

# DELAYED SURFACE MARKER BUOY (DSMB) DIVER

INSTRUCTOR GUIDE



**PADI**  
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## **PADI Delayed Surface Marker Buoy (DSMB) Diver Specialty Course Instructor Guide**

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# INTRODUCTION

This section includes suggestions on how to use this guide, an overview of course philosophy and goals, a flow chart to show you how course components and materials work together, and describes ways you can organize and integrate student diver learning.

## How to Use this Guide

This guide speaks to you, the PADI Delayed Surface Marker Buoy (DSMB) Diver Specialty Instructor. The guide contains three sections: the first contains standards specific to this course, the second contains knowledge development, and the third details the open water dives. **All required standards, learning objectives, activities and performance requirements specific to the PADI DSMB Diver course appear in boldface print.**

The boldface assists you in easily identifying those requirements that you must adhere to when you conduct the course. Items not in boldface print are recommendations for your information and consideration. General course standards applicable to all PADI courses are located in the General Standards and Procedures section of your PADI *Instructor Manual*.

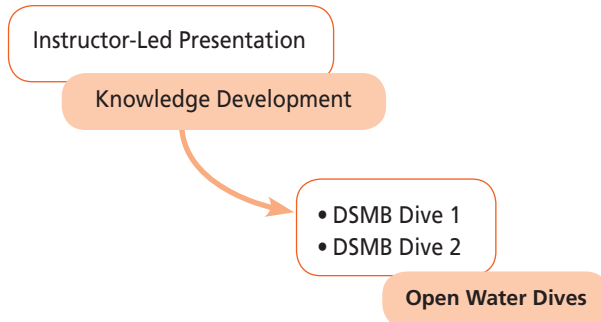
## Course Philosophy and Goals

The purpose of the PADI DSMB Diver Specialty course is to familiarize divers with the skills, knowledge, planning, equipment, organization, procedures, techniques, problems, hazards and excitement of diving with a DSMB. The DSMB Diver Specialty course is intended and designed to be a supervised introduction to diving with a DSMB. Training should emphasize fun and safety.

### Course goals are to:

- Explain the planning, organization, procedures, techniques, problems and hazards of using a DSMB or a surface marker buoy (SMB) while diving.
- Train student divers in the use of a DSMB and associated equipment.
- Guide student divers in using the proper techniques and protocols for using DSMBs and SMBs in the local area.

## Course Flow Options



Conduct instructor-led presentations to develop diver knowledge prior to the practical application and the training dives. **Student divers must complete the knowledge development prior to the open water dives.** When reasonably possible, it's preferable to have student divers complete and review the Knowledge Review before participating in the open water dives. There are two open water dives. You may rearrange skill sequence within each dive, however the sequence of dives must stay intact. You may add more dives as necessary to meet student divers' needs. Organize the course to accommodate student diver learning style, logistical needs and sequencing preferences. Incorporate environmentally friendly techniques throughout each dive.

# SECTION ONE

## Course Standards

This section includes the course standards, recommendations and suggestions for conducting the PADI DSMB Diver Specialty course.

### Standards at a Glance

Topic	Course Standard	
Minimum Instructor Rating	PADI DSMB Diver Specialty Instructor	
Prerequisites	PADI Open Water Diver	
Minimum Age	12 years	
Ratios	Open Water – 8:1	
Site, Depths and Hours	<p><b>Site:</b> Any site where DSMBs can be deployed safely</p> <p><b>Depth:</b> Recommended depth: 9-12 metres/30-40 feet</p> <p><b>Minimum Open Water Dives: 2</b></p> <p>Hours Recommended: 12</p>	
Materials and Equipment	<p><b>Instructor:</b></p> <ul style="list-style-type: none"> <li>• PADI DSMB Diver Course Instructor Guide</li> <li>• Examples of various SMBs, DSMBs and reels</li> <li>• Extra weight</li> </ul>	<p><b>Student Diver:</b></p> <ul style="list-style-type: none"> <li>• Standard dive equipment</li> <li>• DSMB</li> <li>• Appropriate reel</li> <li>• Knife/cutting tool (except where prohibited locally)</li> </ul>



## Instructor Prerequisites

To qualify to teach the PADI DSMB Diver Specialty course, **an individual must be a Teaching status PADI Open Water Scuba Instructor or higher. PADI Instructors may apply for the DSMB Diver Specialty Instructor rating after completing a Specialty Instructor Training course with a PADI Course Director, or by providing proof of DSMB Diver certification, or by showing evidence of having used DSMBs in open water and applying directly to a PADI Regional Headquarters.** For further detail, reference Professional Ratings in the General Standards and Procedures section of your *PADI Instructor Manual*.

## Certified Assistant Requirements

To qualify as a certified assistant for the DSMB Diver Specialty course, **an individual must be an active PADI Divemaster or higher and PADI DSMB Diver (or qualifying certification or by showing evidence of having used DSMBs in open water).**

## Student Diver Prerequisites

By the start of the course, a diver must be:

1. **Certified as a PADI (Junior) Open Water Diver. Verify student diver prerequisite skills and provide remediation as necessary.**
2. **At least 12 years old.**

## Supervision and Ratios

**A Teaching Status PADI DSMB Diver Specialty Instructor must be present and in control of all activities. The maximum student diver to instructor ratio is 8:1.**

**The DSMB Diver Specialty Instructor must ensure that all performance requirements are met.**

## Sequencing

1. **Knowledge Development must be completed before the open water dives.**
2. **Training dives must be conducted in order.** You may rearrange skill sequences within a dive.



## Site, Depths and Hours

### Site

Choose sites with conditions and environments suitable for completing requirements. Ideally, select sites familiar to student divers. Be cautious of using sites where it may be difficult or hazardous to deploy DSMBs (e.g. kelp forests, high levels of boat traffic). Incorporate environmentally friendly techniques throughout each dive. Practice skills in confined water sessions first to better prepare divers to apply skills in open water later.

### Depths

Recommended depth is 9-12 metres/30-40 feet.

### Hours

**The PADI DSMB Diver Specialty course includes two required open water dives, which may be conducted in one day at the discretion of both the student diver and instructor.** The recommended number of hours is 12.

## Materials and Equipment

### Instructor

- PADI DSMB Diver Specialty Course Instructor Guide
- Examples of various SMBs, DSMBs and reels
- Knife or cutting tool (except where locally prohibited)
- Extra weight

### Student Diver

- Standard equipment as listed in General Standards and Procedures
- DSMB and reel (at least one set per buddy team – divers can take turns using it)
- Knife or cutting tool (except where locally prohibited)

## Assessment Standards

To assess knowledge, have divers complete the DSMB Diver Knowledge Review (located in the Appendix of this guide) and review missed questions until they demonstrate accurate and adequate knowledge. During open water dives, divers must perform all skills – procedures and motor skills – in a reasonably comfortable, fluid, repeatable manner as would be expected of a diver at this certification level.

## Certification Requirements and Procedures

To qualify for certification, student divers must have met all performance requirements by completion of the course. The instructor certifying the student diver must ensure that all certification requirements have been met.

## Links to Other Courses

The DSMB Diver Adventure Dive conducted during the PADI Advanced Open Water Diver course may count as the first dive of this specialty at your discretion. Similarly, divers who successfully complete DSMB Open Water Dive One and Knowledge Review may receive credit as an Adventure Dive toward the PADI Adventure Diver and the PADI Advanced Open Water Diver certifications. They may also credit the specialty certification toward the PADI Master Scuba Diver rating.

## SECTION TWO

# Knowledge Development

## Conduct

Divers complete the knowledge development for the PADI DSMB Diver Specialty course through your formal or informal presentations based upon the following course presentation outlines. These presentations are the primary knowledge development method for this course.

Divers enrolled in the PADI DSMB Diver Specialty course should already be comfortable diving in the type of sites you select for this course. They can therefore concentrate on the new skills contained in this course. The PADI DSMB Diver Specialty course prepares divers to develop and practice those skills under your direction. Completing the Knowledge Review and demonstrating motor skill mastery during training dives, combined with asking divers questions and other verbal interactions, allows you to assess knowledge development mastery.

## I. Introduction

### Note to Instructor

Have student divers and staff introduce and provide a bit of background about themselves.

### A. Course Goals

1. To understand the value of having and using DSMBs or SMBs.
2. To introduce the potential risks, risk management techniques and the need for proper training when using DSMBs or SMBs.
3. To know the local protocols/requirements and demonstrate proper technique for using DSMBs.

### B. Course Overview and Schedule

### Note to Instructor

Discuss the course sequence, assignments, meeting times, places and other information about all class sessions, practical application sessions and training dives. Build excitement about the course, particularly the training dives.

### C. Costs, Equipment Requirements and Paperwork

#### Note to Instructor

Explain all costs, equipment requirements and logistical details as necessary. Reconfirm prerequisites if appropriate, ensure all paperwork is completed – see Section One, and Paperwork and Administrative Procedures, General Standards, PADI *Instructor Manual*. Collect outstanding fees.

### D. Performance Requirements and Certification

1. **To qualify for any PADI certification, you must meet specific performance requirements.**
  - a. You pay for the course, but must earn the certification.
  - b. This requirement exists because your ability to dive safely depends upon your ability to master and apply what you learn in this course.
  - c. Performance-based learning is objective – a student either meets a requirement or does not; your instructor is not arbitrary in assessing performance.
2. Although you must meet all performance requirements, having difficulty does not mean you will be unsuccessful.
  - a. You take a course to learn – making mistakes and needing time to master knowledge and skill is part of learning.
  - b. You may pick up some things quickly and others slowly; what matters is that you demonstrate mastery – not how long it takes.
  - c. You move on at the pace you learn – you may need extra dives or other practice.

## II. Reasons to Dive With a DSMB

### Learning Objectives

By the end of this section, you will be able to answer these questions:

1. What is the difference between an SMB and a DSMB?
2. When would a diver use an SMB or DSMB?

#### 1. What is the difference between an SMB and a DSMB?

- A. There are key differences between an SMB and a DSMB, and how you use them.
  1. A surface marker buoy (SMB) is deployed at the surface.
    - a. In some cases, the buoy is inflated before the dive and remains inflated and at the surface for the entire dive. The buoy may even be permanently inflated.

- b. SMBs often incorporate a dive flag and may have storage compartments to keep smaller useful items at the surface.
  - c. During drift dives, the diver usually has a reel attached to the SMB, and the diver will deploy the appropriate amount of line according to the depth.
  - d. Sometimes, divers deploy a rolled up or folded buoy after they reach the surface to make it easier to be spotted. You may have had the chance to try this during your PADI Open Water Diver course.
2. A delayed surface marker buoy (DSMB) is usually deployed during a dive while underwater.
- a. The diver carries the reel and the deflated-and-rolled up/folded DSMB at the start of the dive, and at some point (usually at the end of the dive) inflates the DSMB while underwater and allows it to ascend to the surface while letting the reel roll out the line.
  - b. The buddy team then usually ascends up the line, reeling it in as they go up, and may complete their safety stop using the line as a reference.

## 2. When would a diver use an SMB or DSMB?

- B. Knowing how and when to use your SMB or DSMB is important.
- 1. Marker buoys serve a range of purposes including:
    - a. Allowing people on shore/boat to identify the location of an ascending diver.
    - b. Alerting boat traffic to the presence of a diver.
    - c. Providing a visual reference for ascending divers.
    - d. Marking boundaries for mapping or search and recovery.
  - 2. An SMB is useful if divers want to let surface traffic or their dive boat know where they are at all times.
    - a. Towing a buoy may cause a degree of drag on the diver, however, and means the diver will have to be careful of passing under features such as arches, overhanging structures or kelp forests.
  - 3. A DSMB allows divers much more freedom to move around during the main part of the dive, as it needs to be deployed only when the divers want to mark their position or an object's location.
    - a. The divers can choose to tow the DSMB while it is at the surface for some or all of the dive, so that it can be used in the same way as an SMB if necessary.
    - b. This course will focus on the use of DSMBs.

### III. Features and Styles of DSMBs and Reels

#### Learning Objectives

By the end of this section, you will be able to answer these questions:

1. What are three types of DSMBs?
2. What are the common features of a reel or spool?

#### 1. What are three types of DSMBs?

- A. You have three primary options when choosing a DSMB.
  1. Common styles of DSMB include:
    - a. Open-ended at base
    - b. With a self-sealing valve arrangement at the base
    - c. With a built-in mini inflation cylinder
  2. Note that if the DSMB is designed to be a closed container when deployed, it must have an automatic pressure-relief valve fitted to release expanding gas during its ascent.
  3. DSMBs are frequently tube (or sausage) shaped but sometimes are simply small lifting bags.
    - a. It is good practice to prominently write your name on your DSMB so any surface cover can identify them.

#### Note to Instructor

Have students mark their names on their personal DSMBs.

4. The color of a DSMB may have specific meanings in your local area. For example, in many parts of Europe, an orange, red or pink DSMB is considered standard, while a yellow DSMB is reserved as an emergency signal.

#### Note to Instructor

Describe the color differences in the local area, as appropriate.

5. Some DSMBs may have pockets for inserting light sticks or have radar-reflective panels.
6. DSMBs are often large enough to physically support a diver in the water during a safety stop and should be large enough to be visible to boats.

## 2. What are the common features of a reel or spool?

- B. Reels and spools are important accessories to pair with a DSMB.
  - 1. Common styles of reels and spools include:
    - a. Finger spool
    - b. Lockable or ratchet reel
  - 2. Spools are very simple and consist of:
    - a. Spool
    - b. Line
    - c. Clip for attaching to diver when not in use. (The clip is sometimes used to reel the line in or as a handle.)
  - 3. Reels are used to maintain contact with the DSMB. They can be used to roll line out, or recover line as you ascend.
  - 4. Lockable or ratchet reels typically have the following components:
    - a. Handle
    - b. Spool
    - c. Line
    - d. Clip or loop for attaching DSMB
    - e. Clip to attach to diver while not in use
    - f. Locking pin or ratchet system
  - 5. Reels come in different styles.
    - a. Some can be locked either fully open, allowing line to roll out continuously, or locked shut.
    - b. Others have a ratchet, allowing the line to be let out using a trigger system that can easily be stopped or started.
  - 6. Reels are often used for other tasks including mapping projects, search-and-recovery operations, wreck or cave penetrations, and are widely used in technical diving.

### Note to Instructor

Promote additional training – PADI Search and Recovery Diver, Wreck Diver and Cavern Diver specialty courses, and TecRec courses.



## IV. Preparing a DSMB for Use

### Learning Objectives

By the end of this section, you will be able to answer these questions:

1. What are five pre-dive steps for preparing a DSMB and reel for use?
2. What should you discuss with your buddy prior to a dive when you plan to use a DSMB?

#### 1. What are five pre-dive steps for preparing a DSMB and reel for use?

- A. Before diving with a DSMB and reel, there are five steps to get you prepared.
1. Start by checking that the reel is correctly rolled and is not likely to get stuck when used. Unwind and rewind the reel prior to the dive if you want to be certain.
  2. Check the buoy for holes, frayed/worn straps and proper valve operation to be sure it's in good working order.
  3. Check clips for proper operation.
  4. Ensure that the line is locked and will not unroll when not being used to avoid an entanglement hazard.
  5. Plan where to attach/secure/keep the reel when not in use. Possible locations to stow the DSMB when not in use:
    - a. BCD pocket
    - b. Exposure suit pocket
    - c. Other pocket
    - d. Backplate pouch
    - e. Bungeed to backplate/cylinder
    - f. Clipped with reel/spool

#### 2. What should you discuss with your buddy prior to a dive when you plan to use a DSMB?

- B. It's important to communicate with your buddy before a dive with a DSMB.
1. Prior to the dive, discuss with your buddy (and boat skipper if applicable) when and how you intend to use the DSMB.

## V. Deploying a DSMB

### Learning Objectives

By the end of this section, you will be able to answer these questions:

1. How should you prepare to deploy a DSMB?
2. What methods can you use to inflate the DSMB, and how do you perform them?
3. How can you reduce the risk of the line tangling as the DSMB ascends?
4. What should you look out for before launching a DSMB from depth?

#### 1. How should you prepare to deploy a DSMB?

- A. Consider these four steps before deploying a DSMB.
  1. Delayed surface marker buoys are launched from depth when you and your buddy have reached a predetermined depth or point during your dive.
  2. Prepare your DSMB by attaching the reel/spool to the DSMB.
  3. Either hold the reel, attach it to a nonsensitive part of the bottom, or hold on to a nonsensitive part of the bottom (to steady) yourself while deploying it.
  4. Never clip an inflated DSMB or the reel to yourself because this risks a runaway ascent.

#### 2. What methods can you use to inflate the DSMB, and how do you perform them?

- B. There are several methods you can use to inflate your DSMB. Which method you use depends on the environment, local protocol and the type of DSMB you are using.
  1. Use these techniques in temperate or warm-water environments where purging a second stage is less likely to result in regulator freeflow.
    - a. Use the purge button on your alternate air source.
    - b. Use the purge button on the second stage fed from a separate regulator and air source, such as a small dedicated cylinder.
  2. Though these options can be used anywhere, these techniques are commonly used in cold-water environments where purging a second stage can lead to regulator freeze up and freeflow:
    - a. Use an accessory inflator fed from your regulator, which you can disconnect if it freezes.
    - b. Use an accessory inflator fed from a separate regulator and air sources, such as a small dedicated cylinder.
    - c. Tip your head and hold the DSMB so your exhaled breath exhausts from your regulator directly into the DSMB.

- d. Hold your BCD deflator so that it vents directly into your DSMB as you release air. This technique reduces buoyancy issues because as you become less buoyant, your DSMB becomes more buoyant so your overall buoyancy remains constant. After releasing the DSMB, add gas to your BCD to restore neutral buoyancy. This technique can reduce the likelihood of runaway ascents due to gaining too much buoyancy inflating a DSMB.
  - e. Use a DSMB with a built-in gas source (see below).
3. When using orally inflated DSMBs, try this technique.
    - a. Blow into the DSMB inflator tube – take a breath, remove but retain control of your second stage, blow into device and then return to your second stage.
  4. When using a DSMB with a low-pressure inflator mechanism, try this.
    - a. Some models of DSMBs have a low-pressure inflator hose port that allows the diver to connect a low-pressure inflator hose like one used to inflate your BCD and/or dry suit. These connections don't lock, so you can ensure the diver can immediately release the DSMB if it becomes tangled or too buoyant.
    - b. A few models of DSMBs have small, built-in gas cylinders that allow you to inflate the DSMB without using any other gas source. See the manufacturer guidelines for use.

*Your instructor will show you locally used technique(s) as appropriate for the DSMB(s) you use. Regardless of inflation method, be cautious to avoid runaway ascents with a positively buoyant DSMB, and to avoid entanglement with the line.*

### **3. How can you reduce the risk of the line tangling as the DSMB ascends?**

- C. Reduce the risk of becoming tangled in the reel line.
  1. As the buoy ascends, maintain light drag on the reel and/or tension on the line to keep it taut and reduce the risk of tangling. This is also important for open-bottomed DSMBs to keep them upright so they don't spill and sink.
  2. Once the DSMB is on the surface, keep the line fairly taut – this will cause the DSMB to “stand up” on the surface and increase its visibility.

### **4. What should you look out for before launching a DSMB from depth?**

- D. You don't want to “blindly” launch your DSMB.
  1. When launching a DSMB, watch out for objects or divers above you.
    - a. These could include boats or parts of a wreck.
    - b. Always look up and check that there are no obvious risks.

## VI. Risks and Hazards of DSMB Use

### Learning Objectives

By the end of this section, you will be able to answer these questions:

1. What are four potential hazards when using a DSMB?
2. How can you reduce the risk of these four potential hazards while diving with a DSMB?

#### 1. What are four potential hazards when using a DSMB?

- A. There are four potential hazards you should consider when using a DSMB.
  1. Entanglement in slack line while underwater.
  2. Equipment getting entangled or displaced during deployment.
  3. Freeflowing regulator caused by purging of alternate air source to inflate a DSMB.
  4. Being caught in the line, resulting in a rapid or uncontrolled ascent.

#### 2. How can you reduce the risk of these four potential hazards while diving with a DSMB?

- B. Consider these ways to reduce risk while diving with a DSMB.
  1. Never attach the reel to yourself while the DSMB is being launched or on the surface.
  2. Always keep clear of the line, and ensure that other divers are clear of the line as well.
  3. Avoid slack line at all times, especially while ascending or while reeling it in.
  4. To avoid regulator freeze in cold water, use an accessory inflator from an independent gas source, use exhaled bubbles from your regulator exhaust, or use DSMBs that have low-pressure inflator hose attachments or are orally inflated to inflate the DSMB underwater.
  5. Carry a cutting tool to cut the line in the event of entanglement.
  6. Adjust buoyancy throughout deployment and ascent to maintain control.
  7. If in doubt, release the reel and ascend without it.

## SECTION THREE

# DSMB Open Water Dives

### Conduct

The PADI DSMB Diver Specialty course has two required open water training dives. You also have the option of adding a confined water dive to practice the skills before diving in open water.

You may add training dives for additional experience as needed for student divers to demonstrate mastery. However, student divers must demonstrate mastery of all performance objectives for the first training dive prior to progressing to the second dive.

**Prior to certification, student divers must demonstrate mastery of all performance objectives.**

### Dives, Times, Depths and Gases

- 1. The minimum number of dives for certification as a PADI DSMB Diver is two open water dives.**
- 2. All dives must be planned as no stop (no decompression) dives.**
3. Recommended depth is 9-12 metres/30-40 feet.

### General Considerations

1. Use good judgment in choosing dive sites that are appropriate and conducive to meeting dive requirements. Avoid sites where DSMBs are more likely to become entangled.
2. Involve student divers in all dive planning activities.
3. Have students unwind and rewind sufficient line on the surface from their reels at least once to check that the lines will run freely underwater.
4. Always conduct a thorough dive briefing to help divers visualize the dive and anticipate any problems that might occur. Remind them of check-in and check-out procedures, and review emergency procedures.
- 5. Each diver must use a DSMB on both dives.** It is acceptable to have one DSMB and reel per team and for divers to take turns deploying it. In this case, it will usually be necessary for the buddies to accompany the diver doing the skill while they ascend, deflate the DSMB and re-descend.

## Sequencing Training Dives

1. **Knowledge development must be completed before the open water dives.**
2. **Training dives must be conducted in order.** You may rearrange skill sequences within a dive.

## DSMB Dive One

### Performance Objectives

By the end of DSMB Dive One, you will be able to, with a buddy:

1. Prepare, stow and adjust DSMB and reel that will be used on the dive.
2. Complete a pre-dive safety check.
3. Demonstrate an entry appropriate for the local environment.
4. Perform a buoyancy check and adjust for proper weighting.
5. Establish neutral buoyancy and dive according to the plan.
6. Deploy a DSMB from a stationary position.
7. Swim underwater while towing a DSMB on the surface for at least 10 minutes, adjusting the line by reeling it in and out as required.
8. Ascend at a maximum rate of 18 metres/60 feet per minute or according to dive computer limits.
9. Ascend as a buddy team while using a DSMB line as a visual or tactile reference.
10. Perform a safety stop.
11. Deflate and recover a DSMB at the surface.
12. Demonstrate an exit appropriate for the environment.

## I. DSMB Dive One Standards

**A. Environment: Open water**

**B. Depth Range:** Recommended depth 9-12 metres/30-40 feet

## II. Suggested Sequence

### A. Pre-dive planning and equipment setup

1. Plan the dive with student divers.
  - a. Provide an overview of what the divers will be doing and the dive time required for planning purposes.
  - b. It's recommended that you provide skill descriptions and details as close to the dive as possible, unless surface conditions make this unfavorable.

Describe each skill, the performance requirements and how you'll conduct it, including signals.

- c. Conduct a dry run of reel and DSMB use at the surface as appropriate. Be certain the students can describe the deployment and inflation techniques they will use.
2. Give a dive site overview for diver comfort and planning purposes.
  - a. Discuss depth, temperature, entry/exit techniques, noteworthy features.
  - b. Point out any obstacles that might be an entanglement hazard for DSMB lines.
  - c. Explain facilities and where to find emergency equipment, etc.
3. Assist with any problems found during the pre-dive planning and setup.
4. Agree on depth and time limits, emergency signals, etc.
5. Have student divers assemble their equipment and be ready to enter the water. Assist them as required to stow DSMB and reels.
6. Remind divers of the skills and sequence and that they should release the reel if it jams when DSMB is launched.

#### **B. DSMB Dive One**

1. Pre-dive check
  - a. Buddies conduct a pre-dive check.
  - b. Watch for and correct errors as appropriate.
2. Entry
  - a. Divers enter the water using a method appropriate for the environment.
3. Buoyancy check and proper weighting
  - a. Divers check their buoyancy and adjust their weight as necessary.
4. Post entry check
  - a. Divers should check that their reels and DSMBs are still in reach and secure following the entry.
5. Gas management
  - a. Before beginning the descent, remind divers to check their starting pressure and make a note of their turn pressure.
  - b. During the dive, check cylinder pressures at varied intervals to confirm appropriate gas management.
6. Descent
  - a. Buddies execute a five-point descent.
7. Locate SPGs and signal pressures.
  - a. Divers should frequently monitor their SPGs and signal when they reach the agreed reserve gas pressure.



8. At some point during dive, have each diver:
  - a. Deploy a DSMB from the bottom or a stationary position in water too deep in which to stand using an appropriate inflation method. (Diver may keep contact with a stationary object at instructor's discretion and if environmental considerations permit.)
  - b. Swim underwater for at least 10 minutes towing the DSMB while maintaining neutral buoyancy and adjusting line tension as needed.
  - c. Ascend with buddy using DSMB line as a visual or tactile reference at a rate of 18 metres/60 feet a minute or according to dive computer limits.
  - d. Carry out a three-minute safety stop at 5 metres/15 feet using DSMB line as a visual or tactile reference.
  - e. At the surface, deflate and stow the DSMB and reel.
9. Exit
  - a. Divers establish positive buoyancy at the surface.
  - b. Divers exit the water using a method appropriate for the environment, with assistance as necessary.

### C. Post Dive

1. Divers stow dive equipment and empty any water from DSMBs.
2. Debriefing – Have student divers critique themselves on their performance. Add your observations as appropriate.
3. Divers log the dive for the instructor's signature.

## DSMB Dive Two

### Performance Objectives

By the end of DSMB Dive Two, you will be able to, with a buddy:

1. Prepare, stow and adjust DSMB and reel that will be used on the dive.
2. Complete a pre-dive safety check.
3. Demonstrate an entry appropriate for the local environment.
4. Perform a buoyancy check and adjust for proper weighting.
5. Establish neutral buoyancy and dive according to the plan.
6. Deploy a DSMB while maintaining position in midwater.
7. Ascend at a maximum rate of 18 metres/60 feet per minute or according to dive computer limits.
8. Ascend as a buddy team while using a DSMB line as a visual or tactile reference.
9. Perform a safety stop.
10. Deflate and recover a DSMB at the surface.
11. Demonstrate an exit appropriate for the environment.

## I. DSMB Dive Two Standards

### A. Environment: Open water

**B. Depth Range:** Recommended depth 9-12 metres/30-40 feet

## II. Suggested Sequence

### A. Pre-dive planning and equipment setup

1. Plan the dive with student divers.
  - a. Provide an overview of what the divers will be doing and the dive time required for planning purposes.
  - b. It's recommended that you provide skill descriptions and details as close to the dive as possible, unless surface conditions make this unfavorable. Describe each skill, the performance requirements and how you'll conduct it, including signals.
  - c. Conduct a dry run of reel and DSMB use at the surface as appropriate. Be certain the students can describe the deployment and inflation techniques they will use.
2. Give a dive site overview for diver comfort and planning purposes.
  - a. Discuss depth, temperature, entry/exit techniques, noteworthy features.
  - b. Point out obstacles that might be an entanglement hazard for DSMB lines.
  - c. Explain facilities and where to find emergency equipment, etc.
3. Assist with any problems found during the pre-dive planning and setup.
4. Agree on depth and time limits, emergency signals, etc.
5. Have student divers assemble their equipment and be ready to enter the water. Assist them as required to stow DSMB and reels.
6. Remind divers of the skills and sequence, and that they should release the reel if it jams when the DSMB is launched.

### B. DSMB Dive Two

1. Pre-dive check
  - a. Buddies conduct a pre-dive check.
  - b. Watch for and correct errors as appropriate.
2. Entry
  - a. Divers enter the water using a method appropriate for the environment.
3. Buoyancy check and proper weighting
  - a. Divers check their buoyancy and adjust their weight as necessary.
4. Post entry check

- a. Divers should check that their reels and DSMBs are still in reach and secure following the entry.
5. Gas management
  - a. Before beginning the descent, remind divers to check their starting pressure and make a note of their turn pressure.
  - b. During the dive, check cylinder pressures at varied intervals to confirm appropriate gas management.
6. Descent
  - a. Buddies execute a five-point descent.
7. Locate SPGs and signal pressures.
  - a. Divers should frequently monitor their SPGs and signal when they reach the agreed reserve gas pressure.
8. At some point during dive, have each diver:
  - a. Deploy a DSMB from midwater while hovering using an appropriate inflation method. (Recommended depth: 9-12 metres/30-40 feet.)
  - b. Execute a controlled ascent from midwater position reeling in the DSMB line to keep proper tension as needed.
  - c. Ascend with buddy using DSMB line as a visual or tactile reference at a rate of 18 metres/60 feet a minute or according to dive computer limits.
  - d. Carry out a three-minute safety stop at 5 metres/15 feet using the DSMB line as a visual or tactile reference.
  - e. At the surface, deflate and stow the DSMB and reel.
9. Exit
  - a. Divers establish positive buoyancy at the surface.
  - b. Divers exit the water using a method appropriate for the environment, with assistance as necessary.

### **C. Post Dive**

1. Divers stow dive equipment and empty any water from DSMBs.
2. Debriefing – Have student divers critique themselves on their performance. Add your observations as appropriate.
3. Divers log the dive for the instructor's signature.



# APPENDIX

## Delayed Surface Marker Buoy (DSMB) Diver

### Knowledge Review

Complete this knowledge review to hand in to your instructor for review. If there's something you don't understand, have your instructor explain it to you. If you still don't understand, have your instructor explain it to you.

1. An SMB is deployed at the \_\_\_\_\_ and a DSMB is usually deployed during a dive from \_\_\_\_\_.
2. Common styles of DSMBs include (choose all that apply):
  - a. an inflatable tube or bag that is open-ended at the base.
  - b. buoys or balls used to mark moorings.
  - c. an inflatable tube with a self-sealing valve arrangement at the base.
  - d. an inflatable tube or bag with a built-in mini inflation cylinder.
3. What components do lockable or ratchet reels typically have? (Choose all that apply.)
  - a. Locking pin or ratchet system
  - b. Handle
  - c. Clip to attach to diver while not in use
  - d. Spool
  - e. Pocket
  - f. Line
  - g. Clip or loop for attaching DSMB
4. To prepare a DSMB before a dive, I should check the reel and clips, make sure the line is locked and inspect the buoy by checking for holes, frayed/worn straps and proper valve operation.
  - a. True
  - b. False
5. Depending on the DSMB model and local environmental requirements, I can inflate a DSMB by (choose all that apply):
  - a. using my alternate air source.
  - b. using an accessory inflator.
  - c. using my exhaled bubbles.
  - d. using air that I release from my BCD through the deflator.
  - e. having a separate air source, such as a small dedicated cylinder.

6. What potential hazards exist while diving with a DSMB? (Choose all that apply.)
- a. Buddy separation
  - b. Entanglement in slack line
  - c. Freeflowing alternate air source
  - d. Uncontrolled ascent if caught in line
7. I should clip my reel to my BCD before inflating the DSMB.
- a. True
  - b. False
8. When I have inflated a DSMB, I should avoid \_\_\_\_\_ line to reduce the risk of entanglement.
9. What should I look for before deploying a DSMB from depth?
- a. Grab on to the bottom
  - b. Look for objects or divers above
  - c. Unclip the DSMB from the reel
  - d. Find the dive boat
10. I've inflated my DSMB, but my reel jams as it starts its ascent. What should I do?
- a. Release the reel and ascend without it.
  - b. Immediately cut the line.
  - c. Pull the DSMB down and dump air.
  - d. Stop and work to unjam it.

**Student Diver Statement:**

I've reviewed the questions and answers, and any I answered incorrectly or incompletely I have had explained to me and/or reviewed the material, so that I now understand what I missed.

Diver Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_



## Delayed Surface Marker Buoy (DSMB) Diver

### Knowledge Review Answer Key

#### Note to Instructor

To assess knowledge, review the Knowledge Review that was given to the student at the start of the course. (Preferably do this prior to participating in inwater skills practice.) Prescriptively teach answers to questions student divers may have missed, or have answered incorrectly or incompletely. Ensure student divers understand what they have missed.

Complete this knowledge review to hand in to your instructor for review. If there's something you don't understand, have your instructor explain it to you.

1. An SMB is deployed at the **surface** and a DSMB is usually deployed during a dive from **underwater**.
2. Common styles of DSMBs include (choose all that apply):
  - a. **an inflatable tube or bag that is open-ended at the base.**
  - b. buoys or balls used to mark moorings.
  - c. **an inflatable tube with a self-sealing valve arrangement at the base.**
  - d. **an inflatable tube or bag with a built-in mini inflation cylinder.**
3. What components do lockable or ratchet reels typically have? (Choose all that apply.)
  - a. **Locking pin or ratchet system**
  - b. **Handle**
  - c. **Clip to attach to diver while not in use**
  - d. **Spool**
  - e. Pocket
  - f. **Line**
  - g. **Clip or loop for attaching DSMB**
4. To prepare a DSMB before a dive, I should check the reel and clips, make sure the line is locked and inspect the buoy by checking for holes, frayed/worn straps and proper valve operation.
  - a. **True**
  - b. False
5. Depending on the DSMB model and local environmental requirements, I can inflate a DSMB by (choose all that apply):
  - a. **using my alternate air source.**
  - b. **using an accessory inflator.**
  - c. **using my exhaled bubbles.**
  - d. **using air that I release from my BCD through the deflator.**
  - e. **having a separate air source, such as a small dedicated cylinder.**

6. What potential hazards exist while diving with a DSMB? (Choose all that apply.)
- a. Buddy separation
  - b. Entanglement in slack line**
  - c. Freeflowing alternate air source**
  - d. Uncontrolled ascent if caught in line**
7. I should clip my reel to my BCD before inflating the DSMB.
- a. True
  - b. False**
8. When I have inflated a DSMB, I should avoid **slack** line to reduce the risk of entanglement.
9. What should I look for before deploying a DSMB from depth?
- a. Grab on to the bottom
  - b. Look for objects or divers above**
  - c. Unclip the DSMB from the reel
  - d. Find the dive boat
10. I've inflated my DSMB, but my reel jams as it starts its ascent. What should I do?
- a. Release the reel and ascend without it.**
  - b. Immediately cut the line.
  - c. Pull the DSMB down and dump air.
  - d. Stop and work to unjam it.

**Student Diver Statement:**

I've reviewed the questions and answers, and any I answered incorrectly or incompletely I have had explained to me and/or reviewed the material, so that I now understand what I missed.

Diver Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

## PADI Specialty Training Record

### DSMB Diver

#### Instructor Statement

I verify that this student diver has satisfactorily completed all knowledge development sessions as outlined in the PADI Delayed Surface Marker Buoy (DSMB) Diver Specialty Course Instructor Guide. I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name \_\_\_\_\_ PADI # \_\_\_\_\_

Instructor Signature \_\_\_\_\_ Completion Date \_\_\_\_\_

### Open Water Dives

#### Dive One

I verify that this diver has satisfactorily completed Dive One as outlined in the PADI DSMB Diver Specialty Instructor Guide, including:

- Launching a DSMB from the bottom
- Towing a DSMB underwater for at least 10 minutes
- Ascending with a DSMB and using it during a safety stop
- Recovering and stowing a DSMB at the surface

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name \_\_\_\_\_ PADI # \_\_\_\_\_

Instructor Signature \_\_\_\_\_ Completion Date \_\_\_\_\_

## Dive Two

I verify that this diver has satisfactorily completed Dive Two as outlined in the PADI DSMB Diver Specialty Instructor Guide, including:

- Launching a DSMB from midwater
- Ascending with a DSMB and using it during a safety stop
- Recovering and stowing a DSMB at the surface

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name \_\_\_\_\_ PADI # \_\_\_\_\_

Instructor Signature \_\_\_\_\_ Completion Date \_\_\_\_\_

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## Student Diver Statement

I verify that I have completed all performance requirements for this Wreck Diver specialty. I am adequately prepared to dive in areas and under conditions similar to those in which I was trained. I agree to abide by PADI Standard Safe Diving Practices.

Student Diver Name: \_\_\_\_\_

Student Diver Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## PADI Adventure Dive Training Record

### DSMB Diver

#### Skills Overview

- Knowledge Review
- Briefing
- Pre-dive reel/DSMB practice
- Suiting up – proper DSMB/reel stowage
- Pre-dive safety check (BWRAF)
- Entry
- Buoyancy check/weighting (as needed)
- Dive as planned
- Deploy DSMB from on/just over bottom
- Ascent as buddy team using DSMB line as reference; safety stop
- Deflate, recover DSMB at surface
- Exit/debrief
- Log dive - complete training record

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#### Instructor Statement

I verify that this student diver has satisfactorily completed the Knowledge Review and Performance Requirements (as described in the PADI Advanced Open Water Diver Instructor Guide) for this PADI Adventure Dive.

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name \_\_\_\_\_ PADI # \_\_\_\_\_

Instructor Signature \_\_\_\_\_ Completion Date \_\_\_\_\_

#### Instructor Contact Information (Please Print)

Instructor Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_

Country \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

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#### Student Diver Statement:

I verify that I have completed all of the Performance Requirements for this Adventure Dive. I realize that there is more to learn about delayed surface marker buoy use, and that completion of a DSMB course is highly recommended. I also agree to abide by PADI Standard Safe Diving Practices.

Student Diver Name: \_\_\_\_\_

Student Diver Signature: \_\_\_\_\_ Date: \_\_\_\_\_