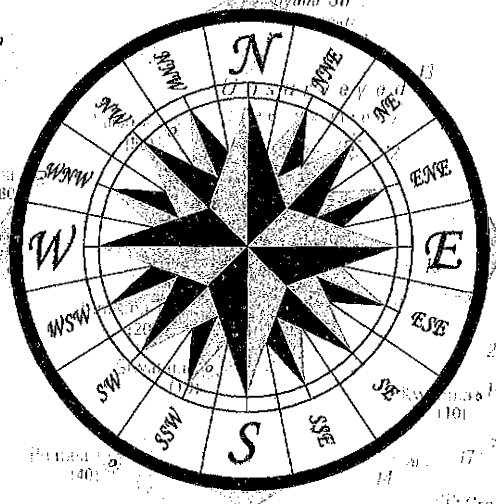
Pacific Island
Qualified Fishing Deckhand



MODULE 4

How to Keep a Proper Lookout

Coastal Fisheries Program
Training Section

South Pacific Commission

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MODULE 4:

HOW TO KEEP A PROPER LOOKOUT.

LEARNING OUTCOMES:

At the completion of this module the student shall be able to:-

- State the procedures to keep a proper lookout in order to maintain a margin of safety between own vessel and other traffic.

- Given situations, identify risk of collision by visual or radar bearings and report accordingly to the officer of the watch.

- Given situations, identify the hazardous position of the boat too close to land by:

    - land inside the radar range ring set by the skipper.

    - depth displayed on the sounder less than that specified by the skipper.

- State the importance of a visual lookout with regards to collision avoidance.

- State the signs of dragging anchor when on anchor watch.

- State the procedures to take over, or hand over, lookout duty of a vessel to ensure safety continuity.

CONTENT OUTLINE

Watchkeeping

Keeping a lookout

General Principles

Practical Watchkeeping

Calling the Master

Margin of safety

Identifying Risk of Collision

Use of Radar to Determine Risk of Collision

Taking Over or Handing Over the Watch

Keeping an Anchor Watch :

- Signs of Dragging Anchor
- Transit Bearings and Radar Distances
- Anchor Watch Duties

Watchkeeping General

This course is not meant to make the deckhand into a watchkeeper. However, it is recognized that smaller fishing vessels will have manning restraints which mean deckhands may be required to keep an unsupervised lookout. It is the skipper's responsibility to ensure a safe navigational watch is being maintained and that the watchkeeper has the ability and experience to maintain a lookout in the circumstances. It is also the Skipper's responsibility, if the deckhand is undertaking unsupervised lookout duties, to ensure that during this period the vessel is not in restricted or busy water. The Skipper is also responsible for giving the lookout very explicit instructions as to what he must do as a routine or if at any time he is in any way uncertain of the situation.

This Module will give the deckhand a knowledge of watchkeeping procedures so that he can recognize a dangerous situation is developing and report this to the skipper or his appointee.

The deckhand should be aware that he is neither legally qualified nor has sufficient knowledge to make decisions about collision avoidance or navigating the vessel. This also applies to the use of navigation equipment, especially radar, where an incomplete understanding of the operation of the equipment can lead him into wrong assumptions.

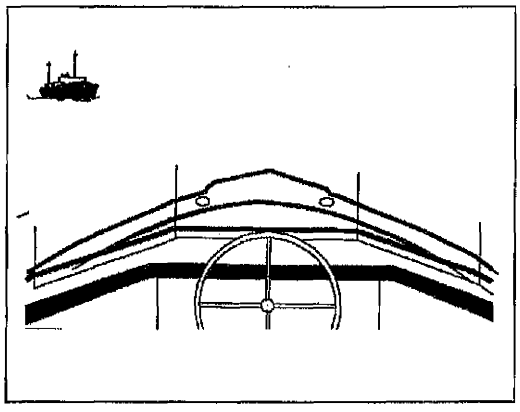


FIGURE 4.1 Keeping a Lookout

Keeping a Lookout

A resolution on "Keeping a Navigational Watch" was adopted by the International Maritime Consultative Organization (IMCO) in November 1973. This is available in pamphlet form for watchkeepers. Many sections are used verbatim in this item.

"Every ship shall at all times maintain a proper look-out 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, stranding and other hazards to navigation. Additionally the duties of the look-out shall include the detection of ships and aircraft in distress, shipwrecked persons, wrecks and debris. In applying these principles the following shall be observed:

(1) Whoever is keeping the lookout must be able to give full attention to that task and no duties shall be assigned or undertaken which would interfere with the keeping of a proper look-out.

(2) The duties of the person on lookout and the helmsman are separate and the helmsman should not be considered the person on lookout whilst steering; except in small vessels where an unobstructed all round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out.

(3) There may be circumstances in which the officer of the watch can safely be the sole lookout in daylight. However this practice shall only be followed after the situation has been carefully assessed on each occasion and it has been established without doubt that it is safe to do so. Full account shall be taken of all relevant factors including but not limited to the state of the weather, condition of visibility, traffic density, proximity of navigational hazards and if navigating in or near a traffic separation scheme."

General Principles

An unsupervised lookout should be aware of general watchkeeping principles as follows:-

- "It is essential that officers of the watch appreciate that the efficient performance of their duties is necessary in the interest of safety of life and property at sea and of the protection of the marine environment. The deckhand should be aware that the welfare of the ship and the life of his crew mates are in his hands when he is on sole watchkeeping duties.

- the officer of the watch is the skipper's representative. He shall at all times follow the skipper's standing orders and call the master if in any doubt and at any of the circumstances listed in the section "Calling the Master".

- the officer of the watch shall keep watch on the bridge and shall not leave until properly relieved."

Practical Watchkeeping

In practical terms, keeping a watch includes:-

- walking around the wheelhouse both to keep awake and to have an unobstructed view all around the horizon at all times, both ahead and astern of the vessel. No sitting down on watch.
- checking the navigation lights are burning brightly,
- checking the vessel is maintaining its course, which also entails comparing the magnetic and gyro compasses
- possibly checking engine gauges
- if weather is rough, periodically checking deck and engine room for loose equipment, bilge level etc.
- regularly checking the vessel is maintaining its correct course
- checking the ship's position at frequent intervals or, if this is beyond the deckhand's capabilities, identifying a hazardous position of the vessel by land being inside the radar range ring set by the skipper or by the depth displayed by the sounder being less than that specified by the skipper.
- having the radio on a station where distress messages or weather forecasts might be heard
- reporting the presence of other vessels as required by the skipper.

Calling the Master

The Master should be informed immediately in any of the following situations:-

a. restricted visibility occurs or is suspected

b. traffic conditions or movements of other vessels is causing concern

c. difficulty is experienced in maintaining a course

d. failure to sight land, a navigation mark or to obtain sounding by a given time

e. land or a navigation mark is sighted or a change in soundings occurs unexpectedly

f. breakdown of the engines, steering gear or any navigational equipment

g. heavy weather or if there is the possibility of heavy weather damage.

Margin of Safety

During an unsupervised lookout, it is important the deckhand knows that a margin of safety must always be maintained between his own vessel and other traffic. This may be done by the skipper setting a range ring (of perhaps 2 miles) on the radar and advising the deckhand to call him if any vessel comes inside this distance. Alternatively it may be by the lookout being instructed to call the skipper should any traffic whatsoever be sighted, or by calling the skipper if any vessels appear to be on a collision course. This will depend on the individual circumstances and skippers preferences.

Identifying Risk of Collision

The deckhand should not make any alterations of course to avoid collision on his own initiative. Although radar is a useful tool in determining whether there is a risk of collision it is no substitute for an efficient visual lookout, which should be maintained at all times.

Risk of collision can be ascertained by taking frequent and accurate compass bearings of an approaching vessel as a means of early detection of risk of collision. If this bearing is not appreciably changing then there is a risk of collision.

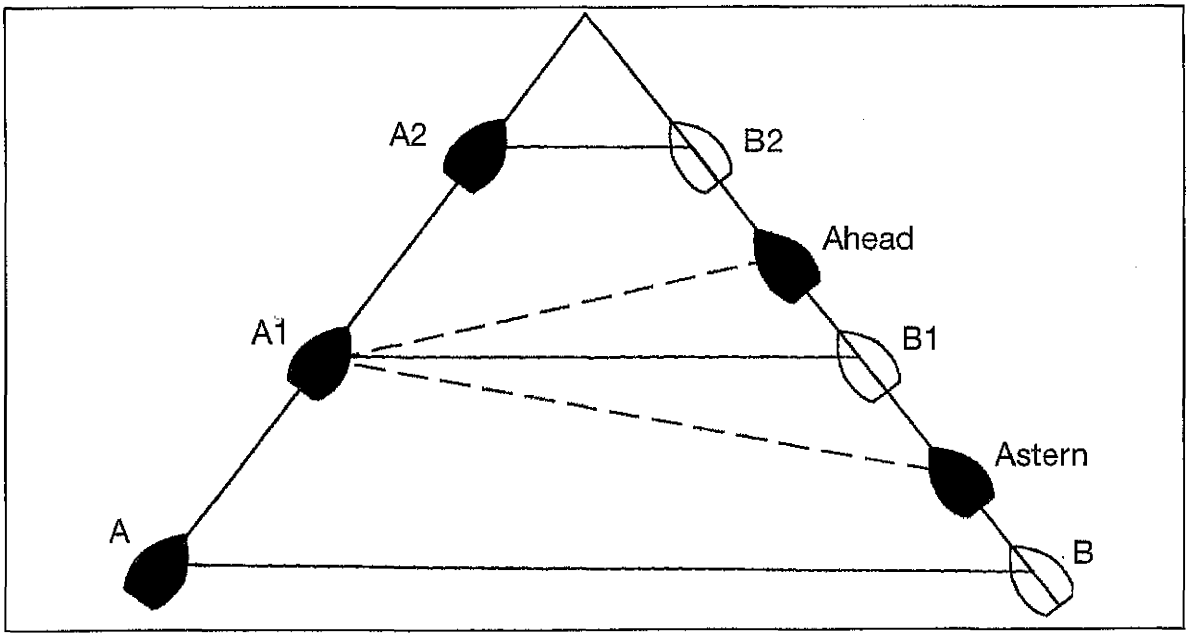


Figure 4.2 Identifying Risk of Collision

In the above figure vessel A takes a bearing of vessel B. If this bearing remains the same, when A gets to A1, B will reach B1 and when A gets to A2, B will reach B2. Both vessels are traveling along their respective course lines in such a way that they will reach the crossing point at the same time. There is risk of collision.

If the bearing of vessel B is appreciably changing towards the bow, as is shown by bearing changing to the "Ahead" position, then B will reach the point where their courses cross before ship A and will pass ahead. If the bearing of ship B is appreciably changing towards the stern as in the "Astern" position it will reach the point where their courses cross after ship A and cross astern of A.

Radar for Determining Collision

Radar can also be used to determine if a risk of collision exists.

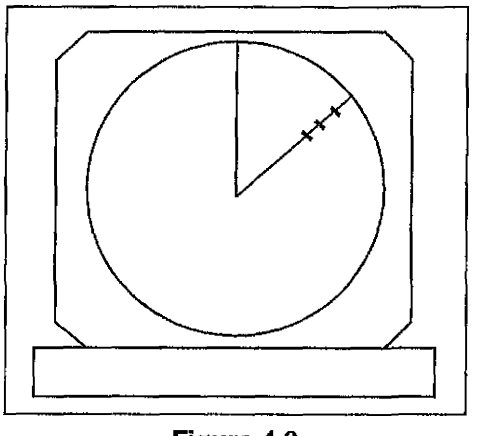


Figure 4.3

By placing the bearing cursor or the Electronic Bearing Line (EBL) over the target on the screen a vessel on a collision course will appear to travel down this line directly toward your vessel at the center of the screen. Similar to visual bearings, the bearing of the target will not be changing.

It must be understood that this is a relative bearing and if your vessel alters course or is yawing badly the target will appear to change its bearing. Also, the movement of the target on the radar screen does not show the course of the other vessel. This movement is the combined movement of both vessels, with your vessel always appearing to be at the center of the screen. A radar plot would be necessary to determine the course and speed of the other vessel and a deckhand is not equipped to interpret a radar display. Visual identification of the target is essential.

Taking Over or Handing Over the Watch

When taking over or handing over a watch the previous watchkeeper must give the new watchkeeper all of the information he has accrued during his watch and ensure the new watchkeeper is completely capable of carrying out watchkeeping duties.

To ensure this :-

- Do not hand over the watch if you are in any doubt about the ability of the new watchkeeper to effectively carry out his duties. This might include him being drunk, under the influence of medication or drugs, unable to keep awake due to lack of sleep. If in doubt call the skipper.

- Do not leave the bridge until the relieving watchkeeper has his full night vision and is totally aware of all of the circumstances of the watch including:
    - standing orders and other special instructions of the skipper relating to the navigation of the vessel
    - the position course and speed of the vessel
    - the prevailing tides, current and weather and the effect of these on the course and speed of the vessel
    - the navigational situation including:
        - the operational condition of all navigational and safety equipment being used or likely to be used during the watch
        - errors of gyro and magnetic compass
        - the presence and movement of vessels in sight or known to be in the vicinity
        - conditions and hazards likely to be encountered during the watch

If a manoeuvre is taking place or there is a close quarter situation with another vessel the watch should not be handed over until these are complete.

Keeping an Anchor Watch

SIGNS OF A DRAGGING ANCHOR

The main responsibility of the watchkeeper is to ensure that the vessel does not drag its anchor. When the vessel is at anchor it will normally lie head to the wind and swing around that point. The only exception to this would be if there was sufficient tide or current to overcome the effect of the wind.

When the anchor begins to drag it means the anchor is no longer holding the ship's head into the wind. As the anchor drags the bow of the vessel will fall away from the wind and the vessel will lie beam onto the wind. It will then drift sideways downwind dragging the anchor with it. The anchor may occasionally catch hold and temporarily bring the head into the wind. It may be possible to hold the anchor chain and feel the anchor dragging on the bottom. If the vessel is lying side on to the wind, check for a dragging anchor.

TRANSIT BEARINGS AND RADAR DISTANCES

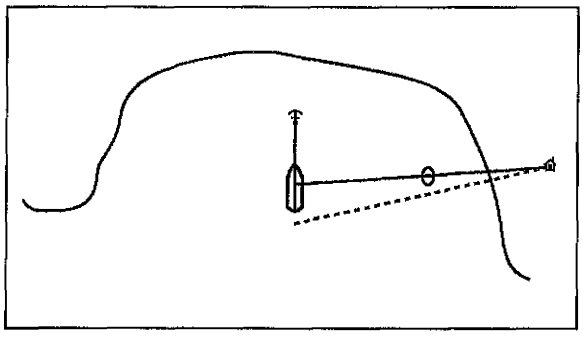


Figure 4.4

Figure 4.4 shows a vessel anchored with transit bearings of an island with a house directly behind it to the side of the vessel. Should the vessel start dragging its anchor the transits will quickly open up indicating the vessel is moving its position and dragging its anchor.

Figure 4.5 shows the same vessel on radar with a range ring set on the land directly in front of it. If the vessel drags back against the wind it will quickly move the range ring away from the land showing the vessel is dragging.

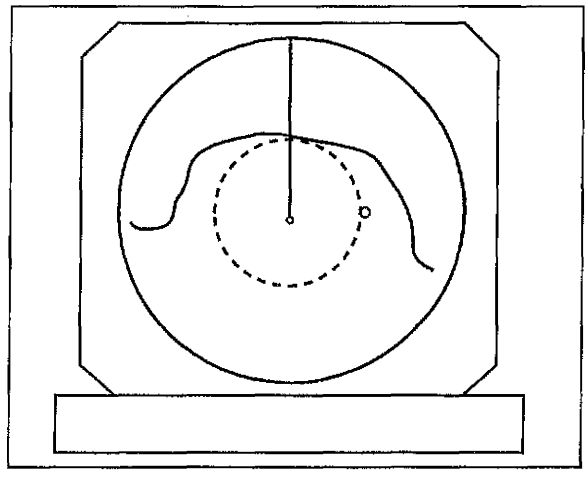


Figure 4.5

ANCHOR WATCH DUTIES

As well as ensuring the vessel does not drag its anchor the watchkeeper should also:-

a. maintain an efficient lookout at all times

b. make periodic inspection rounds

c. observe meteorological and tidal observations and state of the sea

d. notify master if anchor drags

e. if visibility deteriorates inform the master

f. make sure the vessel is showing the correct shapes and lights for a vessel at anchor

g. take steps to protect the environment from pollution.

TEACHING NOTES

Take time to explain the points covered in the preceding notes under each heading:

Watchkeeping

Keeping a Lookout

General Principles

Practical Watchkeeping

Calling the Master

Margin of Safety

Identifying Risk of Collision

Use of Radar to determine Risk of Collision

Taking over or Handing Over the Watch

Keeping an Anchor Watch.

Include the students in the discussion to discuss practices on their own boats.

Use OHP 4.2 and OHP 4.3 to illustrate how risk of collision can be ascertained both by visual and radar bearings.

Use OHP 4.4 and 4.5 to explain how transit bearings and radar ranges can be used as a quick means of whether the anchor is dragging.

Assignments.

Have the students read the notes and answer the questions below.

1. List eight things you will do when keeping a lookout or unsupervised bridge watch.

2. Explain in detail how you will ascertain whether there is risk of collision with an approaching vessel :

   a. without radar

   b. using radar

   What would you do if you considered there was a possibility of collision?

3. What are the dangers of relying solely on the radar to ascertain risk of collision?

4. List six steps you would take when handing over the watch to another watchkeeper.

5. How can you tell if the vessel is :

   a. too close to land ?

   b. too close to another boat?

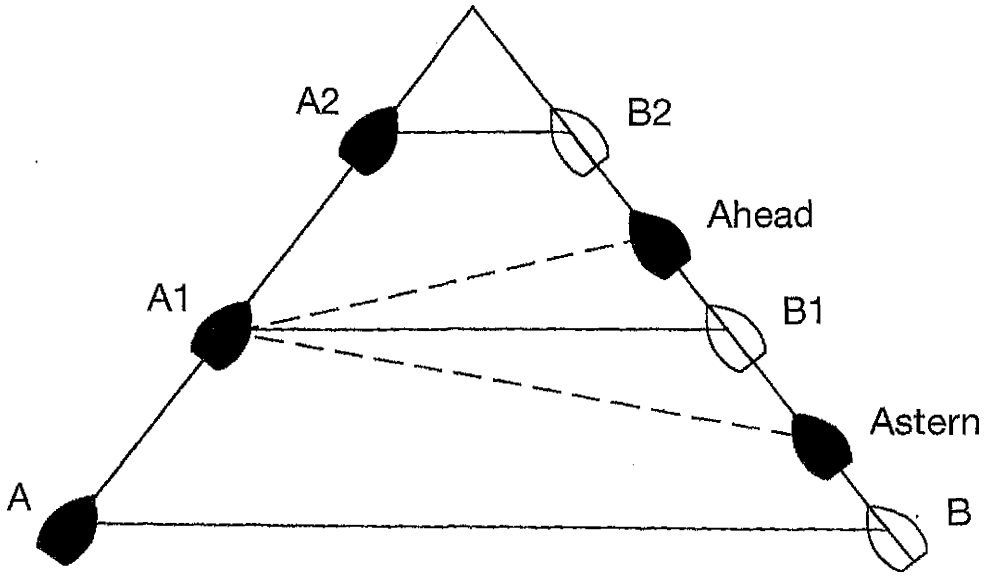
   When do you think a vessel will be too close to land or another vessel?

6. Explain how you would know a vessel was dragging its anchor while you were on anchor watch. List the other duties you will have if in charge of the anchor watch.

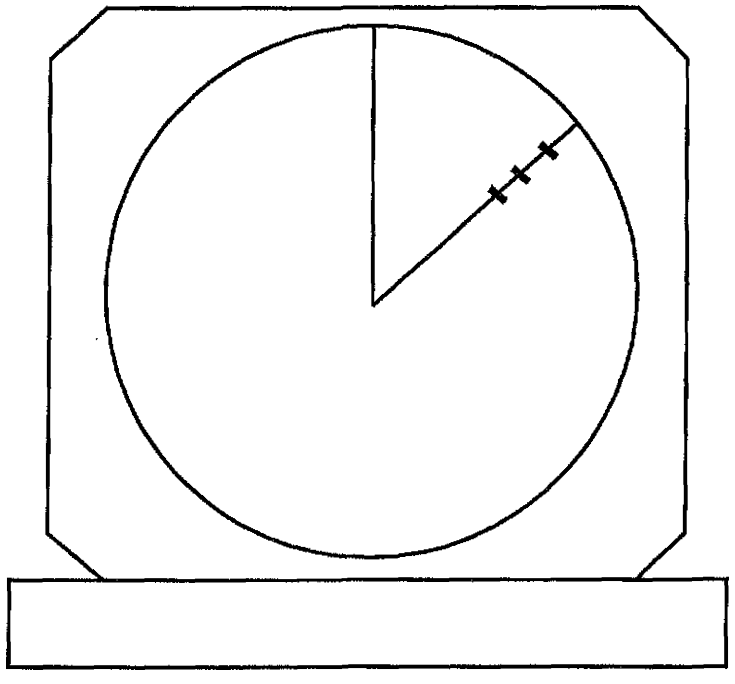
List of OHPs

OHP 4.2/3

Determining Risk of Collision

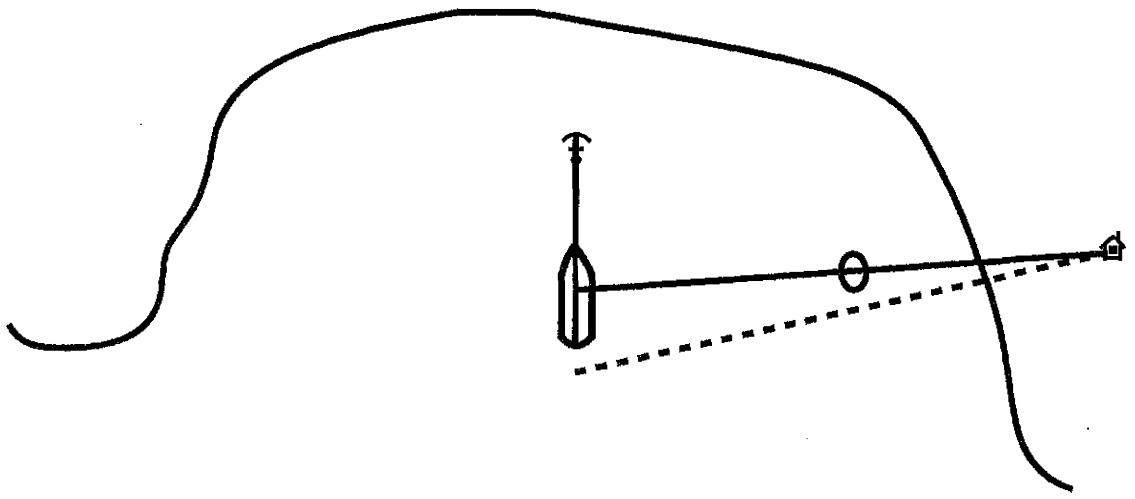


Use of Radar to Determine Risk of Collision



OHP 4.4/5

Transit Bearing to Show if the Anchor is Dragging



Radar Distance to Show if the Anchor is Dragging