Dive Against Debris®

Distinctive Specialty Course

Instructor Guide

Dive Against Debris® Instructor Guide
Product No. 70280 (Rev.01/2016) Version 1.2

PROJECT AWARE®

Dive Against Debris®

Distinctive Specialty Course Instructor Guide

Acknowledgements

Project AWARE Foundation thanks Seba Sheavly for her invaluable input into the creation of the Dive Against Debris® program. For over twenty years Seba has been a leading figure in the battle against marine debris having edited or contributed to major marine debris reports from UNEP, UNESCO, GESAMP, US EPA, and the National Academy of Sciences. As principal of Sheavly Consultants, she has provided advisory services to institutions including the European Commission, NOAA Marine Debris program and the Ocean Conservancy.

Very sadly Seba passed away in June 2012. Project AWARE hopes the Dive Against Debris® program is seen as a fitting tribute to Seba who worked tirelessly for a clean ocean.

To download a free PDF of this document, learn more about Project AWARE Foundation, and submit comments or suggestions about this, or other Project AWARE products or programs, please visit www.projectaware.org

Table of Contents

Introduction

Section One: Course Standards

Section Two: Knowledge Development

Section Three: Open Water Dive

Section Four: Dive Against Debris® Knowledge Review

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 organise and integrate student diver learning.

How to Use this Guide

This guide speaks to you, the Dive Against Debris® Distinctive Specialty Instructor. The guide contains three sections - the first contains standards specific to this course, the second contains knowledge development options, the third considers optional confined water and details the open water dive. All required standards, learning objectives, activities, and performance requirements specific to the Dive Against Debris® Distinctive Specialty course appear in boldface print. **The boldface assists you in easily identifying those requirements that you must adhere to when you conduct the course for PADI certification**. 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

Every year tens of thousands of marine animals and seabirds die from eating or getting tangled up in marine debris - or trash in the ocean. Marine debris also damages habitats, makes coastal areas unattractive to visit and is expensive to remove. As much as seventy percent of the rubbish entering our ocean sinks to the seafloor; only divers have the skills to tackle underwater marine debris.

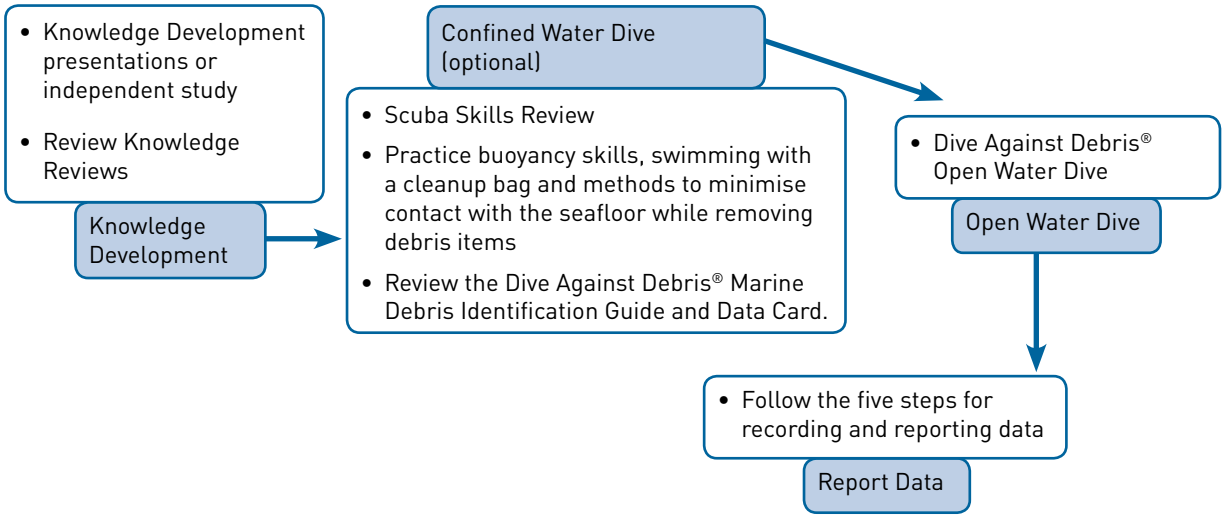
To make long-term improvements individuals, businesses and governments need to make changes that stop rubbish from entering the ocean. For the best results, these changes must be driven by an accurate picture of the extent of the marine debris problem. By completing Dive Against Debris® surveys you and your students help build that picture from an underwater perspective. The data you collect through Dive Against Debris® helps drive changes that protect marine life and marine environments.

The course aims to equip students with the knowledge and skills to complete Dive Against Debris® surveys including the removal of marine debris underwater, and reporting the data to Project AWARE. Dive Against Debris® surveys and the data submitted are essential to help drive change and inform policy. Completing regular Dive Against Debris® surveys at the same location over time is the best way to build a comprehensive database and identify hotspot areas where waste management needs to be prioritised. Use this course to build a team of surveyors who regularly complete Dive Against Debris® surveys.

Knowledge development can be delivered as a face-to-face presentation or through independent study using the Dive Against Debris® Survey Guide. There is one training dive required for PADI certification. The time normally spent delivering a second training dive on most Specialty Courses should be used to involve students in the accurate recording and reporting of data. Aim to create divers who can independently complete the non-dive aspects of a survey to reduce your time commitment to your ongoing Dive Against Debris® survey project. Provide additional training dives as required for students to achieve mastery of in-water skills.

Note to Instructor: For ease of reading all Dive Against Debris® materials refer to "marine debris" and "ocean", however rubbish in lakes, rivers and streams also pose a serious problem and Dive Against Debris® surveys are equally valid when conducted in freshwater environments.

Course Flow Options



Course Flow Options provide a visual representation of how knowledge development and the optional confined water session support the open water dive.

Students complete knowledge development and knowledge reviews before participating in the open water dive and data reporting.

A confined water dive is not required for the Dive Against Debris® course. However, you may want to consider having a session that allows student divers to practice buoyancy in particular as the skill necessary to master for a careful and safe removal of debris, proper handling of mesh cleanup bags, and an environmentally aware, safe and enjoyable Dive Against Debris® survey. You might consider pairing that session with PADI's Peak Performance Buoyancy Specialty Course.

There is one open water dive required for PADI certification. The time usually spent delivering a second training dive should be used to demonstrate how to accurately record and report data. **It is a certification requirement that students are involved in all aspects of the survey from underwater debris removal, through data recording, to data reporting*.** This involvement prepares them to survey independently and reduces your time commitment to your ongoing survey project.

***Note to Instructor:** The Instructor guides students, as a group, through the process of data submission. For English speaking students, use the online data submission form. For non-English speaking students, use the Data Card and email on completion. Only one data submission is required per Dive Against Debris® survey, irrelevant of number of students. If you have multiple students, ensure only one submission is made i.e. *duplicate data submissions for the same survey should not be made.*

You may rearrange skill sequences within the dive and you may add more dives as necessary to meet student divers' needs. Organize your course to incorporate environmentally friendly techniques throughout each dive, to accommodate different student diver learning styles, logistical needs, and your sequencing preferences.

Deliver this course using the following outlines depending on student preference.

Step	Independent Study	Instructor-Led
1	Independent Study - use the Dive Against Debris® Survey Guide	Knowledge Development Presentation - use the Dive Against Debris® Survey Lesson Guides
2	Review Knowledge Review	Review Knowledge Review
3	Confined Water Dive (optional)	Confined Water Dive (optional)
4	Open Water Dive	Open Water Dive
5	Follow the five steps for recording and reporting data as outlined in the Dive Against Debris® Survey Guide	Follow the five steps for recording and reporting data as outlined in the Dive Against Debris® Survey Guide

Section One: Course Standards

This section includes the course standards, recommendations and suggestions for conducting the Dive Against Debris® course.

Standards at a Glance

Topic	Course Standard
Minimum Instructor Rating	**Dive Against Debris® Distinctive Specialty Instructor**
Prerequisites Minimum Age	**PADI (Junior) Open Water Diver or equivalent** **12**
Ratios: student to instructor	**8:1 instructor; plus 2 students per certified assistant to a maximum of 10 students**
Site, Depth and Hours	Depth: **maximum 18 metres / 60 feet** (30 metres / 100 feet for students certified as PADI Advanced Open Water Divers) Hours Recommended: 12 **Minimum Open Water Dives: 1**
Materials and Equipment	Instructor: **Dive Against Debris® Distinctive Specialty Instructor Guide** **Dive Against Debris® Survey Guide** **Dive Against Debris® Survey Lesson Guides** **Dive Against Debris® Data Card** **Dive Against Debris® Marine Debris Identification Guide** Dive Against Debris® online data submission form Project AWARE's 10 Tips for Divers to Protect the Ocean Planet Student: **Dive Against Debris® Survey Guide** **Dive Against Debris® Data Card** **Dive Against Debris® Marine Debris Identification Guide** Dive Against Debris® online data submission form Project AWARE's 10 Tips for Divers to Protect the Ocean Planet

Instructor Prerequisites

To qualify to teach the Dive Against Debris® Distinctive Specialty course an individual must be a Teaching Status PADI Open Water Scuba Instructor or higher. **PADI Instructors may apply for the Dive Against Debris® Distinctive Specialty Instructor rating after completing a Specialty Instructor Training course with a PADI Course Director, or by applying directly to PADI.** For further details, reference Specialty Instructor in the Professional Membership 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.** Verify student diver prerequisite skills and provide remediation as necessary.
2. **At least 12 years.**

Supervision and Ratios

Open Water Dive

A Teaching Status Dive Against Debris® Distinctive Specialty Instructor must be present and in control of all activities. If a dive is conducted deeper than 18 metres/60 feet, the Specialty Instructor must directly supervise. Otherwise, the Specialty Instructor may *indirectly supervise* all dives. **The 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 2 additional student divers allowed per certified assistant to a maximum of 10 students.

Site, Depth and Hours

Site

Choose sites with conditions and environments suitable for completing requirements. Refer to the *Choose Your Survey Site* section of the Dive Against Debris® Survey Guide for guidance on choosing suitable survey locations. Practice skills in confined water sessions first to better prepare student divers to apply skills in open water later, in particular, to help them master their buoyancy skills.

Depth

18 metres/60 feet maximum for students certified as PADI (Junior) Open Water Divers. (21 metres / 70 feet for students certified as PADI Junior Advanced Open Water Divers and 30 metres / 100 feet for students certified as PADI Advanced Open Water Divers.)

Hours

The Dive Against Debris® Distinctive Specialty course includes one open water dive followed by recording and reporting of data*, which may be conducted in one day. The recommended minimum number of hours is 12.

***Note to Instructor:** The Instructor guides students, as a group, through the process of data submission. For English speaking students, use the online data submission form. For non-English speaking students, use the Data Card and email on completion. Only one data submission is required per Dive Against Debris® survey, irrelevant of number of students. If you have multiple students, ensure only one submission is made i.e. *duplicate data submissions for the same survey should not be made.*

Materials and Equipment

All Dive Against Debris® resources including the Instructor Guide, Survey Guide, Survey Lesson Guides, Data Card and Marine Debris Identification Guide can be downloaded here: www.projectaware.org/DiveAgainstDebris

The Dive Against Debris® online data submission form can be accessed at the same link.

Instructor Materials

Required

- **Dive Against Debris® Distinctive Specialty Instructor Guide**
- **Dive Against Debris® Survey Guide**
- **Dive Against Debris® Survey Lesson Guides**
- **Dive Against Debris® Data Card**
- **Dive Against Debris® Marine Debris Identification Guide**
- Dive Against Debris® online data submission form

Recommended

- Project AWARE's *10 Tips for Divers to Protect the Ocean Planet*

Student Diver Materials

Required

- **Dive Against Debris® Survey Guide**
- **Dive Against Debris® Data Card**
- **Dive Against Debris® Marine Debris Identification Guide**

Recommended

- Project AWARE *10 Tips for Divers to Protect the Ocean Planet*
- Dive Against Debris® online data submission form

Assessment Standards

Students must gain knowledge by attending Knowledge Development presentations or through independent study using the Dive Against Debris® Survey Guide. You can assess knowledge by reviewing the student's Knowledge Review. **The student diver must demonstrate accurate and adequate knowledge during the open water dive 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

Have divers complete PADI's *Continuing Education Administrative Document* at the commencement of training. **Do not use the Liability Release and Assumption of Risk For Dive Against Debris® Event for students completing the Dive Against Debris® Distinctive Specialty course.** Only use this form for non-training Dive Against Debris® survey activities.

Encourage divers to donate to ocean protection by choosing a Project AWARE version of their PADI certification card.

Student divers are issued a PADI certification for Dive Against Debris® Distinctive Specialty upon successful completion of the course. **To qualify for certification student divers must gain knowledge by attending Knowledge Development presentations or through independent study using the Dive Against Debris® Survey Guide, complete the Knowledge Review, complete all boldface performance requirements for Dive Against Debris® Open Water Dive, and participate in data recording and reporting*.**

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

***Note to Instructor:** The Instructor guides students, as a group, through the process of data submission. For English speaking students, use the online data submission form. For non-English speaking students, use the Data Card and email on completion. Only one data submission is required per Dive Against Debris® survey, irrelevant of number of students. If you have multiple students, ensure only one submission is made i.e. *duplicate data submissions for the same survey should not be made.*

Links to Other Courses

Dive Against Debris® Distinctive Specialty certification does not count towards PADI Adventure Diver or PADI Advanced Open Water Diver certification. Divers may credit Dive Against Debris® Distinctive Specialty certification toward PADI Master Scuba Diver rating.

Section Two: Knowledge Development

Conduct

Marine debris, or rubbish in the ocean, kills tens of thousands of marine animals and seabirds every year. It destroys habitats, damages infrastructure, makes beaches unattractive and dangerous to visit and is costly to remove. Underwater cleanups play an important role in making the ocean safe for marine life, but long-term solutions will be achieved through actions that stop rubbish from entering the ocean. To reach this goal, individuals, businesses and governments need to better manage waste through changes to policies, infrastructure, regulations and behaviours. To drive these changes we need a clear picture of the extent of the marine debris problem. Through Dive Against Debris®, divers add an important underwater perspective to that picture.

With this in mind, use this course to train divers to complete Dive Against Debris® surveys from planning the dive to recording and reporting data. Through this course you will create a team of divers to participate in your regular Dive Against Debris® surveys, who can join other surveys, and who, for more experienced divers, can start surveys of their own.

Learning Objectives

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

The Messy Problem of Marine Debris

Marine debris: the damage done, what it is, where it comes from and how divers are part of the solution.

- **Describe the damage caused by marine debris to wildlife, habitats, and coastal environments**
- **Explain and define marine debris**
- **Describe the pathways taken by rubbish to the ocean**
- **Explain changes needed to stop rubbish from entering the ocean and how divers are driving change through Dive Against Debris®**

Time to Dive Against Debris®

Establish a Dive Against Debris® survey: survey frequency, sites, profiles and equipment. Use of photography and knowing what to leave behind.

- **Describe important attributes of a Dive Against Debris® survey**
- **Outline considerations for creating a survey dive profile**
- **Describe the use of photography in Dive Against Debris® surveys**
- **Identify criteria for deciding when objects should not be removed from underwater**

Make Your Survey Count

The five easy steps to maximise the benefits to the environment of a Dive Against Debris® survey.

- **Describe the five steps to record and report findings from a survey dive**

Now It's Your Turn!

Final thoughts on Dive Against Debris® and how to join the global Project AWARE movement of scuba divers protecting our ocean planet.

- **Outline additional Dive Against Debris® features**
- **Explain how to join the global movement of Project AWARE divers**

Knowledge Development

Teaching Outline

Suggestions to *you*, the Dive Against Debris® Distinctive Specialty Course Instructor, appear in note boxes.

Course Introduction

1. Staff and student introductions

Note to Instructor: Introduce yourself and assistants. Explain your background in underwater cleanups or marine surveys if your students are not familiar with you.

Have students introduce themselves and explain why they are interested in this course. Break the ice and encourage a relaxed atmosphere.

Give times (if applicable), dates and locations as appropriate for Knowledge Development presentations, confined water, and open water dive.

Review with student divers other skills they may want as a Dive Against Debris® Diver. Through additional specialty course training, these opportunities may include PADI Peak Performance Buoyancy Diver, PADI Search and Recovery Diver, PADI Digital Underwater Photographer, and/or PADI Underwater Navigator.

In addition, you might also discuss with your students other conservation focused specialties you may be teaching such as AWARE Shark Conservation, AWARE Coral Reef Conservation or the Project AWARE Specialty.

2. Course goals – this course will:
    a. Equip you with the skills and knowledge to tackle marine debris,
    b. Provide information on the marine debris issue,
    c. Show you how to complete a Dive Against Debris® survey from planning a dive to reporting data.
    d. Show you how divers are driving changes that stop rubbish entering the ocean through Dive Against Debris®.
3. Course overview
    a. Knowledge Development presentations and confined water dive (optional).
    b. Open water dive. There will be one open water dive.
    c. Certification
        - Upon successful completion of the course you will receive PADI certification for Dive Against Debris® Distinctive Specialty.

- Certification means that you will be qualified to:

    i. Complete Dive Against Debris® surveys: choose survey locations, plan, organise, make, and log open water Dive Against Debris® survey dives, and record and report data. Dives should be made in conditions generally comparable to, or better than, those of your training.

    ii. 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 organisation) with certification in four other PADI Specialty ratings, and you have 50-logged dives.

Note to Instructor: Use the PADI Student Record File or the Continuing Education Administrative Document. 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.

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

The Messy Problem of Marine Debris

The marine debris problem and how divers can help fix the mess.

The Damage Done

Every year tens of thousands of marine animals and seabirds die from eating or getting tangled up in marine debris – or trash in the ocean. Research has shown that marine debris affects 693 marine species. All known sea turtle species, over half marine mammal species and almost two thirds of all seabird species have ingested or become entangled in marine debris.

Many wildlife deaths happen when animals and seabirds eat marine debris. A piece of marine debris can choke an animal if it catches in its throat. Once swallowed many marine debris items, especially plastics, cannot be digested. A stomach full of plastic makes the animal feel like it no longer needs to feed and can lead to starvation.

In some species of sea turtles, fish, seabirds, mussels and marine mammals, almost all individuals have plastics in their stomachs. A study of northern fulmar seabirds found dead on beaches showed 95 percent had plastic in their stomachs. Each bird had swallowed an average of 35 plastic pieces.

Marine debris also wraps around fins, flippers, wings and throats causing injuries, suffocation and drowning. One study estimated that 50,000 to 90,000 northern fur seals die every year from getting tangled up in marine debris, though researchers warn this study may underestimate the death toll as many animals sink after dying without being observed.

Marine debris damages marine environments causing further impact on the animals that live there. Large debris items rub against reefs moved by even a gentle swell, causing great damage. Plastic sheets and bags smother seagrass beds and mangroves, while fishing nets and fishing line wrap around reefs cutting into corals, sponges and anemones.

Marine debris also has a direct impact on human health and the economy. Polluted beaches are unattractive to visit and present a health risk if broken glass or personal hygiene items are present. Coastal councils that remove trash from beaches pass the expense of cleanup operations on to the local community, even though the debris may have moved there from sources outside the council area.

Marine debris damages recreational and commercial vessels, which sometimes require expensive repairs or the attendance of rescue services.

We often see marine debris washed up on beaches, but as much as 70 percent sinks to the seafloor. The need to address the marine debris issue is urgent.

What is This Marine Debris Stuff?

Marine debris is our waste in the ocean. From everyday litter like plastic bags, food wrappers, drink bottles and cigarette butts, to car batteries, kitchen appliances, enormous fishing nets and industrial waste, the trash we allow in the ocean is turning our beautiful reefs, beaches and seagrass meadows into rubbish dumps.

Many of our waste products, including plastics, do not biodegrade - instead they break down into smaller pieces that remain a danger to marine life as they are easily mistaken for food.

As much as 250 million metric tons of plastic could make its way into the ocean by 2025. The waste products of our growing population are choking our ocean planet.

A Marine Debris Definition

Marine debris is defined as any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Marine debris consists of items that have been made or used by people and deliberately discarded into the sea or rivers or on beaches; brought indirectly to the sea with rivers, sewage, storm water or winds; or accidentally lost, including material lost at sea in bad weather.

Where Does it Come From?

Rubbish moves to the ocean from both land and sea, but most of the debris in our ocean comes from land-based sources. Regardless of where it comes from, humans are the source of all marine debris - either through accident, carelessness or purposeful dumping.

Rubbish enters the ocean due to lack of or poor waste management. Town dumps located next to the sea, untreated sewage discharging directly into the ocean, and poorly managed building or industrial waste all contribute to the marine debris problem.

Public littering is also a major problem. Rubbish dropped even thousands of kilometres/miles inland will move to the ocean, washed into storm water drains and streams by the rain, or blown by the wind. We often shorten the journey by leaving our trash on a beach or next to a river.

Although most marine debris starts its journey on land, debris is also lost or purposefully dumped at sea - from boats and ships, oil and gas rigs, and aquaculture farms.

Once in the ocean it causes the death of tens of thousands of marine animals and seabirds every year who mistake it for food or get it caught around their bodies. It also damages environments such as coral reefs.

Can We Fix This Mess?

The marine debris problem seems so big – can divers really make a difference?

Yes we can, by working together locally, nationally and internationally on the many changes needed to fix this mess:

- Changes in policies that make individuals, businesses and governments better manage waste.
- Changes in infrastructure to physically block trash before it reaches the ocean.
- Changes in regulations to better manage the things we make and how we make them - from manufacturing, to use, recycling and disposal.
- Changes in attitudes and behaviours so we can rethink, reduce, reuse, and recycle our way out of this mess.

Dive Against Debris®, Dive For Change

When you Dive Against Debris® you are diving for change, here's how:

- You make the ocean safer for marine life
  - The marine debris you remove can no longer hurt marine animals or damage marine environments.
- The data you collect
  - Helps inform policy to improve waste management by helping convince individuals, governments and businesses to act on marine debris.
  - Expands our understanding of the types and amounts of rubbish in our ocean.
  - Builds knowledge of the impacts on underwater environments caused by marine debris.
- You support Project AWARE leaders working in their community
  - Project AWARE leaders are working in their communities on changes that prevent rubbish from entering the ocean.
  - Contact Project AWARE if you are keen to lead marine debris actions in your community.
- You convince others of the need to change
  - Tell everyone about your Dive Against Debris® actions and the rubbish you see underwater.
  - Your voice can change public opinion so people demand action on marine debris.
  - You can help change people's behaviour so less trash is dumped in the environment.

Created Just For Divers

Dive Against Debris® was created by divers, for divers. Only divers have the training, knowledge and skills to remove marine debris from underwater.

It is estimated as much as 70 percent of the rubbish entering our ocean sinks to the seafloor, and although much of this is likely to be outside the reach of recreational divers, we still have the power to tackle underwater marine debris head on.

The marine debris problem is big, but Project AWARE's global movement of divers is strong. Through Dive Against Debris® divers are playing a major role in keeping our ocean clean and healthy.

Time to Dive Against Debris®

Plan Your Dive - Dive Your Plan

It's a golden rule of diving: plan your dive and dive your plan! This section tells you how to prepare and complete your Dive Against Debris® survey. The following section tells you how to report your data.

Plan Your Dive

Long-term Surveys Give the Best Results

Your surveys will have more value if you repeatedly collect data from the same site over a period of time. Regular surveys will:

- Build a more convincing argument for change.
- Help identify local seasonal trends, such as those caused by weather patterns or tourist seasons.

There are no requirements for how often you should repeat your survey, all data on underwater marine debris is of value. However to maximise your results consider monthly surveys at the same location, or one survey every two months. As a minimum try to hold a survey at the same time and the same location for each season of the year.

Of course, if you find marine debris during any dive you can remove and report it through Dive Against Debris®. It doesn't take long to help the marine environment.

Choose Your Survey Site

Use these considerations to choose your survey site:

- Choose a site you can return to regularly
  - Your surveys will have more value if you collect data from the same site over a period of time.
- Choose a site within the dive skills and experience of all participants.
- Survey fresh water lakes and rivers.
  - Dive Against Debris® surveys are equally important in fresh water environments.

- If necessary gain permission to dive and remove marine debris from the landowner or other authorities.
  - This includes Dive Against Debris® surveys inside marine protected areas such as marine parks where local regulations may prohibit marine debris removal.

To join an existing Dive Against Debris® survey search the Project AWARE Action Map: www.projectaware.org/DiveAgainstDebris or contact your local PADI Dive Centre.

Survey Dive Profiles

Plan your Dive Against Debris® survey to be safe and fun while carefully considering care for the environment and the experience levels of all divers.

- Safety is your primary consideration
  - Follow all normal safe diving practices.
  - Dive within your and your buddy's skills and experience.
  - Consider a safety diver - either on the boat or on shore.
- Bottom time and depth
  - Set your own bottom time and depth depending on local conditions and diver experience.
  - Remain well within the no-decompression limits of your dive table or dive computer.
- Buoyancy
  - Check that you and your buddy are properly weighted to maintain neutral buoyancy throughout your dive.
  - Assure all your gear is streamlined and secured.
- Survey Area
  - No set area to be surveyed - try to cover the same area each time you survey your site.
  - Consider dive flags to mark your area (follow local protocols on dive flag use).
- Participants
  - All divers to work in buddy teams.
  - Report all divers' findings from the same survey dive on one Data Card.
- Buddy team strategies
  - All divers in a buddy team are responsible for monitoring the dive.
  - Review communications and buddy separation procedures before the dive.
  - Discuss dive roles, for example:
    - Buddy 1: carries the mesh bag.
    - Buddy 2: removes items / takes photographs.

Underwater or a Land Cleanup?

Marine debris is everywhere; underwater, on the beach, in the shallows and, caught up in mangroves. So how do you know what data you should report through Dive Against Debris®? The easy answer is if you need to be on scuba to collect your marine debris you can report it through Dive Against Debris®.

To handle trash collected on land or in the shallows but not on scuba please see *What About the Land Cleanup Completed by Our Friends?* (page 28)

Dive Your Plan

During your dive, collect the marine debris you encounter - when back on land, sort and record what you removed from the seafloor only.

- Work with your buddy to place marine debris in your mesh bag.
- Do not use your BCD as a lifting device for heavy items.
- Do not overfill your mesh bag and do not carry more than 4kg/7lb without a lift bag. Items weighing more than 4kg/7lb should only be removed by divers trained in the use of lift bags such as those certified as PADI Search and Recovery Specialists.
- Do not use lift bags without training/experience. Removing heavy objects requires proper training and use of lift bags.

Gear

The right gear will help make your dive safe and enjoyable.

Required Gear

- Mesh bags for marine debris collection
  - Mesh to let the water flow out
- Dive tool/knife
- Gloves for hand protection
  - Check that use of gloves is permitted at your survey location
  - Kitchen or garden gloves are ok to use if you do not have dive gloves

Recommended Gear

- Scissors
  - See *Fishing Nets, Fishing Line and Rope*
- GPS
  - See *Survey Site GPS Coordinates*
- Weighing scales
  - See *Step 1: Weigh*
- Underwater camera
  - See *Take Pictures to Tell the Story*
- Sharps container
  - See *Sharp Objects*
- Blank slate and pencil

Buoyancy

It's particularly important to pay attention to your buoyancy and trim during a Dive Against Debris® survey. Keep your gear and your body, remembering your fins, away from the bottom. Most importantly, remain aware of, and correct as needed, your body's positioning as you remove debris and put it in your mesh bag.

Sharp Objects

Take care with objects that can cause a puncture wound such as syringes, broken bottles and metal cans.

- Before removing, carefully consider the safety of all participants.
- Use a strong container with a secure lid to safely remove sharp objects.
- Be very careful when choosing to remove medical sharps - includes syringes, needles, scalpels, lancets and suture needles.

Take Pictures to Tell the Story

Taking photos is not a survey requirement, but photos are great for convincing non-divers and decision makers that marine debris is a real problem. Your photos can illustrate impacts to marine wildlife and environments and help build a library of images that show people the scope and scale of the problem.

There are two types of photos to take:

1. Photos that help explain your data:

These photos help us understand the debris you saw. Attach this type of photo to your survey data when you submit your data. If possible, provide a reference for scale such as a ruler or snorkel. Examples of this type of photo are:

- Marine debris damaging the environment.
- Entangled animals.
- Items you cannot identify.
- Marine debris underwater.
- Items you did not remove.

2. Photos that tell your story:

Use this type of photo to raise publicity about your actions, thank participants and recruit volunteers. Be sure to upload these photos to your My Ocean blog about your survey (see page 27). Your images can be used to highlight underwater issues to the general public. You may also consider sharing them on other social media sites such as Facebook® or ScubaEarth®, or use them to illustrate a story in your local paper:

- Group shots - all your buddies together with the trash you removed
- Divers in action
- Divers counting and recording debris
- A surface shot of all the rubbish you removed

Tips for taking photos:

- Do not spend long taking photos to avoid altering the meaning of your Survey Duration. Increase your underwater photography skills and knowledge by seeking additional training through PADI's Digital Underwater Photography Specialty.
- Follow AWARE's *10 Tips for Divers to Protect the Ocean Planet.*

Things to Leave Behind

Marine life soon grows on marine debris and marine animals often make a home in pieces of marine debris. In these cases, you should decide whether to remove an item or leave it in place. Sometimes it is worth a small short-term disturbance to remove potentially harmful marine debris, other times it may be better to leave the item in the ocean.

Following are some points to consider when deciding to remove a marine debris item:

If you are unsure, leave it in place.

Safety is Your Primary Consideration

If you are unsure if it is safe to remove an item, leave it in place.

Do not touch or remove weapons or ammunition - mark the location and inform the authorities.

Take great care with or leave in place rusty items that may be surprisingly sharp or items that may leak chemicals that could be harmful if they come in contact with your skin or equipment.

Material of Construction

Items such as glass bottles and steel cans do not cause much harm to the environment so leave them in place if removal will disturb marine life.

Consider removing non-natural items that could harm marine animals as they break down into smaller pieces, even if doing so will cause a short-term disturbance. In these cases use your judgement of what action will cause the least harm. Items in this category include hard plastics, fish traps and packaging material.

If eggs are attached to a marine debris item, mark the location and return to remove it once the eggs have hatched.

Contents of the Item

If an item contains chemicals that may leak and cause harm, it should be removed if safe to do so. Examples include car, truck and boat batteries; oil, fuel and chemical containers; paint cans; fuel filters and; electronic equipment.

If it is not safe to remove a potentially hazardous item, you could mark its location and report it.

Fishing Nets, Fishing Line and Rope

Removing fishing nets, fishing line and rope can be dangerous.

- Do not attempt to remove these items unless you are sure it is safe.

Removing these items can be difficult, especially if they are wrapped around corals, or have corals growing over them.

- The best approach may be to selectively remove accessible parts and leave the sections that have become overgrown.
- Strong, sharp scissors cut through fishing line and light nets with less disturbance than a dive knife as they do not require a sawing motion.

Make Your Survey Count

Your Dive Against Debris® survey has led to this moment - reporting your data.

There are five easy steps to make your survey count:

- Step 1: Weigh
- Step 2: Sort
- Step 3: Record
- Step 4: Dispose
- Step 5: Report

Step 1: Weigh

Weigh all your marine debris while still in the mesh bags. If the weight of the mesh bags is significant, weigh them separately once they are empty and subtract their weight to arrive at the true weight of your debris.

- Fishing or kitchen scales work well for weighing debris.
- You can estimate weight if you do not have scales.
- Record weight in kilograms or pounds.

Step 2: Sort

To make it easy to find debris items on the Dive Against Debris® Data Card they have been grouped by material of construction. Empty your mesh bags and sort your debris into piles under the nine categories:

- Plastic
- Glass & Ceramic
- Metal
- Rubber
- Wood
- Cloth
- Paper/Cardboard
- Mixed Materials
- Other Debris Items any item that cannot be placed in another category

Sort your debris out of the wind to avoid rubbish being blown back into the water. Emptying your mesh bags onto a tarpaulin will help keep your debris items together.

Step 3: Record

Work through each pile to record every item you found onto the Dive Against Debris® Data Card. Use the Dive Against Debris® Marine Debris Identification Guide to help correctly identify debris items.

- Each debris item counts as one, regardless of size
- Look for your debris item under the material of construction categories, for example:
  - If you find a plastic fork look under the *Plastic Materials* category to find *cups, plates, forks, knives, spoons*
  - Mark this box as I
  - If you find a second plastic fork or another item in this category mark this box as II
  - Continue using a tally system that works for you, for example: ~~IIII IIII~~ II = 12
- Miscellaneous pieces of marine debris should be counted as *fragments* - see the end of each material category on the Data Card
- To count many small pieces (2.5cm/1in and smaller) see *Too Small to Count* below.
- Combine all diver's findings from the same survey dive on one Data Card
  - One buddy pair on your survey dive or ten buddy pairs - record all debris items on one Data Card

Too Small to Count?

Sometimes you may remove a large amount of similar small pieces of debris, for example a mound of plastic pellets dumped in the ocean or a hard plastic item that has disintegrated into many small pieces. In these cases, there may be too many pieces to count, so how do you record this find?

The method for many small pieces (mostly smaller than 2.5cm/1in) is to place them on a tarpaulin out of the wind and sort them into roughly equal sized piles. Then count the number of pieces in one of your piles and multiply this by the number of piles to reach the total. Record these small pieces as "fragments" under the relevant material of construction.

Other Survey Information

Complete the remainder of the Data Card to record important information about your survey.

Survey Site Location

Information to help us verify your survey site is accurately positioned on the map:

- Nearest road name (if applicable)
- City/Town
- State/Province
- Country

Survey Site GPS Coordinates

Accurate GPS information is essential to reporting your data. It puts your data in a geographical context and helps make sure your survey shows up correctly on Project AWARE's Dive Against Debris® Map. You can report your Survey Site GPS Coordinates without a GPS unit by using the point-and-click map found on the Dive Against Debris® online Data Submission Form:

- Drag the map to find your country
- Zoom in on your location
- Locate your survey site and click on the map
- Your Survey Site GPS Coordinates are automatically recorded
- Works best for Survey Sites with adjacent landmarks

To use a GPS unit, if your Survey Site is not close enough to land to locate it accurately using the point-and-click map method, note the following:

- Set your GPS unit to:
  - WGS84 Map Datum
  - Take readings in decimal degrees
- Boat dives:
  - Take your GPS reading while the boat is moored at, or floating directly over, the Survey Site (look out for divers in the water)
- Shore dives:
  - Take your reading standing on the foreshore as close to the Survey Site as possible

Survey Duration

Take care to properly record your Survey Duration, as incorrect entries will devalue your findings.

Survey Duration is the average time spent by all buddy teams while underwater removing marine debris.

- Record Survey Duration in minutes i.e. 45 minutes, 115 minutes
- Do not include time for surface swims and ascents/descents
- Do not include time for non-dive participants or for sorting and recording your debris

Calculating your Survey Duration

Example 1.

You and your buddy work together to remove underwater marine debris for 43 minutes. There are no other divers on your survey.

Survey Duration = 43 minutes

Example 2.

Three buddy teams with two divers in Team A and B and three divers in Team C remove underwater marine debris for the following durations:

Buddy Team A	42 minutes
Buddy Team B	48 minutes
Buddy Team C	51 minutes
Combined survey time	141 minutes

141 minutes combined survey time / 3 buddy teams = 47 minutes

Survey Duration = 47 minutes

Number of Participants

Only count divers collecting rubbish underwater:

- Count individual divers, not buddy teams
- Do not include surface only participants, for example a safety diver or friends that complete a beach cleanup while you are diving

Wave Conditions

Report wave conditions on the day of your survey:

- Calm (glassy to rippled) for waves 0–0.1 metres/0-4 inches high
- Smooth (wavelets) for waves 0.1-0.5 metres/4-19 inches high
- Slight for waves 0.5-1.25 metres/19 inches- 4 feet high
- Moderate to rough for waves greater than 1.25 metres/4 feet high

Area Surveyed

This information helps build an understanding of the density of debris at your site.

An easy and accurate way to measure area is to use a point-and-click tool over a Google Map such as the one found here:
www.daftlogic.com/projects-google-maps-area-calculator-tool.htm

- Report area in square metres or square feet

If you cannot use the online tool, remember the following when calculating Survey Site area:

- For simple square or rectangle shapes calculate area by multiplying length by breadth
- Make an estimate if it is not possible to measure or you cannot use the tool above

Dominant Substrate

Describe the seafloor over which you spent most of your survey:

- Sand
- Silt
- Gravel
- Rock
- Coral
- Seagrass
- Other (please describe)

Ecosystem

Describe the marine ecosystem in which your survey took place:

- Coral reef
- Rocky reef
- Kelp
- Mangroves
- Seagrass
- Other (please describe)

The difference between Dominant Substrate and Ecosystem: If you survey a coral reef and spend most of your Survey Duration over the sand between coral heads report *Dominant Substrate* as *Sand* and *Ecosystem* as *Coral reef.* If at the same Survey Site you spend most of your time swimming over the coral then report Dominant Substrate as Coral and Ecosystem as Coral reef.

Entangled Animals

Report entangled animals and the type of marine debris involved. If possible identify the species name; if unknown use a common name i.e. "seal". Take photos of entangled animals to share when reporting your data.

Survey Depth Range

Report the maximum and minimum depths from which you removed debris.

- May be less deep than the maximum depth for your dive
- Do not report 0 metres or feet for your minimum depth - floating debris should not be reported

Weather Conditions for Previous Week

Report strong winds, storms, heavy rain or any weather event that may have moved debris onto or away from your site.

Items of Local Concern

List the top three debris items you consider a problem in your location and tell us why.

Most Unusual Item Found

Additional Information

Briefly describe events that could have contributed to the debris found, provide link to news stories if available:

- Hurricanes, building demolition, festivals or street celebrations, fireworks display, etc.

Step 4: Dispose

You removed it and counted it - great job! Now take a moment to dispose of it properly so it cannot return to the ocean.

- Sort for recycling as available in your area
- Small amounts can be placed in street bins
- Some local government authorities will collect your rubbish
  - Make the arrangement before your survey
  - If leaving for collection by local authorities make sure bags are securely tied
- Take it to the local waste collection site

Be familiar with local laws governing debris disposal. Many local governments have special procedures for disposing of items that contain hazardous materials such as fluorescent light tubes, cyalume light sticks, and containers with oil, chemicals, fuel or paint. Contact your local authorities for advice on disposing of these items.

Step 5: Report

Your Dive Against Debris® survey has led to this moment - reporting your data*.

***Note to Instructor:** The Instructor guides students, as a group, through the process of data submission. For English speaking students, use the online data submission form. For non-English speaking students, use the Data Card and email on completion. Only one data submission is required per Dive Against Debris® survey, irrelevant of number of students. If you have multiple students, ensure only one submission is made i.e. *duplicate data submissions for the same survey should not be made.*

English submissions: Use the Online Data Submission Form

For all English data submissions, report your data through the online Data Submission Form: www.projectaware.org/DiveAgainstDebrisData

- To use the form, first log in to your My Ocean profile, or create a new My Ocean profile. (see next page)
- Follow instructions on the form and refer to Survey Guide if you need clarification.

Before submitting data you will be asked to confirm the Dive Against Debris® Surveyor Statement: I have read the Dive Against Debris® Survey Guide and the data I am reporting was collected underwater, during one dive and completed by single or multiple buddy teams. I understand I should only include data on trash collected from underwater environments here. Repeat dives should be reported through separate submissions and debris collected on land can be shared with the My Ocean community. I understand that the data I submit will be visualized on the Dive Against Debris® Map following a review and provided it satisfies Project AWARE's internal quality review process.

Non-English submissions: Email your completed Data Card

For all languages other than English, please email a copy of your completed Dive Against Debris® Data Card to diveagainstdebris@projectaware.org. Ensure you have clearly filled in all data fields.

Now It's Your Turn!

Now you are ready to join AWARE divers around the world tackling marine debris - together we can fix this mess!

Start your regular Dive Against Debris® survey:

- Choose your site and start your Dive Against Debris® survey
- Record your data and tell us what you found
- Repeat every month or every other month
- Tell others about the problem of marine debris
- Take action to prevent, reduce and manage waste in your home or community

Some Final Dive Against Debris® Thoughts

Share Your Actions

My Ocean (www.projectaware.org/MyOcean) is Project AWARE's unique eco-networking site where AWARE leaders act for ocean protection. Create a My Ocean profile to report your Dive Against Debris® data, post blog stories on your ocean protection activities and Start an Action to seek participants for your Dive Against Debris® surveys.

Help change behaviours that are polluting our ocean with rubbish:

- Tell the story of your Dive Against Debris® survey on your My Ocean page
  - Post blogs and upload photos and videos
- Share your My Ocean page through Facebook, Twitter and other social network sites
- Share your other ocean protection actions through your My Ocean page
- Gain media recognition about your Dive Against Debris® survey so others learn about the marine debris problem

Report Clean Sites

Finding no debris on a dive is still important data to submit as it can help identify when new problems arise. Select the "Our Survey Site Was Free Of Debris" option when you submit your data.

Dive Against Debris® – Any Dive, Any Time

Your data is of most use when collected regularly from the same survey site. However, you can also report rubbish from any dive at any time through Dive Against Debris®.

What About the Land Cleanup Completed by our Friends?

It's great to combine your underwater survey with a beach or foreshore cleanup but only report debris found by divers underwater through Dive Against Debris®. If your friends complete a land cleanup:

- Keep the trash collected on land separate from the underwater debris
- Only sort, record and report marine debris found underwater through Dive Against Debris®

Provide Feedback

Share your Dive Against Debris® experience with us.

- Send comments and suggestions via www.projectaware.org/contact

Join the Project AWARE Movement

Project AWARE Foundation is a global movement of scuba divers protecting our ocean planet - one dive at a time. Visit www.projectaware.org to find the latest calls to action, petitions and activities you can join to help protect our ocean planet.

Battle the Big Two

Project AWARE is focusing on two major ocean protection issues where scuba divers are uniquely positioned to affect long-term change:

1. Sharks and Rays in Peril

Many shark and ray populations are in trouble, mainly due to overfishing. Join ongoing campaigns with Project AWARE to help protect the world's most vulnerable shark and ray species. Find out more about the issues and learn about your local sharks and actions you can take to help protect them by becoming an AWARE Shark Conservation Diver. Ask your PADI Dive Centre or Resort for details.

2. Marine Debris

Only divers have the skills to remove underwater marine debris. Underwater cleanups help, but to make a lasting change we must stop rubbish from reaching the ocean. Divers can help by reporting data on marine debris through Dive Against Debris®. You can shine a light on marine debris issues and help reduce its devastating impacts on marine life and marine environments.

Be an AWARE Diver

Care for our ocean every time you dive - follow Project AWARE's *10 Tips for Divers to Protect the Ocean Planet*

Section Three: Open Water Dive

Conduct

There are no required confined water sessions for the Dive Against Debris® Diver course, however, you may want to develop student diver abilities in conditions that don't add complexity to learning new skills. For example, you may have student divers practice buoyancy skills and techniques for underwater marine debris removal in a confined water session prior to the first training dive. The confined water session may also include a scuba skills review.

On the training dive students demonstrate that they can complete a Dive Against Debris® survey from planning the dive to removing underwater marine debris and recording and reporting data. The outcome of this training is divers with the skills, knowledge and experience to complete Dive Against Debris® surveys. You can use the Dive Against Debris® Diver course to build a team of surveyors who regularly return to participate in your ongoing survey or start surveys of their own.

All the information you need to conduct Dive Against Debris® surveys is found in the Dive Against Debris® Survey Guide. Use this as your primary resource during training and when running survey dives.

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 dive, student divers must demonstrate the following performance requirements to qualify for certification.**

Open Water Dive

Performance Requirements

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

Dive Against Debris® Open Water Dive

- **Plan and complete a scuba dive to remove marine debris from underwater**
- **Demonstrate judgement in decisions to remove underwater marine debris items**
- **Demonstrate appropriate and responsible diving practices and behaviours to minimise negative environmental effects**
- **Complete the five steps to record and report data from Dive Against Debris® surveys**

If students have access to cameras (includes land and underwater cameras)

- Take appropriate photographs for data reporting and event promotion

Open Water Guidelines for Dive Against Debris® Dive

General Open Water Considerations

1. Involve student divers in dive-planning activities. Lead a discussion on choosing an ideal survey site and effective methods for removing underwater debris from the site given the number of buddy teams available.
2. Conduct a thorough briefing, as a good briefing will lead to a better learning experience. Review with students the Time to Dive Against Debris® section of the Dive Against Debris® Survey Guide and add additional information as required to conduct a safe dive in your location.
3. Assign logistical duties to staff if available and consider the use of a land-based safety diver
4. Stress the importance of diver safety over debris removal.
5. After the dive, involve all students in recording the debris found. Demonstrate that debris items can be weighed, sorted and recorded quickly if divers share tasks and work together. Develop an effective strategy based on the types and amounts of debris found at your location.
6. Finish by demonstrating how to submit data using the Dive Against Debris® online data submission form for English speakers. Show divers how to set up their own My Ocean profiles so they can report data from surveys they conduct following the course. For non-English speaking students, inform divers they can email their completed Data Card to diveagainstdebris@projectaware.org when they conduct subsequent Dive Against Debris® surveys. Only one data submission is required per Dive Against Debris® survey. If you are leading a group of students, ensure only one data submission is made for the survey conducted as part of this course. *Duplicate data submissions for the same survey should not be made.*

Dive Against Debris® Open Water Dive

If students have access to cameras (includes land and underwater cameras)

- Take appropriate photographs for data reporting and event promotion

a. Briefing
    1. Dive sequences - review Dive Tasks

b. Predive procedures

c. Dive Tasks
    1. Plan and complete a scuba dive to remove marine debris from underwater.
        - Follow guidance in the *Time to Dive Against Debris®* section of the Dive Against Debris® Survey Guide.
        - Go over the safety plan for the dive and stress the importance of diver safety over debris removal.
        - Point out local hazards and out of bounds areas.
        - Ensure divers have appropriate gear including gloves (if permitted) and mesh bags of a reasonable size.
    2. Demonstrate judgement in decisions to remove underwater marine debris items.

- Review with students the *Things to Leave Behind* section of the Dive Against Debris® Survey Guide.

3. Demonstrate appropriate and responsible diving practices and behaviours to minimise negative environmental effects.

   - Complete the dive maintaining good buoyancy and trim, keeping clear of the sea floor and avoiding impact on all organisms.

   - Follow Project AWARE's *10 Tips for Divers to Protect the Ocean Planet.*

4. Complete the five steps to record and report data from Dive Against Debris® surveys.

   - Follow the *Make Your Survey Count* section of the Dive Against Debris® Survey Guide.

   - Involve all students in the five steps to maximise their learning, prepare them to complete future surveys and as a good example for future survey participation

If students have access to cameras (includes land and underwater cameras)

5. Take appropriate photographs for data reporting and event promotion.

   - Review with students the *Take Pictures to Tell the Story* section of the Dive Against Debris® Survey Guide.

d. Post dive procedures

e. Debriefing

- Discuss student experience of removing underwater marine debris - did they experience any problems? Anything they would do differently next dive?

- Discuss student decisions to remove/leave debris items.

- Discuss student experience with removing debris while minimising negative environmental impacts. Did removing underwater marine debris change their dive style? Do they need remedial training to help them perform this additional function underwater?

- Discuss the process of recording and reporting data*. Can students see ways to make recording data more efficient for their surveys?

***Note to Instructor:** The Instructor guides students, as a group, through the process of data submission. For English speaking students, use the online data submission form. For non-English speaking students, use the Data Card and email on completion. Only one data submission is required per Dive Against Debris® survey, irrelevant of number of students. If you have multiple students, ensure only one submission is made i.e. *duplicate data submissions for the same survey should not be made.*

- Discuss criteria for the types of photos to be uploaded with data and those that should be promoted on your Project AWARE's My Ocean profile or via social media such as Facebook® or ScubaEarth®.

f. Log dive (instructor signs log).

Dive Against Debris®
Knowledge Review

Answer the following questions. Your instructor will review your answers with you.

1. Briefly describe where marine debris comes from?

2. List and briefly describe three examples of damage marine debris can cause to wildlife, habitats, coastal environments, local environments or human health.

    1.

    2.

    3.

3. List types of changes needed to stop rubbish from entering the ocean on a local, regional or international level. Support at least one type with a specific example you've researched or are familiar with:

    1. *Changes in ...*
    Example: Regular waste removal with access to recycling regimes.

    2. *Changes in ...*
    Example:

    3. *Changes in ...*
    Example:

    4. *Changes in ...*
    Example:

4. Outline the six key considerations in planning a Dive Against Debris® survey and creating a survey dive profile:

   1.

   2.

   3.

   4.

   5.

   6.

5. List and describe the buoyancy considerations in preparation for and during your Dive Against Debris®:

   1.

   2.

   3.

   4.

6. Describe the two types of photos you could take as part of your Dive Against Debris® surveys and how they help advocate for a clean ocean:

   1.

   2.

7. List the four criteria and briefly describe one of the criteria you should use when deciding whether to remove objects from underwater?

   1.

   2.

   3.

   4.

8. Which type of marine debris data should you report through the Dive Against Debris® survey?

   1. All marine debris from the site, regardless of where it was found-floating on the surface, resting on the bottom underwater, or on shore.
   2. Only underwater debris collected from the bottom with the use of scuba equipment.
   3. Underwater debris collected from the bottom with the use of scuba equipment and shore debris collected by others on the beach at the same time.

9. Why does recording and reporting accurate GPS location of your survey site matter?

10. Describe how you can obtain your GPS coordinates for your survey site location:

11. Fill in the blank: Survey Duration is the _____ time spent by all buddy teams while underwater removing marine debris at the same site.

12. What should you report for survey duration if two buddy teams with two divers in Team A remove marine debris underwater for 42 minutes and three divers in Team B remove marine debris for 52 minutes underwater at the same site?

13. The five steps needed to record and report findings from a survey dive are:

    Step 1 -

    Step 2 -

    Step 3 -

    Step 4 -

    Step 5 -

14. Select one of the steps above you need to take to record and report findings and describe it in detail:

15. Explain how you could join and contribute to the global movement of Project AWARE divers.

    1.

    2.

    3.

Student Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I understand what I missed.

Name _____ Date _____

Dive Against Debris® Knowledge Review

Answer Key

Answer the following questions. Your instructor will review your answers with you.

1. Briefly describe where marine debris comes from?

   Rubbish moves to the ocean from both land and sea, but most of the debris in our ocean comes from land-based sources. Regardless of where it comes from, humans are the source of all marine debris - either through accident, carelessness or purposeful dumping.

   Rubbish enters the ocean due to lack of or poor waste management. Town dumps located next to the sea, untreated sewage discharging directly into the ocean, and poorly managed building or industrial waste all contribute to the marine debris problem.

   Public littering is also a major problem. Rubbish dropped even thousands of kilometres/miles inland will move to the ocean, washed into storm water drains and streams by the rain, or blown by the wind. We often shorten the journey by leaving our trash on a beach or next to a river.

   Although most marine debris starts its journey on land, debris is also lost or purposefully dumped at sea - from boats and ships, oil and gas rigs, and aquaculture farms.

2. List and briefly describe the types of damage caused by marine debris to wildlife, habitats, and coastal environments

   1. *Kills animals –*
   2. *Damages habitats -*
   3. *Has direct human impacts -*

3. List types of changes needed to stop rubbish entering the ocean. Support at least one type with a specific example you've researched or are familiar with:

   Changes in policies that make individuals, businesses and governments better manage waste
   Example: Regular waste removal with access to recycling regimes.

   Changes in infrastructure to physically block trash before it reaches the ocean
   Example: Litter catchment in storm drains

   Changes in regulations to better manage the things we make and how we make them – from manufacturing, to use, recycling and disposal
   Example: Extended producer responsibility implemented for small, consumer electronics.

   Changes in attitudes and behaviours so we can rethink, reduce, reuse, and recycle our way out of this mess
   Example: Container Deposit Schemes where there is a financial incentive to recycle used packaging.

4. Outline the six key considerations in planning a Dive Against Debris® survey and creating a survey dive profile:
    - *Safety as the primary consideration*
    - *Bottom time and depth*
    - *Buoyancy*
    - *Survey area*
    - *Number of participants*
    - *Buddy team strategies*
5. List and describe the buoyancy considerations in preparation for and during your Dive Against Debris®:
    - *Check that you and your buddy are properly weighted to maintain neutral buoyancy throughout your dive*
    - *Assure all your gear is streamlined and secured*
    - *Keep your gear and your body, including your fins, away from the bottom*
    - *Most importantly, remain aware of, and correct as needed, your body's positioning as you remove debris and put it in your mesh bag*
6. Describe the two types of photos to take as part of your Dive Against Debris® surveys
    1. *Photos to explain your data:*

        Marine debris damaging the environment

        Entangled animals

        Items you cannot identify

        Marine debris underwater

        Items you did not remove
    2. *Photos that tell your story:*

        Group shots

        Divers in action

        Divers counting and recording debris

        Surface shot of the rubbish you removed

7. List all and briefly describe one of the criteria you should use when deciding whether to remove objects from underwater?

Safety is a Primary Consideration

If unsure if it is safe to remove an item, leave it in place

Do not touch or remove weapons or ammunition - mark the location and inform the authorities

Take great care with or leave in place items that may leak chemicals that could be harmful if they come in contact with your skin or equipment

Material of Construction

Items such as glass bottles and steel cans do not cause much harm to the environment so leave them in place if removal will disturb marine life

Consider removing non-natural items that could harm marine animals as they break down into smaller pieces, even if doing so will cause a short-term disturbance. In these cases use your judgement of what action will cause the least harm. Items in this category include hard plastics, fish traps and packaging material

Contents of the Item

If an item contains chemicals that may leak and cause harm it should be removed if safe to do so. Examples include car, truck and boat batteries; oil, fuel and chemical containers; paint cans; fuel filters and; electronic equipment

If it is not safe to remove a potentially hazardous item you could mark its location and report it.

Fishing Nets, Fishing Line and Rope:

Removing fishing nets, fishing line and rope can be dangerous so do not attempt to remove these items unless you are sure it is safe

Removing these items can be difficult, especially if they are wrapped around corals, or have corals growing over them

- *The best approach may be to selectively remove accessible parts and leave the sections that have become overgrown*
- *Strong, sharp scissors cut through fishing line and light nets with less disturbance than a dive knife as they do not require a sawing motion*

8. Which type of marine debris data should you report through the Dive Against Debris® survey?

2. Only underwater debris collected from the bottom with the use of scuba equipment.

9. Why does recording and reporting accurate GPS location of your survey site matters?

Accurate GPS information is essential to reporting data. It puts data in geographical context and helps make sure the survey shows up correctly on Project AWARE's Dive Against Debris® Map.

10. Describe how you can obtain your GPS coordinates for your survey site location with and without a GPS:

    Without a GPS:

    Using the point-and-click map found on the Dive Against Debris® online Data Submission Form found at http://www.projectaware.org/DiveAgainstDebrisData

    Drag the map to find your country

    - *Zoom in on your location*
    - *Locate your survey site and click on the map*
    - *Your Survey Site GPS Coordinates are automatically recorded*
    - *Works best for Survey Sites with adjacent landmarks*

    With GPS:

    If a Survey Site is not close enough to land to locate it accurately using the point-and-click map method above, note the following:

    - *Set your GPS unit to:*
        - *WGS84 Map Datum*
        - *Take readings in decimal degrees*
    - *Boat dives:*
        - *Take your GPS reading while the boat is moored at, or floating directly over, the Survey Site (look out for divers in the water)*
    - *Shore dives:*
        - *Take your reading standing on the foreshore as close to the Survey Site as possible*

11. Fill in the blank: Survey Duration is the _____ time spent by all buddy teams while underwater removing marine debris at the same site.

    Average

12. What should you report for survey duration if two buddy teams with two divers in Team A remove debris for 42 minutes and three divers in Team B remove underwater marine debris for 52 minutes at the same site?

    Buddy Team A *42 minutes*

    Buddy Team B *52 minutes*

    94 minutes combined survey time / 2 buddy teams =

    Survey Duration 47 minutes

13. The five steps needed to record and report findings from a survey dive are:

    Step 1. Weigh

    Step 2. Sort

    Step 3. Record

    Step 4. Dispose

    Step 5. Report

14. Select one of the five steps above and describe it in detail:

    - *See pages 21-27 of the Instructor Guide*

15. Explain how you could join and contribute to the global movement of Project AWARE divers.

    a. My Ocean

    b. Take/teach AWARE Shark Conservation Specialty

    c. Dive Against Debris®

Student Statement: I've completed this Knowledge Review to the best of my ability and any questions I answered incorrectly or incompletely I've had explained to me, and I understand what I missed.

Name _____ Date _____