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DIVING PROCEDURES

OVERVIEW
The University of Queensland is committed to continuously improving the management and standards of Occupational Health and Safety. This extends to minimising the risks associated with diving activities. This Diving Procedure provides the minimum requirements for all diving activities undertaken by University of Queensland workers.

DEFINITIONS

SUPERVISOR
An individual, who assumes responsibility for the health and safety of any other person in a workplace by providing instruction, direction, assistance, advice or service, is deemed to have an obligation in accordance with the Work Health and Safety Act (Qld) 2011 and related legislation. All management and supervisory staff (which include those with responsibility for students) are therefore considered to have an obligation.

BOATING AND DIVING SAFETY WORKING PARTY:
The University of Queensland Boating & Diving Safety Working Party is a working party which operates under the auspices of the University's Occupational Health & Safety Council and in conjunction with the OH&S Unit has the responsibility for the:

a. oversight and administration of University diving and boating projects, including compliance with relevant policies and operational procedures;

b. development of policies and procedures associated with University of Queensland Diving and Boating activities;

c. recommendation of appropriate disciplinary action in the event of unsafe diving or boating activities by any individual or group within the University – if necessary including suspension of scientific diving/boating projects, or any individual’s certification as a Scientific Diver within the University;

d. investigation of all diving and/or boating accidents/incidents, and to report violations of the University’s policies and procedures to the Occupational Health and Safety Unit.

Consideration of scientific diving/boating related problems encountered while diving or operating under the policies or procedures of the University’s Diving Operations Manual and Boating Operations Manuals.

WORKER:
For the purposes of this Procedure, employee refers to any staff member, student, contractor, visitor or volunteer.

UNIVERSITY BOATING & DIVING OFFICER:
The UQ University Boating & Diving Officer is a suitably qualified and experienced boater and diver who has University-wide responsibility for Boating & Diving activities.

RESPONSIBILITIES
Staff at all levels within The University of Queensland have specific responsibilities for ensuring Occupational Health and Safety. These responsibilities are principally based on the Work Health and Safety Act (Qld) 2011 and related legislation.

The specific OH&S responsibilities of workers are dependent on their role within the University and are outlined in the University Policy and Procedures Library Procedure 2.10.04 Staff Responsibilities for Occupational Health and Safety.
WORKERS:
Workers need to ensure that prior to undertaking any diving activity, the requirements outlined in the University of Queensland’s Fieldwork and Work Off-Campus Safety Guidelines http://ppl.app.uq.edu.au/content/2.30.09-fieldwork-and-work-campus-safety and http://www.uq.edu.au/ohs/134438-29593#field are fulfilled. Whilst undertaking any diving activity, employees are required to undertake the activities in a manner which does not adversely affect their own health and safety, or that of others and this may be achieved by following this Procedure. They must immediately report to the supervisor any matter which may affect their own or others’ health and safety.

SUPERVISORS:

HEAD OF SCHOOL AND ORGANISATIONAL UNITS:
Heads of School and Organisational Units must ensure that where workers are required to undertake diving activities, that activities are undertaken in accordance with this Procedure. They should ensure that School/Organisational Unit specific guidelines are developed where necessary, and that they are consistent with the information contained in this document.

UNIVERSITY BOATING & DIVING OFFICER:
The University of Queensland’s Boating & Diving Officer is a suitably qualified and experienced boater and diver who has University-wide responsibility for Boating & Diving activities. The University Boating & Diving Officer is responsible for ensuring all University of Queensland divers are adequately qualified, trained, equipped and supervised.

University of Queensland
Diving Operations Manual
Version 2.0

Compiled by Michael Phillips.

Information used in compiling this Diving Manual has been sourced from a number of other documents.
A full list of references used may be found at Section 1.7 of this manual.
Prior to conducting any University of Queensland diving operation, please ensure you have read and understood a copy of this Manual.
Copies can be obtained from the University Boating & Diving Officer – phone +61(0)7 3365 1095 or on-line from http://www.uq.edu.au/ohs/pdfs/divingweb.pdf
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SECTION 1 SCOPE OF THIS MANUAL AND LEGAL CONSIDERATIONS

1.1 OVERVIEW

The University of Queensland is committed to continuously improving the management and standards of Occupational Health and Safety. This extends to minimising the risks associated with diving activities. This Diving Procedure provides the minimum requirements for all diving activities undertaken by University of Queensland workers - notwithstanding any requirements that may be implied by other University of Queensland Procedures and Policies.

1.2 SCOPE

This document is The University of Queensland (UQ) Diving Procedures Manual. It is intended to provide information and advice for all divers involved in underwater research and teaching activities at the University, as well as providing a concise statement of approved procedures governing all Snorkel (including breath hold) and Compressed Gas diving operations conducted through the University.

The aim of these procedures is to ensure users conduct their diving operations in a safe manner. Procedures indicated as "not permitted" in this manual may be allowed by the University Boating & Diving Officer (BDO), only in exceptional circumstances. Variations to procedures can only be permitted by the BDO, with detailed conditions set down in writing, which must be agreed to in writing by all parties involved and kept on file by the BDO for at least seven years.

At this time, the following activities are NOT permitted, without explicit written permission from the BDO:

a. Diving to depths of greater than 39 meters;
b. Diving with gas mixtures other than air or EANx (nitrox) (up to 40% O2 ) (including in water decompression using oxygen);
c. Diving with mixed gas rebreather equipment.
d. Diving without a surface attendant present

1.3 OBLIGATIONS AND LEGAL RESPONSIBILITIES

The following points are designed to provide guidelines to divers and dive teams while operating in the field.

a. Under ‘Obligations’, each person has a responsibility for their own health and safety, as well as for the health and safety of other personnel working within the same environment;
b. Diving is a hazardous procedure; however education, training and team cooperation will reduce the risk. This manual is to be used as a procedures manual, and if all procedures are followed any risks to health and safety will be significantly reduced;
c. Individuals or groups participating in compressed gas or breath hold diving operations under the control of the University of Queensland must operate within the guidelines and intent of these and all other related standards and procedures;
d. It should be noted that individuals or groups who fail to follow safe diving practices as outlined by this manual, or as directed by the BDO or a Site Diving Officer, may be found legally responsible and liable for their actions in the event of an incident or accident;
e. The nominated Dive Coordinator for a dive trip is responsible for the entire Dive Team during the period in which that Dive Team is under his/her control, however it must be noted that **risk assessment is the responsibility of all team members.** In the event that weather conditions, environmental factors, equipment or personnel are considered by any member of the team to create or contribute to an unsafe working situation, then the diving
operation must not continue until the situation is corrected to the satisfaction of the entire team;

f. At all times any tasks assigned by Dive Coordinators or Team Leaders must be within the experience and training of the diving personnel concerned, and the capacity of the equipment available.

1.4 DEFINITIONS

No effort has been made to rigidly standardise the terminology used in this Manual, as there are no agreed definitions for many of the terms used. Certain words however, are used in instances where instructions or recommendations are given, and these must be interpreted as follows:

**MUST** – there are no circumstances under which this recommendation may be ignored;

**WILL/SHALL** – other than in exceptional circumstances this recommendation should always be followed;

**SHOULD / RECOMMENDED** – normal diving practice requires that this recommendation be followed;

**CAN / MAY** – the diver / diving operation may well benefit from employing this technique.

1.4.1 Supervisors

An individual, who assumes responsibility for the health and safety of any other person in a workplace by providing instruction, direction, assistance, advice or service, is deemed to have an obligation in accordance with the Work Health and Safety Act (Qld) 2011 and related legislation. All management and supervisory staff (which include those with responsibility for students) are therefore considered to have an obligation.

1.4.2 Workers

For the purposes of this Procedure, employee refers to any staff member, student, contractor, visitor or volunteer.

1.4.3 University Boating & Diving Officer

The University of Queensland Boating & Diving Officer is a suitably qualified and experienced boater and diver who has University-wide responsibilities for Boating & Diving activities conducted through the University.

1.4.4 Boating and Diving Safety Working Party

The Boating and Diving Safety Working Party is a working party which operates under the auspices of the University’s OH & S Council.

1.5 CHAIN OF AUTHORITY AND RESPONSIBILITIES

1.5.1 Executive Deans and Senior Managers

Executive Deans and Senior Managers must ensure the implementation and maintenance, within the faculty/institute/division, of an effective system of management for occupational health and safety (OH&S) consistent with the Act and other legislative requirements.

For further information regarding the duties of Executive Deans and Senior Managers see the UQ Occupational Health and Safety Policy at http://ppl.app.uq.edu.au/content/2.10.04-staff-responsibilities-occupational-health-and-safety

1.5.2 Heads of School and Organisational Units

Heads of School and Organisational Units must implement and maintain, within the School or Organisational Unit, an effective system of management for occupational health and safety consistent with the Act and other legislative requirements.
Heads of School and Organisational Units must ensure that the diving operations undertaken by workers within their School or Organisational Unit comply with these procedures.

For further information regarding the duties of Heads of School and Senior Managers see the UQ Occupational Health and Safety Policy at http://ppl.app.uq.edu.au/content/2.10.04-staff-responsibilities-occupational-health-and-safety

1.5.3 Supervisors
Supervisors must undertake effective OH&S measures to ensure compliance with the Act and related legislative requirements.

Supervisors must ensure that diving operations are conducted according to these procedures.

Supervisors must ensure that diving operations are effectively supervised onsite, workers are adequately trained and experienced, risk assessments are completed, and plant and equipment including PPE is provided and adequately maintained.

1.5.4 Workers
For the purposes of this Procedure, employee refers to any staff member, student, contractor, visitor, or volunteer.

Workers must comply with requirements of the Act and related OH&S procedures developed by the University, School or Organisational Unit.

Workers must ensure that they take reasonable care for their own and others health and safety, comply with these procedures when participating in diving operations, and co-operate with any reasonable request with regard to these diving procedures.

1.5.5 Boating and Diving Safety Working Party
The University of Queensland Boating and Diving Safety Working Party (a list of current members can be found in Appendix 27) is a working party which operates under the auspices of the University’s Occupational Health & Safety Council and in conjunction with the OH&S Division has responsibility for the following:

a. oversight and administration of University diving and boating projects, including compliance with relevant policies and operational procedures;

b. development of policies and procedures associated with University of Queensland Diving and Boating activities;

c. recommendation of appropriate disciplinary action in the event of unsafe diving or boating activities by any individual or group within the University – if necessary including suspension of scientific diving/boating projects, or any individual’s certification as a Scientific Diver within the University;

d. investigation of all diving and/or boating accidents/incidents, and to report violations of the University’s policies and procedures to the Occupational Health and Safety Unit; and

e. consideration of scientific diving/boating related problems encountered while diving or operating under the policies or procedures of the University’s Diving Procedures Manual and Boating Activity Policy.

1.5.6 University Boating & Diving Officer
The University of Queensland’s Boating & Diving Officer is a suitably qualified and experienced boater and diver who has University-wide responsibility for Boating & Diving activities. The University Boating & Diving Officer (BDO) is responsible for ensuring all University of Queensland divers are adequately qualified, trained, equipped and supervised.

More specifically, he/she is responsible for the following:

a. Administering and supervising all diving projects conducted through the University to ensure full compliance with all relevant procedures, legislation and standards, including:
a) coordinating the maintenance of the University Diver Register to ensure currency of qualifications for all divers listed thereon;

b) coordinating the maintenance of the University Diving Activity and Diving Equipment Registers, and approving and filing diving related paperwork, from ALL diving activities in the University;

c) approving new divers and ensuring they are given an induction in diving procedures with the University;

d) ensuring all divers are trained and qualified for the tasks they intend to participate in;

e) appointing Dive Coordinators, and ensuring the Dive Coordinator for each dive prepares a complete dive plan for that diving operation;

f) ensuring all equipment is maintained to required standards; and

g) ensuring a Dive plan and Risk Assessment is completed for each diving project prior to commencement;

b. assisting with selection, appointment and supervision of Site Diving Officers, and ensuring that effective liaison occurs between the University Boating & Diving Officer, Site Diving Officers, and all divers;

c. providing advice in the planning of research diving operations, in order to maximise their scientific yield without compromising safety;

d. providing, organising, or advising on any diver training required by individuals as appropriate, including inducting all Dive Coordinators, and ensuring inductions are performed for all new divers and dive support personnel;

e. supervising the use and periodic maintenance of all diving equipment, and prohibiting the use of equipment which is past its service date, or which he/she considers unsafe;

f. ensuring air tests are carried out for all air compressors used during University diving operations, and that these compressors provide air within the limits prescribed in Clause 4.2.1 of Australian Standard 2299.2:2002 and Clause 2.2.1 of Australian Standard 3848.2:1999;

g. authorising and supervising the use of specialist diving equipment;

h. maintaining records of dive plans, dive logs, incident records and any maintenance/repair of equipment, and keeping such records for a minimum of 7 years;

i. maintaining a diving equipment defects log recording any problems with equipment, the date of the problem, and the action taken to remedy the problem.

j. Authorising diving work other than scientific diving work on a case by case basis

1.5.7 Site Diving Officer

The University Boating & Diving Officer (BDO) may nominate any individual as a Site Diving Officer (SDO) to assist with diving management tasks. The Boating and Diving Officer, or his delegate, Heron Island Research Station is the appointed Site Diving Officer for Heron Island Research Station (SDO HIRS). A Site Diving Officer may be required for a particular dive site, or for a particular project or research group.

Note: Any individual expected to act in a Site Diving Officer role should have this recognised on their duty statement.

Nominated Site Diving Officers will be expected to fulfil an important dive leadership role for their diving site or project, and their responsibilities should revolve around monitoring what is occurring on a day to day basis within their particular workplace/project - specifically, tasks such as:

a. evaluating fieldwork practices and conditions in conjunction with the BDO to ensure all site/project diving is conducted to relevant standards and safety requirements, in accordance with this procedures manual;
b. liaising with the BDO to ensure communication channels are implemented both ways between BDO and divers;

c. assisting divers with risk assessment, site registration and dive planning issues as required;

d. assist in modifying such forms as required by the BDO (express written permission from BDO required) to meet safety considerations, prior to commencement of diving operations, and ensuring that all risk minimisation strategies resulting from approved Risk Assessments are implemented by the dive teams concerned;

e. ensuring that divers at their site forward all required details and information to BDO for filing;

f. providing advice in the planning of research diving operations, in order to maximise their scientific yield without compromising safety;

g. providing, organising, or advising on any further diver training for individuals, as appropriate;

h. supervising the use and periodic maintenance of all diving equipment under their control, and prohibiting the use of equipment which is past its service date, or which he/she considers unsafe;

i. maintaining records of any maintenance/repair of site diving equipment and forwarding copies of such records to the BDO for filing;

j. maintaining a diving equipment defects log recording any problems with equipment, the date of the problem, and the action taken to remedy the problem.

1.5.8 Ship’s Master

The Master of any mother ship or vessel with a registered length above six (6) metres being used for a diving operation must be briefed by the Dive Coordinator on the diving activities to be undertaken before the ship leaves port. In the event of a diving emergency, the Master shall assist the Dive Coordinator in accessing any outside assistance required.

Responsibilities of the Master of a vessel used by the University for diving operations include:

a. supervising launch and recovery of dive boats from the mother ship, and confirming that all relevant safety equipment is aboard before any dive boat leaves the mother ship;

b. hoisting of signals, warning of approaching vessels, maintenance of radio communications, and if requested by the Dive Coordinator, posting of lookouts;

c. ensuring that no work is carried out on-board the vessel when diving is in progress if there is any possibility that it could hinder the vessel from rendering assistance in an emergency;

d. ensuring that propellers cannot turn or injure a person, fishing is not undertaken, and rubbish/sewage is not jettisoned from the mother ship whilst divers are underwater near the vessel.

Must have commercial qualifications e.g USLC Coxwains, Master V etc.)

The Ship’s Master holds the power of final veto as to whether diving may take place, where they consider present or anticipated weather conditions are such that they may prevent the mother ship from rendering assistance in event of an emergency, or potentially endanger the vessel.

1.5.9 Dive Coordinator

A Dive Coordinator is the nominated leader for the operation of any Dive Team and shall be responsible for the safe conduct of the diving operation and shall coordinate and direct the activities of all their dive teams. A designated Dive Coordinator must be present at every diving operation, and may act as either a Dive Attendant or as a Diver during any dive.

All Dive Coordinators shall be nominated by the University Boating & Diving Officer or in the case of Heron Island Research Station by the Site Boating & Diving Officer.
A Dive Coordinator is not required to hold a current dive medical if not diving, however, they must have had training and experience in accordance with the requirements of this manual, as well as experience with the operation of any equipment being used and any work being carried out during the diving operation;

A Dive Coordinator must maintain a fitness level appropriate to their position and duties.

The Dive Coordinator for any dive trip is responsible for:

a. notifying a Nominated Contact of the dates of departure/return for the trip, and ensuring the Nominated Contact is aware of their duties in the event that personnel from the trip do not report within a designated time frame;

b. checking in with the Nominated Contact at a designated time each day;

c. ensuring that all preliminary paperwork has been lodged with the BDO for the project to be undertaken;

d. ensuring that an up to date Risk Assessment has been completed for the project to be undertaken, and the lodging a completed Dive Plan Form (copy at Appendix 8) with the BDO. This form should be lodged no later than 72 hours before the date of the first dive listed on the form, and must contain specific notification to the BDO of any planned dive profile/s containing one or more of the 'higher risk factors' described at Appendix 12 of this Manual, or any similar factors. This form must be signed by the Dive Officer PRIOR to commencement of the dive operation;

e. ensuring that all risk minimisation strategies resulting from approved Risk Assessments are implemented by the dive teams concerned;

f. ensuring that the BDO has approved the trip, and has not expressly prohibited any intended diving activities;

g. ensuring that all individuals who will be involved in the operation are sufficiently trained and experienced to perform all required tasks safely, according to the Diving Policy and Procedures Manual, including having dived within the past 6 months;

h. ensuring drinking water, first aid kit/s, oxygen kit/s, dive flag, communications equipment and any necessary safety equipment is taken on the trip, including adequate oxygen supplies, and ensuring that when diving operations are being carried out, personnel with all required qualifications and skills are on hand to allow prompt and adequate treatment of a diving accident on site and during transport to the nearest medical facility (if necessary);

i. ensuring every diving operation is performed in accordance with its plan as far as possible, or notifying the BDO of any major changes, ahead of the dive;

j. ensuring the dive team operates within UQ Procedures. The Dive Coordinator has numerous responsibilities under these Procedures;

k. monitor all divers’ dive profiles for nitrogen levels;

l. conducting a pre-dive briefing (see sample briefing at Appendix 6 and Appendix 11) in the presence of the entire Dive Team (including Dive Attendants, Boat Handlers and Divers) and discussing all necessary control measures with the Dive Team, in particular where any dive operation contains one or more of the high risk factors described at Appendix 12 of this Manual;

m. ensuring every diver is fully aware of their particular tasks for the dive, including knowing which other diver/s that they are to act as a buddy for;

n. nominating a Dive Leader to control the underwater part of the diving operation, in the event the Dive Coordinator is staying at the surface for the dive;

o. nominating another individual in writing to act as Dive Coordinator or Dive Attendant in the event the Dive Coordinator intends to dive underwater (NB:);

p. whilst in the field, restricting or suspending any operation considered unsafe, with particular attention to weather forecasts and prevailing conditions;
q. ensuring that at or close to every dive site there are adequate means of communication in case of emergency;

r. ensuring that a member of the Dive Team completes a Dive Record form (described at Appendix 9 of this Manual) for every dive, listing all relevant dive details for each diver;

s. checking, as far as practicable, the health and well-being of all divers for a period of 48 hours after the completion of a dive (refer to Post Dive Form Appendix 13).

t. notifying the BDO as soon as possible of any diving-related injury or incident that occurs to any member of the Dive Team, and completing an accident/incident report in this eventuality.

All Dive Coordinators must be at least 18 years of age.

1.5.10 Diver

All Divers must have had training and experience in accordance with the requirements of this manual, as well as experience with the operation of any equipment being used and any work being carried out during the diving operation;

All divers must hold a minimum qualification and be current in both First Aid or equivalent, and approved Oxygen Resuscitation certificate. Each Diver’s responsibilities include:

a. diving safely within the limits of his/her capabilities. If any Diver is uncertain about his/her ability to safely undertake any proposed dive or diving task, they should refuse to attempt that dive/task, and may do so without prejudice, advising the Dive Coordinator that they are uncomfortable with the dive/task. If any Diver feels they are being regularly asked to undertake dives/tasks beyond their abilities, they should notify the BDO;

b. giving their full attention during the Dive Coordinator’s briefing;

c. abiding by the University’s Diving Procedures (as set out in the Diving Policy and Procedures Manual), and any decisions made by the BDO concerning particular diving operations;

d. ensuring they have all equipment required by these procedures, and conducting a functional check of their diving equipment in the presence of their diving buddy or the Diver’s Attendant;

e. maintaining close contact with their dive buddy, monitoring their own air supply, and informing their buddy at regular intervals of air supply status. Only under extenuating circumstances should a diver surface from a dive with less than 30 ATA of air remaining in their cylinder. If a tank is returned with less than 30ATA without good reason, a mandatory tank inspection charge will apply and a ban from further diving may be enforced;

f. not diving with any malfunctioning equipment, and reporting any equipment fault to their Site Diving Officer;

g. maintaining in good order, all dive equipment in use by them;

h. ensuring that they are medically and physically fit for each dive;

i. notifying the Dive Coordinator as soon as possible of any diving-related injury that occurs to them or their buddy, pre, during or post dive;

j. maintaining an up to date Dive Logbook.

k. before diving all divers must sign the diving risk assessment.

l. After diving sign the dive record as soon as practicable.

1.5.11 Boat Handler

The Boat Handler is a key member of the dive team, responsible to the Dive Coordinator. Boat Handlers shall hold an Australian Recreational Ship Masters’ licence or Uniform Shipping Laws Code (USLC) certificate of competency appropriate for the vessel in use and the area of operations, and at least a current First Aid certification, current Oxygen Resuscitation certification and Marine Radio Operators (VHF) Certificate of Proficiency.
An Australian Recreational Ship Masters’ licence is required to operate a commercially registered vessel under six (6) metres in length in Queensland waters when the vessel is operated by a university and for genuine research or scientific purpose.

All Boat Handlers must be at least 18 years of age.

It is the responsibility of the Boat Handler to:

a. ensure safety equipment is loaded, and the boat has adequate fuel for the planned trip, including a minimum reserve of 30% of estimated requirements. Safety equipment should include all ‘survey’ equipment - at least flares, oxygen resuscitation kit, first aid kit, a radio and/or a mobile phone (only to be used as back-up when phone reception is known to be adequate at all times), dive flag, fire extinguisher and tool box;

b. ensure that the boat is trimmed for operation and all equipment is stowed safely;

c. have a good working knowledge of boats and be ready and able to give assistance quickly and efficiently in an emergency;

d. be in charge of the boat during travel to and from the dive site, and maintain position at the dive site - usually by anchor. Inexperienced Boat Handlers must not manoeuvre a vessel whilst divers are in the water, except in emergency;

e. display the appropriate dive flags and signals while diving operations are taking place;

f. deploy a current line as appropriate, once the boat is anchored securely;

g. maintain radio communications with a research station, mother ship or shore base as required.

h. A commercial (USLC) certificate of competency with a night endorsement is required for any night operation.

The BDO or SDO has the right to VETO any boat handler or trip.

Important Note: Without prior approval from the BDO (except in case of emergency) no individual shall work a vessel ‘live’ (see glossary) whilst divers are in the water.

1.5.12 Diver’s Attendant

The Dive Attendant may also act as the Dive Coordinator/Boat Handler at the discretion of the BDO.

All Diver’s Attendants must be at least 18 years of age.

The duties and responsibilities of a Diver’s Attendant include:

a. having a complete working knowledge of the Dive Plan, and associated tasks;

b. having training and knowledge of any signals in use;

c. having training and knowledge of any dive tables in use;

d. having training and knowledge of all diving plant and equipment in use;

e. having training and knowledge of first aid and oxygen administration, except where a second person with such training and knowledge is present and remains at the surface;

f. promptly and accurately filling in a Dive Record Form as required;

g. assisting with the deployment and recovery of divers, samples and equipment as required;

h. establishing and maintaining a constant look-out over any divers in the water.

i. have training sufficient to effect an in water rescue of a diver or snorkeller

j. have training and knowledge to be able to recognise and manage a dive accident.

NB: Except where authorised by the BDO, the number of Dive Teams allowed per surface look-out is one. Where conditions do not permit constant, easy observation of a dive team, then a surface marker buoy must be used to mark the site at which the divers are working.

A DIVER’S ATTENDANT MUST NOT:
a. leave the boat at any time, to swim or snorkel, other than in an emergency;
b. carry out any activities in the boat such as reading, sleeping or fishing, which may divert his/her attention from the responsibilities set out above.

1.6 DISCIPLINARY PROCEDURES

Should any Site Diving Officer or University Boating & Diving Officer have concerns as to whether an individual has adhered to the University's Diving Procedures Manual, that Diving Officer should discuss his/her concerns with the individual in the first instance. In addition, the Diving Officer should advise the individual's Supervisor.

The BDO should be informed if the matter is of a serious or repeated nature, or where the matter has been unable to be resolved at the site level.

The University Boating & Diving Officer and the University of Queensland Boating and Diving Safety Working Party (BDSWP) will investigate the circumstances and then refer the matter to the University OH&S Unit with a recommendation as to the appropriateness of suspension or cessation of diving activities for the individual concerned.

The OH&S Unit will discuss the matter with the Head of School/Organisational Unit prior to any formal action being taken.

The OH&S Unit will then advise the worker and his/her supervisor in writing if suspension/cessation of diving is necessary, and of any other remedial action that may be required.

The OH&S Unit will advise members of the BDSWP of any such incidents as require their involvement which are otherwise not referred through that working party.

If any disciplinary procedures are taken against any person or persons they shall have the right of review to the BDSWP.

1.7 REFERENCED MATERIAL

1.7.1 Internal Documents

UQ Policy and Procedures Library
University of Queensland Diving Policy and Procedures 2010

1.7.2 External Documents

University of Tasmania Diving Procedures Manual – September 2005;
DCIEM Diving Manual - Part 1: Air Decompression Procedures and Tables 1992; Defence and Civil Institute of Environmental Medicine, North York, Ontario Canada
Standards Association of Australia. The following Diving Standards:
Standards Association of Australia. AS2030 - Storage of Compressed Gases;
Standards Association of Australia. AS3848.2 – Filling of Portable Gas Cylinders for self-contained underwater breathing apparatus;
Queensland Work Health & Safety Regulations 2011;
Queensland Work Health & Safety Act 2011;
Queensland Workplace Health & Safety Occupational Diving Work Code of Practice 2005;
Queensland Workplace Health & Safety Compressed Air Recreational Diving & Recreational Snorkelling Code of Practice 2005;
1.7.3 Related Policies and Procedures

The University of Queensland has an extensive list of OH&S Policies, Procedures and Risk Assessment Guidelines to cover foreseeable workplace situations. A full list of these can be found on the OH&S website at http://www.uq.edu.au/hupp

Those policies listed below relate directly to issues covered in this Manual, and should be consulted for more detailed information on dealing with those issues.

1.8 GLOSSARY AND ABBREVIATIONS

- **ADAS**: The Australian Diver Accreditation Scheme, the Commonwealth Government not-for-profit diver training and accreditation scheme developed under the auspices of the Petroleum Sub-Committee of the Australian and New Zealand Minerals and Energy Council (ANZMEC).

- **Aquaculture**: Aquaculture Group, Centre for Marine Studies, University of Queensland.

- **ATA Atmosphere**: A measurement of pressure.

- **AQF**: The Australian Qualifications Framework

- **Bail-out system**: An independent air supply worn and activated by a diver to counter an out of air, low on air or contaminated air situation. Also referred to as an 'emergency air supply'.

- **BCD**: Buoyancy control device.

- **BDO**: Boating and Diving Officer, The University of Queensland

- **Belt block**: A redundant breathing gas supply system that has its controls positioned at the front of the diver’s body on a belt or harness.

- **Bottle bank**: A group of two or more high pressure breathing air cylinders, yoked together and used in conjunction with a regulator to deliver air to a diver.

- **Bottom time (BT)**: The total elapsed time from when a diver leaves the surface to the time (next whole minute) at which ascent is commenced, measured in minutes.

- **Breathing hoses**: Hoses attached to a regulator that are designed to supply air to the diver, carry away expired air and operate at near ambient pressure.

- **Buddy or buddy diver**: A member of a group of two or three divers or snorkellers.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buddy line</td>
<td>A line used to connect two or more divers, allowing them to maintain contact. It should be approx. 2 - 3 m in length. Usually only used in conditions of low in-water visibility.</td>
</tr>
<tr>
<td>Combined dive</td>
<td>The bottom times of more than one dive, added together and treated as bottom time for a single dive for the purposes of determining decompression requirements.</td>
</tr>
<tr>
<td>Competent person</td>
<td>A person who has acquired, through training, qualifications or experience (or combination of these) the knowledge and skills to enable that person to safely perform a specified task.</td>
</tr>
<tr>
<td>Compression (recompression) Chamber</td>
<td>A surface chamber in which persons may be subject to pressures equivalent to or greater than those experienced underwater, or which simulate those experienced on an actual dive.</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardio pulmonary resuscitation.</td>
</tr>
<tr>
<td>CNS Oxygen Toxicity</td>
<td>Central Nervous System Oxygen Toxicity bought on by breathing elevated pressures of oxygen at depth.</td>
</tr>
<tr>
<td>Current line</td>
<td>A line deployed behind a boat in conditions of strong current to facilitate the recovery of divers from the water. Also called a ‘Mermaid Catcher’.</td>
</tr>
<tr>
<td>Course Currency</td>
<td>Compliance with requirements of particular course / program. (eg. First Aid Course valid for three years as long as yearly update of CPR is completed)</td>
</tr>
<tr>
<td>DAN</td>
<td>Diver’s Alert Network.</td>
</tr>
<tr>
<td>Diver’s Attendant (DA)</td>
<td>The Diver’s Attendant must be at the surface and on look-out at all times.</td>
</tr>
<tr>
<td>Decompression illness (DCI/DCS)</td>
<td>A generic term for acute illness resulting when pathological consequences arise from decompression. The term covers the conditions known as decompression sickness (bends) and arterial gas embolism, but does not include barotrauma of ascent.</td>
</tr>
<tr>
<td>Decompression schedule</td>
<td>A specific decompression procedure for a given combination of depth and bottom time as listed in a decompression table; normally described in terms of maximum depth of seawater (msw) and bottom time (minutes).</td>
</tr>
<tr>
<td>Decompression stop</td>
<td>The specified length of time which a diver must spend at a specified depth to allow for the elimination of sufficient inert gas from the body to allow safe ascent to the next decompression stop or the surface.</td>
</tr>
<tr>
<td>DCIEM</td>
<td>Canadian Defence and Civil Institute of Environmental Medicine.</td>
</tr>
<tr>
<td>DCIEM Tables</td>
<td>Air decompression procedures and tables developed by the Canadian Defence and Civil Institute of Environmental Medicine</td>
</tr>
<tr>
<td>Delegate (of BDO)</td>
<td>An individual appointed by the BDO in writing to perform nominated duties.</td>
</tr>
</tbody>
</table>
Dive Coordinator (DC)  The Dive Coordinator is responsible for the overall conduct of the dive, including any necessary pre/post dive activities, and the actual dive.

Dive Leader (DL)  The Dive Leader is the ‘in-water’ leader of a dive team, and may either be the Dive Coordinator, or another Diver nominated by the Dive Coordinator.

Dive Plan Form  A designated University of Queensland form, used to describe intended details of any proposed diving operation/s and record the University Boating & Diving Officer’s signed approval.

Diver  Any person actively involved in snorkel or SCUBA diving.

Dive Record sheet  A designated form, used to record details of each dive for every diver.

Diver Register  A listing of all divers experienced and qualified to dive for the University of Queensland according to these procedures – maintained by the BDO and SDO HIRS.

Dive Team  The total number of personnel directly involved in any diving operation.

Divemaster (DM)  A Divemaster is an individual who has received training to AS 4005.2 (recreational dive supervisor) from one of the recreational diver training organizations (also called Dive Supervisor or Dive Controller).

Diving  Snorkelling or compressed gas underwater diving

Diving Officer (DO)  See ‘BDO’ and SDO.

Diving Operation  Where personnel from the University of Queensland undertake a trip for the purpose of scientific or related underwater diving. The operation includes all time devoted to the trip, including preparation before departure, and the subsequent reporting phase on return.

EANx  A mixture of oxygen and nitrogen in which the volume of oxygen in the mixture is at least 22%. Also known as nitrox.

Effective bottom time (EBT)  The product of a diver’s actual bottom time for a dive, multiplied by their Repetitive Factor at the start of the dive (from any previous exposure to greater than ambient pressure).

Effective depth  For a dive at altitude, the depth of an equivalent dive at sea level.

Emergency air supply  See ‘bail-out system’.

Exceptional exposure dive  A dive where the maximum recommended dive time for a particular depth (shown by the limiting line in the decompression tables being used) is exceeded by a diver at that depth.

Float line  A line attached to a diver, with a highly visible float on the surface.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free flow primary air supply</td>
<td>A surface supplied breathing method in which air enters the helmet/mask in a continuous flow, and is not controlled by a demand regulator.</td>
</tr>
<tr>
<td>HIRS</td>
<td>Heron Island Research Station</td>
</tr>
<tr>
<td>Incident</td>
<td>Any unplanned event that has the potential for damage, loss or injury to personnel and/or equipment and machinery.</td>
</tr>
<tr>
<td>Incidental</td>
<td>Happening or likely to happen in subordinate conjunction with something else.</td>
</tr>
<tr>
<td>Lazy shot</td>
<td>A rope running vertically from the surface (dive control position) to an attached weight, hanging free and positioned off the bottom or orksite. The rope is marked with depth graduations to facilitate decompression stops at the correct depth. See also ‘shot line’.</td>
</tr>
<tr>
<td>Lifeline</td>
<td>A line of not less than 8 mm diameter, attached to the diver at one end and tended from the surface at the other, which is capable of being used to haul the diver to the surface.</td>
</tr>
<tr>
<td>Limiting line</td>
<td>A line shown in some decompression tables, which indicates time limits (bottom times) beyond which the decompression tables shown are less safe.</td>
</tr>
<tr>
<td>LIRS</td>
<td>Low Isles Research Station</td>
</tr>
<tr>
<td>Low Risk Condition</td>
<td>Depth of the site and its immediate surroundings does not exceed 15 m; swell and/or wave height does not exceed 0.5 m; current is nil to slight (a diver is able to easily swim into the current, with minimal exertion); underwater visibility is greater than 10 m; weather forecast is favourable and wind speed is less than 15 knots; the dive starts and ends in full daylight.</td>
</tr>
<tr>
<td>Main air supply</td>
<td>The main supply of any diver's breathing air, including air delivery from SCUBA cylinders, low pressure compressors or ‘bottle banks’.</td>
</tr>
<tr>
<td>MBRS</td>
<td>Moreton Bay Research Station</td>
</tr>
<tr>
<td>Mermaid Catcher</td>
<td>See Current Line, above.</td>
</tr>
<tr>
<td>Mother Ship</td>
<td>A vessel (generally large) used as a base in remote areas, from which smaller vessels are used to conduct field or diving operations.</td>
</tr>
<tr>
<td>NASDS</td>
<td>National Association of SCUBA Diving Schools - a diver training organization.</td>
</tr>
<tr>
<td>NAUI</td>
<td>National Association of Underwater Instructors - a diver training organization.</td>
</tr>
<tr>
<td>Night diving</td>
<td>Any diving activity conducted in the hours of darkness, including 1 hour prior to sunset and 1 hour after sunrise.</td>
</tr>
</tbody>
</table>
Nitrox  A mixture of oxygen and nitrogen in which the volume of oxygen in the mixture is at least 22%. Also known as EANx.

NQS  National Qualification Scheme. A National system set up to ensure a minimum level of training in various fields (eg. recreational SCUBA training).

PADI  Professional Association of Diving Instructors - a diver training organization.

Post Dive Report  A designated form, used to describe actual details of any diving operations.

PPL  The University of Queensland Policies and Procedures Library

PPO₂  Partial Pressure of Oxygen

Pulmonary Toxicity  Long exposures to elevated pressures of oxygen which develop a decrease in vital capacity

Quick release  Able to be immediately released from closed position by the single operation of one hand.

Rebreather  A semi-closed or closed circuit self-contained underwater breathing apparatus.

Redundant Gas System  An additional gas storage and delivery system that contains sufficient gas to allow the diver to return from the further most point of the dive achievable on the current gas and ascend to a point where another gas supply is available.

Remote dive site  Any area of diving operation greater than 30 minutes from medical assistance.

Repetitive dive  Any dive conducted after a surface interval from a previous dive of more than 15 min. and less than 18 hours, or that has a repetitive factor at the start of the dive of greater than 1.0

Repetitive factor (RF)  Using the DCIEM dive tables, a figure determined by the repetitive dive group (RG), and the length of the surface interval after a dive, and used for repetitive diving.

Repetitive group (RG)  After a dive conducted using the DCIEM dive tables, every diver will fall into a Repetitive Group category determined by the dives they have completed previously.

Reserve air supply  The quantity of air that will enable a diver to return safely to the surface from the planned depth of the dive, completing all planned decompression stops.
Residual nitrogen  The nitrogen that remains dissolved in a diver's body tissues after the diver has surfaced.

Risk Assessment  A process of identifying and setting up mechanisms for dealing with all risks involved in a particular field operation. It must be carried out for every diving operation.

Safety Line  Lifeline, Buddy Line, Float Line or Current Line.

Saturation  That condition where a person's body tissues are totally saturated with the particular inert gas element of the breathing medium in use.

Scientific diving  Diving performed for the purpose of professional scientific research, natural resource management, or scientific research as an educational activity.

SCUBA  Self Contained Underwater Breathing Apparatus. Equipment designed to deliver air to a diver, using an open circuit system independent of the surface.

Site Diving Officer (SDO)  An individual nominated as Diving Officer (under the BDO) for a workplace or project outside the main campus. At this time there are Site Diving officers at the St. Lucia campus and at Heron Island Research Station.

Shot rope  A rope running vertically from the surface (dive control position) and fixed to the worksite or bottom with a weight or attachment. The rope is marked with depth graduations to facilitate decompression stops at the correct depth. See also 'lazy shot'.

Snorkelling  ‘Free swimming’ diving, where fins and a mask and snorkel are used.

SPUMS  South Pacific Underwater Medicine Society. Organization of medical professionals regulating diving medicine activities in Australasia.

SSBA  Surface Supplied Breathing Apparatus. Equipment delivering air to diver from the surface.

SSI  SCUBA Schools International - a diver training organization.

Surface Attendant (SA)  A diver’s attendant, who does not enter the water (also see Diver’s Attendant).

Surface Interval (SI)  Time between surfacing from one dive and commencing the next. If the SI is less than 15 minutes, then the second ‘dive’ is deemed a continuation of the first dive.

Team Leader  Person with overall responsibility for conduct of a field research team. Has no authority over any decision made by a Dive Coordinator during the conduct of any diving operation.
Tethered mode (in relation to SCUBA diving)

SCUBA diving in which a diver is secured by a lifeline and tended by a diver's attendant, or is secured to a tended float line.

Therapeutic recompression tables

Recompression tables used for the treatment of decompression injury and other pressure related injuries.

UQ

The University of Queensland, Australia

Diving Officer

BDO or SDO.

Diver

Any University of Queensland staff member or student, listed on the Diver Register, who is undertaking a dive on behalf of the University.

Dive Plan

An operational plan prepared by the Dive Coordinator for a dive, or a series of dives. A dive plan must be prepared and submitted for every dive.

BDSWP

The University of Queensland Boating & Diving Safety Working Party

Visiting Diver

A trained, certified visiting diver from another country who performs tasks relevant to scientific diving in his/her own country, who has a current diving medical certification and who is allowed to dive with the University by the BDO during his/her visit.

Volunteer Diver

A person not otherwise associated with UQ, who has volunteered to assist with diving, and meets the requirements necessary to be listed on the Diver Register.

Working 'live'

Where a vessel being used in the conduct of a diving operation is under power whilst divers are in the water.
SECTION 2  PERSONNEL FOR DIVING OPERATIONS

2.1  GENERAL REQUIREMENTS

All individuals seeking to engage in diving activities under the auspices of the University must apply to the University of Queensland Boating & Diving Officer for listing on the University Diver Register, forwarding the following:

   a. a completed Snorkel or SCUBA Diver Registration Form (sample copies at Appendix 4 & 8 of this Manual);
   b. copies of their relevant diving qualifications;
   c. copies of their diving logbooks; and
   d. a copy of a current occupational diving medical (AS 2299)(within 12 months)(see http://www.spums.org.au for doctors qualified to perform this medical); and
   e. a copy of their current First Aid and Oxygen Administration qualifications

If operating a vessel, forward to the UQ Boating and Diving Officer:

   f. a copy of their relevant ship’s Masters’ qualification and a Marine Radio Operator’s Certificate relevant to the equipment being used,

If the individual is a volunteer, the following must also be completed:

   g. A a volunteer registration form from the relevant organisational unit);
   h. a full safety induction with the University Boating & Diving Officer or their Workplace Health & Safety Representative.

The following should be noted by all divers:

   a. after listing on the University Diver Register, and before diving takes place, individuals must familiarize themselves with the University Diving Procedures Manual and the DCIEM decompression tables, and sign a copy of the Diving Procedures Statement of Understanding form (copy at Appendix 14) - which must be forwarded to the BDO to confirm their listing on the Diver Register;
   b. it is the responsibility of all divers to maintain a high level of knowledge and competence with regard to the type/s of diving they undertake, as well as knowledge of diving equipment in use. Dive Coordinators must ensure they are fully conversant with the requirements of their position;
   c. it is recommended that all diving personnel maintain a level of physical fitness commensurate with the type of diving operation/s in which they are likely to be involved whilst at the University;
   d. it is recommended that all divers participate in a minimum of one diving operation every three months, in order to maintain their skills and knowledge;
   e. divers who have not been involved in any diving operation within a six month period shall not dive or act as a Dive Coordinator, without contacting and receiving written permission from the BDO. A competency assessment may be required, at the discretion of the BDO.

1 For vessels under 6 metres registered length operated in Queensland waters for genuine research or scientific purpose, the relevant qualification is an Australian Recreational Ship’s Master’s licence
2.1.1 CONTINUATION OF AUTHORISATION TO DIVE

2.1.1.1 Term of Authorisation

Unless a renewal is completed, a diving authorisation shall expire one year from the date of issuance, or upon expiration of dive medical, or first aid, or oxygen administration certification.

2.2 DIVER INDUCTION REQUIREMENTS

As well as all meeting all other requirements listed in this section for divers, all new divers must undertake an induction with the BDO or delegate, and this shall include at least the items listed on the Diving Procedures Statement of Understanding at Appendix 14 of this Manual. A copy of this document must be signed and returned to the BDO before any diver’s listing on the Diver Register is valid.

2.3 BREATH-HOLD DIVING

Divers intending to undertake breath-hold diving operations must meet at least the requirements listed below at Section 2.4 and fulfil all other listed requirements of this Manual (also see SECTION 7 - Snorkel Diving). All breath-hold divers shall be classified by the BDO to a particular level (snorkeller, guide, coordinator), depending on their experience and training.

2.4 DIVER CLASSIFICATION AND TRAINING REQUIREMENTS

Individuals intending to undertake diving operations with the University using compressed gas must fulfil all listed requirements of this Manual for the level of classification they apply for, and shall then be classified by the BDO based on their qualifications and experience, as well as the BDO’s or SDO’s assessment of their abilities.

Regardless of experience, all divers should be listed as restricted on commencement of diving operations with the University, until such time as they have gained experience with dive protocols. 1 to 5 dive trips under control of a Dive Coordinator would be deemed sufficient for this, depending on the individual and their intended tasks.

Responsibilities of divers at each level are listed at Section 1.5 of this Manual, and minimum training requirements for each classification and tasks able to be undertaken at each level are listed below.

As well, all divers must be prepared to achieve the competencies listed at Appendix A of Australian Standard AS2299.2:2002 (Scientific Diving). At the discretion of the BDO with regard to a diver’s experience, until such time as these competencies are met, a new diver on the University Diver Register shall only be listed as a Restricted Diver, and will be limited in the tasks they can perform whilst diving underwater.

2.4.1 Snorkeller

Able to snorkel for observational purposes if a Snorkel Dive Coordinator is present and in sight of the diver at all times while they are in the water.

Training requirements:

a. Meet all requirements listed at Section 2.1 of this Procedures Manual;

b. Has been advised that some medical conditions and physical exertion can increase his / her risk of injury or death;

c. Have a working familiarity with the Diving Policy and Procedures Manual;

d. Be able to swim 500m with fins in < 20 minutes, and 200m without fins in < 5 minutes;

e. Complete a fitness test at the discretion of the BDO.
2.4.2 Scientific Snorkeller

Able to snorkel to conduct work for scientific research or natural resource management if a Snorkel Dive Coordinator is present and in sight of the diver at all times while they are in the water.

Training requirements:

a. Meet all requirements listed at Section 2.1 of this Procedures Manual;
b. Has been advised that some medical conditions and physical exertion can increase his / her risk of injury or death;
c. Have a working familiarity with the Diving Policy and Procedures Manual;
d. Be able to swim 500m with fins in < 20 minutes, and 200m without fins in < 5 minutes;
e. Complete a fitness test at the discretion of the BDO; and
f. Have a minimum of 5 hours snorkel diving experience.

2.4.3 Snorkel Guide

Able to supervise in water a maximum of 10 snorkellers while under the direct supervision of a snorkel dive coordinator who is positioned out of the water.

Training requirements:

a. As for Section 2.4.2 above; plus
b. Hold current First Aid and CPR qualifications.

2.4.4 Snorkel Dive Coordinator

Able to control a Snorkel diving operation, either from on the surface or in the water (as long as contact is maintained with other divers).

Training requirements:

a. As for Section 2.4.2 above; plus
b. Hold current Senior First Aid and CPR qualifications.
d. Hold current Rescue qualifications from a recognized recreational diver training organisation, or Occupational Diver Certification with an accredited diver training organisation, or completion of ‘in-house’ snorkelling course covering all competencies required by the Compressed Air Diving and Recreational Snorkelling Code of Practice 2005 for a snorkelling supervisor;
f. Hold current Recreational Ship Master’s Qualification (only if using boat).

2.4.5 Undergraduate Diver

Able to SCUBA dive on undergraduate excursions to less than 18m depth. A current insured DIVEMASTER (see Glossary) must be present in the water and in sight of the diver at all times. The supervision ratio is 1 Divemaster to 8 Undergraduate divers in low risk conditions as described in Section 8.30.

This section only covers an undergraduate diving as part of an Undergraduate field trip. If the diver is involved with Research activities they must meet the requirements of the appropriate Scientific Diver classification.

Training requirements:

a. Meet all requirements listed at Section 2.1 of this Procedures Manual;
b. Be at least 18 years of age

c. Hold at least ‘Advanced Open Water’ diver certification with an accredited diver training organization, with at least 15 hours and 15 dives logged since course completion, of which
500 minutes were spent within 10 metres of the working depth, with 3 dives logged within the past six months and in sub tropical waters;

d. Current occupational diving medical to Australian Standard AS2299 (Occupational Diver) from a doctor registered with SPUMS or equivalent;

e. Have a working familiarity with the Diving Policy and Procedures Manual;

f. Have a working familiarity with the short form DCIEM Air Decompression Tables; and

g. Have logged at least 1 dive with the University under the supervision of the BDO or delegate.

h. The objective of the dive is observation only – NO manipulation or use of equipment is allowed

### 2.4.6 Restricted Scientific SCUBA Diver

Able to dive on SCUBA on any approved diving operation under the control of a Dive Coordinator, where a qualified Scientific SCUBA Diver is present in the water and personally supervises the diver at all times. The diving work must be incidental to the main objectives of the project.

#### 2.4.6.1 Requirements:

a. Meet all requirements listed at Section 2.1 of this Procedures Manual;

b. Be at least 18 years of age

c. Hold at least ‘Advanced Open Water’ diver certification with an accredited diver training organization, with at least 15 hours and 15 dives logged since course completion, of which 500 minutes were spent within 10 metres of the working depth, with 3 dives logged within the past six months and in sub tropical waters;

d. Current occupational diving medical to Australian Standard AS2299 (Occupational Diver) from a doctor registered with SPUMS or equivalent;

e. Have a working familiarity with the Diving Policy and Procedures Manual;

f. Have a working familiarity with the short form DCIEM Air Decompression Tables; and

g. Have logged at least 1 dive with the University under the supervision of the BDO or delegate.

#### 2.4.6.2 Restrictions:

a. not dive on SSBA unless trained in SSBA diving;

b. only dive when conditions are suitable for untethered SCUBA mode;

c. not dive deeper than 18 metres depth;

d. not act as a standby diver or a dive leader;

e. not dive as a restricted diver for more than 28 individual days in any six month period;

f. not dive on dives using power tools or lift bags

### 2.4.7 Scientific SCUBA Diver

Able to dive or act as Dive Leader on any approved SCUBA diving operation under the control of a SCUBA/Dive Coordinator, to depth of < 18m (or to 39m with written permission from the BDO).

#### 2.4.7.1 Requirements:

a. Meet all requirements listed at Section 2.1 of this Procedures Manual; and

b. Be at least 18 years of age; and

c. Hold a current ADAS diving certificate under which the work may be done; or hold a certification under the Australian Qualifications Framework that is relevant in a substantial way to the work; or hold a certificate for general diving work that is equivalent to the knowledge and skills of a recreational dive supervisor and has provided to the Diving
Officer proof of the knowledge and skills of how to safely conduct the work being undertaken (see note i); and
d. Hold current Senior First Aid and CPR qualifications; and
e. Hold current Oxygen Provision qualifications; and
f. Hold a current occupational diving medical to Australian Standard AS2299 (Occupational Diver) from a doctor registered with SPUMS or equivalent.

2.4.8 Visiting Scientific SCUBA Diver

Able to dive or act as Dive Leader on any approved SCUBA diving operation under the control of a SCUBA/Dive Coordinator, to depth of < 18m (or to 39m with written permission from the BDO).

2.4.8.1 Requirements:

a. Be not permanently resident in Australia; and
b. Meet all requirements listed at Section 2.1 of this Procedures Manual; and
c. Be at least 18 years of age; and
d. Hold at least ‘Open Water’ diver certification with an accredited diver training organization, with at least 60 hours and 15 dives logged since course completion, of which 500 minutes were spent within 10 metres of the working depth or deeper; and
e. Hold current Senior First Aid and CPR qualifications; and
f. Hold current Oxygen Provision qualifications; and
g. Hold a current occupational diving medical to Australian Standard AS2299 (Occupational Diver) from a doctor registered with SPUMS or equivalent.

2.4.8.2 Restrictions:

a. Not dive deeper than 30m;
b. Not conduct decompression diving;c. Not use mechanical lifting equipment or buoyancy lifting devices;
d. diving beneath anything that would require the diver to move sideways before being able to ascend;
e. the use of plant that is powered from the surface;
f. Not dive for more than 28 days during a period of 6 months.

2.4.9 SCUBA Dive Coordinator

Able to coordinate and lead dives to any approved depth using SCUBA.

Training requirements:

a. Be qualified as a Scientific Scuba Diver as per Section 2.4.7 above; plus
b. Have undertaken a Dive Coordinator Induction course with the BDO or delegate and ticked the relevant boxes on their Diving Procedures Statement of Understanding form (at Appendix 14) to indicate this;
c. Have logged at least 15 hours diving using equipment relevant to any work to be undertaken - including at least five days diving with the University, under the control of a Dive Coordinator.

2.4.10 Restricted Scientific SSBA Diver

Able to dive on SSBA and SCUBA to < 18m, on an approved diving operation under control of a Dive Coordinator, where a qualified Scientific SSBA Diver is present in the water and in sight of the diver at all times.

Training requirements:
a. Meet all requirements listed at Section 2.1 of this Manual;
b. Hold at least ‘Advanced Open Water’ diver certification with an accredited diver training organization, and at least 15 hours or 15 dives logged since completion of that course, of which 500 minutes were spent within 10 metres of the working depth, & 3 of those logged within the past six months and in sub-tropical waters;
c. SSBA Diver Certification with an accredited diver training organization;
d. Current commercial diving medical to Australian Standard AS2299 (Occupational Diver) from a doctor registered with SPUMS or equivalent;
e. A working familiarity with the Diving Policy and Procedures Manual;
f. A working familiarity with the DCIEM Air Decompression Tables; and
g. Logged at least 1 dive with the University under the supervision of the BDO or their delegate.

2.4.10.1 Restrictions:

a. only dive when conditions are suitable for untethered SCUBA mode;
b. not dive deeper than 18 metres depth;
c. not act as a standby diver or a dive leader;
d. not dive as a restricted diver for more than 28 individual days in any six month period;
e. not dive as a restricted diver other than for a single initial period of up to 12 months;
f. not dive on dives using power tools or lift bags

2.4.11 EANx Diver

Able to use EANx as a breathing gas on an approved diving operation under control of an EANx Dive Coordinator. The PPO\textsubscript{2} of the gas supply must be in the range of 22 to 40% O\textsubscript{2}. The following rules must be adhered to whilst diving on EANx.

EANx diving does not take place unless an EANx dive coordinator is present at the dive site;

a. only divers certified as an ‘EANx’ diver by an accredited recreational diver training agency, or divers with an ADAS nitrox endorsement are permitted to use EANx;
b. oxygen partial pressure (PPO\textsubscript{2}) exposure times are not be exceeded;
c. maximum depth of a dive is based on the PPO\textsubscript{2} for the specific EANx breathing mixture used and shall not exceed 1.4 bar PPO\textsubscript{2};
d. before a breathing mixture is used, the diver conducts a gas analysis to verify the O\textsubscript{2} content. The results should be recorded in the EANx dive safety log and on the cylinder.
e. Equivalent Air Depth tables are to be used with DCIEM Air Tables.

2.4.12 EANx Dive Coordinator

Able to coordinate and lead EANx dives to any approved depth.

Training requirements:

a. As for Section 2.4.7 above; plus
b. Have undertaken a Dive Coordinator Induction course with the BDO or delegate and ticked the relevant boxes on their Diving Procedures Statement of Understanding form (at Appendix 14) to indicate this;
c. is qualified as an EANx diver;
d. Have logged at least 10 dives using EANx
2.5 DIVE SUPPORT PERSONNEL TRAINING REQUIREMENTS

As well as Divers, most diving operations require the use of ancillary personnel in a range of roles. Individuals intending to assist diving operations in these roles must fulfil all listed requirements of this Manual as outlined in this section and at Section 1.

2.5.1 Ship’s Master

The responsibilities of the Master of a mother ship used for a diving operation are listed at Section 1.5.8

Training requirements:

a. The Master of any vessel must meet all requirements of Queensland Transport (Marine)(or appropriate/relevant regulatory body if in another State) for their vessel.

2.5.2 Boat Handler

The responsibilities of the Boat Handler of any vessel being used for a diving operation are listed at Section 1.5.11

Training requirements:

a. Meet all requirements of Queensland Transport (Marine)(or appropriate/relevant regulatory body if in another State);

b. Hold current First Aid and CPR qualifications;

c. Hold current Oxygen Provision qualifications;

d. Hold a current Marine Radio Operators VHF Certificate of Proficiency

e. For vessels under 6 metres in length, hold current Recreational Ship Master qualification. For all other vessels, hold the appropriate USLC certificate of competency and area of operations endorsement; and

f. Have a working familiarity with the Diving Policy and Procedures Manual; and;

g. Complete a vessel familiarization induction with the Boating & Diving Officer or delegate.

2.5.3 Diver’s Attendant / Surface Attendant

The responsibilities of a Dive Attendant are listed at Section 1.5.12 of this Manual. Whilst it is not essential for a Dive Attendant to be a qualified diver, they must meet the requirements listed below:

All Diver’s Attendants must be at least 18 years of age.

The duties and responsibilities of a Diver’s Attendant include:

a. having a complete working knowledge of the Dive Plan, and associated tasks;

b. having training and knowledge of any signals in use;

c. having training and knowledge of any dive tables in use;

d. having training and knowledge of all diving plant and equipment in use;

e. having training and knowledge of first aid and oxygen administration, except where a second person with such training and knowledge is present and remains at the surface;

f. promptly and accurately filling in a Dive Record Form as required;

g. assisting with the deployment and recovery of divers, samples and equipment as required;

h. establishing and maintaining a constant look-out over any divers in the water.

i. have training sufficient to effect an in water rescue of a diver or snorkeller

j. have training and knowledge to be able to recognise and manage a dive accident.

The Dive Attendant may also act as the Dive Coordinator/Boat Handler at the discretion of the BDO.
2.6 VISITING PERSONNEL

As well as the details listed at Section 2.4 regarding diver qualifications, the following shall apply to all visiting personnel wishing to participate in a University of Queensland diving operation.

a. a Dive Project Registration Form (Appendices 3, 8, 9 & 10) must be lodged with the University BDO or delegate and must be received in writing no later than ten working days prior to the intended date/s of any dive/s. This application must provide all relevant details of the intended diving operation and must include all information as required by this Manual;

b. the visitor must notify the BDO of any medical condition or injury that may have commenced/occurred to them since the date of their last medical, and which would increase their level of risk if they undertook a dive;

c. they must familiarise themselves with the University Diving Procedures Manual, undergo an induction fully describing all relevant safety protocols and issues, and sign a copy of the Diving Procedures Statement Of Understanding form (at Appendix 15) - to be forwarded to the BDO to confirm listing on the Diver Register;

d. if intending to use their own SCUBA diving equipment they must supply documentation to show that it is in current test and/or service, as per Section 6.15;

e. visiting overseas personnel may dive under the competency section 2.4.8.

f. if the visiting overseas personnel have no First Aid and Oxygen Provision qualifications, a person qualified in First Aid and Oxygen Provision must be present at the surface for all dives.

2.7 VOLUNTEERS

As well as the details listed at Section 2.1 & 2.4 regarding qualifications, the following shall apply to all volunteers wishing to participate in a University of Queensland diving operation.

a. The volunteer must comply with UQ PPL 5.30.14 Volunteers including completion of the UQ volunteer registration form;

b. an application to dive with the University must be received in writing no later than five working days prior to the intended date/s of any dive/s. This application must provide all relevant details of the intended diving operation and must include all information as required by this Manual;

c. the volunteer must notify the BDO of any medical condition or injury that may have commenced/occurred to them since the date of their last medical, and which would increase their level of risk if they undertook a dive;

d. they must familiarise themselves with the University Diving Procedures Manual, undergo an induction fully describing all relevant safety protocols and issues, and sign a copy of the Diving Procedures Statement Of Understanding form (at Appendix 14) - to be forwarded to the BDO to confirm listing on the Diver Register;

e. if intending to use their own SCUBA diving equipment they must supply evidence to show that it is in current test and/or service, as per these procedures.

2.8 PROOF OF DIVING EXPERIENCE, AND EXCEPTIONS

Divers without a logbook claiming to have the required experience for listing on the Diver Register may be permitted to dive at the discretion of the BDO. If permitted, the person must first submit a statutory declaration outlining their diving experience.

Staff and students with less than the required hours of diving experience but still meeting regulatory minimums may be allowed to dive at the discretion of the BDO, subject to the following rules:

a. At least one fully qualified and experienced diver (i.e. with at least 50 hours experience) must be a dedicated buddy to the inexperienced diver;
b. The diving activity undertaken must not be in the ‘high risk’ category (see SECTION 8 and Appendix 12);

c. No dive shall be deeper than 18 m.

2.9 ‘WORK UP’ DIVES

At the discretion of the BDO, Divers who have not dived for an extended period of time (>6 months), or those who wish to dive to increased depths, may be required to perform a series of ‘work up’ dives.

2.10 FITNESS TO DIVE

All personnel who have successfully passed an annual commercial diving medical examination shall generally be classed as fit to dive, however the physical ability of an individual to act in any role or perform a task can only be determined by that individual on the day of a dive.

It is the responsibility of each individual to notify the BDO of any medical condition or injury that may have commenced/occurred to them since the date of their last medical, and which would increase their level of risk if they undertook a dive. If an individual decides they are fit to dive, then their fitness may be further assessed by the Dive Coordinator on site, or by the BDO at any time, with either of those individuals able to veto any dive if they see fit.

The right of any individual to act as a member of a diving team must be vetoed by the Dive Coordinator on site if the person’s physiological or psychological state has been altered, or appears to have been altered, by illness, fatigue, injury, intoxication, or loss of coordination from the effects of prescription drugs or other substances.

All Researchers & their Volunteers whom are based in Australia Institutions MUST have an AS 2299 Occupational Dive Medical dated within the 12 months of the diving activity.

Visiting Researchers from other countries whom are conducted a field trip in Australia can either obtain an AS 2299 Occupational Dive Medical certificate in Australia (preferred option) or obtain a certificate of medical fitness to AS 2299.1 from another country provided the certificate is in English, states they are fit to perform occupational scuba diving activities, is dated within 12 months of the diving activity, and is accompanied by a letter stating the physician’s familiarity with diving and hyperbaric medicine. The preferred format for the medical is that of AS 2299.1 Appendix K.

For more information regarding Australian Occupation Dive Medicals please look at the following Web Sites:

QLD Workplace Health & Safety

For Doctors trained to perform AS 2299 Occupational Medicals: www.spums.org.au

2.11 UNIVERSITY DIVER REGISTER

All individuals intending to operate as divers through the University of Queensland must submit such information to the BDO, SDO HIRS or delegate for consideration as is required above, and apply for admission to the University Diver Register. All details provided are to be logged on the Register, which shall be kept updated by the BDO or delegate with regard to currency of qualifications, dive medical status and equipment test status.

The BDO or delegate should endeavour to remind all divers of upcoming expiry dates, giving at least 1 month notice of these, to allow time for renewal. Notwithstanding this, it must be noted that it remains the responsibility of individual Divers to keep track of these dates, to ensure they are current on the University Diver Register.

The following information should be maintained for each diver:

a. Name, date of birth, address and next of kin information;

b. details of diving qualifications, and due date for renewal of diving qualifications (if applicable);
c. details of last dive, location, deepest dive and total number of dives/hours underwater

d. details of employment status (i.e. staff, volunteer, external agency etc) and base of operations;

e. diver classification – allocated by BDO;

f. Date of most recent diving medical and due date for renewal of diving medical;

g. agency from which first aid qualifications were obtained, ID #, and due date for renewal;

h. agency from which oxygen provider qualifications were obtained, ID #, and due date for renewal;

i. details of any personal diving equipment used for diving operations, and due date for renewal of test certification for any such equipment;

j. details of any other certification held. e.g. coxswains ticket, recreational ship master certification, marine radio operator certification etc;

k. other relevant comments.

2.12 RECORD KEEPING RESPONSIBILITIES

2.12.1 BDO's Responsibilities

The University Boating & Diving Officer and Site Diving Officer, Heron Island Research Station shall maintain records of the following for at least seven years:

a. details of all divers involved in diving operations and records of the evidence used in assessing the diver’s competencies and fitness to dive;

b. each approved University diving operation;

c. all servicing of equipment used for University diving operations (including private equipment) and results thereof;

d. all equipment defects and how these were dealt with;

e. any incidents and accidents; and

f. any other relevant details.

2.12.2 Dive Coordinator’s Responsibilities

The Dive Coordinator shall ensure that the following records are lodged with the appropriate diving officer in a timely manner:

a. Dive project registration;

b. Risk assessment ;

c. Dive plan;

d. Emergency plan;

e. Dive records;

f. Post dive report; and

g. Equipment defect reports; and

h. Incident or accident reports.

2.12.3 Diver’s Responsibilities

All divers shall keep and maintain a permanent log of all diving undertaken for the University, which shall include:

a. the diver’s photograph;

b. next of kin information;

c. the diver’s name, address, date of birth and signature;
d. a record of medical examinations conducted for the purpose of occupational diving;

e. a record of University related diving activity undertaken; and

f. a record of any relevant accidents and incidents including decompression treatment/s.

The record of each dive shall be signed by the Dive Coordinator for that dive.

The diver’s logbook should be presented at each diving medical examination for signature by the diving doctor. It must be made available to the BDO on request.

The University Boating & Diving Officer should endeavour to inspect diver’s logbooks on at least an annual basis, and stamp these as such.
SECTION 3  DIVE PLANNING

The following list and flow chart comprises the process of Dive Site Registration, Risk Assessment, Diving Operations and Post Dive Operations required to complete research and/or educational diving

1. Diver Registration & Inductions
   Snorkel – (Appendices 4 & 5)
   SCUBA – (Appendix 8)
2. Dive Project Registration (Section 3.1 & Appendix 3)
3. Risk Assessment & Emergency Plan (Appendix 13 & Section 8 & 9)
4. Dive Plan (Section 3.2 & Appendix 9)
5. Dive Briefing (Section 3.3 & Appendix 7, 12)
6. Dive Record (Section 3.4 & Appendix 10)
7. Post Dive Report (Section 3.4 & Appendix 14)

DIVING PROCEDURE FLOW CHARTS

Diver Registration
(Required Yearly with BDO)

Dive Project Registration
Approval from BDO or delegate and submitted at least 5 working days before commencement of diving

Risk Assessment &
Emergency Plans Developed
Approval from BDO or delegate

Dive Plan
Approval from BDO or delegate in consultation with dive coordinator and submitted at least 3 days before commencement of diving

Diver Registration
(Required Yearly with BDO)

Dive Briefing
Briefing given to all personnel (including boat skipper, diver attendant and all divers), check of risk assessment to ensure no changes to risks has occurred – if changed – new controls put in place

DIVE
Dive Record recorded by Surface Attendant/s. Record returned to BDO or delegate with Post Dive Report Form within 3 days

Post Dive Procedures
Dive coordinator to confirm all divers are well 48 hours after dive and submit Post Dive Report Form to BDO or delegate within 3 days
3.1 **DIVE PROJECT REGISTRATION**

The University of Queensland Diving Project Registration Form (copy at Appendix 2) is a form that must be completed by the principal researcher on commencement of any project involving diving. The form reflects some of the safety and logistical issues that must be considered in the process of setting up any field project, and it should be used to record relevant information on the project, including information on the field sites intended to be used for the project, emergency contact procedures, and the researcher's training.

This information shall be considered by the University Boating & Diving Officer before approval of any project submitted with sufficient time (usually 5 working days), given to adopt any changes required by the BDO. Completed and approved Diving Operations Forms shall be filed by the BDO, and linked to every Dive Plan lodged for that project.

3.2 **DIVE PLAN**

For every diving operation the Dive Coordinator shall complete a Dive Plan Form (copy at Appendix 8), and submit this to the BDO for approval.

The Dive Plan shall:

a. be discussed with the University Boating & Diving Officer or delegate before approval;

b. be submitted with sufficient time given to adopt any changes required by the BDO (a minimum of 3 days before the first dive listed on the form);

c. be discussed in detail with all divers and support personnel before the dive, by the Dive Coordinator.

The Dive Coordinator must ensure the Dive Plan has been signed by the BDO before starting a diving operation.

3.3 **DIVE BRIEFING**

To help ensure a successful diving operation, it is important that each member of the dive team understands the objectives of the dive - in particular that they understand their roles and the roles of all other members of the dive team during the dive.

A dive briefing, normally conducted by the Dive Coordinator, allows for the exchange of the above information. It also allows minor modifications to be made to the dive plan in the event of adverse environmental conditions or problems with the physical condition of any member/s of the dive team. A dive briefing should include, but not be limited to:

a. the objectives of the operation and the assignments of each member of the dive team;

b. the intended working depth of the operation, and the topography of the site;

c. conditions to be expected in the operating area;

d. a review of communications;

e. any special equipment or considerations;

f. anticipated hazards;

g. lost contact procedures;

h. conditions controlling the termination of the dive (time, remaining air supply, etc);

i. a method of diver recall;

j. emergency response plan;

k. soliciting questions to ensure understanding of tasks and assignments;

l. the boat handler / ships master must be present at all dive briefings;

m. confirm that all personnel involved in the dive have signed the Risk Assessment.
A more comprehensive sample dive briefing is given at Appendix 6 and Appendix 11, and this should be consulted during formulation of any dive plan.

**3.4 DIVE RECORD**

For every University dive, the Dive Coordinator must ensure that an entry on the ‘Dive Record Form’ (at Appendix 9) is completed for each diver, listing all requested details of that dive.

This should be completed at the surface by the Dive Attendant.

Divers must sign the record as soon as is practicable after the dive.

The dive co-ordinator must sign the dive record as soon as practicable to verify that it has been completed.

On completion of the diving operation, these forms must be given to the BDO within 3 days, along with a completed ‘Post Dive Report Form’ (at Appendix 13).

Dive records shall be held for a minimum of one year.

**3.5 RECOMPRESSION CHAMBER SUPPORT OF DIVING**

The requirements of this section have been adapted from Australian Standard AS2299.2:2002 – Occupational Diving Operations: Scientific Diving, and this document should be consulted for further information.

**3.5.1 Availability of Recompression Chamber Support**

Dive planning for dives must take account of the availability of emergency recompression chamber support. This may involve a chamber on-site2, or remote, and the chamber may or may not be dedicated to support of the diving operation.

For on-site chambers and chambers dedicated for dive support, the specifications of the chamber, its staffing and operation, the treatment of decompression illness and the qualifications of its operators shall comply with the requirements in AS/NZS2299.1. Other chambers considered for dive support shall be multiplace, twin lock chambers within medical facilities which have operational capability and availability to provide emergency diver treatment.

**3.5.2 Operations Requiring an On-site Recompression Chamber**

An operational recompression chamber shall be located on-site for a diving operation at any time when:

(a) decompression diving is undertaken;
(b) free or buoyant ascent training is being conducted;
(c) any shallow diving operation exceeds the depth/time limits given in column A of Table 3.1 below;
(d) the nature of any work being conducted results in a significant risk of emergency ascent; and
(e) no-decompression diving is undertaken to depths of greater than 30 m for bottom times in excess of the limits in the bottom row of Table 3.1 below.

**3.5.3 Diving Without a Recompression Chamber On-site**

Diving undertaken without on-site recompression chamber support should be low risk diving (See Section 8.3.1) with controlled ascents and routine safety stops performed as per this Manual (see Section 4.1).

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2 For the purposes of this document, on site means at the dive control position, or if this is impossible, close enough to the dive control position to ensure a diver could be recompressed within the chamber within 5 minutes of reaching surface.
Where multiple dives are undertaken, the DCIEM tables shall be followed, and residual nitrogen times taken into account in calculating any subsequent allowable dive times.

When completing a dive plan, it is the responsibility of the Dive Coordinator (with advice from the BDO if required) to set out a procedure for transporting divers to the nearest acceptable and available recompression facility, and to communicate this to all other divers on the dive team. They must also realistically estimate the time necessary for the transportation of a diver to the recompression facility in the event of an accident (such time taken as the time from when the diver leaves the water to the commencement of his/her recompression in the chamber).

In the event that one or more significant identifiable risk factor/s are present before, during or after a dive (e.g. cold water, fatigue, hard work, post dive exercise, etc), the Dive Coordinator must ensure that allowance is made for these and that if at all possible details of this are communicated to all divers BEFORE the dive.

Such allowance shall be implemented by reducing the available time for the dive, with the amount of time reduction to be determined as follows:

**where the dive is to deeper than 12 m** - moving one or two time or depth levels, depending on the level of the risk factor/s, up the DCIEM tables; or

**where the dive is to 12 m or less** - moving one or two time or depth levels, depending on the level of the risk factor/s, across Table 3.1 (below).

As well, for all dives of greater than 9 metres in depth, or between 7 m and 9 m in depth where a dive is for longer than 180 minutes duration, divers must perform a safety stop at between 3 to 5 metres depth for at least 5 minutes except where the conduct of a safety stop increases the risk from other hazards.

### 3.5.4 Alterations to Bottom Times for ‘Remote’ Diving Operations

Where divers are working in remote areas, it is likely that access to a Hyperbaric Unit may be delayed in the event of a diving accident.

For this reason, where any diving operation is conducted in an area that is greater than 6 hours travelling time from the nearest recompression facility, great care must be taken during planning for the diving operation to allow for all risk factors that may increase a diver’s susceptibility to DCI.

During such diving operations a safety margin must be added to dives by reducing the maximum bottom time permitted by the dive tables.

The following rules must be adhered to at all times during remote diving operations:

a. If the permitted Effective Bottom Time (EBT) is exceeded during any dive, the diver concerned must not re-enter the water for at least 18 hrs.

b. After any dive, divers must avoid any activity likely to increase their risk of contracting DCI (e.g. exercise);

c. During dive planning, when determining the amount of time required to evacuate a patient from the dive site to a recompression chamber, the following points should be taken into account:

   (a) the time commences from when the diver is removed from the water or shows any signs of DCI, and ends when they are able to be placed inside the recompression chamber.;

   (b) the only form of transport that can reliably be counted on to be available for patient evacuation is the means by which the dive site was initially accessed (i.e. car/boat). The assumption must not be made that air or road ambulance will be available, contactable, and able to reach the site within a reasonable time period;

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3 For the purposes of the risk assessment process, ‘remote’ is deemed to be further than 30 minutes from medical assistance.
(c) as mentioned above, where any identifiable factors are present, or likely to be present, that may increase the risk of DCI during a dive, the Dive Coordinator must build an extra safety margin into any dive plan. This is particularly important if diving in areas greater than 12 hrs away from the nearest recompression facility.

Notwithstanding the above, the following table shall be used to derive maximum repetitive group limits for diving each day, depending on the level of recompression chamber support available.

The times given in Table 3.1 shall take precedence over the DCIEM tables in situations where Table 3.1 is to be used.

Table 3.1 - Repetitive Group Limits for Diving Depending on Level of Recompression Chamber Support (based on the DCIEM Air Decompression Tables)

<table>
<thead>
<tr>
<th>Depth (m)</th>
<th>Maximum bottom time (min) Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A (within 2 hours)</td>
</tr>
<tr>
<td></td>
<td>B (More than 2 hours away)</td>
</tr>
<tr>
<td>6</td>
<td>H (K)*</td>
</tr>
<tr>
<td></td>
<td>G(I)*</td>
</tr>
<tr>
<td>9</td>
<td>H (K)*</td>
</tr>
<tr>
<td></td>
<td>G (I)*</td>
</tr>
<tr>
<td>12</td>
<td>H (J)</td>
</tr>
<tr>
<td></td>
<td>E (H)</td>
</tr>
<tr>
<td>15 to 40</td>
<td>DCIEM no-deco limits</td>
</tr>
<tr>
<td></td>
<td>One Repetitive Group less</td>
</tr>
<tr>
<td></td>
<td>Than DCIEM no-deco limits</td>
</tr>
</tbody>
</table>

* The dive times listed in brackets/italics are potential allowable extensions of bottom times where low hazard, safe profile, single ascent single dive of constant depth are conducted. Use of these times must be confirmed with the BDO before diving.

3.6 TRAVELLING AND FLYING AFTER DIVING

Due to increased risk of decompression illness incurred through exposure to altitude after diving, restrictions on road and air travel apply where divers are subject to pressures of greater than one atmosphere whilst breathing compressed air. These rules and limitations apply to all divers and must be followed, except in the event of an extreme emergency where no other option is available. In any such case, these rules should only be breached on the advice of medical personnel trained in hyperbaric medicine, and with the consent of all diving personnel involved.

After incurring any form of decompression illness, a diver should not be exposed to greater than 300m effective altitude for seven days.

3.6.1 Flying After Diving

As it is impossible to guarantee that a diver will not be affected by decompression illness due to the effects of flying after diving, the following rule must be adhered to by all divers, except in cases of extreme emergency, where a person may require helicopter evacuation from a site. NB: In a pressurised aircraft, the altitude referred to is the ‘effective cabin altitude’. Commercial aircraft are usually pressurised to an effective cabin pressure of 2400m or less.

After any dive covered by this manual, using compressed gases, the minimum surface interval before the diver/s involved can travel by air shall be:

a. 12 hours after a No-D first dive. However, your RF must be 1.0 before you fly.

b. and at least 24 hours to elapse before flying after any dive other than a No-D first dive.

3.6.2 Road Travel After Diving

The restrictions on road travel after diving take the form of a ‘delay period’ before divers are able to ascend to heights of greater than a certain threshold. These restrictions have been developed as a result of a number of well documented incidences of DCI cases being precipitated by divers driving to altitude on their trip home after a dive.
It is the responsibility of the Dive Coordinator for any field trip to determine whether or not travel after the dive will exceed an altitude threshold, and to ensure the correct delay before travelling after diving is observed.

The table below, taken from Appendix H of AS2299.2:2002, lists the appropriate delay periods required after diving before travel above certain heights is permitted. These recommendations have been developed with advice from Hyperbaric Medicine Specialists, and should be applied wherever air or road travel after a dive will exceed any of the altitude thresholds listed.

Dive Coordinators should also consider travel arrangements during the dive planning process.

When calculating applicable delays after diving, the Dive Coordinator must also take into account the following:

- these recommendations are for divers who are in normal health following diving. If any signs or symptoms of illness or injury are present, advice should be sought regarding the need for emergency evacuation.
- exertion by their divers after any dive/s subject to this table; and
- effects on their divers of in-water exertion and water temperature during the dive/s.

Table 7.1 (AS 2299.2(2002)) - Recommended Delay Before Exposure To Altitude After Diving

<table>
<thead>
<tr>
<th>Altitude (m)</th>
<th>Minimum delay before travel to altitude Category of Dive (see Legend)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Category 1</td>
</tr>
<tr>
<td>0-150</td>
<td>Nil</td>
</tr>
<tr>
<td>150-600</td>
<td>Nil</td>
</tr>
<tr>
<td>600-2400</td>
<td>12</td>
</tr>
<tr>
<td>&gt;2400</td>
<td>24</td>
</tr>
</tbody>
</table>

LEGEND:

Category 1: A single dive to ≤50% of the DCIEM no-decompression limit, or two short dives within 18h with a combined bottom time of ≤50% of the no-decompression limit for the depth of the deeper dive. No decompression dives or repetitive dives to have been performed in the preceding few days.

Category 2: Dives exceeding category 1 but not included in Category 3, e.g. one or more dives to ≤50% of the no-decompression limits, or a single decompression dive in a day.

Category 3: Repetitive deep diving over multiple days; multiple decompression dives on one day; extreme exposures; omitted decompression, or other adverse events.

3.7 DIVING WITH OTHER GROUPS

Due to the nature of University research, situations often arise where University of Queensland divers need to work with divers from other groups/organizations. The following sections outline the requirements to be met by divers when operating under these circumstances.

3.7.1 Research Diving In Conjunction With Another Scientific Organization

Where divers operate with divers from another scientific organization there are two scenarios that may occur.

1. Where UQ personnel are working with another organizations’ vessel, research station and/or research facilities, then the UQ diver/s will normally be bound by that organization’s diving code provided that the host organizations diving code is equivalent to, or of a higher standard than that required by this manual. In this situation they must meet all certification requirements
of that organization, and gain approval to dive from the organization’s Diving Officer (as required by their diving procedures). The responsible UQ Boating & Diving Officer should be notified of such diving operations, but the divers involved need not complete UQ dive planning and dive record forms for these dives;

2. Where UQ personnel are working with divers from another organization based from a UQ vessel, or on any official UQ diving operation.

In this situation, divers from the other organization must meet all certification requirements of the University of Queensland, and gain approval to dive from the BDO or SDO HIRS prior to commencement of the operation.

3.8 COMMUNICATIONS

Where divers are required to use a communications system, or wish to do so, the BDO or Site Diving Officer should be consulted prior to any dive with that system, and the guidelines below should be adopted.

3.8.1 Lifelines

In situations where University of Queensland divers are required to operate with lifelines tethering them to the boat, attended by a surface Diver’s Attendant, those divers must be familiar with the standard communication signals used in this situation - as listed at Appendix 27.1.

3.8.2 Voice Communications

Where divers are intending to use voice communication systems, they must be conversant with the particular equipment to be used, prior to attempting any dive. It should be noted that familiarisation with equipment is especially important where full facemasks are being used.

In such a case, consideration should be given to performing a familiarisation dive or dives with the equipment to be used, in sheltered waters, prior to undertaking field operations.
SECTION 4  DECOMPRESSION TABLES AND DIVE COMPUTERS

The use of a conservative decompression table is essential for safe, ‘low’ risk diving.

It must be remembered that dive computers and dive tables are simply guides that attempt to take into account the physiological processes involved with the breathing of compressed gases at depths. They are most definitely not infallible, and do not take into account many factors that can affect an individual’s susceptibility to decompression sickness. These factors include variations in age, sex, weight, physical condition, recent illnesses/injuries, as well as many others.

During the formulation of the dive plan the Dive Coordinator must give consideration to any existing or potential risk factors that may render the dive less safe (also see Section 3.5.3 of these procedures).

4.1  DECOMPRESSION TABLES

The DCIEM (Canadian Defence and Civil Institute for Environmental Medicine) Short Standard Air Decompression Tables must be used for all University of Queensland compressed air diving operations, except shallow dives that are covered under Table 3.1 in Section 3.5.4 of this Manual. The DCIEM (Canadian Defence and Civil Institute for Environmental Medicine) EANx Tables must be used for all University of Queensland EANx diving operations, except shallow dives that are covered under Table 3.1 in Section 3.5.4 of this Manual.

Waterproof copies of these tables are available from the BDO, and a familiarisation session in their use must be conducted by the BDO or Delegate for all new divers.

If at any time divers have questions about any dive tables, they should consult the University Boating & Diving Officer or a Site Diving Officer for advice.

4.1.1  Safety Stops

For all dives of greater than 9 metres in depth, or between 7 m and 9 m in depth where a dive is for longer than 180 minutes duration divers shall perform a safety stop at between 3 to 5 metres depth for at least 5 minutes, except where the performance of a safety stop increases risk from other hazards.

The performance of safety stops by divers, even after short dives to shallow depths, has been proven to reduce the incidence of DCI in divers.

4.1.2  Ascent Rates

It is highly recommended that wherever possible all divers adopt an ascent rate of 15 metres per minute when surfacing after any dive to a depth of 30 m or less. Reduction in ascent rates to this speed has been shown to be beneficial in reducing the incidence of DCI in divers.

4.1.3  Alterations to Bottom Times for ‘Remote’ Diving Operations

Where divers are working in remote areas, it is likely that in the event of a diving accident, access to a Hyperbaric Unit may be delayed.

For this reason, where any diving operation is conducted in an area that is greater than 30 minutes travelling time from the nearest medical facility, great care must be taken during planning for the diving operation to allow for all risk factors that may increase a diver’s susceptibility to DCI. During such diving operations a safety margin must be added to dives by reducing the maximum bottom time permitted by the dive tables, and the amended bottom times given in Table 3.1 (Section 3.5.4) must be used as a basis for the dive plan.
4.2 DIVE COMPUTERS

Important Note: An approved dive table must be used for planning and control of all dives. A computer may only be used to keep track of a dive if the algorithm used by the computer is based on the DCIEM tables.

Divers using dive computers must be familiar with their use, including any peculiarities specific to the type being used.

Any diver wishing to use a dive computer other than one of those supplied by the University must notify the BDO, providing information on the type of computer, its permitted ascent rate/s, and any other relevant factors.

Rules for dive computer use:

a. Read the instruction manual carefully before using the computer, ensuring you understand it;

b. Where a diver is using a dive computer as well as dive tables, the advice of the most conservative of the two must always be followed. Although this is usually the dive tables (especially with DCIEM tables), many brands of dive computer take into account factors such as multiple ascents, multiple diving days and errors in planned dive profiles, and because of this, on some occasions, a dive computer may indicate a diver's bottom time has expired earlier than the dive tables indicate that the dive should be ended;

c. A diver must not begin using a dive computer if they have had an exposure to ambient pressures of greater than 1 ATA during the previous 24 hours (e.g. from diving, or time spent in a recompression chamber) - unless the computer was also exposed at the same time, to the same pressure (i.e. it was being worn at the time);

d. Where a computer has facility to do so, it should be adjusted to a more conservative setting than the base setting. If this facility is not offered, it may be possible to adjust the altitude setting to a higher one than the actual altitude of the dive - which will have the same effect;

e. Where possible, the deepest dive in a series should be done first, and each repetitive dive should be at a shallower depth than the last;

f. Computers must not be shared between divers. Each diver must have their own computer, or be following the dive plan developed for the dive using the DCIEM dive tables;

g. Where a particular brand of computer permits an ascent rate of > 9 metres per minute, the diver must restrict their ascent rate to approximately 9 m/min or slower, rather than following the rate indicated by the computer;

h. Do not ‘push the limits’ of any computer - they are not infallible. When planning your dive using the tables, allow for relevant risk factors that are known to increase the risk of DCI, such as cold water, fatigue etc;

i. Use ‘safe’ dive profiles. Avoid ‘saw-tooth’, ‘reverse’ and ‘square’ profile dives. If approved, multi-level dives must start at the deepest depth and become shallower during the dive;

j. For all dives of greater than 9 metres in depth, or between 7 m and 9 m in depth where a dive is for longer than 180 minutes duration divers must perform a safety stop at between 3 to 5 metres depth for at least 5 minutes.

k. If a computer fails during a dive after indicating the need for decompression (NB: dives requiring decompression are not permitted!), either of the following ‘omitted decompression procedures’ should be adopted, as long as no symptoms of Decompression Illness are being exhibited by the divers concerned. Any such incident must be reported to the BDO as soon as possible

(a) Within 7 minutes of surfacing, secure an adequate air supply and return to the decompression Stop listed on the DCIEM tables that is 3m deeper than the first omitted Stop. Decompress at this depth for the time of the first omitted Stop, then continue the decompression as per the Table A schedule on the DCIEM tables;
(b) Where a Recompression Chamber is available within 7 minutes of surfacing, the diver/s may be placed in the Chamber and recompressed on oxygen at a pressure equivalent to a sea level depth of 12 metres. The diver should remain on oxygen at this pressure for twice the total omitted decompression time. Chamber ascent time (on oxygen) is 2 minutes.

**NB. These procedures are for emergency use only.**

After conducting either of these procedures, the diver’s condition must be monitored for at least 24 hours after the dive for symptoms of DCI, and the diver must not enter the water again until at least 24 hours after the dive. As well, the diver must not expose him/herself to anything likely to increase the risk of DCI (e.g. exercise, altitude, alcohol etc), or which could mask the symptoms of DCI (e.g. alcohol, drugs). If symptoms of DCI occur, the diver should be transported to the nearest recompression facility as soon as possible.

The Dive Coordinator for any dive must ensure dive tables are used even more conservatively than normal if a diver is subject to any factors likely to increase DCI risk before, during or immediately after a dive safe (also see Section 3.5.3 of these procedures).
SECTION 5   DIVE TEAMS

5.1 ‘NORMAL’ DIVE TEAMS

A normal dive team comprises a group of people (minimum number of any dive team is THREE), who as a unit can perform the duties of a Dive Coordinator, Diver/s (Dive Leader and buddy/s), Diver’s Attendant/s and Boat Handler (where required). A ‘normal’ dive team may be made up of:

a. Two qualified divers and one competent Dive Attendant; or
b. Three qualified divers and one competent Dive Attendant; or

c. More than three divers, grouped into pairs (preferably) or trios, and one or more competent Dive Attendants, depending on the dive operation.

d. A Dive Coordinator must be at the dive site for of ALL Dive operations. The DC may be act as a diver or dive attendant. If the dive coordinator remains on the surface he/ she must appoint a dive leader.

NB: Where more than one Dive Team is in the water and there is only one Dive Attendant, dive teams must work in close proximity to each other (within 20m), or tow a surface marker buoy allowing their location to be easily determined at all times by the Dive Attendant.

5.2 EXCEPTIONS TO NORMAL DIVE TEAMS

5.2.1 Diving without a Dive Attendant (at the surface)

Only with express written authorisation from the University of Queensland Boating and Diving Officer should a diver go underwater without an attendant present. Authorisation will only be given under exceptional circumstances and after rigorous and cautious risk assessment.

5.2.2 Solo Diving

Solo diving (i.e. diving with no buddy diver or a standby diver is not present and ready to enter the water) is NOT permitted except in exceptional circumstances or in the case of extreme emergency.

5.2.3 Diving Involving Undergraduate Classes

Where compressed air diving is conducted as part of an undergraduate course, there must be a person in charge of the group who is a registered Dive Coordinator, and an insured recreational Divemaster (see Glossary). This person shall ensure that:

a. all records of divers times and repetitive groups and surface intervals are kept;
b. sufficient lookouts are posted;
c. consideration is given to both in and out of water supervision;
d. novice divers are paired with an experienced diver where possible;
e. there is a means to go to the assistance of a person or persons in trouble;
f. first aid and O2 equipment are available, as well as personnel who are trained in the use of this equipment;
g. an adequate means of summoning assistance is at hand in case of emergency;
h. supervision ratio is not to exceed 1 divemaster to 8 divers.

The use of a formal dive protocol is encouraged, to assist undergraduates in understanding some ground rules for the field trip (see Appendix 16 for a sample dive protocol). Also, special consideration should be given to enforcing a maximum depth and area limitation, and to providing a means for recall of divers. The use of a surface marker buoy for each buddy pairing may facilitate these requirements.
5.3 LOST BUDDY PROCEDURES

Where divers are ‘buddied’ together on a dive, and lose contact with each other during that dive, the lost buddy procedure to be followed should be the standard procedure taught on most ‘open-water’ diving courses in Australia. This involves trying to locate each other through the following set routine:

- Immediately on noticing contact has been lost with their buddy, each diver should circle 360°, looking for the buddy, or their exhaust bubble trail (often easier to see if looking up slightly);

- If visual contact is not made after following the above procedure, each diver should ascend 3 - 5 metres, and repeat the procedure;

- If contact is still not re-established at this stage, each diver should surface (at a rate of no more than 15 m/minute). Once having regained contact at the surface, the dive may be recommenced or terminated, at the discretion of the Dive Coordinator or Dive Leader. If a diver is still missing more than 5 minutes after his/her buddy surfaces an immediate search should be instigated as long as it is safe to do so, and continued until either the buddy is located or the searching diver deems that further assistance is required.

**NB:** Lost buddy procedures must be discussed in every pre-dive briefing.
SECTION 6  DIVING AND BOATING EQUIPMENT

University of Queensland diving/boating equipment must not be used for any dives that are not approved University activities, except in cases where the permission of the BDO has been obtained.

6.1  COMPULSORY EQUIPMENT FOR ALL DIVERS (SNORKEL, SCUBA, SSBA and REBREATHER)

The following equipment must be used or carried by each diver on every dive unless special dispensation has been granted by their BDO or delegate:

a. exposure protection (wetsuit or drysuit) appropriate to the prevailing environmental conditions, including a hood (consideration should be given to carrying windproof clothing to wear over a wetsuit after diving);

b. mask, fins, snorkel (attachable or attached to mask) and a diver’s knife. The knife shall be worn in such a way that it will not foul any discarded equipment (e.g. released weights);

c. a weight belt, or a buoyancy control device incorporating an integrated weight system with quick-release and weights (if required for buoyancy control);

d. where divers are operating in free-swimming Snorkel, SCUBA or Rebreather mode, there must be a means to recall the divers to the surface;

e. the Dive Coordinator must ensure that at or close to their dive site there is adequate means of immediate communication in the event of an accident or emergency.

6.2  COMPULSORY EQUIPMENT FOR SCUBA

As well as the equipment listed at Section 6.1, the following equipment must be used or carried by each diver on every SCUBA dive unless special dispensation has been granted by their BDO or delegate:

a. a SCUBA cylinder and valve designed in accordance with AS 2030;

b. a SCUBA regulator and alternative air source or air supply, such as a pony bottle or octopus regulator;

c. exposure protection (wetsuit or drysuit) appropriate to the prevailing environmental conditions;

d. a buoyancy control device (BCD) with oral and SCUBA-feed inflators. A BCD must be used with both wetsuits and drysuits;

e. an air cylinder pressure gauge, depth gauge and timing device, eg. watch or dive computer;

f. mask, fins, snorkel (attachable or attached to mask) and a diver’s knife;

g. a weight belt, or a buoyancy control device incorporating an integrated weight belt with quick-release system and weights (if required for buoyancy control).

h. Emergency signaling equipment including-

   a. a high visibility signaling device, for example, a safety sausage

   b. an audible signaling device, for example, a whistle

   c. a lighted signaling device, for example, a glow stick, if diving is to take place close to dusk or after dark
6.3 COMPULSORY EQUIPMENT FOR SSBA

As well as the equipment listed at Section 6.1, the following equipment must be used or carried by each diver on every SSBA dive unless special dispensation has been granted by the BDO or delegate:

(a) a surface supply air hose for each diver, fitted with a non-return valve located as close as possible to the diver, e.g. at breathing medium inlet to mask or mouthpiece, or as an integral part of components specified in Item (b);

(b) either –
   I. a full face mask, band mask or incompressible helmet; or
   II. a half face mask and separate demand valve;

(c) inlet and exhaust valves;

(d) either one of or a combination of -
   I. demand gas supply device with or without breathing tubes; or
   II. a free flow gas device;

(e) an emergency gas supply, or bail out cylinder, of sufficient air capacity to allow a diver to free him/herself from any immediate danger and perform a safe ascent at a rate of no greater than nine metres per minute. This system must be set up through a distribution block and valve, and be able to be brought into operation by a diver through the use of only one hand;

(f) a approved harness system, to secure the gas supply hose and the equipment to the diver;

(g) a safety line, except where the diver’s hose is being used for this purpose, in which case the hose must be secured to the harness by a hose grip (Chinese finger) and lockable clip.

(h) Emergency signalling equipment including-
   I. a high visibility signalling device, for example, a safety sausage
   II. an audible signalling device, for example, a whistle
   III. a lighted signalling device, for example, a glow stick, if diving is to take place close to dusk or after dark

6.4 COMPULSORY EQUIPMENT FOR EANx

As well as the equipment listed at Section 6.2, the following equipment must be used or carried by each diver on every SCUBA dive unless special dispensation has been granted by their BDO or delegate:

a. a SCUBA cylinder and valve designed in accordance with AS 2030 and has been ‘Oxygen Cleaned’ by a competent person;

b. a device capable of measuring and confirming the oxygen content of the breathing gas prior to the execution of the dive.

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NB. Where a drysuit, full face mask and voice communications are in use together, the bail out cylinder size for SSBA operations must be at least 5 litres water capacity, and the cylinder must contain a minimum of 120 bar of air pressure at the start of the dive. Under exceptional circumstances the use of lower volume bail out systems may be approved by the BDO.
6.5 **COMPULSORY EQUIPMENT FOR EANx SEMI CLOSED REBREATHERS**

As well as the equipment listed at Section 6.1, the following equipment must be used or carried by each diver on every EANx Semi Closed Rebreather dive unless special dispensation has been granted by their BDO or delegate:

a. EANx rebreather unit
b. buoyancy control device fitted with a power inflator device
c. 1 submersible depth gauge and 1 submersible timing device, or 1 dive computer
d. submersible cylinder pressure gauges for each cylinder used
e. a redundant breathing system
f. quick-release weight system
g. a knife or line cutter if there is risk of entanglement
h. a PPO$_2$ monitor of the inspired gas which can be read by the diver.

6.6 **OTHER EQUIPMENT WHICH MAY BE REQUIRED**

Additional equipment which may be deemed necessary for safe conduct of a dive includes:

a. emergency air supplies;
b. a buoyancy compensating device;
c. further exposure protection, such as gloves;
d. a compressed air powered signalling device;
e. submersible dive tables;
f. a lifeline or floatline;
g. night diving equipment as appropriate, including primary and backup torch, and cyalume stick/s;
h. A float with a dive flag attached towed by each dive team in situations where tracking the divers maybe difficult due to environmental factors, number of dive teams or distance from the dive attendant.

6.7 **ADDITIONAL EQUIPMENT WHICH MAY BE USED BY DIVERS**

The following equipment may be used by divers provided diver safety is not compromised:

a. underwater photographic equipment;
b. underwater slates, measuring tapes, lightweight grids, frames, collection bags and traps;
c. sledge hammer or hammer, to pound in stakes and pickets;
d. small hand tools such as screwdrivers, pliers, chisels, etc;
e. small lift bags (‘ab. chutes’) - of no greater than 20 litres volume;
f. small air lifts - of no greater than 250 litres per minute air flow rate;
g. spearguns/slings as permitted by the appropriate Fisheries regulations, or by special permit (and where covered by the appropriate risk assessment);
h. barrier nets, hand nets;

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$^5$ Air for filling any lift bag must be delivered from a source other than the diver's primary regulator (e.g. an octopus regulator), except in the case of bags of less than 25L capacity, where a diver may use their exhaled air from the exhaust of their regulator.
i. PAMS;

j. Spectrophotometer's;

k. Corers;

l. Slurp guns;

m. chemicals (fish anaesthetics);

n. Wet PC's

Other than the tools listed above, no diver shall use any tool underwater unless they have first received training in appropriate techniques and skills, are familiar with the operation that item of equipment, and have received permission from the BDO.

6.8 AIR COMPRESSOR SYSTEMS

Any power driven compressor systems used to provide compressed breathing air for University SCUBA or SSBA diving operations must comply with the guidelines set out in AS2299.1-2007 for such systems.

Where a power driven compressor is driven by an internal combustion engine, particular care must be taken to prevent the compressor from sucking in exhaust gases from the engine, either by extending the exhaust of the engine, the inlet of the compressor, or both. If this is done, care must be taken to ensure that any such extensions meet the compressor manufacturer's recommendations/specifications.

6.9 ‘LOAN EQUIPMENT’

Where University equipment is issued on loan to a diver, a form detailing the condition of the equipment must be signed by both parties (BDO and diver) at handover, and on return of the equipment. After issue, the diver shall be fully responsible for the care of any such equipment, and must ensure proper cleaning and maintenance is carried out regularly, as described in this Manual. Problems with any item must be reported to the BDO as soon as possible.

In the event of any equipment being abused, damaged, or stolen, due to inadequate care, the diver concerned will be required to replace/repair the item/s involved immediately, at their own expense.

6.10 SCUBA CYLINDERS

The University's SCUBA cylinders must not be used for dives that are not University activities, except with the permission of the BDO or delegate.

6.10.1 Testing of SCUBA Cylinders

All University SCUBA cylinders must be tested and serviced at least annually, and any cylinder used on a University dive must be in test at the time of the dive. If any cylinder is found to be totally drained of air at the time of filling, it must be inspected and tested prior to being used again.

6.10.2 Filling of SCUBA Cylinders

University of Queensland SCUBA cylinders may only be filled at approved filling stations (a list of which shall be kept by the BDO), or with a portable air compressor unit approved for such use by the BDO or delegate. After filling, cylinders should have their valves taped or capped to prevent contamination and allow easy identification of full cylinders.

The amount of air pressure left in returned cylinders must be checked prior to filling, and cylinders must have at least 30 ATA of pressure remaining. If, at the time of filling, any cylinder is found to be totally drained of air, it must be inspected and tested prior to being used again, the cost of which will be charged to the last user of the cylinder.

Cylinders with any defects (e.g. air leaks from valves) must be tagged OUT OF SERVICE and put aside for defects maintenance, with the details recorded in the University's diving equipment
defects log (which shall be kept by the BDO). SCUBA cylinders should be stored partially filled, unless about to be used.

Users who have not previously used the University’s cylinder filling compressors shall not fill cylinders until they have been given detailed operational and safety instructions by the BDO or their delegate, and received official permission to use that equipment.

SCUBA cylinders which do not belong to the University may be filled with the University’s compressors at the discretion of the BDO or delegate, provided the cylinder has passed a hydrostatic inspection during the previous year, and the diver who will be using it is a certified SCUBA diver.

6.10.3 Blending, testing, storage and use of EANx

If EANx is blended, tested, stored or used -

a. EANx gas mixing and EANx cylinder filling is to be carried out by a competent person

b. all equipment associated with the filling or use of EANx is used in accordance with manufacturers' recommendations

c. all scuba cylinders to be used for the storage of EANx are clearly marked "NITROX"

d. prior to using an EANx cylinder, the O2 content in the cylinder is tested by the diver or dive coordinator

e. after testing, a tag/decal is completed by the diver or dive coordinator and is attached to the cylinder showing –

   (a) oxygen percentage

   (b) maximum operating depth of the gas mixture and the PO2 at which the MOD was determined

   (c) cylinder serial number, in case the tag is separated from the cylinder.

6.11 USE OF UNIVERSITY EQUIPMENT BY NON-UQ PERSONNEL

UQ equipment may only be used by personnel from outside the University under the following conditions:

6.11.1 Diving Equipment

In cases where UQ diving equipment is loaned/hired to any individual, group or organization from outside the University, or any individual not listed on the Diver Register, the issuing Diving Officer must ensure that any user is fully qualified and trained in the use of the equipment. Both prior to issue, and on return of the equipment, a form detailing the condition of the equipment must be signed by both parties (Boating & Diving Officer or SDO and equipment user). After issue, the user shall be fully responsible for the care of any such equipment, and must ensure proper cleaning and maintenance is carried out regularly. Problems with any item must be reported to the issuing Boating & Diving Officer or SDO HIRS as soon as possible.

In the event of equipment being abused, damaged, or stolen, due to inadequate care, the individual, group or organization concerned will be required to replace or repair the item/s involved immediately, at their own expense.

6.11.2 University Research Vessels

Organizations/groups who charter University vessels may dive following their own diving procedures, provided those procedures meet all relevant government standards for the type of diving operation and that no University of Queensland personnel are officially associated with the diving operation.

Other than in the above situation, or in cases of emergency, no persons other than those affiliated with the University of Queensland in some way are permitted to use or be transported by vessels.
A specific contract of hire and agree to the conditions of hire of a UQ vessel must be completed before departure (See Appendix 30 for Conditions of Hire).

6.12 USE OF PERSONAL DIVING EQUIPMENT BY DIVERS / PERSONNEL

Personal diving equipment may be used by divers/personnel from the University where the following conditions are met:

a. the equipment must be approved for use by the BDO;

b. the equipment must be maintained/kept in service at the owner’s expense, as per Section 6.15 below, unless otherwise agreed;

6.13 PRE DIVE EQUIPMENT CHECK

For all dives a full pre-dive check shall be performed on the equipment of any diver/s (including stand-by diver/s). This should be done by either the Dive Attendant, or by the diver’s buddy.

A suitable pre-dive equipment checklist can be found at Appendix 10. Note that this is intended as a guide only, and should be modified to suit each individual diving operation as appropriate.

6.14 MEDICAL EQUIPMENT

6.14.1 First Aid Kit

For every diving operation, there must be available on site a first aid kit adequate for any injuries that may be reasonably foreseen. A sample list of contents for a first aid kit can be found at Appendix 24, describing the minimum contents of an appropriate diving first aid kit, although this list should be added to as needed, for long trips, or in other special circumstances.

6.14.2 Oxygen Resuscitation Equipment

For every diving operation involving compressed gas breathing apparatus, there must be available, on site, oxygen resuscitation equipment suitable for the treatment of an unconscious, non-breathing patient, and a supply of medical oxygen sufficient to transport at least two patients to the nearest treatment facility.

Such equipment must be carried for snorkel diving operations as well. All such oxygen resuscitation equipment shall be kept clean and dry in a waterproof case, tested daily (if diving being carried out), kept assembled and ready for use when diving operations are carried out and maintained as per the schedule set out for diving equipment at Section 6.15 below.

6.15 EQUIPMENT MAINTENANCE

All diving and safety equipment used on University diving operations (including personal equipment) must be maintained and serviced at least to the manufacturer’s specifications, or more often if in regular use. As a minimum, the following service schedules must be observed for the equipment listed below:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Service Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCUBA cylinder</td>
<td>annual service/test required at qualified test station</td>
</tr>
<tr>
<td>Air storage cylinder</td>
<td>service/test required every 5 years at qualified test station</td>
</tr>
<tr>
<td>Regulator/Contents gauge</td>
<td>annual service required by a qualified technician</td>
</tr>
<tr>
<td>Depth gauge (mechanical)</td>
<td>must be checked for accuracy every twelve months</td>
</tr>
<tr>
<td>Depth gauge (electronic)</td>
<td>must be checked for accuracy every twelve months</td>
</tr>
<tr>
<td>Dive computer</td>
<td>depth sensor must be checked for accuracy every twelve months</td>
</tr>
<tr>
<td>BCD inflator unit/valves</td>
<td>annual check required</td>
</tr>
<tr>
<td>Oxygen Percentage gauge</td>
<td>must be checked for accuracy every twelve months</td>
</tr>
</tbody>
</table>
Rebreathers | As per manufacturer’s specifications
--- | ---
Air compressor systems | air purity - every 3 months; mechanical systems - as per manufacturers instructions
Air delivery hoses | annually - to test pressure

All equipment in use shall be cleaned and/or flushed with fresh water at the end of every working day, and any faults or defects noted. Defective equipment must be tagged OUT OF SERVICE to prevent accidental use, and all defects must be reported to the Dive Coordinator or a Diving Officer. Equipment that is known to be faulty in any way must not be used for any diving operation.

A supply of OUT OF SERVICE TAGS must be kept in a location accessible to all divers, e.g. DAN O2 kit.

### 6.16 EQUIPMENT HYGIENE

To help prevent possible transmission of infectious diseases between divers, sharing of face masks, snorkels and regulators between divers is discouraged where an appropriate disinfection schedule has not been completed. In the event divers are issued with equipment, they are responsible for the equipment’s hygiene whilst it is in their care.

Every effort must be made to ensure that oil, petrol lubricants, chemicals or preserving solutions (such as formalin) do not come into contact with diving equipment (silicone lubricants also in the case of oxygen cleaned equipment), as they will destroy the equipment or otherwise render it unusable. **Such products must not be stored or transported in close proximity to any diving equipment at any time.**

In event of equipment contamination, the affected item/s must not be used, and the following steps must be taken:

a. the equipment should be rinsed thoroughly with water to remove as much of the contaminant as possible;

b. the equipment must be clearly tagged OUT OF SERVICE, indicating that it must not be used, and detailing the type of contaminant with which it has been in contact;

c. the equipment must be forwarded to the BDO for cleaning, with a report detailing the circumstances under which the contamination occurred.

Where an item of equipment is rendered unusable by damage or contamination caused by negligence or carelessness, the diver to whom the equipment was issued will be responsible for its replacement.

### 6.17 DRYSUITS

Given the warm water temperatures and extremely good weather conditions experienced in Queensland, the use of drysuits is recommended for longer dives, or for dives to depths of greater than 20 m. Appropriate thermal protection should be worn under the suit, though this will vary depending on the type/s of material used in the construction of the drysuit.

Divers intending to wear a drysuit, who have no documented previous experience in the use of drysuits, must either obtain a formal ‘drysuit diving’ qualification from an accredited training agency, or must undergo a drysuit familiarisation briefing and dive with the BDO or delegate prior to formally commencing diving operations using a drysuit.

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6 It should be noted that where a dive is likely to require a large amount of physical exertion, a drysuit may not be the best choice, due to the high body temperatures that are likely to be generated inside the suit causing discomfort and sweating. This can potentially dehydrate a diver through fluid loss, a predisposing factor for DCI, and should be avoided.
6.18  DIVE FLAGS

The international dive flag (code alpha - white with blue swallow tail) must be flown from any boat used as a platform for a diving operation. As well, a dive flag must be used in the following situations:

a. when diving in water of less than 3 m depth, a large dive flag must be positioned immediately above the dive site, either in a boat, or through use of a float supported flag - particularly in areas where there is a high level of danger from boat traffic (such as near boat ramps);

b. when diving from shore a large dive flag must be placed on the shore to indicate the position of the dive site, and one diver from each buddy group involved on the dive should tow a smaller dive flag on a surface float to indicate the position of that buddy group at all times;

c. where a diving operation involves two or more buddy groups, and those groups are not intending to dive together, one diver from each buddy group involved on the dive must tow a smaller dive flag on a surface float to display the position of that buddy group to the Dive Attendant at all times.
SECTION 7 SNORKEL DIVING

As a general guide, snorkel diving by personnel should only be used as an observation and/or a light recovery or collection technique. No difficult or strenuous work of any kind should be attempted using snorkel diving, without implementation of appropriate safety precautions and the written permission of the BDO.

An individual wishing to participate in snorkelling activities through the University must be listed on the Snorkel Diver Register (for registration see Appendix 4), having met all requirements of this procedures manual, and must satisfy the BDO of their fitness to take part in such activities by possessing a current dive medical and/or by satisfactorily completing the fitness test at Appendix 2.

Although no 'formal' qualifications are required of snorkel divers they should have skills consistent with those out lined in Section 2.4.1, they are required to complete a detailed Dive Plan for any trip - including a Risk Assessment for any tasks to be performed.

7.1 QUALIFICATIONS REQUIRED BY SNORKEL DIVERS

7.1.1 Staff
Qualifications required for snorkelling activities by University Staff are listed in Sections 2.4.3 and 2.4.4. As well, at least one member of University staff involved in supervising such activities must hold current First Aid, CPR and O2 delivery certification.

7.1.2 Graduate Students, Visiting Scientists and Volunteers
Qualifications required for snorkelling activities by these groups are listed in Section 2.4.1. Note: Volunteers cannot act as Snorkel Dive Guides, or Snorkel Dive Coordinators for any diving project – including snorkelling.

7.1.3 Undergraduate Students & High School Students
Qualifications required for snorkelling activities by undergraduate students and high school students are listed in Section 2.4.1. Note: undergraduate students or high school students cannot act as Snorkel Dive Guides, or Snorkel Dive Coordinators for any diving project – including snorkelling.

It is recommended that high school & undergraduate courses include training in snorkelling techniques and that all snorkellers skill levels are evaluated and are up to a level suitable for the planned task.

A Snorkel Dive Coordinator must supervise any snorkelling activity.

7.2 OTHER SNORKEL DIVING CONSIDERATIONS

Other than the requirements listed in Section 2.4.1, 2.4.3, & 2.4.4, no special qualifications are required of snorkel divers except that they be reasonable swimmers and observe common sense rules regarding boating and swimming safety. Inexperienced snorkellers must undertake a snorkel diving familiarisation course with the BDO or delegate, and should initially practice in either a swimming pool, or other sheltered, shallow waters, until they attain enough confidence to swim in deeper water.

As mentioned, the BDO (or delegate) has the right to assess any snorkel diver new to the Diver Register, and a formal assessment test would comprise the swimming and finning sections of the "New Diver Evaluation" (copy at Appendix 1), as well as a method of assessing any ‘snorkelling specific’ skills, as determined by the BDO or delegate.

7.3 SIZE OF SNORKEL TEAMS

The minimum size of a snorkel team performing low risk tasks in low risk conditions is two, which could comprise either a snorkeller and a Snorkel Dive Coordinator, or two buddy snorkellers (in
In this case, both divers must remain in visual contact with each other at all times during the dive). In areas where there are higher risks, the snorkel team shall consist of either one snorkeller and a Snorkel Dive Coordinator, or two buddy snorkellers and a surface Coordinator, depending on the experience of the snorkel team and the task being undertaken (as assessed by the BDO or delegate).

The Snorkel Dive Coordinator must be aware of and make allowance for the fact that the level of fitness required for safe breath hold diving is higher than that for SCUBA or SSBA diving.

7.4 SUPERVISION OF LARGE GROUPS

Where snorkelling is conducted by large groups, there must be at least one Snorkel Dive Coordinator on watch at the surface for every twenty snorkellers in low risk conditions.

The Snorkel Dive Coordinator/s must perform a regular head count at least every five minutes, and must be capable of initiating assistance for any person in difficulties. If the head count is incorrect, a recount must be done. If the count is still unsuccessful all snorkellers should be recalled so it can be established that every one is accounted for. If everyone is still not accounted for, lost diver procedures must be started.

Coordinator/s must be equipped with a recall device, and the group must be informed that if the recall device is operated, all snorkellers must return to the beach/boat. All snorkellers must be paired up (experienced with novice where possible) and told to remain in contact with one another during the dive.

If there are over 10 snorkellers or the conditions are not considered to be low risk additional staff should be used either on watch at the surface or in the water as an in water Snorkel Guide.

A Snorkel Guide can supervise a maximum of 10 snorkellers in low risk conditions.

When Shore based snorkelling with more than 8 Snorkellers or in conditions other than low risk an on-site rescue boat or support platform should be considered

First aid and oxygen equipment and trained operators, must be on site while any such diving operation is in progress.

7.5 EDUCATIONAL AND SPECIAL INTEREST GROUPS

Where educational or special interest groups from outside the University are operating in University workplaces they may forgo the requirement of snorkel diver registration, by evaluating the competence of their snorkellers themselves, and supplying a complete listing of all persons who are to be involved in any proposed diving operation. A dive plan must be provided to the BDO, and all other snorkelling guidelines must be followed (Appendix 4, Appendix 5, and Appendix 6).

7.6 BRIEFCING FOR SNORKEL DIVING

Before the commencement of any snorkel diving operation, a briefing should be given by the Snorkel Dive Coordinator, to ensure that all those involved with the dive are familiar with important information such as dive objectives, area of operation, environmental conditions, problems that may be encountered, etc. The sample Snorkel Dive Coordinator's pre-dive briefing supplied at Appendix 6 may be adapted for this purpose, but it must include details of any agreed recall signal (e.g. whistle).

7.7 OTHER SAFETY CONSIDERATIONS

A dive flag must be displayed adjacent to any snorkelling site at all times. It is highly recommended that all snorkel divers wear a safety line with surface float/diving flag, to clearly display their location to the Snorkel Dive Coordinator, and to aid in the diver’s recovery from the water in the event of an accident. The wearing of a safety line is highly recommended where the snorkeller is the only diver at the site.

The safety line is highly recommended and must be at least 5 m greater in length than the maximum depth of the water around the dive site, and the float should be large enough and of
such a colour to be easily visible. If possible, a small dive flag should be attached to the surface float (NB. This does not remove the need for a large dive flag to be displayed at the site).

All snorkellers are to be advised of the Medical Conditions that may be aggravated by snorkelling activities by the Snorkel Dive Coordinator.

Snorkelling Vests should be used by inexperienced snorkellers.

The snorkel dive coordinator has appointed Snorkel Guides where necessary and their responsibilities & duties are fully explained.

All snorkellers have a Buddy Assigned (Inexperienced snorkellers are to be buddied with experienced snorkellers).

A Recall system has been established, such as an Air Horn or Whistle.

Head Counts are conducted: prior to, during the activity (5 minute intervals) and a final head count is completed after the activity is finished.

Given the very real dangers of shallow water blackout, divers participating in breath hold diving activities should take great care to not exceed their personal limits. No diver should exceed 15 m depth at any time.

No snorkel diving other than surface observation (where the diver remains at the surface at all times) is to be undertaken by any diver who has a repetitive factor (RF) of greater than 1.1 from previous compressed air diving operations.

During snorkel diving operations, an appropriate first aid kit must be readily available, with at least one person who is adequately trained in first aid. As well, oxygen resuscitation equipment must be readily available, along with a person certified in the use of such equipment and an adequate supply of medical oxygen.

Snorkelling is prohibited in areas of high boating traffic, e.g. around boat ramps or in shipping channels.

If Snorkelling in other than low risk conditions or at Night a maximum ratio of 6 snorkellers to a snorkel guide should be used.

**HIRS and LIRS ONLY**

- If snorkelling on or past the reef crest a Support Boat MUST be used.

- Snorkelling in the Harbour or Channel requires prior approval of the SDO.

- For reef flat snorkelling during Office hours the Office O₂ & first aid kit equipment may be used instead of taking the equipment to the entry/exit point provided the Snorkel Dive Coordinator has a VHF radio.

### 7.8 EXPOSURE PROTECTION

As with SCUBA/SSBA/Rebreather divers, snorkel divers must wear suitable protection from environmental conditions such as cold, sun, marine animals, abrasions etc. The use of drysuits for snorkel diving is not recommended (other than for surface observations, where no actual diving underwater takes place).
SECTION 8  RISK ASSESSMENT

A Risk Assessment as per the approved University of Queensland risk assessment process (see UQ PPL 2.10.08 Risk Assessment and Management and UQ Diving Procedures Appendix 12) must be carried out for all diving operations before they may proceed. Risk assessments may be completing using the online risk assessment database or other form approved by the BDO.

It is the initial responsibility of the Dive Coordinator for any particular diving operation, to ensure as far as is practicable that all hazards are identified for that operation through the Risk Assessment process. Following this assessment, supervisors in consultation with the BDO must ensure that suitable measures to control any risks have been determined. In addition, he/she must be sure that any Dive Coordinator responsible for implementing the control measures is capable of doing so.

Once on site, day to day risk assessment is the full responsibility of the Dive Coordinator for each operation.

Particular considerations for Risk Assessment in Queensland:

The conditions under which diving operations would take place are normally ‘low risk’ as defined in this manual, since currents are generally weak, with visibility usually a minimum of 5 m. It should be noted however that seawater temperatures in Queensland seasonally range between 18 °C and 30 °C, and can get as low as 15 °C in winter in estuarine situations where freshwater is present from river outflows. Thus, special care is required to avoid hypothermia, particularly when diving in winter, or in lakes.

Diving depths are usually shallow - most being shallower than 12m, however diving may take place in freshwater lakes (at altitude), which elevates the level of risk. This will only be permitted after approval by the BDO, but such dives can be accomplished safely with the use of altitude tables.

Dives involving a greater level of risk than those detailed above are occasionally undertaken, and these include, but are not restricted to, night diving, dives deeper than 20m, diving in strong wind and current conditions, dives in remote locations and dives in marine caves. (see Appendix 13 for a table listing the level of risk associated with various types of diving operations).

Special consideration must be given by the BDO, supervisors and the Dive Coordinator for dives involving any high risk factors (see below, and see Appendix A13 for lists of potential risk factors). It is the responsibility of the BDO to ensure the Dive Coordinator has considered any hazards involved, and if these do not preclude the diving operation, to ensure that control measures are in place to minimise such hazards.

The following should be used as a guide for assessing proposed dives with high risk factors:

8.1  DIVE PROFILES

Some types of dive profiles are associated with higher risks of decompression sickness than others. A dive profile which attains maximum depth early in the dive and gradually ascends to shallower depths is recommended. Dives that incorporate “rectangular”, “reverse” or “saw tooth” profiles are known to expose divers to a higher risks of decompression sickness and should be avoided.

8.2  ASCENT RATES

The maximum ascent rate should be NO faster than 18 metres per minute with an optimal rate of 15 metres per minute. Since the ascent is part of the decompression process, a faster-than-normal ascent (or emergency ascent) shall be reported to the Dive Coordinator and the BDO as soon as possible.
8.3 MULTIPLE ASCENTS

Research has shown that the more ascents performed during a day's diving, the greater the risk of DCS. Multiple ascents during a dive increase the risk of DCS by increasing the opportunity for bubble formation during the extra ascents.

Once bubbles have formed, rates of gas uptake and elimination are altered for all subsequent dives until there has been a long enough surface interval (SI) to allow complete off-gassing. This SI cannot be accurately determined through the use of dive tables, so dives must be planned carefully to ensure the number of ascents during a dive is kept to a minimum.

All ascents from shallower than 20 m must be at a rate of than 15 metres/minute.

8.4 MULTI-DAY REPETITIVE DIVES

Divers performing successive multi-day repetitive dives must use the DCIEM dive tables for calculating their no decompression limits on each dive.

The effects of nitrogen build-up during this type of diving operation are well documented with regard to increased incidences of DCS, and the risk of this must be considered even when all dives are shallow.

Divers performing repetitive dives over multiple days must have a 24 hr break from diving every third day, except where using repetitive dive profiles involving less than three dives per day, in which case a 24 hr break must be taken on the fifth day.

Exceptions to the 24 break requirements may be granted at the discretion of the BDO if the diving work is not strenuous and diving profiles do not exceed the adjustments to bottom times given in Section 3.5.4.

The guidelines listed at Section 3.6 of this procedures manual for travel after diving must be followed.

8.5 LONG DIVE TIMES

Excessive dive duration is a potent predisposing factor to decompression illness, particularly when coupled with multiple ascents and multi-day diving operations. For this reason, all dive plans should keep the amount of time divers spend in the water on any given day to a minimum. Dive Coordinators should plan all diving operations with this aim in mind.

Without prior approval from the BDO, no diver is to spend more than 6 hours total time in the water in any 24 hour period, whether the tables allow this or not.

8.6 DIVING DURING STRONG WIND WARNINGS

At times when strong winds are likely to be present at a site, diving should only be conducted where the site is situated in a sheltered location (e.g. on the lee side of an island or headland). At the time of departure for the site the Dive Coordinator must reassess conditions at the site, as well as the sea conditions that will need to be negotiated to reach the site and return from the site.

Boating and diving activities should not take place at HIRS or LIRS where the mean wind speed is 25 knots or above. The SDO HIRS or the BDO must be contacted for advice in these circumstances.

8.7 LOW VISIBILITY

Low visibility diving is deemed to exist when the visibility in a horizontal direction is less than one (1) metre. In low visibility conditions, all diving must be carried out in tethered mode unless an exemption has been granted by the BDO or delegate. Consideration will be given to the experience of the dive team in these types of dives and to the additional control measures that are used.
8.8 NIGHT DIVING

For a night dive to be approved by the University Diving Officer, the following conditions must be met:

a. the Boat Handler/Dive Attendant must have a white light suitable for signalling passing boats;

b. any boat used for night diving must have a working anchor light and underwater operations lights;

c. after anchoring, a flashing strobe light must be attached to the anchor line at the optimum distance below the surface that will allow divers to find the vessel without surfacing (where visibility permits this);

d. exit lights must be set when diving from shore;

e. each diver must have at least 1 torch (preferably 2) and a cyalume stick or light which is visible in a 360° arc.

f. night dives to depths of greater than 18 m must have compelling justification. For these dives, special control measures may need to be implemented, at the discretion of the BDO.

g. Only divers with appropriate training may night dive that is divers with recreational Advanced, commercial qualifications and approved scientific diving courses. Open Water divers are not permitted to undertake night dives.

h. Divers with less than FIVE logged night dives should be teamed with buddies who are experienced at night diving.

i. Working live or drift diving must not be carried out at night.

j. Night diving & snorkelling should only be conducted in low risk conditions

8.9 CURRENTS

Diving in currents stronger than a diver can easily swim against is strongly discouraged. If permitted, all divers involved must be experienced in this type of diving and be tethered to the boat or use a surface float, so that their location is always visible. An experienced boat handler with knowledge of local conditions must be in charge of the vessel. Where an anchored vessel is being used for untethered SCUBA operations in such conditions, a current line of at least 50m length and 10mm diameter must be streamed behind the vessel, and the divers must work 'up-current' of the vessel.

8.10 DEEP DIVES

Special permission must be obtained from the BDO before any dives are undertaken to depths of greater than 18 m.

Dives to depths of > 39m are prohibited, except where the requirements set out in the AS2299.1 (1999) Dive Standard are met (i.e. an on site recompression chamber is available), and written approval from the BDO has been granted.

8.11 REMOTE DIVE SITE LOCATIONS

‘Remote’ is defined in the Glossary, and elsewhere in this procedures Manual.

At least one member of any dive team working in a remote location must be experienced with the type of conditions expected at all sites to be dived in the area. Special consideration must be given when anchoring the dive boat on steep drop offs and in areas with breaking waves, as well as with driving the boat through narrow channels with standing waves.

Divers must exercise special caution in surge zones and passages, where strong currents commonly occur.
Any boat operating in remote areas must be equipped with extra fuel, and all required radio, safety and first aid equipment, as well as any other items deemed necessary by the BDO or the Dive Coordinator for the trip.

For long field trips to remote areas, the Dive Coordinator for the operation must consider availability of the nearest recompression chamber in the event of a diving accident (Section 3).

8.12 DECOMPRESSION DIVING

Decompression diving is not permitted during diving operations under normal conditions, and will only be allowed in exceptional circumstances if prior written approval has been obtained from the BDO, and the dives are conducted according to the Australian Standard for Occupational diving, AS2299.1-2007.

8.13 LACK OF LOCAL KNOWLEDGE

Divers with little ‘local’ knowledge of a proposed dive site, or of Queensland diving conditions, shall not be permitted to dive unless accompanied by a Dive Coordinator familiar with the proposed dive environment.

8.14 HIGH RISK SHALLOW DIVES

Shallow dives in areas of heavy boat traffic expose divers to risk of injury from such traffic. If diving in such an area, divers must fly a dive flag on a float immediately above their work site to indicate their position.

Dive Coordinators should also note that cases of DCI have been reported as a result of long shallow dives (in less than 6-7m depth), and should try to minimise the effect of other predisposing factors in the event that such a dive is approved. Where such a dive is planned, Table 3.1 at Section 3.5.4 of this Manual must be used to obtain maximum dive times for the dive.

8.15 MID WATER DIVES

Mid-water Dives without visual reference requires permission of the BDO or delegate. Consideration will be given to the experience of the dive team in these types of dives and to the additional control measures that are used.

8.16 OBSTRUCTED ASCENTS

Some research diving occurs under ledges and in shallow caves. Inexperienced divers may not dive under these conditions. Any diver performing this type of work must have more than 50 hours of underwater experience. Depending on the nature of the work and the topography, a team of 3 divers may be required. As well, where there is more than a minor risk of entrapment a Boat Handler/Dive Attendant must be present, and emergency air supplies with regulators attached must be within easy reach of the dive team.

8.17 MEDICAL ASSISTANCE

It is the responsibility of the Dive Coordinator for any dive or set of dives to determine the most efficient means of obtaining medical assistance in the event of an incident during a dive, or after when related to the dive. The various appendices to this manual dealing with medical matters should be consulted when determining medical requirements for any diving operation.

An appropriate first aid kit must always be carried during diving operations.

For any dive conducted, medical oxygen must be carried in the boat, to the dive site along with a regulator capable of delivering such oxygen to a conscious or unconscious diver. Adequate supplies of medical oxygen must be carried in the boat and/or vehicle to keep at least two individuals on oxygen until such time as the patient can be ‘handed over’ to qualified assistance (i.e. ambulance officers), or until further supplies of oxygen can be accessed.
For all dives, approved resuscitation equipment must be carried in the boat and a person trained in the use of such equipment should be present as the Dive Attendant.

8.18 TIME SINCE LAST DIVE

The BDO or any SDO may require that a diver undergo an initial supervised dive or pool session if he/she has not dived during the previous twelve months (as for a ‘New Diver Evaluation’ – at Appendix 2). The purpose of this dive is to allow the diver to regain familiarity with equipment and the underwater environment in a supervised situation, and to allow the Diving Officer to ascertain the diver's level of competence. Additional supervised dives may be required until it is judged that the diver can dive safely and competently.

The Diving Officer may conduct this supervised dive himself/herself if they are a qualified Divemaster, or may delegate the task to another qualified Divemaster.

NB: A supervised dive for those who have not been diving for 12 months is not mandatory, particularly where the diver is highly experienced and his/her first dive is in sheltered conditions to depths not exceeding 12 m.

8.19 DANGEROUS MARINE ANIMALS

Divers working with dangerous marine animals must indicate this on their ‘Dive Plan’ form. As well, they must document the most appropriate first aid procedures for injuries associated with such animals and provide said documentation to the BDO and any persons in their dive team. This is especially important for marine injuries requiring specialised treatment.

Divers whose tasks may attract dangerous marine animals, or who are diving at sites frequented by them, must inform the BDO of this situation, and must have in place procedures to minimise risks to divers and to deal with any emergency that may occur. Risk is increased at dawn and dusk, in turbid low visibility waters and during prolonged periods in mid-water or at the surface.

At sites where significant populations of high risk sharks exist, a detailed risk assessment shall be conducted, and hazard controls such as cages or electronic shark deterrent devices shall be implemented. Where shark deterrent devices are utilised, they shall be utilised in accordance with the manufacturer’s instructions.

8.20 MANTA BOARD TOWING

Prohibited on scuba and submerged breath hold diving. Alternative means should be used such as scooters. Surface ONLY manta board towing on snorkel may be allowed.

8.21 TASK RELATED FACTORS

Diving tasks requiring the use of winches with large cable, cranes and other heavy tools require divers to be trained to at least Australian Standard 2815.2, and to use voice communication between surface operators and divers. The divers must also be competent as riggers.

8.22 DIVING WITHOUT A (SURFACE) DIVE ATTENDANT

Diving without a Dive Attendant decreases the ability to respond to an adverse event. Diving without a surface attendant shall only occur with express written authorisation from the University of Queensland Boating and Diving Officer. Authorisation will only be given under exceptional circumstances and after rigorous and cautious risk assessment.

8.23 DIVING OCCURRING WHILE THE DIVE BOAT IS UNDER WAY (WORKING ‘LIVE’)

Where a dive boat is kept under way whilst divers are in the water is commonly known as ‘working live’. Although there are several advantages to working in this manner, depending on the situation, the main danger of the practice is the potential for injury to divers from the hull propeller/s of the boat.
Except in cases of emergency, this practice is not permitted during a diving operation unless the Dive Coordinator expressly receives approval from the BDO or delegate, and the following conditions are met:

- the Boat Handler must be suitably qualified to drive the boat being used, according to this procedures manual, and must also have considerable experience in small vessel handling (as determined by the BDO or delegate);
- a separate Dive Attendant must always be present in situations where the Boat Operator may not be able to clearly see the location of the divers at all times from the boat's control position;
- a dive flag must be flown at all times;
- all divers involved in the operation must agree to the use of this practice.

8.24 ALTITUDE DIVING

Where diving is to be carried out at altitude, the altitude must be accurately determined and the use of depth correction tables & procedures is to be employed.

8.25 EXERCISE

Divers should not participate in activities involving vigorous physical exertion before or after diving, as exercise of this nature will predispose a diver to DCI.

Where exercise is unavoidable before, during or after a dive (e.g. diving in strong currents, or walking in to a dive site), the BDO should be advised, and extra allowance made to take account of this factor when calculating permissible dive times.

8.26 ALCOHOL

Alcohol should not be consumed within 12 hours prior to diving, and must not be taken until after any diving for the day is over. At all times, especially when diving over multiple days, alcohol should only be consumed in moderation, if at all.

Alcohol consumption will increase a diver’s susceptibility to DCI, enhance the effects of inert gas narcosis, and increase a diver’s rate of heat loss in cold water.

8.27 FATIGUE

During diving operations, fatigue can be extremely dangerous, and is also a potent predisposing factor for DCI. A tired diver should not be permitted to dive, and Dive Coordinators should monitor this.

All divers participating in a diving operation should ensure they get adequate sleep, as defined by the requirements of the diving programme.

8.28 COLD

No diving suit currently on the market is able to provide completely adequate thermal protection in cool temperate waters, such as those around southern Queensland. Given this fact, and the potentially lethal effects of cold, all personnel undertaking diving operations should take care to stay as warm as possible.

A diver should cease diving operations if they become more than uncomfortably cold.

To minimise the effects of cold, all divers should take care to keep warm before the dive, and must wear appropriate exposure protection during the dive. In particularly cold water, dives should be planned to minimise the amount of time in the water and the number of entries and exits made during the day. Sufficient time between dives must be allowed for a diver to rewarm adequately, prior to the next dive.
It should be noted that divers will continue to lose heat from their bodies for some time after exiting the water, and this ‘after-drop’ in body core temperature can reach dangerous limits even if the diver was in a reasonable state on exiting the water. For this reason, Dive Attendants should monitor all divers for signs of hypothermia after any dive in cold water.

8.29 DRUGS / MEDICATION

If at all possible, it is advisable for divers to avoid taking any drugs or medications whilst diving.

At this time little or no change has been observed in the toxicity of most of the common drugs in use under hyperbaric conditions, however drugs can influence diving safety in other ways, such as by impairing judgement and concentration, or by affecting a diver’s susceptibility to narcosis and/or DCI.

If any diver is required to take medication for either short or long term prescription, they should contact their diving doctor for advice on any potential problems this may cause.

In particular, divers should take care to check on potential complications with some seasickness medications, and some drugs used to assist people to stop smoking.

8.30 DEFINITIONS OF ‘LOW RISK’ CONDITIONS

For further information on Risk Assessment, and ‘High’, ‘Medium’ and ‘Low’ risk conditions, see Appendix 12

a. Depth of the site and its immediate surroundings does not exceed 15 m;
b. Swell and/or wave height does not exceed 0.5 m;
c. Current is nil to slight (a diver is able to easily swim into the current, with minimal exertion);
d. Underwater visibility is greater than 10 m;
e. Weather forecast is favourable and wind speed is less than 15 knots;
f. The dive starts and ends in full daylight.

8.31 OXYGEN TOXICITY

This form of toxicity is the most dangerous for an EANx diver. It affects the central nervous system and occurs by receiving high oxygen doses over a relatively short exposure time.

CNS oxygen toxicity can cause a seizure or convulsions. Underwater this is likely to result in drowning. There are signs and symptoms of this form of toxicity, but do not view them as absolute precursors to CNS oxygen toxicity because a seizure can occur without any premonition or early warning sign. The acronym for the most common signs and symptoms of CNS toxicity is VENTID: Visual Disturbances, Ears ringing, euphoria, Nausea, Tingling, Irritability and Dizziness.

Pulmonary toxicity results from long exposures to lower levels of oxygen and is not normally a concern for no-stop EANx dives. Signs and symptoms include chest pain, coughing, pulmonary edema, and difficulty breathing.

The National Oceanographic and Atmospheric Administration (NOAA) originated the oxygen enriched – air scuba diving time limits widely in use today. NOAA limits the maximum depth for an EANx dive to a PO2 of 1.4 atm and only in an emergency to 1.6 atm.

The table in Appendix 18 shows the time limits for a single dive and for 24-hour period based on the partial pressure of oxygen. UNDER NO CIRCUMSTANCES ARE THESE LIMITS TO BE EXCEEDED.

8.32 REMAINING CYLINDER PRESSURE

Dives must be terminated when either diver in a buddy pair reaches a cylinder pressure of 30 bar. Safety stops shall still be performed if safe & practical.
Any diver returning with less than 30 bar will be required to pay for the tank to be tested. Divers constantly returning with less than 30 bar or running out of air during a dive may lead to the diver being banned from any further diving.
9.1 EMERGENCY PLAN

In the event of an emergency it is essential to immediately assist the person injured or in distress. To help with this, as part of the Risk Assessment process for any diving operation, the Dive Coordinator for the operation must prepare an emergency response plan for the area of operation.

Vessel operations manuals and The Diving Emergency Protocols flow chart (see Appendix 21) may be customised to fulfil this requirement.

9.2 INJURY, ILLNESS and INCIDENT REPORTING PROCEDURES

Any accident or near-miss should be reported as per UQ PPL 2.10.07b Workplace Injury, Illness and Incident Reporting.

A summary of events leading up to the accident obtained from the Dive Coordinator should be appended to this report form. The circulation of the report and the detail required will depend on the nature of the incident.

The University Boating and Diving Officer shall be notified in addition to the report made under this system.

9.2.1 Dangerous events or Serious bodily injuries

With regard to such accidents, the BDO must be notified immediately, and should help facilitate retrieval. As soon as possible, but within 24 hours, the Director of the OH&S Division MUST be notified, and then a complete report should be compiled by the Dive Coordinator involved and submitted to the BDO. This should then be forwarded, with the Diving Officer's comments and recommendations attached, to the UQ Occupational Health and Safety Division.

**FOR ANY INCIDENT INVOLVING A UQ DIVER, THE UNIVERSITY BOATING & DIVING OFFICER MUST BE NOTIFIED AS QUICKLY AS POSSIBLE**

Telephone 0438 - 651- 095
Appendix 1  NEW DIVER EVALUATION

The following is the basis of the watermanship skills evaluation for new entry level divers to the University Diver Register. If deemed necessary, the BDO may vary performance requirements and skills for the evaluation.

A1.1  SWIM AND SURFACE EVALUATION
   a. Swim 200 metres non stop without the use of swim aids, in less than 5 minutes;
   b. Fin 800 metres in less than 19 minutes;
   c. Perform an inert diver tow. That is, in less than 5 minutes tow or push another diver a distance of 100 metres, with both divers in full SCUBA.

A1.2  SNORKEL DIVING SKILL EVALUATION
   a. Swim 200 metres non stop without the use of swim aids, in less than 5 minutes;
   b. Fin 800 metres in less than 19 minutes;
   c. Perform an inert diver tow. i.e. in less than 3 minutes, tow or push another diver a distance of 100 metres, with both divers wearing snorkel equipment;
   d. Demonstrate mask clearing;
   e. Demonstrate two methods of snorkel clearing;
   f. Demonstrate weight belt removal and replacement;
   g. Duck dive to 2 metres and retrieve an item from that depth

A1.3  SCUBA SKILL EVALUATION
   a. Fully assemble equipment, perform necessary checks and enter water;
   b. Surface swim 25 metres demonstrating the ability to alternate between snorkel and SCUBA while kicking;
   c. Demonstrate mask clearing;
   d. Demonstrate weight belt removal and replacement;
   e. Demonstrate removal and replacement of SCUBA equipment;
   f. Demonstrate regulator recovery and clearing;
   g. Demonstrate buoyancy control;
   h. Demonstrate use of alternative air source stationary and while swimming;
   i. Rescue and transport, as a diver, a passive simulated victim of an accident (optional);
   j. Problem solving assessment (optional);
   k. Discussion of ascent rates, dive profiles and other University diving practices.

A1.4  EANx EVALUATION
   a. Demonstrate how to determine Maximum Operating Depth (MOD)
   b. Demonstrate how to determine Oxygen content of mixed gas.

A1.5  SEMI-CLOSED REBREATHER EVALUATION
   a. Demonstrate skills described in A2.1, A2.3 and A2.4
   b. Demonstrate Semi Closed Rebreather operation and use to manufacturer’s specification.
Appendix 2  DIVE PROJECT REGISTRATION FORM

Any person intending to undertake a diving research program with the University of Queensland must complete a copy of this form and forward it to the BDO or delegate, for approval.

Note: A Risk Assessment must be completed for each project and submitted with this form.

1. Project Title: ...........................................

2. Commencement Date: .................................. Intended Duration: ..................................

3. Principal Investigator: .................................. Ph: ..................................
   Address: .............................................. E-mail: ............................................

4. Supervisor: .............................................. Ph: ..................................

5. Brief Description of project, and intended principal work methods: ...................................

6. Intended location/s of field sites (including lat/long.): ......................................................

7. Will the field work: (a) be in a remote7 location or involve use of a boat?
   YES (complete Section A & B)  NO
   (b) involve diving (snorkelling, SCUBA or rebreather)?
      YES (complete Sections A & B & C)  NO

If you circled “No” for (a) & (b) above, sign form & obtain your supervisor’s signature (if applicable)

Relevant Qualifications / Experience:

First-Aid training  Yes / No  Rec. Ship Mas./Coxswains Licence  Yes / No
Oxygen training  Yes / No  Marine Radio Operators Licence  Yes / No
Other qualifications: .................................................................

7 ‘Remote’ is defined as any area where there will be a travel time of greater than 30 minutes for medical assistance to reach an injured person.
Section A. Field Trip Operations

Proposed No. of: (a) field trips/year ................... (b) days per trip ................... (c) people per trip .......

Means of contact while in the field (specify radio channels/phone No’s if applicable): ..........................

Section B. Emergency Response Plan

The Emergency Response Plan details requested here must be completed for all University Diving Projects. This should be done in conjunction with the Risk Assessment for each project. The intention is to require the Dive Coordinator for a project to think about the ‘worst case scenario’ they could be faced with in the event of a serious incident occurring during work on their project, and detail the actions that will be taken to either get assistance to the site, or get an injured person to a location where outside help can be obtained.

Location of nearest medical assistance (provide at least two options):
................................................................................................................................................................
................................................................................................................................................................
................................................................................................................................................................

Time it will take to get assistance to the site – under worst case conditions: ...........................
................................................................................................................................................................

Time it will take to walk out from site: ........................................................................................................
................................................................................................................................................................

Extra medical supplies that may be necessary for your field trips: .....................................................
................................................................................................................................................................
................................................................................................................................................................
................................................................................................................................................................

Other supplies that may be necessary for your field trips (eg. water, food): .................................
................................................................................................................................................................
................................................................................................................................................................
................................................................................................................................................................
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................................................................................................................................................................

Section C. Diving Operations\(^8\) (to be completed if you answered “Yes” to 8(b) above)

Proposed No. dives per day: ...................... Main working depth: ...................... m
Level of exertion (high/medium/low): ...................... Intended maximum depth: ............. m

Description of work being carried out

---

\(^8\) All divers must also fill in a Diver Registration Form prior to diving, and be approved by the BDO.
Appendix 3   SNORKEL DIVER REGISTRATION FORM

Before any person can snorkel with the University of Queensland, they must complete a copy of this form and forward it to the University BDO or delegate for approval. Please note that you may be required to undergo a fitness test, at the discretion of the University BDO or delegate.

Surname: .............................................. First Name(s): ..............................................................
Date of Birth: .....................................................................................................................................
Address (in Queensland): ....................................................................................................................
..............................................................................................................................................................
UQ Faculty/Department/School: ...................... Supervisor (if applicable).................................
Ph (h & w): ............................................................... E-mail: ..............................................................

Divers other than University Staff must supply details of next of kin on reverse of this form.

Date started snorkelling?: ................................. Do you hold a SCUBA ticket?: .........................
Date of last diving medical (if applicable): ........ (attach copy of medical if done within last 2 years)
Details of snorkelling experience: ...................... ..............................................................................
..............................................................................................................................................................
Approximate hours snorkelling: .......................... Date of most recent snorkel experience: ...........
Principal Snorkelling Locations: ........................................................................................................
..............................................................................................................................................................
Recreational boat licence: Commercial vessel ticket #:
Details of First Aid / Oxygen therapy qualifications: ........................................................................

MEDICAL CHECK LIST FOR SNORKELLERS

Have you ever had:  Over the last 12 months have you had any:
1 Any cardiovascular disease?  Y / N  7 Operations, illnesses or treatment  Y / N
2 Any lung disease? (asthma, TB wheezing, pneumothorax, others)  Y / N  8 Drugs or medication  Y / N
3 Any epilepsy, convulsions, fits or blackouts  Y / N  9 If female, are you pregnant?  Y / N
4 Any serious disease (such as diabetes)  Y / N  Can you:
5 Serious ear, sinus or eye disease?  Y / N  10 Swim 500m without fins  Y / N
6 Any neurological or psychiatric disease?  Y / N  11 Swim 200m in 5 min. or less without fins?  Y / N

Signed: ............................................................... Date: ..............................................................

BDO or Delegate Only.
Log book checked: ......................... Qualifications Checked: ....... Medical Received: ......
Induction done: Y/N By: .......... .......................................................... Date: .........................
Diver Status: .........................................................................................................................................
Comments: ...........................................................................................................................................
..............................................................................................................................................................
**Details of Next of Kin:**

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<td>Country:</td>
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<td>Contact Phone #:</td>
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Appendix 4  SNORKEL INDUCTION

SNORKELLING TECHNIQUES
Finning  Straight leg, point toes, not a bicycling motion, look forward to drop legs
         Minimal splashing so animals are not scared away
Mask    De Fogging  LEAK prevention  Check for correct fit
         Strap position  How to adjust for comfort and fit
Head position / angles while snorkelling
Snorkel clearing  Blast, Drain or displacement
Equalization methods  EAR INJURIES

SAFETY ISSUES
Shallow water blackout
MEDICAL CONDITION WARNING
Snorkelling can be a strenuous physical activity and may increase the health and safety risks for persons suffering from:
   (i) any medical condition that may be made worse by physical exertion, for example, heart disease, asthma and some lung complaints; or
   (ii) any medical condition that can result in loss of consciousness, for example, some forms of epilepsy and some diabetic conditions; or
   (iii) asthma that can be brought on by cold water or salt water mist; and
Any person should tell the lookout, snorkelling supervisor or snorkelling guide if the person has any concerns about a medical condition.
A person who may be at higher risk from one of the above medical conditions, or who is not a strong swimmer should not go snorkelling if the sea conditions are rough or there are strong currents.
SNORKEL VESTS  Should be worn if you have any of the above medical conditions or if are not a strong swimmer. They are available & free of charge

SNORKELLING HEAD COUNT AND NOTIFICATION
Inform a shore based colleague of your plans and also please use Snorkeling Manifest forms provided
NEVER SNORKEL ALONE  Snorkel in buddy pairs
HAZARDOUS AREAS  Boat Harbour & Channel are NO GO areas (HIRS & MBRS)
                   NO snorkelling past the reef or bank crest without boat support
                   (Off the reef or bank flat)
RISK ASSESSMENT and HAZARD IDENTIFICATION
Always perform a risk assessment, ask Boat & Dive Staff to assist you,
Check tide & wind direction and strength
Environmental Hazards  Marine life, Currents, Surge, Sea State, Visibility, Overhead Environments, Coral cuts
Boat Hazards  Boat traffic, Boat propeller cuts, Bow pitching (head injuries) Do not swim under the boat,
Activity Related Hazards  Ear equalisation, Health & Fitness level,
Task related problems
Appendix 5  SNORKELLING MANIFEST

Date: .........................................................  Snorkel Location: .........................................................
Boat Support Used: YES / NO  Boat Skipper/ Lookout: ..........................................................
Departure Time: .........................................................  Return Time: ..........................................................
Snorkel Dive Coordinator: ........................................  Shore Contact: ..........................................................
Snorkel Guides (can not be students or volunteers): 1. ........................................  2. ........................................  3. ........................................  4. ........................................  5. ........................................  6. ........................................  7. ........................................  8. ........................................
Snorkel Team Details ........................................  Snorkel Team Details

<table>
<thead>
<tr>
<th>Snorkeller Name</th>
<th>Buddy #</th>
<th>Guide #</th>
<th>Snorkeller Name</th>
<th>Buddy #</th>
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<tbody>
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</tbody>
</table>

Starting Head Count OF: ........................................  Final Head Count OF: ........................................
Incidents or Accident Details: ........................................

Snorkel Dive Coordinator Signature: ........................................
Appendix 6  SNORKEL DIVE COORDINATOR’S PRE – DIVE BRIEFING

To be given by the Snorkel Dive Coordinator before any snorkel dive.

1.  MEDICAL CONDITION WARNING
Snorkelling can be a strenuous physical activity and may increase the health and safety risks for persons suffering from:
   (i) any medical condition that may be made worse by physical exertion, for example, heart disease, asthma and some lung complaints; or
   (ii) any medical condition that can result in loss of consciousness, for example, some forms of epilepsy and some diabetic conditions; or
   (iii) asthma that can be brought on by cold water or salt water mist; and
Any person should tell the lookout, snorkelling supervisor or snorkelling guide if the person has any concerns about a medical condition.

SNORKEL VESTS  Should be worn if you have any of the above medical conditions or if are not a strong swimmer. They are available & free of charge

2.  SNORKEL SITE — LOCATION

3.  HAZARD IDENTIFICATION & RISK ASSESSMENT

   Environmental Hazards: Marine life, Currents, Surge, Sea State, Visibility, Overhead Environments, Coral cuts

   Boat Hazards: Boat traffic, Boat propeller cuts, Bow pitching (head injuries) Do not swim under the boat,

   Activity Related Hazards: Ear equalisation, Health & Fitness level,

   Task related problems

   Shallow water blackout: No Hyperventilating, 1 Up – 1 Down technique

4.  SNORKEL PLAN
Direction to head (into the current), areas to avoid, areas of interest, Drift or Stationary,

5.  BUDDY PAIRS  Every body has a buddy?
Let your Teacher or Tutor know if your buddy pair is returning early and get a new buddy assigned

6.  GROUP PROXIMITY
Stay close together
Maximum distance from the boat is 30 Metres and (or for Shore Based) Snorkelling is 5 m from your Snorkel Guide

7.  HAND SIGNALS  Ok, Pick up & Distress,

8.  RECALL SYSTEM  Air horn or whistle (1 blast = look for directions, 3 long blasts = recall)

9.  NO STANDING ON LIVE BOTTOM
If tired or cold return to the boat or if shore based snorkelling stand only on sand or coral rubble only

10. DON’T HARASS THE WILDLIFE

11. HEAD COUNT ARRANGEMENTS

12. ENTRY / EXIT LOCATION

13. RESEARCH OR EDUCATIONAL TASKS OUTLINED
Appendix 7  SCUBA DIVER REGISTRATION FORM

Before any person can dive with the University of Queensland, they must complete a copy of this form and forward it to the University BDO or delegate for approval. This must be accompanied by copies of relevant qualifications and current (within last 12 months) occupational diving medical.

Personal Details:
Applicants Name (In Full): ........................................................................................................
Street Address: ..............................................................................................................................
Suburb/City: .................................................................................................................................
Country: .............................................................. Postcode/Zip: ...........................................
Date of Birth: .................................................. Contact Phone Number: ..............................
Contact Email: ..........................................................................................................................
UQ Faculty/Department/School: ....................... Supervisor (if applicable) ................................
Next of Kin: .............................................................................................................................
NOK Address: ............................................................................................................................
Relationship: ..................................................... NOK Phone Number: ....................................

Diver Training History: (submit copies of certificates to Diving Officer)
Open Water Certification Date: ......................... OW Training Agency: ..................................
Highest Recreational Qualification: ............... HRQ Training Agency: .................................
HRQ Date: ........................................................
Highest Occupational Qualification: .............. Date Completed ............................................

Occupational Expiry Date: .................................
Date of Last Dive: ........................................ Number of Dives Completed: ...........................
Number of Hours Underwater: ....................... Depth of Deepest Dive: .................................
Number of Night Divers: ................................. Number of Dives in last 6 months: ..............
First Aid Qualification Type: .......................... Date FAQ Gained: ........................................
Date of Last CPR Update: ........................................................
Oxygen Administration Qualification Type: ...... Date OAQ Gained: .......................................
Boating Qualification Type: ............................ BQ Licence No. .............................................
BQ Expiry Date: ................................................. BQ Issuing Authority: ...............................
Marine Radio Operators Qualifications: Yes / No – MROQ Licence No: ..............................
Other Relevant Qualifications: ........................
Personal Dive Equipment: (submit copies of service records to Diving Officer)

Do you intend to use your Personal Diving Equipment for Scientific / Research Diving: Yes / No

Has your Personal Diving Equipment been SERVICED and SPG CALIBRATED in the past 12 months: Yes / No

Date of Equipment Service and SPG Calibration: .................................................................

Name of Person / Organisation who carried out Service & SPG Calibration: ................................

Medical Information: (submit copies of medical certificate to Diving Officer)

Dive Medical Date: ........................................... Dive Medical Type: ......................................

Allergies: .............................................................................................................................

Blood Group: .................................................................

Dive Doctor's Name: ...........................................................................................................

Dive Doctor's Phone Number: ................................................................................................

Do you have any Medical Condition that may interfere with your diving SAFELY: Yes / No

If YES, please provide details: ................................................................................................

.............................................................................................................................................

.............................................................................................................................................

.............................................................................................................................................

BDO or Delegate Only.

Log book checked: .............. Qualifications Checked: .............. Medical Received: ..............

Induction done: ....................... By: ........................................ Date: ........................................

Diver Status: ........................................ By: ........................................ Date: ....................................

Comments: .............................................................................................................................

.............................................................................................................................................

.............................................................................................................................................

.............................................................................................................................................
## Appendix 8   DIVE PLAN FORM

This form must be submitted for approval to the University BDO or delegate – no later than 72 hours before the first dive listed below is scheduled to occur.

Dive Coordinators – please retain a COPY of this form to submit with all Post Dive forms.

All divers must be listed on the University Diver Register, and must hold a current Commercial Dive medical. Divers must maintain a logbook of all dives, which may be inspected by the BDO or delegate at any time. Note: ‘Diving’ includes Snorkelling.

All divers must abide by the procedures outlined in the most recent version of the University of Queensland Diving Policy and Procedures Manual.

No dive shall exceed the DCIEM ‘no-decompression limits’, or the limits given at Table 3.1 in the UQ Diving Procedures Manual (to be used for dives of shallower than 12 metres) – whichever is applicable. No diving is permitted unless a copy of this form has been completed for the dive, and been approved by the BDO or delegate or their delegate.

<table>
<thead>
<tr>
<th>Applicants Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty/Department/School:</td>
<td></td>
</tr>
<tr>
<td>Contact Phone Number:</td>
<td>Contact Email:</td>
</tr>
<tr>
<td>Trip Details:</td>
<td></td>
</tr>
<tr>
<td>Shore Contact Name:</td>
<td>SC Phone Number:</td>
</tr>
<tr>
<td>SC Email:</td>
<td></td>
</tr>
<tr>
<td>Has SC been given a completed Nominated Contact Information Form (Appendix 17): Yes / No</td>
<td></td>
</tr>
<tr>
<td>Has your nominated contact been notified of procedures to follow in the event you are late reporting back? Yes / No</td>
<td></td>
</tr>
<tr>
<td>Departure Date/s &amp; Time:</td>
<td>Location/s:</td>
</tr>
<tr>
<td>Return Date/s &amp; Time:</td>
<td>Location/s:</td>
</tr>
<tr>
<td>Dive Coordinator for operation:</td>
<td></td>
</tr>
<tr>
<td>Vessel coxswain/s (if applicable):</td>
<td></td>
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<tr>
<td>Dive Leader/s for dives:</td>
<td></td>
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<tr>
<td>Diver/s:</td>
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<tr>
<td>Diver attendant/s (surface):</td>
<td></td>
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<tr>
<td>Nature of work to be carried out:</td>
<td></td>
</tr>
<tr>
<td>Detailed dive plan for each dive. Include diving method, entry/exit locations, proposed depth/duration for each dive, and expected repetitive group/s at end of dive/s (using DCIEM tables). Attach a separate sheet if necessary.</td>
<td></td>
</tr>
</tbody>
</table>
Equipment required (you must list all ‘common or pool’ equipment needed): ..............................................
Transport to dive site (incl. tow vehicle & boat): ..............................................................................................
Special permit/s required? Specify permit # and issuing agency if applicable: ...................................................
Location of nearest medical facility and phone number: ......................................................................................
Expected evacuation time needed to transport any patient to nearest medical facility from site? ....

------------------------------------------------------------------------------------------------------------------
NB: ENOUGH OXYGEN (O2 ) MUST BE CARRIED IN THE BOAT AND THE VEHICLE TO ENSURE THAT AT LEAST TWO PATIENTS CAN BE GIVEN 100% O2 DURING THE ENTIRE EVACUATION PROCEDURE, FROM DIVE LOCATION TO MEDICAL FACILITY.
Ensure you have loaded the following items before departure and tick the adjacent square to acknowledge this.
Dive Coordinators - by signing at the bottom of the page you are acknowledging that you have these items.
Dive Tables □ Record Forms □

Travel After Diving. Will altitude restrictions delay return travel after this dive? Please indicate altitude and delay period if appropriate.

------------------------------------------------------------------------------------------------------------------
Do any special conditions need to be adopted above and beyond normal safe diving practice? (NB: written approval must be obtained from the BDO prior to conducting any dive that falls into this category) .................................................................................................................................

------------------------------------------------------------------------------------------------------------------
HAVE YOU CONDUCTED A RISK ASSESSMENT FOR THIS PROJECT/DIVE, AND FILED IT WITH THE BDO? ....................
............................................................................................................................................................................ Yes / No

------------------------------------------------------------------------------------------------------------------
I certify that I have notified all personnel involved in the operation of potential hazards that exist within the area of the dive location and discussed the Risk Assessment for the trip. Once on site I will reassess diving conditions, and diving will not be attempted unless I deem the area safe for the type of diving and work intended to be carried out. All items on the Vessel Check List have been checked, and deficiencies noted & rectified.
Dive Coordinator’s Signature: ........................................ Date: .................................................................

------------------------------------------------------------------------------------------------------------------

UNIVERSITY BDO or delegate ONLY
Approved: Y / N Risk Assessment complete: Y / N
Signed: ........................................................................................................................................... Date: .................................
Appendix 9  DIVE RECORD FORM

Details of every dive for each diver must be recorded on this form DURING THE DIVE by the Surface Dive Attendant. The diver and Dive Coordinator must sign the dive record as soon as is practicable. At the end of a trip the form must be submitted to the University Diving Officer.
Where more than one dive is done by a diver on a trip, please record the dives sequentially on one Dive Record Form.

Dive Coordinator/s: ............................................................
O2 Cylinder Pressure at start of day: ............................................................
Diver: .......................................Dive #: ............ Site: ............................................................
Attendant: ........................................ Standby Diver: ............................................................
EANx Percentage Oxygen: ..................... Maximum Operating Depth (MOD): .................

<table>
<thead>
<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF ...... x BT ....... = ............ Diver's Signature: .....................

Diver: .......................................Dive #: ............ Site: ............................................................
Attendant: ........................................ Standby Diver: ............................................................
EANx Percentage Oxygen: ..................... Maximum Operating Depth (MOD): .................

<table>
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<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF ...... x BT ....... = ............ Diver’s Signature: .....................

Diver: .......................................Dive #: ............ Site: ............................................................
Attendant: ........................................ Standby Diver: ............................................................
EANx Percentage Oxygen: ..................... Maximum Operating Depth (MOD): .................

<table>
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<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF ...... x BT ....... = ............ Diver’s Signature: .....................

Diver: .......................................Dive #: ............ Site: ............................................................
Attendant: ........................................ Standby Diver: ............................................................
EANx Percentage Oxygen: ..................... Maximum Operating Depth (MOD): .................
Diver: ...........................................Dive #: ........ Site: ............................................................
Attendant: ............................................................... Standby Diver: ..................................................
EANx Percentage Oxygen: .................................. Maximum Operating Depth (MOD): ............
Start Dive: RF: ............ Tank Pressure: ............ End Dive: RG: ........ Tank Pressure: ............

<table>
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<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF .... x BT ........ = ........ Diver’s Signature: ......................
Diver: ...........................................Dive #: ........ Site: ............................................................
Attendant: ............................................................... Standby Diver: ..................................................
EANx Percentage Oxygen: .................................. Maximum Operating Depth (MOD): ............
Start Dive: RF: ............ Tank Pressure: ............ End Dive: RG: ........ Tank Pressure: ............

<table>
<thead>
<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF .... x BT ........ = ........ Diver’s Signature: ......................
Diver: ...........................................Dive #: ........ Site: ............................................................
Attendant: ............................................................... Standby Diver: ..................................................
EANx Percentage Oxygen: .................................. Maximum Operating Depth (MOD): ............
Start Dive: RF: ............ Tank Pressure: ............ End Dive: RG: ........ Tank Pressure: ............

<table>
<thead>
<tr>
<th>Date</th>
<th>SI since last dive</th>
<th>Time In</th>
<th>Time Out</th>
<th>Max. Depth</th>
<th>Tot. time (min)</th>
<th>Deco (time/depth)</th>
</tr>
</thead>
</table>

Dive Profile (please record time of each ascent to surface, and subsequent descent):

Effective Bottom Time (EBT) = RF .... x BT ........ = ........ Diver’s Signature: ......................
Diver’s/Dive Coordinator’s Comments: ......................................................................................
...................................................................................................................................................

Dive Coordinator’s Signature: ............................................ Date: ........................................

BDO or Delegate Signature: ........................................................................................................
Comments: ....................................................................................................................................
...................................................................................................................................................
Appendix 10    SAMPLE PRE DIVE EQUIPMENT CHECKLIST

As noted in the Diving Policy and Procedures Manual, an adequate pre-dive check must be performed on the equipment of both the diver/s and stand-by diver/s (where appropriate) for all dives. This should be done by either the Dive Attendant, or by each diver’s buddy. Pre-dive checks should include, but are not limited to, checking of the following:

Air supply and regulator:
- tape removed from pillar valve?
- is contents gauge at zero before turning on air supply?
- is air supply turned on?
- contents of tank?
- oxygen percentage checked and MOD calculated?
- any leaking hoses and or gauges?
- operation of contents gauge?
- operation of second stages?
- second stage free-flow?
- torn regulator mouthpieces?
- rebreather checks completed to manufacturers specification?
- redundant gas supply fully functioning?

Buoyancy Compensator:
- inflator hose connected?
- inflator operation OK?
- dump valve operation OK?
- security of tank in BCD harness?

Dry suit:
- zipper(s) appropriately lubricated and operating properly?
- zipper(s) properly closed?
- inflation hose connected securely?
- inflation operation OK?
- dump valve operation OK on both manual and automatic release (if applicable)?
- neck and wrist seals not torn?
- neck and wrist seals appropriately set (i.e. neck seal turned over if neoprene)?

Depth gauge/computer/etc.:
- depth gauge reads zero?
- MDI (maximum depth indicator) is zeroed?
- computer has been activated a few minutes before entering the water.
- rebreather PPO2 gauge functioning and calibrated?

Mask/Snorkel:
- is mask skirt intact?
- is mask seal set around lenses correctly?
- is snorkel attached to mask, or stored in an accessible place on the diver’s person?

Knife:
- is knife accessible?
- is knife sharp?

Other equipment:
- is it functional and in good condition?
Appendix 11  DIVE COORDINATOR’S PRE - DIVE BRIEFING (OTHER THAN SNORKEL)

The Dive Coordinator for each dive is responsible for conducting a pre-dive briefing in the presence of the entire dive team (including Vessel Master, Boat Handler, Dive Attendants and Divers). Each team member has a responsibility to give their full attention during the briefing, as in the event of an incident any team member may be required to initiate and/or control emergency procedures.

The content of this briefing must include at least the following information, and must be modified to take account of any other details specific to the particular diving operation being considered:

(a) Notification of the designated Dive Coordinator (they would normally be the person giving the briefing) and Dive Leader/s for the dive/s (may or may not be the Dive Coordinator);
(b) Nomination of Divers, Standby Divers and Dive Attendants for the dive, where applicable;
(c) Details of equipment to be used during the dive/s, including SCUBA/SSBA (LP compressor or bottle bank), EANx, rebreather, oxygen equipment, First Aid/safety equipment and any other specific items needed;
(d) Allocation and description of tasks of each dive team member, outlining all procedures for the diving operation;
(e) Full details of the dive plan, specifically including depth and duration of the dive, dive termination procedures, ‘in water’ emergency procedures, safety stops and communication procedures;
(f) Confirmation with Dive Attendant/s and Standby Diver/s of their duties, including keeping visual contact with diver/s or their bubbles and knowledge of protocols for recovery of injured divers from the water, rescue procedures, and out of water emergency/evacuation procedures;
(g) A briefing of each individual regarding their specific tasks, and for divers, a check on their fitness to dive (i.e. asking about tiredness, or any colds, flu's or injuries they may have);
(h) Details of expected ‘in water’ conditions, including currents, visibility, seafloor conditions etc (NB. these must be confirmed once at the dive site);
(i) Recall signals;
(j) Dive termination points e.g. low air/minimum air limits, time in water, fatigue, cold, oxygen toxicity limits, etc.
(k) Answers to any queries.

As well as the above, once at the dive site, the Dive Coordinator must perform the following tasks:

(a) Re-evaluate the site, conditions, depth and consequent duration of the dive;
(b) Reconfirm all Diver's and Standby Diver's health, air supply etc;
(c) Ensure all required information is recorded on the ‘Dive Record’ Form (may be delegated to another person);
(d) Conduct a final evaluation of all diver's equipment and dress.

After every dive, the Dive Coordinator must conduct a post-dive debrief with all dive personnel on the trip including the following:

(a) Checking the health of all divers, and recording details of any issues or incidents encountered, including discussing whether risk assessment controls were effective;
(b) Noting all tasks achieved and any irregularities described by the diver/s;
(c) Recording equipment problems encountered, and ensuring the equipment is tagged OUT OF SERVICE;
(d) Notifying each diver of their dive details as recorded;
(e) Notifying each diver of their repetitive group designator, and the time they left the water;
(f) Detailing any post dive restrictions to each diver, including altitude, heavy work, exercise or showering restrictions, and ensure the divers understand these.

As well, the Dive Coordinator should:

(g) Check each diver’s health 1, 6, 24 & 48 hours after the dive (where practicable);
(h) Ensure they and the Dive Leader (if other than Dive Coordinator), sign the Dive Record Form/s for the day.
Appendix 12  RISK ASSESSMENT FOR DIVING OPERATIONS

A12.1  DIVING TASK RISK ASSESSMENT & CONTROL

A12.1.1  Conducting an Appropriate Risk Assessment

OVERVIEW

On commencement of any University of Queensland Diving Task, or prior to departure for any University diving trip not covered by a previous risk assessment, the Dive Coordinator for the trip must ensure that a completed risk assessment for the trip is provided to the University Boating and Diving Officer or Site Diving Officer.

Where a risk assessment exists for any project or task, it is the responsibility of the Dive Coordinator to review this on a regular basis and update it when any of the Diving Task conditions or procedures alter in any substantial way – such that an increased risk may exist.

SCOPE

This procedure describes how the risks involved with particular planned activities are assessed and how controls for these risks are selected. You should address both project and task risks, AND specific hazards where these are deemed medium to high risk for any project.

DEFINITIONS

Responsible Person

An individual who assumes responsibility for the health or welfare of any other person in a workplace by providing instruction, direction, assistance, advice or service, is deemed an Responsible Person in accordance with the Workplace Health and Safety Regulations 1995 and related legislation. All management and supervisory staff (including those with responsibility for students) are therefore considered ‘Responsible Persons’.

Employee

For the purposes of this Procedure, employee refers to any staff member, student, visitor or volunteer.

Hazard

A situation, activity or task with the potential to cause injury or damage.

Responsible Officer

Deans, Heads of Division, Heads of School and Administrative Sections have been designated Responsible Officers under the Workplace Health and Safety Act 1995 and related legislation.

Risk

A situation, activity or task with some actual likelihood of harm or damage.

RESPONSIBILITIES

Responsible Person

The Dive Coordinator for a planned diving project or task is responsible for ensuring an appropriate risk assessment is performed and approved and that appropriate risk controls are in place prior to commencement of work.

Where a risk assessment exists for any project/task, the Dive Coordinator must review this before each trip and update it if any conditions or procedures alter in a substantial way, such that a new or greater risk may exist.

The Dive Coordinator must ensure that each member of their project team has been made aware of all risks outlined in the Risk Assessment, and that all individuals are informed of the appropriate risk abatement measures to be followed in every case.
PROCEDURE

As mentioned above, the planned project or task should be assessed by the person in overall charge of supervising the project/task in the field. This would normally be the “Dive Coordinator”. As a minimum (if the assessment has been prepared by another employee), the assessment must be reviewed and signed by the Dive Coordinator and the Project Leader (where these differ), before being forwarded to the University Boating & Diving Officer or Site Diving Officer.

The Dive Coordinator or delegated team member shall perform a risk assessment (as described below) for each activity, and document their findings on the Diving Risk Assessment form. This can be done by adopting the following measures:

Fill out the first page of the Diving Risk Assessment Form (A13.1.3), listing date of assessment, date / times of work, type of work being undertaken, where work is being carried out, name of person conducting assessment and those participating in the work.

List any additional Identified Hazards (refer to A13.1.4 Hazard Check List - DIVING) in the first column of each of the Conditions/Hazards sections of the form (Environmental, Task Related, Hyperbaric/Physiological, Associated Activities, Others and Emergency Response).

In Column 2 of the Diving Risk Assessment Form, assess consequences applicable to the specific task or activity (see Table 1, A13.1.2 Qualitative Risk Assessment Tables.) and circle appropriate consequence on form (MJ – Major, MD – Moderate, MN – Minor, IN – Insignificant).

For each potential hazard identified, assess and record the likelihood. (see Table 2, A13.1.2 Qualitative Risk Assessment Tables.) and circle appropriate likelihood on form (AC – Almost Certain, L – Likely, P - Possible, U – Unlikely, R – Rare). NB. A specific hazardous substance risk assessment form may assist in the documentation of hazards associated with the handling, use or production of a hazardous substance.

Then find and record the potential risk to people in column 4 (see Table 3, A13.1.2 Qualitative Risk Assessment Tables.) and circle appropriate risk on form (AC – Almost Certain, L – Likely, M – Moderate, U – Unlikely, R – Rare).

In Column 5 of the Diving Risk Assessment Form specify the risk control measures required to ensure all identified hazards are controlled. In specifying control measures, the hierarchy of controls listed below should be considered – in priority order ((see Table 4, A13.1.2 Qualitative Risk Assessment Tables.)

Once these risk control measures have been applied reassess the risk and circle appropriate risk on form (AC – Almost Certain, L – Likely, M – Moderate, U – Unlikely, R – Rare) in Column 6.

Using Table 4 Risk Score, A13.1.2 Qualitative Risk Assessment Tables determine if diving should commence / continue. Diving Operations should only commence or continue when the risk score is either L or CR. Should the risk score change during diving operations then actions should be taken to reduce the risk to L or CR.

All workers MUST read and understand the risk assessment before signing the assessment.

Proof should be able to be provided that a higher order level of control is not practicable.

A Risk Assessment must be reviewed at any time when information indicates that it is no longer valid, but at least at intervals not exceeding two years. As mentioned previously, determining the need for any review of a Risk Assessments is the responsibility of the Dive Coordinator/Field Supervisor for a given project.

RECORDS

Copies of completed Diving Task Risk Assessments shall be retained by the University Boating & Diving Officer or Site Diving Officer HIRS, and it is the responsibility of the Dive Coordinator who completed the assessment to ensure that copies are made available to all employees undertaking the assessed tasks, or involved in the project.

The Diving Risk Assessment Form and Hazard List provided in this document should be used together, to assist in evaluating the level of risk involved in any diving operation.
A12.1.2 Qualitative Risk Assessment Tables

Table 1: Assessment of Consequence or Impact

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Example of Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MJ</td>
<td>Major</td>
<td>Extensive or life threatening injuries, emergency protocols enacted, loss of production capability, emergency services required.</td>
</tr>
<tr>
<td>MD</td>
<td>Moderate</td>
<td>Medical treatment required, emergency services required, person is not able to continue work.</td>
</tr>
<tr>
<td>MN</td>
<td>Minor</td>
<td>First Aid required, person may / may not be able to continue work.</td>
</tr>
<tr>
<td>IN</td>
<td>Insignificant</td>
<td>No injuries, person able to continue work.</td>
</tr>
</tbody>
</table>

Table 2: Qualitative Measures of Likelihood

<table>
<thead>
<tr>
<th>Level</th>
<th>Descriptor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Almost certain</td>
<td>The event is expected to occur in most circumstances</td>
</tr>
<tr>
<td>L</td>
<td>Likely</td>
<td>The event will probably occur in most circumstances</td>
</tr>
<tr>
<td>P</td>
<td>Possible</td>
<td>The event should occur at some time</td>
</tr>
<tr>
<td>U</td>
<td>Unlikely</td>
<td>The event could occur at some time</td>
</tr>
<tr>
<td>R</td>
<td>Rare</td>
<td>The event may occur only in exceptional circumstances</td>
</tr>
</tbody>
</table>

Table 3: Qualitative Risk Analysis Matrix – Level of Risk

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major</td>
</tr>
<tr>
<td>AC (Almost Certain)</td>
<td>E</td>
</tr>
<tr>
<td>L (Likely)</td>
<td>E</td>
</tr>
<tr>
<td>M (Moderate)</td>
<td>E</td>
</tr>
<tr>
<td>U (Unlikely)</td>
<td>H</td>
</tr>
<tr>
<td>R (Rare)</td>
<td>H</td>
</tr>
</tbody>
</table>

Table 4: Risk Score

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Risk</th>
<th>Pre Dive</th>
<th>During Dive</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Extreme Risk</td>
<td>Dive must not commence</td>
<td>Urgent action required</td>
</tr>
<tr>
<td>H</td>
<td>High Risk</td>
<td>Dive must not commence</td>
<td>Action required at earliest possible moment</td>
</tr>
<tr>
<td>M</td>
<td>Moderate Risk</td>
<td>Dive must not commence unless routine management practices are in place and have been evaluated</td>
<td>Action required</td>
</tr>
<tr>
<td>L</td>
<td>Low Risk</td>
<td>Dive can commence with routine management practices in place</td>
<td>Continue managing with routine practices</td>
</tr>
<tr>
<td>CR</td>
<td>Controlled Risk</td>
<td>Diving may commence with controls in place</td>
<td>Diving may commence with new controls in place</td>
</tr>
</tbody>
</table>

Important Note: Diving operations should only commence or continue when the risk score is either L or CR. Should the risk score change during diving operations then actions above should be taken to reduce risk to L or CR.

Table 5: Types Of Control - Use in order of severity

<table>
<thead>
<tr>
<th>Type of Control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elimination</td>
<td>Remove hazard. If not possible, or where another control cannot be implemented which substantially reduces the risk, no diving will take place.</td>
</tr>
<tr>
<td>Substitution</td>
<td>Use an alternative method of work.</td>
</tr>
<tr>
<td>Engineering/design</td>
<td>Ensure that plant and procedures are set up to minimise a risk.  e.g. separate divers from a hazard.</td>
</tr>
<tr>
<td>Administrative/training</td>
<td>Ensure administrative processes are in place to minimise risks where applicable.  e.g. field reporting procedures. All divers must be trained in work procedures offering greatest safety.</td>
</tr>
<tr>
<td>Protection</td>
<td>Ensure that personal protective equipment is more than adequate for its intended purpose.  e.g. wetsuits are of adequate thickness for task/temperature, or drysuits are worn.</td>
</tr>
</tbody>
</table>

Examples of control

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Type of Control</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold water</td>
<td>Substitution</td>
<td>Replace wetsuits for drysuits, thicker wetsuits or hot water suits</td>
</tr>
<tr>
<td>Barotrauma</td>
<td>Admin./Training</td>
<td>Ensure divers are adequately trained and experienced, and able to cope with foreseeable emergency situations</td>
</tr>
<tr>
<td>Blue Green Algae</td>
<td>Design</td>
<td>Separate diver from the hazard using a drysuit and a lock on helmet. Use decontamination procedures.</td>
</tr>
<tr>
<td>Current/Tide</td>
<td>Elimination/Design</td>
<td>Dive only at slack water if tidal current. Use adequate harness and lifeline in all cases. Buoy divers if free swimming, and work vessel 'live'.</td>
</tr>
</tbody>
</table>
A12.1.3 Diving Risk Assessment Form

Date of Assessment: ..............................................................................................................

Date / Time of Diving: ............................................................................................................

Type of Diving Work being undertaken: ..................................................................................

Diving Platform (Boat, Shore, etc.): ......................................................................................

Site Location: ........................................................................................................................

Name of Person conducting risk assessment process: .............................................................

Names of divers participating in underwater diving work: ......................................................

Names of all other persons involved in the work and their role: ............................................

Notes: ......................................................................................................................................

ASSESSED CONSEQUENCES: MJ – Major, MD – Moderate, MN – Minor, IN – Insignificant

ASSESSED LIKLIHOOD: AC – Almost Certain, L – Likely, P – Possible, U – Unlikely, R – Rare

ASSESSED RISK: E – Extreme, H – High, M – Moderate, L – Low, CR – Controlled Risk
## ENVIRONMENTAL CONDITIONS

<table>
<thead>
<tr>
<th>Identified Hazard</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength and Direction of Wind (Consider Emergency</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Response)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current and Tide</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Underwater Visibility</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Entrapment Hazard</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Depth at Worksites</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Water Temperature</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Time of Day</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Underwater Terrain</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Atmospheric Temperature and Humidity</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Contaminants</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Isolation of Dive Site</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
</tbody>
</table>

## TASK RELATED CONDITIONS

<table>
<thead>
<tr>
<th>Identified Hazard (Consider Complexity, Non – Routine Nature)</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
</tbody>
</table>

### HYPERBARIC / PHYSIOLOGICAL HAZARDS

<table>
<thead>
<tr>
<th>Identified Hazard</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of Diving, including Repetitive Diving, Multi Day Diving</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Depth of Dive</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Duration of Dive</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Breathing Gas</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Exertion Required to Reach Dive Site</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Exertion Required to Conduct Dive</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Excessive Noise</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Immediate Pre Dive Fitness</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Altitude Exposure</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
</tbody>
</table>

### ASSOCIATED ACTIVITIES HAZARDS

<table>
<thead>
<tr>
<th>Identified Hazard</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Handling</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Boat Handling</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Dive Site Entry*</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Dive Site Egress*</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Crane / Winch Operations</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Rigging</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Topside Plant*</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Dive Platform</td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
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<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MJ MD MN IN</td>
<td>A C L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
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</table>
### OTHER HAZARDS

<table>
<thead>
<tr>
<th>Identified Hazard</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous Marine Animals</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Non Associated Boat Traffic (Small Craft)*</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Shipping Movements</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Water Inlets</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Water Outfalls*</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Water Pressure Differentials*</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Use of Hazardous Substances</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Existing in Water Chemical Pollutants</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Existing in Water Biological Pollutants</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Explosives</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Hazards Peculiar to Dive Site</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Hazards Peculiar to Dive Site</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
</tbody>
</table>

### TASK RELATED CONDITIONS

<table>
<thead>
<tr>
<th>Identified Hazard (Consider what is required for Searching, Recovery, First aid and Evacuation)</th>
<th>Assessed Consequence</th>
<th>Assessed Likelihood</th>
<th>Assessed Risk</th>
<th>Risk Control</th>
<th>Assessed Risk after Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and Availability of Emergency Personnel</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Location and Availability of Emergency Equipment</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Standby Diver / Buddy*</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
<tr>
<td>Alternate Air Supplies*</td>
<td>MJ MD MN IN</td>
<td>AC L P U R</td>
<td>E H M L</td>
<td>E H M L CR</td>
<td></td>
</tr>
</tbody>
</table>

**Significant Changes** – Work must stop immediately if there is a significant change in the method or type of work to be done or in the environmental conditions.

All participants must read, acknowledge and understand this record before diving can commence.

<table>
<thead>
<tr>
<th>Names of Participants</th>
<th>Signature: I have read, acknowledge and understand this record</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A12.1.4 Hazard Checklist – DIVING

The following checklist of hazards and other items should be considered when planning diving work:

**Task related factors**
- free-swimming survey work
- quadrat survey work
- transect survey work
- lifting with lift bags
- suction sampling with air lift
- sample collecting
- enclosed diving (caving/wrecks)
- barrier netting
- photography (cold)
- boat handling/unguarded propellors
- shipping movement
- manual handling
- pressure differentials/suction entrapment
- entry/exit methods
- lifeline entanglement
- dive profiles
- sufficient trained personnel

**Fauna and Flora**
- stinging animals (marine)
- other dangerous marine animals
- handling of small animals
- handling of large animals

**First Aid Requirements**
- first aider in group?
- first aid kit in tow vehicle
- first aid kit in boat
- oxygen kit in boat
- O2 cylinder (adequate size?)
- any additional items required?

**Post/Pre Dive Clothing**
- sun hat
- towel
- winter clothing (all year)
- trousers/overalls
- wet weather equipment
- appropriate footwear

**Pre & Post Dive Factors**
- pre dive fitness
- fatigue
- dehydration
- drugs/alcohol
- exercise
- sleep deprivation

**Dive Team**
- size
- composition
- experience of each individual
- fitness
- individual medical conditions

**Personal Protection**
- adequate exposure protection
- adequate exposure (e.g. exp. suit, gloves, boots, hood)
- harness (SSBA/tethered SCUBA)
- overgloves
- lycra suit
- overalls over wetsuit/drysuit
- welding visor
- adequate clothing for Dive Attendant

**Emergency Response Factors**
- location/availability of emergency medical system
- emergency response/evacuation plan
- trapped/lost diver communications

**Hyperbaric/Physiological Factors**
- barotraumas of ascent/descent
- decompression illness
- hypothermia
- hyperthermia
- CO poisoning
- CO2 poisoning
- Nitrogen narcosis
- O2 toxicity
- drowning
- exhaustion
- cross infection
- long duration dives

**Fire and Explosion**
- flammable substances
- explosives

**Thermal hazards**
- cryogenic fluids
- hypothermia
- heatstroke

**Electrical**
- high voltage equipment eg generator
- 240v electrical equipment

**Overseas fieldwork**
- disease
- vaccinations
- political climate

**Other (specify)**

**Task related factors**
- free-swimming survey work
- quadrat survey work
- transect survey work
- lifting with lift bags
- suction sampling with air lift
- sample collecting
- enclosed diving (caving/wrecks)
- barrier netting
- photography (cold)
- boat handling/unguarded propellors
- shipping movement
- manual handling
- pressure differentials/suction entrapment
- entry/exit methods
- lifeline entanglement
- dive profiles
- sufficient trained personnel

**Fauna and Flora**
- stinging animals (marine)
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- handling of small animals
- handling of large animals

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- first aider in group?
- first aid kit in tow vehicle
- first aid kit in boat
- oxygen kit in boat
- O2 cylinder (adequate size?)
- any additional items required?

**Post/Pre Dive Clothing**
- sun hat
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- appropriate footwear

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- dehydration
- drugs/alcohol
- exercise
- sleep deprivation

**Dive Team**
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- composition
- experience of each individual
- fitness
- individual medical conditions

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- O2 toxicity
- drowning
- exhaustion
- cross infection
- long duration dives

**Fire and Explosion**
- flammable substances
- explosives

**Thermal hazards**
- cryogenic fluids
- hypothermia
- heatstroke

**Electrical**
- high voltage equipment eg generator
- 240v electrical equipment

**Overseas fieldwork**
- disease
- vaccinations
- political climate

**Other (specify)**
A12.1.5 Diving Risk Table

The following checklist of hazards/risks and other items may be of assistance when planning diving work:

<table>
<thead>
<tr>
<th>RISK FACTOR</th>
<th>LOWER RISK</th>
<th>MODERATE RISK</th>
<th>HIGHER RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather and sea</td>
<td>calm, settled weather pattern</td>
<td>calm, unsettled weather pattern</td>
<td>rough</td>
</tr>
<tr>
<td>Site exposure</td>
<td>sheltered</td>
<td>exposed</td>
<td></td>
</tr>
<tr>
<td>Time of day</td>
<td>start and finish in full daylight</td>
<td>start at/before dawn and finish near/after dusk</td>
<td>night diving</td>
</tr>
<tr>
<td>Current at site</td>
<td>nil to weak</td>
<td>moderate</td>
<td>strong</td>
</tr>
<tr>
<td>Depth at work site</td>
<td>&lt; 18m</td>
<td>18m – 30m</td>
<td>&gt; 30m</td>
</tr>
<tr>
<td>Site location</td>
<td>location not remote sheltered embayment</td>
<td>2-3 divers (multiples)</td>
<td>single diver</td>
</tr>
<tr>
<td>No. of personnel</td>
<td>2 – 3 divers (multiples)</td>
<td>1 replay group less than no-deco limit</td>
<td>dive to no-deco limit</td>
</tr>
<tr>
<td>Diving experience of personnel</td>
<td>At least 2 repetitive groups less than no-deco limit</td>
<td>1 replay group less than no-deco limit</td>
<td></td>
</tr>
<tr>
<td>Duration of dive</td>
<td>multiple ascents</td>
<td>multiple ascents</td>
<td></td>
</tr>
<tr>
<td>Dive profile</td>
<td>'ideal' profile</td>
<td>'square' profile</td>
<td>'reverse' or 'sawtooth' profile</td>
</tr>
<tr>
<td>Multiple ascents</td>
<td>none</td>
<td>one or two</td>
<td>three or more</td>
</tr>
<tr>
<td>Local knowledge</td>
<td>know site well</td>
<td>some experience with or knowledge of site</td>
<td>little knowledge of site</td>
</tr>
<tr>
<td>Affect of boat traffic on dive site</td>
<td>infrequent traffic depth &gt; 5m</td>
<td>some traffic depth &gt; or &lt; 5m SSBA dive</td>
<td>high traffic/shipping lane depth &lt; 5m SSBA dive</td>
</tr>
<tr>
<td>Entrapment hazards</td>
<td>unobstructed ascent</td>
<td>obstructed ascent</td>
<td></td>
</tr>
<tr>
<td>Medical assistance?</td>
<td>&lt; 30 min. away</td>
<td>0.5 – 2 hrs away</td>
<td>&gt; 2hrs away</td>
</tr>
<tr>
<td>Repetitive diving</td>
<td>no more than 2 dives/day</td>
<td>3 – 5 dives/day</td>
<td>&gt; 5 dives day</td>
</tr>
<tr>
<td>Time since last dive</td>
<td>&lt; 3 months</td>
<td>3 – 6 months</td>
<td>&gt; 6 months</td>
</tr>
<tr>
<td>Handling marine life</td>
<td>general observation</td>
<td>observation of dangerous animals</td>
<td>Spearfishing manipulation of dangerous or venomous animals</td>
</tr>
<tr>
<td>Task related risks</td>
<td>use of slates, cameras etc</td>
<td>use of handheld pneumatic tools and/or small lift bags</td>
<td>use of heavy tools/frames and/or large lift bags</td>
</tr>
</tbody>
</table>
A12.2 SAFE WORK PRACTICES CHECKLIST

Relevant safe work practices/procedures must be developed for all projects as appropriate. Wherever possible, existing University of Queensland OH & S procedures should be used. As a minimum, all activities identified in the Diving Task Risk Assessment as having E, H, and M risk levels must have specific procedures developed for those activities by the work group involved.

List below ALL tasks identified as having H, to M risk from the Project/Task Risk Assessment.

1. ........................................................................................................................................
2. ........................................................................................................................................
3. ........................................................................................................................................
4. ........................................................................................................................................
5. ........................................................................................................................................
6. ........................................................................................................................................
7. ........................................................................................................................................
8. ........................................................................................................................................
9. ........................................................................................................................................
10. ..........................................................................................................................................  
11. ..........................................................................................................................................  
12. ..........................................................................................................................................  
13. ..........................................................................................................................................  
14. ..........................................................................................................................................  
15. ..........................................................................................................................................  

Responsible Person must agree to develop and implement safe work procedures for the above activities prior to work commencing, using the Safe Work Practice form.

Personal Protective Equipment (PPE) Requirements

The minimum PPE requirements for all personnel working on this project are as follows (tick appropriate):

**Divers**
- Wetsuit, gloves & booties
- Drysuit & gloves
- Mask, fins & snorkel
- Regulator set
- Buoyancy compensator
- Wetsuit

**Surface Attendants**
- Wet weather clothing
- Gumboots/deck boots
- Hearing protection

**All field personnel**
- Sun hat
- Sunglasses
- Sunscreen
- Inflatable PFD1

List other PPE required for specific tasks below:

1. ........................................................................................................................................
2. ........................................................................................................................................
3. ........................................................................................................................................
4. ........................................................................................................................................
5. ........................................................................................................................................
A12.3 SAFE WORK PRACTICES FORM

Use the headings and prompts to fill in the form to create the safe work practice document you need.

Purpose of SWP: ........................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Scope of SWP: ........................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Responsibilities (Who is involved and what are they responsible for): ..............................................
.................................................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Procedure (eg Write in dot points/steps): ..............................................................................................
.................................................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Equipment/Plant (Detail equipment/plant required): ...........................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Training (eg What training is required, if any, to ensure the SWP works?): ........................................
.................................................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................
.................................................................................................................................................................

Attachments & Forms (if any): ................................................................................................................
.................................................................................................................................................................
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Appendix 13  POST DIVE REPORT FORM

A completed copy of this form must be given to the University Diving Officer (ph. 3365 1095) at St. Lucia or Delegate within 72 hours of the conclusion of any University diving trip.

NB: It must be submitted in conjunction with a copy of the initial Dive Plan Form and with completed Dive Record Forms covering each diver for every dive on each day’s diving of the operation.

| Dive Coordinator’s Name/s: | ……………………………………………………………………………………………………………… |
| Actual Dives Conducted: | ……………………………………………………………………………………………………………… |
| Date 1: | ……………………………………………………………………………………………………………… |
| Date 2: | ……………………………………………………………………………………………………………… |
| Date 3: | ……………………………………………………………………………………………………………… |
| Date 4: | ……………………………………………………………………………………………………………… |
| Date 5: | ……………………………………………………………………………………………………………… |
| Dive Leaders for each dive (if other than Coordinator): | ……………………………………………………………………………………………………………… |
| Diver/s: | ……………………………………………………………………………………………………………… |
| Dive Attendant/s: | ……………………………………………………………………………………………………………… |

Diving method/s used: SNORKEL ( ) SCUBA ( ) EANx ( ) SSBA ( ) REBREATHER ( )

Comments (including reasons for any alterations to proposed dives, success of dives etc):

……………………………………………………………………………………………………………

WERE ALL DIVERS WELL – 1 HOUR ☐ 6 HOURS ☐ 24 HOURS ☐ AND 48 HOURS ☐

AFTER THE COMPLETION OF THEIR LAST DIVE

If not, Attach incident report: ………………………………………………………………………………………………………………

Faulty equipment report, incl. problems with vessel (NB. such equipment must be tagged OUT OF SERVICE and given directly to the BDO immediately on return from your trip. Do not leave it with other equipment):

Was any oxygen used? ………………………… Details (even if just precautionary use)? ………

……………………………………………………………………………………………………………

Dive Coordinator’s Signature/s: …………… Date: …………………………………………………

| BDO or Delegate Signature: | ……………………………………………………..Date: …………… |
| Comments: | ……………………………………………………………………………………………………………… |
| | ……………………………………………………………………………………………………………… |
Appendix 14 DIVING PROCEDURES STATEMENT OF UNDERSTANDING

No diver may be listed as a diver on the University of Queensland Diver Register until they have completed a copy of this form and it has been stamped by the Boating & Diving Officer (ph. 3365 1095) or Delegate.

PLEASE READ THIS DOCUMENT CAREFULLY, AND ENSURE YOU HAVE MET ALL REQUIRED

I .......................................................... (please enter name in full) hereby declare that I have read in full the University of Queensland (UQ) Diving Policy and Procedures Manual and have a clear understanding of it's scope and contents, as well as my responsibilities as a Diver / Dive Coordinator / Site Diving Officer (delete whichever is not applicable) as outlined therein. I have undergone an induction process with the individual named below, which covered at least the following topics (please tick applicable boxes):

□ use and content of Diving Policy and Procedures Manual;
□ responsibilities of Divers;
□ the university risk assessment process;
□ use of the DCIEM short form decompression tables/EANx; and
□ use of University vehicles, vessels and equipment, including towing.
□ responsibilities of Dive Coordinators (where applicable), including but not limited to:
  □ daily boating & diving safety record;
  □ requirements for Nominated Contacts;
  □ use of Dive, Dive Record and Post Dive Forms;
  □ Risk Assessment, emergency plans, and implementation of emergency protocols;
  □ defective equipment tagging and reporting procedures.

I declare that I have a good working knowledge of the DCIEM decompression tables, and I understand that these tables are to be used to govern all dives I undertake for the University, except where any mechanism suggests that a more conservative dive should be undertaken. The intent is to ensure the safety of all Divers, and Diving operations.

I agree that at all times I will follow safe diving practices as outlined in the Diving policy and Procedures Manual, and will observe the directions given in the Manual and any other directions that may be given to me by the University of Queensland Boating & Diving Officer or a University of Queensland Site Diving Officer, provided I feel that it is safe to do so.

On my addition to the University Diver Register, I wish to be rated to dive using the following methods, and have submitted documentation to allow the BDO to determine my eligibility for this.

Diving method/s I wish to use: SNORKEL ( ) SCUBA ( ) EANx ( ) SSBA ( ) REBREATH ( )

Signed .............................................................. (signature) Date ........................................
Induction By .......................................................... (print name) Date ........................................
Witnessed By ........................................................ (signature) Date ........................................
Witness' Name in Full ........................................................................................ (print name)
Appendix 15  SAMPLE UNDERGRADUATE DIVE PROTOCOL

Prior to any undergraduate student participating in a compressed gas diving written permission shall be sought from the relevant Head of Section and Executive Dean of the relevant Faculty.

Participation in any diving activity by undergraduate students (including snorkel diving) is at the discretion of the University Diving Officer, and on site, by the staff member present who is acting as Dive Coordinator. Non-compliance with any reasonable rule or instruction given by the Dive Coordinator or the BDO will automatically lead to the person(s) concerned being excluded from further diving activities.

1. No alcohol is to be consumed within the 12 hours prior to diving. Excessive alcohol consumption at any time will result in the person concerned being banned from all diving.

2. Students must only dive in their assigned teams, and a Dive Leader / Snorkel Guide for each team must be appointed by the BDO, Site Diving Officer or Dive Coordinator or . Dive Leaders / Snorkel Guides shall be responsible for the other members of their team, and for ensuring all divers in their team abide by any instructions. Dive Leaders / Snorkel Guides are responsible for ensuring all equipment is adequately washed in fresh water at the end of the diving day.

3. During any dive, each dive team present must be marked with a buoy, and all team members must maintain visual contact with all other members at all times. If visual contact is lost with any diver, then all diver(s) must surface and the team reform.

4. Dives are restricted to a depth of less than 12 metres, and a maximum time of 1 hour.

5. No diving or snorkelling is permitted at night unless permission is received from the BDO or Site Diving Officer.

6. Adverse weather or water conditions will be avoided, and may result in the cancellation or termination of any dive or snorkel trip. Undergraduate activities should take place in low risk conditions (Section 8.31)

7. It is the responsibility of each diver to ensure that their “Time In”, “Time Out” and “Maximum Depth” are recorded by the Dive Coordinator/Diver’s Attendant.

8. No dive team may leave the assigned area or location during the course of a dive. Entering caves, tunnels or crevices is not permitted.

NB: The above is intended as a sample protocol only. Any diving protocol must be developed taking into consideration all relevant factors, including but not limited to the abilities of the divers involved, the number of divers involved, the task/s to be undertaken, the location of the site, and the likely conditions at the site during the dive/s.
Appendix 16 – REQUEST FOR DIVING RECIPROCITY – VERIFICATION OF DIVER TRAINING AND EXPERIENCE

A scientific diver that is currently certified under the auspices of an organized scientific diving program may be recognized by The University of Queensland, and may apply for direct reciprocity in order to dive with The University of Queensland. At a minimum, the requesting organization must meet the Queensland Government Occupational Health & Safety and Australian Standards requirements for scientific diving. The visiting scientific diver will be required to comply with the diving regulations of The University of Queensland Scientific Policy and Procedures Manual in current use unless previously arranged by both organisations Diving Control Boards.

The University of Queensland has the right to approve or deny this request and may require, at a minimum, a checkout dive with the Boating and Diving Officer or Site Diving Officer, Heron Island Research Station or designee of UQ. If the request is denied, UQ will notify to the DSO of the visiting diver the reason for the denial. The DSO for the visiting scientific diver has confirmed the following information.

(Date)

___/___/___ Written Diving Examination

___/___/___ Last Diving Medical Examination

___/___/___ Diving Medical Expiration

___/___/___ Scuba Regulator / Equipment Service / Test

___/___/___ CPR Training (Agency) ________________________________

___/___/___ Oxygen Administration (Agency) ________________________

___/___/___ First Aid Training (Agency) ______________________________

___/___/___ Date of Last Dive

Number of dives completed within previous 12 months? Depth Certification msw

Maximum dive depth in the last 12 months? ______ msw Active in Program ____/____

Any Restrictions? Yes / No If Yes, Explain ________________________________

Please check any pertinent specialty certifications:

___ Dry Suit

___ Nitrox

___ Mixed Gas

___ Rebreather

___ Saturation

___ Decompression

___ Dive Computer

___ Instructor

___ EMT

___ Dive Accident Management

___ Chamber Operator

___ Dive Medic (DMT)

___ Rescue

___ Divermaster

___ Altitude

___ Ice /Polar

___ Cave

___ Night

___ Lifesaving

___ Other

Name of Diver: ..............................................................................................................
Emergency Information: (To notify in an emergency)

Name: ......................................................................................................................................................

Relationship: ............................................................................................................................................

Address: ....................................................................................................................................................

Telephone: (work) ......................................................... (home) ................................................................

Email: ......................................................................................................................................................

This is to verify that the above individual is currently a certified scientific diver at:

..............................................................................................................................................................

(Name of organised scientific diving program)

Diving Safety Officer:

.............................................................................................................................................................. (Signature)   ......................................................................................................................... (Date)

.............................................................................................................................................................. (Print Name)   ...................................................(Telephone)
Appendix 17  NOMINATED CONTACT INFORMATION FORM

This sheet has been provided to inform you of your responsibilities as a registered Boating and Diving ‘Nominated Contact’. If you have any questions regarding this role, please phone the University Diving Officer on the number listed below.

VERY IMPORTANT: When asked to be the nominated contact for a field trip, you must ensure you are given (or at least have access to) all of the details listed below regarding that trip. NB: the Field Leader for the trip should have also left these details on the UQ Dive Plan Form.

Trip Details:
Names of all personnel on the trip (including a mobile or home phone number for each individual):

.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................

Intended date/time of the groups departure for the field:

.................................................................
.................................................................
.................................................................
.................................................................

Exact Destination, including map ref. if possible, and launching site if boating:

.................................................................
.................................................................
.................................................................
.................................................................

Transport to/from site, including vehicle registration numbers and/or boat type (if applicable):

.................................................................
.................................................................
.................................................................

Means of contact while in the field (radio, mobile phone etc), including relevant contact no’s. or radio frequencies:

.................................................................
.................................................................
.................................................................

Planned date and time of return from trip:

.................................................................
University Contact Details:
Diving Officer:    Mike Phillips    Ph:  07 3365 1095 (w), 0438 651 095 (m)
Director: .................................................................    Ph: .................................................................
School Laboratory Manager: ......................................    Ph: .................................................................
Project Supervisor: .................................................................    Ph: .................................................................
Emergency contacts:
Nearest Police Station to site: ........................................ Ph: .................................................................
Brisbane Water Police Base: 38950333 (24 hours)
Gold Coast Water Police: 07 5591 1066
Redland Bay Water Police: 07 3829 0450
Sunshine Coast Water Police 07 5437 7396
Hervey Bay Water Police 07 4125 3900
Yeppoon Water Police 07 4933 7990
Whitsunday Water Police 07 4946 4793
Townsville Water Police 07 4760 7812
Cairns Water Police 07 4035 1733
Thursday Island Water Police 07 4069 1520
Wesley Hospital Hyperbaric Unit: 07 3371 6033
Queensland Emergency Services (police, ambulance, fire): 000

The Nominated Contact for any University field trip must take the following actions if personnel from a trip for which he/she is responsible have not returned, or checked in, by 2 HOURS after the nominated time on this form if the trip was a terrestrial field trip, or 1 HOUR if the trip involved boating field (including freshwater boating).

Call the home phone numbers of all other personnel on the trip (should be listed above) to see if any of them are home yet, or if others have any news of the trip;

For boat trips/walking trips, if possible (if not too far away) check the point of departure, i.e. boat ramp, launching site or parking area, to see if the tow/transport vehicle is still at the site;

If no contact, and no sign of the group is found, notify the University Diving Officer and/or Head of Department and/or Supervisor;

If none of the above can be contacted, call the Brisbane Water Police Base or Nearest Police Station to site (phone numbers above). The Police will require all necessary details, so you will need to have these at hand when making the call.
# NOAA Oxygen Exposure Limits

<table>
<thead>
<tr>
<th>PO2 atm</th>
<th>Maximum Single Dive Limit (min)</th>
<th>Maximum Daily Limit (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>45</td>
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</tr>
<tr>
<td>1.5</td>
<td>120</td>
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<tr>
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<td>570</td>
</tr>
<tr>
<td>0.6</td>
<td>720</td>
<td>720</td>
</tr>
</tbody>
</table>
Appendix 19  LOST DIVER PROCEDURE

If the Dive Team has not surfaced by the agreed time the following procedure should be followed.

1. Notify Research Station or Volunteer Marine Rescue by radio immediately!

2. Assess degree of urgency:
   Consider: time overdue, planned dive profile, possible decompression & air status.

3. Place lookout at highest possible observation point who should:
   Scan 360 degrees
   Look for bubbles and along the shoreline.
   Consider current movement and possible changes.
   Once the diver is spotted, do not lose sight of the diver.

4. If bubbles are sighted then send snorkellers to investigate.

5. Check that the diver has not left the area or boarded near by boats.

6. Consider using snorkellers to look for divers or their bubbles.

7. Buoy the area where the diver was last seen.

8. If it appears necessary to conduct search recall all divers.
   A Recall Signal must be established prior to anyone entering the water, it is normally 3 long engine revs, continuously hitting a metal object underwater or firing a parachute flare into the water and for snorkellers air horn or whistle

If a diver from the dive team returns then:
   Question the diver to determine:
   Any obvious problem
   When & where last seen, what he/she was doing, direction he/she was swimming
   Maximum depth reached
   Last known air pressure and likely air consumption rate
   Divers likely action in the event of a buddy separation
   Where you surfaced relative to the position you last saw the other diver
   Then continue as described above.
Appendix 20  DIVER AND SNORKELLER RECOVERY PROCEDURE

The following procedure should be used to safely retrieve a snorkeller or diver from the surface while not endangering other people.

Golden Rules:

- Do NOT endanger anyone else
- Do NOT leave anybody behind
- Do NOT panic
- Always practice good seamanship

1. Keep the person in sight at all times
2. Do not waste time pulling up anchor, attach a life jacket or a float to the anchor line. Release the anchor line so it will act as a search marker buoy
3. When approaching the person, remember the following:
   - Sound air horn to alert people to move clear of the boat and motors
   - If there are other people available appoint a look out at the bow of the boat, to warn the snorkel / dive guide and to warn them to keep clear of the boat.
   - Look out for divers and snorkellers surfacing
   - Approach at a safe speed, be careful not to run into anyone
   - Approach from upwind if possible, so the boat is blown towards victim
   - Be careful boat is not blown or swept by current into a dangerous area. (reef edge)
   - Place the motor into neutral when you are close to and are recovering the person.
   - (or any other divers / snorkellers)
4. Drop weight belt & scuba unit (if necessary) before recovering the victim
   (if practical retrieve scuba unit as well for possible future investigations)
5. Radio Research Station or Volunteer Marine Rescue
   If radio contact cannot be established, continue trying on route.
   Do NOT waste time trying to establish contact, return to the point of departure ASAP
   Send a messenger to the Research Station Office to notify the Station Manager. (if operating from research station)
6. Recall all Personnel
7. Begin First Aid, CPR and /or Oxygen Treatment as required
8. Return to Research Station or point of departure

Do not leave any one behind without boat support

If it is not possible to return to research station or point of departure without assistance the research station staff or Volunteer Marine Rescue Organisation will send a rescue boat to assist
(I.E. Performing CPR, unable to recall divers or other time delays)

Research Station Staff / Volunteer Marine Rescue Personnel will arrange for further Medical Assistance and Evacuation if required.

The Dive Coordinator should gather the persons dive equipment (intact) and all information about the accident, dive profile to give to medical personal and complete the appropriate reports.
Appendix 21  DIVING EMERGENCY PROTOCOLS

As all divers should be aware, many diving medical problems require immediate hyperbaric treatment if they are to be successfully resolved. In the field, or during transport to a recompression facility, the best first aid that can be administered for injuries/illnesses such as DCI or air embolism (and others) is oxygen delivered at as close to 100% as possible.

The flow chart on the next page may be used by Dive Coordinators as a basic template to design a site specific Emergency Response Protocol. The flow chart would slot into place along with the other steps required during an emergency, for example:

1. DRABC. Recall all divers/swimmers to the boat or shore. If possible recover all equipment after any accident, and separate it from other equipment for subsequent examination. The Dive Leader may decide not to recover equipment if doing so would be unsafe or cause undue delay;

2. Seek appropriate medical assistance and follow any directions you are given. Appendix 27 provides a list of Queensland medical facilities and doctors trained in diving medicine;

3. Ensure other members of the dive team are not at risk and that all divers are present;

4. Ensure that in the emergency, no equipment has been left in a dangerous condition;

5. Organise evacuation to the nearest hospital or vacant recompression chamber as dictated by the circumstances, the casualty's condition, or medical advice (NB. If you ring the DAN, confirm whether they will organise the evacuation or not);

6. Record the details of the casualty's dive immediately, including where the accident occurred, and the sequencing of treatment. Conditions of the emergency can often lead to neglect in completing the diving log/record, which may make it impossible afterwards to determine the time for which the diver was in the water. Such a record is extremely useful to the doctor treating the casualty, in the construction of a therapeutic profile, and in helping with the understanding and avoidance of future diving accidents;

7. Ensure the diver's dive record sheets and (if possible) their log book are available for the doctor, particularly if recompression is required. Details of the diver's last medical examination may be useful if these can be obtained quickly;

8. When the immediate emergency has passed and all necessary steps have been taken to assist the casualty, a full record of the incident must be compiled by the Dive Coordinator (or by the BDO in the event the Dive Coordinator is incapacitated). To help with this, all personnel involved in the incident should endeavour to make notes on what happened as soon as possible after the incident, obtaining details from other divers, noting exact times etc;

9. It must be remembered that the buddy of any diver who develops symptoms of decompression sickness, even on a dive apparently carried out according to the tables, may also develop symptoms at a later time and require recompression. In such a situation, the dive buddy should be kept under observation for at least 24 hours after the incident.

IF A DIVING EMERGENCY DEVELOPS

Important: Any call for medical assistance will be improved if you give important information such as your location, the type of emergency (diving, boating, etc), number of people affected, their approximate age and sex, signs and symptoms and vital signs (descriptions of pulse, breathing, consciousness level), first aid given and any changes in patient's condition.
Give immediate first aid as required. e.g. DRABC, Oxygen etc.

Collect Essential Information:

- Number of patients?
- Condition? i.e. conscious? require resuscitation? obvious major injury/problem?
- Progressive state of patient/s e.g. stable, good colour, getting worse?

See Appendix 24 for Field Neurological Assessment tests.

- Brief diving history relating to incident?
- Medical equipment on site?

Get Someone Else to Record Details of:

- Patient's full recent diving history for at least the preceding 48 hours
- Recent and longer term medical history of patients eg. colds, previous injuries, medications etc
- Names, addresses and medical training of people on site

Contacts using Phone or Radio

PRIMARY CONTACT
Emergency Phone/Radio Frequency: Make contact with Diving Medical Doctor,
Hyperbaric Chamber, DAN
Give location and landmarks:

SECONDARY CONTACT
Emergency Phone/Radio Frequency: University Diving Officer
Ph. 0438 651 095
Give location and landmarks:
Same as primary

Longitude:

Provide a brief summary of the incident

Stand-by for instructions
Appendix 22  FIELD NEUROLOGICAL ASSESSMENT TEST

Five-Minute Neurological Exam

Examination of an injured diver's central nervous system soon after an accident may provide valuable information to the physician responsible for treatment. The Five-Minute Neuro Exam is easy to learn and can be performed by individuals with no medical experience. The examination can be done whilst reading from this manual. Perform the following steps in order, and record the time, and the results for each test.

1. Orientation
   - Does the diver know his/her name and age?
   - Does the diver know the present location?
   - Does the diver know what time, day, year it is?

Even though an individual may appear alert, the answers to these questions can reveal confusion. Do not omit them.

2. Eyes

Have the diver count the number of fingers you display, using two or three different numbers of fingers. Check each eye separately and then together. Have the diver identify a distant object. Tell the diver to hold head still - or you gently hold it still - while placing your other hand about 45 centimetres (slightly less than a half meter) in front of the face. Ask the diver to follow your hand. Now move your hand up and down, then side to side. The diver's eyes should follow your hand and should not jerk to one side and return (called nystagmus). Check that the pupils are equal in size.

3. Face

Ask the diver to whistle or purse their lips. Look carefully to see that both sides of the face have the same expression whilst whistling. Ask the diver to grit their teeth. Feel their jaw muscles to confirm that they are contracted equally.

Instruct the diver to close his/her eyes while you lightly touch your fingertips across their forehead and face. Confirm that sensation is present, and feels the same everywhere.

4. Hearing

Evaluate the diver's hearing by holding your hand about two feet from the individual's ear and rubbing your thumb and finger together. Check both ears by moving your hand closer until the diver hears it.

Check several times and compare with your own hearing. NB. If the surroundings are noisy, this test is difficult to evaluate. If necessary, ask any bystanders to be quiet and turn off unneeded machinery.

5. Swallowing Reflex

Instruct the diver to swallow while you watch their "Adam's apple" to be sure it moves up and down.

6. Tongue

Instruct the diver to stick out their tongue. It should come out straight in the middle of the mouth without deviating to either side.

7. Muscle Strength

Instruct the diver to shrug their shoulders while you bear down on them, to observe for equal muscle strength. Check the diver's arms by bringing their elbows up level with their shoulders, hands level with the arms, and touching their chest. Instruct the diver to resist while you pull their arms away, push them back, and move them up and down. The strength should be approximately equal in both arms in each any direction. Check leg strength by having the diver lie flat and raise and lower their legs while you resist the movement.
8. Sensory Perception

Check on both sides by touching lightly as was done on the face. Start at the top of the body and compare sides while moving downwards to cover the entire body. The diver’s eyes should be closed during this procedure. The diver should confirm the sensation in each area before you move to another area.

9. Balance and Coordination

Be prepared to protect the diver from injury when performing this test. Have the diver stand up with feet together, close their eyes and stretch out their arms. The individual should be able to maintain balance if the platform is stable. Your arms should be around, but not touching the individual, in case they fall.

Be prepared to catch a diver who starts to fall.

Check coordination by having the diver move an index finger back and forth rapidly between their nose and your finger - held approximately 18 inches (slightly less than a half meter) from their face. In another test of coordination, instruct the diver to slide the heel of one foot down the shin of the other leg while lying down.

Conduct these tests on both right and left sides, and observe carefully for differences between the two sides. Tests 1, 7, and 9 are the most important, and should be given priority if not all tests can be performed.

The diver’s condition may prevent the performance of one or more of these tests. Record any omitted test, and the reason. If any of the tests appear abnormal, injury to the central nervous system should be suspected.

The tests should be repeated at frequent intervals while awaiting assistance, to determine if any change occurs. Report the results to the emergency medical personnel responding to the call.

Good diving safety habits would include practicing this examination on normal uninjured divers, to become proficient in the test.
## Appendix 23  RAPID FIELD NEURO EXAM RECORD

**Diver’s Name:** ........................................**Name of Examiner:** ....................................  
**Date:** ........................................

**Initial Complaint:** .................................................................................................................................

<table>
<thead>
<tr>
<th>Time</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Mental Status:  Does he/she know
1. His/her name?
2. Where he/she is?
3. Time of day?
4. Most recent activity?
5. Speech is clear, correct?

### Sight:
1. Correctly counts fingers?
2. Vision Clear?

### Eye Movement:
1. Move all four directions?
2. Nystagmus absent?

### Facial Movements:
1. Teeth clench OK?
2. Able to wrinkle forehead?
3. Tongue moves all directions?
4. Smile symmetrical?

### Head/shoulder movements:
1. "Adams Apple" movement?
2. Shoulder shrug normal, equal?
3. Head movements normal, equal?

### Hearing:
1. Normal for that diver?
2. Equal both ears?

### Sensations:  Present, normal and symmetrical across?
1. Face
2. Chest
3. Abdomen
4. Arms (front)
5. Hands
6. Legs (front)
7. Feet
8. Back
9. Arms (back)
10. Buttocks
11. Legs (back)

### Muscle Tone:  Present, normal and symmetrical for:
1. Arms
2. Legs
3. Hand Grips
4. Feet

### Balance and Co-ordination:
1. Romberg OK?
2. Pulse
3. Respiration

Nystagmus – involuntary oscillation of the eyeball, usually lateral but sometimes rotary or vertical.
Appendix 24  FIRST AID EQUIPMENT FOR DIVING OPERATIONS

First aid provisions for diving operations shall allow for the treatment of specific conditions or injuries that can result from diving or exposure to the marine environment.

A24.1 GENERAL EQUIPMENT

Some form of protection/shelter from the environment, eg blankets, towels, dry cloths, etc.

a. Drinking water for the prevention of dehydration and the management of decompression illness.
b. A phone card or coins in case a phone is needed.
c. Note pad and pencil to record details of incidents, treatment and signs/symptoms.

A24.2 OXYGEN EQUIPMENT

At all dive locations there shall be access to adequate supplies of oxygen and suitable equipment for its administration set up and ready for use. All divers are required to undertake training in the use of oxygen resuscitation equipment, such as the units provided by DAN (Diver’s Alert Network).

A24.3 FIRST AID KIT

Suggested contents of a standard first aid kit. As the distance from medical assistance increases so may the contents of the kit need to increase.

d. adhesive strips (assorted sizes)
e. non-allergenic adhesive tape (at least 1 roll - 5m x 2.5 cm)
f. eye pads (at least 5 single packs)
g. triangular bandages (at least 2), hospital crepe or conforming bandages (various sizes) and heavy smooth crepe roller bandages (6 bandages of * 7.5 cm width)
h. wound/combine dressings and non-adhesive dressings (assorted sizes)
i. safety pins
j. heavy duty scissors - must be easily capable of cutting through 10 mm wetsuit rubber
k. kidney dish and forceps
l. gauze squares (2 packets)
m. disposable latex or vinyl gloves (at least 10 - preferably a small box)
n. sharps disposal container
o. sterile saline/water (at least one 250 ml bottle, or a number of 30 ml single use ampoules)
p. resuscitation mask
q. antiseptic solution (eg. Normal saline)
r. soft brush for cleaning wounds
s. general first aid and diving first aid manuals
t. sunscreen
u. ear drops
v. hot and cold packs
w. vinegar
x. exposure blankets (NB. care should be taken with these, as they can accelerate heat loss if placed directly beneath a patient without some form of insulation being provided as well).
Appendix 25  QUEENSLAND MEDICAL FACILITIES

A25.1  'DIVING DOCTORS' *

A complete list of medical practitioners with training in diving medicine is maintained by the South Pacific Underwater Medicine Society (SPUMS), and is available from their website at http://www.spums.org.au

All commercial diving medicals undertaken by individuals wishing to be listed on the University Diver register must be done through one of these SPUMS accredited doctors.

A25.2  MEDICAL CENTRES/CONTACTS - BRISBANE AND GENERAL

<table>
<thead>
<tr>
<th>Diving Emergency Service / Diver Alert Network (D.A.N.) if diving related</th>
<th>1800 088 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>This number is attended 24 hours/day. Toll free for calls within Australia.</td>
<td></td>
</tr>
<tr>
<td>Emergency Services</td>
<td>000</td>
</tr>
<tr>
<td>Wesley Hospital Hyperbaric Unit</td>
<td>07 3371 6033</td>
</tr>
<tr>
<td>Townsville General Hospital Hyperbaric Unit</td>
<td>07 4781 9211</td>
</tr>
<tr>
<td>Gold Coast Water Police</td>
<td>07 5591 1066</td>
</tr>
<tr>
<td>Brisbane Water Police</td>
<td>07 3895 0333 (24 hours)</td>
</tr>
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<td>07 4933 7990</td>
</tr>
<tr>
<td>Whitsunday Water Police</td>
<td>07 4946 4793</td>
</tr>
<tr>
<td>Townsville Water Police</td>
<td>07 4760 7812</td>
</tr>
<tr>
<td>Cairns Water Police</td>
<td>07 4035 1733</td>
</tr>
<tr>
<td>Thursday Island Water Police</td>
<td>07 4069 1520</td>
</tr>
<tr>
<td>University Boating &amp; Diving Officer</td>
<td>0438 651 095</td>
</tr>
<tr>
<td></td>
<td>07 3365 1095 (W)</td>
</tr>
</tbody>
</table>
Appendix 26 COMMUNICATIONS

As per Section 3.8 of the Diving Policy and Procedures Manual - where divers are required to use a communications system, or wish to do so, the BDO should be consulted prior to diving and the guidelines below should be adopted.

A26.1 LIFELINE SIGNALS

In situations where University of Queensland Divers are required to operate with lifelines tethering them to the boat, attended by a surface Diver's Attendant, those Divers and the Dive Attendant must be familiar with the standard communication signals used in this situation - as listed below.

These signals have been mainly developed for use by commercial divers, and can be complex and difficult to use. If using this system for communication, divers and attendants should attempt to keep signals as simple as possible, so they can be understood even in a stressful situation. Line signals may be given either by a Diver's Attendant to a Diver, via a lifeline, or diver to diver with a buddy line.

Line signals comprise either pulls or bells or a combination of both. A pull is a steady movement of the line, of at least 0.5 metre - always given singly. A bell is a sharp quick tug, always given in pairs where possible, eg five bells is given as:

1 pull to get the attention of the Dive Attendant/buddy; then 2 quick tugs (pause), 2 quick tugs (pause), 1 quick tug

It should be noted that one bell does not exist as a signal on its own.

A26.1.1 Signals - Attendant to Diver

a) 1 pull To call attention. Are you OK?
b) 2 pulls Am sending down a rope's end (or as previously arranged)
c) 3 pulls You have come up too far. Go down slowly till we stop you
d) 4 pulls Come up
e) 4 pulls followed by 2 bells Come up / hurry up. Come up, surface decompression

A26.1.2 Direction Signals

a) 1 pull Search where you are
b) 2 bells Go to the end of distance line / jack-stay / lifeline
c) 3 bells Face shot lifeline then go right
d) 4 bells Face shot lifeline then go left
e) 5 bells Come in to your shot, or turn back if on a jackstay

A26.1.3 Signals - Diver to Attendant

General Signals

a) 1 pull To call attention / Made bottom / Reached end of jackstay
b) 2 pulls Send me down a rope's end (or as previously arranged)
c) 3 pulls I am going down again
d) 4 pulls May I come up?
e) 4 pulls followed by 2 bells Assist me up / I want to come up
f) Succession of pulls (>4) EMERGENCY SIGNAL (ONLY to be used in extreme emergency). Need not be answered, but must be obeyed IMMEDIATELY.
g) Succession of 2 bells Am fouled and need the assistance of another diver
h) Succession of 3 bells Am fouled but can clear myself if left alone

Working Signals

a) 1 pull Hold on / stop
b) 2 bells Pull up
c) 3 bells Lower
d) 4 bells Take up slack lifeline / you are holding me too tight
e) 5 bells Have found, started, or completed work.
A26.2 HAND SIGNALS

All divers should familiarise themselves with the hand signals most commonly required for SCUBA diving. These are shown below, and a sheet depicting them will also be given to all new divers by the University Diving Officer (this is available to other divers on request), or alternatively, the signals can be found in any ‘Open Water Diver’ manual –as released by diver training organizations.

Distress/Help
There

Buddy Breathe / Share Air

Stop / Hold It / Stay

OK/OK?

Danger OK?/OK (on surface at distance)

Go Up / Going Up

Low on Air

Something is Wrong

Out of Air

Go Down / Going Down
Pick Me Up (Surface)
A26.3 VOICE COMMUNICATION

There are a range of different voice communication systems available, but it should be noted that all voice communications equipment used for scientific diving must meet standards described in the Australian Standards for Occupational Diving AS2299.1 & AS2299.2.

It is particularly important where divers are intending to use, or are required to use, voice communication systems, that they be fully conversant with the particular equipment to be used prior to attempting any dive.

Familiarisation with equipment is especially important where full face masks are being used. In such a case, consideration should be given to performing a familiarisation dive, or dives, in sheltered waters prior to undertaking field operations.

On any dive where use of a voice communication system has been made conditional on the dive taking place, the dive must not take place without a backup communications system being employed (eg. a lifeline system), and all personnel involved in the operation being familiar with its use.
Appendix 27  DIVING AND BOATING SAFETY WORKING PARTY

Membership of the University of Queensland Diving and Boating Safety Working Party will comprise the University Boating and Diving Officer, the School of Biological Sciences, and the School of Biomedical Sciences, and a representative from the University of Queensland Occupational Health and Safety Unit.

As of August 2012, these individuals are:

University Boating & Diving Officer -  
  Mr. Michael Phillips. Ph. 07 3365 1095

Occupational Health and Safety Division Director -  
  Mr. Gary Chaplin - Ph. 07 3365 2365

Boating and Diving Representative – Global Change Institute -  
  Mr David Harris. Ph. 07 3365 4333 (reception)

Boating and Diving Representative – School of Biological Science  
  Associate Professor Greg Skilleter Ph. 07 3365 4819

Boating and Diving Representative – School of Veterinary Science  
  Dr Michael Noad Ph 07 3365 2088

Boating and Diving Representative – School of Biomedical Sciences  
  Mr. Alan Goldizen Ph. 07 3365 4080

Faculty of Science Safety Manager -  
  Mr Marshall Butterworth. Ph. 07 3365 8504
Appendix 28  CONDITIONS OF HIRE OF UQ VESSELS

CONDITIONS OF HIRE

1. The Hirer must use the Vessel only for research or teaching purposes.
2. The Hirer must satisfy UQ that the Hirer is familiar with the use and operation of the vessel (including towing, embarking and disembarking at a boat ramp), and the care and cleaning of the vessel.
3. The Hirer must comply with all relevant statutory regulations, guidelines and codes of conduct and UQ’s boating and diving policies.
4. The Hirer must register with the Authorised Officers and provide details of all persons who propose to dive or snorkel from the vessel during the Hire Period.
5. Before the start of the Hire Period, the Hirer must provide UQ with a current certificate of currency for public liability insurance coverage for a minimum of $10 million per claim. The Hirer must provide evidence that this insurance policy includes marine activities coverage.
6. The Hirer must read and sign the Vessel’s operations manual.
7. If the Hirer proposes to use the Vessel for diving or snorkelling activities, the Hirer must ensure that the vessel carries an oxygen resuscitation unit.
8. The Hirer is responsible for completing all relevant documentation during the Hire Period including risk assessments, damage reports and permits.
9. The Hirer must obtain and produce to UQ on request, an appropriate statutory permit if collecting organisms. A copy of this permit must be kept on the vessel during the Hire Period.
10. The Hirer must launch the Vessel from a boat ramp. Beach launches are prohibited.
11. The Hirer must report immediately to the Authorised Officers, any damage sustained to the vessel during the Hire Period.
12. By 9.00am each day during the Hire Period, the Hirer must report the location of the vessel and activities conducted on the vessel to the Authorised Officers. This report must be sent by facsimile or email.
13. At the end of the Hire Period, the Hirer must return the vessel to UQ in the same condition as at the commencement of the Hire Period.
14. The Hirer is responsible for –
   a. any fines incurred by the Hirer during the Hire Period;
   b. any damage to the vessel occurring during the Hire Period; and
   c. any costs or expenses incurred by UQ if the Hirer fails to comply with any clause in this agreement.
15. The Hirer indemnifies and holds harmless UQ, its employees and agents against all claims, demands, actions, suits, proceedings, losses, damages, costs and expenses which UQ may sustain or incur or for which UQ may become liable arising out of or in any manner connected with the Hirer’s use of the Vessel.
16. In this agreement –
   “Authorised Officers” means the UQ Boating and Diving Officer or delegate;
   “Hire Period” means the period of hire set out in this agreement;
   “Hirer” means the person or organisation hiring the vessel under this agreement;
   “UQ” means the University of Queensland;
   “Vessel” means the vessel the subject of this agreement and includes all equipment located on the vessel which is owned by UQ.
Examples meeting this criteria are: a person holding a certificate as an occupational diver issued by OSH New Zealand and holding a recreational dive supervisor qualification, a person holding a certification as a scientific diver issued by the European Scientific Diving Panel.