

CODE OF PRACTICE
FOR THE
TASMANIAN ABALONE INDUSTRY

FEBRUARY 2014

WHAT IS A CODE OF PRACTICE?

The term ‘Code of Practice’ has a particular meaning under the Tasmanian *Work Health and Safety Act 2012* (the Act). In particular, Section 22 (2) states:

“Codes of Practice provide practical guidance on how to meet the standards set out in the WHS Act and Regulations. Codes of Practice are admissible in proceedings as evidence of whether or not a duty under the WHS laws has been met. They can also be referred to by an inspector when issuing an improvement or prohibition notice.

It is recognised that equivalent or better ways of achieving the required work health and safety outcomes may be possible. For that reason, compliance with Codes of Practice is not mandatory providing that any other method used provides an equivalent or higher standard of work health and safety than suggested by the Code of Practice.

.”

Other codes of practice, such as the codes developed by the National Occupational Health and Safety Commission (NOHSC) or Standards Australia, voluntary codes agreed by industry, or codes adopted by other states or countries, do not come within the meaning of the term used in the Act unless called up as an approved code of practice. Part 14, Division 2 of the Act provides for Codes of Practice to be approved by the Minister for the purpose of providing practical guidance to employees, employers and any other persons on whom a duty of care is imposed under the Act.

Compliance with the provisions of a code approved by the Minister constitutes compliance with the provisions of the Act or a regulation to which the code is giving practical guidance. The provisions in a code are, however, not mandatory. That is, a person may choose to comply with the relevant provision of the Act or regulation in some other way, provided that the alternative method used also fulfils the requirements of the Act or regulations.

A Code of Practice approved by the Minister comes into effect when notice of approval is published in the Government Gazette. A Code of Practice does not have the same legal force as Regulations. Contravention of, or failure to comply with, Regulations made under the Act, is an offence under the Act. Failure to observe a provision of an approved Code of Practice is not, in itself, a breach of the Act, however, an approved code of practice is admissible as evidence in legal proceedings in which it is alleged that a person with a duty of care under the Act has failed to comply with the Act. A court may hold that a failure to comply with an approved Code of Practice constitutes proof of a breach of the duty of care responsibility, unless it can be shown that the actions taken were at least equal to, or better than, the approved code of practice.

An Inspector can cite an approved Code of Practice as a means of remedying non-compliance when issuing an Improvement Notice or Prohibition Notice under the Act.

LANGUAGE IN A CODE OF PRACTICE

In a Code of Practice, certain words are used that determine the level of choice available to the user.

To assist in clarifying this specific word usage, the following definitions and examples are provided:

MUST

Where a clause contains the word **must**, then the requirement is contained within the *Workplace Health and Safety Act 1995* (the Act) or the **Workplace Health and Safety Regulations 1998**. This means that you have no other option than to do what the clause requires.

Example:

Cylinders used for compressed air must be tested in accordance with the relevant State requirements or legislation.

IS TO/ARE TO

If a clause says a person **is to**, or persons **are to**, do something, then you are being instructed to do it, but in these situations you have a choice. This situation is unique to codes of practice approved under s.22 of the Act.

Codes provide flexibility in this instance to allow practical and innovative solutions to be developed in the workplace. When an alternative solution is developed to that contained in the code, you will need to conduct a risk assessment to determine if what you have done is *equal to or better than* the instruction, and you could be required to prove it.

Example:

Every SSBA diver is to be tended by a diver's tender.

SHOULD

When **should** is used in a clause, you are being advised to do something but it is up to you whether you do it or not. If you decide not to adopt the advice, then you need to have conducted a risk assessment to support your decision.

Example:

Records of equipment maintenance and testing should be kept.

Some clauses in a code of practice refer to other documents, such as Australian Standards. If this occurs, then the application of the specific provision of the Standard is determined by the words used in the particular referencing clause of the code of practice.

- If the code says you **must** comply with the Standard, then you interpret the standard just like the code. 'Must', 'is to' and 'should' have exactly the meanings shown above.
- If the code requires that the Standard **is to** be complied with, then a reference in the Standard to **must** is to be read as **is to** in the Standard.
- If the code says a Standard should be complied with or used as guidance, then you may treat every provision contained in the Standard as a **should** provision.

IMMUNITY FROM LIABILITY

The Tasmanian Abalone Industry Code of Practice has been developed by the Tasmanian Abalone Council Ltd to foster safe working practices in the industry. The information contained in the Code is given in good faith and is based on the knowledge and experience in the Tasmanian Abalone Industry.

“The Tasmanian Abalone Council Ltd shall not be liable for any loss, damages or other claim in respect of or arising from any death of or injury to or damage to property of any person which may occur while any person is diving in reliance upon this Tasmanian Abalone Industry Code of Practice and it is expressly stated and brought to the reader’s attention:

- (a) This Tasmanian Abalone Industry Code of Practice is not and is not intended to be a substitute for nor to abrogate diminish or otherwise affect the responsibility of the employer of any diver to provide a safe system of work and their other responsibilities as an employer, whether pursuant to the Tasmanian **Work Health and Safety Act 2012**, the Living Marine Resources Management Act 1995 or any other Act (whether Federal or State) or at common law; and*
- (b) Each diver is assumed in the context of this Standard to be voluntarily performing activities for which he/she assumes all risks, consequences and potential.”*

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1 SCOPE

- 1.1 This Code applies to diving operations using Surface Supplied Breathing Apparatus within the Tasmanian Abalone Industry. The Code will provide the basis for uniformity of practice throughout the Tasmanian Abalone Industry. This Code does not apply to diving deeper than 30 metres, to mixed gas diving, other than the mixes stated herein, or to recreational diving.
- 1.2 This Code contains diving guidelines and provides information on equipment and the compressed air supply to be used.

2 DEFINITIONS

- 2.1 *Abalone Diver*: A person who is at least 18 years of age and who is licensed to dive commercially for abalone in accordance with the *Living Marine Resources Management Act, 1995*.
- 2.2 *Abalone Diving*: Diving operations carried out as part of a licensed Abalone fishing operation under the *Living Marine Resources Management Act, 1995*.
- 2.3 *Air Supply*
Primary - Air supplied through the SSBA, as defined in 2.20
Secondary - Air supplied through the SSBA, as defined in 2.20
Emergency - The air supply which a diver utilised in the event of a primary/secondary air supply failure. The cylinder capacity must be capable of supplying the diver with sufficient air to reach the surface from the working depth.
- 2.4 *Bail Out Cylinder*
See *Air Supply - Emergency* as defined in 2.3.
- 2.5 *Competent Abalone Diver*: A person who has been engaged as an abalone diver for at least 100 hours and has passed the Abalone Industry Assessment. It is also a person who has not been engaged as an abalone diver for at least 100 hours but who has passed the Abalone Industry Training Course and received a statement of attainment to that effect.
- 2.6 *Decompression Schedule*: Schedule of prescribed routine ascent rates, and of stoppages at specific depths to be followed by diver(s) during ascent to the surface, after being subjected to pressure.
- 2.7 *Diver's Tender*: A person responsible for the diver(s) and controlling boat operations while a diver(s) is in the water duties and responsibilities are as outlined in Section 3 hereunder.
- 2.8 *Diving Hose*: The hose connecting the diver to the surface supply of compressed air.
- 2.9 *Diving Operation*: One or more dives that are related by purpose, place or time to form a series.

DEFINITIONS (Cont.)

- 2.10 *Diving Partner* : A member of a diving team who is licensed as an abalone diver in accordance with the *Living Marine Resources Management Act, 1995*.
- 2.11 *Diving Team*: Divers operating together in or under water.
- 2.12 *Float Line*: A buoyant line, of not less than 8mm diameter attached to a float on the surface.
- 2.13 *Is to/are to*: If a clause says a person **is to** or persons **are to** do something, then you are instructed to do so, but in these situations you have a choice. However, the choice made must be equal to or better than that stated in the Code.
- 2.14 *Mother Vessel*: A mother vessel which carries one or more tender vessels which are used for abalone diving.
- 2.15 *Must*: Where a clause contains the word **must** then the requirement is contained within the *Work Health and Safety Act 2012*. There is no other option than to comply.
- 2.16 *Quick Release*: Able to be immediately released from the secured position by a single operation of one hand but which is designed to minimise the risk of accidental release.
- 2.17 *Recompression Chamber*: A chamber situated at the surface in which persons may be subjected to pressures equivalent to or greater than those experienced when underwater.
- 2.18 *Reserve Air Supply*: That quantity of air that will enable a diver to safely return to the surface.
- 2.19 *Should*: When should is used in a clause, you are being advised to do something, but it is up to you whether you do it or not.
- 2.20 *SSBA*: (Surface Supplied Breathing Apparatus).
Primary Air - A low pressure compressor with air reservoir and set of filters, or alternatively, an air bank/storage system and adjustable regulator supplying compressed air to a diver through a diver's hose. (see Appendix C).
Secondary Air - A system of air delivery contained within the SSBA primary air system.

3 PERSONAL, RESPONSIBILITIES AND COMPETENCIES

3.1 Divers Tender:

As stated in 2.7, a divers tender is ‘A person responsible for the diver(s) and controlling boat operations while a diver(s) is in the water duties and responsibilities are as outlined in Section 3 hereunder.’

3.1.1 A diver’s tender must be present on every boat from which diving is undertaken.

3.1.2 The diver’s tender must be responsible to the diver in relation to diving operations.

3.1.3 The diver’s tender must be familiar with the procedures used in diving, in first aid (see 3.5.5 (g)) and in diving hand and hose signals.

3.1.4 The diver’s tender must maintain a vigil during a dive, for the diver surfacing at a distance from the boat and constantly monitor conditions at the dive site.

3.1.5 The diver’s tender is to:

- (a) have a working knowledge of diving, and of the system of hose communication and hand signals set out in Appendix E and Appendix F respectively.
- (b) while tending a diving hose ensure that it is kept free from propellers by positioning the boat appropriately.
- (c) while tending a diving hose maintain the ability to communicate with the diver by means of the hose.
- (d) give all necessary attention to tending the diver while he/she is in the water and surfacing at a distance from the boat.
- (e) if a compressor is in use, operate same and ensure that all equipment necessary to provide an adequate supply of safe breathing-quality air to the diver is in good working order.
- (f) hold a Coxswain (restricted) certificate or higher qualification.
- (g) hold a workplace first aid certificate (i.e. **HLTAID003 Provide First Aid**) which includes an oxygen administration component (i.e. 22100VIC Basic Oxygen Administration Techniques)

3.2 Diver:

As stated in 2.5, a diver shall be ‘A person who has been engaged as an abalone diver for at least 100 hours and has passed the Abalone Industry Assessment. It is also a person who has not been engaged as an abalone diver for at least 100 hours but who has passed the Abalone Industry Training Course.’ They shall also be a person who is at least 18 years of age and who is licensed to dive commercially for abalone in accordance with the *Living Marine Resources Management Act, 1995*.

3.2.1 A diver must comply with the requirements of an abalone diver as specified in the ‘*Living Marine Resources Management Act 1995*’, particularly section 17 (see below);

A person must not –

(a) dive from, or enter the water from, a fishing vessel or auxiliary boat that is being used to take abalone for commercial purposes unless the person is the holder of a fishing licence (abalone dive); or

(b) being the owner or master of a fishing vessel that is being used to take abalone for commercial purposes, permit any person to dive from, or enter the water from, that fishing vessel or an auxiliary boat used in connection with the vessel unless the person diving or entering the water is the holder of a fishing licence (abalone dive).

3.2.2 In addition to compliance with 2.5, a diver must comply with the requirements of the Tasmanian WH & S Regulations (2012) ;

i.e 171 Competence of worker—general diving work.

A person must not carry out general diving work (other than incidental diving work and limited scientific diving work) unless:

(a) the person has 1 or more of the following qualifications:

(i) a statement of attainment for a specified VET course for general diving work that includes the type of general diving work to be carried out by the person;

(ii) a certificate for general diving work, issued by a training organisation, that mentions the subject areas covered in AS/NZS 4005.2:2000 (Training and certification of recreational divers— Recreational SCUBA dive supervisor); and

(b) the person has, through training, qualification or experience, acquired sound knowledge and skill in relation to the following:

(i) ..the application of diving physics;

(ii) the use, inspection and maintenance of diving equipment (including emergency equipment) and air supply of the type to be used in the proposed general diving work;

(iii) the use of decompression tables or dive computers;

(iv) dive planning;

(v) ways of communicating with another diver and with persons at the surface during general diving work;

(vi) how to safely carry out general diving work of the type proposed to be carried out;

(vii) diving physiology and first aid.

3.2.3 A diver must hold a current diving a medical certificate in accordance with section 7.2

3.2.4 A diver must hold a workplace first aid certificate (i.e. **HLTFA311A Apply First Aid**) which includes an oxygen administration component (i.e. HLTFA404B Apply Advanced Resuscitation Techniques)

3.2.5 Where the diver is using nitrox as a breathing medium, hold a qualification or statement of attainment by a recognised training agency/RTO to that effect.

3.3 Supervisor:

A supervisor must have the same qualifications as a diver (see 3.2) and have experience in the type of diving being undertaken

A supervisor must be at each dive site in accordance with Part 4.8, Division 3, Item 177 (a). The role of the supervisor is to;

- (a) Manage risks to health and safety. This requires formulating and addressing risk assessments for the activities undertaken.
- (b) Develop and implement a dive plan. An example of a dive plan can be found in Appendix ???
- (c) Ensure dives are recorded. This can be done using catch records (mandatory) or using a dive log sheet. An example of a dive log sheet can be found in Appendix ??

3.4 PCBU

A PCBU ('person conducting a business or undertaking'), is the entity the WH & S Act defines as having primary duty of care and various other duties and obligations with respect to diving operations.. Further information regarding the general duties and obligations may be found at www.safeworkaustralia.gov.au

Diving specific duties are as follows;

- (a) Hold current medical certificate for divers
- (b) Hold evidence of diver and supervisor competence
- (c) Undertake management of risks and record in accordance with WH & S Regulations, Chapter 3 General Risk and Workplace Management

- (d) Ensure operation is undertaken by competent persons
- (e) Appoint a supervisor
- (f) Ensure dive plan is prepared by a supervisor
- (g) Ensure dive plan is complied with
- (h) Ensure logs of diving operations are kept.

Due to the nature of Abalone diving, it is not uncommon for personnel to fulfil multiple roles

4 PLANT AND EQUIPMENT

4.1 Diving Equipment

4.1.1 The diver's personal equipment must include at a minimum:

- (a) face mask;
- (b) swimming fins;
- (c) suitable knife;
- (d) weight belt or jacket, with quick release closures;
- (e) wetsuit or other protective clothing appropriate for the conditions of work and temperature of the water;
- (f) diver's watch with elapsed time indicator; and
- (g) diver's depth gauge which should incorporate a maximum depth indicator.

4.1.2 The diver's personal equipment shall also include:

- (a) a bail out cylinder with an appropriate emergency shut off valve for all depths (note: the use of a bailout can be abrogated for depths less than 6 metres deep when a risk assessment has been undertaken);
- (b) a functioning contents gauge to ensure the cylinder is full prior to diving operations

4.1.3 The divers equipment may include;

a dive computer.

Note: Where the diver is using nitrox and is not diving using equivalent air depth tables or recognised nitrox tables, a dive computer of a type appropriate to the type of gas medium being used by the diver must be used.

4.2 SSBA air supply:

The plant and equipment used in SSBA Operations must comply with the WH & S Regulations, Chapter 5: Plants and structures. Particular attention is to be drawn to Division 7: General duties of a person conducting a business or undertaking involving the management or control of plant. Divers may also refer to the following national Codes of Practice – **Managing Noise (2012)** and **Managing Risks of Plant in the Workplace (2012)**.

4.2.1 When using a hookah compressor, the following items are to be fitted:

- (a) a low pressure contents gauge;
- (b) a non-return valve fitted between the compressor air output and air receiver to be located as close as practicable to the air receiver;
- (c) suitable air filters/dryers to achieve the aforementioned standard of air quality; and
- (d) a reservoir fitted with an automatic pressure relief valve. In addition, a manually operated purge valve shall be also fitted to the air reservoir to facilitate the expulsion of any moisture building up. The purge valve should be fitted at the lowest possible point of the reservoir.

If using a compressor as the primary air supply, a secondary air supply is to be available via that compressor frame and/or reservoir. This facility is to have a contents gauge.

The secondary air supply is to enable the diver to be brought back to the surface taking into account any decompression schedule required.

NOTE:

1. The compressor is to be capable of maintaining a minimum pressure of 700kpa (100psi) or enough pressure to supply adequate air relative to the depth.
2. The positioning of the compressor air intake is to be such as to prevent exhaust gases from the motor being drawn into the air supply. The air intake pipe or hose must be of sufficient internal diameter to prevent intake volumetric restriction.
3. Oils used should be as recommended by manufacturers for diving air use.
4. The gauges and valves must be arranged so that they can be easily and rapidly observed and operated.

4.2.2 HP supply Operation

High pressure (HP) compressors are used to fill storage cylinders such as air banks, SCUBA cylinders and bail out bottles. Once filled, these high pressure air reservoirs can be regulated and used as supplies for low pressure diving operations in much the same way as a hookah system.

The setup can be as simple or complicated as the dive operation requires. Typical components of a HP supply system are:

- i) A high pressure air supply (or multiples)
- ii) One or more reducing regulators
- iii) A distribution system to the diver(s)

When a storage cylinder(s) at the surface provides the primary or secondary air supply to divers through a first stage regulator and hose, the following requirements apply:

- (a) cylinders must be tested and certified in accordance with the relevant State requirements/legislation;
- (b) the cylinder pressure is to be reduced by a first stage regulator;
- (c) in the case of a secondary air supply, an on-off one way valve is to be fitted to by-pass the primary cylinder; and
- (d) the capacity of the air cylinder is to be suitable for the diving operation planned plus a suitable reserve

4.2.3 SSBA Hose and Equipment

All breathing systems are to include a non-return valve fitted as close to to the demand valve as is practical.

The hose fittings are to be made of non corrosive material and must be of a quick release design but should incorporate a safety lock to prevent accidental disconnection.

The diver is to wear a harness to secure the SSBA hose to him/her.

The SSBA hose is to be of one continuous length between fittings and comply with the following specifications:

Burst Pressure	1.7mpa (250psi)
Longitudinal load	220n (50lot)
Minimum internal bore diameter	8mm (5/16")

More information on hoses and fittings can be found in AS/NZS 2299.1:2007, sections 3.12.5.9 Diver's hose, 3.12.5.10 Couplings and fittings and 3.12.5.11 Diver's hose and coupling assembly

Note: Divers hose and coupling assembly are required to be tested at no more than 12 months prior to usage.

4.3 Compressed Air System Requirements

4.2.1 Air supplies are to meet the Air Purity requirements of Appendix C.

4.2.2 Pressure vessels used must be tested in accordance with the relevant standards.

4.4 Checking of Gauges and Metering Equipment

Gauges and metering equipment include such items as pressure gauges, dive computers, depth gauges and blow off valves. Each of the above items has relevant standards that govern their accuracy.

4.3.1 Gauges and metering equipment are to be serviced on a regular basis or at a minimum annually or whenever a discrepancy is indicated. Refer to the relevant standard governing their accuracy.

4.3.2 Depth gauges are to be checked for accuracy every 3 months and on annual servicing. Any malfunction must be rectified without delay.

4.3.3 If gauges and metering equipment are removed from service due to defects, such equipment are to be clearly marked as having a defect.

4.5 Equipment Maintenance

4.4.1 All diving equipment, including cylinders, regulators and all accessories necessary for the safe conduct of the diving operation is to be:

- (a) of suitable design, sound construction, adequate strength, free from patent defect, and maintained in a condition that will ensure its continued operation for the purposes and depths for which it was originally designed or subsequently used; and
- (b) examined, tested, overhauled and repaired in accordance with the manufacturer's recommended procedures and service intervals.

4.4.2 Records of equipment maintenance and testing should be kept.

5 PROCEDURES

5.1 SSBA diving

Where SSBA diving is undertaken under this Code of Practice, whether it be on Hookah or on banked regulated gas supplies (see Appendix C) the following applies;

- a. no dive on SSBA is to be carried out at depths below 30m.
- b. every SSBA diver is to be tended by a diver's tender (see Section 3.1).
- c. the diver should include a safety stop between 3-6 metres for 3-5 minutes on the last dive of the day as an added margin of safety.
- d. post dive consideration should be given to reduction in atmospheric pressure with altitude after diving if intending to travel, eg flying or travelling by car through "hilly" terrain.

5.2 Decompression diving

Extreme care should be taken when undertaking decompression diving. No dive is to be carried out for a period of time that requires a decompression schedule unless:

- a. the dive schedule is planned
- b. if decompression dives are undertaken they need to be done so in accordance with a prepared dive plan
- c. if decompression diving, including multiple dives series, are to be carried out, they are to be done so in accordance with one of the recognised decompression tables in Appendix B, Part 1
- d. if decompression diving, including multiple dives series, are to be carried out, they are to be done so in accordance with the dive computer guidelines in Appendix B, Part 2. Particular note is to be taken of item m(3)
- e. each diver carries an independent reserve air supply equivalent to the amount required for the decompression schedule plus at least 25% extra as a safety margin.

5.3 Diving from vessels

Every boat from which diving operations are conducted:

- (a) must be safe and suitable for the purpose.
- (b) must have suitable means appropriate to the type of boat, by which a diver can enter, leave or be removed from the water;
- (c) must display a replica of the International Code Flag A whilst diving operations are being conducted. And be of a minimum size (750mm long and 600mm wide) in accordance with the Marine and Safety (MOTOR BOATS AND LICENCES) By-Laws 2008
- (d) must comply with the requirements of Marine *and* Safety Tasmania (MAST) and the Australian Maritime and Safety Authority (AMSA)

6 EMERGENCIES

6.1 Emergency Procedures

Where a diving operation is to be undertaken the supervisor must ensure there is ready access to a documented emergency procedure. The procedure may include, but not limited to, items such as:

1. hypothermia
2. heat exhaustion
3. injuries
4. exhaustion
5. lost party or party member
6. equipment failure
7. carbon monoxide toxicity
8. panic
9. decompression illness (DCI).

6.2 Medical Equipment

1. A diver's first aid kit conforming with Appendix I is to be available.
2. It is advisable that oxygen should be available at every dive operation. The system must be capable of providing an inspired oxygen concentration of 100% to a patient who is either breathing spontaneously or requiring artificial ventilation. Sufficient oxygen should be provided to supply the delivery system, taking into account the location of the dive site and access to medical facilities.
3. All mother vessels are to carry oxygen equipment.

NB: Oxygen is highly dangerous especially when stored near hydro-carbons, eg petrol, petrol vapour, oil, grease. Extreme care must be taken to ensure that there is no leakage of oxygen.

7 FITNESS TO DIVE

7.1 Fitness to Dive

7.1.1 Every diver involved in a diving operation must ensure that he/she is fit to dive. Fitness is maintained by exercise and regular diving. Any noticeable variation in normal feeling of health and fitness must be promptly reported to a medical practitioner if the variation persists.

7.1.2 Diving is not to be undertaken by a diver with a cold or influenza or within 8 hours of consuming intoxicants, or if under the influence of any drugs that may impair his/her mental or physical capacities.

7.2 Certification by a Medical Practitioner

A diver must not enter the abalone industry unless that person has been examined and certified as fit for diving by a medical practitioner as per the Diving Medical required by the Department of Primary Industries, Water and Environment. This certification must be done on an annual basis. For a list of medical practitioners see Appendix A

APPENDIX A

MEDICAL PRACTITIONERS WITH TRAINING IN DIVE MEDICINE

A list of medical practitioners with training in diving medicine is maintained by the South Pacific Underwater Medical Society and is published periodically in their journal.

Contact: The Secretary
 SPUMS
 C/- Australian College of Occupational Medicine
 PO Box 2090
 ST KILDA WEST Vic 3182

DES/DAN = Diver Emergency Service/Diver Alert Network
 Phone 1800 088 200

APPENDIX B - Part 1

INTERNATIONALLY RECOGNISED DECOMPRESSION TABLES

Recognised decompression tables:

- A. Defence and Civil Institute of Environmental Medicine
(DCIEM) Canada.

A full copy of this table suitable for air diving is available in AS/NZS 2299.1: 2007 Occupational diving operations Part 1: Standard operational practice

APPENDIX B - Part 2

DIVE COMPUTER (D.C.) GUIDELINES

- (a) The nature of diving is often multi level diving. The dive computer therefore is a useful tool for the diver to maximise his dive time because it is constantly updating the theoretical nitrogen levels in the body based on actual depth and time at the various depths. This system is in contrast to the dive tables which are based on a maximum depth and time for the whole dive.
- (b) The diver must be familiar with the operation and symbology used in the D.C. and must remain within the limits or parameters applicable to the D.C. model being used.
- (c) The diver is to use the same D.C. for multi dive/day dives as some D.C.'s have long, 24 hours plus, out-gas periods for the "slower tissue" compartments.
- (d) The diver is to ascend at the rate specified for the D.C. model being used as this ascent rate is often part of the decompression calculations.
- (e) The diver is to dive on the conservative side of the limits set by the D.C. to allow for other factors that could predispose a diver to decompression sickness (D.C.S.).
- (f) The diver is to not turn the D.C. off at the end of a days diving if the out-gassing memory is lost by doing so. This is to allow any residual nitrogen to be calculated into the following days diving.
Note: It is recommended that only D.C.'s that are self activating be used in this industry.
- (g) The diver is to ensure that he turns the D.C. on prior to entering the water, if appropriate for that model D.C. ie some D.C.'s require time to run through its automatic start up program and sense the atmospheric pressure prior to descending.

- (h) The diver is to plan his dive so that the deepest part of the dive is made first. In multi dive days the deepest dive should be made first.
- (i) If the D.C. fails during a dive the diver is to immediately ascend at the recommended rate, to the surface.
 - (a) If the dive/dives have been square profiles and been logged after each dive, the diver may transpose the profiles to a “table” based system and continue the dive day with a margin of conservatism.
 - (b) If the dive/dives have been multi level profiles then the diver is to cease diving for that day.
- (j) The diver is to include a safety stop between 3 to 6 metres for 3 to 5 minutes on the last dive of the day as an added margin of safety.
- (k) The diver should not fly after diving until the D.C. indicates it is theoretically safe, though it is recommended that 24 hours be allowed prior to flying. Due consideration should be given to reduction in atmospheric pressure with altitude after diving if intending to travel, eg flying or travelling by car through "hilly" terrain.
- (l) The diver should log the details of each dive including surface interval after each dive. This then acts as a reference if the dive computer fails during a dive day.
- (m) The following rules should be observed by the diver when using a dive computer:
 - (i) A dive should be planned with the deepest part of the dive first and the same principle applied to a multiday, ie 1st dive deepest.
 - (ii) A dive should not have repeated ascents and descents (ie taking shell bags to the surface when full).
 - (iii) If a dive goes into decompression time the subsequent surface interval is not to be less than 2 hours.

Dive computers are to be depth tested/comparatively tested in accordance with 4.3.2

APPENDIX C

SURFACE SUPPLIED BREATHING AIR QUALITY

SSBA for use in the abalone industry is to be capable of delivering air meeting the following quality specifications:

1. Have no objectionable or nauseous odour.
 2. Contain no less than 20% and not more than 22% by volume of oxygen.
 3. Contain no more than 11mg per cubic metre of carbon monoxide at 15°C and 100kPa (10ppm by volume)
 4. Contain no more than 900mg per cubic metre of carbon dioxide at 15°C and 100kPa (480ppm by volume)
 5. Contain no more than 100mg per cubic metre of water at 15°C and 100kPa when sampled from a cylinder filled to a pressure of at least 12MPa (130ppm by volume)
 6. Contain no more than 1mg of oil per cubic metre of air at 15°C and 100kPa when sampled from a cylinder filled to a pressure of at least 12MPa.
 7. Where supplied from a compressor, the purity should be tested every six months of use.
1. Note: the above figures are quoted from AS/NZS 2299.1:2007, Section 13: Breathing Gas Quality

APPENDIX D

NITROX

Enriched air (also called enriched air nitrox or just nitrox) is a mixture of oxygen and nitrogen that is used as a breathing gas in scuba diving. Enriched air contains only nitrogen and oxygen, any other gasses are only present in trace amounts. The name “enriched air” signifies that the mixture of oxygen and nitrogen has a higher percentage of oxygen than normal air (more than 21% oxygen); it is essentially air that has been “enriched” with additional oxygen.

Enriched air nitrox is often abbreviated EAN or “EANx”. While enriched air nitrox may contain any percentage of oxygen greater than 21%, the most common mixtures are EANx 32 and EANx 36 which have 32% and 36% oxygen respectively.

Special training and certification are required to dive with enriched air nitrox. Divers must be certified by a recognized training agency in the use of Nitrox and received a statement of attainment to that effect.

When using Nitrox, divers must ensure that the dive is planned and adhered to. All cylinders containing Nitrox must be labeled as such. The label is to include the following;

- The mix (as a percentage i.e. 32%)
- The maximum operating depth (M.O.D) for that labeled mix
- The partial pressure of oxygen (ppO₂) the MOD was calculated for
- The person who mixed the gas
- The date it was mixed

Divers who are using nitrox must ensure that the diving equipment being used for mixtures above 21% are suitable for the task.

If planning dives with nitrox, divers are to plan in accordance with procedures from a recognized training agency, or to use a dive computer with the capability to plan and undertake dives to the nitrox percentages used.

Note: when doing an air quality test (see Appendix C) on nitrox gas supplies, a standard air sample is to be tested (i.e. 21%)

APPENDIX E

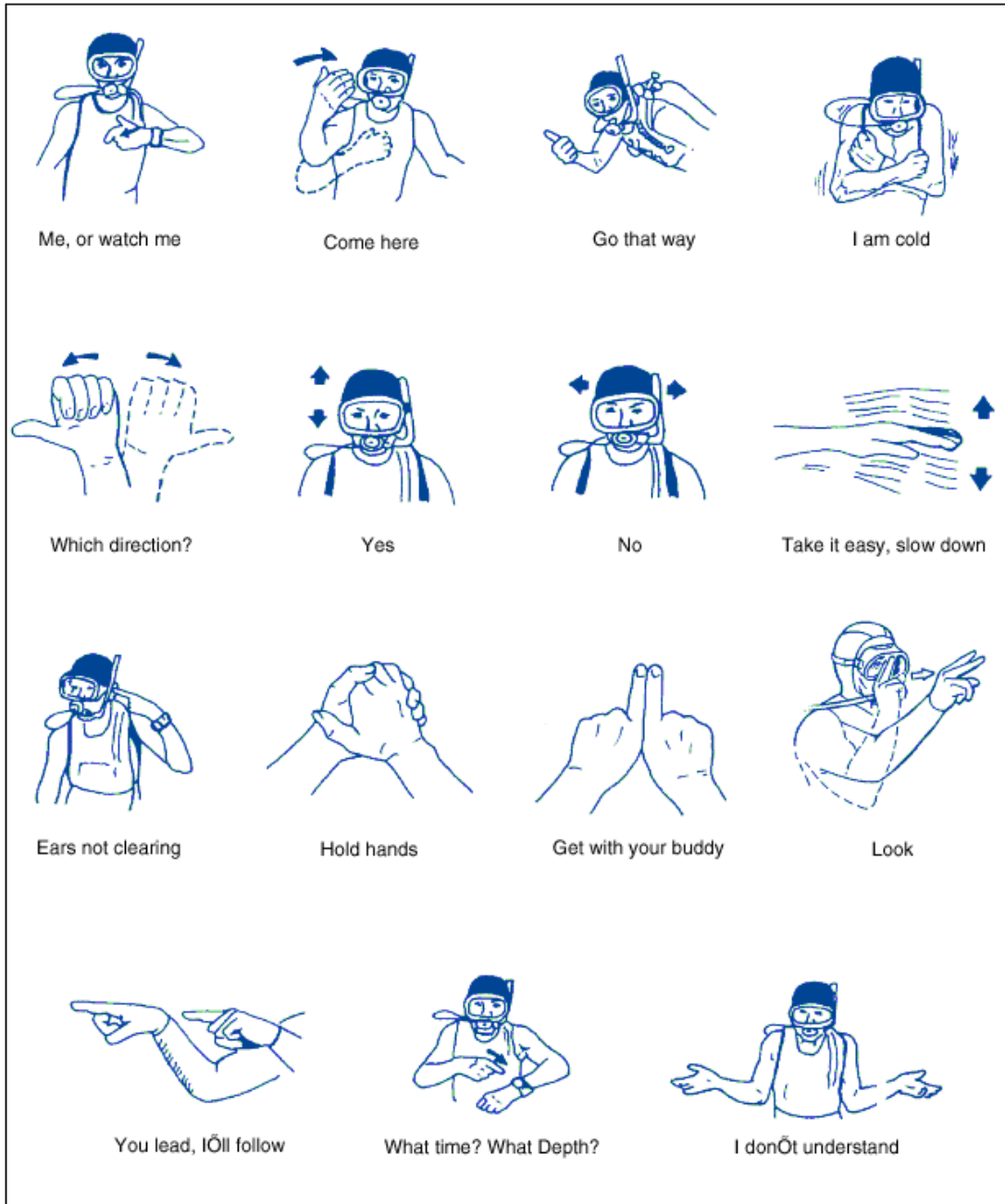
DIVING HOSE SIGNALS

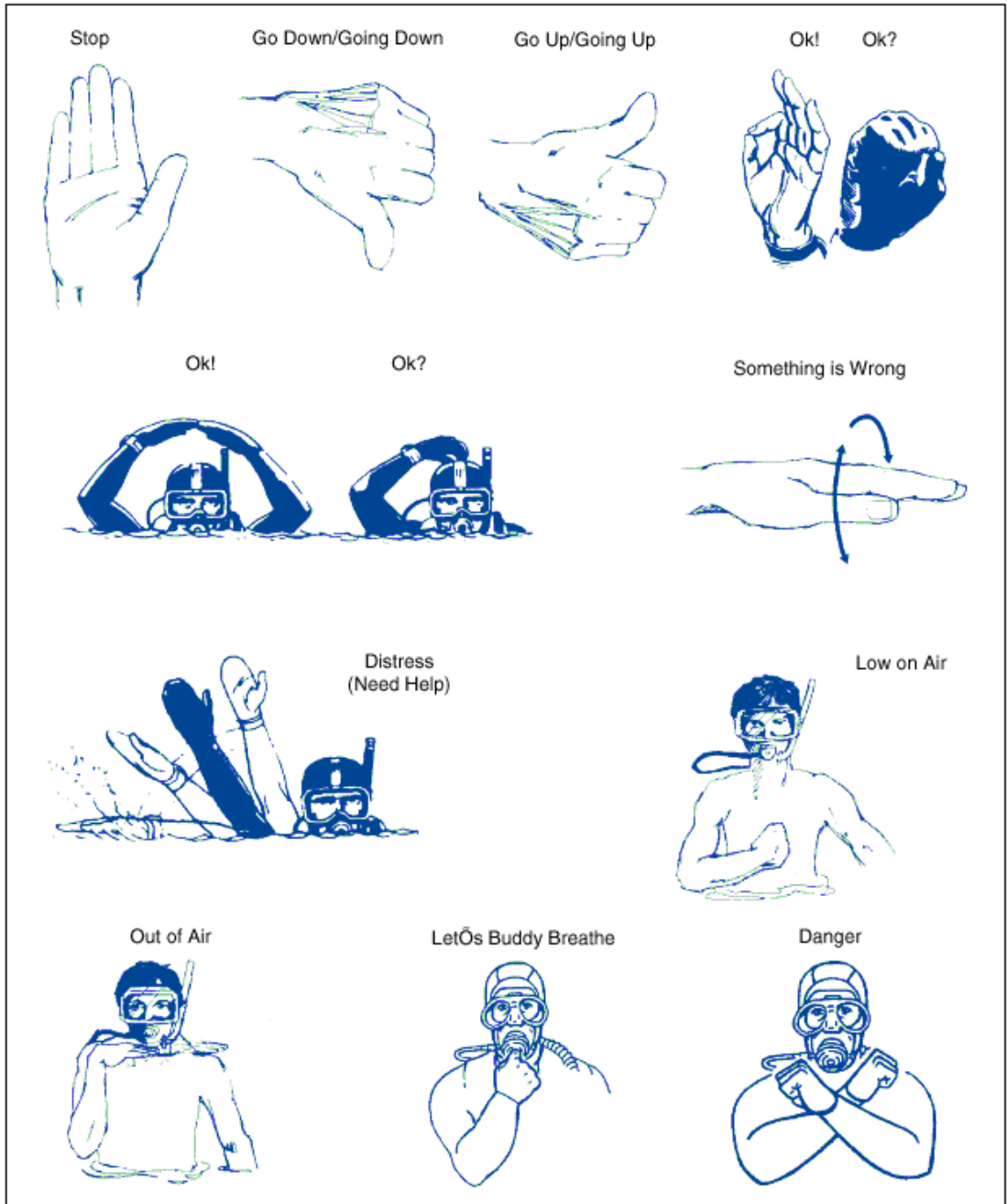
	<i>Tender to Diver</i>	<i>Diver to Tender</i>
1 pull	Are you all right?	I am all right
2 pulls	Go down!	Give me slack!
3 pulls	Stand-by to come up!	Take in my slack!
4 pulls	Come up!	Haul me up!

APPENDIX F

UNDERWATER COMMUNICATION SIGNALS

The diver must be capable of demonstrating the following minimum set of underwater signals as illustrated on the following pages





International Code Flag "A"

Must be displayed by all vessels operating in international waters. Flag A means that the maneuverability of the vessel is restricted.

"My Maneuverability is restricted because I have a diver down; keep well clear at low speed"

APPENDIX G

FIRST AID FOR DIVING

The diver's tender must be trained to be able to recognise the symptoms of and be able to provide first aid treatment for the following:

Bleeding, shock, asphyxia, cardiac and/or pulmonary arrest, hypothermia, air embolism and decompression sickness.

In addition the deckhand must be familiar with the contents of the Emergency Management plan for the operation.

APPENDIX H

FIRST AID KIT

- Oxygen, a size D or larger cylinder. (for depths greater than 15 metres and for mother vessels). The size of the cylinder(s) should be of sufficient capacity to take into account the location of the dive(s) site.
- Fluids for treatment of D.C.S. (2 litres or more of water, fruit juice, lucozade etc.)
- Vinegar - large bottle for treating nematocyst stings.
- Local anaesthetic ointment - for pain relief from stings.
- Topical antibiotic ointment or
Topical "Betadine" (iodine) paint - for coral cuts/grazes in order to prevent or treat infection.
- Ear drops - for external ear infections
- Sea sickness tablets
- Paracetamol, codeine, aspirin
- Systemic decongestants - for relief from congestion
- Topical decongestants - used as above
- Eye wash/eye glass - to remove foreign body from eyes
- Magnesium sulphate, glycerine paste - for removing sea urchin spines and splinters
- Three elastic bandages 10cm x 150cm long as pressure bandages for blue ringed octopus, sea snake and cone shell injuries
- Pressure bandages/pads - to control severe bleeding
- Swabs, crepe bandages, adhesive plaster, "bandaids"
- Scissors, tweezers/forceps, sharp knife, needle
- Blankets, heat packs, cold packs
- Pen and paper - for recording details of first aid.

APPENDIX I LOG BOOK

Logs must be completed for all dive operations. The diver shall be responsible for ensuring that logs are completed correctly and signed.

At all times the log entries are to be current to the last day's diving and include the following details:

Dive details

Date of dive

Start time of dive

Bottom time (time from start of descent to beginning of ascent)

Decompression dive time and depths

Surface interval (The time from actual exit from the water to the start of the next descent.)

APPENDIX J SENDING AND RECEIVING ABALONE NET BAGS BY DIVER AND TENDER

Apart from intended exit from the water, a diver should not accompany abalone net bags to the surface. Similarly, when requiring an abalone net bag, the diver should not go to the surface to get one.

The sending and receiving of abalone net bags should be carried out by one of the following two methods:

1. Bags are sent and received by being attached to a rope with a weight and suitable clip.

OR

2. The bag should be sent down to the diver by the tender placing a suitable weight inside the parachute and preventing the weight from falling out by use of velcro fastening on parachute.

The diver should send the bag up to the tender by inflating the parachute.

Lifting Abalone Net Bag into Boat

Lifting of bags must be done in accordance with the National Code of Practice – Hazardous Manual Tasks (2012). This Code of Practice describes how to identify hazardous manual tasks and control the risks of workers being affected by musculoskeletal disorders.

The size and subsequent weight of bags should be kept at a practical minimum. Lifting aids such as a boat hook mounted adjacent to the gunwale or suitable davit should be utilised.