

# BEES Safety Management System for vessels < 7.5 m



# Contents

<b>1. Vessel and Contact details</b>	<b>4</b>
1.1. Contacts	4
1.2. BEES vessels	4
1.3. Using external vessels for UNSW work	5
<b>2. Safety and Environment Policy</b>	<b>5</b>
2.1. Relevant legislation & standards	5
2.2. WHS policy UNSW	5
2.3. Risk management	5
2.4. Incident reporting	6
2.5. Record keeping	6
2.6. Drugs, alcohol and smoking	7
2.7. Environmental protection	7
2.8. Vessel Inspection and Maintenance	8
<b>3. Roles and Responsibilities</b>	<b>8</b>
3.1. Company responsibilities flow chart	9
3.2. Owner: School of BEES	9
3.3. Boating Safety Committee (BSC)	9
3.4. Boating Safety Officer (BSO)	10
3.5. Supervisor of the master of the vessel	10
3.6. Master of the vessel	10
3.7. Crew and special personnel	11
3.8. Registering as a vessel master	11
3.9. Maintenance of competency	12
<b>4. Operational Procedures</b>	<b>12</b>
4.1. Crewing requirements	12
4.2. Pre-trip preparation and planning	13
4.3. Preparing the boat	14
4.4. Preparing the trailer for towing	14
4.5. Towing the boat	15
4.6. Launching and retrieving procedure	15
4.7. Engine operations	16
4.8. Safety briefing	17
4.9. Communications	17

4.10. Load, seating and trim	18
4.11. Refuelling	19
4.12. Garbage, waste and spills	20
4.13. Ropework	20
4.14. Anchoring	22
4.15. Towing	24
4.16. Being towed	24
4.17. Sea anchor deployment	25
4.18. Diving and snorkelling operations	26
4.19. Night work / poor visibility	26
4.20. Bar crossings	26
<b>5. Emergency Procedures</b>	<b>27</b>
5.1. General	27
5.2. Emergency procedure drills	27
5.3. Emergency equipment	28
5.4. Emergency communications	28
5.5. Fire or Explosion	29
5.6. Collision or Grounding	30
5.7. Flooding	30
5.8. Person overboard	31
5.9. Emergency stopping	32
5.10. Critical Breakdown	32
5.11. Master Incapacitated	32
5.12. Prepare to abandon ship and Abandon ship	33
5.13. Capsize	33
5.14. Serious injury / Medical emergency	34
5.15. Diving emergency	34
5.16. Severe weather and sea conditions	34
5.17. Personal threat or bomb threat	34
<b>6. Document List</b>	<b>35</b>
<b>7. Review and Evaluation</b>	<b>36</b>
<b>8. Appendices</b>	<b>37-43</b>

# 1. Vessel and Contact details

## 1.1. Contacts

### Vessel Owner – The School of Biological, Earth and Environmental Sciences (BEES)

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Phone: (02) 9385 2065 | Email: [i.suthers@unsw.edu.au](mailto:i.suthers@unsw.edu.au)

### Boating Safety Officer (BSO) – Rochelle Johnston (Designated Person)

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### Boating Safety Officer (back up) – Doctor Suzy Evans

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## 1.2. BEES vessels

BEES vessels are Class 2 vessels less than 7.5 m in length and do not carry passengers. BEES vessels are used for research, education and training which may include, but is not limited to the following activities:

- Scientific research including diving, sample collection and the deployment/retrieval of research equipment.
- Transporting crew or special personnel and equipment to and from research sites.
- Teaching and training programs.

**Table 1. BEES Vessels and capabilities**

Name	Make	Length (m)	Engine/s HP	Hull Material	Identifier Registration/ UVI	Max People on Board & Crew Ratio, Max Loading, Plying limits			
						Near Coastal 2C		Partially Smooth Waters 2D	
						WORK	DIVE	WORK	DIVE
<b>Eddy</b>	Gemini	5.2	Mercury 60:60	Fiberglass	24247 425232	5 POB 1:4 464 kg 15 nm	4 POB 1:3 464 kg 5 nm	8 POB 1:7 995 kg	5 POB 1:4 995 kg
<b>Gus</b>	Seatamer	5	Yamaha 40:40	Aluminium	24358 421813	3 POB 1:2 425 kg 15 nm		5 POB 1:4 425 kg	4 POB 1:3 425 kg

### 1.3. Using external vessels for UNSW work

Any external vessels (excluding the Sydney Institute of Marine Science vessels) used for UNSW work must be approved by the BSO. This includes vessels owned by other organisations as well as hire vessels. Please use the [BOAT08: Request to use an external boat for UNSW research](#) form to request approval.

## 2. Safety and Environment Policy

### 2.1. Relevant legislation & standards

As well as BEES policies, all National and State legislation, standards, licensing, and permitting relevant to the work must be met.

Current list of Legislation and Standards for Domestic commercial vessels:

- [Marine Safety \(Domestic Commercial Vessel\) National Law Act 2012.](#)
- [Marine Safety \(Domestic Commercial Vessel\) National Law Regulation 2013.](#)
- [The National Standard for Commercial Vessels \(NSCV\).](#)
- [Marine Orders.](#)
- [NSCV EX15 - Marine Safety \(Scientific research and educational activities\) Exemption 2015.](#)

### 2.2. WHS policy UNSW

The School of Biological Earth and Environmental Sciences (BEES) is committed to ensuring a safe and healthy environment for all people who work, study, or visit BEES administered space and /or are affected by BEES off-Campus activities. To achieve this goal, the School of BEES adheres to the policies, procedures and guidelines that comprise [The University of NSW Health and Safety Management System \(HSMS\)](#).

### 2.3. Risk management

BEES will:

1. Follow all relevant rules and regulations.
2. Promote and provide safe practices and a safe working environment.
3. Ensure that foreseeable hazards are identified, assessed, and controlled through the [Boating Risk Management Form](#).
4. Ensure that all vessel operators have suitable training and experience to use the vessel for the proposed activities. This will be achieved through a training, induction, and assessment procedure (BOAT01 BEES Boat User Induction and Assessment Procedure).
5. Ensure that the vessel is safe and suitable for the proposed activities, through regular maintenance inspections.
6. Consult with boat users about boat use procedures to identify areas for improvement and monitor the performance of the SMS.
7. Minimise the impact of our vessels on the environment.
8. Communicate this document and the [Boating Risk Management Form](#) with all BEES boat users.

#### 2.3.1. Risk management review

All risk management documents must be reviewed:

1. If the operation of the vessel changes.

2. If the vessel is involved in an incident.
3. If controls are not working effectively.
4. If there is a new hazard identified.
5. If there is a change in legislation.
6. If consultation indicates a review is necessary.
7. Every three years.

## 2.4. Incident reporting

The University of New South Wales has a [hazard and incident reporting procedure](#). The Master shall report any incident or hazard, including those not resulting in damage or injury, to their supervisor and the BSO, and the incident must be logged through the [myUNSW](#) online hazard and incident reporting system. Any incident resulting in damage to persons, property or the environment must be reported **immediately**, as further and immediate action may be required. More Information about the reporting process and the response process by supervisors is available in the [Guide to reporting hazards and incidents](#). The UNSW WHS Division will subsequently report any notifiable incidents to SafeWork NSW.

Where boat users have concerns regarding master/crew non-compliance or other safety concerns, these should be reported to BSO directly.

### 2.4.1. AMSA reportable incidents

**The following incidents must also be reported by the master of the vessel to AMSA:**

- Death of, or injury to, a person associated with the operation or navigation of a vessel.
- The loss or presumed loss of a vessel.
- Collision of a vessel with another vessel.
- Collision by a vessel with an object.
- The grounding, sinking, flooding or capsizing of a vessel.
- Fire on board a vessel.
- Loss of stability of a vessel that affects the safety of the vessel.
- The structural failure of a vessel.
- A close quarters situation.
- A dangerous occurrence, which is an occurrence that could have caused the death of, or serious personal injury to, any person on the vessel.

AMSA requires an **incident alert** to be submitted within 4 hours and an **incident report** to be submitted within 72 hours of the incident. The process for reporting these maritime incidents and the AMSA forms can be found on the [AMSA website](#). A copy of the forms is also provided in each boat bag. **Reports must be coordinated with the BSO and BEES HSE Advisor.**

### 2.4.2. Response to reported hazards or incidents

Following the reporting of a hazard or incident, the BSO in conjunction with the BSC will initiate a review of the SMS and any relevant documentation for the activities associated with the hazard or incident. Once developed the BSO will communicate these changes to all boat operators and if necessary, hold further training prior to allowing the operation of the vessel.

## 2.5. Record keeping

Record keeping is in line with the [UNSW Record Keeping Policy](#). The below apply specifically to boating documentation:

1. Boat user registration, licences, certificates, induction and assessment records are scanned by the BSO and kept on the UNSW server. The boat master should maintain their own record of these documents and ensure they are kept current.
2. The BOAT09 Boat log and pre-departure checks forms are returned to the BSO at the end of each period of use, to be scanned and kept on the UNSW server. The boat master should also maintain their own record of sea time to demonstrate currency of skills and knowledge.
3. The quarterly BSO maintenance checks and professional service records are scanned and kept on the UNSW server.
4. Risk management forms and relevant documents are kept for as long as they are in use and then 7 years after last use.

## 2.6. Drugs, alcohol and smoking

Boat users must not operate a BEES vessel, vehicle or machinery if they are impaired by alcohol or drugs. Smoking is prohibited on university grounds as well as on-board or near all UNSW boats and vehicles. For further information see the [UNSW Alcohol and Drugs Procedure](#) and [UNSW Smoke-Free Policy](#). To assist the provision of a safe working environment on BEES vessels, the following behaviours must be observed by all people on-board the vessel:

1. No alcohol or illicit drug is to be consumed on-board the vessel.
2. A person under the influence of alcohol or illicit drugs is not to board the vessel.
3. A person who is taking medication that may impair their ability to safely participate on-board the vessel should seek medical advice before engaging in boating operations. If necessary, the person should exclude themselves from boating operations.

The master of the vessel is responsible for ensuring all persons on-board comply.

## 2.7. Environmental protection

BEES aims to minimise impact and harm to the environment during vessel operations. The master is responsible for any environmental damage caused by the vessel whilst it is under their control.

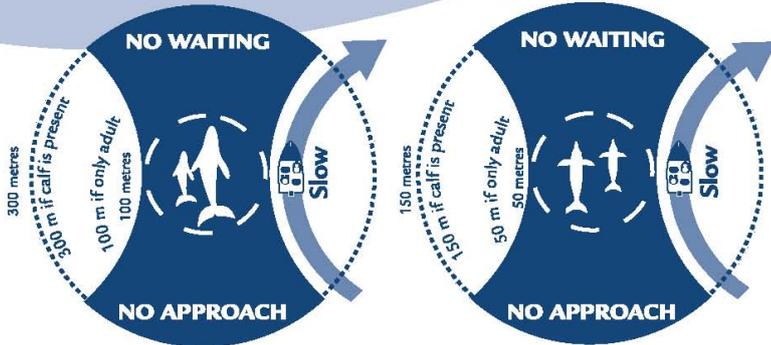
All vessel masters and crew should adhere to the following protocols:

1. No rubbish or waste is to be discharged from a vessel. Collect all rubbish and waste on board and dispose of it responsibly onshore. See section 4.12.
2. Care must be taken with fuel and oil to ensure there is no discharge into the marine environment. If a spill occurs, it must be reported to the [local authorities responsible for responding to marine pollution incidents](#). In NSW, this is Roads and Maritime Services (RMS). See section 4.12.3
3. Any waste chemicals used must be collected and returned to BEES for appropriate disposal.
4. Be aware of sensitive seagrass areas and avoid damaging them during boating operations.
5. Minimise wash in locations where it has potential to damage the shoreline, vessels or other structures. Follow all “No Wash” and speed limit signs to limit the damage caused by wash.
6. Be aware of any restrictions relating to operating a vessel in protected areas or around protected or invasive species or any biosecurity issues.
7. Keep noise to a level that is acceptable to a reasonable person.

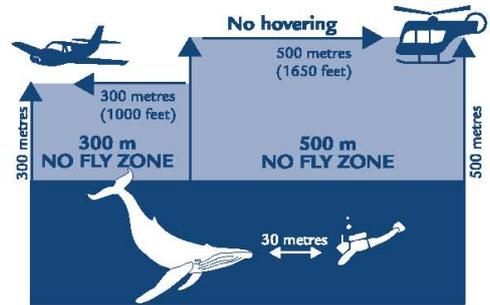
# Whale and dolphin watching

## Whale approach distances

## Dolphin approach distances



If a whale approaches your vessel, slow down to a 'no wash' speed and move away or disengage your vessel's gears, make no sudden movement and minimise noise.



When approaching whales or dolphins, start at an angle of at least 30 degrees to their direction of travel.

Skippers should go slow when within 300 m of whales and 150 m of dolphins.

**NSW MARITIME**

Department of Environment & Climate Change NSW



JULY 2008

## 2.8. Vessel Inspection and Maintenance

The vessel is inspected as per the Scheduled Maintenance Program (Appendix A).

### 2.8.1. Pre-trip inspections

The master of the vessel is responsible for checking that the vessel is fully operation and that all safety equipment is present and functional prior to commencing the voyage. The **BOAT09 Boat Log and Pre-departure Checks** form lists all the parts of the vessel that must be checked, and this must be completed before every trip. If the vessel is not fully operational or safety equipment is not present or functional the Master shall not commence the voyage. The master shall inform the BSO of any deficiencies.

### 2.8.2. Quarterly inspections

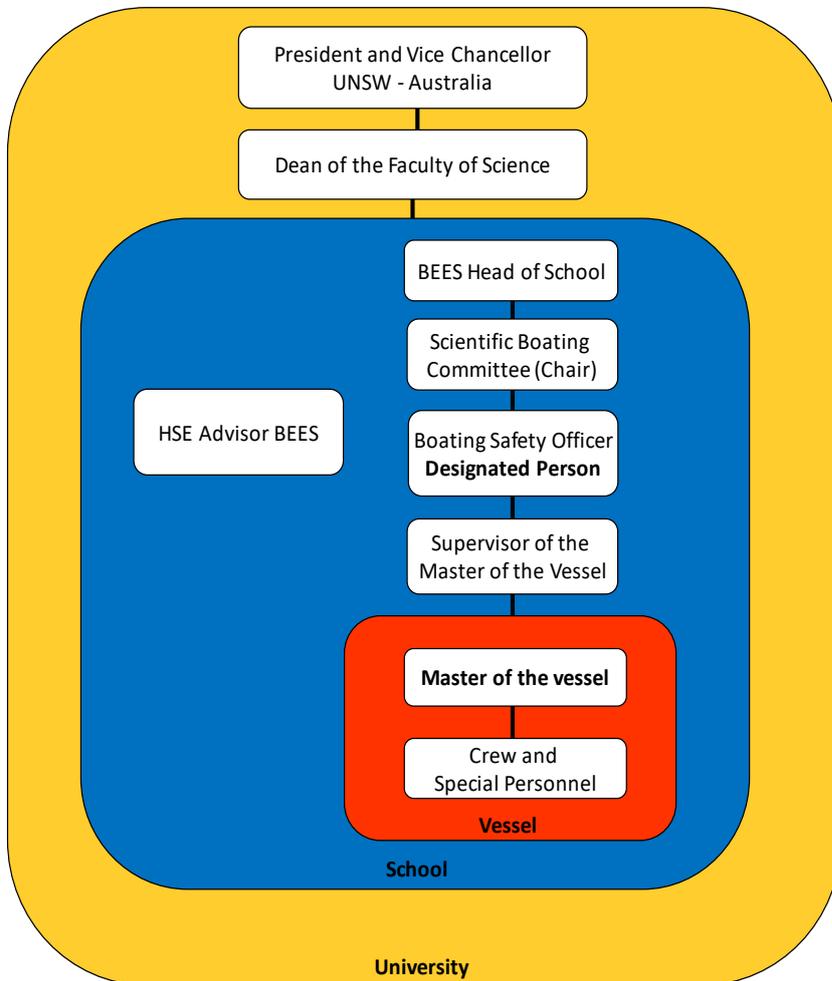
The BSO or their delegate is responsible for the quarterly inspections and maintenance of the vessels using the **BOAT21 BSO Maintenance Checks**, **BOAT22 First Aid Kit Checks** and **BOAT23 Life Jacket Inspection** forms. The BSO will coordinate any repairs and replacements for any deficiencies identified during BEES vessel checks. The BSO shall keep a record of all BEES and external maintenance records and repairs on the UNSW server.

### 2.8.3. Other external inspections

- An inspection and service of the fire extinguishers will be conducted by a professional every 6 months.
- An inspection and service of the inflatable life jackets will be conducted by a professional every 12 months.
- A professional inspection and service of the engine, boat and trailer will be conducted every 100 hours of engine use or every 12 months (whichever is sooner).
- An eSafety check will be carried out on the trailers every 12 months.

### 3. Roles and Responsibilities

#### 3.1. Company responsibilities flow chart



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#### 3.2. Owner: School of BEES

The School of BEES shall:

1. Appoint a Boating Safety Officer to oversee boating operations.
2. Appoint and consider recommendations made by the Boating Safety Committee.
3. Implement a management process to ensure that all boating activities are compliant with the relevant legislation and standards.

#### 3.3. Boating Safety Committee (BSC)

The BSC provides specialist advice on the School of BEES boating policy and procedures and provides safety management for boat users. The committee shall include the BEES HSE Advisor, the Boating Safety Officer/s and current researchers and students involved in boating activities.

The BSC shall:

1. Review relevant legislation and standards.
2. Develop and review the BEES SMS and associated safety documentation.
3. Assist the BSO to manage or resolve identified hazards and assess the control of risks in boating activities.
4. Provide specialist assistance in the investigation of all boating incidents/accidents.
5. Provide consultation on training requirements for boat users.
6. Report to the BEES Head of School.

### **3.4. Boating Safety Officer (BSO)**

The Boating Safety Officer is the Designated Person for the School of BEES. The BSO has the authority to restrict, prohibit or suspend any boating operations which they consider unsafe. Furthermore, they can insist on the implementation of additional safety practices, procedures or equipment they consider necessary to ensure the safety of the participants. The BSO reports the BSC.

The Boating Safety Officer is responsible for:

1. Registration, induction, training and assessment of boat users.
2. Implementing and reviewing the vessel SMS and Risk Management documents.
3. Facilitating the maintenance and repairs of BEES vessels in accordance with the Schedule of Maintenance and whenever required (see section 2.8.2).
4. Provide advice on the safety and risk management of boating activities.
5. Maintaining the vessels records in accordance with section 2.5.
6. Liaising with AMSA for boating matters.

### **3.5. Supervisor of the master of the vessel**

The Supervisor's responsibilities include but are not limited to:

1. Approving the vessel master's boating operation with advice from the BSO.
2. Ensuring the master and crew are qualified for the planned activities.
3. Ensuring risk management forms, safe working procedures and emergency plans are in place for the planned activities.
4. Ensuring the master reports hazards, incidents and near misses relating to boating activities.

### **3.6. Master of the vessel**

The master is always in charge of the vessel. They have the complete authority and are responsible for the safety, pollution prevention and the efficient operation of the vessel. The master may only deviate from normal procedures if human life, property or the environment is at risk. The master reports to their Supervisor who is responsible for approving the boating operation and to the BSO who is responsible for providing boat safety advice.

The master's responsibilities include but are not limited to:

1. Complying with this SMS, the [Boating Risk Management Form](#) and any relevant legislation.
2. Complying with the vessel's survey requirements including operational area limits, maximum people on board and maximum load, and reducing these as necessary according to their planned activities.
3. Ensuring appropriate emergency planning for the activity has been conducted.
4. Ensuring that the BOAT09 Boat Log and Pre-departure Checks form is completed, that the vessel is fully operational, and that all safety equipment is present and functional before setting off.

5. Restricting or suspending operations based on the weather, the condition of the vessel, the abilities of those on board and the tasks to be performed.
6. Providing a safety briefing to all on board which includes operational and emergency procedures.
7. Issuing clear and concise instructions to crew and special personnel, and ensuring they are adequately trained and experienced to carry out their tasks.
8. Coordinating emergency responses and following appropriate emergency procedures.
9. Maintaining the vessel while in use, cleaning the vessel at the end of the trip and reporting any maintenance issues to the BSO as soon as practicable.
10. Reporting any matters that have implications for the safe operation of the vessel to the BSO as soon as practicable.
11. Reporting all incidents or near misses according to section 2.4.
12. Ensuring the BOAT09 Boat Log and Pre-departure Checks form is returned to the BSO within 72 hours or as soon as practical, upon return from the boating operation.
13. Evaluating the operational and safety procedures and reporting any deficiencies to the BSO.
14. Maintaining their competency as a master according to section 3.9.
15. Performing and documenting emergency drills with the crew and special personnel at least every 6 months in accordance with section 5.2.

**Note: Accepting these responsibilities is a condition of registration.**

### 3.7. Crew and special personnel

The responsibilities of the crew and special personnel include:

1. Being familiar with this SMS and the [Boating Risk Management Form](#).
2. Listening to safety briefings and following instructions from the vessel master.
3. Assisting in all vessel operations as directed by the vessel master.
4. Always wearing a life jacket while on board a BEES vessel (unless instructed by the vessel master).
5. Only undertaking tasks they are trained/ qualified to undertake.
6. Maintaining a look out while onboard the vessel.

### 3.8. Registering as a vessel master

Minimum Master Qualifications

1. Current General Boat License.
2. Current Occupational First Aid and CPR Certificates.
3. Documented 100 hours as master or 15 hours supervised by a registered BEES vessel master.

Note: The BSO may require more hours or training depending on the outcome of the assessment and the types of boating operations to be undertaken by the master.

Master Induction Process

A person who has not successfully completed the induction program will not be authorised to use a BEES vessel. The induction and assessment process for users varies depending on their experience.

To become a registered master of a BEES vessel:

1. The master must be familiar with this SMS.
2. The master must be familiar with the [Boating Risk Management Form](#).
3. The master shall complete either a dry induction and/or wet induction according to their experience.
4. The master shall demonstrate the following competencies:

- a. Voyage preparation and planning.
- b. Pre-trip equipment checking including trailers.
- c. Vessel handling and manoeuvring.
- d. Launching and retrieving procedures.
- e. Navigation and collision regulations.
- f. Actions to take to maintain safety on board.
- g. Actions to take in an emergency.
- h. Use and maintenance of safety equipment.
- i. Weather assessment and monitoring sea conditions.
- j. Basic outboard engine operation.

Following induction, if a person feels that they do not possess sufficient skills to perform the required tasks they must not act as the master. The master should receive specific vessel inductions for each vessel they want to operate. This can be either a dry induction or wet induction according to their experience.

### **3.9. Maintenance of competency**

The master must maintain their skills and knowledge of operating and emergency procedures through boating activities, drill training and refresher sessions with the BSO.

The following is required to maintain your status as a vessel master:

1. Maintain current boating licence.
2. Maintain a current First Aid qualification. The master will be allowed to operate the vessel for a 3-month grace period from certification expiry, provided that another crew member has a current certification.
3. Maintain a minimum of 10 hrs on vessels annually.
4. Completion of all emergency drills every 6 months. Master to record emergency drills on the BOAT09 Boat Log and Pre-departure Checks form.

If the master does not gain the minimum hours of sea time or does not complete the emergency drills as above; a refresher induction with the BSO or delegate (as approved by the BSO) will be required.

## **4. Operational Procedures**

All BEES vessels must be operated in accordance with this SMS and their Certificate of Survey requirements. A copy of the Certificate of Survey can be found in the boat bag and at <https://www.bees.unsw.edu.au/boats>.

In addition to this SMS, a flipchart for quick reference to the Operational and Emergency Procedures is kept onboard each vessel.

### **4.1. Crewing requirements**

1. It is a requirement that at least one person on board the vessel (the master or crew) hold a current First Aid certification. BEES recommends that more than one person on board holds a current First Aid certification.
2. For coastal operations, the master or one crew must hold a VHF marine radio licence.

- It is a requirement to have at least two people on board the vessel while underway. However, the vessel may be operated by a single person in low-risk situations, with prior approval by the BSO. In this scenario, the master must attach the kill cord to themselves.

## 4.2. Pre-trip preparation and planning

### 4.2.1. General

Follow the BEES fieldwork planning procedures found at <https://www.bees.unsw.edu.au/fieldwork>. This includes ensuring relevant Risk Management Forms, Safe Work Procedures, Activities, Emergency Plans and Fieldwork Notifications are approved. You should also complete the planning section of your BOAT09 Boat Log and Pre-departure Checks form prior to trip.

### 4.2.2. Weather

The master must check the weather forecast prior to departure and ensure conditions are suitable for area of operations and type of activity, with careful consideration of the skills and experience of the master and crew. Sources of weather forecasts include The Bureau of Meteorology [www.bom.gov.au](http://www.bom.gov.au) and Sea Breeze [www.seabreeze.com.au](http://www.seabreeze.com.au). **Coastal operations are limited to < 16 knots and < 2 m wave height.**

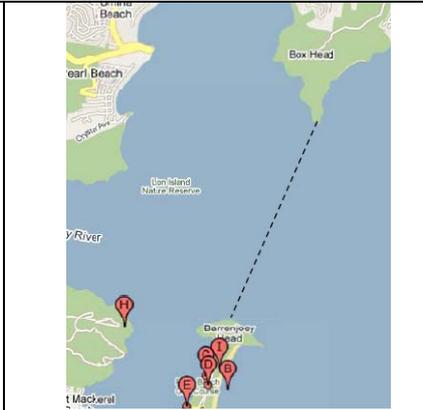
The master must monitor conditions whilst at sea and move to sheltered waters or cease operations if conditions deteriorate. Monitor weather warnings on VHF channel 16 while on the water.

### 4.2.3. Plying limits

Plan your operations according to the plying limits for the vessel and its operation activity (see Table 1).

**Class 2C Near coastal waters** are waters outside the partially smooth waters. The distance from the mainland and a safe haven differ according to the vessel and activity (see Table 1).

**Class 2D Partially smooth waters** are waters where the significant wave height does not exceed 1.5 m for 90% of the time. Refer to up to date boating maps for partially smooth water boundaries. Examples are given here:

		
<b>Port Jackson</b>	<b>Broken Bay</b>	<b>Botany Bay</b>
A line drawn between the western extremity of Cannae Point and Inner South Head.	A line drawn between Barrenjoey Lighthouse and Box Head.	A line drawn between Bare Island and Inscription Point (Note: not Cape Banks).

More partially smooth water limits for NSW can be found in the [Marine Safety Regulation Schedule 3](#).

### 4.2.4. Maximum people and load on board

Plan your operations according to the maximum people and load on board for the vessel, its operational area and activity (see Table 1). 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.

### 4.2.5. Charts

Paper copies of navigational charts for the operational area MUST be carried onboard the vessel when in use. It is the responsibility of the master to provide appropriate charts for the area of operation. Do not rely on electronic charts as electronic equipment can fail in an emergency. You must carry a paper chart and know how to use it.

### 4.3. Preparing the boat

1. The master must complete the BOAT09 Boat Log and Pre-departure Checks and ensure the vessel and all safety equipment is fully operational.
2. Make sure consoles are closed and any items on boat are secured.
3. The bungs can be closed for boats with sealed decks (Eddy and Gus), but ensure that no water is in the hull whilst towing.
4. Leave scuppers (GUS) and bailers (EDDY) open for the drive.
5. For short trips, batteries can be left ON. For long trips, turn batteries OFF.
6. Check the engine supports are in place.
7. Calculate fuel needs.

### 4.4. Preparing the trailer for towing

1. Ensure the towing vehicle has the correct towing capacity. The BEES Hilux and Landcruiser are suitable but the RAV4s are not.
2. Release the handbrake on the trailer and ensure the reversing lock is disengaged.
3. Manoeuvre the trailer to locate the trailer coupling as close as possible to the vehicle tow ball. Reverse the vehicle until the tow ball is directly under the coupling.
4. NEVER LIFT the trailer coupling onto the tow ball.
5. Lower the jockey wheel while holding the 'trigger handle' on the coupling fully up and allow the coupling to fully engage the tow ball. Release the trigger handle and replace the securing pin.
6. Double check that the coupling is locked into position on the tow ball.
7. Put the jockey wheel in the towing position.
8. Attach the safety chain/s to the vehicle. It is good practice to cross the chains over.
9. Ensure the chain leaves enough slack to permit tight turns. There are chain extenders in the boat cage if needed.
10. Connect trailer lights to the vehicle and confirm that all lights function normally.
11. Check trailer tyres for correct inflation pressures (45-50 psi) and ensure there is no visible damage.
12. Check that the boat lies flat and secured on the trailer and cannot move.
13. Tension the tie-down straps.
14. Ensure the safety chain is connected from the bow to the winch post, and from the bow to the trailer neck - check tension on turnbuckle and shackles.
15. The DRIVER of the vehicle should do a last 'walk around' to double check all is secure.
16. Ensure the boat and trailer are not overloaded (see Table 2).
17. See Appendix B for EZIMOVER Jockey Wheel instructions.

**Table 2. Trailer weight limits**

	<b>Gus</b>	<b>Eddy</b>
<b>Trailer max weight (GVM)</b>	1500 kg	1450 kg
<b>Boat Weight including engines</b>	1000 kg	600 kg
<b>Boat + fuel (100kg) + basic gear (50kg)</b>	1150 kg	750 kg
<b>Contingency</b>	100 kg	100 kg
<b>Remaining</b>	250 kg	600 kg

## 4.5. Towing the boat

1. You must be inducted to tow the BEES vessels. P1 drivers are not allowed to tow.
2. Remember to double check that the reversing lock is not engaged when driving on the road as this disengages the trailer brakes.
3. Allow for the extra length and width of the trailer when turning or entering traffic.
4. Your braking distance will be greatly increased, so adjust your speed and distance behind other vehicles accordingly.
5. Allow more time and a greater distance in which to overtake.
6. Engage a lower gear in both manual and automatic vehicles to increase vehicle control and reduce brake strain when travelling downhill.
7. Avoid applying the towing vehicle's brakes if the trailer begins to sway or snake. Continue at a steady speed or accelerate slightly until the sway stops.
8. Use a spotter when reversing the trailer.
9. Take care when driving under overhead obstructions.
10. During the trip, check the following:
  - a. Check that the couplings and chains are still securely fastened.
  - b. Check that light connections are secure and that the lights are working.
  - c. Check that the load is still secure.
  - d. Check that the wheel bearings are not overheating.
  - e. Check that the tyres are still sufficiently inflated.

## 4.6. Launching and retrieving procedure

The exact method of launching and retrieving a boat will vary depending on the boat ramp, the prevailing weather conditions, and the skill of the master and their crew.

- WEAR appropriate footwear.
- INSPECT the boat ramp for adequate water level, obstructions, slipperiness, and other hazards.
- DISCUSS and decide on the launching plan with the crew.

### 4.6.1. Prepare the boat for launch at the boat ramp

1. Remove engine wood block and safety flags.
2. Remove tie-down straps but keep safety chain and winch rope connected.
3. Engage the reversing lock so that trailer breaks cannot engage & be damaged.
4. Turn on the batteries (all except cross over).
5. Set up VHF radio, GPS, aerials and canopy .
6. Keys in ignition and activate kill switches.
7. Ensure BUNGS are in.
8. Close bailers (EDDY) and scuppers (GUS).
9. Check depth transducer position is in a horizontal position
10. Prepare a bow line and mooring lines as necessary to assist with launch.

### 4.6.2. Launch the boat

1. The master (plus 1 crew member if required) should get on board before reversing into the water.
2. Reverse the trailer but keep the back wheels of the towing vehicle out of the water. Typically, the trailer hubs will need to be partially submerged.
3. Put the vehicle in first gear or park and apply the handbrake.

#### Boat operator:

1. Lower PROPS into the water until water intakes submerged.

2. Turn over engines one at a time and CHECK telltale.
3. Ensure that shore crew are clear of the winch block.
4. Engage forward throttle to PRESS and HOLD the boat on the trailer bow roller.
5. Signal to the shore crew to release the winch rope and THEN the safety chain.
6. WAIT for the shore crew to signal that you are CLEAR of all chains and rope then allow the boat to gently slide off the trailer by:
  - Putting the engines in neutral.
  - A gentle push from the shore crew.
  - Reverse throttle if required.

**Shore-crew:**

1. STAND CLEAR of the winch block and trailer and WAIT for the master's instructions.
2. Release the winch lock and let out about 10 cm of winch rope then RE-ENGAGE winch lock so it can't spin out of control.
3. Unhook winch rope hook from the boat.
4. Now you can REMOVE the safety chain from the boat.
5. STAND CLEAR of the trailer and winch block
6. SIGNAL the master to let them know the boat is no longer attached to the block.
7. DON'T PUSH the boat unless asked by the master to do so.

**Important safety notes for use of winches:**

In most circumstances the safety chain and winch cable should be left on until the skipper has the boat in their control i.e. motors ON and in FORWARD THROTTLE. This allows the winch cable to be released without risk of the handle and cable spinning free as the boat slides down the trailer into the water. Why? Free spinning winch handles cause injury to the crew, and the boat hitting the water unexpectedly can cause injury to the boat operator, the boat, and bystanders.

**Shallow water launching:**

In shallow water the boat can be walked off the trailer with the help of a lead ropes (in this situation the engines are left up (and off) until there is sufficient clearance (draught is approximately 0.5 m for GUS and 0.8 for EDDY).

**4.6.3. Retrieving the boat onto the trailer**

Discuss and decide on the appropriate retrieving process with the crew, as this varies with boat ramps, tides, and experience and sea conditions.

- Driving a boat on to the trailer in shallow water may cause damage to the hull, props, and the trailer.
- Winching the boat on to the trailer on a steep boat ramp presents a manual handling risk to the winch operator, and a risk of the winch strap breaking.

**Driving on:**

1. Remove any excess weight from the boat by dropping crew on shore and operating bilge bumps, opening deck bailers/scuppers.
2. Ensure people are clear of the trailer.
3. Tilt the engines up as appropriate for the depth.
4. Nose the boat up to the trailer and gently drive the boat up to the bow roller. Hold on by maintaining slight forward throttle.
5. Shore crew to attach the winch rope and the safety chain and signal to the master that they can switch off the engines.
6. Switch off and raise the engines.
7. Check that the boat is centred on the trailer.

### **Winching on:**

1. Prepare winch cable by running it out the length of the trailer ready to clip it onto the boat. LOCK winch rope so it can't run out free.
2. Adjust propeller heights as required and switch off.
3. Walk boat to the back of the trailer and use guide ropes to position boat and keep it straight.
4. Attach winch cable and winch boat onto trailer ensuring it goes on centred.
5. Fit safety chain.

#### **4.6.4. After retrieving at the boat ramp**

1. Wash down boat and trailer, taking care not to spray water into console.
2. Flush outboard engines (see below).
3. Open bungs, bailers and scuppers to drain any water.
4. Raise engines and put engine supports in place.
5. Shutdown electrical system.
6. Lower and secure canopy and antennae.
7. Remove or secure all equipment from onboard the boat.
8. Remove all rubbish.
9. Fit tie-down straps.
10. Disengage the reversing lock.
11. Put the trailer winch handle back in the boat bag if it is removable.
12. Driver should re-check all straps, brakes, shackles, and trailer lights prior to towing.
13. Complete BOAT09 Boat Log and Pre-departure Checks form.

### **Flushing an Outboard Engine**

NEVER RUN AN OUTBOARD MOTOR WITHOUT A WATER SUPPLY. It will seriously damage your motor within a few seconds. Ensure the telltale is flowing, so you know that the cooling system is working.

1. Lower the engines and attach "flush muff" to the water intake of one engine.
2. Turn on the tap full, then turn over that engine and look for the telltale.
3. If the telltale doesn't push out water after about three seconds STOP THE ENGINE and reset the flush muffs.
4. If the telltale is putting out water, then run the engines for 30 seconds or so.

## **4.7. Engine operations**

### **4.7.1. Start up**

1. Turn all battery switches to ON position (except Crossover). See Appendix C: Battery Systems.
2. Lower engines into water.
3. Check engine control lever is in neutral position.
4. Keys in ignition and attach kill switch tabs.
5. Turn key to 'ignition' position and wait for audio alarms.
6. Check all instruments, lights, pumps.
7. Set bilge pump to AUTO.
8. Turn on GPS and VHF radio – set to channel 16.
9. Turn key to 'start' position, and check for the telltales.
10. Allow engine to warm up for 5 minutes before proceeding on voyage.

### **4.7.2. Shutdown**

1. Allow engine 'idle down' time (2 minutes) in neutral to cool.
2. Switch off engine.

## 4.8. Safety briefing

The master must provide a safety briefing for all crew prior to leaving the launch area. The detail included in the safety briefing will depend on the type of activity and the experience of the crew on the day.

If you have been working with the same crew, in the same area and on the same boat for a multiple day field trip then a full briefing on subsequent days may not be required. In this case the master will still need to regularly check the crew's knowledge.

The following information is to be covered in a safety briefing:

- Voyage and navigation plan.
- Emergency plan and communications.
- UNSW lifejackets rules, how to fit, whistle, lights, and explain how inflatable jackets are activated.
- Location and use of all the safety gear.
- EPIRB & Flares - explain their operation.
- Life Ring - how to deploy it.
- VHF Radio & channel 16 – how to operate it in an emergency.
- Basic boat operation: Steering, throttle, engine start and stop, kill switch.
- Location of *Operation and Emergency Procedures Flipchart*.
- Person overboard procedure.
- No sitting on the pontoons while the vessel is underway.
- Hold on while underway.
- Maintain stability of people and equipment.
- Safety around propellers.
- Explain any specific responsibilities and tasks e.g. procedure for anchoring or towing a net.

See Appendix D for an example of a safety briefing.

## 4.9. Communications

### 4.9.1. Logging on and off with Marine Rescue

You must log on with Marine Rescue if proceeding into open waters (i.e. outside of the partially smooth waters). This can be done by calling Marine Rescue on VHF channel 16, calling the Marine Rescue phone number or using the Marine Rescue NSW app. You will be asked to provide details about the vessel, the number of people onboard, your destination, your expected time of return and a mobile number. 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.

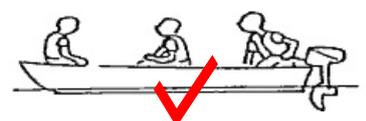
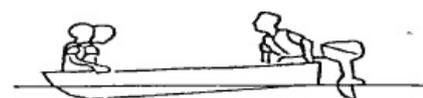
See Appendix E for details on emergency and non-urgent VHF Radio operations.

## 4.10. Load, seating and trim

### 4.10.1. Load

Evenly distribute the load as this helps to stabilise the boat and maintain control. Aim to have the boat sitting as level in the water as possible. Depending on the conditions and the wave direction, you must adjust the distribution of the load.

1. Too much weight at the stern can cause the boat to have water come over the transom, or it may be flipped when the bow is lifted in the air by a wave.
2. Too much weight in the bow can lead to 'bow steering' where the hull catches the water and makes unexpected changes in direction.



3. Too much weight on one side can affect the handling.
4. In a head on sea – load the bow as this stops the boat flipping on a wave.
5. In a following sea – load the stern as this keeps the boat stable.

#### 4.10.2. Seating

1. Where possible, remain seated while underway.
2. Sitting on EDDY’s pontoons is NOT allowed when the vessel is underway.
3. EDDY and GUS have removable seats allowing for more deck space.
4. Bow riding is against the law.
5. Take care when approaching jetties and docks that people’s bodies, hands and fingers are not protruding beyond the sides of the vessel.



#### 4.10.3. Motor position (Trim)

The motor should be positioned so that the axis of the propeller is parallel with the water surface, however an adjustment of the tilt is often recommended.

- EDDY and GUS are fitted with electric trim adjust located on the throttle.
- The trim must be adjusted to suit the conditions and the load. A nose down or stern down position may lead to the problems mentioned in 4.7.1.



#### 4.11. Refuelling

##### 4.11.1. General

EDDY and GUS use **Unleaded Fuel**. The preference is for **Premium Unleaded**, but if this is not available regular unleaded may be used. **DO NOT USE DIESEL OR ETHANOL (E10) FUELS.**

Fuel is filled at the beginning of the day to ensure you have enough fuel for your activities and to prevent fuel going stale after periods of no use.

EDDY has 1 x 100 litre fuel tank. The fuel level gauges can be used to determine fuel level.

GUS has 2 x 47 litre fuel tanks. The fuel level gauges are not in operation. The fuel cannot be sounded at present, as the fuel ports are seized. Fuel must be filled each day it is used.

As part of your pre-trip planning you must calculate your fuel requirement based on the distance you will travel. It is recommended that you use the “1/3 rule”: 1/3 out, 1/3 back, 1/3 spare.

Vessel	Estimated Fuel consumption
GUS	6L/hour?
EDDY	10L/hour                      1.3 kilometres / litre

##### 4.11.2. Refuelling procedure

1. If refuelling at a marina, ensure vessel is held fast to jetty but with the ability to let go quickly. Turn engines off.
2. Isolate ignition sources (no smoking, naked flames, or mobile phone use in the fuelling area).
3. Spill equipment (absorbent material) and fire extinguisher should be accessible.
4. Use black fuel fill ports on side of the centre console. GUS has a black key in the console if the fuel fill port is stiff.
5. Maintain vigilant watch during refuelling.
6. Do not over-tighten the black fuel fill ports.
7. Record quantity in boat log.

#### **4.11.3. Filling a portable fuel drum**

1. Remove portable fuel tanks from boat or vehicle and place on the ground so it is electrically grounded.
2. Do not fill beyond max fill line.
3. Ensure bleed valve is closed after filling.

#### **4.11.4. Procedure in the event of fuel spillage**

1. Stop the flow of fuel
2. Use the spill kit to clean up fuel on the boat immediately.
3. Inform appropriate authorities (e.g. attendant if spilled at service station, RMS if spill in waterway).

### **4.12. Garbage, waste and spills**

#### **4.12.1. Garbage**

1. All garbage must be collected and placed in an appropriate place onboard the vessel.
2. All garbage must be disposed of ashore. Where practicable, separate recyclable material and dispose of appropriately.
3. **IT IS ILLEGAL TO DUMP ANY RUBBISH INTO THE WATER.**
4. The master is responsible for any illegal dumping of rubbish from the vessel.

#### **4.12.2. Waste**

1. No chemicals or waste can be discharged into the waterways.
2. Collect waste and store in sealed containers.
3. Dispose of waste at UNSW according to UNSW procedures.

#### **4.12.3. Spills**

1. Respond to spillage immediately and isolate source.
2. Use spill kit to contain spillage and to prevent pollutant entering water or stop it spreading if already in the water.
3. Record location.
4. Report spill to the local authorities responsible for responding to marine pollution incidents. In NSW, this is Roads and Maritime Services.
5. Inform BSO.

### **4.13. Ropework**

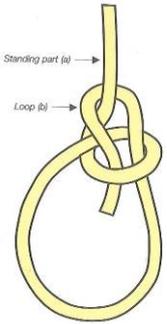
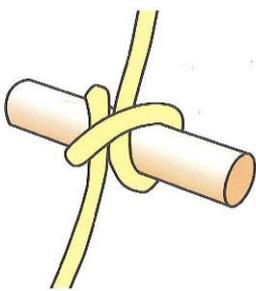
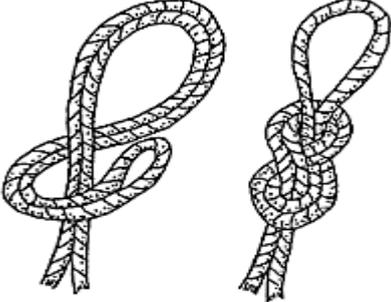
#### **4.13.1. Rope Safety**

Ropes can load with incredible force and can cause serious injury if misused or mistreated.

1. Inspect ropes for damage or wear prior to use.
2. Ensure all ropes and fittings are suitable for the task at hand.
3. Never stand on coils, tangles, or the bight of a rope – they can pull tight and throw you overboard or sever a limb.
4. Never wrap lines around your body to help pull – use the fixtures on the boat to secure lines.
5. Keep ropes tidy. Tidy lines can be accessed quickly and do not need to be untangled before they can be used. They are also less of a tripping hazard.

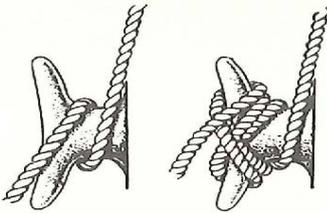
**4.13.2. Knots**

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!

	
<p><b>Bowline – the most important knot</b></p>	<p><b>Clove hitch</b></p>
<p>Tied properly it will not shake loose not slip. The large loop has many uses from securing to bollards to lifting people.</p>	<p>Used for securing lines under load to other objects.</p>
	
<p><b>Figure of 8 knot</b></p>	<p><b>Figure of 8 loop</b></p>
<p>Used as a stopper to prevent a rope from sliding through a pulley.</p>	<p>Useful in circumstances similar to a bowline but can tighten under load.</p>

**4.13.3. Securing lines**

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

 <p>FIG. 6-18. Belaying a rope to a cleat</p>	
<p>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.</p>	<p>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.</p>

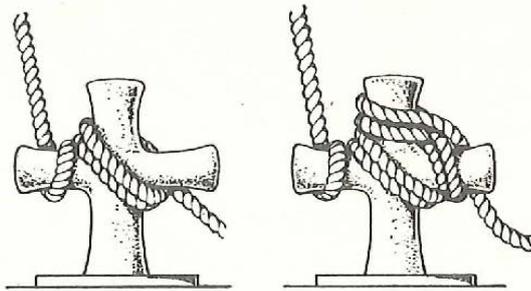


FIG. 6-19. Belaying a boat's fall to a staghorn

When securing to a staghorn take a couple of turns around the centre before a couple of figures of 8. If necessary, this can be finished with a cleat hitch.

## 4.14. Anchoring

### 4.14.1. Types of anchors

EDDY and GUS have 50m of anchor line as well as an additional 50m of rope available in the console.

EDDY and GUS typically carry a Danforth Anchor. If you know you will be operating in areas that need another anchor type, ensure you are carrying the correct type before setting out. We also have plow and reef anchors available.

<p>Danforth</p>	<p>Plow</p>	<p>Reef / Grapnel</p>
<p>These hold best in firm sand, gravel, or mud. Danforth type anchors are not recommended for rocky or grassy bottoms where they cannot penetrate, and clay bottoms where they may not hold well.</p>	<p>They offer good holding power in many different bottom conditions, but do not perform well on soft bottoms.</p>	<p>These work best on solid, rocky bottoms where anchors cannot penetrate but instead hook onto the rock. They perform poorly in mud, sand, and gravel. This style of anchor can easily release as it does not 'set'.</p>

### 4.14.2. Deployment

1. Assess anchoring location for shelter from the wind/ no anchor zone/ submarine cable/ channel / substrate holding suitability / other anchored vessels (assess their swing and anchor appropriately).
2. Ensure water depth is adequate depending on wind strength.

3. Decide on appropriate scope for conditions.
4. Crew ready anchor for deployment.
5. Master to position vessel into wind and come to a stop at selected anchoring position.
6. Crew to deploy anchor and when anchor bottoms, master to go astern while paying out anchor rope.
7. Master stops vessel in water, crew to tie off rope at bow once rope is at agreed length.
8. Master motors slowly in reverse to set anchor until the vessel hangs on the anchor.
9. Master must inspect the anchor tie off point.
10. Master and crew to monitor anchor hold while at position.
11. Do not deploy anchor in sea grass beds.

#### 4.14.3. Recovery

1. Crew to untie line ready for recovering anchor onboard.
2. Master to motor slowly ahead while crew recovers line until vessel vertically positioned over anchor.
3. While maintaining position, crew to recover anchor and stow/ secure.
4. 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.
5. Anchor ropes to be stowed immediately so they can be deployed again and do not create a hazard.

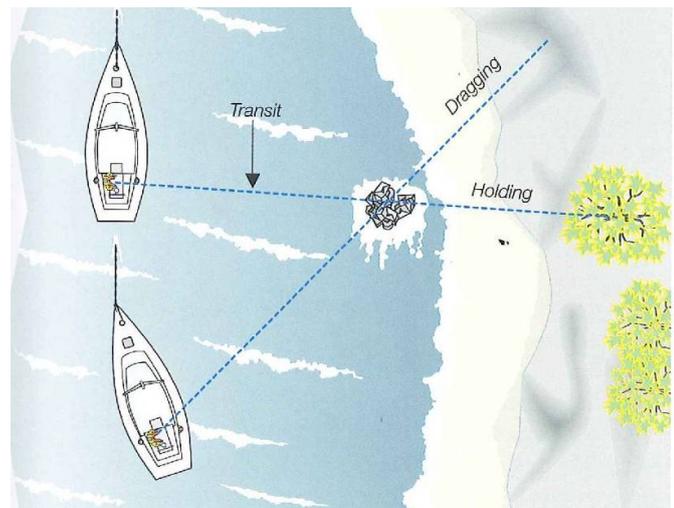
#### 4.14.4. Recommended Scope

Scope is the ratio of the anchor rope and chain length to the depth of water. 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. Always keep watch when at anchor to ensure the boat does not drift.

<u>Sea Conditions</u>	<u>Anchor Cable</u>	<u>Scope</u>
Favourable	Rope and chain	5:1
Average	Rope and chain	8:1
Rough	Rope and chain	10:1

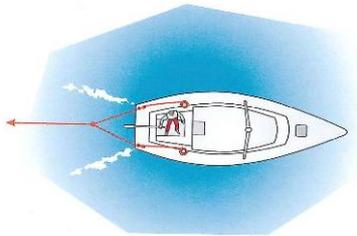
#### 4.14.5. Anchoring Transits

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.



## 4.15. Towing

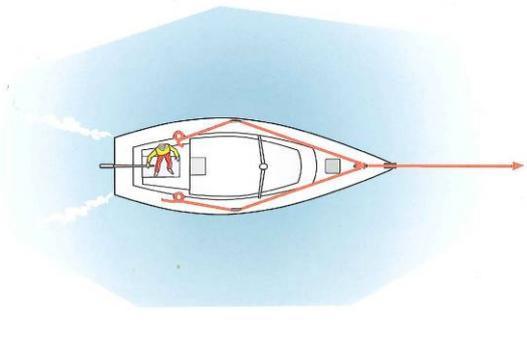
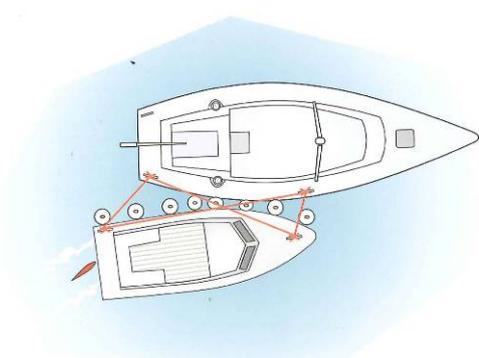
1. EDDY and GUS are not configured for towing heavy boats.
2. Assess the risk for undertaking an EMERGENCY tow only, otherwise contact Emergency Services.
3. Only approach another vessel if it is safe to do so. **DO NOT PUT YOUR VESSEL AT HARM.**
4. Communicate clearly with the other vessel about your intentions, use the radio if weather conditions prohibit voice communication.
5. Take onboard any people that may be in danger, if safe to do so. Remaining passengers on towed vessel must don lifejackets.
6. Use the longest tow line possible to limit snatch in the line.
7. Secure the tow line to spread the load over the boat – rig a towing bridle between the mooring cleats at the stern of the vessel.
8. Direct the recipient where and how to attach the towline prior to throwing the line.
9. Ensure you have a method to slip the tow line if necessary, always have a knife ready to cut the line.
10. Accelerate slowly to take up the strain of the tow.
11. Maintain a safe speed when towing.
12. Watch for following waves behind the vessel that may swamp them, and slow down if necessary.
13. Navigate to nearest suitable wharf or mooring.



If towing is necessary, rig a towing bridle to distribute the weight across the mooring cleats at the stern of the vessel.

## 4.16. Being towed

1. Communicate clearly with the other vessel, use the radio if the weather prohibits voice communication.
2. Prepare a tow line or prepare the vessel to receive the tow line.
3. Securely attach the tow, ensuring that the load is spread, or the attachment point is strong enough. On EDDY and GUS the best point is at the bow where the anchor would normally be tied off. If this is not available spread the load over other points.
4. Ensure the tow can be slipped and that a knife is on hand to cut the tow if necessary.
5. Do not allow people to stand behind the tow line or in the bight of the line.
6. Monitor chafe in the tow line.
7. Watch for wake building behind the boat that may swamp the vessel, slow down the tow
8. 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.

	
<p>When being towed try to spread the load of the tow across multiple points on the boat.</p>	<p>An alternative method of towing is to raft the vessels together. This is best suited for calm conditions.</p>

## 4.17. Sea anchor deployment

EDDY and GUS carry a sea anchor or “drogue”. This can be used:

- To limit drift in open waters where it is too deep to anchor. This will also be helpful in an emergency as it will control the rate of drift, making you easier to find.
- To stay stern to the waves in heavy seas which will help prevent surfing and broaching.
- To help maintain direction if one engine breaks down.
- To control surge when being towed and to prevent the towed vessel overtaking.

### 4.17.1. Sea anchor deployment

1. Attach the sea anchor to the extra anchor rope.
2. Secure the other end of anchor rope to stern attachment point/s.
  - a. If using a single line, keep the attachment point central to the vessel to make it track better.
  - b. If using the rope bridle, attach it to both port and starboard cleats.
3. If possible, a short tripping line and a float should be attached to the closed end of the sea anchor to aid in retrieval.
4. Lower the sea anchor into the water and slowly pay out the anchor rope – this will reduce the shock loading on the boat and rope.
5. Monitor the sea anchor function and rope for chafe.
6. If using sea anchor to aid in heavy seas, ensure rope is not too short and that rope length does not cause sea anchor and vessel to be rolled by the same wave or adjacent waves at the same time.

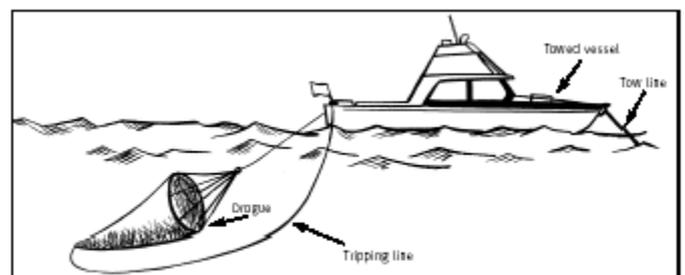
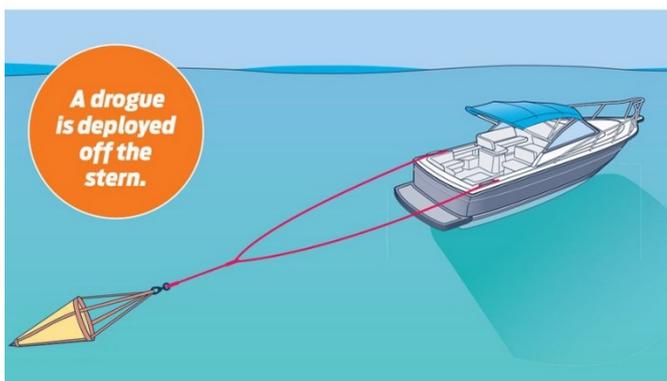


Figure 10.4: Towing with a drogue

### 4.17.2. Retrieving the sea anchor

1. If the sea anchor has a trip line you can pull this in as it will empty the water out as you go.
2. Otherwise, motor slowly toward the sea anchor.

3. Assign a person to retrieve the rope as you motor; making sure it is clear of the propellers.
4. Use the boat hook to catch the float or the closed end of the sea anchor.
5. Do not try to pull the sea anchor in by the rope - it is too heavy.

#### **4.18. Diving and snorkelling operations**

1. When diving, ensure you adhere to maximum persons on board for that activity.
2. A registered BEES skipper must always remain with the vessel unless previously approved by the Dive Safety Committee.
3. Ensure you display dive flag during diving and snorkelling operations.
4. Take oxygen resuscitation equipment for diving and snorkelling operations.
5. Live boat operations while divers/snorkellers are in the water, require approval from the Dive Safety Committee.

#### **4.19. Night work / poor visibility**

1. Be seen – switch the navigational lights on.
2. Slow down – operate at slower speeds than normal as hazards are harder to see.
3. Keep watch – get other people on board to assist in keeping watch. Avoid using bright lights as they will diminish your night vision.
4. Wear a lifejacket – lifejackets must always be worn at night and during poor visibility.
5. If anchored, show an all-round white light.

#### **4.20. Bar crossings**

##### **4.20.1. General**

1. Bar crossings are dangerous and can only to be attempted by masters with suitable experience and local knowledge of bar conditions.
2. The master is required to have an [RMS endorsement](#) for [certain NSW bar crossings](#).
3. All on board must wear a lifejacket during bar crossings.
4. Watch the bar and know the weather and tides.
5. Ensure the boat is fully operational.
6. Secure all loose equipment.
7. Cancel the trip if the bar conditions are dangerous.
8. Have a backup plan if you are out and the bar is too dangerous to return across.

##### **4.20.2. Going out**

The outgoing vessel must meet the incoming wave energy. Do not hit waves at high speed – an airborne vessel is out of control. Do not allow waves to break onto your vessel.

As a guide:

1. Idle towards the breaking waves watching for any lulls.
2. If a flat spot occurs speed up and run through it.
3. If the waves keep rolling in, motor to the break zone.
4. Gently accelerate over the first part of the broken water.
5. Apply more power and run to the next wave, heading for the lowest part (the saddle) if possible because this is the last part to break.
6. Back off the power just before meeting the next swell.
7. Pass slowly through the wave and accelerate again to the next wave.
8. Repeat the process until through the break zone.

### 4.20.3. Coming in

Be aware the conditions may have changed. If dangerous, consider alternatives like waiting for conditions to abate, change of tide or seek alternate safe harbour.

As a guide:

1. Approach the break zone and try to pick the spot with the least activity.
2. Keep any leads in transit: breakers may obscure your vision of the entrance.
3. Choose a set of waves suitable for your entry.
4. Position the vessel on the back of a swell and maintain speed, ensuring that:
  - a. You do not overtake the wave and run down its face.
  - b. You stay ahead of any wave behind you.
  - c. When the wave ahead of you has broken, accelerate through the white water.
  - d. Beware of steep pressure waves bouncing back off the entrance or shore.
  - e. Adjust speed to counter any pressure waves or any outgoing current.

## 5. Emergency Procedures

### 5.1. General

BEES aims to provide a safe work environment, however if an accident occurs it is necessary to respond appropriately. In addition to this SMS, a flipchart for quick reference to the Operational and Emergency Procedures is kept onboard each vessel. It is essential that master is familiar with the emergency procedures prior to operating the vessel and that these procedures are covered during the safety briefing of the crew.

The master is responsible for coordinating the emergency procedures and allocating tasks, as necessary. In the event of the master being incapacitated, another BEES master should take control of the vessel. If there is no other master available, then another crew member is to follow the master incapacitated procedures.

Any emergencies or incidents must be logged in the BOAT09 Boat Log and Pre-departure Checks form, reported to the BSO, and reported through the UNSW online reporting system. Some incidents must also be reported to AMSA according to section 2.4.

### 5.2. Emergency procedure drills

Vessel masters must run drills at least every 6 months to refresh their skills, train others onboard and to identify any areas that need improvement. If the vessel is not used for more than 6 months, the drills are to be run at the next vessel use.

Training may be conducted as:

- A simulation on board.
- A hands-on practical conducted off the vessel (e.g. oxygen provision and CPR).
- A discussion or review of actions relevant to an emergency situation.
- A combination of several scenarios (e.g. fire followed by abandon ship, or collision involving an injury and subsequent oil pollution).

Masters are to record the drill practice on the BOAT09 Boat Log and Pre-departure Checks form. This shall include the date, persons participating and location of the training.

## 5.3. Emergency equipment

### 5.3.1. General

Emergency equipment is located in lockers under the console, at the stern, and bow of the vessel. It is essential that the master and all crew are aware of the location of the equipment prior to departure.

See Appendix F for a list of the safety equipment onboard.

### 5.3.2. Lifejackets

A PFD Lifejacket Level 150 *must be worn at all times by all persons onboard.*

On Eddy, the master may deem that lifejackets need not be worn if:

1. The vessel is made fast to a structure.
2. The person is wearing a wetsuit that provides buoyancy and the vessel is operating at reduced speed so that it is not planning.

On Gus, the master may deem that lifejackets need not be worn if they are operating in sheltered waters and:

1. The vessel is made fast to a structure.
2. The person is wearing a wetsuit that provides buoyancy and the vessel is operating at reduced speed so that it is not planning.

Lifejackets must always be worn with no exception in the following circumstances:

1. At night and during poor visibility.
2. When crossing a bar.
3. By anyone wearing waders or other equipment that would impair their ability to swim.
4. By anyone who cannot swim.
5. By any person 17 years or less who is not a university student.
6. If the vessel brakes down, loses manoeuvrability or there is any form of heightened risk.

Inflatable lifejackets require annual servicing by an authorised technician.

## 5.4. Emergency communications

### 5.4.1. Who to contact in an emergency

In the event of an emergency VHF Radio should be the first communication method, as this communicates directly with Marine Rescue and with other vessels that may be nearby. It may be 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. Channel 16 is the distress, urgency, safety and calling channel, and it is always good practice to monitor this when you are on the water. If you cannot raise Marine rescue on channel 16, try the repeater channels 21, 22, 80, 81 or 82. 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 Designated Shore Person and/or the BEES Boating Officer.

See Appendix D for details on emergency and non-urgent VHF Radio operations.

### 5.4.2. 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: Follow the instructions on the unit and keep the unit with you at all times.

### 5.4.3. 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.

*Orange smoke flares* – are for day use only. They can be seen for up to 4 km (10 km by aircraft).

*Red flares* – are designed for use at night but can also be seen during the day. They can be seen for up to 5 km during the day and 10 km at night.

*A red star parachute distress rocket* – are used when offshore as they have the greatest range. They can reach a height of 300 m and have a visibility range of up to up to 15 km during the day and 40 km at night. The single red star burns while falling for 40-60 seconds as it slowly descends.

#### To operate flares:

- Read the instructions on the flare as they vary between flares and manufacturers.
- Wear the supplied welding glove and only hold flare as directed, as it can burn your hand.
- Stand with the wind behind you and hold the flare over the side of the boat.
- Hold the flare directly into the air.
- DO NOT look at or into the top of the flare.
- The flare may take several seconds to ignite.
- Hold flare in the air until it has finished.
- Drop flare into the fire bucket, partially filled with water – DO NOT drop the used flare into the boat as this can cause a fire.

### 5.4.4. V Sheet

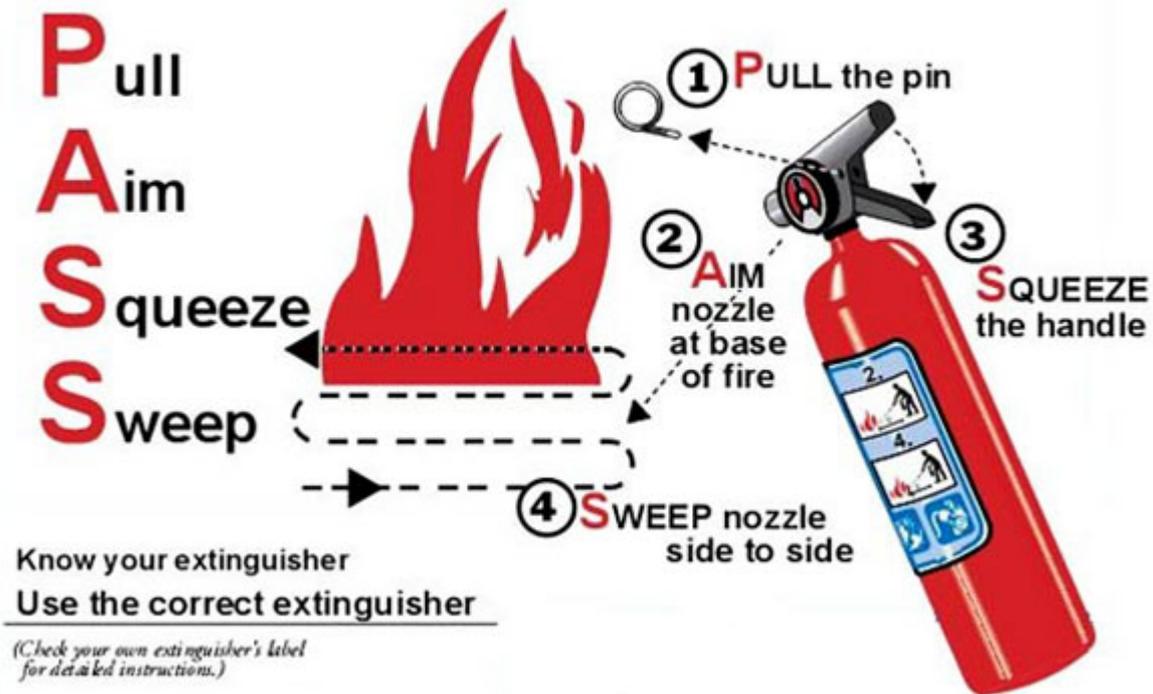
A V Sheet is a visual distress signal. Lay the V Sheet on the deck or fly it like a flag to attract attention and help emergency services locate your vessel.

## 5.5. Fire or Explosion

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?

1. Assess the situation.
2. Move crew as far as possible from the fire and ensure life jackets are donned.
3. If safe to do so, contain the fire / remove other flammable material / activate fuel shut off valves.
4. If safe to do so, fight the fire using extinguisher / fire blanket / buckets.
5. Contact emergency services if necessary.
6. Confirm vessel stability and status. Make sure that moving people and bucketing water onto the fire does not unbalance vessel.
7. Prevent environmental harm/pollution if practical.
8. 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.
9. If possible, navigate to nearest, suitable and safe wharf or shoreline or drop anchor and wait for assistance.
10. If you cannot control the fire yourself order PREPARE TO ABANDON SHIP and ABANDON SHIP as required (on the windward time if possible).
11. Deploy anchor as you leave to prevent boat drifting fire towards other boats/persons. Swim at least 100 metres away from the boat into the wind so that the burning boat does not drift towards you.
12. Treat any burns. Monitor crew for signs and symptoms of smoke inhalation and treat as necessary. Provide oxygen if available and seek medical assistance.

## To operate an extinguisher:



### 5.6. Collision or Grounding

1. Assess the situation.
2. Check on crew wellbeing. Make sure no one was thrown from the boat.
3. Move crew from danger if there is any and ensure life jackets are donned.
4. Confirm vessel stability and status. Make sure that people moving around the boat don't destabilise it.
5. Assess vessel damage and watertight integrity. Use bilge pump, as necessary.
6. Prevent environmental harm/pollution if practical. Did the collision/grounding cause the engine to leak oil or rupture a fuel tank?
7. If grounded, attempt to remove vessel using one of the following methods:
  - a. Motor off
  - b. Lift engine
  - c. Shift weight
  - d. Row / punt off using oars
  - e. Push, if on sand in calm water
  - f. Wait for tide to rise
8. Check if the tide is dropping which may cause the boat to list. You may need to abandon ship if the boat starts to list too much.
9. If possible, navigate to nearest, suitable and safe wharf or drop anchor and wait for assistance.
10. If necessary, contact Marine Rescue if necessary and inform them of your intentions.
11. Order PREPARE TO ABANDON SHIP and ABANDON SHIP as required.

### 5.7. Flooding

1. Assess the situation.
2. Move crew from danger and ensure life jackets are donned.

3. Locate the ingress of water, stop the water coming in and monitor flooding. The most likely location for flooding on Eddy and Gus is through a leaking bung.
4. Activate bilge pump and start bailing.
5. Confirm vessel stability and status. You may need to move people and equipment to counter the weight of the water coming into the boat.
6. Prepare anchor for deployment. You don't want to drift into more trouble while you sort out the problem.
7. Prevent environmental harm/pollution if practical.
8. Navigate vessel to nearest, suitable and safe wharf or drop anchor and wait for assistance.
9. If necessary, contact emergency services and inform them of your intentions.
10. If you can't manage the flooding, PREPARE TO ABANDON SHIP and ABANDON SHIP as required. Unless there is significant damage to the vessel, it should have sufficient buoyancy in its sealed chambers to stay afloat.

## 5.8. Person overboard

1. Shout "Man Overboard!" and assign crew to look and point at the person overboard.
2. If safe, reduce speed and perform turn (engines away from person overboard).
3. Fix position of where person went into the water – use GPS or landmarks.
4. Throw buoyancy aid to person in the water.
5. Approach the person slowly on the downwind side if possible.
6. On approach, shift engines into neutral and switch off engine on the pickup side.
7. Throw a line to the person and bring them alongside.
8. Assist person onboard using ladder, lines and crew.
9. If unable to be recovered, secure them to the vessel and seek assistance.
10. If unconscious, try to grab clothing or lifejacket with a boathook. Inflate the life jacket.
11. You may need to put another person in the water to safely bring an unconscious person on board. They should be wearing a PFD or over flotation device.
12. Attend to wellbeing of person.
13. If necessary, notify emergency services.

### If person is not found:

1. Notify Marine Rescue.
2. Conduct systematic sweeps of the area.
3. Listen for calling or whistle.
4. At night use a torch or if necessary, a flare can be used, and the light may reflect on the lifejacket.



## 5.9. Emergency stopping

1. Look around to make sure stopping will not cause a collision or roll over if you end up parallel to wave troughs.
2. Shout “Hang on! Emergency Stop!”.
3. Put throttle almost back to neutral.
4. Turn the boat sharply to left or right with steering wheel to end up approximately 90 degrees to your original path.
5. Assess the situation (e.g. look for following waves or obstructions) and drive out of danger if necessary.
6. Ensure wellbeing of those onboard.
7. Respond to any other emergencies.

## 5.10. Critical Breakdown

1. Assess the situation.
2. Move crew from any danger and ensure life jackets are donned.
3. Confirm vessel stability.
4. Assess vessel status and determine nature of breakdown.
5. Attempt to rectify problem or request additional assistance.
6. Prepare anchor / sea anchor for deployment to avoid drifting into further danger.
7. If necessary, use the auxiliary engine or assign crew to paddles
8. If possible, navigate to nearest, suitable and safe wharf or drop anchor and wait for assistance.
9. If necessary, contact Marine Rescue and inform them of your intentions, or request towing assistance
10. While waiting for assistance fly the V-sheet to alert other vessels and help the identification of your vessel.

<b>Problem</b>	<b>Potential solution</b>
Engine cranks but will not start.	Check fuel lines. Is it primed? Is there water in the fuel (check fuel filters)? Are the blue fuel valves on?
Engine will not crank.	Engine in neutral? Check battery master switch is on. Check battery connections. Check the kill cords are in place. Use crossover switch to crank engine from the other battery.
Engines run but steering is not operational.	Check hydraulic oil level. Motor slowly using the paddles as improvised rudders. Deploy sea anchor to stern on one side. If in open waters call for assistance.
Both engines not functional – vessel on smooth waters not far from shore.	Use paddles to manoeuvre the vessel to a safe haven or landing place. Seek assistance.
Overheating engine.	Blocked telltale – inspect and clean.

## 5.11. Master Incapacitated

1. A crew member must take control – preferably one who has been inducted to use the boat.
2. If the vessel is underway stop the vessel by placing the throttle in the neutral position or pulling the kill cords.
3. Assess situation, is the vessel in imminent danger?
4. 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.
5. Try to work out the location of the vessel to tell emergency services.
6. Follow the directions of emergency services.
7. If the vessel is drifting near the shore deploy the anchor.

8. Attend to the wellbeing of the master and any other injured people.
9. Navigate to nearest safe wharf depending on the needs of the incapacitated person.

## 5.12. Prepare to abandon ship and Abandon ship

1. Send MAYDAY.
2. Ensure all persons are wearing a lifejacket.
3. Stop engines.
4. Deploy EPIRB.
5. Deploy anchor.
6. Explain how to disembark vessel and to remain together with the vessel.
7. Prepare emergency equipment:
  - a. EPIRB
  - b. Signalling devices (flares and torch)
  - c. Extra Buoyancy aids e.g. life ring
8. Order "Abandon Ship".
9. Take emergency equipment with you.
10. Control transfer of crew into the water on (windward side of vessel if possible).
11. Ensure PFDs have deployed correctly.
12. Muster crew together in the water in HUDDLE or HELP position.
13. Check that all crew have abandoned ship.
14. If vessel remains afloat, then cling to vessel for support and to be easier to find during a search.
15. Use emergency equipment to attract attention of emergency services.

### H.E.L.P / HUDDLE



*H.E.L.P. Position*  
Heat Escape Lessening Position



HUDDLE

## 5.13. Capsize

1. Assess the situation.
2. Ensure PFDs have deployed correctly.
3. Ensure all people are accounted for.
4. 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.
5. If you must remain in the water, get in HUDDLE or HELP position.
6. Locate safety equipment and signal for assistance.
7. Liaise with emergency services upon arrival.

## 5.14. Serious injury / Medical emergency

1. Assess situation to determine nature and extent of injury.
2. Provide first aid. DRSABCD
3. If necessary, contact emergency services and advise type of assistance required and the estimated time of arrival to destination wharf or landing place.
4. Maintain first aid until relieved by medical personnel.
5. Upon berthing or landing, clear access for medical personnel boarding.
6. Record details of incident using incident/injury report form in first aid kit.

## 5.15. Diving emergency

1. Assess the situation
2. Assist divers returning to the vessel.
3. Provide first aid and oxygen administration as required and within the scope of your training.
4. If life threatening, contact emergency services.
5. If non-life-threatening contact DAN (Divers Alert Network) 1800 088 200 or your closest hyperbaric facility.
6. Follow instructions from emergency services / DAN.
7. Navigate to wharf or landing place to meet emergency services.
8. Upon berthing / landing, clear access for medical personnel.
9. Collect information about diving profile and accident from divers.
10. Supply dive profile information and diving equipment to emergency services.
11. Record details of incident using incident/injury form.



## 5.16. Severe weather and sea conditions

1. Assess the situation.
2. Ensure all personnel are wearing life jackets.
3. Secure all on board.
4. Navigate to nearest safe water.
5. Manoeuvre the vessel to avoid broaching or following seas.
6. Manoeuvre at 45 degrees into waves.
7. Monitor weather conditions on the VHF radio.
8. If necessary, contact Marine Rescue.

## 5.17. Personal threat or bomb threat

Refer to [UNSW Emergency Procedures](#).

## 6. Document List

The following documents relate to the management of boat users and BEES boats. The documents located in the OneUNSW drive: OneUNSW/SCI/BEES/Boating and Diving are accessible by the BEES HSE Advisor and Boat Safety Officers.

Document Name	Location
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### Documents to register a user and use boats

BOAT01 BEES BOAT USER INDUCTION AND ASSESSMENT PROCEDURE	OneUNSW
BOAT02 BEES BOAT USER REGISTRATION APPLICATION	OneUNSW, BEES intranet
BOAT03 BEES ASSESSMENT RECORD - Drive and manoeuvre a trailer	OneUNSW
BOAT04 BEES ASSESSMENT RECORD - Safely operate a boat < 7.5 m	OneUNSW
BOAT05 15 HOURS OF SUPERVISED BOAT EXPERIENCE	OneUNSW
BOAT06 BEES BOAT INDUCTION - OFFWATER < 7.5 m	OneUNSW
BOAT07 SIMS BOAT INDUCTION - OFFWATER < 7.5 m	OneUNSW
BOAT08 REQUEST TO USE AN EXTERNAL BOAT FOR UNSW RESEARCH	OneUNSW, BEES intranet
BOAT09 BOAT LOG AND PRE-DEPARTURE CHECKS	OneUNSW, BEES intranet

### Boat Safety Management Documents for users and BSO

BOAT10 SAFETY MANAGEMENT SYSTEM FOR VESSELS < 7.5 m	OneUNSW, BEES intranet
BOAT21 BEES BSO MAINTENANCE CHECKS	OneUNSW
BOAT22 BEES BSO FIRST AID KIT CHECK SCALE F	OneUNSW
BOAT23 BEES BSO LIFE JACKET INSPECTION	OneUNSW
SCI-BEES-RMF-11 General use of boats, boat user induction and assessment.	SafeSys
SCI-BEES-SWP-8 GUS Lifting gear	SafeSys

## 7. Review and Evaluation

The BSC conducts an internal review of this SMS annually or after a serious incident. This review checks that the SMS is up to date and that any changes to the organisation, the vessel or associated documents are recorded. BEES will conduct an external review when major changes are made to the SMS or when a serious incident occurs. The results of the review are recorded in the “Version Control” section below. All relevant people are notified of changes to the document.

### 7.1. Version control

Date	Version	Approved By	Amendment
January 2012	1.0		
January 2013	1.1		Check for compatibility with the National System for Domestic Commercial Vessel Safety
July 2020	2.0	BSC and HOS	Combined SMS and Operations and Emergency procedures in line with AMSA template and to avoid overlap. There is a separate flipchart for quick access to procedures and emergency procedures on board the vessel.
	2.0	BSC and HOS	Updated contacts and vessel details.
	2.0	BSC and HOS	Updated WHS references and included links to relevant UNSW policy and a reference to Boating Risk Management Form.
	2.0	BSC and HOS	Updated references from RMS to AMSA.
	2.0	BSC and HOS	Updated incident reporting procedure.
	2.0	BSC and HOS	Added information on use of external vessels.
	2.0	BSC and HOS	Roles and responsibilities moved to own section and developed in line with AMSA template and for clarity. Added specific section for registering masters for clarity.
	2.0	BSC and HOS	Crewing requirements added.
	2.0	BSC and HOS	Emergency drill requirements updated.
	2.0	BSC and HOS	BSO maintenance schedule updated.
	2.0	BSC and HOS	Added sea anchor operations.
	2.0	BSC and HOS	Added detailed procedures for bar crossings.
	2.0	BSC and HOS	Removed fatigue section as covered in fieldwork procedures. Long voyages not applicable to our operations.
	2.0	BSC and HOS	Removed detailed bomb threat and terrorism procedures as unlikely for small vessels. Refer to UNSW procedures instead.
	2.0	BSC and HOS	Added diving and snorkelling operations.
	2.0	BSC and HOS	Added severe weather and sea conditions emergency procedures.
	2.0	BSC and HOS	Updated document list.
	2.0	BSC and HOS	Added appendices.
	2.0	BSC and HOS	Detailed radio operations moved to appendix.

## Appendix A: Scheduled Maintenance Program

Item		Pre-trip Inspection: Master checks presence and function	Quarterly inspection: BSO checks presence and function	External inspections by Service Technician
Vessel	Hull / Pontoons	✓	✓	
	Deck and canopy	✓	✓	
	Bailers or Scuppers	✓	✓	
	Steering	✓	✓	
Electrical	Batteries	✓	✓	
	Navigation lights	✓	✓	
	VHF radio	✓	✓	
	GPS	✓	✓	
	Bilge pump	✓	✓	
Engine	Fuel lines and filters	✓	✓	
	Engine oil	✓	✓	
	Tilt mechanism	✓	✓	
	Propellers	✓	✓	
	Engine Service			✓ 12 months/100engine hours
Anchoring	Anchor, chain and rope	✓	✓	
	Mooring lines	✓	✓	
Safety equipment	Life jackets	✓	✓	✓ 12 months
	Life ring	✓	✓	
	Fire extinguisher	✓	✓	✓ 6 months
	EPIRB	✓	✓	
	Flares	✓	✓	
	Torch	✓	✓	
	First Aid kit	✓	✓	
	Bucket & lanyard	✓	✓	
	Bungs	✓	✓	
	V Sheet	✓	✓	
	Sea Anchor	✓	✓	
	Manuals and SMS	✓	✓	
	Tool kit	✓	✓	
	Horn	✓	✓	
	Binoculars	✓	✓	
Trailer	Trailer safety chains & boat straps	✓	✓	✓ 12 months
	Trailer lights	✓	✓	✓ 12 months
	Trailer tyres	✓	✓	✓ 12 months
	Trailer bearings	✓	✓	✓ 12 months
	eSafety			✓ 12 months

## Appendix B: Ezimover Jokey Wheel Instructions



### Specifications

10" Ezimover Jockey Wheel – U Bolt fixed clamp single wheel, swing up.

350 kg load capacity

<http://arkcorp.com.au/c/120/ratchet-jockey-wheel>

The Ezimover jockey wheel has a handle that allows you to easily control the direction of the trailer as you push it. It also has a gearing system that allows you to move the boat forward or reverse using only the handle as a ratchet (i.e. not having to push).

1. Place handle in the slot provided, ensuring the lock pin has locked on the handle securely.
2. Wind the jockey wheel all the way down and then a few turns back up to:
  - a. Move more of the trailer weight onto the wheel and prevent slippage.
  - b. To allow the wheel to move freely.
3. Release trailer parking brake with care.
4. Ensure gearing lock knobs are in correct position for direction of travel.
5. Move handle to change the direction of the wheel and push trailer OR use handle to ratchet trailer in direction required.



### Gearing lock knob position for direction of travel:

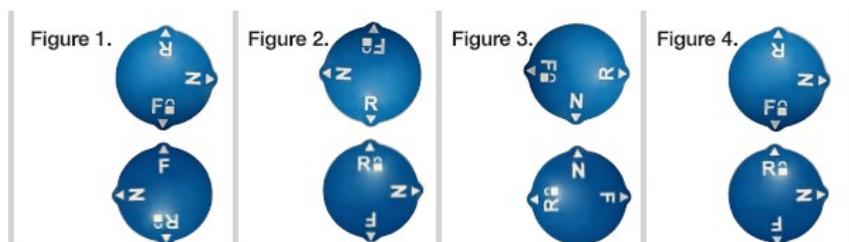
Ensure that the upper and lower gearing locks are positioned with the gear you want facing each other. You need to lift the gear knob and rotate to the position you want and then push back down. **Use neutral position if you are wanting to manually push the trailer rather than using the ratchet system.**

**Reverse - Figure 1:** Pull and turn both knobs until F arrows facing each other.

**Forward - Figure 2:** Pull and turn both knobs until the letter R arrows are facing each other.

**Neutral - Figure 3:** Pull and turn both knobs until the letter N arrows are facing each other.

**Wheel stop/ lock - Figure 4:** Pull and turn both knobs until the padlock symbols are facing each other.



### Safety considerations and care

- DO NOT leave jockey wheel wound all the way “down” or all the way “up” as it is likely to **seize/ get stuck**.
- DO NOT move trailer when jockey wheel wound all the way up - **jockey wheel could collapse**.
- The stop/lock function is used **in conjunction with the trailer brake** (not instead of). Avoid parking on a slope, if unavoidable then chock trailer wheels.
- Before towing use the bungy cord to secure the handle away from speed bumps.
- Rinse in fresh water if exposed to saltwater
- Trailer should be flat or slightly raised at the front to allow water to drain from bilge

## Appendix C: Battery Systems (12 volt)

### EDDY

Battery isolation switches	Location	Used for
Crossover switch (middle)	Front console	Use to when a motor battery is flat
Port / House Battery	Front console	Port engine and power for lights and accessories
Starboard Battery	Front console	Starboard engine



Normal operation – if left on for several days port and to a lesser extent the starboard battery will drain.



Cross over switch (centre) – if one battery is flat you can cross over and run off working battery. Remember to switch it off once you have the engine started.



The batteries and battery isolation switches can be accessed from the locker door in front of the console. **Do not store items in this locker.**

### GUS

Battery isolation switches	Location	Used for
Crossover switch (yellow)	Port stern locker	Use to when a motor battery is flat
Negative switch	Port stern locker	Isolates entire electrical system?
Port Battery	Port stern locker	Port engine
Starboard Battery	Starboard stern locker	Starboard engine
House Battery	Under console	Lights and accessories



The batteries are located in port and starboard stern lockers and under the central console. The battery isolation switches can be accessed from the locker door on the port stern locker. **Do not store items in this locker.**

## Appendix D: Safety Briefing Example

Today our planned voyage is to travel to ..... Once there we will ..... Our expected return time to is .....

UNSW requires that all people onboard wear a life jacket at all times, unless the master deems it unnecessary. (Demonstrate the fitting and use of a lifejacket).

No sitting on the pontoons while the vessel is underway. Please ensure that you maintain a good grip of the boat while underway. Loading can affect the stability of the vessel; please do not move around unnecessarily while underway.

In an emergency we will contact..... We will return to this location .... to meet emergency services. Our closest hospital is .....

In the event of an emergency please follow all directions of the crew. The Operational and Emergency Procedures Flipchart is located ....

Safety equipment (fire extinguisher, EPIRB, first aid, flares) is located .....

If the crew are incapacitated, you may need to assist. The vessel is equipped with a marine VHF radio. In the event of an emergency tune the radio to channel 16, listen to ensure the channel is clear, press and hold the push to talk button, speak clearly into the microphone, release the button and listen for a reply. It is important to know your location if you need to call for help. (Demonstrate radio and GPS operations).

If you cannot raise assistance using the radio or a phone and you require emergency assistance deploy the EPIRB. (Demonstrate the EPIRB).

If the engine is not working and the vessel is drifting into danger deploy the anchor. To do so, ensure the anchor rope is not tangled, slowly lower the anchor over the bow until you feel it touch the bottom, pay out as much line as possible, and secure the loose end. Do not just throw the anchor over the side as it may become tangled.

The vessel is powered by an outboard engine with forward controls. Push the throttle forward to go forward and backward to reverse. To disengage the propeller and stop the boat move the throttle to the middle position until you feel it lock. Any throttle movements should be slow and smooth. (Demonstrate controls). In an emergency you can pull the kill cord to stop the engines.

*(Here outline any specific directions / responsibilities / tasks e.g. procedure for dropping and picking up divers, or towing a net)*

## Appendix E: VHF Radio operations.

### Non-urgent calls to Marine Rescue

Non-urgent calls can be made on channel 16 to establish communication before moving to another working channel. For example, logging on when going into open waters or requesting non-urgent assistance. You should ensure that there is no other traffic on the channel before beginning your broadcast. It is the practice in all Australian waters to observe **silence periods** on channel 16, during which time no non-emergency radio transmission are to be made. Silence periods are from the hour and half hour for a period of three minutes.

1. Go to VHF radio channel 16.
2. Listen to ensure channel is clear.
3. "Marine Rescue, Marine Rescue, Marine Rescue. This is *boat name, boat name, boat name*. Over"
4. Listen for reply. Other operator will direct you to change channels.
5. Acknowledge the direction to change then change channels.
6. Marine Rescue, this is *boat name*; I would like to log on/need assistance. OVER"

**MAYDAY** is a **distress call** that indicates that the vessel or persons onboard the vessel, are in GRAVE AND IMMEDIATE DANGER and require immediate assistance. E.g. boat is sinking or person has life-threatening injury.

1. Go to VHF radio channel 16.
2. "Mayday, Mayday, Mayday. This is *boat name, boat name, boat name*. Mayday, *boat name*".
3. Give vessel position, followed by the nature of the emergency, then number of people onboard.
4. Listen for reply.

**PAN PAN** is an **urgent message** about the safety of your vessel or people on board. E.g. engine failure and drifting into shore or someone is seriously injured.

1. Go to VHF radio channel 16.
2. "Pan Pan, Pan Pan, Pan Pan. All stations, All stations, All stations. This is *boat name, boat name, boat name*."
3. Give position and nature of the urgency.
4. Listen for reply.

**SECURITE** is a **safety signal** where the caller broadcasts a message concerning an important navigational or weather warning. E.g. a floating shipping container. The safety warning is announced on channel 16, then the safety message is broadcast on a working channel. An acknowledgement is not required.

1. Go to VHF radio channel 16.
2. "Securite, Securite, Securite. All Stations, All Stations, All Stations. This is *boat name, boat name, boat name*. Navigation warning listen on channel 13".
3. Switch to channel 13.
4. "Securite, Securite, Securite. All Stations, All Stations, All Stations. This is *boat name, boat name, boat name*."
5. Give navigation warning information.

### Common transmissions

Spoken as	Meaning
ROMEO	Your message is received and understood
OVER	Invitation to reply

OUT	This transmission is ended
SAY AGAIN	Repeat, message not heard properly.
GO AHEAD	I am ready to receive your message.

Note: do not say "Over and out" as you can see below this gives conflicting information. To end a transmission simply say "Out".

### The Phonetic Alphabet

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

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

## Appendix F: Safety Equipment

Equipment	Gus	Eddy
Life jackets PFD 150n	Boat cage	Boat cage
VHF Radio	✓	✓
EPIRB	✓	✓
Flares: Parachute 3: Red 2: Orange: 1	✓	✓
“V” distress sheet	✓	✓
Sound signal: inbuilt horn and air horn	✓	✓
GPS with maps	✓	✓
First aid kit Scale F	✓	✓
Fire extinguisher 4.5 kg	✓	✓
Compass	✓	✓
Basic Tool kit & binoculars	✓	✓
Equipment Manuals & SMS	✓	✓
Floating torch	✓	✓
Anchor, chain and line 100 m	✓	✓
Navigation lights: port, starboard, anchor	✓	✓
Mooring lines 2	✓	✓
Bucket with lanyard	✓	✓
Boat hook	✓	✓
Oars	✓	✓
Sea Anchor	✓	✓
Manual bilge pump	✓	✓
Life ring with light	✓	
Ladder	✓	✓
Floating spill boom	✓	✓
Paper maps or charts	Master responsible	Master responsible
Dive flag	Master responsible	Master responsible
Oxygen kit	Master responsible	Master responsible