

DIVER INDUCTION PACKAGE

ALL DIVERS AND BOAT ATTENDANTS MUST:	Pages
Read and understand the LIRS Diving Regulations	2-7
Read and understand Emergency Procedures for Divers	8-9
Read and understand Boating Emergency Procedures	10-11
Consider your team's Dive Plan for this trip (to be prepared by dive supervisor; can use LIRS dive plan form – example shown here)	12-13
Read the General Diving Risk Assessment and consider it in terms of the dive plan	14-20
Become familiar with the DCIEM tables adjusted for use at Lizard Island	21
Understand how and when to fill in the Dive Log	22
Understand the use and importance of the Boat Log	23
Read the list of Safety Equipment in LIRS Boats and understand how to use the items. Assemble the demonstrator oxygen unit.	24
Read Operation and Use of VHF Radio and familiarize yourself with the demonstrator unit	26-27

FORMS TO BE SUBMITTED AT OR BEFORE INDUCTION	
Research project leaders	a separate Project Form for each project
Dive supervisors	a single Dive Plan (more if necessary) to cover this trip
Divers	a Diver Registration Form , or for registered divers only, update details on a Diving & Boating Assessment Form
	a General Risk Assessment Form for the whole team
	if the <i>General Diving Risk Assessment</i> does not cover all hazards, complete an additional risk assessment which may be in any reasonable format including the LIRS Special Risk Assessment Form or an assessment completed for the dive team's home institution
Option 5 Divers	an Addendum to the Diver Registration Form
Option 6 Divers	A Letter of Authority for diving from you home institution

LIRS DIVING REGULATIONS

TRAINING

Divers at LIRS must demonstrate their competence through one of six training options:

Option 1 (Commercial Diver): A relevant certificate from the Australian Diver Accreditation Scheme (ADAS).

Option 2 (Scientific Diver): A scientific diver qualification issued by a Registered Training Organisation under the Australian Qualifications Framework.

Option 3 (Accredited Rescue Diver): A recreational Rescue Diver certificate that has been issued under the Australian Qualifications Framework. In addition, the diver must prove that s/he has acquired, through training, qualifications or experience, specific knowledge and skills relevant to the work being undertaken.

Option 4 (Divemaster or higher): Training in specific recreational Divemaster-related subject areas. In addition, the diver must prove that s/he has acquired, through training, qualifications or experience, specific knowledge and skills relevant to the work being undertaken.

Option 5 (Supervised Short-term Diver): A recreational open water certificate or higher plus at least 15 hours of relevant underwater experience in specific depth ranges. In addition, the diver must prove that s/he has acquired, through training, qualifications or experience, specific knowledge and skills relevant to the work being undertaken. These divers must be personally supervised in the water by a person who is qualified under Options 1-4 or Option 6 and they may do scientific diving on a maximum of 28 days in the six months immediately before diving work is done.

Option 6: (Experienced Overseas Rescue Diver) - Researchers who dive under this competency option must meet the following requirements: 1) Is not an Australian citizen or permanent resident; 2) Has a recreational Rescue Diving Certificate; 3) Has acquired the relevant knowledge and skills through training and/or general diving experience to safely undertake the underwater work; 4) Has done no underwater diving work in Queensland during the 6 months immediately prior to when the research diving is to commence; 5) Has at least 60 hours of logged underwater diving; and 6) provides a letter of authorisation from a relevant organization (Form 9 or similar).

Examples of the 28-day rule for Option 5

You are an Option 5 diver wanting to dive at LIRS between 1 and 31 December.

- 1) If you did 10 days of scientific diving in September but no other scientific diving since 1 June, then you are allowed to dive on a maximum of 18 days during December.*
- 2) If you did 10 days of scientific diving on 1 to 9 June and no other scientific diving until the LIRS trip, then you will be allowed to dive on a maximum of 28 days during December. This is because by 10 December, you will have done (at most) 10 days of scientific diving in six months immediately prior to that date, leaving (at least) 18 days available before the 28 day maximum is reached.*

OTHER QUALIFICATIONS

Divers must be at least 18 years old and present the following additional documents:

- Log book validating open water diving experience of at least 900 minutes for those qualifying under training options 1 to 5. For those qualifying under Option 6, a log book validating at least 60 hours of experience is required.
- Current occupational diving medical certificate to AS/NZS 2299.1:2015 (or equivalent). The medical must be issued by a registered medical practitioner who has current training in

underwater medicine. Proof of such qualifications must be provided for all medicals issued outside of Australia and New Zealand.

- Evidence of current training in first aid, including CPR.
- Evidence of current training in administration of medical oxygen. The course provided by Divers Alert Network is acceptable.
- Completed Lizard Island Research Station Diver Registration Form.
- An Addendum to the Diver Registration Form must also be completed by those intending to dive under Option 5 as Supervised Short-term Divers.
- A Letter of Authorisation must be provided by their home institution for those intending to dive under Option 6.

DIVER CLASSIFICATION

- **Dive Supervisors, Dive Leaders and Divers** qualify under Training Options 1-4 or Option 6. They must have recent diving experience, defined as:
 - at least four dives logged in the past 12 months, or
 - at least 6 dives logged in the past 18 months including at least one dive in the past 6 months.

The normal depth restriction for these divers is 21 metres although it may be increased to 30 metres by the Diving Officer after consideration of experience and other factors.

- **Restricted Divers** qualify under Options 1-4 or Option 6 and **Supervised Short-Term Divers** qualify under Option 5. If their diving experience is not recent (as defined above), the Diving Officer may allow them to dive after a checkout dive or a series of supervised work-up dives, depending on their diving history. Restricted and SST Divers will have a specific depth restriction imposed by the Diving Officer.
- Additional requirements may be imposed by the Diving Officer for diving by groups including undergraduate student groups, research projects that utilise volunteer divers obtained through an organisation such as Earthwatch, and special interest groups.

EQUIPMENT

- The following diving equipment must be carried by each diver unless specifically exempted by the Diving Officer: mask, snorkel, fins, buoyancy compensator with both oral and power inflation, quick release dive weights if needed for buoyancy control, exposure protection appropriate to the conditions, watch or other submersible time-keeper, depth gauge, tank contents gauge, secondary air source such as octopus regulator, knife or shears, and equipment for attracting attention on the surface such as inflatable safety 'sausage' or submersible radio.
- Diver safety kits are available for loan and for sale at LIRS.
- Regulators, buoyancy control devices and gauges must be serviced annually.

DIVE TABLES AND COMPUTERS

- Dives must be planned and carried out according to DCIEM dive tables. Because Lizard Island is several hours away from the nearest recompression chamber, maximum no-decompression bottom times are reduced to comply with AS 2299.1:2015. Copies of the DCIEM tables showing the reduced limits are available at LIRS.
- Dive computers may be used for information and recording purposes only.
- If you do three or more dives a day on three consecutive days, you must have a 24 hour surface interval after the third day.

- The DCIEM tables allow multi-level dives which can extend bottom time for deeper dives considerably but several important conditions must be observed. Separate dive plans for multi-level dives showing calculations must be submitted to the Diving Officer for approval.

DIVE TEAMS

A **normal dive team** comprises two or more qualified divers and a boat attendant. One of the team is to be nominated as the Dive Supervisor and one of the divers is to be nominated as the Dive Leader. The Dive Supervisor can be the boat attendant or the Dive Leader. Supervised Short Term Divers may not be the Dive Supervisor or the Dive Leader. Restricted Divers may act as Dive Supervisor and/or Dive Leader only in special circumstances. Divers must dive in groups of two or three and remain within sight of each other throughout the dive. Responsibilities of Dive Supervisors, Dive Leaders and divers are outlined below.

Diving without a boat attendant can take place under certain conditions within a defined Low Risk Area as posted by the Diving Officer on a day-to-day basis. Conditions of diving without a boat attendant in this area are:

- The Dive Supervisor determines that low risk conditions, as defined below, actually exist at the dive site.
- All divers agree to dive without a boat person.
- Both boat and divers remain within the Low Risk Area throughout the dive.
- All divers agree to abort the dive at a signal from the Dive Leader if low risk conditions cease to exist.
- The Dive Supervisor ensures that a 15 m float line is deployed from the boat and that the anchor is checked for security at the beginning of each dive.
- Each diver is confident s/he can swim to land if necessary.

Southeasterly conditions prevail for at least eight months per year and a stable Low Risk Area (shown **shaded** below) generally applies during those conditions. Note that:

- The Diving Officer may cancel this general dispensation at any time
- The Diving Officer may post a map showing a different Low Risk Area according to prevailing and forecast weather conditions

Low Risk Conditions are defined as:

- Depth of bottom does not exceed 20 metres
- Swell and/or wave height does not exceed 0.5 metres
- Current is nil to slight (diver can swim against it with minimum exertion)
- Underwater visibility is greater than 4 metres
- Dive starts and ends in full daylight



Away from the Lizard Island Group, there must be a person who remains on the surface during diving operations and who has the following qualifications and experience:

- Queensland recreational shipmaster's certificate or other Australian state equivalent or an overseas boat licence that is recognised by Queensland Transport. Interstate and overseas boat licences are only valid for three months.
- Significant experience handling similar craft in conditions similar to those at the dive site.
- Adequate knowledge of the actual boat to be used and of the proposed dive site area, gained under the supervision of a person approved by a LIRS director.
- Current first aid and medical oxygen certificates (this requirement may be waived by the LIRS Dive Officer if all divers have current first aid and oxygen training).
- Familiar with radio and oxygen equipment provided on Lizard Island Research Station boats.

DIVE SUPERVISOR RESPONSIBILITIES

- Dive planning and risk assessment
- On-site supervision of diving operations
- Dive team compliance with the LIRS Diving Regulations
- Ensure that dive team members are sufficiently trained and experienced for proposed work
- Ensure that safety and emergency equipment is available at the dive site and is fully operational
- Pre-dive briefing for all members of the dive team (including any boat attendants) covering tasks for the dive, risk control measures, signals, diver recall methods, procedures for loss of buddy contact, defining buddy teams of 2 or 3 people and determining the Dive Leader for each team
- Before each dive, ensure that no diver is scheduled to fly within 24 hours and that the dive is within the depth limit imposed on each diver.
- Ensure that the dive flag is displayed at the dive site.
- If diving without a boat attendant within the posted Low Risk Area, ensure that: (i) all divers agree to dive without a boat attendant, (ii) defined Low Risk Conditions actually exist at the dive site, (iii) a float line is deployed from the boat, (iv) the anchor is checked for security at the beginning of the dive, and (v) divers do not swim outside the Low Risk Area during the dive
- If diving outside the Low Risk Area, ensure that a qualified and approved boat attendant is present who is sufficiently experienced for the conditions
- Restrict or suspend operations due to prevailing or forecast weather conditions
- Timely completion of LIRS dive log by each diver in the team
- Remove faulty equipment from service and report it to the LIRS Diving Officer
- Notify LIRS Diving Officer of any diving-related injury or accident to any member of the dive team

DIVE LEADER RESPONSIBILITIES

- In-water control of one or two other divers
- Abort the dive if any member of the team reports faulty gear or other difficulty
- If diving without a boat attendant, abort the dive if it appears that Low Risk Conditions have ceased to exist
- Remove faulty equipment from service and report it to the Dive Supervisor

DIVER RESPONSIBILITIES (including Restricted and SST Divers)

- Notify the LIRS Diving Officer of any relevant medical condition or injury that commenced or occurred after the dive medical was issued
- Abide by any special conditions imposed by the LIRS Diving Officer
- Participate in the risk assessment process
- Be medically and physically fit for each dive
- Decide whether or not to participate in each dive after consideration of the dive plan, the prevailing conditions, your capabilities and your medical and physical condition
- Notify the Dive Leader, Dive Supervisor or LIRS Diving Officer if uncertain about your ability to safely undertake any proposed diving task
- When you have decided to participate in a dive, comply with the instructions of the Dive Supervisor and the Dive Leader
- Dive safely within the limits of your capabilities, in accordance with the LIRS Diving Regulations and an approved dive plan, and implement agreed risk control measures
- Check your diving gear and that of your buddy(ies) before each dive
- Carry all diving equipment required under the LIRS Diving Regulations
- Monitor air supply and ensure that each dive finishes with at least 50 bar remaining in the tank, unless the Diving Officer has given permission for a lower end pressure
- Maintain contact with your buddy during the dive
- Notify the Dive Leader or Dive Supervisor immediately of any faulty dive equipment, regardless of who owns the gear, and do not use it again until it has been approved by the LIRS Diving Officer.
- Notify the Dive Supervisor as soon as possible of any diving-related injury that occurs to you or your buddy.
- Complete the LIRS dive log as soon as practical upon returning from a dive.

THE PAPERWORK

- On or before arrival at LIRS, the dive team must submit to the LIRS Dive Officer for approval a **Dive Plan** that covers the diving operations intended for that trip. A form is available at LIRS and other formats that provide the relevant information (e.g. a plan prepared for your own institution) are acceptable.
- All members of the dive team, including any boat attendants, must read the LIRS **General Diving Risk Assessment** and agree to implement its risk control measures.
- They must also consider whether that risk assessment covers the tasks and perceived hazards of their own project. If it does not, they must complete a separate **Special Risk Assessment**.
- During the course of the trip, if any dives are planned that fall outside of the original approved dive plan, a new dive plan must be submitted to the LIRS Diving Officer for approval prior to doing the dive, accompanied by an additional risk assessment if necessary.
- As soon as practical after returning from each dive, each diver must complete the LIRS **Dive Log**.

PROHIBITED DIVES

- Decompression dives
- Dives deeper than 30 metres
- Dives less than 24 hours before flying
- Diving inside the Low Risk Area (as posted for that day) without a boat attendant if the Dive Supervisor has determined that any of the low risk conditions are not met at the dive site
- Diving outside the Low Risk Area (as posted for that day) unless a boat attendant is present

OTHER CONSIDERATIONS

- A safety stop at 5 metres for 3 to 5 minutes is required for all dives deeper than 6 metres.
- Cook's Look (altitude 360 m) may only be climbed if your repetitive factor has returned to 1.0.
- When planning any strenuous activity (e.g. running, volleyball), consider your nitrogen load.
- Understand *LIRS Emergency Procedures for Divers*.

SNORKELLING BY DIVERS

- LIRS divers are allowed to snorkel wherever they are allowed to dive.
- Snorkellers are advised to fly the dive flag from the boat while snorkelling. A dive flag on a float is also available on request.
- There are normally two or more people in a snorkelling team. A two-person team may comprise two snorkellers, or one snorkeller and another person in a boat or on shore nearby.
- Snorkellers in a team of two or more who go snorkelling without using a boat are advised to notify a responsible person of their plans.
- The responsible person must be at LIRS at the snorkellers' expected time of return and must raise the alarm if the snorkellers do not return by that time.
- The responsible person is usually a member of the snorkellers' own research team. Specific arrangements can also be made with LIRS staff to check that snorkellers have returned by a certain time. If the expected time of return is earlier than the latest boat sign-in time (which changes according to the time of year), an entry in the LIRS Boat Log is equivalent to notifying a responsible person. "Snorkelling" is to be entered in the boat column and the snorkellers' names are to be listed in the dive supervisor column.
- **Solo snorkelling within the Low Risk Area** is allowed during daylight. If the snorkeller is using a boat, the boat log is used to keep track of return time. If NOT using a boat, the snorkeller is required to notify a responsible person of his/her plans including the expected time of return. In either case, the snorkeller must ensure that defined low risk conditions actually exist at the site before snorkelling solo.
- **Solo snorkelling outside the Low Risk Area** must be approved by the LIRS Diving Officer. It is subject to special risk assessment.
- Snorkellers must discuss plans for **night snorkelling** with the LIRS Diving Officer at least a day in advance. Additional regulations apply and an additional risk assessment must be submitted.
- **Twilight snorkelling** (i.e. 15 minutes after sunset or 15 minutes before sunrise) can be done under daylight procedures in the immediate vicinity of the Research Station and if a responsible person has been notified (an entry in the Boat Log is *not* acceptable for twilight snorkelling). In other circumstances, specific permission from the LIRS Diving Officer is required.

END OF LIRS DIVING REGULATIONS

EMERGENCY PROCEDURES FOR DIVERS

This document summarises and illustrates procedures to be carried out by LIRS divers in an emergency. It does not include procedures to be carried out by LIRS staff. It comprises parts of sections 8 and 10 of the LIRS Diving Operations Manual, v8.2.

LOSS OF BUDDY CONTACT

- If a diver loses contact with the other(s) during a dive, each diver must complete a 360° turn, ascend 1 metre and then repeat the 360° turn to attempt to establish contact. This procedure should take no longer than one minute and if contact cannot be re-established then the diver(s) must make a normal ascent to the surface.
- If contact is re-established, the Dive Leader shall assess the need to terminate or continue the dive.
- If contact is not re-established, then missing diver procedures should be initiated.

MISSING DIVER

- Divers notify boat attendant of a missing diver or, if diving without a boat attendant, contact LIRS immediately by VHF radio or by the most expedient means.
- LIRS staff will start search and rescue procedures immediately.
- Boat must remain anchored/ moored as it was when the diver was last seen. If the boat must be moved for any reason, an emergency marker buoy must be left at that position.
- Recall any divers still in the water using a signal such as revving the motor three times or banging on the hull using a dive weight or similar.
- Dive team to conduct search using snorkel only, giving due consideration to existing risk factors including personal ability, current, visibility, sea and weather conditions.

INJURED DIVER

- Dive team to assist the injured diver by providing first aid, including administration of oxygen if appropriate.
- If diving without a boat attendant and the injured diver is not able to board boat unassisted, buddy diver to follow procedures listed in section below to get injured diver into boat.
- Recall any divers still in the water using a signal such as revving the motor three times.
- Ensure all other team members are present and not at risk.
- Collect essential information and relay it to LIRS by radio.
- Recover as much of the injured diver's equipment as possible, giving due regard to any dangers involved in doing so and the consequences of any delays such action may cause. Do not disassemble the equipment and keep it apart from other equipment for expert examination if necessary.

BOAT BOARDING PROCEDURE FOR INJURED DIVER IN TWO-PERSON TEAM

Use rescue techniques learned in training to get injured diver back to boat. The injured diver's weight belt or integrated weights will be dropped and his/her BCD should be inflated at this stage.

- If injured diver is unconscious or otherwise unable to board a LIRS dinghy:
 - hook injured diver's arm through gunwale ropes near stern on ladder side
 - remove own tank and BCD (if not already removed)

- remove injured diver's tank and BCD (alternatively, delay this step until rescuer is in boat if injured diver is negatively buoyant)
 - board boat via ladder or over gunwale while maintaining contact with injured diver if possible
 - pull injured diver into boat face forward (e.g. by lifting from under arms)
 - begin first aid as required
 - call LIRS for assistance using VHF radio as soon as possible
- If injured diver is unconscious or otherwise unable to board *Kirsty K* or the *Macquarie* boats:
 - when near boat's ladder, remove own tank and BCD (if not already removed) while holding the injured diver
 - remove injured diver's tank and BCD while still in water (alternatively, delay this step until rescuer is in boat if injured diver is negatively buoyant)
 - board boat using ladder while maintaining a good grip on the injured diver's arm
 - pull injured diver into boat face first
 - begin first aid as required
 - call LIRS for assistance using VHF radio as soon as possible

END OF EMERGENCY PROCEDURES FOR DIVERS

BOATING EMERGENCY PROCEDURES

MOTOR BREAKDOWN

- Stay with the boat (unless you are immediately adjacent to land).
- Drop anchor and let out adequate line.
- If boat continues to drift, let out all the anchor line except for enough to tie off with.
- Leave all the anchor line out even if boat continues to drift as it will help to slow the rate of drift.
- Use the VHF radio to call for assistance. If you cannot raise anyone, then:
 - Signal other boats for assistance.
 - Examine the contents of the safety kit and plan how you can best use the signalling equipment including the EPIRB.
 - Make the boat highly visible (i.e. fly the dive flag, wrap the V-sheet around someone or something).
 - Sit tight and wait for the rescue boat which should arrive in a reasonable amount of time after your sign-in time, especially if you are in the vicinity of where you nominated on the boat logbook.
 - Cover up from the sun (i.e. use towels, wet suit, V-sheet, nally bin over head)

Important

- In case of a breakdown your course of action will depend on a multitude of variables such weather and sea conditions, proximity to land, time of day and condition of the crew.
- Activation of the EPIRB should occur in dire situations only (i.e. severely injured crew, drifting far off Lizard Island, drifting and darkness approaching).

PERSON OVERBOARD

- The first witness should raise the alarm and keep the overboard person in view.
- The boat driver must immediately disengage the propeller or manoeuvre to miss the person overboard.
- Dispatch lifejacket if appropriate.
- Boat driver notes vessel position or hits MOB button if GPS is fitted to vessel.
- Boat driver manoeuvres vessel back to person overboard being guided by witness.
- Commence recovery by carefully coming alongside to leeward side of person in water.
- Provide first aid including oxygen therapy as required.
- Radio LIRS and return to Station.

FIRE

- Anyone on board should immediately warn other passengers if they observe fire, smoke or excessive heat.
- The person in charge of the vessel should:
 - Identify the location of the fire (it will most likely be associated with the outboard motor).
 - If practical, turn off the outboard.
 - Have passengers put on life jackets.
 - Make a VHF radio call as soon as possible giving location and situation.
 - Prepare to abandon ship and activate EPIRB, if necessary.

SEVERE WEATHER

- LIRS monitors weather conditions daily. In general, vessels will not be allowed out if severe weather is forecast.
- If caught in severe weather consider the following actions:
 - Take shelter on the lee side of an island or reef.
 - Radio LIRS, LI Resort or other vessels in area and seek assistance, if required.
 - Stay on mooring or anchor until severe weather passes.

MEDICAL

- The first or the most competent person on the scene is to apply first aid.
- Examine contents of first aid kit and use as required.
- If assistance is required, radio LIRS, LI Resort or vessels in area.
- Depending on the situation, the sick or injured person may be brought back to LIRS in the team's boat, or transferred to another vessel, or managed at the site of the incident until help arrives.

GROUNDING OR COLLISION

- Boat driver is to warn others to brace for impact and to not fend off another vessel.
- Tend to injured and assess damage to vessel.
- Control ingress of water, if possible.
- Radio for assistance asap, if required.
- If required, boat driver to activate signalling equipment as appropriate and to instruct everyone to wear lifejackets.
- Boat driver should position vessel to reduce flooding and monitor the vessel's stability.

ABANDON SHIP

If possible, stay with the vessel even if totally flooded since all LIRS vessels have positive flotation.

Person in charge should:

- Explain plan to others on board and have them don lifejackets (and wet suits if available).
- Radio Mayday message asap.
- Set off EPIRB and secure safety container.
- With EPIRB and if possible with safety and first aid containers, consider moving people to land if it is very close taking into account condition and abilities of passengers, tide and sea conditions.

Note – Designation of an emergency or assembly station is not necessary due to the small size of LIRS vessels.

END OF BOATING EMERGENCY PROCEDURES

DIVE PLAN

Research Team Leader (or a Dive Supervisor if team leader is not a diver)	
Trip start date	Trip finish date
Dive site locations (tick all that apply) <input type="checkbox"/> Lizard Island Group, defined Low Risk Area <input type="checkbox"/> Lizard Island Group, outside defined Low Risk Area <input type="checkbox"/> Other mid-shelf reefs <input type="checkbox"/> Inshore reefs <input type="checkbox"/> Backs of outer reefs <input type="checkbox"/> Passages and/ or fronts of outer reefs	
Diving type (tick all that apply) <input type="checkbox"/> Scuba diving <input type="checkbox"/> Snorkelling <input type="checkbox"/> Coral reef diving <input type="checkbox"/> Inter-reef/ soft bottom diving <input type="checkbox"/> Blue-water diving <input type="checkbox"/> Other _____	
Objectives	
Tasks (tick all that apply) <input type="checkbox"/> Observations <input type="checkbox"/> Photography <input type="checkbox"/> Surveys <input type="checkbox"/> Sample collection using (list equipment) _____ <input type="checkbox"/> Equipment deployment (list equipment) _____ <input type="checkbox"/> Other (list) _____	

DIVE TEAM DETAILS (List everyone who will be involved)

Name	Complete only AFTER induction by LI Diving Officer		
	Highest Diver Classification*	Depth Restriction	Qualifies as Boat Attendant?

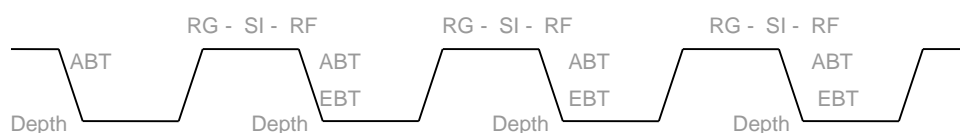
* Dive Supervisor (DS), Dive Leader (DL), Diver (D), Restricted Diver (RD), Supervised Short Term Diver (SSTD) or None

DIVE PROGRAM DETAILS *(complete all sections)*

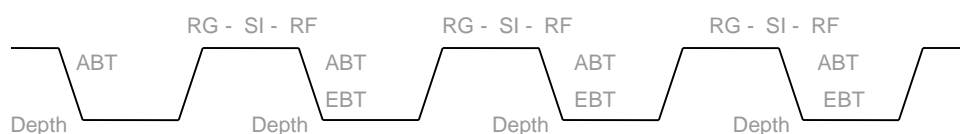
Number of dives per day	Max. dive duration
Working depth	Maximum depth
Ascents per dive	Number of buddy pairs/trios
Max. distance from boat to divers	Number of high exertion dives
Expected visibility	Any sites with strong currents?
Flying <24 hours after diving	Sequence diving/rest days
Adjusted DCIEM tables used	Number of night dives

TYPICAL DIVE PROFILES *(attach a separate sheet for multi-level dives)*

Profile 1 - comments _____



Profile 2 - comments _____

**RISK ASSESSMENT** (tick one)

- ☐ The risks associated with this dive plan are covered adequately by the General Diving Risk Assessment which has been signed by all members of the dive team.
- OR**
- ☐ The General Diving Risk Assessment does NOT cover all the risks associated with this dive plan. A separate assessment of the additional risks accompanies this dive plan and both it and the General Risk Assessment have been signed by all members of the dive team.

SIGNATURES

Research team leader	Date
Approved by LIRS Diving Officer	Date

GENERAL DIVING RISK ASSESSMENT

This risk assessment covers hazards that are or may be encountered by divers conducting common underwater tasks from LIRS and it provides appropriate minimum control measures. For some hazards, it recognises different risk levels in different locations and hence provides different control measures according to location.

Dive teams are required to accept the *General Diving Risk Assessment* by completing the *General Diving Risk Assessment Form* and submitting it to the LIRS Diving Officer with a dive plan.

A separate risk assessment must be prepared where hazards are identified that are not listed in this document or where the dive team considers that the control measures listed are inadequate or inappropriate for the perceived risks.

Conventions used in the risk assessment

- 1) The terms and risk matrix used in this assessment are in the tables below (Source: *Work Related Incident/ Illness/ Near Miss Report*, Australian Museum Form OHS 002, February 2007).
- 2) The abbreviation **LRA** refers to the Low Risk Area as defined in the LIRS Diving Operations Manual.
- 3) Control measures that apply to all locations are unshaded. Additional control measures that apply to areas outside the LRA are shaded in grey.
- 4) Practices or operations that require a special risk assessment are *in italics*.

Likelihood of meeting a particular hazard	
Almost certain	Is expected to occur in most circumstances
Likely	Will probably occur in most circumstances
Possible	Could occur at some time
Unlikely	Not likely to occur in normal circumstances
Rare	May occur only in exceptional circumstances
Consequence of incident with hazard	
Insignificant	Injuries not requiring first aid
Minor	First aid required
Moderate	Medical treatment required
Major	Hospital admission required
Severe	Death or permanent disability

Risk matrix					
Likelihood vs Consequence	Insignificant	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Very High	Very High
Likely	Medium	Medium	High	High	Very High
Possible	Low	Medium	High	High	Very High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Medium	Medium	

1) ENVIRONMENTAL HAZARDS

Hazard	Likelihood (L) Consequence (C) Risk (R)	Control Measures used to prevent or minimize risk
Strong currents	L: Location - specific; Rare to Likely C: Insignificant to Severe R: Low to Very High- controlled	<ul style="list-style-type: none"> ❖ Within the designated LRA, Dive Supervisor to ensure that all divers can easily swim against current present at the dive site or have a competent boat attendant who maintains vigilant watch ❖ In all other areas, have a competent boat attendant who maintains vigilant watch ❖ Deploy a float line behind boat except if drift diving (<i>drift diving requires special risk assessment</i>) ❖ Carry equipment to attraction on the surface such as an inflatable safety sausage or submersible radio ❖ If diving in strong current, pre-dive briefing to cover current strength and direction, plan for pick-up if drift diving or if unable to swim back to boat, and procedure for re-boarding boat ❖ Consider tethering at least one diver to a surface float
Low underwater visibility	L: Rare C: Minor R: Low	<ul style="list-style-type: none"> ❖ Within designated LRA, Dive Supervisor to confirm that horizontal visibility exceeds 4 metres or have a competent boat attendant ❖ In all other areas, have a competent boat attendant ❖ Maintain close contact with dive buddy ❖ Pre-dive plan to include procedures to follow if dive buddies become separated ❖ Do not start dive before sunrise or finish after sunset (<i>night and dusk dives require special risk assessment</i>)
Strong wind, rough sea conditions and/or unsettled weather conditions	L: Likely C: Minor to High R: Moderate to High -controlled	<ul style="list-style-type: none"> ❖ Dive within the designated LRA and Dive Supervisor to confirm that low risk conditions actually exist at the dive site (i.e. depth of bottom does not exceed 20 m, swell and/or wave height does not exceed 0.5 m, current is nil to slight, underwater visibility is greater than 4 metres, and dives starts and ends in daylight) or have a competent boat attendant ❖ If diving outside the LRA, have a competent boat attendant, check weather forecast and obtain advice from LIRS staff if forecast is dubious ❖ Load boat conservatively, drive it at speed appropriate to the conditions and ensure passengers maintain low centre of gravity ❖ Select dive site to minimize the effect of wave action ❖ If diving away from the LI Group, boat driver/ attendant to be highly experienced and have good local knowledge ❖ Do not dive away from the Lizard Island group or traverse exposed parts of the LI Group when wind is, or is forecast to be, stronger than 25 knots (except in emergencies - <i>special risk assessment required</i>)
Exposure to	L: Almost certain	<ul style="list-style-type: none"> ❖ Wear hat, sunglasses, protective clothing and sunscreen

heat and radiation	C: Insignificant to Severe R: Medium to Very High - controlled	for boat trips ❖ Stay well hydrated ❖ Put on wetsuit last during hot weather
Exposure to cold	L: Likely C: Minor R: Low	❖ Wear wetsuit appropriate to conditions
Obstructed ascent	L: Possible C: Insignificant to severe R: Low to Very High - controlled	❖ Do not enter overhangs or caves by more than half body length (<i>cavern and cave diving require special risk assessment</i>) ❖ Have a dive buddy to help in case of gear entanglement
Bottom is deeper than maximum dive depth	R: Possible C: Insignificant to Severe R: Low to Very High - controlled	❖ Do not dive where there is no bottom visible within the dive depth (<i>blue water diving requires special risk assessment</i>) ❖ Monitor depth gauge constantly throughout the dive

2) PHYSIOLOGICAL/ HYPERBARIC HAZARDS

Hazard	Likelihood (L) Consequence (C) Risk (R)	Control Measures used to prevent or minimize risk
Diving-related illnesses & injuries	L: Likely C: Major R: High - controlled	<ul style="list-style-type: none"> ❖ Be fit to dive as evidenced by a current AS 2299 occupational diving medical certificate (or equivalent) ❖ Ensure adequate hydration before and after diving ❖ Do not commence or continue a dive if feeling unwell or if equipment malfunctions ❖ Control buoyancy ❖ Ascend slowly, no faster than 10 metres per minute ❖ Limit multi-day repetitive diving (a rest day is required after doing three or more dives on three consecutive days). ❖ Avoid high exertion during and after diving (<i>special risk assessment must be conducted for high exertion dives</i>) ❖ Avoid more than one ascent per dive (<i>special risk assessment must be conducted for dives with multiple ascents</i>) ❖ Do not fly for at least 24 hours after diving ❖ Do not climb Cook's Look until repetitive factor has returned to 1 ❖ Do not do a bounce dive to free a stuck anchor or for any other reason
Depth and duration of dive	L: Possible C: Severe R: Very High - controlled	<ul style="list-style-type: none"> ❖ Plan the dive within no-decompression limits according to DCIEM tables adjusted for location, and stick to the dive plan ❖ No diving deeper than depth restriction imposed by LIRS Diving Officer, which is 30 metres or less

		<p>depending on qualifications and experience</p> <ul style="list-style-type: none"> ❖ Do not dive deeper than 21 metres (<i>special risk assessment must be conducted for dives > 21 metres</i>) ❖ Do not plan your dives using multi-level calculations (<i>special risk assessment must be conducted for multi-level dives</i>) ❖ Conduct deeper dives before shallower dives (<i>special risk assessment must be conducted for reverse-profile dives</i>) ❖ Within LRA, depth of bottom is always less than 20 metres and mostly less than 10 metres ❖ Carry an accurate depth gauge, time-keeper and tank contents gauge and monitor them throughout the dive ❖ Ascend slowly, no faster than 10 metres per minute ❖ Surface with at least 50 bar remaining in tank unless the Diving Officer has given permission for a lower end pressure ❖ Conduct safety stops for all dives > 6 m for 3-5 minutes at 5 m (air supply and other considerations allowing)
Equipment failure	L: Possible C: Severe R: Very High - controlled	<ul style="list-style-type: none"> ❖ Ensure equipment is serviced annually, handled carefully and checked before each dive ❖ All divers to have octopus demand valve or spare air source
Contaminated breathing air	L: Unlikely C: Major R: Moderate - controlled	<ul style="list-style-type: none"> ❖ LIRS to test air quality in accordance with AS 2299 ❖ No running of air compressors during northerly winds if incinerator is being used ❖ Abort dive if air tastes unusual
Fatigue	L: Possible C: Insignificant to Major R: Low to High - controlled	<ul style="list-style-type: none"> ❖ Anchor boat as close to site as is safe ❖ Know your physical limits and those of your buddy ❖ Ensure divers are well rested and hydrated ❖ If heavy or strenuous underwater work is planned, allow plenty of time or increase the team size to distribute the work load (<i>frequent high exertion dives require special risk assessment</i>)

3) BIOLOGICAL HAZARDS

Hazard	Likelihood (L) Consequence (C) Risk (R)	Control Measures used to prevent or minimize risk
Dangerous marine animals – bites	L: Rare C: Minor to Major R: Moderate	<ul style="list-style-type: none"> ❖ Do not engage in activities that may attract sharks (<i>potentially attractant activities such as spearfishing, fish feeding, underwater line fishing or barrier netting require special risk assessment</i>) ❖ Exit water if sharks appear aggressive or if a large crocodile is seen ❖ If collecting from crevices, check for moray eels ❖ Full team to be knowledgeable in first aid
Dangerous	L: Rare	❖ Control buoyancy to avoid bumping into corals and

marine animals – cuts & stings	C: Minor to Major R: Moderate	other coelenterates ❖ Wear appropriate protective clothing, especially in the stinger season ❖ Consider wearing gloves if handling organisms ❖ Have vinegar available to douse box jellyfish stings if operating closer to the mainland than Eyrie Reef ❖ Full team to be knowledgeable in first aid
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4) ASSOCIATED ACTIVITIES HAZARDS

Hazard	Likelihood (L) Consequence (C) Risk (R)	Control Measures used to prevent or minimize risk
Anchored/moored boat drifts away from dive site	L: Unlikely C: Location-specific; Insignificant to Severe R: Low to Very High- controlled	❖ Anchoring and mooring tackle to be well maintained ❖ Scope of anchor line should be at least 5:1 and at least 8:1 in winds > 20 knots ❖ Within designated LRA, dive site is located within swimming distance of shore ❖ Within designated LRA, Dive Supervisor must ensure anchor is correctly deployed and that the line will not be abraded by (i) inspecting anchor and line in water from maximum planned dive depth or shallower, before commencing work and/or (ii) if anchor cannot be seen from maximum planned dive depth, then divers must have prior knowledge that the anchoring site is free of abrasion hazards and must observe landmarks from boat for at least 10 minutes to ensure anchor is not dragging, or have a competent boat attendant ❖ In all other areas, have a competent boat attendant
Remoteness from assistance	L: Possible C: Moderate R: High -controlled	❖ Use DCIEM tables adjusted for remoteness from recompression chamber ❖ Dive with at least one other competent diver and remain in close visual contact throughout the dive ❖ Each diver to carry one or more devices for attracting attention (e.g. diver safety sausage) ❖ Divers must be competent to help each other by being trained in first aid and administration of medical oxygen, and by being familiar with VHF radio operation or have a competent boat attendant with those skills and qualifications ❖ Boat to be equipped with safety equipment as required by NSCV, VHF radio, oxygen resuscitation equipment and trauma kit ❖ LIRS to maintain VHF listening watch during diving and boating operations and to have staff trained in first aid and medical oxygen administration ❖ Medical assistance from the Royal Flying Doctor Service is available by phone from LIRS ❖ Outside designated LRA, have a competent boat attendant

		<ul style="list-style-type: none"> ❖ Away from the LI Group, at least one member of the dive team must be experienced with the type of conditions expected at the dive site ❖ Away from the LI Group, boat driver/ attendant must be highly competent with boats and familiar with safety equipment carried aboard the boat
Lifting, (including raising an anchor, loading & unloading boats)	L: Almost certain C: Moderate R: High -controlled	<ul style="list-style-type: none"> ❖ Use correct lifting techniques (i.e. bent knees, straight back) ❖ Enlist assistance for heavy items, know your limits ❖ Pack equipment into easily-lifted containers ❖ Anchor only on sand ❖ Brace yourself against the boat to prevent falling while lifting anchor ❖ Return to LIRS without anchor if it is stuck fast, inform LIRS staff ❖ Team member to hold vessel in position during loading/unloading, especially important when windy
Loading & unloading boats during on-shore winds	L: Possible C: Moderate R: High - controlled	<ul style="list-style-type: none"> ❖ Anchor vessel off beach or use the “loading zone” mooring before loading/unloading during strong on-shore winds ❖ Heed LIRS notices concerning loading/unloading sites
Grounding of vessel	L: Unlikely C: Minor R: Low	<ul style="list-style-type: none"> ❖ Reduce speed when operating in or near shallow water and maintain vigilant lookout ❖ Avoid driving over corals ❖ Reduce speed if in doubt about navigable waters ❖ Seek advice from LIRS staff about navigable passages ❖ Away from the LI Group, high level of local knowledge and boating experience required of person in charge of boat
Capsizing vessel	L: Rare C: Moderate R: Medium - controlled	<ul style="list-style-type: none"> ❖ Do not exceed vessel loading limits ❖ Do not overload forward area of vessel ❖ Maintain vessel stability by correctly balancing the load ❖ Do not enter areas where waves are breaking
Propeller injury	L: Unlikely C: Severe R: High - controlled	<ul style="list-style-type: none"> ❖ Always have motor turned off when people are near the stern of the vessel ❖ Do not “manta tow” or otherwise drag people behind a boat (<i>a special risk assessment must be conducted for such activities</i>)
Being run over by other boats	L: Unlikely C: Severe R: High - controlled	<ul style="list-style-type: none"> ❖ Deploy dive flag at dive site ❖ Descend and surface near own boat when possible ❖ If working in very shallow water (bottom <2 metres deep), listen for motor noise and if heard, consider surfacing immediately to ensure the boat driver knows you are there or moving to deeper water ❖ If working in moderately shallow water (2 – 5 m), listen for motor noise and descend to deeper than 3 m if necessary
Motor breakdown	L: Possible C: Minor	<ul style="list-style-type: none"> ❖ LIRS to maintain outboard motors and provide VHF radio

	R: Medium - controlled	<ul style="list-style-type: none"> ❖ Complete sign out register before every trip ❖ Stick to plan as entered on register ❖ Deploy anchor if there is a risk of drifting away ❖ If drifting, make boat visible by flying dive flag and displaying V sheet ❖ Be familiar with vessel's emergency signalling equipment
Tilt mechanisms on 30 hp Suzuki outboard motors	L: Possible C: Major R: High - controlled	<ul style="list-style-type: none"> ❖ Two-stroke outboards: Motor must be locked in UP position before shallow drive mechanism is engaged or disengaged ❖ Four-stroke outboards: Use caution when operating electric tilt button to ensure that body parts are not crushed by moving motor and tiller arm does not contact boat's seat ❖ LIRS to ensure that boat drivers are competent with protocol for using tilt mechanism of assigned boat(s)
Standard research equipment (e.g. slates, tapes, string, nets, lightweight grids and traps, cameras, stakes, hand tools, squirt bottles)	L: Likely C: Insignificant to Severe R: Medium to Very High - controlled	<ul style="list-style-type: none"> ❖ Be competent through training or experience to use the equipment safely ❖ Carry a knife in case of entanglement ❖ Pre-dive briefing to include procedure for use of equipment, especially where teamwork is involved (e.g. barrier netting) ❖ Devise methods of carrying equipment underwater so that it does not hamper movement or cause undue fatigue
Non-standard research equipment (e.g. spearguns, air powered tools, lift bags)	L: Possible C: Insignificant to Severe R: Low to Very High - controlled	<ul style="list-style-type: none"> ❖ Do not use non-standard research equipment unless competent through training or experience to use the equipment safely (<i>special risk assessment is required</i>)

END OF GENERAL DIVING RISK ASSESSMENT

**ADJUSTED DCIEM DIVING TABLES
ONLY FOR USE AT LIZARD ISLAND**

These tables are based on AS/NZS 2299.1:2015 and DCIEM Air Table 1.

They have been adjusted to comply with reduced no-deco times for locations where recompression availability exceeds 2 hours (AS/NZS 2299.1:2015, Sect 5.1.4 and Table 5.2).

Table A DCIEM No-Deco Limits & Repetitive Groups (RG)									
Time (min)	6m	9m	12m	15m	18m	21m	24m	27m	30m
	20'	30'	40'	50'	60'	70'	80'	90'	100'
5	A	A	A	A	A	A	A	A	A
10	A	A	A	A	A	A	A	B	B
15	A	A	A	A	B	B	C	C	
20	A	A	A	B	B	C	D		
25	A	A	B	B	C	D			
30	A	A	B	C	D				
35	B	B	C	D	E				
40	B	B	C	D	E				
45	B	B	D	E					
50	B	C	D	E					
60	B	C	D	F					
70	C	D	E						
80	C	D	F						
90	C	D	G						
100	D	E	H						
120	D	F	H						
140	E	G							
150	E	G							
180	F	H							
190	G								
240	G								
300	H								
			For first dive, Actual Bottom Time (ABT) must not exceed highest repetitive group limits shown						

- 1) A repetitive dive must finish in a RG higher than the previous dive by adjusting the RG if necessary.
- 2) No adjustment to RG is necessary if the surface interval is more than 6 hours.
- 3) If 3 or more dives are conducted on each of 3 consecutive days, a 24 hour surface interval must be taken on the fourth day.

**ADJUSTED DCIEM DIVING TABLES
ONLY FOR USE AT LIZARD ISLAND**

These tables are based on AS/NZS 2299.1:2015 and DCIEM Air Table 1.

They have been adjusted to comply with reduced no-deco times for locations where recompression availability exceeds 2 hours (AS/NZS 2299.1:2015, Sect 5.1.4 and Table 5.2).

Table B Repetitive Factors (RF) for Surface Intervals (hr:min)												
Rep.	0:15	0:30	1:00	1:30	2:00	3:00	4:00	6:00	9:00	####	####	>
Group	0:29	0:59	1:29	1:59	2:59	3:59	5:59	8:59	####	####	####	18:00
A	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0
B	1.5	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0	1.0
C	1.6	1.4	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0	1.0
D	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.0
E	1.9	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0
F	2.0	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0
G	-	1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	1.0
H	-	-	1.9	1.7	1.6	1.5	1.4	1.3	1.1	1.1	1.1	1.0
I	-	-	2	1.8	1.7	1.5	1.4	1.3	1.1	1.1	1.1	1.0
J	-	-	-	1.9	1.8	1.6	1.5	1.3	1.2	1.1	1.1	1.0

Table C Repetitive Dive No-Deco Limits according to Depth & RF											
Maximum Actual Bottom Time (ABT) in minutes for next dive											
RF											
Depth m (ft)	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
6 (20)	240	218	200	184	171	160	150	141	133	126	120
9 (30)	150	136	125	115	107	100	93	88	83	78	75
12 (40)	90	81	75	69	64	60	56	52	50	47	45
15 (50)	60	54	50	46	42	40	37	35	33	31	30
18 (60)	40	36	33	30	28	26	25	23	22	21	20
21 (70)	30	27	25	23	21	20	18	17	16	15	15
24 (80)	20	18	16	15	14	13	12	11	11	10	10
27 (90)	15	13	12	11	10	10	9	8	8	7	7
30 (100)	10	9	8	7	7	6	6	5	5	5	5
To find new RG after repetitive dive, multiply ABT X RF to get Effective Bottom Time (EBT) and use EBT and depth in Table A. See notes below.											

- 1) A repetitive dive must finish in a RG higher than the previous dive by adjusting the RG if necessary.
- 2) No adjustment to RG is necessary if the surface interval is more than 6 hours.
- 3) If 3 or more dives are conducted on each of 3 consecutive days, a 24 hour surface interval must be taken on the fourth day.

LIRS DIVE LOG

Example entries showing two dives by the same divers on the same day.

Date	27/6/2017	Dive site	Lagoon Bommie
Boat attendant	None	Dive supervisor	Joe Blow
Diver's name	Dive Leader Joe	Diver 2 Sally	Diver 3
Dive number (1,2,3) today	1		
RG from previous dive today	—		
Surface interval since last dive	>24h		
Repetitive factor (RF)	1.0		
Maximum depth (m)	10m	Same as Joe	
Maximum ACTUAL bottom time allowed, considering RF	120 min		
Time in	08:30		
Time out	10:40		
Actual bottom time (min)	70 min		
Effective bottom time (min)	70 min		
Repetitive group	E		
Signature (each diver MUST sign)	Joe Blow	Sally North	
Brief description of work: Observations		No. of Crown of Thorns seen? 0	
Did you see any sharks? Yes/No If yes, number and type: ___ x black tip ___ x white tip ___ x grey reef ___ x (other)		Did you swim more than 50m? Yes/No	
		Verification of dive log by LIRS staff	

Date	27/6/2017	Dive site	Horseshoe Reef
Boat attendant	None	Dive supervisor	Joe Blow
Diver's name	Dive Leader Joe	Diver 2 Sally	Diver 3
Dive number (1,2,3) today	2		
RG from previous dive today	E		
Surface interval since last dive	2h 20 min		
Repetitive factor (RF)	1.3		
Maximum depth (m)	7m	Same as Joe	
Maximum ACTUAL bottom time allowed, considering RF	115 min		
Time in	13:00		
Time out	14:10		
Actual bottom time (min)	70 min		
Effective bottom time (min)	1.3 x 70 = 91 min		
Repetitive group	E → F		
Signature (each diver MUST sign)	Joe Blow	Sally North	
Brief description of work: Transsects		No. of Crown of Thorns seen? 1	
Did you see any sharks? Yes/No If yes, number and type: ___ x black tip ___ x white tip ___ x grey reef ___ x (other)		Did you swim more than 50m? Yes/No	
		Verification of dive log by LIRS staff	

BOAT LOG

Facing pages of the LIRS boat log showing example entries.

*** REMINDER TO DIVE SUPERVISORS ***

By listing yourself as Dive Supervisor in the Boat Log, you accept the following summary of responsibilities when diving without a boat attendant.

At the dive site, you must determine that:

- The boat and all divers will be within the designated Low Risk Area throughout the dive
- Defined Low Risk Conditions prevail at the dive site (listed at the sign-out table)
- All divers in the team agree to dive without a boat attendant
- All divers agree that they are capable of swimming to shore from the dive site if necessary

And you must ensure that:

- Dive Leaders are briefed to stay within the Low Risk Area and to terminate the dive if low risk conditions appear to have ceased to exist during the dive
- The anchor line is checked before it is deployed to ensure that it is not damaged
- A float line and a dive flag are deployed from the boat
- Divers swim down the anchor line and visually check its integrity, that the anchor is not dragging, and that the line is not being chafed.

*** REMINDER TO BOAT SKIPPERS ***

When you sign in after each outing, you must state YES or NO in the column headed "Anchor OK on return?"

- You and the Dive Supervisor share responsibility for ensuring that the anchor gear is in good condition every time the anchor is deployed.
- If the anchoring gear has been damaged during the outing (i.e. answer is NO), you must immediately report it to LIRS staff and not use the boat again until it has been made good.

BOAT LOG

DATE	BOAT	LOCATION (If using boat for recreation, must have prior approval and indicate here by adding "R")	NO. OF PEOPLE	NO. OF DIVERS	DIVE SUPERVISOR for this outing (refer above)	TIME OUT	EST TIME OF RETURN	SKIPPER (refer above)	SKIPPER INITIALS on return	ANCHOR OK on return? (Y/ N/ DNU)	LIRS check			
											1200	1400	1600	latest
13/10/15	Louise	Lagoon Bonnie	2	2	Joe B	0845	1130	Joe	JB	Y	LV	LV	LV	LV
13/10/15	Sam	Cobia Hole	3	2	Anita P	0900	1200	Sally	SR	Y	↓	↓	↓	↓
13/10/15	Louise	Horse shoe / Thawley Bch	2	2	Joe B	1230	1530	Joe	JB	Y	↓	↓	↓	↓
13/10/15	Snorkel	out front	2	-	Fred - Julia	1245	1330	-	FS JS	DNU	↓	↓	↓	↓
13/10/15	Sam	Nth Point - R *	2	-	-	1700	1830*	Sally	SR	DNU				↓

* ok'd by Anne

SAFETY EQUIPMENT IN LIRS BOATS

All LIRS boats are equipped with the following safety equipment:

- dive flag
- 15 metre float line
- quick-release anchoring system
- VHF radio (if handheld, with spare batteries and in waterproof container)
- basic oxygen resuscitation equipment (at a minimum, C-size oxygen bottle, oxygen regulator with adjustable flow rate, pocket mask with oxygen port, non-rebreather mask)
- an approved life jacket with whistle and water-activated light for each person
- emergency drinking water
- 406 MHz EPIRB
- flares (2 red hand flares, 1 orange smoke flare, 3 parachute distress rockets)
- V sheet
- signalling mirror
- compass
- chart of area
- trauma kit
- torch and batteries

LIRS boats that operate away from the Lizard Island Group also carry:

- additional first aid supplies as appropriate to the distance from Lizard Island and the activities being undertaken, and
- additional oxygen supplies and delivery equipment as appropriate to the distance from Lizard Island

Demonstrator units of the boat oxygen kits and VHF radios are provided for familiarisation at the induction meeting. Photos of the oxy kit are below. Instructions for using the radio are in the next section.



Page 25 has no content

OPERATION AND USE OF VHF RADIO

SITUATIONS FOR USING RADIO

- Emergencies that pose grave and imminent danger to life or vessel
- Vessel is broken down

INSTRUCTIONS FOR USING HANDHELD RADIO

- The VHF radio in dinghies is located under the foredeck in a red or yellow safety container along with other safety equipment such as EPIRB and flares.
- Turn the radio ON (top right button)
- Channel 16 will automatically be displayed
- Slowly turn squelch button (top middle) until noise has just stopped
- Ensure radio is transmitting on 5 watts. If 1 watt is displayed on the screen, press the 1/5 W button (lower left) until 5 watts is displayed
- Listen before transmitting to ensure channel is clear
- To transmit, depress transmit button (on left hand side of radio near the top) and keep it pushed in while speaking into the microphone (lower part of unit, front side) using the following format:
“Lizard Island Research Station (3 times), this is [your boat’s name] (3 times), over”
- After saying “over”, release the transmit button so you can hear a reply
- Within 30 seconds, LIRS will reply as follows:
“[Boat name], this is Lizard Island Research Station. Please switch to Channel 73”
- Before changing channels, speak once more on Channel 16 to confirm that you have heard the LIRS response by saying:
“OK, going to 73” or words to that effect
- Press the UP or DOWN arrow to scroll to Channel 73 - you can then talk freely
- Revert back to Channel 16 after about 15 seconds if nothing is heard on Channel 73
- Turn the radio off (top right button), return it to its Pelican case and stow it in the safety container when radio use has finished

PLEASE NOTE

- A licence is required to operate a VHF radio because it is important that untrained users do not clog up the airwaves. Instead of requiring LIRS users to have a radio licence, these instructions are provided for correct use of VHF in emergencies only.
- Channel 16 is the international calling and distress frequency. It must be used only to make contact or in emergencies. That is why we need to switch channels after making contact.
- If you cannot reach the Research Station and there is a threat to the safety of a person or vessel, try calling “Lizard Island Resort” or “all vessels at Lizard Island”, using the same format as shown above.
- Reception can be impaired in the vicinity of North Point to Pidgin Point due to the high hills. If trying to raise help from this area, move away from the coast if practical to improve reception and/or make a general call to all vessels in the vicinity or to LI Resort.
- Controls on the boat-mounted radios in *Kirsty K*, *Macquarie 1* and *Macquarie 2* are slightly different to those on the handheld radios. Instructions will be provided to users of those boats.
- A radio transmitter for channel 82 was installed below the peak of Cook’s Look (eastern side) in 2014. A dual watch (16 & 82) is often organized for vessels working away from the LI Group. However, the transmitter stopped working in Sep 2016 and has not been repaired as at June 2017.



Arrow shows yellow safety container in foredeck of dinghy. Note that containers in some boats are orange rather than yellow.

A handheld VHF radio is stored inside a Pelican case inside the safety container, along with other safety equipment.



Handheld VHF radio in opened Pelican case with spare batteries and instructions for use.

At top of radio, flexible antenna is at left, squelch adjustment is at centre, and on/off/volume knob is at right.

The “transmit” button is on the left side near top.