



Operation Wallacea

Conservation research through academic partnerships

Dive policy standards and procedures

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1. Introduction

Diving at all Operation Wallacea sites takes place in remote environments with limited access to decompression facilities and emergency medical services (EMS). It is critical in minimizing risk that safety is the primary factor in dive planning during any courses, science dives and recreational dives. The minimum standards governing this policy are the PADI standards and general procedures for all sites. For training and in-water activities taking place in Cuba BSAC regulations must also be adhered to. Some standards and procedures are more stringent to take account of the remoteness of the dive sites from EMS and hyperbaric facilities.

Dive Operations Managers: please bear in mind that this document also covers the safety standards and procedures that must be followed for those volunteers snorkeling at an Operation Wallacea site.

1.1 Definition of a dive

An open water dive is defined as below 5m/15ft for any length of time. Confined water training is defined as not submerging below 5 m/15ft. A deep dive is defined as being below 18m/60ft for any length of time.

Free diving is a specialized form of diving and is not undertaken on Operation Wallacea sites.

Skin diving is a suitable activity for those volunteers undertaking the Reef Ecology Course by snorkeling. Divemasters are qualified to put snorkellers through the PADI Skin Diver Course independently of a PADI Instructor. Therefore all snorkellers should complete the course prior to any practical work incorporated within the reef Ecology Course.

2. Operation Wallacea Dive Standards

The following standards are applicable to all diving undertaken with Operation Wallacea.

2.1 Maximum bottom time

The maximum surface-to-surface dive time for all open water dives is 50 minutes. Surface-to-surface time allows 2-minute ascent to the safety stop, 5 minutes for the safety stop and 1 minute to surface. This practice is more conservative than the PADI RDP due to the remote nature of our diving and ensures that inexperienced divers who may struggle with a safety stop will at minimum meet the RDP requirements of 3 minutes at 5 metres. Therefore the maximum dive time of 50 minutes would equate to 42 minutes bottom time. No dive maximum time is to come within 3 pressure groups of the NDL on the RDP table or 5 minutes on the NDL on a computer. The only exception to this is when diving within the definitions of confined dive, when the bottom time is unlimited.

2.2 Maximum depth

The maximum depth for a PADI Scuba Diver is 12m. For all Open Water Divers, the maximum depth is 18m/60ft. The only exception to this is for the Advanced Open water deep dive when the maximum depth is increased to 30mtrs/100ft. The maximum depth for confined dive is 5m; anything below this depth must be classed as an open water dive.

An additional profile can be used during PADI Open Water training only. This profile has an extended surface-to-surface time to 60 minutes. Surface-to-surface time allows 2-minute ascent to the safety stop, 5 minutes for the safety stop and 1 minute to surface. Therefore the maximum dive time of 60 minutes would equate to 52 minutes bottom time. This allows additional bottom time to complete skills during Open Water training and cannot be used for any other dives. The maximum depth for this dive is 10m/33ft. This dive must be approved by the Dive Operations Manager as it can only be used at times where it will not have a detrimental effect on other scheduled dives.

2.3 Air requirements

All divers entering the water for open water dives must have a minimum of 180 bar or 2700 psi. Divers should inform their dive professional when they reach 100 bar or 1450 psi and must begin their ascent with a minimum of 70 bar or 1050 psi. All divers for both confined and open water dives must be on the surface with no less than 50 bar.

2.4 Safety stops

A safety stop at 5 metres for 5 minutes must be performed prior to surfacing from all open water dives. Exceptions to this include missing diver procedures and emergency recalls as stated in the emergency procedures.

2.5 Surface interval

The minimum surface interval required between open water dives is 3 hours. This allows all divers to re-enter the water at Pressure Group A according to the PADI RDP.

2.6 Repetitive diving

The maximum number of open water dives is 4 per day for PADI Professionals and 2 dives a day for students and volunteers with the exception of additional courses led by an instructor which will be at the discretion of the Dive Operations Manager. The maximum number of consecutive diving days is 6. After this a compulsory 24-hour de-gas period must be undertaken.

2.7 Flying after diving

Operation Wallacea's flying after diving regulations are to be in line with current PADI recommendation which currently state the following:

- *Single dives* - A minimum pre-flight surface interval of 12 hours is suggested.
- *Repetitive dives and/or multi-day dives* - A minimum pre-flight surface interval of 18 hours is suggested.

2.8 Over-profiling

If during any point in the dive either one or both of the buddy pair over profiles by more than 1 metre or 1 minute, the buddy pair must abort the dive by ascending at a safe rate of no more than 18 metres per minute up to 5 metres and perform a 5 minute safety stop before ascending to the surface. No dive is to come within 3 pressure groups of the NDL on the RDP table or 5 minutes on the NDL on a computer.

If a diver over profiles by less than 1 metre or for 1 minute then they should correct their depth and continue with the dive. They will then receive a verbal warning by the dive operations manager. Over profiling to more than 1 metre or longer than 1 minute may require them to miss the next planned dive. Discipline for over profiles is at the Dive Operations Manager's discretion, however continued over profiling may result in the diver being made to re-do areas of their dive training such as peak performance buoyancy to ensure that their dive skills are up to standard.

2.9 Supervision

At least one member of dive staff must be present on all boats where students or staff are taking part in in-water activities.

Operation Wallacea dive standards are more conservative than those of PADI and BSAC. We have set our standards to incorporate student:staff ratios feasible for the organizations with whom we work with and the conditions under which we dive. If we have more than 30 divers on site, an additional dive professional will be employed to cover any unexpected illness within our professional team. If however unforeseen circumstances do arise, Operation Wallacea reserve the right to revert back to PADI standards on supervising divers. This will be a decision made by the Operation Wallacea representative on site at the advice of the Dive Operations Manager.

2.10 PADI and BSAC training courses

All PADI training courses are to be in-water supervised by an instructor. In cases of 5 or more students the Instructor must be assisted by a divemaster, 4 students or less no divemaster is required. The maximum ratio is 8 students to each instructor + divemaster. The maximum ratio for student: instructor without in-water assistance from a divemaster is 4:1.

2.11 All non-training dives and snorkels

All dives, snorkels and in water activities are to be led and supervised by a dive professional. The maximum ratio for in water supervision is 6 Volunteers: 1 dive professional. Dependent on conditions dive professionals may choose out of water

supervision as the most effective form of supervision for snorkellers, for example, may be shore cover. This must first be approved by the Dive Operations Manager.

All certified divers and snorkellers must in be buddy pairs at all times during in water activities, all buddy pairs must stay in close contact at all times. Teams of snorkellers in areas where there is boat traffic must carry a surface marker buoy (SMB) with them so that they are clearly visible.

Dive Professionals may dive in a three in accordance with PADI regulations. At no point are divers allowed to dive solo.

Divemaster trainees do not include as students/ divers in the ratio however they must not be used as PADI professionals in the ratios.

3. Operation Wallacea dive procedures

All diving with Operation Wallacea is to be done within the Operation Wallacea dive standards stated above and must be in line with PADI standards and procedures.

3.1 General dive and boat procedures

It is the responsibility of the Boat Leaders to complete a roster slate before departure. The date, departure time, destination and names of all the divers and snorkellers on the boat, together with their starting air pressure should be recorded on the slate, this slate must be handed into the person on radio duty so that a hard copy can be kept on land and the slate to be kept on the boat.

Once on the boat the dive leader must ensure the required safety equipment is on board and all divers have required safety equipment. The dive leader must perform an initial radio check before leaving site.

On arrival at the dive site, the Boat Leader should make a visual assessment of the site to be dived. The Boat leader will then brief the divers on the key features of the dive site, any potential hazards, the duration and profile of the dive (max depth; max dive time; Safety Stop; minimum return tank pressure; recall signal and other underwater signals).

Prior to any divers entering the water a second radio check is completed confirming radio contact with base.

If the dive site chosen is unsuitable for diving that day (e.g. strong currents, high winds), the Dive Leader will abort the dive at that site and proceed to an alternative site after informing the base via radio contact of the change in plan. The dive leader will then assign buddy pairs, ensure that each buddy pair has completed their buddy

check, and ensure that the details of the air pressure of each diver prior to entry is noted on the slate boat roster.

During the period when the divers are underwater, the boat skipper must remain alert and watching the surface for divers.

Divers are to ascend slowly and safely from each dive. The ascent rate for all divers is per the PADI standard rate of a maximum 18m per minute. The ascent to the surface should only begin after completion of the required 5 minute safety stop at 5 metres. If a diver fails to return to the vicinity of the boat by the time of the ascent an SMB is to be deployed during the safety stop to allow the boat to locate the divers prior to surfacing.

The boat driver will help the divers aboard the boat upon surfacing.

Once all divers are on board the dive leader must note the remaining air pressure, maximum depth and maximum dive time for each diver and record the information on the roster slate.

On return to base the roster is handed into the radio room for the information to be written up onto a paper copy.

3.2 Emergency procedures

All staff are to be briefed on emergency procedures. Copies of the Operation Wallacea risk assessments, emergency action plans and evacuation procedures are to be available to staff throughout the season.

3.3 Missing diver procedures

Please refer to emergency recall plans – missing diver or snorkeller. If a diver loses sight of their buddy they must stay where they are and search for no longer than one minute in the immediate area before ascending to the surface at a safe rate (18m per min) omitting the safety stop only if they have remained within Operation Wallacea's diving standards. The diver should then reunite with their buddy on the surface. If the diver has dived outside of the recommended profile they must complete necessary safety stops according to RDP regulations. If the diver is still unable to locate their buddy they must signal immediately to the boat who will recall all divers/ snorkellers from the water (using recall methods stated below) and begin following the missing diver procedures as stated in recall plan – missing diver or snorkeller.

3.4 Injured diver procedures

Injured divers are to be brought to the surface at the safe rate of 18m per minute. If they have dived within Operation Wallacea standards then the safety stop may be

omitted, if however either victim or rescuer have dived outside of the profile they must complete necessary safety stops according to RDP regulations. On reaching the surface the rescuing diver is to alert the dive boat by using visual or audible safety signal.

3.5 Boat recall procedures

If at any point during the dive the boat needs to recall all divers and snorkellers the recall system will be 3 long revs of the engine followed by a pause and another 3 long revs or continuous banging of metal on metal, they should ascend at the safe rate of 18m per minute having deployed an SMB at 5m. If the dive has remained within Opwall standards they must omit the safety stop and return directly to the surface. If the diver has dived outside of the profile they must complete the necessary safety stops as advised by the RDP.

4. Dive equipment requirements

4.1 PADI dive training:

All students taking part in PADI dive training must have all equipment, required materials as stated in the PADI standards. All PADI professionals teaching/assisting with PADI training must also have the required materials and equipment as stated in the course standards.

4.2 BSAC dive training

All Students taking part in BSAC dive training must have all equipment and required materials as stated in the BSAC Standards. All BSAC professionals teaching / assisting with BSAC training must also have the required materials and equipment as stated in course standards.

4.3 Certified divers / science staff

all certified divers are responsible for diving within Operation Wallacea standards therefore must have the following monitoring devices;

1. Depth gauge
2. Submersible pressure gauge (SPG)
3. Timing device (strongly recommended)

Both dive computers and compasses are recommended, however Operation Wallacea do not set this as a compulsory requirement as all certified divers do still dive with a dive professional.

All divers and snorkellers must wear appropriate protection from the temperature and environment; this is often dependent on site however long wetsuits are generally suitable.

All dive professionals must carry one audible (whistle) and one visual (Surface Marker Buoy) safety-signaling device. It is recommended that certified divers diving with a professional should also have either an audible or visual signaling device.

Groups of snorkellers should always carry an SMB to signal their presence to boat traffic. There should be a minimum of 1 SMB per 6 snorkellers. Groups should still be divided into buddy pairs, and all individuals must stay within 5 metres of each other and 5 metres of the SMB.

5. Required safety equipment

In the case of shore diving, safety equipment should be easily accessible in the case of an emergency. Site-specific emergency procedures should be explained to each dive professional prior to any in-water activity from the shore and it must be insured that the professionals are happy with how to use the equipment if the situation should arise. Equipment on shore should include a minimum of:

1. Oxygen kit suitable for both breathing and non-breathing patient with sufficient oxygen supply to return to site.
2. First aid kit including hot water thermos and vinegar to deal with marine organism injuries.

Each dive boat must have the following equipment on board. It is the responsibility of the dive leader to check all equipment is on board prior to each dive. It is also the responsibility of the dive operations manager to regularly check all equipment is in good working order.

1. Oxygen kit suitable for both breathing and non-breathing patient with sufficient oxygen supply to return to site.
2. First aid kit including hot water thermos and vinegar to deal with marine organism injuries.
3. A floatation device/life ring
4. A radio for contact to base and other dive boats
5. A fully completed dive roster detailing all volunteers, students and staff on the boat

6. Definitions of roles and responsibilities

6.1 Dive Operations Manager

- It is the responsibility of the Dive Operations Manager to ensure that all dives and in water activities are scheduled and planned ensuring there are sufficient members of staff to meet Operation Wallacea and PADI/ BSAC requirements.
- Ensure that student record files are accurately completed and kept for all student divers.
- Ensure that all PADI or BSAC forms for both student divers; certified divers and PADI or BSAC professionals are correctly completed before any in water activities.
- The Dive Operations Manager must ensure that all PADI or BSAC training courses meet PADI/BSAC requirements.
- Ensure that all non – training dives, snorkels and in water activities meet Operation Wallacea’s standards
- A hard copy of all dive rosters must be reviewed and a record kept
- All dive professionals, students, volunteers and visitors must be fully briefed on Operation Wallacea dive standards and procedures prior to any in water activities.
- Ensure that all divers, including professionals undertake a check dive prior to any other dive activity. The exception to this being PADI open water or BSAC Ocean Diver students.
- Overseeing the care and maintenance of all dive equipment including boats, compressors, dive equipment and safety equipment.
- All other duties and responsibilities as stated in individual contracts

6.2 Dive Instructors

- It is the dive Instructor’s duty to carry out dive training as required of them by the dive operations manager.
- It is the Dive Instructor’s responsibility to ensure all training is done within PADI or BSAC and Operation Wallacea standards.
- Ensure that student record files are accurately completed and kept for all student divers.
- Ensure that all PADI or BSAC forms for are correctly completed before any in water activities and that all students meet the requirements for their course.

- Any other duties and responsibilities as stated in individual contracts

6.3 Divemasters and Dive Leaders

Dive leaders are defined as a PADI Divemaster or above, or in the case of Cuba, BSAC dive leader or above, who have been assigned to lead and supervise in water activities. Their roles are as follows:

- Ensure that all diving is done within Operation Wallacea dive standards and PADI Standards and procedures.
- Have knowledge of Operation Wallacea Emergency action plans.
- Plan the dives/ snorkels as directed by the Dive Operations Manager, including assigning buddy pairs.
- Brief all divers and snorkellers prior to any in-water activities.
- Ensure that buddy checks are carried out and each diver carries with them the required safety equipment
- Ensure that all dive procedures are met including completed dive roster forms, radio checks etc.
- When supervising boat dives and snorkels ensure that all necessary medical and safety equipment is on board.
- It is the Divemaster's responsibility to carry out all duties, which are required of them by the dive operations manager and their individual contracts.

6.4 Certified divers and science staff

- It is the responsibility of all certified divers to ensure that they follow all Operation Wallacea dive standards and procedures and that all dives are performed with PADI (or in the case of Cuba –BSAC) standards.
- Certified divers must listen carefully to dive briefings and follow instructions of the dive leader.
- Certified divers must be fully aware of all emergency procedures and recall systems.
- All divers must carry out buddy checks prior to each dive.
- It is the responsibility of all divers to ensure that their equipment is in safe working order and that they have all the required safety equipment.

7. Insurance

All Dive Professionals are to have professional liability insurance as required by PADI (or in the case of Cuba, BSAC) and stated in Operation Wallacea diver contract. For all students, volunteers and science staff the activity of diving is covered by the Operation Wallacea insurance policy if done within Operation Wallacea dive standards.

8. Night dive specific standards and procedures

Night dives are to be undertaken only by advanced divers or above. The exception to this is when a night dive is completed as part of the Advanced Open Water course.

Profile: the maximum depth for a night dive is 14 metres. The maximum dive time remains 50 minutes including the 5-minute safety stop at 5 metres. All divers must enter the water at pressure group A or be completely off gassed.

Supervision: the supervision levels remain the same as stated in the general standards and procedures.

Equipment: Each diver must have at least one main touch, between the buddy pair there must also be a back up touch. A glo tube or cyalume stick should be attached to the tank valve of each

Dive Boat: The dive boat must remain moored in a stationary position, the mooring line/ shot line is to be marked with a strobe at the surface to indicate the boats location, a glo tube should be placed at 5 metres to indicate position for Safety stop, a third tube is also placed at 10mtrs. Throughout the dive boat crew should remain on the surface and alert for surfacing divers. Each boat should carry equipment as stated in the general standards but also carry a dive touch and a touch suitable for a surface search.