eyes develop a tendency to focus short of where the person is looking. To prevent this, periodically focus on a close object such as whitecaps or the bow of the boat. |

**C.11.a Fog Scanning**
In the fog, a contact might be heard long before it's seen. Early detection is vital. Since the fog reduces visual distance, binoculars are not recommended. It is better to have a wide field of vision than a narrow magnified one. It is also important to position the lookout where they will not be hindered by background noise and other distractions. Usually the bow is best, if conditions allow. In severe fog, a second designated lookout should be stationed to cover the aft portion of the vessel.

# Night Lookout Watch

**C.12 Description**
Although the duties for day and night lookout are the same, safety and caution during night watches are especially important. Though it might be easier to acquire a contact on the horizon at night because of its navigation lights, it's obviously more difficult to pick up unlighted objects such as rocks, shoals, and buoys. Eyes respond slower at night and pick up moving objects more readily than fixed objects.

**C.13 Guidelines**
The guidelines for lookout watches also apply for night lookout watches.

NOTE: Night vision is based on the eyes receiving and interpreting a different type of light than exists during daylight.

**C.14 Dark Adaptation**
Going from a brightly lit room to a very dark room initially decreases vision. As time in the darkness increases, vision improves and things that were not visible on the initial point of entry are now clear. As eyes adjust to the weak light, vision gradually improves. This is called dark adaptation. Before operating in dark conditions, it is recommended to prepare by moving into a dark environment or wearing goggles equipped with red lenses for 30 minutes prior to getting underway. Care should be taken not to expose eyes to bright lights once they are adjusted. Even a quick flash of light can destroy night vision. Chart and cabin lights, as well as flashlights, should be equipped with red filters to ensure night vision is maintained while underway.

NOTE: Avoid looking at bright lights during nighttime operations. When a light must be used, use a red light.

**C.15 Night Scanning**
As a night lookout, scan the horizon in a series of small sectors allowing eyes to adjust to each. When looking at an object, look all around it, not directly at it. This "off-center vision" allows the object to be seen clearer than trying to stare directly at it. Once located, use binoculars to assist with identification. The use of electronic night vision equipment is highly recommended for early detection.

**C.16 Night Fog**

In nighttime fog conditions, any source of light (navigation lights) will reflect back off the fog and reduce night vision. This effect will reduce the lookout's ability to detect contacts in various sectors surrounding the boat. Extra care should be used when operating at night in the fog. The use of spotlights is not recommended unless identifying objects that are within close range.

# Helm Watch

**C.17 Description**
The helm watch or helmsman is responsible for the following:

- Safely steering the boat.
- Maintaining a course.
- Carrying out all helm commands given by the VO

The helm watch can be carried out by the VO or by any designated crew member who is a Division employee or volunteer under the direct supervision of a VO. Every crew member should learn to steer and control the boat. They must be able to maneuver the boat using the primary steering systems as well as the engine.

**C.18 Guidelines**
When a boat uses a helmsman, as opposed to a VO, there are several guidelines for the helm watch:

- Check with the VO for any special instructions and for the course to be steered.
- Repeat all commands given by the VO
- Execute all commands given by the VO
- Maintain a given course within 5°
- Remain at the helm until properly relieved.
- Execute maneuvers only when expressly ordered, however, minor changes in heading to avoid debris, which could damage propellers or engines are essential.
- Properly inform relief of all pertinent information.

# Towing Watch

**C.19 Description**
A towing watch is normally performed aft on the boat. The primary duty of the towing watch is to keep the towline and the boat being towed under constant observation. For more information on towing procedures, see Chapter 17, Towing

**C.20 Guidelines**
The guidelines for standing this watch are as follows:

- Report any unusual conditions, equipment failure, or problems to the VO immediately
- Observe how the tow is riding (e.g., in steps, listing or yawing).
- Ensure chafing gear is riding in place.
- Adjust the scope of the towline upon command of the VO
- Keep deck space area clear of unnecessary gear and people.
- Stay clear of the immediate area around the towline due to possible line snap back.
- Know when and how to do an emergency breakaway.

**C.21 Observed Danger**
The towing watch must be aware of and report any signs of danger. Many of the sings of danger include:

- Yawing – disabled boat veers from one side to the other which may cause one or both boats to capsize
- List increasing on towed boat.
- In step – the proper distance between the towed boat and the towing boat to maintain control and prevent breaking the tow line.
- Towed boat taking on water.
- Deck hardware failure due to stress, no backing plates, etc.
- Towline about to part due to stress, chafing, or other damage.
- Towed boat overtaking boat due to sudden reduction in speed.
- Positioning of towed boat's crew.
- Slack tow line in the water that may foul propeller or motor.

**C.22 Maintaining Watch**
A tow watch should be maintained until the disabled boat is moored or until the crew member is relieved. When relieved, all pertinent information should be passed to the relief (i.e., problems with chafing gear, towed boat yaws, etc.).

# Anchor Watch

**C.23 Description**
When the boat is anchored, an anchor watch is set. The person on watch must ensure that the anchor line does not chafe and that the anchor does not drag. The individual on watch also looks for other vessels in the area. Even when the boat is anchored, there is the possibility that it can be hit by another boat. For more information on anchoring procedures, see Chapter 10, Section H

**C.24 Guidelines**
The following guidelines should be used when standing anchor watch:

- Check the strain on the anchor line frequently.
- Check that the anchor line is not chafing
- Confirm the position of the boat at least every 15 minutes, or at shorter intervals as directed by the VO.
- Report bearing or range (distance) changes to the VO immediately.
- Report approaching vessels to the VO immediately
- Report major changes in wind velocity or direction.
- Check for current changes.
- Report any unusual conditions.

**C.25 Checking for Chafing**
Once the anchor is set, chafing gear should be applied to the anchor line. It is the job of the anchor watch to ensure chafing gear stays in place and the anchor line does not chafe through.

**C.26 Checking for Dragging**
There are two methods to determine if the anchor is dragging:

- Check for tension on the anchor line.
- Check the boat's position.

If the anchor is dragging over the bottom. Sometimes vibration can be felt in the line. The boat's position should be periodically checked by taking a navigational fix. Both methods above should always be used.

**C.27 Checking for Position**

It is important to routinely check the boat's position to ensure it is not drifting or dragging anchor:

- Take compass bearings to three separate objects spread at least 45apart. Any bearing changes may indicate that the boat is beginning to drift.
- On a boat equipped with radar, determine the distance (range) to three points of land on the radar screen. Any changes in the ranges may indicate anchor drag.
- On a GPS equipped boat, mark the boat's position with the necessary equipment. Periodically check the LAT/LON readout. Any changes would show the boat's position is changing.
- Make a note of each time the bearing or ranges are checked. Also note the boat's position and the depth of water regularly. A small note pad is acceptable for this purpose. If the water depth or position changes, the anchor may be dragging.

As the wind or water current changes direction, the boat will swing about its anchor. Tis swing circle is centered in the position of the anchor. The swing circle's radius is equal to the boat's length plus the length of anchor line/chain that has veered (example: 35-foot boat + 150 feet of anchor line out =185 foot swing circle). The swing circle must be clear of other vessels and underwater obstructions. When checking the boat's position, it should fall inside the swing circle.

Last updated August 2014