Note:

This document is designed to be a reference guide to the standard operating procedures for Pelagica as recommended by the Faculty of Science at Macquarie University.

This document is not a comprehensive instruction book for operating a vessel and is not a replacement for adequate training and certification.

Only people who have completed an approved induction and training program and are approved by the Marine Fieldwork Manager are permitted to operate Pelagica.

Document Author: Benjamin Pitcher
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Section 1: Important Information
Master’s Responsibilities

The Master of the vessel is responsible for:

- Holding a valid General Boat Licence, Personal Watercraft Licence or a higher qualification.
- Ensuring that they have been fully inducted, trained and approved by the Marine Fieldwork Manager.
- Ensuring that they are competent to perform the required tasks and that they are not under the influence of any alcohol or drugs, including medications that may impair their ability to operate the vessel.
- Being familiar with this SMS and its associated documents including the operational and emergency procedures of the vessel.
- Ensuring that the vessel operations have been approved by the Marine Fieldwork Manager.
- The decision to commence vessel operations based on the weather, the condition of the vessel, the abilities of those onboard and the tasks to be performed.
- The decision to cease vessel operations if conditions become unsafe or a likely to become unsafe.
- Considering the views of those onboard when assessing the safety of operations including the decision to cease or cancel operations.
- Ensuring that all appropriate safety equipment is onboard and operational before setting off.
- The safety of themselves and the others onboard the vessel.
- Performing a pre-trip briefing for all special personnel onboard.
- Issuing clear and concise instructions to those onboard when necessary.
- Allocating tasks to those onboard and ensuring that they have sufficient instruction or experience to perform those tasks.
- Controlling and coordinating emergency responses and delegating tasks.
- Complying with all relevant rules and directions in relation to the operation of the vessel, including but not limited to:
  - The International Regulations for Preventing Collisions at Sea (COLREGS)
The maintenance of the vessel whilst it is in their use.

Performing daily maintenance checks.

Reporting any maintenance issues to the Marine Fieldwork Manager as soon as practical.

The correct reporting of any incidents, including to both Macquarie University and NSW Maritime.

Reviewing the operational and emergency procedures of the vessel and reporting any necessary changes to the Marine Fieldwork Manager.

Assisting the Marine Fieldwork Manager with the internal audit of this SMS and its associated documents.

Note: All Masters of the vessel must understand and agree to these responsibilities before operating Pelagica.

A Master has the responsibility to refuse to operate the vessel if they at anytime feel that they are not fit or competent to do so, or that the vessel or conditions are not fit for operations.

The Master may deviate from the stated or normal procedures outlined by the Faculty if there is a risk to human life, the vessel or the environment, provided that the deviation does not increase the risk.

Similarly, the Marine Safety (Commercial Vessels) Regulation 2010, Division 2 of Part 13, states that The Master, Special Personnel, and other persons are exempt from complying with the Regulation in relation to:

a) action taken for the purpose of securing the safety of any person or avoiding significant risk to the environment, or

b) action taken in compliance with a direction given by a relevant officer.
About the Vessel – Pelagica

Table 1

<table>
<thead>
<tr>
<th>Name</th>
<th>Pelagica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel Type</td>
<td>AIRIB Rover 6.2</td>
</tr>
<tr>
<td>Registration Number</td>
<td>58294 (NSW)</td>
</tr>
<tr>
<td>Registration Type</td>
<td>2C</td>
</tr>
<tr>
<td>Trailer Registration</td>
<td>V67153 (NSW)</td>
</tr>
<tr>
<td>Measured Length</td>
<td>5.95 m</td>
</tr>
<tr>
<td>Beam – overall</td>
<td>2.4 m</td>
</tr>
<tr>
<td>Beam – internal at deck</td>
<td>1.75</td>
</tr>
<tr>
<td>Deadrise</td>
<td>20°</td>
</tr>
<tr>
<td>Hull Alloy Thickness</td>
<td>4 mm</td>
</tr>
<tr>
<td>Collar tube diameter</td>
<td>440 mm</td>
</tr>
<tr>
<td>Engines</td>
<td>2 x Yamaha FT60DETX/09</td>
</tr>
<tr>
<td>Engine power</td>
<td>60 hp (44.13 kW) each</td>
</tr>
<tr>
<td>Propellers</td>
<td>13.5 x 15&quot;</td>
</tr>
<tr>
<td>Fuel Capacity</td>
<td>150 L</td>
</tr>
<tr>
<td>Weight un-laden</td>
<td>630 kg</td>
</tr>
<tr>
<td>Maximum loading – planning</td>
<td>933 kg</td>
</tr>
<tr>
<td>Maximum loading – displacement</td>
<td>1400 kg</td>
</tr>
</tbody>
</table>
Crewing, Personnel Numbers, Loading and Stability

Crewing:

Only people who have received an induction and training and have been approved by the Marine Fieldwork Manager may act as the Master of Pelagica.

All vessel operations must be approved by the Marine Fieldwork Manager before work is commenced.

The Faculty of Science recommends that a minimum of two people (the Master + one other) be onboard the vessel at all times whilst underway. However, the vessel may be operated by a single person in situations that have been approved by the Marine Fieldwork Manager.

Personnel Numbers:

Pelagica may carry a Maximum of 14 personnel (the Master + 13 special personnel) when operating on smooth waters at displacement speeds.

For operation at planning speed on smooth waters this number should be reduced to a Maximum of 8 (the Master + 7 others).

For operation in open waters the Faculty of Science recommends a Maximum of 6 personnel (the Master + 5 others).

These Maximums should be reduced by the Master as appropriate depending on the expected conditions, work to be carried out and the equipment to be carried. The Master is responsible for the loading of the vessel.

Loading and stability:

The Personnel Numbers given above do not take into account any additional equipment for research or personnel. Additional equipment such as diving gear, nets or samples should be included when calculating the loading of the vessel. For the purpose of loading a person is considered to be approximately 75 kg. The approximate weight of equipment should be subtracted from the maximum number of personnel that can be carried onboard.
The Maximum Loading as recommended by the manufacturer is 1400 kg of equipment and personnel (14 persons max) when operating in displacement mode on smooth water, and 933 kg of equipment and personnel when operating in planning mode.

The Master is responsible for maintaining the stability and supervising the loading of the vessel at all times, and should direct personnel to the best location for them to travel to maintain stability.

All personnel onboard should follow the instructions of the Master in relation to the loading of equipment and personnel.

The Master should distribute the weight of personnel and equipment in such a way so as to maintain a level position in the water.

Too much weight at the stern can introduce the risk of being pooped (having water come over the transom) or being flipped by the bow being lifted into the air by a wave. Too much weight in the bow can lead to bow steering (where the bow catches the water as turns the boat around), burring the bow and/or broaching (where the bow dives into the water and catches, causing the boat to turn violently and potentially roll). Too much weight to either side can affect the handling of the vessel and increase the risk of the vessel rolling.

In rough weather it may be necessary to tie down or secure equipment to prevent it from shifting and affecting the stability of the vessel.

![Figure 1](image)

Incorrect loading can cause a vessel to become unstable and roll.
Weather and Plying Limits

Pelagica is permitted up to 15 nautical miles offshore and 30 nautical miles along the coast from a safe harbour.

Operation in open waters is only permitted in weather conditions of Beaufort 4 or less, i.e. moderate breeze up to 16 kn or 28 km/h.

When operating on smooth or partially smooth waters the Master should make a judgement if the weather is safe based on forecasts and local conditions.

Masters are responsible for knowing the weather forecast and monitoring the weather during operations. If the weather begins to deteriorate the Master should cease operations and make for a safe haven.

The Master should be aware of alternate safe havens if for some reason the primary one is unreachable.

Weather Forecasts:

The Bureau of Meteorology
www.bom.gov.au

Seabreeze
www.seabreeze.com.au

Buoy Weather
www.buoyweather.com

Weather forecasts are also given on VHF Marine Radio by NSW Marine Rescue. They are announced on ch 16 and listeners are directed to the appropriate working channel to hear the forecast.

Weather forecasts can also be requested from NSW Marine Rescue. Contact Marine rescue on ch 16 using the standard procedure and request a forecast when on a working channel.
<table>
<thead>
<tr>
<th>Beaufort Number</th>
<th>Description</th>
<th>Wind Speed (Knots)</th>
<th>Wave Height (metres)</th>
<th>Sea Conditions</th>
<th>Land Conditions</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Calm</td>
<td>&lt;1</td>
<td>0</td>
<td>Flat.</td>
<td>Calm. Smoke rises vertically.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Light air</td>
<td>1-3</td>
<td>0-0.2</td>
<td>Ripples without crests.</td>
<td>Smoke drift indicates wind direction, still wind vanes.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Light breeze</td>
<td>4-6</td>
<td>0.2-0.5</td>
<td>Small wavelets. Crests of glassy appearance, not breaking</td>
<td>Wind felt on exposed skin. Leaves rustle, vanes begin to move.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gentle breeze</td>
<td>7-10</td>
<td>0.5-1.0</td>
<td>Large wavelets. Crests begin to break; scattered whitecaps</td>
<td>Leaves and small twigs constantly moving, light flags extended.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>--------</td>
<td>------</td>
<td>------</td>
<td>-----------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Strong breeze</td>
<td>22-27</td>
<td>3-4</td>
<td>Long waves begin to form. White foam crests are very frequent. Some airborne spray is present. Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Near gale</td>
<td>28-33</td>
<td>4-5.5</td>
<td>Sea heaps up. Some foam from breaking waves is blown into streaks along wind direction. Moderate amounts of airborne spray. Whole trees in motion. Effort needed to walk against the wind.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Gale</td>
<td>34-40</td>
<td>5.5-7.5</td>
<td>Moderately high waves with breaking crests forming spindrift. Well-marked streaks of foam are blown along wind direction. Considerable airborne spray. Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Strong gale</td>
<td>41-47</td>
<td>7.5-10</td>
<td>High waves whose crests sometimes roll over. Dense foam is blown along wind direction. Large amounts of airborne spray may begin to reduce visibility.</td>
<td>Some branches break off trees, and some small trees blow over. Construction/temporary signs and barricades blow over.</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>-------------</td>
<td>-------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Storm</td>
<td>48-55</td>
<td>10-12.5</td>
<td>Very high waves with overhanging crests. Large patches of foam from wave crests give the sea a white appearance. Considerable tumbling of waves with heavy impact. Large amounts of airborne spray reduce visibility.</td>
<td>Trees are broken off or uprooted, saplings bent and deformed. Poorly attached asphalt shingles and shingles in poor condition peel off roofs.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Violent storm</td>
<td>56-63</td>
<td>12.5-16</td>
<td>Exceptionally high waves. Very large patches of foam, driven before the wind, cover much of the sea surface. Very large amounts of airborne spray severely reduce visibility.</td>
<td>Widespread damage to vegetation. Many roofing surfaces are damaged; asphalt tiles that have curled up and/or fractured due to age may break away completely.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Hurricane</td>
<td>64+</td>
<td>16+</td>
<td>Huge waves. Sea is completely white with foam and spray. Air is filled with driving spray, greatly reducing visibility.</td>
<td>Very widespread damage to vegetation. Some windows may break; mobile homes and poorly constructed sheds and barns are damaged. Debris may be hurled about.</td>
<td></td>
</tr>
</tbody>
</table>
Trip Preparation

- Obtain charts of the area and plan the work: navigational hazards, travel time, fuel consumption, launching point and alternatives, planned emergency procedures.

- Identify any additional safety equipment (dive flag, diver life line, oxygen kit, additional o2 cylinders) or non-standard equipment that you might need (stern anchor, extra anchor line). Note: a “C” – size cylinder will be consumed by a single diver in approximately 30 minutes.

- Book the boat, and a suitable towing vehicle (4WD).

- Submit your completed Risk Assessment and Fieldwork Notification to the Marine Fieldwork Manager.

- Keep a copy of the Risk Assessment (with Emergency Contact numbers) with you in the boat.

- Arrange a call back procedure and give a copy of the risk assessment to your call back person so they have the information they will need if you fail to return.

- Do you have enough anchor line? In favourable conditions the anchor and chain length (scope) should be 5 times the depth of water. In Average conditions scope = 8:1, Rough conditions scope = 10:1. Do you need a second anchor? Are you operating at night? – lifejackets will need lights added. Book these in advance.
Standard Equipment

The following equipment is carried onboard Pelagica

### Grab Bag

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPIRB</td>
<td></td>
</tr>
<tr>
<td>Flares Kit (3 parachute, 2 red, 2 Orange)</td>
<td></td>
</tr>
<tr>
<td>V-Sheet</td>
<td></td>
</tr>
<tr>
<td>Torch</td>
<td></td>
</tr>
<tr>
<td>Sound Signal</td>
<td></td>
</tr>
</tbody>
</table>

### Plastic Tubs (under rear seat)

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Extinguisher CO2</td>
<td></td>
</tr>
<tr>
<td>Bucket</td>
<td></td>
</tr>
<tr>
<td>Lifejackets x 8</td>
<td>Under canopy</td>
</tr>
<tr>
<td>Tool Kits</td>
<td></td>
</tr>
<tr>
<td>Fuel Funnel</td>
<td></td>
</tr>
<tr>
<td>4-Stroke engine oil</td>
<td></td>
</tr>
<tr>
<td>Foot Pump for inflating collar</td>
<td></td>
</tr>
<tr>
<td>Knife</td>
<td></td>
</tr>
<tr>
<td>Sea Anchor</td>
<td></td>
</tr>
<tr>
<td>Spare Ropes</td>
<td></td>
</tr>
</tbody>
</table>

### Other Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>First aid kit</td>
<td>Locker below steering wheel</td>
</tr>
<tr>
<td>Lifejackets x 4-6</td>
<td>Under canopy</td>
</tr>
<tr>
<td>Mooring lines x 2</td>
<td>Locker below steering wheel</td>
</tr>
<tr>
<td>Paddles x 2</td>
<td>Clipped to the inside of the collar</td>
</tr>
<tr>
<td>Boat hook</td>
<td>Along the floor next to the collar</td>
</tr>
<tr>
<td>Fenders x 2</td>
<td>Anchor well</td>
</tr>
</tbody>
</table>
Charts

Pelagica carries a GPS / Depth Sounder that provides an approximate electronic chart of most navigable waters along the NSW coast. This unit should not be relied upon as the sole method of navigation. Electronic equipment can fail in an emergency.

Figure 2

The GPS / Sounder onboard Pelagica

*PAPER* copies of nautical charts for the area of operation *MUST* be carried onboard the vessel at all times when it is in use. It is the responsibility of the Master to ensure that appropriate charts are onboard the vessel.

Masters are required to be familiar with nautical charts, their symbols and use.
**Lifejackets**

The Faculty of Science provides Type 1 Personal Flotation Devices (PFDs) for use onboard Pelagica. A *Minimum* of one for every person onboard should be carried.

Two types of jackets are provided; Standard Foam PFD Type 1 and Manual Inflatable PFD Type 1.

![Standard PFD Type 1](image1)

![Manual Inflatable PFD Type 1](image2)

**Figure 4**

Lifejackets are located in two places:

- In the netting under the canopy (above the driver’s head)
- In the plastic tubs beneath the rear seat marked “Lifejackets”

![Lifejackets in netting](image3)

**Figure 5** Lifejackets are in the netting under the canopy, or in the plastic tubs
The Faculty of Science does not require that lifejackets be worn at all times. However personnel onboard the vessel are encouraged to wear a lifejacket if they wish.

**The wearing of lifejackets is compulsory in the following circumstances:**

- At night and during poor visibility
- When the vessel breaks down or looses manoeuvrability
- When crossing a bar
- At all times by a person wearing waders or any other equipment that would impair the ability to swim
- By anyone who cannot swim
- By anyone who is operating the vessel alone
- By any person who is 17 years or less and is not a university student
- At anytime of heightened risk (i.e. anytime when the risk of falling overboard or the difficulty of recovering a person is greater than normal vessel operations, e.g. poor weather)

All persons should be instructed where the lifejackets are located and how to operate them as part of the pre-trip briefing.

Remember: The manual inflatable jackets need to be activated to provide flotation. Put on the PFD like a jacket and fasten the buckle. Adjust the straps to be snug. Pull down on the toggle to inflate. There is a mouthpiece that can be used to add extra air if the jacket does not fully inflate.

![An inflated manual inflatable lifejacket](image)

*Figure 6 An inflated manual inflatable lifejacket*
Minimum Personal Clothing and Supplies

- Boating activities often involve exposure to the elements and limit the chance to quickly leave an environment. All people onboard MQ vessels should take precautions to ensure that they have adequate protection from the elements.

- Protection to consider includes from the sun (sunburn), heat and cold including wind chill factors, rain, spray, and in water activities such as diving.

- Even on what would be a nice day on the land it can be cold in an open boat on the water.

- Things to consider taking with you are:
  - Warm clothing (remember layers are best)
  - Waterproof clothing (even if rain isn’t forecast, you can get wet from spray)
  - Sun hat
  - Sun screen
  - Sunglasses
  - Beanie and gloves
  - Appropriate footwear for entering and exiting the boat or for protection from equipment carried on the boat.

- It is also necessary to take an appropriate supply of food and water onboard.
  - Minimum 2 litres of water per person when operating offshore
  - Suitable snacks or food for the day’s activities
  - High energy food is useful
  - If feeling seasick it is often beneficial to eat dry biscuits or a similar plain food
  - Warm food or drinks in cold weather and for diving activities
Communication and Emergency Signals

Who to contact

In the event of an emergency while on the water your first point of contact should be the nearest Marine Rescue Organisation. They have the skills to coordinate on the water emergency responses. It is best to attempt to contact the emergency services using a marine radio because your call can be heard by anybody monitoring that radio channel. It may be that there is another vessel near by that can come to your aid, or that you are too far away from a shore receiver for your signal to be received and you need another vessel to ‘relay’ the message for you. If you are working on inland waters, or cannot raise Marine Rescue on the radio you can use a mobile phone if you have signal to call Triple 0. After you have dealt with the emergency you should contact the Marine Fieldwork Manager to inform them of the situation so that they can coordinate any necessary assistance.

Logging with Marine Rescue NSW

The Faculty of Science requires that any voyage that involves Pelagica proceeding into open waters (i.e. outside a protected harbour or waterway) is logged with the local Marine Rescue organisation. This can be done by calling Marine Rescue on VHF channel 16. You will be asked to provide details about the vessel, the number of people onboard, your destination, your expected time of return, and a shore contact person.

It is critical that you remember to LOG OFF with Marine Rescue when you return from your voyage. If you do not log off by the agreed time they will commence search procedures. If you wish to extend your voyage contact Marine Rescue and inform them of your new time of return.

Skeds and call-back procedures

In addition to logging with Marine Rescue, vessel users are required to organise a scheduled call (Sked) with a person who will remain on land. This person is to be provided with a copy of the itinerary and details of the vessel. A time is to be agreed for you to make contact with this person to inform them that all persons are safe. If the person does not hear from you at the agreed time they are to begin search procedures through an agreed method.
method should be discussed with the Marine Fieldwork Manager as part of your risk assessment.

Radio Communications

Radio should be the first communication method. This communicates directly with Marine Rescue and other vessels that may be nearby. Pelagica carries a fixed Marine VHF radio. Marine VHF radios operate over distances of up to 50 km depending on the radio type, environment and weather. The Faculty of Science recommends that all Masters of Pelagica receive training in marine radio use and hold a certificate of competency.

Figure 7 The VHF Marine Radio onboard Pelagica

Channel 16 and Radio Silence Periods

It is good practice to monitor channel 16 on VHF radios. This channel is the International Radiotelephony distress, urgency, safety and calling channel. It is used to communicate with Marine Rescue organisations and call other vessels. Once communication is established radio users should move to another 'working' channel to continue their conversation so as to free up channel 16.

It is the practice in all Australian waters to observe silence periods on VHF channel 16 during which time no non-emergency radio transmission are to be made. Radio users should listen to the radio to hear any weak distress transmissions during this time.
Radio Silence Periods are for three minutes on the hour and half hour, e.g., from 12:00 to 12:03 and from 12:30 to 12:33.

Radio Repeater Channels

Because VHF communication is primarily “line of sight” a series of “Repeater” stations is set up along the coast to rebroadcast signals over a greater distance. As these stations can broadcast over great distances repeater channels should only be used if directed by Marine Rescue or other organisations, or if vessels cannot be raised on any other channel.

VHF Marine Repeater Channels operate in the Duplex mode on channels 21, 22, 80, 81 or 82.

Position Information

Preference should be given to indicating the position by latitude and longitude (degrees and minutes and decimal points of a minute if necessary, North or South, East or west); or true bearing and distance (the unit of distance should always be specified, for example, nautical miles or kilometres) from a known geographical point (for example 045 degrees true from “Point Danger”, 24 nautical miles); or a precise geographical location (for example, in the case of a vessel running aground).

Where latitude and longitude are not used, care must be taken to ensure that the position given cannot be confused with any other place or geographical point. If afloat and drifting, the rate and direction of drift could be stated in the distress message.

Receiving a distress call

If you hear a distress message from another vessel which is, beyond any possible doubt, in your vicinity, you should immediately acknowledge receipt. However, in areas where reliable communications with a limited coast station (e.g. a Marine Rescue Station) is practicable, you should defer this acknowledgment for a short interval to allow the limited coast station to acknowledge receipt.
If you receive a distress message from another vessel which, beyond any possible doubt, is not in your vicinity should defer their acknowledgment to allow vessels nearer to the distressed vessel to acknowledge without interference.

If you receive a distress message from another vessel which, beyond any possible doubt, is a long distance away, you need not acknowledge receipt unless this distress message has not been acknowledged by any other station.

When you hear a distress message which has not been acknowledged by other stations, but you are not in a position to provide assistance, you should acknowledge the call and then take steps to attract the attention of a limited coast radio station or other vessels which might be able to assist.

**Grave and Imminent Danger – Mayday**

The distress signal is the word MAYDAY. The transmission of the distress signal indicates that the vessel, or persons onboard the vessel, are in GRAVE AND IMMINENT DANGER and require immediate assistance.

- Tune VHF radio channel 16
- Listen to ensure channel is clear, however you can break into a conversation
- Depress and hold the push to talk button
- Speak clearly at a normal level into the microphone
- “Mayday, mayday, mayday. This is Pelagica, Pelagica, Pelagica.” Give position, nature of the emergency, and other information (such as number of people onboard)
- Listen for reply
- Repeat until answered
- Communicate with the receiver to arrange assistance

**Urgent message about the safety of your vessel – Pan Pan**

The urgency signal consists of the words PAN PAN, and indicates that the caller has an urgent message to transmit concerning the safety of the vessel or person. It has priority over all other communications except distress.

The urgency signal may be used to precede a message where urgent assistance is required, e.g. concerning a ‘man overboard’ requesting assistance to locate that person.
- Tune VHF radio to channel 16
- Listen to ensure channel is clear, however you can break into a conversation
- Depress and hold the push to talk button
- Speak clearly at a normal level into the microphone
- “Pan Pan, Pan Pan, Pan Pan. All Stations, All Stations, All Stations. This is Pelagica, Pelagica, Pelagica.” Give position and urgent message
- Listen for reply
- Repeat until answered
- Communicate with the receiver to arrange assistance
The Safety Signal – Securite

The safety signal consist of the word SECURITE (pronounced SAY-CURE-E-TAY), and indicates that the caller is about to broadcast a message concerning an important navigational or weather warning. It has priority over all other messages except distress or urgency messages. Reasons for sending the safety signal may include sighting a hazard to navigation, e.g. a floating shipping container.

The safety warning is announced on the distress, urgency or safety channel (Ch 16) with the safety message being broadcast on a working channel. An acknowledgement is not required.

- Tune VHF radio to channel 16
- Listen to ensure channel is clear
- Depress and hold the push to talk button
- Speak clearly at a normal level into the microphone
- “Securite, Securite, Securite. All Stations, All Stations, All Stations. This is Pelagica, Pelagica, Pelagica.”
- “Navigation warning listen on channel 13”
- Switch to channel 13
- “Securite, Securite, Securite. All Stations, All Stations, All Stations. This is Pelagica, Pelagica, Pelagica.”
- Give navigation warning information.
- Return to channel 16

Non-urgent emergency services contact

Standard radio transmissions of a non-urgent nature can be made using channel 16 to establish communication with the desired receiver before moving to another “working channel”. The most common type of non-urgent communication is to contact Marine Rescue to give Sked calls or request non-urgent assistance.

You should ensure that there is no other traffic on the channel before beginning your broadcast and you should observe radio silence periods.

- Tune VHF radio channel 16
- Listen to ensure channel is clear
- Depress and hold the push to talk button
- Speak clearly at a normal level into the microphone

- “Marine Rescue, Marine Rescue, Marine Rescue. This is Pelagica, Pelagica, Pelagica.”
- Listen for reply
- Other operator will direct you to change channels
- Acknowledge the direction to change and change channels
- Standby on the new channel until called by Marine Rescue
- Communicate with receiver to arrange assistance
The Phonetic Alphabet

When it is necessary to spell words for transmission, ONLY the following phonetic alphabet should be used.

Table 4

<table>
<thead>
<tr>
<th>Letter</th>
<th>Codeword</th>
<th>Spoken as (bold syllable emphasised)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alfa</td>
<td>AL FAH</td>
</tr>
<tr>
<td>B</td>
<td>Bravo</td>
<td>BRA H VOH</td>
</tr>
<tr>
<td>C</td>
<td>Charlie</td>
<td>CHAR LEE or SHAR LEE</td>
</tr>
<tr>
<td>D</td>
<td>Delta</td>
<td>DELL TAH</td>
</tr>
<tr>
<td>E</td>
<td>Echo</td>
<td>ECK OH</td>
</tr>
<tr>
<td>F</td>
<td>Foxtrot</td>
<td>FOK S TROT</td>
</tr>
<tr>
<td>G</td>
<td>Golf</td>
<td>GOLF</td>
</tr>
<tr>
<td>H</td>
<td>Hotel</td>
<td>HOH TELL</td>
</tr>
<tr>
<td>I</td>
<td>India</td>
<td>IN D EE AH</td>
</tr>
<tr>
<td>J</td>
<td>Juliet</td>
<td>JEW LEE ETT</td>
</tr>
<tr>
<td>K</td>
<td>Kilo</td>
<td>KEY LOH</td>
</tr>
<tr>
<td>L</td>
<td>Lima</td>
<td>LEE MAH</td>
</tr>
<tr>
<td>M</td>
<td>Mike</td>
<td>MIKE</td>
</tr>
<tr>
<td>N</td>
<td>November</td>
<td>NO VEM BER</td>
</tr>
<tr>
<td>O</td>
<td>Oscar</td>
<td>OSS CAH</td>
</tr>
<tr>
<td>P</td>
<td>Papa</td>
<td>PAH PAH</td>
</tr>
<tr>
<td>Q</td>
<td>Quebec</td>
<td>KEH BECK</td>
</tr>
<tr>
<td>R</td>
<td>Romeo</td>
<td>ROW ME OH</td>
</tr>
<tr>
<td>S</td>
<td>Sierra</td>
<td>SEE AIR RAH</td>
</tr>
<tr>
<td>T</td>
<td>Tango</td>
<td>TAN GO</td>
</tr>
<tr>
<td>U</td>
<td>Uniform</td>
<td>YOU NEE FORM or OO NEE FORM</td>
</tr>
<tr>
<td>V</td>
<td>Victor</td>
<td>VIK TAH</td>
</tr>
<tr>
<td>W</td>
<td>Whiskey</td>
<td>WISS KEY</td>
</tr>
<tr>
<td>X</td>
<td>X-ray</td>
<td>ECK S RAY</td>
</tr>
<tr>
<td>Y</td>
<td>Yankee</td>
<td>YANG KEY</td>
</tr>
<tr>
<td>Z</td>
<td>Zulu</td>
<td>ZOO LOO</td>
</tr>
</tbody>
</table>
Other common transmissions

The following are ways to pronounce commonly needed phrases. Note: do not say “Over and out” as you can see below this is incorrect as it invites the receiver to reply, then ends the transmission. To end a transmission simply say “Out”.

Table 5

<table>
<thead>
<tr>
<th>Intended transmission</th>
<th>Meaning</th>
<th>Spoken as</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Your message is received and understood</td>
<td>ROMEO</td>
</tr>
<tr>
<td>Over</td>
<td>Invitation to reply</td>
<td>OVER</td>
</tr>
<tr>
<td>Out</td>
<td>This transmission is ended</td>
<td>OUT</td>
</tr>
<tr>
<td>Decimal point</td>
<td>Decimal</td>
<td>DAY-SEE-MAL</td>
</tr>
<tr>
<td>Full stop</td>
<td>Stop</td>
<td>STOP</td>
</tr>
<tr>
<td>Comma</td>
<td>Comma</td>
<td>COMMA</td>
</tr>
<tr>
<td>/</td>
<td>Oblique Stroke</td>
<td>OBLIQUE</td>
</tr>
</tbody>
</table>

Figure Code

The pronunciation of some numbers have been modified to make them more easily understood over the radio.

Table 6

<table>
<thead>
<tr>
<th>Number</th>
<th>Codeword</th>
<th>Spoken as (bold syllable emphasised)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>zero</td>
<td>ZEE ROH</td>
</tr>
<tr>
<td>1</td>
<td>one</td>
<td>WUN</td>
</tr>
<tr>
<td>2</td>
<td>two</td>
<td>TOO</td>
</tr>
<tr>
<td>3</td>
<td>three</td>
<td>TREE</td>
</tr>
<tr>
<td>4</td>
<td>four</td>
<td>FOW ER</td>
</tr>
<tr>
<td>5</td>
<td>five</td>
<td>FIFE</td>
</tr>
<tr>
<td>6</td>
<td>six</td>
<td>SEKS</td>
</tr>
<tr>
<td>7</td>
<td>seven</td>
<td>SEVEN</td>
</tr>
<tr>
<td>8</td>
<td>eight</td>
<td>AIT</td>
</tr>
<tr>
<td>9</td>
<td>nine</td>
<td>NINER</td>
</tr>
</tbody>
</table>
Standard Phrases for Radio Use

In the interests of accuracy, brevity and clarity it is sound practice for operators to use the standard vocabulary when possible. A selection of the standard vocabulary is contained in the following paragraphs.

Message markers

If necessary, messages passed by radiotelephony may be preceded by the following message markers:

“Instruction” Indicates that the following message implies the intention of the sender to influence the recipient(s) by a regulation.

“Advice” Indicates that the following message implies the intention of the sender to influence the recipient(s) by a recommendation.

“Warning” Indicates that the following message informs other traffic participants about dangers.

“Information” Indicates that the following message is restricted to observed facts.

“Question” Indicates the following message is of interrogative character.

“Answer” Indicates the following message is of interrogative character.

“Request” Indicates that the content of the following message is asking for action with respect to the ship.

“Intention” Indicates that the following message informs others about immediate navigational actions intended to be taken.

Responses

Where the answer to a question is in the affirmative, say: “Yes” followed by the appropriate phrase in full.

Where the answer to a question is in the negative, say: “No” followed by the appropriate phrase in full.
Where the information is not immediately available, but soon will be, say: “Stand by”.
Where the information cannot be obtained, say: “No information”.

Where a message is not properly heard, say: “Say again”.

Where a message is not understood, say: “Message not understood”.

Miscellaneous Phrases

What is your name (and any other identity)?

How do you read me?

I read you:
Bad/one with signal strength one (i.e barely perceptible)
Poor/two with signal strength two (i.e. weak)
Fair/three with signal strength three (i.e. fairly good)
Good/four with signal strength four (i.e. good)
Excellent/five with signal strength five (i.e. very good)

Stand by on VHF channel....

Change to channel....

I cannot read you (pass your message through..../Advise try channel....)


Corrections When a mistake is made in a message, say:
“Mistake….” followed by the word:
“Correction….” plus the corrected part of the message.

Example: “My present speed is 14 knots – mistake.
Correction, my present speed is 12 knots, one-two knots”

Readiness Go ahead, I am ready/not ready to receive your message
I do not have channel.... Please use channel....

Repetition If any parts of the message are considered sufficiently important
to need particular emphasis, use the word “repeat”, e.g. “Do not repeat do not overtake”.
Position

When latitude and longitude are used, these should be expressed in degrees and minutes (and decimals of a minute, if necessary), north or south of the Equator and east or west of Greenwich.

When the position is related to a mark, the mark shall be a well-defined charted object.

The bearing shall be in the 360-degree notation from true north and shall be that of the position from the mark.

Courses

Courses should always be expressed in the 360-degree notation from true north (unless otherwise stated). Whether this is to, or from, a mark can be stated.

Bearings

The bearing of the mark or vessel concerned is the bearing in the 360-degree notation from true north (unless otherwise stated), except in the case of relative bearings. Bearings may be either from the mark or from the vessel.

Distances

Distances should be expressed in nautical miles or cables (tenths of a nautical mile), otherwise in kilometres or metres. The unit should always be stated.

Speed

Speed should be expressed in knots (without further notation meaning speed through the water). “Ground speed” meaning speed over the ground.

Numbers

Numbers should be transmitted by speaking each digit separately, for example one five zero for 150.

Names

Geographical Place names used should be those on the chart or Sailing Directions in use. Should these not be understood, latitude and longitude should be used.

Time

Time should be expressed in the 24-hour notation indicating whether UTC, zone-time or local shore time is being used.
Phone Communication

Do not rely on mobile phones.

If you cannot raise emergency services on the radio you can attempt to call on a phone

In an emergency dial 000 and ask to be connected to the police. (Note: 112 only works with GSM phones and not with 3G phones. Dial 000)

EPIRB – Emergency position indicating radio beacon

Deploy the EPIRB if the vessel is in Grave and Imminent Danger or you have an emergency and cannot establish radio or phone communication.

Deploy the EPIRB if you transmit a Mayday

To deploy the EPIRB
- Locate EPIRB
- Follow the instructions on the unit

Flares

Flares are a visual distress signal

Always delay using flares until you can see an aircraft, or until people on shore or in other boats are in visual range.

Red flares - have a visibility range of 10 km and are designed for use at night but can also be seen during the day.
Orange smoke flares - can be seen for up to 4 km (10 km by aircraft) and should be used in daylight to pinpoint your position.

A red star parachute distress rocket - is used when offshore as they have a greater range. They are designed to fire a single red star to a height of approximately 300 m. The star burns while falling for at least 40 seconds and can be seen from the greatest distance due to its intensity and elevation from sea level.
V Sheet

A V Sheet is a visual distress signal.

Lay the V Sheet on the canopy or fly it like a flag to attract attention and help emergency services locate your vessel.

Figure 8
Vessel Maintenance

- The vessel must be inspected by the Master prior to all voyages.
- The vessel and all safety equipment must be fully operational.
- If an item of equipment is damaged or safety equipment used the Master must log **Vessel Maintenance Request** and provide it to the Marine Fieldwork Manager.
- The Marine Fieldwork Manager will conduct regular maintenance inspections in addition to those outlined below.
- These checks should be recorded on the **Daily Maintenance Checklist**.
## Table 7

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine</strong></td>
<td>Tilt</td>
<td>Check operational</td>
</tr>
<tr>
<td></td>
<td>Fuel filter</td>
<td>Check for water</td>
</tr>
<tr>
<td><strong>Steering</strong></td>
<td>Function</td>
<td>Check proper operation</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td>Lights</td>
<td>Check all lights function</td>
</tr>
<tr>
<td></td>
<td>Radio &amp; GPS</td>
<td>Check function</td>
</tr>
<tr>
<td></td>
<td>Instruments</td>
<td>Check function</td>
</tr>
<tr>
<td><strong>Hull</strong></td>
<td>Hull</td>
<td>Check for damage</td>
</tr>
<tr>
<td></td>
<td>Bung</td>
<td>Check all bungs are present and fit correctly</td>
</tr>
<tr>
<td><strong>Collar</strong></td>
<td>Collar</td>
<td>Check pressure and for damage</td>
</tr>
<tr>
<td><strong>Mooring</strong></td>
<td>Lines</td>
<td>Check mooring lines present</td>
</tr>
<tr>
<td><strong>Anchoring</strong></td>
<td>Anchor</td>
<td>Check anchor is present, useable and suitable for task</td>
</tr>
<tr>
<td></td>
<td>Chain and Rope</td>
<td>Check present and ready to use (not tangled)</td>
</tr>
<tr>
<td></td>
<td>Sampson Post</td>
<td>Check the pin is in place</td>
</tr>
<tr>
<td><strong>Trailer</strong></td>
<td>Lights</td>
<td>Check working</td>
</tr>
<tr>
<td></td>
<td>Bearings</td>
<td>Check for heating while driving</td>
</tr>
<tr>
<td></td>
<td>Safety Chain</td>
<td>Check fitted correctly</td>
</tr>
<tr>
<td></td>
<td>Stern tie downs</td>
<td>Check fitted correctly and condition</td>
</tr>
<tr>
<td><strong>Safety Equipment</strong></td>
<td>Eprib</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Fire extinguisher</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Lifejackets</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Flares</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Horn</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Torches</td>
<td>Check present and working</td>
</tr>
<tr>
<td></td>
<td>First aid kit</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Compass</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>V sheet</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Tool kit</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Bucket</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Paddles</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Boat hook</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Sea Anchor</td>
<td>Check present</td>
</tr>
<tr>
<td></td>
<td>Life ring</td>
<td>Check present</td>
</tr>
</tbody>
</table>
## Trailers and Towing

Towing boats can be one of the most hazardous aspects of boat use. Care must be taken as vehicles towing trailers behave and respond differently to normal.

### Trailer accidents

<table>
<thead>
<tr>
<th>Description</th>
<th>Image</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>A heavy boat needs to be properly secured to the trailer and the driver needs to manoeuvre with care. In this case the tie-down straps (one is still on the transom) were inadequate and under heavy breaking the boat broke loose.</td>
<td><img src="image1.png" alt="Image" /></td>
<td>Boats should not be secured to the winch post alone. In this case the force of the boat on the winch post has caused it to snap (it is still attached to the boat!) and in the absence of other tie-downs the boat has come off the trailer.</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>It is important to securely tie down boats. This driver did not use a tie-down strap across the rear of the boat and under the motion of driving the boat has shifted severely. This driver was lucky the boat stayed with the trailer and the car managed to stop safely.</td>
<td><img src="image3.png" alt="Image" /></td>
<td>Even small boats on trailers can have accidents. Improper maintenance of the wheel hubs caused the bearings to fail on this trailer resulting in a wheel breaking loose.</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>
HITCHING the trailer to the towing vehicle

- Before backing the towing vehicle into place, remove any wheel locks present on the trailer, check condition of trailer & tyres, & check for obstructions on both sides of the boat.

![Figure 10](image10.png)

- Remove the U-trailer lock from the hitch and check height of trailer hitch with reference to the height of the tow ball on the vehicle.

![Figure 11](image11.png)
Back the vehicle into place, release the hitch catch and lift the hitch handle, lower the trailer hitch onto the tow ball by lowering the jockey wheel, and ensure the hitch catch lock is back in place.

TROUBLESHOOT: If the handle doesn’t slip all the way over the tow ball then the anti rattle bolt may be too tight.

- Replace the U-lock around the hitch and towbar coupling.
- Fold the hand break lever back and secure (if you haven’t done so already).

Handbrake engaged (for parking the trailer)
Handbrake disengaged (for driving)

Figure 12

Check that reversing lock is disengaged (open position)

Reversing lock disengaged (for driving)
Reversing lock engaged (for reversing trailer)

Figure 13
Standard Operating Procedures – Pelagica #58294

- Connect trailer safety chain, chain should not drag
- Connect trailer lights (never pull on the cable – only the plug)
- Check trailer lights – brakes, indicators, reverse

Always check that the lights work before taking the trailer onto the road

**Is the boat secured correctly to the trailer? Check the following:**
- That the eye in the bow of the **boat is secured to the winch cable** and that the winch is locked off (can’t run free).
- That the bow eye of the **boat is secured to the winch post** (this secures the boat in the case where the winch has detached from the post)

---

**Figure 14**
Always check that the lights work before taking the trailer onto the road

**Figure 15**
Check that the two safety chains and the winch are connected to the bow
Are the tie downs that hold the stern of the boat (Sampson posts) to the trailer are firm, but not tight, and with no rope tails dragging.

Figure 16 The stern tie downs should run from the Sampson post to the loop on the trailer

Are the engines supported?

- Ensure that the engines are supported and cannot drop down while being towed. Never rely on the hydraulics. Use the TILT LOCK LEVERS for short trips (such as between the car park to the boat ramp). For longer trips use the ENGINE SUPPORT POSTS, as engines have been known to bounce off tilt lock levers.

Figure 17

The Tilt Lock Levers are located on the side of each engine above the mounting bracket.

Tilt Lock Lever Open (for engine operation and travel with Engine Support Posts)

Tilt Lock Lever Closed (for short travel)
The Engine Support Post fitted in place
The transom end of the support post (don’t lose the split pin!)
The engine end of the support post (gently lower the engine onto the post)

Figure 18
- It is recommended to cover one of the propellers with a fluorescent bag or bucket while towing.

Notes on Towing
- Your braking distance with a trailer will be around double your braking distance without a trailer. SO REDUCE YOUR SPEED ACCORDINGLY.
- Do not load up the gear in the boat while towing.
- P1 drivers are not allowed to tow the boat (illegal)
- Canopy clearance is assumed to be 3.3 m (actually about 3.1 m to the anchor light). Slow down when passing under overhead obstructions.
Boat Ramps

Boat Ramp Etiquette

- For any unfamiliar ramps, walk the ramp to ensure there are no drop-offs or rocks hidden under the water.
- Take care when walking around ramps as they can be slippery and cars will be reversing with limited visibility.
- Park in the preparation area away from the ramp while you ensure the boat is ready to launch. Avoid blocking the ramp unnecessarily.
- Before reversing toward the ramp, explain to the people you are with what you will be doing and what you expect from them.
- At ramps with multiple lanes make sure you only occupy one lane and don’t block others.
- If there is a jetty or pontoon along the ramp (like above) move the boat to the end so that others can launch while you park the car.
- When returning to the ramp, tie the boat up away from the ramp or drop people off and stand off from the ramp until the trailer is ready.
- After retrieving the boat, park in the preparation area while you tidy everything up. Don’t hang around on the ramp unnecessarily.
Locations of Boat Ramps and Recommended Ramps

Locations of boat ramps in NSW waters are typically marked on the NSW Maritime boating maps available from the Maritime website:

www.maritime.nsw.gov.au

Information about boat ramps is also available from the NSW Maritime website or from the NSW Marine Directory website:


When preparing for your fieldtrip you should include an assessment of your launching area in your risk assessment and provide details in your fieldwork notification. Discuss the choice of boat ramps with the Marine Fieldwork Manager and other boat users as they may have first-hand knowledge of ramps and their features, e.g. some ramps might only be good in some weather, while others may have facilities like pontoons or toilets.
Small Vessel Handling

These are guides as to how to handle conditions. There is no substitute for learning from experienced masters and having experience.

Beam Seas
In beam seas, excessive roll can cause cargo to shift, creating a dangerous list. This could cause the vessel to capsize. Strong breaking waves could also capsize the vessel.

Following Seas
In following seas, a vessel may lose stability on a wave crest. If the vessel is overtaken by a wave crest, broaching may occur.

Quartering Seas
In quartering seas, the problems of beam and following seas are combined. Quartering seas represent the most dangerous situation in severe weather. Avoid Quartering Seas – turn to take them on a better angle.

Figure 19

Following Seas:

The directional stability of a boat is dependant on two factors:
- the flow of water past the craft’s hull and rudder (on an outboard engine the leg acts similar to a rudder but is much less efficient)
- the directional force provided by the propeller

While the speed of wave travel will vary according to the conditions, it will generally be about two to three times the speed of a planing boat travelling at displacement speeds. This means that each wave will pass under the boat from stern to bow, the opposite direction from which the hull is designed to provide maximum efficiency. As this happens, there is little tracking stability provided by the hull shape or rudder and most of the available control is provided by the propeller.

In these situation throttle is critical. Any tendency of the craft to broach should result in power increases. The throttle increase is required to keep ahead of the breaking crest of the wave without running too fast down the face of the wave and into the back of the next.
The breaking section of the wave is moving at a greater speed than that of the main part of the wave, adding to the broaching forces and reason to keep ahead of the break.

A boat on the face of a wave in a following sea may have the stern elevated and the bow low in the water. This causes the bow to dig in more and the stern to lift further as the breaking wave pushes against it. The wave is an accelerating force which is transferred from a forward acting force to a sideways acting force as the bow digs in further. The craft will then be turned sideways to the wave and in danger of capsize. This is a broach.

To reduce the risk of capsize, keep the vessel as squarely positioned on the wave face as you can to avoid the sideways forces. The following choices are available while near the face of a breaking wave:

- Accelerate away from the break to avoid the worst of the breaking force
- Back off the throttle to allow the wave to more rapidly pass under the boat

Or

- Maintain your speed and position

Only one of these actions will be the most appropriate depending on the conditions at the time.

Avoid waves breaking over the stern of the vessel, this is called being swamped or pooped. This can also happen if you rapidly slow from a plane and the wake of the boat catches up to you.
Head on seas and winds

Planing hull boats are designed to perform best when a minimum speed is maintained ensuring that the hull is at an optimum point of air/water interface. The planing position should be maintained whenever possible (except when speed limits dictate otherwise). Some sea conditions mean that maintaining the planing speed results in the boat becoming airborne and severe cavitation of the propeller occurring. It will then become necessary to reduce speed and this may mean dropping down from the planing position, alternatively consider taking the waves at an angle. This reduces the angle and height of the boat when cresting the waves and in some cases means that planing speed can be maintained.

Care should be taken to prevent burying the bow into oncoming waves. If wave height increases the ‘bow on’ to the approaching waves may be the only option, even if it means travelling at a slower speed. This may be the best and safest option but it will result in increased fuel consumption.

Strong head and side winds and steep waves are a hazardous combination particularly for small, lighter boats, and can cause the boat to capsize. It is critical to slow down and have plenty of weight in the bow provided by either crew or cargo.

Tacking at approximately 15 degrees for moderate seas will always make the journey more comfortable. A tack of 15 degrees for 10 minutes followed by a tack of 15 degrees the other way for 10 minutes will maintain roughly your original course.
Figure 22 Taking head on seas at an angle reduces the angle and height of the vessel when cresting the wave

**Beam Seas**

Generally planing speeds can be maintained for much longer in a beam sea because you are able to direct the boat across the waves at an angle. It may result in more sideways rolling of the boat, but unless the seas are of such a size that you should be taking them bow on, the rolling action is more uncomfortable than dangerous.

Angles up to up to 30 degrees to the wave can be achieved either bow to or stern to. The dangerous aspect is not picking a higher wave that requires a perpendicular approach. Caution must be taken when using this manoeuvre in windy or rough conditions.
Slow speed manoeuvres and reversing

Anyone can drive a boat fast on flat water. It takes skill to manoeuvre a boat slowly and precisely in tight spaces.

Remember, when approaching a wall, jetty, another vessel or the shore, only approach at the speed that you want to hit it with!

Planing hulls are designed to achieve best results at planing speed. At low speeds the boats will have considerably different handling characteristics. These will differ between boats and can only be learnt through practice. Remember to use a combination of steering, forward / reverse and throttle to control the boat. As Pelagica has twin engines it is possible to manoeuvre the vessel using the throttles. With practice Pelagica can be turned in little more than its length with the throttles alone.

Reversing characteristics of any boat can also be extremely varied. The guiding rule for reversing is to watch where the stern of the boat is heading. Boats manoeuvre much less efficiently in reverse as the propeller and hull are going the opposite way to their design. Avoid reversing in shallow water where your prop could strike bottom or rocks.

Maintain a proper lookout and speed appropriate for the conditions and including probability of encountering people or obstacles

If you think someone may be in the water near your stern. Shut the engine off.

All other times, slow on throttle engine in neutral an then engine off.
Section 2:
Operational Procedures
Launching the Boat

Preparation

- Firstly, inspect the boat ramp and assess the sea conditions and other hazards.
- Discuss the launching procedure with the crew.
- Turn the batteries on (leaving the cross-over closed) and make a note in the Boating log of the fuel level, engine hours and battery voltage, and do the equipment checks (better to have done this back at the boat shed).

Figure 23: Preparation: turn the battery switches on leaving the cross-over closed

- Turn on the VHF radio, raise the antennae, and set up the GPS
Antenna down – for towing
Watch out for low bridges and trees!

Antenna up – for operation
Twist the handle to adjust the antenna.

Figure 24

- Remove the stern tie-downs, and engine supports, stow in the towing vehicle.

Figure 25: Remove the stern-tie downs before launching

- Ensure the BUNGS are IN & the VENTURI BAILERS are up and secure. The bungs are kept in the box with the winch handle and should be returned to this box.
There are two bungs in the transom. Venturi bailer down (open). Only lower when underway or on trailer to drain water. Venturi bailer up (closed). Keep up when launching, traveling slowly or not moving.

**Figure 26: Bungs; Bailers open; Bailers closed**
- Remove the stern tie downs and ENGINE SUPPORT POSTS, and engage the engine TILT LOCK LEVERS.

**Figure 27 Tilt lock lever engaged**
Secure the anchor and chain to the anchor line, and check the anchor line is ready to be used.

Figure 28: The anchor, chain and rope correctly stowed in the anchor well. This must be set so that it will run free when deployed.

Leave the bow safety chain connected in case the winch cable breaks while reversing

Figure 29: Make sure the boat is secured by BOTH the winch rope and the safety when reversing down a boat ramp.
o Engage the reversing lock so that the trailer brakes can’t engage whilst reversing (if the reversing lock is left open then the brakes will be damaged if they engage, and the boat will be difficult to reverse).

o If you plan on tying up to a jetty or wharf prepare the mooring lines and fenders before you launch.

Two mooring lines are carried onboard

Two fenders are available and should be used when tying up to prevent damage to the vessel

Figure 30: Mooring lines and Fenders
Launching

- First, discuss the launching plan with the crew
- Best practice is that no one rides in the boat while it is being reversed down the boat ramp. See Figure 29
- Depending on the slope of the boat ramp, you may or may not need to sink the hubcaps on the wheels of the trailer as the rollers allow the boat to slip off. First try the launching process without sinking the hubs.
- When in deep enough lower the engines (remember to disengage the engine tilt locks). Start the engines (see next section: Engine operation), look for the tell tale, and if running well, engage the engines forward slightly to hold the boat steady on the trailer to aid in release of the trailer safety chain.
- Crew: in almost all circumstances the safety chain and winch cable should be left on until the skipper has the motors in the water and running. When the skipper says ok, release the safety chain then either disconnect the winch rope and gently push the boat into the water OR leave the winch connected and lower the boat by slowly unwinching. The second option might be necessary if there are obstacles in the path of the boat, but note that injuries can be caused to crew or equipment if the winch runs uncontrolled.
- In very shallow water (eg at the Smiths Lake field station) the boat can be walked off the trailer with the help of a lead rope (in this situation the engines are left up (and off) until there is sufficient clearance (draught is approximately 0.5 m).
Engine Operation

Engine Start-up

- Turn on the battery switches.

![Image of engine switches](image1)

- Place kill switch and ignition keys into position

![Image of engine switches](image2)

- Lower engines into the water to a depth sufficient to submerge the water intakes.
Ensure engine control levers are in neutral

![Control levers “click” into neutral at the centre of their movement](image)

Figure 33: Control levers “click” into neutral at the centre of their movement

- Turn keys to ‘on’ position
- Start one engine at a time by turning the key to the ignition position
- Allow the engines to warm up for two minutes before proceeding on voyage. This is a good time to vessel operation and function and to provide an on-board briefing to special personnel.

Do not crank the engine for long periods of time. If the engine does not start allow it to cool down and investigate why it is not starting.
Engine Gauges

There are three gauges on Pelagica. These are mounted on the dash behind the wheel.

The two outer gauges provide the engine RPM and engine tilt indicators.
The centre gauge provides vessel speed through the water, fuel gauge, trip metre and battery voltage.

Pressing the “Mode” button cycles through the modes. In “Batt” mode the voltage of the system is shown. Note: this only gives the voltage of the Port Battery if the cross-over is off. If the cross-over is on it gives the combined voltage.
Engine Tilt

The engines can be tilted in three ways: at the engine, at the controls separately, or at the controls together.

Note: the corresponding battery to the engine must be on to operate the tilt function.

![Tilt lever on engine](image)

The tilt rocker switch on the side of the engine. Push up to tilt up and push down to tilt down.

On the throttle control levers there are three tilt rocker switches. The two in front of the levers control each engine individually. The one on the port engine throttle lever controls the tilt of both engines together. This is useful for trimming whilst underway.

![Throttle control levers, independent engine tilt controls, and combined engine tilt control](image)
Engine Shut Down

- Allow engines to idle for two minutes to cool down
- Switch off engines
- If retrieving or leaving the boat on the water for long periods (e.g. overnight) lift the engines out of the water and lower on to tilt locking lever.
Electrical Systems

Pelagica is fitted with a 12 volt duel battery system.

This type of electrical system allows each engine to have its own battery and provide redundancy.

There are 3 master switches on the dash board. The top two are the battery switches and the bottom is the cross-over. The cross-over allows power to flow from one battery to the other. In most situations it should be kept closed to prevent the accidental draining of both batteries. If one battery fails, the cross over can be opened to start the engine using the power from the other battery.
Figure 42: Normal use: batteries ON, cross-over OFF

Figure 43: Charging one battery off the other battery then both batteries and the cross-over ON
When the boat is not in use the batteries should be left turned off. If the boat is to be left on the water overnight the Port battery should be left on so that the automatic bilge pump can function.

In addition to the master switches there are a series of press switches to the left of the steering wheel and on the panel below. These control all the instruments and lights.

![Switch panel beside wheel](image1)

- **Navigation lights (port, starboard)**
- **Anchor light**
- **Instrument lights**
- **Forward deck light**

**Switch panel below wheel**

- **Rear deck light**
- **Red cabin light**
- **Radio and sounder**
- **12 volt outlets**

**Figure 44**

![Switch panel beside wheel](image2)

**Figure 45**: When operating at night both “Nav Lights” switches and the “Anchor Light” switch need to be on to provide the correct lighting.
There are three 12 volt plugs available for use onboard Pelagica. They are located under the GPS / Sounder.

The Radio and the GPS / Sounder operate on the same circuit and switch. The GPS / Sounder is not stored on the boat. It needs to be fitted before use. The plugs are colour coded to match the leads. Mount the unit securely on the bracket.

The leads and bracket

Match the leads to the colour coded plugs

The unit mounted and operational
Retrieving the Boat onto the Trailer

Note: Pelagica should be nosed up to the back of the trailer and then winched on. Driving a boat on to the trailer increases the risk of damage to the hull, the props, and the trailer as well as digging up the sediments around the boat ramp.

- First discuss the retrieving process with the crew as this varies with boat ramps, tides, and sea conditions.
- Make sure trailer reversing lock is engaged, and any wheel clamps have been removed.
- Reverse trailer onto boat ramp.
- Nose the boat up to the trailer and hook on the winch cable.
- Switch off and raise the engines – the skipper should get off and assist if necessary and safe to do so, or move their weight to the back of the boat.
- When winching, double check that the cable is locked off (i.e. can’t run free).
- When winching, make sure the boat is centred on the trailer.
- Attach the safety chains to the bow, remove the reversing lock, & put the trailer winch handle back in the car.
- Drive trailer to boat ramp preparation area to complete the preparations for towing the boat.

After retrieving

- Open all bungs and the venturis to drain any water in the boat
- Fit engine supports
- Switch off battery master switches
- Remove GPS / Sounder
- Remove any other equipment that may become loose during travel
- Check trailer lights
- Fit stern tie-downs
Washing and Flushing

Flushing an Outboard Engine

Never run an outboard motor without a water supply, you will destroy the water pump in seconds and overheat the motor which will cause serious damage. Know where the telltale is: this is a small stream of water from your engine that’s sole purpose is to tell you that the cooling system is working. Outboards damage very easily when overheated.

- Lower the engines, and attach “flush muff” to the water intake of one engine.
- Turn on the tap full, then turn over that engine and look for the telltale
- If the telltale doesn’t push out water after about three seconds STOP THE ENGINE and reset the flush muff.  
- If the telltale is putting out water then run the engines for 30 second or so.
- Flush your outboard with fresh water using flush muff every time you take the boat out of the water. Never rev an engine out of water (i.e. during the flushing process). They can rev up to twice their recommended maximum revs when they have no load and they will destroy themselves in the process.
Washing down the boat, trailer, and towing vehicle

- Best done at the boat ramp before saltwater dries into crystals. Use a sponge to help remove dried salt.
- Pay special attention to wheels, breaks, engines, & the extension hook pole.
- The Perspex windscreen is easily scratched, clean cloth and clean water only

![Washing boat](image.jpg)

Figure 49: A mild detergent in the water helps remove dried salt from the vessel
Refuelling and Fuel Systems

Pelagica uses Unleaded Fuel. The preference is for Premium Unleaded, but if this is not available regular unleaded may be used.

DO NOT USE ETHANOL OR E10 FUELS

As part of your pre-trip planning you will have estimated the distance you will travel and from this calculated your fuel requirement. It is recommended that you use the “1/3 rule”: 1/3 out, 1/3 back, 1/3 spare.

Fuel consumption for Pelagica: approx. 1 litre per 1 nautical mile (or 1.85 km) (but keep your own records so that you can calculate consumption rates for the type of boating you do).

Avoid towing the boat for long distances with a full tank of fuel (fill up when you get close to your destination, not at the start of the journey).

Note: Some waterside re-fuelling stations close early or during the week, or require you to have pin number on your credit card – check that you can get fuel when you will need it.

The fuel filler for Pelagica is located between the engines and the rear seat.

Ensure there are no sources of potential ignition when refuelling: people smoking, using mobile phones, and sparks from static electricity (discharge by touching something metal with your hand before beginning the refuelling process.)
Fuel System

The fuel tank on Pelagica is under the floor. The fuel lines leave the fuel tank beneath the rear bench seat. Located here are the fuel taps and the priming bulbs. If the engines will crank but not start check the taps are open and prime the lines by pumping the bulbs. There are two bulbs and two taps, one for each engine.

Figure 51: Location of fuel lines

Figure 52: Fuel priming bulbs, and fuel isolation levers (shown in open, normal, position)
Fuel Filters

The fuel filters are located above the engines. They have clear reservoirs on the bottom of them in which fuel can be seen. These should be inspected to ensure that there is no water mixed in with the fuel. The fuel should appear clear and yellowish. If it is milky white or there are two separate layers there is likely to be water in the fuel. Do not start the engines and contact the Marine Fieldwork Manager to coordinate repairs.

Figure 53: The fuel filter and water separator. It should look clear and slightly yellow as above.
Loading and Trim

- Evenly distribute the load (CAUTION: a bad distribution of the load can destabilize the boat and may result in loss of control)
- Depending on the navigation conditions and the waves direction, you must adjust the distribution of the load and the trim.
- In a head on sea – load the bow i.e. Negative TRIM – this stops the boat flipping on a wave
- In a following sea – load the stern i.e. Positive TRIM – this keeps the boat stable
- Aim to have the boat sitting as level in the water as possible

Figure 54: Loading
As a rule the motor must be positioned so that the axis of the propeller is parallel with the water surface, however an adjustment of the tilt is often recommended.

To avoid BOW STEERING, where the hull catches the water and may make unexpected changes of direction the trim must be adjusted to suit the conditions and the load. A nose down position will encourage bow steering and should be avoided.

![Figure 55: Trim](image)

Use the engine tilt to properly trim the boat. See Figure 39.
Night Work / Poor Visibility

- Be seen – switch the navigational lights on

- Slow down – operate at slower speeds than normal as hazards are harder to see
- Keep watch – get other people on board to assist in keeping watch. Avoid using bright lights as they will diminish your night vision

Pelagica is fitted with red “cabin” LED lights and instrument lights to preserve night vision.
○ Reminder: lifejackets MUST be worn for night time operations (in addition to times of poor visibility, when operating the boat alone, and for bar crossings).

○ If anchored show an all-round white light

Figure 56: The correct lights for power vessels less than 12 metres; red and green side lights and an all around white light.

Figure 57: The port-side view of a vessel at night.
Pelagica is also fitted with two deck lights for night work. There is one above the canopy illuminating the foredeck and one under the canopy for the rear deck.

Figure 58: Foredeck light

Figure 59: Rear deck light
Discharge / Waste / Spills

Garbage
- All garbage to be collected and placed in an appropriate place onboard the vessel
- Dispose of general waste in the bins provided at the boat ramp (or return to Macquarie University).
- Dispose of recyclable items in the appropriate bins provided at the boat ramp (or return to Macquarie University)
- Gloves to be used for any debris collection from the water (Supplied in First Aid Kits)

**NO RUBBISH IS TO BE DUMPED INTO THE WATER**

The master is responsible for any illegal dumping of rubbish from the vessel

Waste
- No pollutants or oils in the vessel are to be pumped overboard
- Collect and/or mop up oil or fuel
- Waste to be stored in sealed containers
- Any spillage of oil into the bilge to be treated using the environmental spill kit
- Collected waste to be deposited in the chemical waste store at Macquarie University

Spills
- Respond to pollutant spillage immediately and isolate overflow
- Contain spillage to prevent pollutant entering water or spreading, if already in water
- Record location
- Inform staff/students of action to be taken
- Use pollution kit to contain or treat spillage
- Contact emergency services and liaise with and provide assistance to emergency response vessel
- Contact Marine Fieldwork Manager
Ropework

Rope Safety
Ropes play an important role onboard a boat, both as general equipment and as critical safety equipment. However, ropes must be respected. Onboard boats and in moving seas ropes can load with incredible force and can cause serious injury if misused or mistreated.

- Inspect ropes for damage or wear prior to use
- Ensure all ropes and fittings are suitable for the task at hand
- Never stand coils, tangles or the bight of a rope – they can pull tight and throw you overboard, or sever a limb
- Never wrap lines around your body to help pull – use the fixtures on the boat to secure lines
- Always have a knife or other cutting tool handy – you may need to cut ropes in a hurry

Figure 60: Be aware of ropes onboard boats they can cause serious injury
Knots

Tying proper knots is the safest way to secure ropes and lines. Improper knots can jam under loads, be impossible to untie and can weaken a rope.

Remember you may need to get a knot undone quickly in an emergency!

<table>
<thead>
<tr>
<th>Bowline – the most important knot</th>
<th>Clove hitch</th>
<th>Figure of 8 knot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tied properly it will not shake loose not slip. The large loop has many uses from securing to bollards to lifting people.</td>
<td>Used for securing lines under load to other objects.</td>
<td>Used as a stopper to prevent a rope from sliding through a pulley</td>
</tr>
</tbody>
</table>

Figure 61: Knots
**Securing lines**

Securing to a cleat or bollard is important, but there is no need to overdo it. A few turns are sufficient.

| Take a few turns in a figure of 8 around the cleat. This is sufficient if only being used for a short time under supervision | Cleat hitch – if the cleat is to hold a load for some time pass the final loop under itself to form a cleat hitch. This is less likely to come loose with movement |

Figure 62: Securing lines
When securing to a staghorn take a couple of turns around the centre before a couple of figure of 8s. If necessary this can be finished with a cleat hitch.

Pelagica is fitted with a three Sampson posts (one in the bow and two at the stern) and two horn cleats.

The Bow Sampson post
This can be used for anchoring, mooring and being towed

Note: this post is removable. You must check that this pin is securely in place otherwise the post could pull free.

The two stern Sampson posts
These are ideal for towing

The stern Sampson posts are designed for attachment of heavy lines and loads

Figure 63: Sampson posts
Pelagica is also fitted with two horn cleats. These are for light loads such as tying to a jetty. Do not load heavily as they can break.
Keep Ropes Tidy
Tidy lines can be accessed quickly and don’t need to be untangled before they can be used. They are also less of a tripping hazard onboard. As soon as you finish using a line coil it away. If a line is in use make sure it is tidy and is not tangled.

Figure 64: Rope care
Anchoring

Selecting an anchor

Pelagica carries a “Danforth” style anchor as standard. This anchor is fitted to 5 metres of chain and 50 metres of anchor rope. An additional 50 m of rope is available and should be carried and used if anchoring in greater depths or if bad weather is expected.

![Figure 65: Danforth anchor](image)

If the Danforth style anchor is anticipated to be unsuitable for anchoring in the expected conditions the Master should discuss anchoring options with the Marine Fieldwork Manager prior to the use of the vessel and arrange alternate anchors.

In some situations it may be appropriate to use multiple anchors. These situations should be discussed with the Marine Fieldwork Manager to ensure suitable anchors are available.
Anchors need to be “set” to hold properly. Setting an anchor involves pulling against it to bury its flukes into the seabed. An anchor that is not properly set will drag and will not hold the boat securely.

Figure 67: Setting an anchor
Deploying the Anchor

- Assess anchoring location for shelter from the wind/ no anchor zone/ submarine cable / sea grass / channel / substrate holding suitability / other anchored vessels (assess their swing and anchor appropriately)
- Ensure water depth is adequate depending on wind strength and expected tidal movements
- Decide on appropriate scope for conditions
- Explain anchoring procedure to personnel onboard – what are they expected to do?
- Personnel to ready anchor for deployment
- Master to position vessel into wind and come to a stop at selected anchoring position
- Personnel to deploy anchor and when anchor bottoms, master to go astern while paying out anchor rope
- Master stops vessel in water, personnel to tie off rope at bow once rope is at agreed length
- Master motors slowly in reverse to set anchor until the vessel hangs on the anchor
- Master slowly reduces throttle to come up onto the anchor line. Be careful not to spring ahead over the anchor rope
- Master must inspect the anchor tie off point
- Master & personnel to monitor anchor hold while at position

Anchor Recovery

- Personnel to untie and ready for recovering anchor onboard
- Master to motor slowly ahead while crew recovering line until vessel vertically positioned over anchor
- While maintaining position, personnel to recover anchor and stow/ secure
- If the anchor is hard to break out re-secure the rope and slowly motor in the opposite direction to which the anchor was set
- Anchor ropes to be stowed immediately so they can be deployed again and do not create a hazard
Recommended Anchor Scope

Scope is important when anchoring. A longer scope allows the boat to pull horizontally on the anchor, while a shorter scope will pop it out of the seabed. In general, a minimum scope is still conditions is a rope and chain three times the depth of the water in length (e.g., 15 m of rope and chain in 5 m of water). However, if the anchoring location allows, a longer scope is generally better. Below is a table of recommended scopes.

Table 8

<table>
<thead>
<tr>
<th>Sea Conditions</th>
<th>Anchor Cable</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favourable</td>
<td>Rope and chain</td>
<td>5:1</td>
</tr>
<tr>
<td>Average</td>
<td>Rope and chain</td>
<td>8:1</td>
</tr>
<tr>
<td>Rough</td>
<td>Rope and chain</td>
<td>10:1</td>
</tr>
</tbody>
</table>

Scope = Length of cable paid out / depth
**Anchoring Transits**

When at anchor line up two objects, one in the foreground and one in the distance. If these two objects stay in line the anchor is holding and the boat is stationary. If the objects move relative to each other then the anchor is not holding and the boat is drifting.

Always keep watch when at anchor to ensure the boat does not drift.

![Diagram of anchoring transit](image)

*Figure 68: Monitoring the anchor, establishing an anchoring transit*
Bar Crossings

Bar crossings can be dangerous as the tide, wind and water depth act together to cause the water to become rough.

The Faculty of Science requires that any bar crossings are identified in the risk assessment for the trip. Masters must display knowledge and competency of crossing the particular bar identified in the risk assessment and be specifically approved by the Marine Fieldwork Manager to drive a Faculty vessel across that bar.

To gain information about a bar vessel users should contact:
- Local maritime or fisheries officers
- Local fisherman or other maritime industry members (e.g. dive operators)
- Surf Life Saving clubs
- Marine Rescue Organisations
- Other local clubs (e.g. sailing or diving)

Masters are required to have experience of a particular bar before being permitted to cross it in a Faculty vessel.

Figure 69: Bar crossings
When bar crossings go wrong vessels can quickly lose control and lives can be lost.
Preparations and Precautions

- All personnel onboard must wear a lifejacket
- Vessel trim should be correctly adjusted
- Secure all equipment and anything that could come loose
- Test all controls to ensure the vessel is fully operational
- Stand off and observe the bar before crossing
- Log the crossing with the local Marine Rescue organisation
- Cancel trip if bar conditions are too dangerous
- Have a back-up plan if the conditions are too dangerous to return – is there an alternate safe haven?

Figure 70: Look for information on hazards and regulations at the boat ramp
Section 3: Emergency Procedures
Master Incapacitated

- Another person onboard must take control – preferably one with boating experience
- Assess situation, is the vessel in imminent danger?
- If the vessel is underway stop the vessel by placing the throttles in the neutral position
- Follow emergency communication procedures to contact emergency services. Mayday if in imminent danger, Pan Pan if not in imminent danger or dial 000 on a phone. Try to work out the location of the vessel to tell emergency services
- Follow the directions of emergency services
- If the vessel is drifting near the shore deploy the anchor as told in the briefing
- If the vessel is drifting at sea and you cannot drive it deploy the sea anchor as explained in the procedures
- Attend to the well being of the master and any other injured people
- Navigate to nearest safe wharf depending on the needs of the incapacitated person
- Contact the Marine Fieldwork Manager
Emergency Stopping

*Always ensure that the engine tilt is correctly adjusted to prevent “Bow Steering”. This must be done at all times as there will not be sufficient time to adjust engines during an emergency stop procedure.*

- Look around to make sure stopping will not cause a collision or roll over if you end up parallel to wave troughs.
- Make sure no one is in a position to be injured by the manoeuvre.
- Give a clear warning to other personnel onboard such as: “Hang on! Emergency Stop!”.
- If clear put throttle almost back to neutral.
- Turn the boat sharply to left or right with steering wheel to end up approximately 90 degrees to your original path.
- Assess the situation (e.g., look for following waves or obstructions) and drive out of danger if necessary.
- See to well-being of those onboard.
- Respond to any other emergencies.
Breakdown / Loss of Steering

- Assess the situation
- Direct all personnel to put on lifejackets
- Confirm the stability and integrity of the vessel
- If the vessel is drifting near to shore deploy the anchor
- If the vessel is drifting at sea deploy the sea anchor
- Are both engines not operational? Can you return to a safe haven on the one engine?

Problems and potential solutions:

<table>
<thead>
<tr>
<th>Table 9: Breakdown troubleshoot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine cranks but will not start</td>
</tr>
<tr>
<td>Check fuel lines, is the tap on? is it primed? is there water in the fuel?</td>
</tr>
<tr>
<td>Engine will not crank</td>
</tr>
<tr>
<td>Check battery master switch is on, turn on cross over to crank engine from the other battery.</td>
</tr>
<tr>
<td>Engines run but steering is not operational</td>
</tr>
<tr>
<td>Motor slowly using the paddles as improvised rudders. If in open waters call for assistance.</td>
</tr>
<tr>
<td>Both engines not functional – vessel on smooth waters not far from shore</td>
</tr>
<tr>
<td>Use paddles to manoeuvre the vessel to a safe haven or landing place. Seek assistance.</td>
</tr>
</tbody>
</table>

If you cannot establish enough propulsion to safely move the vessel to a safe haven call emergency services for assistance.

While waiting for assistance fly the V-sheet to alert other vessels and help the identification of your vessel.

Contact the Marine Fieldwork Manager
Person Overboard

- Call “Man Overboard!” to notify all onboard
- If safe disengage propellers to avoid prop strike, Beware of following seas, don’t get swamped
- Fix position – Man Overboard button on GPS, landmarks or any other way of knowing where the person went into the water
- Assign lookout to look and point at the person in the water – their only job is to keep visual contact with the person
- Throw buoyancy aid / life ring to person in the water
- Perform turn
- Approach the person slowly
- Prepare for recovery during turn and approach
- Lower the ladder into the water
- Approach on the downwind side if possible, the ladder is on the port side of the vessel
- Disengage propellers
- Throw a line to the person
- Bring them along side
- Assist onboard or secure them to the vessel and seek assistance
- If unconscious try to grab clothing / lifejacket with a boathook
- NOTE: only put another person in the water if safe and the person is experienced / trained e.g. a rescue diver.
- Attend to person
- If necessary notify emergency services
Standard Operating Procedures – Pelagica #58294

- If person is not found notify emergency services
- Conduct systematic sweeps of the area
- Listen for calling or whistle
- At night use a torch or if necessary a flare can be used and the light may reflect on the lifejacket
- Notify the Marine Fieldwork Manager

Figure 71: Man overboard

One person should be assigned to constantly point to the position of the person in the water until they are back at the boat. They should communicate the location of the person clearly to the master of the boat.

Figure 72: Performing a Williamson turn
Fire

Fire is one of the most dangerous situations on a boat. On a small vessel fire can take hold quickly. Be prepared by thinking about how a fire might start and how you would deal with it. Where are the fire extinguisher and the bucket? Do you know how to use them?

If flammable substances are to be carried onboard as part of the fieldwork they must be identified in the risk assessment and suitable controls implemented. Ensure that the containers and storage methods are correct and if necessary carry additional fire extinguishers suitable for the substance.

- Assess the situation
- Direct all personnel to put on a lifejacket
- Move personnel away from fire – be careful of the stability of the vessel
- If possible contain the fire / remove other flammable material
- If safe to do so, fight the fire using extinguishers / buckets
- Monitor the stability and status of the vessel. Make sure that moving people and bucketing water onto the fire does not unbalance Pelagica
- Prepare anchor or sea anchor for deployment, depending on location, so that you don’t drift into more trouble while trying to sort out the fire.
- If possible navigate to nearest, suitable and safe wharf or shoreline or drop anchor and wait for assistance

- If necessary contact emergency services either using the radio or by phone and inform them of your intentions

- If you cannot control the fire yourself order **Prepare To Abandon Ship** and **Abandon Ship** as required

- Contact the Marine Fieldwork Manager

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**Figure 73: Know how to operate the fire extinguisher**
Deploying the Sea Anchor / Drogue

Pelagica carries a sea anchor or “drogue” to be used to limit drift in open waters and to control surge when being towed in an emergency.

Sea anchor deployed from the bow

The sea anchor should be used when there is an emergency in open water. It will control the rate of drift, making you easier to find as you will stay in a smaller area, and it will maintain the bow into seas / wind, making a safer and more comfortable ride.

- Attach the sea anchor to the end of the spare anchor rope
- Secure the other end of the rope to the bow Sampson post
- If possible a short tripping line and a float should be attached to the closed end of the sea anchor to aid in retrieval
- Lower the sea anchor into the water and slowly pay out the full length of the anchor rope – this will reduce the shock loading on the boat and rope
- Monitor the sea anchor and rode for chafe and function

![Figure 74: Sea Anchor (Drogue) deployed from bow](image)
Sea anchor deployed from the stern

When being towed it may be desirable to trail a sea anchor to keep the vessel tracking behind the towing vessel (i.e. stop it from yawing back and forth) and to prevent it from running up behind the towing vessel.

- Attach the sea anchor to the end of the spare anchor rope
- Secure the other end of the rope to a stern Sampson post – if possible make a bridle to distribute the weight between the two Sampson posts, this will make the boat track straighter
- If possible a short tripping line and a float should be attached to the closed end of the sea anchor to aid in retrieval
- Lower the sea anchor into the water and slowly pay out the full length of the anchor rope – this will reduce the shock loading on the boat and rope
- Monitor the sea anchor and rope for chafe and function

Retrieving the sea anchor

- Motor slowly toward the sea anchor
- Assign a person to retrieve the rope as you motor; making sure it is clear of the propellers
- Use the boat hook to catch the float or the closed end of the sea anchor
- Don’t try to pull the sea anchor in by the rope it is too heavy
Injury

- Assess the situation – Remember your first priority is your own safety
- How many people are injured and what caused the injury
- Remember DR ABC from first aid training – Danger, Response, Airway, Breathing, Compressions
- Provide first aid within your abilities
- If professional medical assistance is required, contact emergency services, advise ETA to destination wharf or landing place and type of assistance required
- Assign tasks to other personnel onboard – the Master will need to drive the vessel
- Obtain any details of injured person(s) and witnesses to the injury (if injury) – these are important for the Ambulance Officers
- Maintain first aid until relieved by medical personnel
- Upon berthing or landing, clear access for medical personnel boarding. Move equipment or people so they have space to work
- Contact the Marine Fieldwork Manager

Figure 76: Know the location of first aid kit/s. The first aid kit is located in the locker below the steering wheel and a second kit in the equipment bin.
Diving Accident / Emergency

- Assess the situation – how many people are involved? what are the obvious injuries?
- Assist divers returning to the vessel
- Provide first aid, including oxygen administration (if you are trained to) follow the direction of the personnel trained in diving first aid
- Collect information about diving profile and accident from divers
- If life threatening e.g. CPR being performed, contact emergency services
- If non-life threatening contact DAN (Divers Alert Network) 1800 088 200, if there is no phone service contact emergency services
- Follow instructions of emergency services / DAN, if instructed by DAN contact emergency services
- Notify emergency services of position and intentions
- Navigate to wharf or landing place to meet emergency services
- Upon berthing / landing, clear access for medical personnel
- Supply dive profile information and diving equipment to emergency services
- Contact the Marine Fieldwork Manager and the Diving Officer

DAN
1800 088 200
Collision

- Assess the situation – what have you hit? What has hit you?
- Check on well being of those onboard, ensuring all are accounted for
- Confirm vessel stability and status
- Ensure that everyone onboard has life jackets on
- Throw life ring or lifejackets to people in water
- Investigate damage and watertight integrity – is the vessel still safe to manoeuvre?
- Assist the other vessel as required
- If possible navigate to recover people from the water
- If possible assess any spillage and pollution
- If possible navigate to nearest, suitable and safe wharf or drop anchor / sea anchor and wait for assistance
- If necessary contact emergency services and inform them of your intentions
- If the vessel is sinking order Prepare to Abandon Ship and Abandon Ship as required
- Contact the Marine Fieldwork Manager

Sydney waters can be crowded and busy. These three vessels were involved in collisions on Sydney Harbour resulting in severe injury and deaths
Damage to Collar

- Assess situation – is there obvious damage to the collar or is it just going flat?
- Confirm the stability of the vessel; you’ve just lost some of your flotation. However, Pelagica has 5 chambers in its collar so damage to 1 should not affect the ability to float.
- Inform personnel, ensure life jackets are donned, it may be necessary to move people and equipment to trim the boat and raise the damaged section out of the water.
- Prepare anchor or sea anchor for deployment while you fix the problem or wait for assistance.
- Assess vessel status and determine nature of the damage, can it be fixed on the water? Can the vessel still be driven? Is there water entering the vessel?
- Contact emergency services and inform them of your intentions.
- If the damage is fixable, attempt to patch the hole using the repair kit provided. There is tape for patching tears in the repair kit.
- Use the tape to patch the hole and pump the pontoon up so that it keeps water out of the boat. Don’t try to get it up to full pressure.
- Drive the boat slowly to avoid putting any strain on the patched area.
- If damage is too great request assistance.
- If water is entering vessel see: Flooding.
- If water ingress is too great order Prepare to Abandon Ship and Abandon Ship as required.
- If possible navigate to nearest, suitable and safe wharf or drop anchor and wait for assistance.
- Contact the Marine Fieldwork Manager.
Note:

If there is a large temperature drop while you are onboard Pelagica the pontoons may go soft. Simply use the pump to add more air.

There are 5 chambers in the collar, each with its own valve

The valves can be used for adjusting the pressure in the chambers – check valves for leaks

Figure 77: Maintaining the inflatable collar
Grounding

- Assess the situation – what have you run aground on? What are the sea conditions?
- Shut off and raise engines to prevent any further damage to the propellers
- Check on the well being of personnel, people may have been injured when you ran aground. Make sure no one was thrown from the boat.
- Ensure all personnel are wearing lifejackets.
- Assess vessel damage and watertight integrity. If you can get off will you still float?
- Prevent environmental harm/pollution. Did the grounding cause the engine to leak oil or rupture a fuel tank?
- Confirm vessel stability and status. Make sure that people moving around the boat don’t destabilise it. Also check if the tide is dropping that the boat will not list. You may need to abandon ship if the boat starts to list too much.
- If possible remove vessel from ground. If you haven’t grounded too hard you should be able to do one of the following.
  - Motor off
  - Lift engine
  - Shift weight
  - Row / punt off using oars
  - Push, if on sand in calm water
  - Wait for tide to rise
- If possible navigate to nearest, suitable and safe wharf or drop anchor and wait for assistance
- If necessary contact emergency services if necessary and inform them of your intentions
- Order **Prepare to Abandon Ship** and **Abandon Ship** as required
- Contact the Marine Fieldwork Manager
Figure 78

*Observe navigational marks!* These boats ignored clear signals and became stuck.
Flooding / Swamping

- Assess the situation
- Direct personnel to put on lifejackets
- If the collar is not damaged Pelagica should have sufficient buoyancy to remain afloat even if flooded
- Ensure that the automatic bilge pump is operating. Switch on both battery master switches and the cross-over to ensure it has sufficient power

Figure 79: The automatic bilge pump is located in the floor under the rear seat

Figure 80: The automatic bilge pump discharges over the starboard rear of the boat – check water is flowing from here
Operate the manual bilge pump to pump water from under the floor

Figure 81: The manual bilge pump is located under the rear seat. It is designed to pump water from below the floor to the bilge pump well

Prepare bucket and if necessary begin bailing

Investigate the cause, if possible stop the water coming in and monitor the flooding. The most likely location for flooding on Pelagica is through a leaking bung

If the vessel is stationary and the Venturi bailers are down water may leak back in through them – check and if necessary close them

Venturi bailer down (open)  Venturi bailer up (closed)
Only lower when underway to drain water  Keep up when launching, traveling slowly or not moving

Figure 82: Venturi bailers
o Confirm vessel stability and status. You may need to move people and equipment to counter the weight of the water coming into the boat

o Prepare anchor or sea anchor for deployment. You don't want to drift into more trouble while you sort out the problem.

o Visually check for pollutants/spillage. Is there any fuel or oil in the boat that can mix with the water? – use the spill kit.

o If the engines are still operational and the leak is small or stopped, open/lower the venturi bailers and motor slowly. This will drain water from the floor of the vessel

o Navigate vessel to nearest, suitable and safe wharf or drop anchor and wait for assistance

o If necessary contact emergency services and inform them of your intentions

o If you can't deal with the flooding prepare people for getting into the water. Order Prepare to Abandon Ship and Abandon Ship as required. Unless there is significant damage to the vessel Pelagica should have sufficient buoyancy in its sealed chambers to stay afloat. Stay with the vessel.

o Contact the Marine Fieldwork Manager
Capsize

- Assess the situation
- Try to locate other personnel
- Locate life jackets and put them on
- Assist others who are not wearing lifejackets to put one on
- Remain as a group with the vessel
- If possible get as high on the vessel as you can to get out of the water and be seen
- Locate safety equipment and signal for assistance – display V sheet, sound horn and / or light flares if other vessels or people are nearby
- Deploy EPIRB
- Liaise with emergency services upon arrival
- Contact the Marine Fieldwork Manager
Dangerous Behaviour / Unlawful Acts

All persons onboard Pelagica are expected to conduct themselves properly and safely. All people onboard have an obligation to others to act in a safe way. Anyone who observes another person behaving in a dangerous or unlawful way should notify the master of the vessel.

It is an offence to not follow the reasonable directions of the master of the vessel.

- Inform person that behaviour is unacceptable
- If necessary and safe move the vessel to wharf or safe location
- Contact Police (000) if required
- Advise offending person(s) that an offence is being or has been committed and that the Police have been notified to attend
- Inform all personnel, of the situation and your intentions
- Ask all personnel to remain onboard or near the vessel
- Wait for emergency services
- Contact the Marine Fieldwork Manager

Hold-Up / Hostage Situation

- Obey the person’s instruction, do only what you are told and nothing more
- Do not volunteer information
- Do not resist the hold up
- Observe what you can from the person and provide all information to police
- Contact the Marine Fieldwork Manager
**Bomb Threat**

- Keep calm
- Listen carefully to the caller
- Record the wording of the threat, date and time
- Note any clues such as: accent / impediment / polite / incoherent / irrational / taped / read out / abusive / traffic / voices / machinery / gender of caller / estimated age
- Ask When, Where, What, Why, Who?
- Keep communications open with the person
- If possible contact emergency services
- Deploy anchor and wait for assistance
- Follow emergency services instructions
- Contact the Marine Fieldwork Manager

**Suspicious Object**

- Do not touch or tilt the object
- Contact emergency services
- If possible deploy anchor and wait for assistance
- Follow instructions of emergency services
- Contact the Marine Fieldwork Manager
Towing another Vessel

- Assess the risk for undertaking an Emergency tow only, otherwise contact Emergency Services. Read also Part 8. Clause 69 of MSCV (2010).

- Communicate clearly with the other vessel about your intentions, use the radio if weather conditions prohibit voice communication.

- Only approach another vessel if it is safe to do so, **DO NOT Put Your Vessel At Harm**

- To affect a tow, check there is appropriate equipment.

- If safe to transfer people, take onboard any people that may be in danger.

- Use the longest tow line possible to limit snatch in the line.

- Secure the tow line to spread the load over the boat – rig a towing bridle between the Sampson posts at the stern of pelagica.

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*The two stern Sampson posts. These are ideal for towing.*

*The stern Sampson posts are designed for attachment of heavy lines and loads.*

*Figure 83: Towing another vessel*
- Direct the recipient where and how to attach the towline *prior* to throwing the line
- Ensure you have a method to slip the tow line if necessary, always have a knife ready to cut the line
- Accelerate slowly to take up the strain of the tow
- Tow only at a sensible speed
- Watch for following waves behind the vessels that may swamp them, slow down
- Monitor chafe in the tow line
- If possible navigate vessel to nearest, suitable and safe wharf
Being Towed by another Vessel

- Communicate clearly with the other vessel, use the radio if the weather prohibits voice communication
- Prepare a tow line, or prepare the vessel to receive the tow line
- Securely attach the tow, Pelagica is fitted with a bow Sampson post that is the idea location for the tow line

![Figure 84: Strong point to attach a tow line](image)

- Ensure the tow can be slipped and that a knife is on hand to cut the tow if necessary
- Do not allow people to stand behind the tow line or in the bight of the line – When being towed everyone should be behind the windshield
- Monitor chafe in the tow line
- Watch for wake building behind the boat that may swamp the vessel, slow down the tow
- Monitor speed, if in a following sea watch for surfing or slewing. If necessary deploy a sea anchor to control the speed and movement of the vessel
In heavy weather a weight such as a bucket full of water, anchor, or rubber tyre can be hung from the tow line to act as a shock absorber and maintain the “dip” in the line.

If the vessel being towed does not have appropriate tow points try to spread the load of the tow across multiple points on the boat.

An alternative method of towing is to raft the vessels together. This is best suited for calm conditions.

Figure 85: Preparing to be towed
Prepare to Abandon Ship

- Send **MAYDAY**
- Ensure all life jackets are donned
- Deploy **EPIRB**
- Stop engines
- Deploy anchor or sea anchor
- Prepare emergency equipment for abandoning ship, take the grab bag with you, keep this equipment with you, don't let it go down with the vessel.
  - Torch
  - Flares
  - Sound Signal
  - V sheet
  - EPIRB
  - Life ring

**Figure 86: Safety Grab bag**
The Grab Bag onboard Pelagica. It is stored in the open hatch below the GPS

- Keep all personnel informed, calm and under control, explain to remain with the vessel and together as a group if in the water
- Liaise with emergency services upon arrival
Abandon Ship

- Follow procedures for Prepare to Abandon Ship
- Explain how to disembark vessel and to remain together with the vessel
- Order “Abandon Ship”
- Take emergency equipment with you
  - Torch
  - Flares
  - Sound Signal
  - V sheet
  - EPIRB
  - Life ring
- Control transfer of staff/students into the water – check there is no debris or danger in the water before entering
- Muster all personnel together in the water
- Do a head count - Check that all personnel have abandoned ship
- If vessel remains afloat then cling to vessel for support and to be easier to find during a search
- Use emergency equipment to attract attention of emergency services
Hypothermia and the Heat Escape Lessening Position (HELP)

Hypothermia is the condition of low body-core temperature. This condition may result from prolonged heat loss due to long-term immersion or immersion for a short period followed by exposure, particularly to the wind when the body and/or clothing are wet. The combination of wet, wind and cold can kill. Follow your first aid training in the treatment of hypothermia.

H.E.L.P.

A person in the water will lose body heat at a greater rate than in dry air. Attempts to swim or any vigorous movement, while appearing to create body heat, will cause more rapid loss. The areas of the body where the greatest loss of heat occurs are the groin, the trunk, the neck and the head.

Where a person is unable to swim to shore and is likely to be in the water for any length of time they should adopt the Heat Escape Lessening Position (HELP) to minimise the rate of heat loss.

In the HELP the chest and groin are protected from heat loss to the water, with up to a 50% reduction in heat loss.

To effect this position, the person:

- Holds the arms so as to cover the sides of the chest and upper body;
- Raises the legs, shielding the groin and chest; and
- Endeavours to float on their back.

Where a number of people are in the water they should huddle together and should shield as much of their collective body trunks as possible.

Single person HELP  Multiple people HELP
Section 4:
Other Protocols and Reporting
Faculty of Science Drug and Alcohol during boat use Protocol

The operation of a vessel can become dangerous when under the influence of alcohol and other drugs. That danger extends beyond the master of the vessel to the other personnel onboard the vessel, other waterway users and the general public. Alcohol and drugs may impair a person’s ability to safely carry out tasks onboard and to assist themselves and others in an emergency. There is also the likelihood of putting others at risk by creating an emergency situation.

Because of these risks the Faculty of Science requires that the following protocols be followed by all people onboard a Faculty vessel:

- No alcohol or illicit drugs are to be consumed onboard the vessel
- Prior to boarding the vessel, no alcohol or illicit drugs are to be consumed for a reasonable time, such that at the time of boarding the vessel the person is not under the influence of alcohol or illicit drugs.
- A person under the influence of alcohol or illicit drugs is not to board the vessel
- A person who is taking medication that may impair their ability to safely participate onboard the vessel should seek medical advice before boarding the vessel. If necessary, the person should exclude themselves from boating activities.
Macquarie University Smoke-Free Campus Policy (OHS 34, August 2010):

The University recognises that staff and students have a personal choice to smoke, however, the University also recognises that there is an equal right for staff and students who do not smoke to work and study in an environment that is not polluted by environmental tobacco smoke.

Environmental tobacco smoke poses a significant health risk with overwhelming evidence demonstrating that passive smoking (the inhalation of residual smoke) increases the risk of developing lung cancer, as well as acting as a trigger for other serious medical conditions.

Smoking is prohibited in all Macquarie University vehicles, including boats.

Smoking while on field trips, research activities etc (i.e. during boating activities, but when not onboard the vessel, e.g. at the boat ramp), while not encouraged, must not occur within five metres of a work, meal or living environment.
Environmental Protection Protocol:

The Faculty of Science aims to minimise the impact of boating operations on the environment. Unless specifically permitted to do otherwise (e.g. through an approved research permit) all boat users should follow the protocols given below. The Master of the vessel is responsible for any environmental damage caused by the vessel whilst it is under their control. The protocols given below follow the NSW Maritime Boating Handbook environment recommendations.

- **Discharge of waste or rubbish**
  - No rubbish or waste is to be discharged from a Faculty of Science vessel.
  - All rubbish is to be collected onboard and disposed of appropriately on land.
  - Any waste chemicals used in research should be collected and returned to the University to be appropriately disposed of.
  - Care should be taken with fuel and oil to prevent spills.

- **Noise**
  - The main thing to consider under noise control legislation is the concept of offensive noise, which is based upon how a "reasonable person" would react.
  - In deciding whether the noise from a motor vessel is offensive, the following factors are considered:
    - The character of the noise.
    - The quality of the noise.
    - The noise level.
    - The effect the noise has on activities.
    - The time of the noise event, e.g. early morning.
    - The waterside land use.
  - Noise also disturbs wildlife. Care should be taken to reduce noise in the vicinity of waterbirds and other animals.

- **Bank Erosion and Wash**
  - The wash from a boat can erode banks in sheltered waterways. The larger the wake, the greater the potential for bank erosion.
  - The master of the vessel should be aware of the wash being produced by the boat at all times and when necessary should minimise it as much as possible.
  - Follow all “No Wash” and speed limit signs to limit the damage caused by wash.
- **Seagrass**
  - Seagrass beds provide food and shelter to a wide variety of fish and invertebrates. They also help bind the sea floor and improve water quality.
  - When possible, do not drive your boat across shallow, weedy areas, as boat propellers may damage seagrass.
  - Do not anchor on seagrass beds.

- **Invasive species**
  - The movement of trailer boats and boating equipment between waterways has the potential to spread invasive species.
  - *Caulerpa taxifolia* is an invasive marine seaweed that has been found in several NSW estuaries, and can be transported as small fragments on boating equipment.
  - If possible avoid shallow weedy areas where *Caulerpa taxifolia* can be collected on equipment.
  - Obey any local vessel exclusion zones.
  - Inspect all equipment, particularly ropes and anchors, after use.
  - Wash all equipment, the boat, and flush engines after use, particularly if moving between waterways.

- **Protected species**
  - All native birds, mammals and reptiles are protected in NSW.
  - The master of the vessel should, where possible, minimise the disturbance to these animals.
  - Be aware of the rules relating to approach distances and speeds near marine mammals.
  - At times during the year special restrictions may be in operation to protect species such as the little penguin.
  - It is the master’s responsibility to be aware of any rules or restrictions.
Hazard and Incident Reporting

Reporting Hazards to Macquarie University:

A hazard is anything that has potential to harm life, health, property or the environment. Macquarie University aims to identify workplace hazards before they become “active hazards” or “incidents”.

It is the responsibility of all people involved in the operation of Faculty of Science vessels to report hazards that they identify and have not been adequately controlled.

To report a hazard, vessel users should complete a “Hazard Report Form” available from main Macquarie University Health and Safety Unit webpage: http://www.pers.mq.edu.au/HealthAndSafety.html

The person reporting the hazard should then forward one copy of the Hazard Report Form to the Health and Safety Unit (ohs@mq.edu.au) and one copy to the Marine Fieldwork Manager.

Hazards should be reported as soon as practical upon returning from the voyage. If a hazard is identified prior to vessel operations users should consult with the Marine Fieldwork Manager to assess if action is required before the vessel can be used.

If vessel users require further information or assistance reporting hazards they should contact the Marine Fieldwork Manager.
Reporting Incidents to Macquarie University:

An incident is a hazard that has become active and resulted in harm to life, health, property or the environment. Any incident involving a Faculty of Science vessel must be reported.

A person involved in an incident, or a person aware of the details of the incident, must report it to the Macquarie University Health and Safety Unit as soon as practical after the incident has occurred.

To report an incident, vessel users should complete the “Incident and Accident Report” located at: http://www.ohs.mq.edu.au/form5a.php or linked from the main Macquarie University Health and Safety Unit webpage: http://www.pers.mq.edu.au/HealthAndSafety.html

In addition the reporting person should print a copy of the report and forward it to the Marine Fieldwork Manager.

Any incident involving a Faculty of Science vessel should be immediately reported to the Marine Fieldwork Manager by telephone or in person so that they can take any immediate action that is necessary and assist in coordinating the response.

Reporting Incidents to NSW Maritime:

If a marine accident occurs involving a Faculty of Science vessel, the Master of the vessel must prepare a “Vessel Incident Report” for NSW Maritime. The Master must coordinate the preparation of this report with the Marine Fieldwork Manager and must not submit the report without their knowledge.


A marine accident is:

a) the loss of life of, or injury to, any person on board the vessel,

b) the loss of a person from the vessel,
c) the loss of life or injury to a person that is caused by the vessel,
d) the loss, or presumed loss, of the vessel (including the sinking or abandonment of the vessel),
e) the capsizing, grounding or flooding of the vessel,
f) the collision of the vessel with another vessel or with any object,
g) the vessel being disabled at sea (in any case in which it requires assistance),
h) any fire on board the vessel,
i) any damage being caused to the vessel (including any structural failure),
j) any damage to the environment caused by the vessel or by any substance on, or discharged from, the vessel,
k) any incident that causes danger of any of the above