Boat Diver

PADI

Specialty Course Instructor Guide

Product No. 70229 (Rev. 02/08) Version 2.01

PADI Boat 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 for success, and ways you can organize and integrate student diver learning.

How to Use this Guide

This guide speaks to *you,* the PADI Boat Diver Specialty Instructor. The guide contains three sections – the first contains standards specific to this course, the second contains knowledge development presentations, the third considers optional confined water and/or surface training and details the open water dives. All required standards, learning objectives, activities, and performance requirements specific to the PADI Boat 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.*

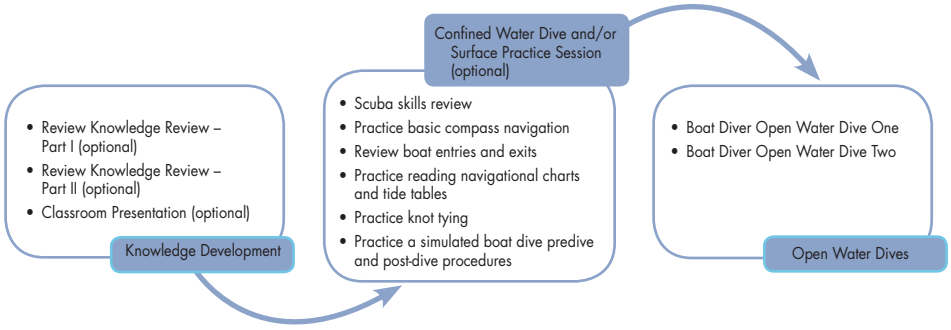
Course Philosophy and Goals

Boats allow you to explore spectacular dive sites not easily accessible from shore. Imagine no entries through surf, no long surface swims, no navigational wizardry to find the site, and no air gone from your cylinder to arrive at the reef you wanted to explore. Instead, imagine effortlessly entering the water from the transom of a boat – in moments, you and your buddy descend to the site, eyes wide open in anticipation of the aquatic marine life you'll see. Imagine diving visibility averaging 30-45 metres/100-150 feet, wrecks teeming with life, common encounters with sea lions, octopus, and giant kelp canopies that are home to a vast variety of reef fish, lingcod, urchins, strawberry anemones, crabs and lobsters. Combine the comfort and ease of diving from a boat and your closest diving friends, and you have all the makings for a perfect scuba experience.

Experiences like these attract divers to boat diving; in fact, whether your first or your hundredth dive, virtually all divers end up diving from a boat eventually. Diving and boats make an obvious match. Although there are great dive sites available from shore, some of the world's best diving is accessible *only* from a boat. With this in mind, the philosophy of this course is to *focus on the comfort and ease of diving from a boat.* Thus, the *goal* of this course is to teach student divers a systematic, methodical approach to enjoying boat diving. Student divers will develop the techniques involved in boat diving within recreational limits and while avoiding disturbing delicate marine life.

The best way to learn boat diving procedures and to apply them is by doing it. This *course philosophy* therefore, expands student diver knowledge about the advantages of boat diving, boat terminology, types of dive boats, basic rules of the road, safety equipment for boat diving, boat diving procedures and etiquette, and the basic guides to boating safety. Student divers will apply the knowledge they gain by reading the PADI *Boat Diver Manual,* watching the PADI *Boat Diving* video, and on at least two open water dives practicing and demonstrating the practical aspects of boat diving.

Course Flow Options



Course Flow Options provides a visual representation of how knowledge development and confined water and/or surface practice sessions support open water dives. When possible, it's preferable to have student divers complete and review Knowledge Reviews from the PADI *Boat Diver Manual* before participating in the open water dives. Knowledge Review – Part I is the same Knowledge Review that appears in the Boat Diver section of *Adventures in Diving.* If you have the first part of the Knowledge Review on file, you may at your discretion, have student divers complete only Knowledge Review – Part II.

Confined water and/or surface practice sessions are not required for the PADI Boat Diver course; however, you may choose to have practical sessions that allow student divers to practice skills such as boat diving etiquette, navigation patterns, and practice reading navigational charts and tide tables. It's a good idea to provide

a simulated boat dive in a confined area – such as cordoning off a section of a pool deck – to give student divers an idea of the space they have or don't have when setting up and stowing their equipment. Reviewing boat dive entries and exits, knot typing, and reviewing the use of safety equipment are all skills that support the open water dives.

There are two dives to complete. **You may rearrange skill sequences within each dive; however, the sequence of dives must stay intact.** You may add more dives as necessary to meet student divers' needs. Organize your course to incorporate environment friendly techniques throughout each dive, to accommodate student diver learning style, logistical needs, and your sequencing preferences. You may choose from one of the approaches from Program Options, or develop your own.

Program Options

Step	Independent Study	Adventure Dive Integration	Instructor-Led
1	Independent study with manual and video (optional)	Independent study with manual and video (optional)	Knowledge Development Classroom Presentation (optional)
2	Review Knowledge Review – Part I and Part II (optional)	Give credit for Boat Adventure Dive and collect Knowledge Review – Part I (optional)	Review Knowledge Review – Part I and Part II (optional)
3	Confined Water Dive and/or Surface Practice Session (optional)	Confined Water Dive and/or Surface Practice Session (optional)	Confined Water Dive and/or Surface Practice Session (optional)
4	Open Water Dive One	Review Knowledge Review – Part II (optional)	Open Water Dive One
5	Open Water Dive Two	Open Water Dive Two	Open Water Dive Two

Section One:
Course Standards

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

Standards at a Glance

Topic	Course Standard
Minimum Instructor Rating	**PADI Boat Diver Specialty Instructor**
Prerequisites Minimum Age	**PADI (Junior) Open Water Diver** **10 years**
Ratios	**Open Water: 8:1 Instructor; 4:1 Certified Assistant**
Site, Depths, and Hours	Depth: 18 metres/60 feet recommended Hours Recommended: 12 **Minimum Open Water Dives: 2**
Materials and Equipment	Instructor: • **PADI *Boat Diver Specialty Course Instructor Guide*** • **Access to a boat**

Instructor Prerequisites

To qualify to teach the PADI Boat Diver course, an individual must be a Teaching status PADI Open Water Scuba Instructor or higher. **PADI Instructors may apply for the Boat Diver Specialty Instructor rating after completing a Specialty Instructor Training course with a PADI Course Director, or by providing proof of experience and applying directly to PADI.** For further detail, reference Membership Standards in the General Standards and Procedures section of your PADI *Instructor Manual.*

Student Diver Prerequisites

By the start of the course, a diver must be:
1. Certified as a PADI (Junior) Open Water Diver or have a qualifying certification from another training organization. In this case, a qualifying certification is defined as proof of entry-level scuba certification with a minimum of four open water training dives. Verify student diver prerequisite skills and provide remediation as necessary.
2. At least 10 years.

Supervision and Ratios

Open Water Dives

A Teaching status PADI Boat Diver Specialty Instructor must be present and in control of all activities. If Dive One is conducted deeper than 18 metres/60 feet, the Specialty Instructor must directly supervise at a ratio of no greater than 8 student divers per instructor (8:1). Otherwise, the Specialty Instructor may *indirectly supervise* all dives. T**he Specialty Instructor must ensure that all performance requirements are met.**

The ratio for open water dives is 8 student divers per instructor (8:1), with 4 additional student divers allowed per certified assistant (4:1).

Children

For dives that include 10-11 year olds, direct supervision is required at a maximum ratio of four student divers per instructor (4:1). No more than two of the four divers may be 10 or 11. You may not increase this ratio with the use of certified assistants.

Site, Depths, and Hours

Site

Choose sites with conditions and environments suitable for completing requirements. **Both open water training dives must be conducted from a boat.** Use different open water dive sites, if possible, to give student divers experience in dealing with a variety of environmental conditions (incorporate environment friendly techniques throughout each dive) and logistical challenges. It is recommended, but not required, that student divers be exposed to the techniques and procedures for diving from different types of boats (inflatable boats, hard-hull day boats, cabin cruisers, live-aboards, sailboats, etc.). Practice skills in confined water sessions first to better prepare divers to apply skills in open water later.

Depths

18 metres/60 feet maximum for certified Open Water Divers

Children

12 metres/40 feet limit for 10-11 year olds
21 metres/70 feet limit for 12-14 year olds if they have taken the Deep Adventure Dive

Hours

The PADI Boat Diver course includes two open water dives, which may be conducted in one day. Dives may be conducted at night for divers who have completed the Night Adventure Dive or the first dive of the PADI Night Diver specialty course, or have qualifying night diving experience. The minimum number of recommended hours is 12.

Materials and Equipment

Instructor Materials and Equipment

Use the PADI Boat Diver course materials prescriptively to accommodate various sequencing preferences and teaching and learning styles.

Required

- **PADI *Boat Diver Specialty Course Instructor Guide***
- **Specialty equipment needed for student divers to perform boat dives**
  - **Access to a boat**
  - **Appropriate diver flag**
  - Safety equipment may include: small boat/surfboard for rapid surface transport (when diving from larger vessels), surface signaling devices, communication devices (such as a VHF radio and/or cell phone), oxygen, first aid kit, AED, fire extinguisher, life jackets or other flotation devices, etc.

Recommended

- PADI *Boat Diver Manual.* Use the student diver manual for detailed content explanation.
- PADI *Boat Diving* video.
- As needed: extra backup lights, slates with pencils, and compasses for student divers.

Student Diver Materials and Equipment

Recommended

- PADI *Boat Diver Manual*
- PADI *Boat Diving* video
- The *Encyclopedia of Recreational Diving*

Assessment Standards

To assess knowledge you may review the Knowledge Reviews from the student diver's manual with the diver. **The student diver must demonstrate accurate and adequate knowledge during the open water dives and must perform all skills (procedures and motor skills) fluidly, with little difficulty, in a manner that demonstrates minimal or no stress.**

Certification Requirements and Procedures

Document student diver training by completing the PADI *Specialty Training Record* for Boat Diver (see Appendix). **To qualify for certification, by completion of the course, student divers must complete *all* performance requirements for Boat Diver Open Water Dives One and Two.**

The instructor certifying the student diver must ensure that all certification requirements have been met. Reference Administrative Procedures of the General Standards and Procedures section of your PADI *Instructor Manual* for detailed information on Referral.

Links to Other Courses

The Boat Diver Adventure Dive conducted during the PADI Adventures in Diving program may count as the *first dive* toward this specialty at your discretion.

Similarly, divers who successfully complete Boat Diver Open Water Dive One and Knowledge Review Part 1 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

Although there are great dive sites available from shore, some of the world's best diving is accessible only from a boat. Combine the comfort and ease of diving from a boat and your closest diving friends, and you have all the makings for a perfect scuba experience. With this in mind, the philosophy of this course is to focus on the *comfort and ease of diving from a boat.* This means to expand student diver knowledge about the advantages of boat diving. To discuss boat terminology, to talk about the types of boats available for boat diving, to learn the basic rules of the road, and to identify the safety equipment and the importance of it for boat diving. To outline for student divers boat diving procedures and etiquette. In addition, to encourage student divers to read tides tables and current charts. Finally, the course is an avenue for student divers to learn and follow the basic guides to boating safety. Student divers will apply the knowledge they gain by reading the PADI *Boat Diver Manual* and watching the companion video on at least two open water dives practicing and demonstrating the practical aspects of boat diving.

Student divers complete independent study of the course by reading the PADI *Boat Diver Manual* and by watching the PADI *Boat Diving* video. Work hand-in-hand with the student diver manual to address prescriptively student diver misconceptions or for clarification on certain points of interest. If there is a need for instructor-led presentations, use the following teaching outline, which appears in point form, as a road map of the conduct, content, sequence and structure for the PADI Boat Diver course.

The result should be student divers with theoretical knowledge and pragmatic experience who can adapt what they've learned to future boat dive opportunities. **Regardless of how you conduct knowledge development (independent study, instructor-led or a combination of these instructional approaches), student divers will be able to explain the following learning objectives.**

Knowledge Development

Learning Objectives

By the end of knowledge development, student divers will be able to explain:

Advantages of diving from a boat, boat terminology, general dive boat categories and their characteristics, and boating laws and regulations.

- **What are five advantages of diving from a boat?**
- **What are a boat's *bow (forward), stern (astern, aft), starboard side* and *port side*?**
- **Which is the *windward* side and which is the *leeward* side of a boat?**
- **What do the following terms refer to on a boat: *head, galley, bridge, wheelhouse (or pilothouse), transom, rail, cylinder racks, bunks (staterooms), galley* and *diving entry/exit area*?**
- **What three features do you expect from virtually any dive boat?**
- **What are the four general dive boat categories and their characteristics?**
- What are the local boating laws and regulations specific to: a) boat ownership, b) registration, c) numbering, and d) documentation? (optional)

Basic rules of the road, navigational aids for locating or relocating a dive site, and safety/emergency equipment for boat diving.

- **What are the basic international rules of the road?**
- What are the common, local navigational aids? (optional)
- **What are navigational charts and why are they important?**
- What navigational instruments do you use to navigate a boat? (optional)
- **What considerations apply to when a dive boat leaves and returns to the dock?**
- **What eight pieces of basic safety equipment do you typically find on dive boats?**
- **Where would you typically find each of those eight pieces of safety equipment?**
- **How do you operate the marine radio on board a dive boat according to local regulations and procedures?**

Basic guides to boating safety.

- What does the term piloting mean? (optional)
- What are the seven dimensions of piloting? (optional)
- What does the term dead reckoning mean and how do you use the basic principles of dead reckoning while piloting a boat? (optional)

- **What are four considerations when selecting a mooring or an anchorage for diving?**
- How do you tie up to and release from a mooring? (optional)
- How do you set up, secure, deploy, retrieve, and stow an anchor on board a dive boat? (optional)
- What are the basic guides to boating safety? (optional)

Boat diving preparation, the prevention of seasickness, and charter boat boarding and predive procedures.

- **How do you prepare your equipment for a boat dive?**
- **How do you prepare yourself for a boat dive?**
- **How do you prevent seasickness?**
- **What should you do if you get seasick?**
- **What are the general boarding procedures for a charter dive boat?**
- **What four topics will a boat dive area orientation briefing usually cover?**
- **What is the procedure for suiting up and gearing up on a dive boat?**
- **Why is a predive roll call by divemasters or crewmembers important?**

Boat diving procedures, the use of lines, knot tying, and post-dive procedures.

- **What are the general guidelines for making entries from various types of boats?**
- **What are *trip lines, gear lines, descent lines,* and *current lines* used for?**
- **What are the procedures for descending while boat diving?**
- **In which direction should you generally head when boat diving?**
- **What are the general guidelines for ascents while boat diving?**
- **What are the general guidelines for exiting into a boat?**
- **How should you repack and stow your gear after a dive on various sized boats?**
- **Why should you listen to post-dive roll calls by divemasters or crewmembers?**

Knowledge Development Teaching Outline

Suggestions to *you,* the PADI Boat Diving Specialty Course Instructor, appear in note boxes.

A. Course Introduction

1. Staff and student diver introductions

Note:

Introduce yourself and assistants. Explain your background with boat diving if your student divers are not familiar with you.

Have divers introduce themselves and explain why they are interested in boat diving. Break the ice and encourage a relaxed atmosphere.

Give times, dates and locations as appropriate for classroom presentations, confined water and/or surface practice sessions, and open water dives.

Review with student divers other skills they'll want as a PADI Boat Diver. *These opportunities, through additional specialty course training, may include, but are not limited to: PADI* Enriched Air Diver, *PADI* DPV Diver, *and PADI* Deep Diver, *and PADI* Peak Performance Buoyancy Diver.

2. Course goals – this course will help:
   a. Develop your practical knowledge of boat diving.
   b. Increase your diving skills.
   c. You plan, organize, and make boat dives.
   d. Improve your diving ability and provide you with additional supervised experience.
   e. Encourage you to participate in other specialty training.

3. Course overview
   a. Classroom presentations and confined water and/or surface practice sessions.
   b. Open water dives. There will be two open water dives.

4. Certification
    a. Upon successfully completing the course, you will receive the PADI Boat Diver Specialty certification.
    b. Certification means that you will be qualified to:
        1. Plan, organize, make, and log open water boat dives in conditions generally comparable to or better than, those in which you are trained.
        2. Apply for the Master Scuba Diver rating if you are a PADI Advanced Open Water Diver and a PADI Rescue Diver (or qualifying certification from another training organization) with certification in four other PADI Specialty ratings, and you have 50-logged dives.

Note:
Use the PADI Student Record File. *Explain all course costs and materials, and what the costs do and do not include, including equipment use, charter boat fees, etc. Explain what equipment student divers must have for the course, and what you will provide. Cover and review points about scheduling and attendance.*

5. Class requirements
    a. Complete paperwork.
    b. Course costs.
    c. Equipment needs.
    d. Schedule and attendance.

B. Advantages of Boat Diving

- ***What are five advantages of diving from a boat?***

1. There are many practical advantages to diving from a boat – besides, boat diving adds to the fun and adventure, which is reason enough.
    a. Diving from a boat gives you opportunities to dive in areas you could not otherwise reach.
    b. Boat diving allows you to seek out the calmest and clearest waters.
    c. Boat diving is typically easier than shore diving.
        1. Easy entries and exits
        2. Reduced need for long surface and underwater swims
        3. Avoids surf, mud, or long hikes to and from the car with your equipment on

d. You also experience less wear and tear on your equipment (compared to most types of shore diving).

e. Boat diving is fun because there is social interaction and like diving boating is a fun recreation and a great way to spend time near the water.

1. Making new friends
2. Learning from other divers' experiences

C. Boat Terminology

- ***What are a boat's* bow (forward), stern (astern, aft), starboard side *and* port side?**

1. While some terms hang on purely through tradition, other terms help to orient you on board a boat. Regardless of where boat terms come from, nautical terms help you to communicate effectively with the crew and others on board.

a. Bow – the forward part of a boat

1. Forward – toward the front (bow) of the boat

b. Stern – the rear part of a boat

1. Astern – towards the back of the boat, opposite of ahead
2. Aft – toward the rear (stern) of a boat

c. Starboard side – the right side of a boat when looking forward at the bow

d. Port side – the left side of a boat when looking forward at the bow

1. To remember port from starboard, think of a boat that just left port (as in leaving a harbor).

- ***Which is the* windward *side and which is the* leeward *side of a boat?***

e. Windward side (side to weather) – toward the direction from which the wind is blowing

f. Leeward side – the direction away from which the wind is blowing

g. Companionway – a passage that leads below to the areas under the top deck

h. Amidships (in or toward the center) – an object or area midway between a boat's sides or something midway between the bow and the stern

i. Aloft – above the deck of a boat

j. Below – areas beneath the deck of a boat

k. Above deck – on the deck of a boat

- ***What do the following terms refer to on a boat:* head, galley, bridge, wheelhouse (or pilothouse), transom, rail, cylinder racks, bunks (staterooms), *and* diving entry/exit area?**

2. Depending on the size of the boat you'll be diving on, you may use some or all of the following terms. If you're not sure what a term means when you hear it, ask the crew to explain what it means. Identify an area on a boat by its nautical term.
   a. Head – a marine toilet or restroom facility
   b. Galley – the kitchen area of a boat
   c. Bridge (control station) – the location from which a vessel is steered and its speed controlled; can be a raised transverse platform on a boat from which the helmsman (pilot) steers the boat
   d. Wheelhouse (pilothouse) – a deckhouse for a boat's helmsman (pilot), containing the steering wheel, compass and navigating equipment
      1. The wheelhouse and the bridge may be the same thing.
   e. Transom – the stern cross-section of a square sterned boat
      1. On small vessels (such as an inflatable), the transom is the stern area on which an outboard motor is attached.
   f. Rail – guard or barrier at the outer edge of a deck
      1. Gunwale – the upper edge of a boat's sides
   g. Cylinder racks – storage place for cylinders
   h. Bunks (staterooms) – sleeping quarters
   i. Diving entry and exit areas – the areas on a boat designated for you to enter and exit the water
      1. On some boats, you may enter and exit in different areas.

D. Types of Boat Dives

- ***What three features do you expect from virtually any dive boat?***

1. Dive boats range from small inflatables, to pontoon boats, to giant cruisers, live-aboards and motorsailers, and sail on everything from medium sized lakes to the high seas. Regardless of the type or where it sails, there are three features typically required of a good dive boat.
   a. Ample deck space – very important for suiting up and storage of equipment. Small boats with ample deck space may be more suitable for diving than larger, more luxurious vessels without deck space.

b. Stability – dive boats must be stable platforms

c. Power – needed to haul people and lots of equipment to a destination

- ***What are the four general dive boat categories and their characteristics?***

2. There are many types of boats, so to discuss them it's easier if we generalize them into four categories based on broad characteristics.

   a. Inflatables are fast, stable, portable and relatively inexpensive dive boats.

      1. Sizes range from approximately 3 metres/10 feet to over 5 metres/15 feet long and are generally considered "small" boats.

      2. Inflatables typically have two air-filled side tubes that meet at the bow. An inflatable may have a flexible or a rigid hull, a solid or an inflatable keel, a soft or a hard floorboard. Usually has a solid transom for an outboard motor.

      3. Side tubes are normally subdivided into independent compartments – this minimizes buoyancy loss in the event of a puncture or tear.

      4. Inflatables can carry two to five or six divers (or more).

   b. Hard-hull day boats are typically used for single day, short distance excursions.

      1. Sizes range from approximately 5 metres/15 feet to more than 6 metres/20 feet.

      2. Boats in this category include resort pontoon flattops, runabouts, utility boats, small sailboats, skiffs, and other small to medium open boats.

      3. Hard-hulled day boats designed specifically for diving or fishing are best because their design includes lots of deck space. Touring or water skiing hard-hulled day boats typically have less deck space.

   c. Cabin cruisers with ample deck space are great for diving.

      1. Sizes range from approximately 6 metres/20 feet to more than 9 metres/28 feet (in the US, 9 metres/28 feet is the largest size that may be trailered).

      2. The term *cruiser* typically indicates a type of boat with at least minimum accommodations and facilities for overnight trips.

      3. Boats in this category could include all types of cabin cruisers, medium-sized sailboats, yachts, and most medium-sized hard-hull boats. Some types of small dive charter boats fall into this category. These vessels hold six to ten divers.

   d. Live-aboards comfortably accommodate large groups on long-distance trips.

1. Sizes range from approximately 9 metres/30 feet to more than a 100 metres/330 feet.
2. Vessels in this category include converted fishing vessels, large charter-type dive boats (sail or power; up to 50+ divers), luxurious yachts, and even cruise ships (may accommodate hundreds of divers).
3. Individuals diving from the larger live-aboards may find themselves actually diving from inflatables, skiffs, or small, hard-hull day boats. Therefore, knowing how to dive from both types of boats may be helpful.

Note:

Take this time to inform student divers of the category of vessel(s) from which they will conduct their open water dives. This is a perfect opportunity to show a slide show or video of previous boat diving trips aboard the same vessel you plan to use in the course. This discussion will help student divers to put into perspective the information they are about to learn as they'll have a visual image in which to attach the information.

Inform student divers that when using a nonchartered boat for diving, not to exceed the vessel's capacity for passengers and equipment. It's easy to check on the vessel's capacity and weight restrictions by locating the "Boat Capacity Plate." Boat builders put a capacity plate in sight of the helm (steering area) on motorized boats less than 6 metres/20 feet in length. This plate displays three important items: the maximum weight of persons on board, the maximum carrying weight of the vessel and the maximum horsepower recommended for the boat. Suggest to student divers that they check the capacity plate to make sure they are not overloading or overpowering the vessel. Ensure divers understand that the capacity plate limits are suitable for normal operating conditions. In rough seas, bad weather or when operating in congested areas they will want to carry a lighter load. To accurately follow local boating laws and regulations suggest to divers to enroll in a seamanship and small boat handling course before using a noncharter boat for boat diving.

- *What are the local boating laws and regulations specific to: a) boat ownership, b) registration, c) numbering, and d) documentation? (optional)*

Note:
Since national government agencies have numerous and various statutes designed to protect life and property on waterways, it is impossible to describe them all in detail here. Prepare your notes with local information. Reference the library and/or the internet for local boating laws and regulations specific to: a) boat ownership, b) registration, c) numbering, and d) documentation. In the US, visit The United States Coast Guard at www.uscgboating.org/regulations or The United States Power Squadron at www.usps.org. In Europe, visit the European Boating Association at www.eba.com. In the United Kingdom, reference the Royal Yachting Association at www.rya.org.uk, or the Maritime and Coastguard Agency at wwwmcga.gov.uk. In Japan, visit the Tokyo Sail and Power Squadron at www.tspsjapan.org. Note up-to-date information for your local area in the instructor outline below. Depending upon course requirements, you may also consider having student divers research the local boating laws and regulations for a home-study assignment. Regardless of your instructional approach, review with student divers local boat laws and regulations specific to: a) boat ownership, b) registration, c) numbering, and d) documentation.

3. The local laws and regulations
   a. Boat ownership:

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_____

   b. Registration:

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c. Numbering:

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d. Documentation:

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E. Boating Basics for Divers

Note:
Remind student divers to keep in mind that this is a boat diving course, not a boating course, and the following discussion isn't intended to qualify them to operate a boat. Rather, they are to learn these basics so they can understand and recognize how and why the captain and crew operate their vessel the way they do, and how it relates to their own personal safety. Diving from boats is more interesting if you have a basic background in boating. It can also be quite practical information to know in the event they need to assist on board in an emergency, or if they plan to operate their own craft. Suggest to student divers that if they're interested in qualifying as a private or commercial boat captain, to complete a locally sanctioned course in boat operations.

1. There are two sets of navigation rules – International and Inland. A nautical chart will show you the demarcation lines where the rules change from international to inland and vice versa.
   a. In general, these demarcation lines follow the coastline and cross inlets and bays. On the seaward side of the demarcation lines, international rules apply.
   b. The navigation rules are designed to give direction to vessels in order to set a standard that everyone follows to prevent collisions of two or more vessels.
      1. They are many in number and cover almost every imaginable sequence of events that may lead to collision.

2. The rules are laid out to describe International Rules and Inland Rules. Although many are the same for both International and Inland, there are some differences that should be noted.

c. The navigation rules are written with the understanding that not all boats can maneuver with the same ease, therefore certain vessels must keep out of the way of other vessels due to their ability to maneuver.

- ***What are the basic international rules of the road?***

Note:
Since national government agencies have numerous and various statutes designed to protect life and property on waterways, it is impossible to describe them all in detail here. Prepare your notes with international and local information regarding "rules of the road." Reference the library and/or the internet for international and local boating "rules of the road" explanations. In the US, visit The United States Coast Guard at www.uscgboating.org/regulations or The United States Power Squadron at www.usps.org. In Europe, visit the European Boating Association at www.eba.com. In the United Kingdom, reference the Royal Yachting Association at www.rya.org.uk or the Maritime and Coastguard Agency at www.mcga.gov.uk. In Japan, visit the Tokyo Sail and Power Squadron at www.tspsjapan.org. In Australia and New Zealand, visit the Australian Maritime Safety Authority at www.safeboating.org.au. Note up-to-date information for both the international and your local area rules in the instructor outline below. Depending upon course requirements, you may also consider having student divers research international and local "rules of the road" for a home-study assignment. Regardless of your instructional approach, review with student divers international and local "rules of the road."

2. International rules of the road

a. Right of way – a power vessel underway must keep out of the way of a sailing vessel, a vessel engaged in fishing, a vessel with restricted maneuverability, and a vessel not under command. Each of these vessels must keep out of the way of the next vessel in the hierarchy.

1. Smaller maneuverable vessels accommodate very large vessels, regardless of right of way.

b. Meeting head on – when two power driven vessels are approaching head on, it is generally accepted that vessels alter course to starboard and pass port-to-port. The accompanying sound signal is one short blast (about one second) given by each vessel. If you cannot pass port-to-port due to an obstruction or other vessels, sound two short blasts to indicate your intention to pass starboard-to-starboard.

    1. Navigation rules encompass lighting requirements for every description of watercraft. In most countries, power driven and sailing vessels less than 20 metres/66 feet are equipped with green lights on their starboard side and red lights on their port side, therefore this would mean that oncoming vessels pass each other red to red. It's important to note however, that the green/red lights on the starboard/port sides may be the other way around in some countries. Check with the local coastguard regarding light requirements before leaving the harbor.

c. Overtaking – when two vessels are moving in the same direction, and the astern vessel wishes to pass (the give-way vessel), it must initiate the signal to pass.

    1. International rules - it gives two prolonged blasts (about six seconds) and one short to pass on the starboard side. The vessel to be passed (the stand-on vessel) should maintain its course and speed and reply with one prolonged, one short, one prolonged, and one short blast.

    2. Inland rules - it gives one short blast if passing to starboard, or two short blasts if passing to port. The vessel to be passed (the stand-on vessel) should maintain its course and speed and reply with one short blast to acknowledge a starboard passing or two short blasts to acknowledge a port passing.

d. Crossing – when two power driven vessels are approaching at right angles and risk of collision exists, the vessel on the right is the stand-on vessel and must hold its course and speed. The other vessel, the give-way vessel, shall maneuver to keep clear of the stand-on vessel and shall pass it by its stern. If necessary, slow, stop, or reverse until the stand-on vessel is clear.

e. Communication – you can avoid problems by communicating your intentions to other boats early.

    1. Radio

    2. Clear, early deliberate maneuvers

f. All vessels have a duty to avoid collision – "I had way," by itself, is not a defense following a collision.

3. Local (Inland) rules of the road (if any that differ from International rules)

_____
_____
_____
_____
_____

- *What are the common, local navigational aids? (optional)*

4. Local navigational aids are the road signs of the water. Learning to understand them requires experience and practice.

Note:
Refer student divers to the sidebar "Different Rules for Different Places." This sidebar provides a quick reference for the differences between the use of portside/starboard and green/red for different countries.

Different Rules for Different Places

Maritime marks used to indicate the edge of a channel are distinguished by their color, being red or green, and shape. Two different schemes are in use worldwide, differing in their use of color. The International Association of Lighthouse Authorities defines them as System A and System B.

System A
Used by Europe, Australia, New Zealand, parts of Africa and most of Asia other than the Philippines, Japan and Korea.
Port marks are red and may have a red flashing light.
Starboard marks are green and may have a green flashing light.

System B
Used by North America, Central America and South America, the Philippines, Japan and Korea.
Port marks are green and may have a green flashing light.
Starboard marks are red and may have a red flashing light.

In both systems:
Port marks are square or have a flat top.
Starboard marks are conical (or present a triangular shape) or have a pointed top.

a. Navigational aids mark the edges of channels to tell which way open water is. They are called day beacons if unlighted, lights if lighted at night, or buoys if they are floating. Some buoys are also lighted for identification at night.

b. To navigate safely using the lateral markers, you should pass between the red and green. In most countries, returning from sea, the red markers are on your right, or starboard, (red, right, returning) and the green are on your left, your port side, and between is the channel. As mentioned earlier, the green/red lights on the starboard/port sides may be the other way around in some countries. Check with the local coastguard regarding navigational aids before leaving the harbor.

c. Floating red markers are called nuns or conical and are triangular in shape and carry even numbers. Floating green markers are called cans and are square or shaped like a large can and carry odd numbers. Once again, it's always a good idea to check with the coastguard to clarify the shape and color of local navigational aids.

    1. Buoys (sea marks) – a floating device that aids pilotage by marking a maritime channel, hazard and administrative area to allow boats and ships to navigate safely.

    2. Day beacons – are an unlighted nautical sea marks. Typically, day beacons supplement channels whose key points are marked by lighted buoys. Day beacons may also mark smaller navigable routes in their entirety.

    3. Light beacons – are lighted nautical sea marks for navigating at night. Not all areas have these.

    4. Fog signals – are devices used in fog to produce an audible warning, and sometimes a visual one as well, indicating to a vessel the presence of a hazard. For instance, ships and lighthouses warn of their presence in foggy conditions.

    5. Lightships – vessels stationed offshore to warn other vessels of hazards to navigation. These vessels can be equipped with fog signals, lights, and radio beacons.

    6. Warning flags for boat diving – diver flags warn other boaters of a vessel with restricted maneuverability or that divers and/or snorkelers are in the water. You may see both or either of the alpha and the diver-down flag flown depending on the country.

        a. Usually a rigid international Alpha flag (blue and white in color) is flown by all vessels engaged in diving operations. The alpha flag is a navigational signal, which indicates that the vessel is restricted in ability to maneuver due to the nature of its work. In some countries however, the Alpha flag may be the

only flag flown to indicate divers are down.

b. Usually a rigid Diver-down flag (red and white in color) indicates that scuba divers and/or snorkelers are operating in the area and warns boaters to stay clear. Many locations have specific distance-away requirements (in the U.S. from 30 to 91 metres/100 to 300 feet). These distances may vary depending upon the location.

- ***What are navigational charts and why are they important?***

Note:
After reviewing with student divers how to read a navigational chart, if possible, have student divers review the local navigational chart to locate (or relocate) the dive site(s) they will be diving on their boat dives.

5. Reading local navigational charts

   a. A nautical chart graphically represents a maritime area and adjacent coastal regions. Depending on the scale of the chart, it may show depths of water and heights of land, natural features of the seabed, details of the coastline, navigational hazards, locations of natural and man-made aids to navigation, information on tides and currents, local details of the earth's magnetic field, and man-made structures such as harbors, buildings and bridges. Nautical charts are essential tools for marine navigation; many countries require vessels, especially commercial ships, to carry them.

   b. An electronic navigational chart is a database with standardized content, structure and format created by national hydrographic office for use with an Electronic Chart Display and Information System (ECDIS). An electronic navigational chart contains the chart information necessary for safe navigation and may contain supplementary information, such as sailing directions.

Note:
Inform student divers that electronic navigational charts are available from regional electronic navigational centers operated by governmental organizations such as Primar or hydrographic offices such as NOAA who then distribute these to standard chart agents and distributors. Only electronic navigational charts can be used within an electronic chart display and information system to meet the International Maritime Organization performance standard for electronic chart display and information system and in July 2008 the first mandatory requirements for the use of electronic navigational charts and electronic chart display and information system will become international law (International Marine Organization/Navigation).

- *What navigational instruments do you use to navigate a boat? (optional)*

Note:
After reviewing with student divers the use of electronic navigational aids, if possible, have student divers review the information once aboard, prior to heading out for their open water dives. Have divers use the electronic navigational aids to locate (or relocate) the dive site(s) they will be diving on their boat dives.

6. Navigational instruments
    a. Automated Direction Finders (ADFs) are devices for finding the direction to a radio source. Due to radio's ability to travel very long distances over the horizon, it makes a particularly good navigation system for vessels. The direction finder simply tells the captain the direction to the radio broadcast point, which is known. Today, however, most vessels navigate with the GPS system (discussed next). However, the low cost of ADF systems has created a comeback and they're useful in some areas.
    b. GPS – The Global Positioning System (GPS) finds direction based on more than two dozen GPS satellites are in medium earth orbit, transmitting signals. These allow GPS receivers to determine the receiver's

location, speed, and direction. GPS has become an indispensable aid to navigation around the world, and an important tool for map-making and surveying. GPS also provides a precise time reference. In nautical applications, GPS integrates with electronic charts and other instrumentation.

c. Fathometers (fishfinder or depth finder) – A fishfinder is a type of fathometer, which is a specialized types of echo sounding system or active sonar. The fishfinder uses active sonar to detect fish and the bottom and displays them on a graphical display device, generally a LCD or CRT screen. In contrast, the modern fathometer is designed specifically to show depth, so may use only a digital display instead of a graphical display, and frequently will have some means of making a permanent recording of soundings and is always principally an instrument of navigation and safety. Today, both instruments have merged, especially with the advent of computer interfaced multipurpose fish finders combining GPS technology, digital chart plotting. Some also have radar and electronic compass displays in the same unit.

d. Compass – The compass was the first instrument used for boat navigation, and it remains a primary tool for navigating in open water. Electronic compasses, often integrated in other instruments, are convenient to use and easy to read. However, conventional compasses remain popular. One reason is that they continue to function even if the boat suffers a major electrical problem.

e. Note that in some areas, boats operate within sight of land and use an established mooring – particularly tropical islands. Therefore, dive boats may have few or no instruments. In these areas, instruments are unnecessary for accurate navigation or locating dive sites.

- ***What considerations apply to when a dive boat leaves and returns to the dock?***

7. Docking and undocking (leaving the dock)

   a. Responsibility for docking and undocking lies with the crew. **Only attempt to assist if specifically asked to do so by the crew. Politely decline if you feel that you would be unable to assist adequately or safely.**

   b. During docking and undocking, stay clear of dock lines and the side of the boat that will tie up. The crew may ask you to sit to increase visibility and minimize confusion during docking.

Note:

Once reviewing the previous overview points on docking and undocking, if time allows and student divers are interested, you may want to review the following more detailed typical undocking and docking information. Inform student divers that maneuvers are more easily accomplished if the boat has twin engines, rather than a single engine.

Undocking – wind or current pushing the boat away from the dock procedure

1. *Cast off lines and pull in fenders as the wind blows the boat away from the dock.*
2. *When clear and safely away from the dock and other boats, the captain will shift the engines to forward and depart at ideal speed.*

Undocking – wind or current is pushing the boat toward the dock procedure

1. *Cast off all lines except an after bow spring line. This keeps the boat from moving forward and will allow the stern to pivot away from the dock.*
2. *The crew will ensure a fender is forward to cushion the bow of the boat against the dock.*
3. *The captain will turn the motor or rudder to the direction necessary to push the stern away from the dock and shift the engine forward at idle speed.*
4. *The stern will swing away from the dock. When clear of obstacles and traffic, the crew will cast off the spring line and back away from the dock and when safe will shift the engine to forward and idle (let the engine revolve slowly with throttle nearly closed) away from the dock.*

Docking procedure – wind blowing toward the dock

1. *Before approaching the dock, the crew will ensure one end of the docking line is secured onboard and that fenders are readied and speed is reduced.*
2. *The boat is brought to a position parallel to the dock and about two feet off. The wind will blow the boat in. It can then be secured by bow, stern and spring lines.*

Docking procedure – wind blowing away from the dock

1. *Before approaching the dock, the crew will ensure one end of the docking line is secured onboard and that fenders are readied and speed is reduced.*
2. *The captain will approach the dock at a 20- to 30- degree angle. A bow line is passed ashore and secured by the crew.*
3. *In boats with an outboard, or inboard/outboard engine, the captain will turn to the engine towards the dock and put it in reverse. This will bring the stern into the dock. The crew can then secure the boat with the stern line.*

Docking procedure – wind blowing away from the dock (inboard engines)

1. *The rudder will be used to bring the stern in by attaching an after bow spring to keep the boat from moving forward.*
2. *With the engine idling forward, the captain will turn the wheel away from the dock. Since the boat cannot move forward and the rudder is pushing the stern in, the boat will pin itself against the dock while the crew secures the other lines.*

c. Since the crew will most certainly run the engines for a few minutes before casting off lines, make sure you are away from engine fumes.

d. Do not disembark after docking until cleared to do so by the crew. The boat may not be properly secured.

e. Never attempt to slow anything but a very small boat that appears it will strike the dock by blocking with your feet or arms (whether you're on the boat or dock). **Although the vessel may be moving very slowly, the momentum due to size can cause significant injuries, especially if your limbs are trapped between the vessel and the dock.**

f. When assisting the crew, dock lines may stay with the boat or stay on the dock. Follow their directions regarding which end to release.

g. When tying up a vessel, pass the line on the side of the cleat opposite the direction of the line "belay away." Never tie a line to anything other than a cleat, unless directed to do so by the crew.

Note:

Once reviewing the previous overview points on docking and undocking, if time allows and student divers are interested, you may want to review the five basic knots that every boater should know. All knots used by boaters are designed to be easy to tie, take a tremendous amount of strain, and then be easy to untie.

1. *Cleat Hitch – To secure the boat to a dock or secure a line to the boat you will probably use the cleat hitch. Take the line to the ear of the cleat furthest from where the line comes from (the load). Take one wrap around the base of the cleat and then start a figure eight across the top of the opposite ear. Finish with a half hitch turned under so that the line is coming away from the cleat in the opposite direction from which it came in.*
2. *Bowline – Also called the "king" of knots, the bowline is very versatile. It is used to form a temporary loop in a line that may then be put over a piling or cleat. It can also be used to attach a line to an eye. This knot won't slip or jam. Start by making an overhand loop that looks like a six. With the end of the line, come up through the hole in the six, around the back of the line you're holding and back down through the hole in the six. Grab the part of the line that went up through the hole and the part of the line that came back down through the hole in one hand, and the top of the line you were holding in the other, and pull.*
3. *Square knot (reef knot) – Simple to make, the square knot is used for lots of light duty including tying things down. Start with an overhand knot like you were beginning to tie your shoe. Keeping the ends of the lines in your hand on the same side, cross them again and tie another overhand knot. If you don't keep them on the same side you'll end up with a granny knot which will jam.*

4. *Round turn and two half hitches – Used to permanently tie to a piling, mooring or ring. Simply take a full turn around the object being tied to and take two half hitches around the line itself. Over and up through and under and down through.*
5. *Clove Hitch – Used to temporarily tie to a piling this knot can come loose. You may add a couple of half hitches as above to make it more permanent. This knot is simply two loops with an end tucked under.*

Cleat Hitch

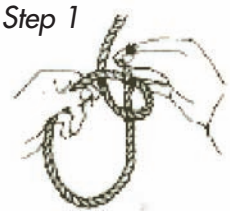
Step 1

Step 2

Step 3

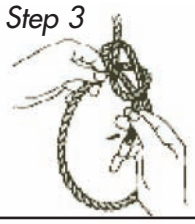
Bowline

Step 1



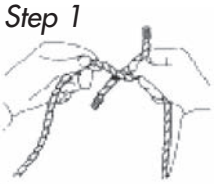
Step 2

Step 3



Square Knot (Reef Knot)

Step 1



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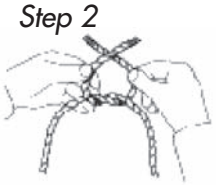

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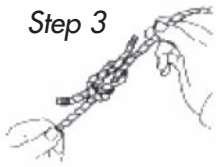
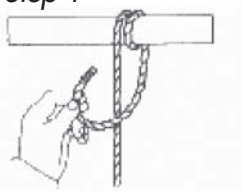


Round Turn and Two Half Hitches

Step 1



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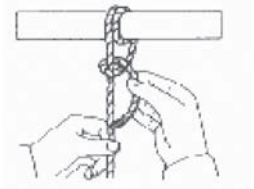

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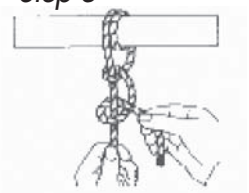
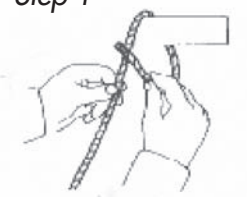


Clove Hitch

Step 1



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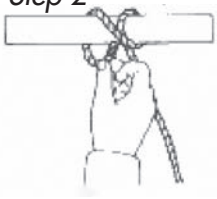

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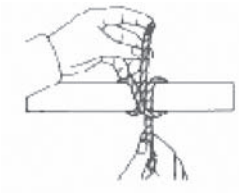


F. Boat Diving Safety/Emergency Equipment

Note:
Since national government agencies have numerous and various statutes designed to protect life and property on waterways, it is impossible to describe them all in detail here. Prepare your notes with local laws and regulations specific to required boating safety/emergency equipment. In the US, visit The United States Coast Guard at www.uscgboating.org/regulations or The United States Power Squadron at www.usps.org. In Europe, visit the European Boating Association at www.eba.com. In the United Kingdom, reference the Royal Yachting Association at www.rya.org.uk. In Japan, visit the Tokyo Sail and Power Squadron at www.tspsjapan.org. In Australia and New Zealand, visit the Australian Maritime Safety Authority at www.safeboating.org.au. Note up-to-date information for local laws and regulations governing required safety/emergency equipment for boating. Depending upon course requirements, you may also consider having student divers research this topic. Regardless of your instructional approach, review with student divers information on this topic for the local area.

- ***What eight pieces of basic safety equipment do you typically find on dive boats? Where would you typically find each of those eight pieces of safety equipment?***

1. Safety/Emergency Equipment
    a. PFDs (personal flotation devices, a.k.a. life preservers), buoyant cushions, life rings and ring buoys.
        1. Local regulations – number and type required:

            One wearable PFD for each person aboard is required. Note that in most areas, BCDs do NOT qualify as PFDs. In addition to a wearable PFD for each person, one throwable device is also required on each vessel over 5 metres/15 feet.

            _____

            _____

            _____

        2. Where found on board:

            Can vary, but everyone should know where to find them and must be easily accessible in an emergency.

_____

_____

_____

3. Review lifejacket usage:

   Everyone on board should be familiar with how to put on and how to use the PFD types available.

_____

_____

_____

b. Fire extinguishers

1. Local regulations – number and type required:

   Although not all vessels are required to carry a fire extinguisher in all areas, it is highly recommended. Fire extinguishers are classified by letters (the class of fire they put out) and numbers (the capacity). The boat should carry fire extinguishers rated for A (combustible solids like wood), B (flammable liquids like gasoline), and C (electrical fires) type fires. Fire extinguisher classifications may vary from country to country.

_____

_____

_____

2. Where found on board:

   Typically located away from, but near, likely fire sources so it can be safely retrieved and used in case of a fire.

_____

_____

_____

3. Review fire extinguisher usage:

   Spray directly at the base for fire on fabric, cloth, and wood. Surround, cover and separate flames from fuel or liquids. Disconnect current for an electrical fire, but often causes a fire of the previous type.

_____

_____

_____

c. Sound signaling devices (bells, whistles and other surface signaling devices)

1. Local regulations – number and type required:

   The navigation rules require sound signals to be made when meeting, crossing, and overtaking other vessels.

   Large boats – horns

   Small boats – horns or whistles

   _____

   _____

   _____

2. Where found on board:

   In the wheelhouse or where the captain can get to it.

   _____

   _____

   _____

3. Review device usage:

   _____

   _____

   _____

d. Visual distress signals

1. Local regulations – number and type required:

   Typically include distress flares, smoke flares, meteor rockets, flare guns, distress lights, and signal mirrors. These signaling devices must be in serviceable condition and marked with a date showing serviceable life. A minimum of three pyrotechnic devices must be carried.

   _____

   _____

   _____

2. Where found on board:

   Typically stowed with emergency supplies.

   _____

   _____

   _____

3. Review device usage:

_____

_____

_____

e. Bilge pump or bailer

1. Local regulations – number and type required:

   May be electrical and/or hand pump. On small boats, may be as simple as a small pail.

   _____

   _____

   _____

2. Where found on board:

   Electrical bilge pumps are usually activated near the ship's wheel. Installed manual pumps are down near the keel, which is the first area that accumulates water. Portable bilge pumps and pails (buckets) are kept with emergency supplies.

   _____

   _____

   _____

3. Review device usage:

   Simply turn on electrical bilge pump – on large vessels, they're automatic. Manual pumps are simply pumped by hand. You may need to remove deck covers to get access to water in the bilges, and sometimes installed manual pumps are accessed below deck.

   _____

   _____

   _____

f. First aid kits – On-board first aid kit (those belonging to the boat)

Note:
Refer student divers to the Emergency First Response Primary and Secondary Care courses. These courses provide detailed information on first aid kits and the application of first aid procedures.

1. Local regulations – number and type required:
   a. Type of container – sealed, moisture proof plastic box is best (no metal parts or cardboard).
   b. Basic first aid supplies – bandages, dressings, tapes, antiseptic ointments, and sunburn lotions/sprays.
   c. Basic first aid instruments – scissors, tweezers, Pocket Mask, and thermometer.
   d. Personal medications and supplies

   _____

   _____

   _____

2. Where found on board:

   _____

   _____

   _____

3. Review device usage:

   Take the Emergency First Response Primary and Secondary Care courses to learn more about giving aid and using a first aid kit.

   _____

   _____

   _____

g. Oxygen equipment for boat diving

Note:
Refer student divers to the PADI Rescue Diver *course. This course provides detailed information on various oxygen resuscitation units and the procedures for using them.*

1. Local practices – highly recommended for every dive boat; recommended type: nonresuscitator demand-valve (delivers 100 percent oxygen to patient) with freeflow for unresponsive/weak patients.

   _____

   _____

   _____

2. Where found on board:

   _____

   _____

3. Review device usage:

   Take the PADI *Rescue Diver* course to learn how to use emergency oxygen equipment and how to manage diver emergencies.

   _____

   _____

   _____

- ***How do you operate the marine radio on board a dive boat according to local regulations and procedures?***

  h. Marine radio – an emergency is defined as a situation in which you or your boat is threatened by grave danger, with loss of life or the vessel being imminent. Running out of fuel, a dead battery, or other mechanical problems are not emergencies.

  1. Local regulations – emergency frequency(ies) specific to type of radio(s) being used:

     Channel 16 is the most common hailing and emergency channel. You should not hold conversations on this channel. In nonemergencies use it only to contact another party and then switch to a "working channel" to carry on your conversation.

     _____

     _____

     _____

  2. Where found on board:

     Usually found near helm.

     _____

     _____

     _____

  3. Review device usage:

     A call of pan-pan means that there is an emergency on board but that, for the time being at least, there is no immediate danger to anyone's life or to the vessel itself. This is distinct from a Mayday call, which means there is imminent danger to life or to the continued viability of the vessel itself. Go to Channel 16 and say "Mayday, mayday, mayday," followed by "This is the [vessel name] with a [type] emergency," followed by "over." meaning you're waiting for a reply. The Coast Guard or a similar authority or nearby vessels able to assist will respond asking about the

emergency and your location. Be prepared to provide your location or position (GPS coordinates if possible), the exact nature of the problem, the number of people on board, your vessel name, registration and description, and the safety equipment on board. If you have trouble reaching anyone by radio, try to use your cell phone if you're not far from shore. In some areas, authorities receive more vessel distress calls by cell phone than by radio.

_____

_____

_____

2. Local boating laws and regulations specific to required diving safety/emergency equipment (list any safety/emergency equipment that applies to your area):

_____

_____

_____

_____

_____

3. Although most authorities do not require a boat diving plan, it's a good idea to prepare a boat diving plan and give it to a responsible person (family member or a friend), like airplane pilots do before getting underway. This plan should outline your boating itinerary including your time of departure and arrival and a time to contact authorities if you don't arrive at the time described. It should also give information as to the description of your boat, the number of passengers aboard and instructions on what to do if you are overdue.

G. Basic Guides to Boating and Safety

- *What does the term piloting mean? (optional)*

1. Piloting – the use of landmarks, aids to navigation and soundings to conduct a vessel safely through channels, harbors and along coasts where dangers to navigation require constant attention to the boat's position and course.

- *What are the seven dimensions of piloting? (optional)*

2. The basic seven dimensions of piloting are:
    a. Direction – the position of one point relative to another point without reference to the distance between them.

b. Distance – is the spatial separation between two points without regard to the direction of one from the other.

c. Time – although the pilot does not need as accurate a knowledge of the exact time of day as does a celestial navigator, ability to determine the passage of time and to perform calculations of elapsed time is essential.

d. Speed – vessel's rate of travel.

e. Position – vessel's location on the water.

f. Depth – the distance downward beneath the vessel.

g. Height (bridges, etc.) – the distance between the surface of the water and the bottom of an obstacle.

- *What does the term dead reckoning mean and how do you use the basic principles of dead reckoning while piloting a boat? (optional)*

3. Dead Reckoning (DR) – the advancement of the boat's position on the chart from its last accurately determined location, using the courses steered and the speeds through the water.

   a. Not common since the introduction of GPS, but still taught as a means of navigating should GPS fail.

   b. Information needed:

      1. Course: direction in which a boat is to be steered or is being steered. Direction of travel.
      2. Heading: the direction in which a boat is pointed at any given moment.
      3. Speed: rate of travel through the water.
      4. Distance: plot of a future-intended track.

   c. Basic principles

      1. A dead reckoning track is always started from a known position.
      2. Dead reckoning course estimate is plotted on the navigation chart.
      3. Course updated and dead reckoning plotting restarts upon reaching a known navigation point.

- ***What are four considerations when selecting a mooring or an anchorage for diving?***

4. Mooring and Anchoring

a. Mooring – securing the boat over a site by tying to a permanently placed anchor system called a mooring.
    1. Moorings are preferred and more common at popular dive sites to make securing the boat faster and easier while eliminating anchor damage concerns.
    2. In resilient environments in particular, however, responsible anchoring remains the standard practice.

b. Anchoring – securing the boat over a site by dropping the anchor.

c. There are four considerations when selecting an anchorage or mooring for diving.
    1. Proximity to the dive site
    2. Diver safety
    3. Boating safety
    4. Conditions

- *How do you tie up to and release from a mooring? (optional)*

d. Mooring set up – details may vary depending upon mooring set up
    1. Prepare a short length of line (typical 3-5 metres/10-15 feet) with a quick shackle. Vessel end wraps around anchor cleat and line passes through anchor tackle.
    2. Boat hook stored or passed to bow for securing mooring leader from water.

e. Securing to a mooring
    1. Make sure the area is clear of divers and boats, etc.
    2. Motor gently toward mooring buoy.
    3. Use boat hook to pull aboard mooring line trailing from buoy, under rail. Snap and secure the shackle to the eye in the trailing line. Make sure that when released, the lines put tension only on the anchor tackle and cleat.
    4. Release shackled line and put engine in neutral. Allow boat to drift back and confirm hold before shutting down the engine.

Note:
Moorings are well secured and have the appropriate amount of line coming from the bottom – therefore, there's no need to adjust scope.

f. Releasing from a mooring

1. Make sure the area is clear of divers and boats, etc.
2. Motor gently toward the mooring while pulling in line.
3. Release shackle and cast loose line from mooring.
4. Allow the boat to drift back from the buoy before engaging the engine to avoid accidentally entangling the line in the propeller.

- *How do you set up, secure, deploy, retrieve, and stow an anchor on board a dive boat? (optional)*

g. Anchor set up

1. Proper type for bottom (some anchors intended for mud/sand, others for grappling a wreck, etc.)
2. Lower portion (usually 3-6 metres/10-20 feet) chain to resist abrasion and to aid anchor's grip
3. Line/chain fed only off bow through anchoring tackle
4. Line/stowed deploys without resistance when anchor dropped
5. Ensure a quick release shackle is attached to the anchor line with a float (in the case of an anchor line needing to be jettisoned in an emergency)

h. Anchoring

1. Motor over spot and head into wind so the anchor is less likely to disturb the bottom.
2. Check that area is clear of divers, boats and sensitive organisms or cultural artifacts. Note: Except in an emergency, anchoring is not appropriate (and often illegal) if doing so will substantially damage aquatic life or artifacts.
3. While maintaining the boat in position, release the anchor so it drops straight to the appropriate spot on the bottom.
4. When the anchor makes contact, put the boat in neutral and allow it to drift back while paying out anchor line. For short-term anchorages, the recommendation is that the anchor line should be at least three times the depth. The longer the line (the more scope) the better the anchor grips.
5. Tie off the anchor line on an anchor cleat. Confirm the anchor is secure (not dragging) before shutting down the engine. Check your location periodically to confirm the anchor's hold.

Note:
Once reviewing the previous overview points on anchoring, if time allows and student divers are interested, you may want to review the following anchoring tips.

1. *If at all possible, select an area to anchor that offers maximum shelter from wind, current, and boat traffic.*
2. *Pick a spot with swinging room in all directions. Should the wind change, your boat will swing bow to the wind or current, whichever is stronger.*
3. *If other boats are anchored in the area you select, ask the boat adjacent to the spot you select what scope they have out so that you can anchor in such a manner that you will not bump into the neighboring vessel.*
4. *When the anchor is firmly set, look around for reference points in relation to the boat. You can sight over your compass to get the bearing of two different fixed points (house, rock, tower, etc.). Over the next hour or so, make sure those reference points are in the same place. If not you're probably dragging anchor.*

i. Weighing anchor (anchor retrieval)
   1. Confirm that all divers are aboard and the area around the vessel is clear.
   2. Start the engine. Motor towards the anchor while taking up and stowing anchor line.
   3. When nearly directly over the anchor, the line will resist coming up. Small boats: simply haul up anchor hand over hand. Large boats: use anchor winch to lift the anchor.
   4. To avoid accidental damage to underwater environment, motor to maintain place while raising anchor until it's well clear of bottom.

- *What are the basic guides to boating safety? (optional)*

5. Basic guides to boating safety – with the excitement of the pending boat dive excursion, it's possible to overlook something that could be critical to the safety of the boat trip. It makes good sense to use a predeparture checklist, similar to your predive safety check, and abide by the following basic guides to boating safety to ensure a safe boat diving trip.
   a. Have the safety equipment you learned about earlier and know how to use it.
   b. Maintain the boat and its equipment in top working order.

c. Know and obey the rules of the road.

d. Operate your vessel with care, courtesy, and common sense towards other boaters and the environment.

e. Always keep your boat under complete control.

f. Watch posted speeds. Slow down in anchorages.

g. Never overload your vessel. Stay within the rated capacity and loading requirements.

h. Keep lifesaving equipment (PFDs, first aid, oxygen, fire extinguishers) accessible.

i. Check local weather reports and sea condition reports before departure.

j. Inspect the hull, engine, and all gear frequently.

k. Keep the bilges clean and electrical contacts tight.

l. Guard rigidly against any fuel system leakage.

m. Keep fire extinguishers instantly available.

n. Take maximum precautions to prevent fire while fueling.

o. Use adequate scope when anchoring.

p. Where available, request and meet the requirements for voluntary marine safety inspection certification (such as the U.S. Coast Guard Auxiliary Courtesy Marine Examination). These usually have higher requirements than the legal minimums.

q. Complete a boating class. Do not operate a vessel beyond your abilities or the limits of your licensed rating.

6. Fortunately, boat accidents are rare. However, should you be involved in an incident on a vessel when an injury required medical treatment, the disappearance of someone, significant property damage or a fatality occurs, an incident report must be filed with responsible law enforcement agencies in most areas. This is normally the responsibility of the captain and/or vessel owner.

   a. If your vessel is involved in an incident, it is required to stop and give assistance to other persons involved. Aid must be given to the extent you can do so without endangering yourself or other passengers.

   b. Be prepared to help others in trouble, if possible, but do not take unnecessary risks that could put you or your vessel in danger. The local authority may request your assistance with other vessels.

   c. Failure to provide assistance is a serious offense and carries a severe fine in most locations.

   d. If your vessel is involved in an accident that includes damage to the

fragile natural or cultural resources (such as groundings or spills), you should also contact local authorities, in particular when operating in environmentally sensitive areas such as marine parks and other protected sites. It is particularly important that you minimize the extent of damage already done and do not try to power off the damaged area. Instead, communicate with the authorities and wait for help.

H. Boat Diving Preparation

- ***How do you prepare your equipment for a boat dive?***

1. Preparing your diving equipment
    a. Inspect your equipment carefully.
    b. Use an equipment check-off list – a list keeps you from forgetting needed equipment. You can refer to a PADI Open Water Equipment Checklist found in the appendix of most PADI diver manuals.
    c. Clearly mark all your equipment. On a crowded dive boat, equipment can be easily misplaced – besides, equipment looks similar.
    d. Fill cylinder(s) in advance.
    e. Carefully pack all dive equipment (except cylinder, weight belt and some specialty items) in a dive bag. Use separate bag(s) for personal belongings, food, etc. Don't forget log book, certification card and legal documents (fishing license, visas, passports, etc.).
        1. Pack your dive equipment in your bag in the order you'll use your equipment on the boat. For example, place your fins on the bottom (last to go on) and your BCD at the top as it's first to be used when you set up your equipment on board.
2. Checking surface signal devices – essential diving safety measures
    a. Make sure you have one audible (whistle, horn etc.) and one visual (inflatable surface tube, flare, signal mirror, etc.) surface signal device packed as part of your diving equipment.
3. Assembling a spare parts and tool kit for boat diving.

Note:
Depending on student divers' equipment and the type of boat used for the course, assembling a spare parts and a tool kit will more than likely need to be customized for each diver. Take time to allow student divers to customize a list of parts and tools specific to their equipment and for the boat they will be completing their open water dives on. If time allows, have student divers review their personal lists with other divers in the course.

a. Type of container – fishing tackle box works great.

b. Parts:

1. O-rings
2. Spare mask and fin straps
3. Spare snorkel keeper
4. Regulator mouthpiece with pull ties
5. Various clips
6. Other: _____

_____

c. Tools:

1. Adjustable wrench
2. Allen wrench
3. Screw drivers (flat and Phillips)
4. Wire cutters/point nose pliers
5. Scissors
6. Other: _____

- ***How do you prepare yourself for a boat dive?***

4. Preparing your body and mind

a. Refrain from alcoholic beverages the night before, but do drink plenty of fluids (water, juices, etc.).

b. Get plenty of sleep.

c. If necessary, take seasickness medication the night before - follow printed directions or your physician's instructions.

d. Don't forget to eat a balanced meal.

e. If needed, write down the following information:

1. Name of boat
2. Directions
3. Destination(s)
4. Charter fees (if any)
5. Extra charges (food, air, etc.)

- ***How do you prevent seasickness?***

5. How to combat seasickness:

a. Take a seasickness medication. If you plan to use seasickness medication:

1. Carefully read all warnings associated with the medication and follow printed directions.
2. Generally, take medication prior to boarding.

b. Avoid greasy foods prior to boarding.

c. Stay in the fresh air on deck.

d. Stand in the center of the boat, concentrating on a stationary object on the horizon.

e. Stay busy while underway, but avoid intricate tasks (preparing underwater photo equipment, etc.).

f. Be prepared to enter the water soon after arrival at the dive site. However, if feeling very ill – do not dive.

g. If the trip is overnight, select a bunk as near the middle of the boat as possible.

h. Avoid breathing engine fumes from the boat.

i. Avoid using the heads during rough weather.

- ***What should you do if you get seasick?***

6. If you do get sick
   a. Don't use the boat's head
   b. Use the leeward (downwind) boat rail
   c. Be careful being on the deck alone (especially at night while the boat is underway in rough seas). For safety, have someone go with you.
   d. After getting sick, try to drink some water to avoid getting dehydrated.

I. Charter Boat Boarding and Predive Procedures

- ***What are the general boarding procedures for a charter dive boat?***

1. Plan to board the boat or check in at least a half an hour prior to departure.
2. Once on board, ask or listen to directions as to where and how to stow diving equipment.
3. Ask or listen to directions as to where to stow personal items - those you intend to keep dry.
   a. Anything left on the open deck will probably get wet.
   b. On small boats, you may want to leave items that need to stay dry at home, in a car, on shore, etc. A dry bag is a good solution, too.
4. As appropriate, sign in and place your name on your cylinder.

5. If the crew or divemaster conducts a predeparture briefing, listen carefully.
   a. The divemaster or crew will usually call roll from the boat roster prior to departure. This is an important safety procedure.
   b. Do not answer for another person, even if you believe that person is aboard, and alert the divemaster/crew if you do not hear your name called.
6. Specific boarding procedures for the type of boat(s) used during the course:

_____
_____
_____
_____
_____

- ***What four topics will a boat dive area orientation briefing usually cover?***

7. Listening to predive briefings
   a. Always listen carefully to predive briefings. Predive briefings help ensure safe, problem-free boat dives.
   b. Focus your attention on the divemaster or crewmember. Stop anything else you're doing as you listen. This not only helps you retain what you're learning, but it's basic courtesy.
   c. If after the briefing, you haven't heard specific information you want or need, or if you have a question about what you heard, ask the divemaster or crew for more information.
8. The four parts of a typical area orientation briefing

Note:
Inform student divers that the PADI Area Orientation Guidelines – Divemaster Slate No. 1 provides a template for the type of briefing typically delivered prior to boat dives. Suggest to student divers that referring to this slate will remind them of the contents of a proper area orientation. They will be more likely to ask relevant questions if they ever hear an incomplete boat dive briefing. It's also a good way to introduce and promote your PADI Divemaster course.

   a. Facilities orientation
      1. Head/showers, food concession, safety equipment
      2. Where to suit up

3. Off-limits areas (when wet and/or dry)

b. General characteristics
   1. Bottom type and topography
   2. Depth range
   3. Current speed and direction (if any)
   4. Areas to avoid
   5. Interesting and helpful facts about the site
   6. Sensitive natural and/or cultural features of the site (such as fragile corals or exposed shipwreck parts) as well as environmental regulations and other conservation practices applicable to the site.
   7. Entry/exit information (technique and location)
   8. Suggested dive plan
   9. Dive site rating (novice, experienced, or advanced)

c. Buddy team considerations
   1. Buddy-team selection
   2. Suggest inexperienced divers to pair with experienced divers.
   3. Review buddy team procedures.

d. Communication, emergency procedures and general safety rules.
   1. Review hand signals
   2. All divers to signal "okay" upon surfacing
   3. When to exit
   4. What to do in the event of an emergency
   5. The role of supervisory personnel
   6. Review accounting, recall and out-of-air procedures

e. After the briefing, you and your buddies plan the dive based on what you learned in the briefing, as well as your personal limits and experience with the local environment. Be sure to check your computer and the RDP to plan your no stop dive times.

- ***What is the procedure for suiting up and gearing up on a dive boat?***

9. Suiting up while boat diving
   a. Inflatables and small hard-hull day boats
      1. If deck space on the inflatable is at a premium, you may want to assemble your cylinder, BCD and regulator prior to leaving the dock/shore.

2. Depending on inflatable size, weather and surface conditions, you may want to put your exposure suit on prior to leaving dock/shore (some inflatables have wet rides).
3. Upon arrival at the dive site, one option may be to inflate the BCDs and put your scuba systems overboard attached to a line. This opens deck space for final suiting. After suiting up, enter the water and put on your scuba units at the surface, or pull them aboard to put them in the boat.
4. As always, assist your buddy when needed.
5. Conduct safety check — BWRAF
6. Rinse mask
7. Other:_____
8. Other:_____
9. Other:_____

b. Cabin cruisers and live-aboards

1. Consolidate diving equipment in one area.
2. Assemble cylinder, BCD and regulator.
3. Put your exposure suit (if needed) on and place dry clothes below (bunk, galley, any dry area).
4. Have buddy assist with putting on your cylinder - don't swing your cylinder over the head. May cause injury.
5. Conduct safety check — BWRAF
6. Put your fins on directly adjacent to the entry area - walking on boat decks with fins is a good way to trip and fall.
7. Rinse mask and partially inflate BCD
8. Other: _____
9. Other: _____

10. When diving from noncharter, private boats:

a. Leave personnel on board to tend the boat. Consider enrolling in your local boating class and remember to pay special attention to the basic guidelines to boating safety outlined in this course. Make sure they are capable of operating the boat in case the anchor breaks free or divers need assistance.

b. Fly the appropriate divers down flag for the local area. The appropriate flag for this local area is:

_____

- ***Why is a predive roll call by divemasters or crewmembers important?***

11. Divemasters or the crew will usually call roll before and after each dive.
    a. The roll call is important because they use it to make certain all divers are back aboard before leaving the dive site.
    b. **Be present for roll call. Never allow anyone to answer for you during a roll call. Be sure your name is called.** Confusion caused by failing to do one of these three things has caused divers to accidentally get left behind at a dive site.
    c. It is your responsibility to take pre- and post-dive roll calls seriously and to be sure that you and only you answer when your name is called. They are for your safety.

J. Boat Diving Procedures

- ***What are the general guidelines for making entries from various types of boats?***

1. Boat diving entries
    a. General
        1. Following your predive safety check, if necessary, check out with divemaster/boat crew, and confirm that your buddy is ready.
        2. Make sure the entry area is clear.
        3. Partially inflate your BCD prior to entry – if your cylinder and BCD are put on while on the boat.
        4. Use your regulator during the entry. If your cylinder and BCD are put on in the water, use your snorkel.
        5. Hold your mask firmly during entry.
        6. Signal that you are okay after entering.
        7. Have accessories (cameras, etc.) handed to you in the water.
        8. If appropriate, move away from boat once in the water (so others may enter and because anchored boats swing in the water).
        9. Other: _____
    b. Types of entries from inflatables and small hard-hull day boats:
        1. Sitting back roll
        2. Controlled seated entry off gunwale
        3. Other: _____

c. Types of entries from cabin cruisers and live-aboards:
   1. Feet first – giant stride
   2. Sitting back roll
   3. Controlled seated entry
   4. Other:_____

d. The type of entry(s) we will make during the dives in this course are:
   1. _____
   2. _____

- **_What are_ trip lines, gear lines, descent lines, _and_ current lines _used for?_**

2. Use of special lines during some types of boat diving
   a. Gear lines
      1. These lines are generally used on smaller dive boats. They hang off of the sides or the transom.
      2. Used to attach equipment to such as cylinders with BCDs and regulators, cameras, etc.
      3. On inflatables, may be the lines permanently attached to the sides of the boat.
      4. Lines may double for other purposes – dock lines may be used as gear lines.
   b. Tag lines
      1. These lines may be used on all sized boats, while moored/anchored in a current.
      2. Line runs from the stern of the boat to the mooring/anchor line. Tag lines connect to the stern area at the surface. Tag lines may be connected to a mooring/anchor line at the surface, but preferably connected several feet below the surface, ideally about 5 metres/15 feet to provide extra room for divers making safety stops.
      3. Used to assist divers while swimming against current from the stern of the boat to the mooring/anchor line.
      4. Also called *swim lines* or (less politely) *granny lines.*
   c. Current (also called *trail* or *stern*) lines
      1. Buoyed line extending from the stern of the boat down current.
      2. Used by divers who accidentally ascend behind the boat, down current – provides a larger target to aim for in trying to reach the

boat by swimming across the current.

3. The diver grabs the line – using it to help remain stationary while the crew pulls it toward the boat, or to pull toward the boat, hand-over-hand while swimming.
4. Also used after entry to maintain your position while waiting for your buddy before proceeding to the tag line, and while waiting for your turn to exit after a dive.
5. Note that when the current is strong enough to require tag lines and/or current lines, it is important to use the lines descending and ascending, and to maintain contact with them to keep from being carried down current.

d. Trip lines

1. Connected to a buoy and the front of the anchor, trip lines are used to "trip" or release an anchor.
2. Sometimes used for descents/ascents.
3. Do not pull abruptly on a trip line because it can dislodge the anchor.

e. Descent lines

1. A heavy weighted line that hangs vertically downwards from the boat, usually from the stern.
2. Used when boat mooring/anchors so that it sits directly over the dive site.
3. Sometimes used to avoid having to swim to mooring/anchor line for descent.

Note:
If you didn't have time, or student divers were not interested in knot tying procedures previously, this is another opportunity to review some of the most popular knots for use on boats. Reference section E. Boating Basics for Divers for detailed information of knot tying.

- ***What are the procedures for descending while boat diving?***

3. Boat diving descents

a. General

1. Prior to descent, orient yourself to the boat and/or shoreline - using natural navigation or compass techniques. Also, note air pressure, time and location of your buddy.

2. When possible, use a line during your descent – for comfort and orientation.
3. If drift diving, follow directions given by divemaster or the inwater dive supervisor.
4. If you descend down an anchor line, use it as a guide only if there is little or no current. Don't pull on it because this may unseat it. If the current is so strong you must pull yourself on it, however, there is more than ample tension to keep the anchor from pulling free. You can pull yourself along mooring lines without worrying about unseating it (but wear gloves and watch where you put your hands to avoid marine growth injuries).
5. Watch depth, time and air pressure during all descents.

b. Mooring/anchor line descent

1. Probably the most commonly used line for descents while boat diving, especially in currents.
2. In stronger currents that you can't swim against, the procedure is to enter the water next to the tag line. Breathing from your regulator, pull yourself to the mooring/anchor line, and continue along the mooring/anchor line to the bottom, maintaining contact the entire time. If you must wait for your buddy after entering, wait on the current line.
3. Be cautious of vertical boat movement due to surface swells. Severe jerking motions in rough conditions may cause discomfort and even injury.
4. Be cautious of the boat needing to re-anchor – release and swim away from the anchor line if it suddenly begins to come up.
5. Remember that the mooring/anchor line is typically angled and hangs with a curve (due to the chain at the bottom). It does not hang straight down unless there is no current or wind at all (which is rare).

c. Descent line descent

1. Use as a visual or touch reference.
2. Descent lines hang nearly vertically, but rise and fall with the boat.

d. Free descent – descent without a line

1. Be cautious of disorientation if you find yourself in midwater - when you cannot see the surface or bottom.
2. Be sensitive to your buddy's location (or location of the group while drift diving).
3. Watch your rate of descent.

e. The type of descent(s) we will make during the dives in this course are:

1. _____
2. _____

Note:
If time allows and student divers are interested, you may want to lead the following section with a discussion about tides and currents. Refer student divers to the Encyclopedia of Recreational Diving *for even further detail about tides and currents. Also, consider reviewing with student divers the use of tide tables to determine the best and safest water conditions.*

- *What does the term* tide *mean and what is the importance of tides to boating?*
  1. *Definition of tides: alternate rising and falling of water within a certain time period. Importance to boaters: depth while crossing shoals, anchoring (letting out enough scope), adjusting lines while tied to pier or wharf.*

- *What basic forces produce tides? What two celestial bodies affect tidal movement and which one has more influence?*
  2. *The forces that produce tides are the pull of gravity and the earth's rotation.*
     a. *The tides rise and fall based on the pull of gravity from both the sun and moon, and their position relative to water as the earth rotates.*
     b. *Moon has greater effect because it is closer to earth.*
     c. *An area may have single high or low tide per day or two per day, and the degree of change from high to low can range from significant to minimal, all depending upon the location.*

- *What do the following terms refer to: high tide, low tide, tidal range, spring and neap tides?*
  3. *Tidal fluctuations*
     a. *High tide: highest level reached by an ascending tide.*
     b. *Low tide: lowest level reached by a descending tide.*
     c. *Tidal range: difference between high and low waters.*
     d. *Spring tides: maximum tidal ranges within a lunar month (sun and moon aligned so their gravity pulls together).*
     e. *Neap tides: minimum tidal ranges within a lunar month (sun and moon unaligned so the sun's gravity cancels the moon's to some degree).*

- *What are the characteristics of the following tide types: semidiurnal, diurnal and mixed?*
  4. *Types of tides*
     a. *Diurnal: Single high and single low tide each day.*
     b. *Semidiurnal: Two high and two low tides each day, where the heights of*

the highs and lows are almost equal.

c. Mixed: Approximately two high and two low tides each day, where the heights of the highs and lows are unequal.

- ***In which direction should you generally head when boat diving?***

4. Diving from a moored/anchored boat
    a. For comfort, navigate during the dive to end your dive at or near the boat.
    b. Dive against the current so it can be used to assist you in returning to the boat at the end of the dive.
    c. If so directed, dive between the shoreline and the boat. This procedure will typically keep you away from offshore boat traffic.
    d. Avoid long excursions from the boat. Dive boats generally moor/anchor over the best area.
5. Diving from an unanchored boat while drift diving
    a. Drift diving is a specialty beyond the scope of this course. It involves diving in a strong current by letting it carry you along, with the boat following you above.
    b. The same boat diving procedures and principles you learn in this course still apply, but drift diving includes techniques for entering and exiting the water as a group, keeping the boat with the divers, and safety around a maneuvering boat.
    c. To learn more about drift diving, enroll in the Drift Adventure Dive and/or the PADI *Drift Diver* course.

Note:
If your PADI Boat Diver Specialty *course is conducted from an unanchored boat while drift diving, explain the drift diving procedures used in your area at this time. If necessary, reference the PADI* Drift Diver Specialty Course Instructor Guide *for procedural recommendations.*

- ***What are the general guidelines for ascents while boat diving?***

6. Boat diving ascents
    a. Remember S.A.F.E. concepts – Slowly Ascend From Every dive.
        1. Ascend no faster than 18 metres/60 feet per minute, or slower if specified by your computer.

2. Make at least a three-minute safety stop at 5 metres/15 feet.

b. Use a reference line (mooring/anchor line or descent line) when possible. When diving in strong current, the usual practice is to ascend the mooring/anchor line, transfer to the tag line and then continue to the current (trail) line to wait your turn to exit.

c. Note your time prior to leaving the bottom.

d. Remember to extend your arm and hand, and look up and around, while slowly rotating during ascent (unless using lines to maintain position in a current). Watch out for the bottom of the boat.

e. Ascend and surface near the boat flying a dive flag – this will help you avoid being hit by other boats.

f. Once on the surface, immediately signal "okay" to the boat and inflate your BCD.

g. If you get disoriented and cannot locate the boat when diving in a current, ascend cautiously as far up current as you can reasonably. To reach the boat, do not fight the current, but swim across it to reach the boat or the current line. If you miss, inflate your BCD, deploy your surface signaling device and signal the boat to pick you up. You may have to wait until they get everyone else aboard.

h. Avoid the propeller area at all times.

- ***What are the general guidelines for exiting into a boat?***

7. Boat diving exits

a. General

1. Avoid crowding the exit area. Establish buoyancy, keep your mask on with your regulator or snorkel in your mouth and wait patiently for your turn.

2. Avoid being behind and under a diver climbing into the boat or up a boat ladder. The diver may slip or a cylinder may accidentally drop out of a backpack.

3. Remove fins only after making contact with the boat. When currents are present, you may want to place your fin straps over your wrist rather than pass them up. That way, you can pull them on and swim for the current line if you lose contact with the boat.

4. If exiting onto a boat swim step or stern platform, time your exit with the swells. Use a swell to assist you up and on the platform.

5. Hand accessory equipment (cameras, etc.) to boat crew if available.

6. With small boats like inflatables or other vessels without a ladder, or if the ladder is too weak to support a person kitted up in full

scuba, it's common to get out of your weights and scuba unit in the water, tie them to a gear line (or hand them up) and then exit.

b. The type of exit(s) we will make during the dives in this course are:

1. _____
2. _____

K. Post-dive Procedures

- ***How should you repack and stow your gear after a dive from various sized boats?***

1. Packing and stowing your equipment
   a. General
      1. Don't drop your weight belt or cylinders on the boat deck – this can damage the deck, and it may be both difficult and costly to repair. Be considerate.
      2. Work out of your gear bag – do not leave equipment spread all over the boat deck. Space is usually at a premium.
      3. Regardless of whether it will be refilled or not, secure your cylinder immediately so it doesn't roll or fall with boat motion.
   b. Specific information regarding the boat dives made during this course:
      1. _____
      2. _____

- ***Why should you listen to post-dive roll calls by divemasters or crewmembers?***

2. Divemaster or crew check-in procedures, roll calls, and debriefings
   a. General
      1. If a divemaster is present, check in immediately after your dive. This confirms that you are on board.
      2. If a roll call is taken, be visually present. **Do not answer for someone else and do not have anyone answer for you.** Should you not be on board, you don't want to be left behind because someone answered for you.
      3. Listen to the dive debriefing, if given.
   b. Specific information regarding the boat dives made during this course:
      1. _____
      2. _____

Section Three:
Open Water Dives
Conduct

There are no required confined water and/or surface practice sessions for the PADI Boat Diver Specialty Diver course, however, it is sound instruction to develop student diver abilities in conditions that don't add complexity to learning new skills. For example, you may have student divers practice boat dive entries and exits, setting up and stowing equipment in a confined space or practice other boat diving skills before progressing to more challenging conditions. Some of the underwater skills, such as knot tying and navigation patterns, are much easier to learn if you have student divers practice them in a confined water session or on the surface first. You may add confined water and/or surface practice sessions at your discretion. The confined water session may also include a scuba skills review. After completing the course, suggest to divers to dry-rehearse setting up and stowing equipment in a confined space, and to review navigation techniques, navigational charts and tide tables, and boat terminology before going boat diving.

On the first dive, student divers mainly acquaint themselves with the areas of the boat, familiarize themselves with the emergency/safety equipment aboard the boat, and perform an appropriate entry and exit procedure for the boat used on the dive. On the second dive, student divers construct a dive plan that accounts for the type of boat used on the dive and apply the knowledge learned from the course to dive from the boat. Bottom time on each dive should not exceed the no decompression limits of the Recreational Dive Planner or each diver's computer, if used. **Regardless of how you conduct the open water dives, student divers must demonstrate the following performance requirements to qualify for certification.**

Open Water Dives

Performance Requirements

By the end of the open water dives, student divers will be able to:

Boat Diver Open Water Dive One

- **Identify the following areas of the specific boat used on the dive: bow, stern, starboard, port, entry area, exit area, and area to stow diving equipment.**
- **Locate important emergency/safety equipment aboard the boat (such as: first aid kit, oxygen, AED, dive flag, radio, life jackets or other floatation devices, and fire extinguisher).**
- **Perform a proper entry, specific to the type of boat used on the dive.**
- **Perform a safety stop at 5 metres/15 feet for at least three minutes.**
- **Perform a proper exit, specific to the type of boat used on the dive.**

Boat Diver Open Water Dive Two

- **Demonstrate the ability to construct a dive plan that takes into account the type of boat used and the diving environment.**
- **Demonstrate the ability to apply the knowledge learned from the course to dive from the type of boat used.**

Open Water Guidelines for Boat Dives

A. General Open Water Considerations

1. Involve student divers in dive-planning activities. Have student divers prepare training buoys and special lines (current lines, trip lines, tag lines, etc.) if used.
2. Conduct a thorough briefing. The better the briefing, the more smoothly the boat dive will proceed. Predive briefings should cover proper boat diving etiquette, common boat terminology, specific boat diving entries and exits, local boat diving laws specific to diving and an overview of the vessel's safety and emergency equipment. Pay close attention to student diver's sensitivity to seasickness.
3. Vessels used to conduct this course may range from small inflatables to large, live-aboard charter boats. When possible, attempt to match the vessel used for the course with the type of vessel student divers are most likely to dive from once the course is completed. To provide divers with a more universal understanding of boat diving, consider conducting each dive from a different type of boat.
4. When possible, and if applicable, have student divers conduct their safety stops under the boat on a weighted line, safety stop bar, a trip line, or on the mooring/anchor line.
5. Surface practice sessions of the nondiving objectives found in the student diver manual are not required for the PADI Boat Diver course. If you choose to physically practice any of the nondiving objectives consider providing a boat-handling session separate from the actual open water dives or arrange for student divers to handle the boat prior to and after their dives. Nondiving objectives include using the boat's compass for basic navigation, reading local navigation, tide and current charts, operating the marine radio and piloting instruments, knot tying, and securing, deploying, retrieving and stowing an anchor.

B. Boat Diver Open Water Dives

Dive One

- ***Identify the following areas of the specific boat used on the dive: bow, stern, starboard, port, entry area, exit area, and area to stow diving equipment.***
- ***Locate important emergency/safety equipment aboard the boat (such as: first aid kit, oxygen, AED, dive flag, radio, life jacket or other flotation devices, and fire extinguisher).***
- ***Perform a proper entry, specific to the type of boat used on the dive.***
- ***Perform a safety stop at 5 metres/15 feet for at least three minutes.***
- ***Perform a proper exit, specific to the type of boat used on the dive.***

a. Briefing

1. Dive sequence – review Dive One tasks

b. Predive procedures

c. Dive One Tasks

1. Boat orientation: The instructor leads a top side orientation to the different areas of the boat. Include specific areas such as: the bow, the stern, the starboard side, the port side, entry area, exit area and area to stow diving equipment.
2. Student divers are to become familiar with the location and use of important emergency/safety equipment aboard the vessel.
3. Review with student divers the boat diving entry technique (where and what type), the descent (where and how), parameters of the dive itself (depth and time), the ascent (where and how), safety stop, the boat diving exit technique (where and what types), the stowing of equipment after the dive (where and how), and participating in the post-dive roll call.

d. Post-dive procedures

e. Debriefing

1. Encourage student divers to discuss the different areas of the boat, the important emergency/safety equipment aboard the boat, the entry and exit techniques they used for their dive, and the importance of the post-dive roll call. Guide discussions to address what worked, what didn't work, and how things may be done differently the next time. Discuss any possible hazards in detail. Talk about the aquatic marine life and any interesting scenery/reefs/wrecks seen on the dive.

f. Log dive (instructor signs log)

Dive Two

- ***Demonstrate the ability to construct a dive plan that takes into account the type of boat used and the diving environment.***
- ***Demonstrate the ability to apply the knowledge learned from the course to dive from the type of boat used.***

a. Briefing

1. Dive sequence – review Dive Two tasks

b. Predive procedures

c. Dive Two Tasks

1. If diving from a boat different from dive one, the instructor leads a top side orientation to the different areas of the boat. Include specific areas such as: the bow, the stern, the starboard side, the port side, entry area, exit area and area to stow diving equipment.
2. If diving from a boat different from dive one, review with student divers the location and use of important emergency/safety equipment aboard the vessel.
3. Review student diver boat diving plans that have incorporated the knowledge learned from the course such as: boat terminology, rules of the road, safety/emergency equipment, boat diving preparation, charter boat boarding and predive procedures, tides and currents, basic guides to boat safety, boat diving procedures, and post-dive procedures.
4. Review with student divers the boat diving entry technique (where and what type), the descent (where and how), parameters of the dive itself (depth and time), the ascent (where and how), safety stop, the boat diving exit technique (where and what types), the stowing of equipment after the dive (where and how), and participating in the post-dive roll call.

d. Post-dive procedures

e. Debriefing

1. Encourage student divers to discuss boat diving plans. Guide discussions to address what worked, what didn't work, and how things may be done differently the next time. If diving from a boat different from dive one, review the different areas of the boat, the important emergency/safety equipment aboard the boat, the entry and exit techniques they used for their dive. Talk about the aquatic marine life and any interesting scenery/reefs/wrecks seen on the dive.

f. Log dive (instructor signs log)

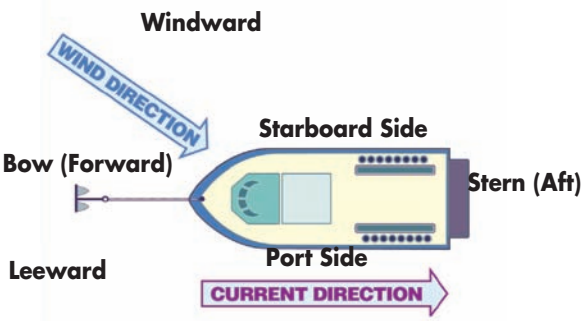
Appendix

Table of Contents

Boat Diver
Knowledge Review Part I Answer Key

Note:
To assess knowledge you may review the Knowledge Review from the student diver's manual with the diver, ideally prior to participating in skill 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.

1. On the illustration, label the following: bow, stern, port, starboard, windward and leeward.



2. List eight pieces of emergency equipment commonly found on dive boats.
   1. *PFDs (Personal Flotation Devices)*
   2. *Fire extinguishers*
   3. *Sound signaling devices*
   4. *Visual distress signals*
   5. *Bilge pump or bailer*
   6. *First aid kit*
   7. *Oxygen equipment*
   8. *Marine radio*

3. Describe how to help prevent seasickness, and what to do if you become seasick.

   Prevention: take a seasickness medication well in advance of boarding; avoid greasy foods before boarding; stay on deck, or at least in the fresh air, as close to the center of the boat as possible; look at something stationary on the horizon; avoid intricate tasks; enter the water as soon as possible; avoid breathing engine exhaust; and avoid using the heads during rough weather.

   If seasickness occurs: stay out of the boat's head; go to the lee side (downwind) rail to vomit; and drink some room temperature water.

4. Describe the general boarding procedure for a typical charter boat.
   Plan to board 1/2 hour prior to departure. Ask the crew where to stow equipment. Sign-in and listen to predive briefings.

5. On most dive boats be sure to work from your dive bag and not take up _____.
   excessive space

6. Explain the general guidelines for making proper entries from various types of boats.
   When ready to enter the water, make sure your buddy is also ready. Check in with the divemaster (if there is one). Partially inflate your BCD, put your regulator in your mouth (unless you are putting your unit on in the water). Make sure the entry area is clear and hold your mask firmly. Have your accessories handed down.

7. Explain the location and purpose for trip line, gear line, tag line, and current line.
   Trip line: Buoyed from front of the anchor, used to release anchor – sometimes used for descent/ascent line.

   Gear line: Usually near entry/exit area – used to secure gear when diving from a small boat, or to suspend accessories.

   Tag line: From stern or entry area to mooring/anchor line – used to pull yourself from the entry area to the mooring/anchor line.

   Current line: Trailed behind boat – used to maintain position in a current and pull yourself to the boat. Provides a larger target if you have to swim across current to reach the boat.

8. Describe the procedures for making a free descent from a boat.
   Take care to avoid disorientation. Watch descent rate – maintain buddy contact.

9. What are the general guidelines for making a proper exit into a charter boat?
   Wait your turn to exit, avoid positioning yourself under a diver on a ladder. Time swells to assist with your exit – letting them carry you onto the platform. Don't remove fins until contact with the boat is made. Keep your mask on and breathe through your snorkel or regulator until you're aboard. Hand up accessory equipment.

10. Explain why you should listen to post-dive roll calls by divemasters or crew members.
    This procedure makes sure everyone is aboard and accounted for before leaving the area.

Adventure Dive: Boat Diver

Skills Overview

- Knowledge Review
- Briefing
- Suiting Up
- Predive Safety Check (BWRAF)
- Boat Diving Entry
- Dive for Fun and Pleasure
- Ascent and Safety Stop
- Boat Diving Exit
- Debrief
- Log Dive – Complete Adventure Dive Training Record

Boat Diver

Knowledge Review Part II Answer Key

Note:
To assess knowledge you may review the Knowledge Review from the student diver's manual with the diver, ideally prior to participating in skill 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.

11. List five advantages of diving from a boat.
    1. *Diving from a boat gives you opportunities to dive in areas you could not otherwise reach.*
    2. *Boat diving allows you to seek out the calmest and clearest waters.*
    3. *Boat diving is typically easier than shore diving.*
    4. *You also experience less wear and tear on your equipment (compared to most types of shore diving).*
    5. *Boat diving is fun because there is social interaction and like diving, boating is a fun recreation and a great way to spend time near the water.*

12. List three features you would expect from virtually any dive boat.
    1. *Ample deck space – very important for suiting up and storage of equipment*
    2. *Stability – dive boats must be stable platforms*
    3. *Power – needed to haul people and lots of equipment to a destination*

13. Provide a brief description (types of crafts, use and size) of the four general categories of dive boats.
    1. *Inflatables – the fabric hull/inflatable keel design and the rigid hull/solid keel are fast, stable, portable and relatively inexpensive. Inflatables are popular as private and charter dive boats. They're also commonly used as support and safety boats for larger vessels. Inflatables suited to dive from range from 3 metres/10 feet to more than 5 metres/15 feet long.*
    2. *Hard-hull day boats – includes resort pontoon flattops, runabouts, utility boats, small sailboats and skiffs. The best boats for diving in this category are those with ample deck space. For dive purposes, they range from about 5 metres/15 feet to more than 6 metres/20 feet long.*
    3. *Cabin cruisers – includes cabin cruisers, medium sized sailboats, yachts and many small dive charter boats that hold six to ten divers. This type of boat has at least minimum accommodations and facilities for an overnight trip. Cabin cruisers are vessels ranging from approximately 6 metres/20 feet to around 9 metres/28 feet.*
    4. *Live-aboard – include converted commercial fishing vessels, large charter dive boats, luxurious yachts and even cruise ships. The live-aboard commonly refers to vessels upon which you eat, sleep and from which you dive over a period of two or more days. Live-aboards range from approximately 9 metres/30 feet to more than 100 metres/330 feet.*

14. Explain why there are navigational rules of the road.

    The navigation rules are designed to give direction to vessels and set a standard that everyone follows in order to prevent collisions of two or more vessels.

15. What are navigational charts and why are they important?

    A navigational chart graphically represents a maritime area and adjacent coastal regions. Navigational charts are essential tools for marine navigation.

16. Who is responsible for, and what is your responsibility during docking and undocking the boat (leaving the dock)?

    Responsibility for docking and undocking lies with the crew. Only attempt to assist if specifically asked to do so by the crew. Politely decline if you feel that you would be unable to assist adequately or safely.

17. Describe how to use a marine radio in case of an emergency, and explain what information you should be prepared to give.

    Go to Channel 16 and say "Mayday, mayday, mayday," followed by "This is the [vessel name] with a [type] emergency, followed by "over". Be prepared to provide your location or position (GPS coordinates if possible), the exact nature of the problem, the number of people on board, your vessel name, registration and description, and the safety equipment on board.

18. List four considerations when selecting a mooring or an anchorage for diving.
    1. *Proximity to the dive site*
    2. *Diver safety*
    3. *Boating safety*
    4. *Conditions*

19. How do you prepare your equipment and yourself for a boat dive?

    Preparing your equipment: inspect your equipment carefully; use an equipment check-off list; clearly mark your equipment; fill cylinders in advance; pack your dive equipment in your bag in the order you'll use it; make sure you have surface signal devices; assemble a spare parts and tool kit.

    Preparing your mind and body: refrain from alcoholic beverages the night before; drink plenty of fluids; get plenty of sleep; take seasickness medication if necessary; eat a balanced meal; and prepare a dive plan to be left with a responsible person.

20. List the four topics typical of a boat dive orientation.
    1. *Facilities orientation*
    2. *General characteristics*
    3. *Buddy team considerations*
    4. *Communication, emergency procedures and general safety rules*

PADI Adventure Dive Training Record
Adventure Dive:
Boat Diver

Skills Overview

- Knowledge Review
- Briefing
- Suiting Up
- Predive Safety Check (BWRAF)
- Boat Diving Entry
- Dive for Fun and Pleasure
- Ascent – Safety Stop
- Boat Diving Exit
- Debrief
- Log Dive – Complete Adventure Dive Training Record

Instructor Statement

"I verify that this student diver has satisfactorily completed the Knowledge Review and Performance Requirements (as described in PADI's Adventures in Diving Program Instructor Guide) for this PADI Adventure Dive. I am a renewed, Teaching status PADI Instructor for the current year."

Instructor Name: _____

Instructor Signature: _____

PADI #: _____ Completion Date: _____
Day/Month/Year

Instructor Contact Information (Please Print)

Instructor Mailing Address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal Code: _____

Phone/Fax/email: _____

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 boat diving and that completion of a PADI Boat Diver course is highly recommended. I also agree to abide by PADI Standard Safe Diving Practices."

Student Diver Signature _____ Date: _____
Day/Month/Year

PADI Specialty Training Record
Boat Diver

Instructor Statement

"I verify that this student diver has satisfactorily completed all academic and/or any confined water training sessions as outlined in the PADI Specialty Course Instructor Guide for Boat Diver. I am a renewed, Teaching status PADI Instructor in this specialty."

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Open Water Dives

Dive One

I verify that this student diver has satisfactorily completed Dive One as outlined in the PADI standardized guide for Boat Diver, including:

- Boat diving entry
- Descent
- Dive for fun and pleasure
- Ascent, perform safety stop 3 minutes at 5 metres/15 feet
- Boat diving exit
- Stow equipment

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Dive Two

I verify that this student diver has satisfactorily completed Dive Two as outlined in the PADI standardized guide for Boat Diver, including:

- Develop dive plan
- Boat diving entry
- Descent
- Dive for fun and pleasure
- Ascent, perform safety stop 3 minutes at 5 metres/15 feet
- Boat diving exit
- Stow equipment

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Student Diver Statement

"I verify that I have completed all performance requirements for this Boat 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: _____
Day/Month/Year