



Dive Against Debris®

Survey Guide



**A Survey of Underwater Marine Debris
For Scuba Divers**



Dive Against Debris®

Survey 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 and the Ocean Conservancy.

Very sadly Seba passed away in June 2012 during the writing of Version 2.0 of the Dive Against Debris® Survey Guide. Project AWARE hopes the Dive Against Debris® program is seen as a fitting tribute to Seba, who worked tirelessly for a clean ocean.

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Dive Against Debris® Survey Guide

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Dive Against Debris®

- Key Points

Key points for your Dive Against Debris® survey:

-  Choose your Survey Site - P12
-  Set your own bottom time and depth - P13
-  Work with your buddy to remove debris from underwater - P13
-  Weigh all the debris you collected as one item - P17
-  Quickly sort debris by material of construction - P17
-  Check identification of your debris items using the Dive Against Debris® Marine Debris Identification Guide - P18
-  Record your findings on the Dive Against Debris® Data Card, count each debris item as 1 - P18
-  Report ALL data from your survey dive on ONE Data Card – no matter how many divers - P18
-  Carefully record your Survey Duration - P20
-  Submit your data to Project AWARE - P22
-  Regularly repeat your survey at the same site - P12
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-  Start an Action to invite others to join your next survey - P25



Dive Against Debris® is a survey of underwater marine debris created just for divers.

Only divers have the skills to tackle rubbish beneath the ocean surface.

It's Time to Dive Against Debris®!

Don't want your dives to go to waste?

Then it's time to Dive Against Debris®!

Divers have a proud history of removing rubbish from the ocean but despite our best efforts the trash keeps piling up. In response Project AWARE created Dive Against Debris®, a global survey of underwater rubbish in our ocean.

Created by divers for divers, Dive Against Debris® turns your underwater cleanup into a marine debris survey.

The great thing about Dive Against Debris® is the rubbish you remove can no longer harm marine life and marine environments. In addition, the data you report will help drive real change - changes to policies to improve waste management, changes to infrastructure so rubbish is stopped before it reaches the ocean, and changes to behaviours so we waste less and dispose of our waste with care.

Everyone taking part in Dive Against Debris® should read this Survey Guide. It contains important information on choosing your survey site, enjoying a safe survey dive, reporting your data and sharing your actions. By working together, Project AWARE divers are playing a major role in keeping our ocean clean and healthy.

Now grab your mesh bags, fins and data card and take a giant stride.

It's time to dive for change -

It's time to Dive Against Debris®!



The Messy Problem of Marine Debris

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

The Damage Done

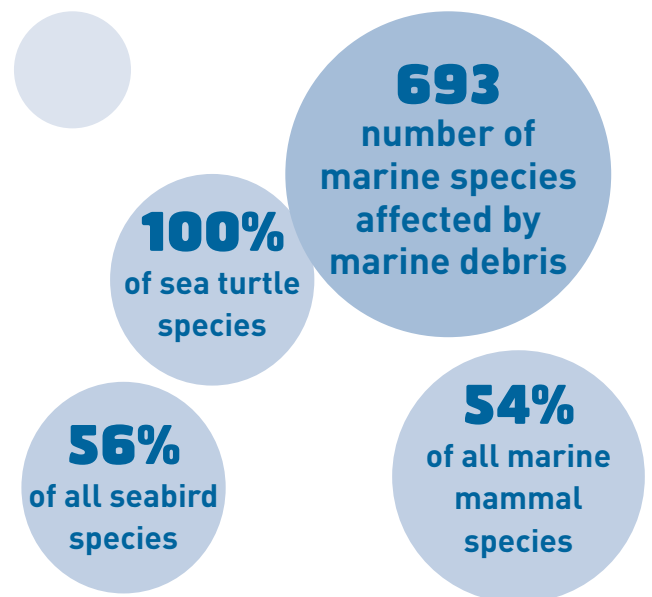
Every year tens of thousands of marine animals and seabirds die from eating or getting tangled up in marine debris - or trash in the ocean. Research has shown that marine debris affects 693 different marine species. All known sea turtle species, over half marine mammal species and almost two thirds of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



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

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

Heavily polluted waterfront



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Fishing net wrapped around coral



© Eco Divers, Malaysia

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.

**Only divers have the skills to
remove and report
underwater marine debris**

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

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 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 by rivers, sewage, storm water or winds; or accidentally lost, including material lost at sea in bad weather. *United Nations Environment Program*



© Norik Sub Brezovica, Slovenia



© Divecorner, Switzerland



© Norik Sub Brezovica, Slovenia

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

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.



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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.



© Wolcott Henry, 2005, Marine Photobank

Public littering is also a major problem. Rubbish dropped even thousands of kilometres/miles inland...



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... will move to the ocean, washed into storm water drains ...



© silentreef.com.au

... 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.



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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.



© Claire Fackler NOAA National Marine Sanctuaries, Marine Photobank



© Nina Kristin Nilsen Marine Photobank



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

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

Gross pollutant trap blocks rubbish from reaching the ocean



**Don't Let Your Dives
Go to Waste!**

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

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 movement of divers is strong. Through Dive Against Debris® divers are playing a major role in keeping our ocean clean and healthy.

70%
of marine
debris sinks to
the seafloor



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 known to have marine debris**
- **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 land-owner 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.



© Camel Dive Club Eco Tribe, Egypt

Plan your Dive Against Debris® survey

Survey Dive Profiles

Plan your Dive Against Debris® survey to be safe and fun while carefully considering 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)
- **Number of Participants**
 - No limits on the number of divers
 - 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 surface, on shore, 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 24



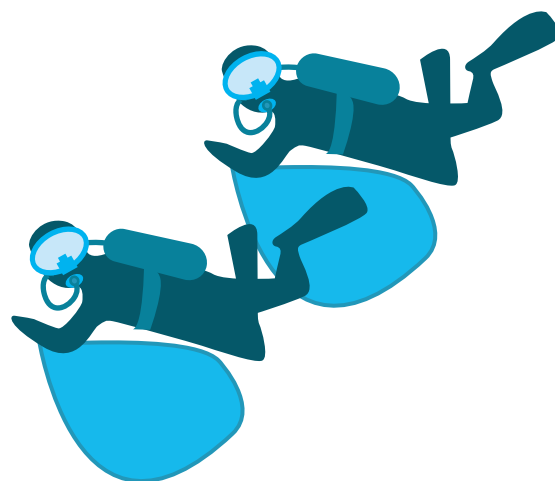
© Calypso Diving Resort, Philippines

Plan your Dive Against Debris® survey

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](#) page 16

- **GPS**
 - See [Survey Site GPS Coordinates](#) page 19
- **Weighing scales**
 - See [Step 1: Weigh](#) page 17
- **Underwater camera**
 - See [Take Pictures to Tell the Story](#) page 15
- **Sharps container**
 - See [Sharp Objects](#) page 14
- **Blank slate and pencil**

Buoyancy

It's particularly important to pay attention to your buoyancy and trim during 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**



© Ocean Reef, Guayaquil, Ecuador

Plan your Dive Against Debris® survey

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 on 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 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 23). 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



© Jupiter Dive Center, Florida, USA

Plan your Dive Against Debris® survey



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:



1. Weigh



2. Sort



3. Record



4. Dispose



5. Report

Working together with your dive buddies will make reporting your debris quick and easy.



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



© Dive Downbelow, Kota Kinabalu, Malaysia

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.

Make your Survey Count



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: III III 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 (2.5 cm/1 inch and smaller) see the **Too Small to Count** box 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



© PADI EMEA & West Country Divers, Bristol, England



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.

Make your Survey Count

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, 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



Quickly count what you found

Sorting and recording your debris happens quickly when everyone works together.

Make your Survey Count

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 meters 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**

Make your Survey Count

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 swimming 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.**



© Kyla Hemmelgarn, Canadive

Make your Survey Count



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.



© Underwater Vision, Utila, Honduras



Step 5: Report

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

English data submissions: Use the online data submission form

All English data must be submitted through the online Data Submission Form:

www.projectaware.org/DiveAgainstDebris

- **To use the form first log in to your My Ocean profile, or create a new My Ocean profile**
- **Follow instructions on the form and refer to this Survey Guide if you need clarification**

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



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.

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 report it to Project AWARE**
- **Carry out repeat surveys at the same site as frequently as you can – for example every month, every other month, or at least once a season**
- **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 coverage about your Dive Against Debris® survey so others learn about the marine debris problem**



© Eco Ban's Diving, Koh Tao, Thailand

Now It's Your Turn

Report Clean Sites

Finding no debris on a dive is 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**

Parachutes underwater! Report your weird finds through Dive Against Debris®



© 13 dreaming dolphins, Russia

Now It's Your Turn

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*.

www.projectaware.org



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Selected References

Laist, D.W., (1997). *Impacts of Marine Debris: Entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records*. In: Coe JM, Rogers DB, editors. *Marine Debris – Sources, Impacts and Solutions*. New York: Springer-Verlag; p. 99-139.

Ryan, P.G., Moore, C.J., van Franeker, J.A. & Moloney, C.L. (2009). *Monitoring the Abundance of Plastic Debris in the Marine Environment*. *Philosophical Transactions of the Royal Society B*. 364:1999-2012.

Dive Against Debris® Resources

Dive Against Debris® Surveys

These resources explain how to complete a Dive Against Debris® survey and provide tools to report your data.

Survey Guide. Your primary source of information on Dive Against Debris®. Contains important information on choosing your survey site, enjoying a safe survey dive, accurately reporting your data and sharing your actions. Required reading for all participants.

Survey Lesson Guides. A PowerPoint version of the Survey Guide. Can be used by any survey leader to explain Dive Against Debris® to other team members or by PADI Professionals to brief survey groups in the classroom.

Marine Debris Identification Guide. A visual reference of the marine debris items. Use to correctly identify debris items when recording your findings.

Data Card. Print the Data Card and use to record the debris items you found while at the Survey Site. For non-English data submissions, email a completed copy of your Data Card to diveagainstdebris@projectaware.org.

Online Data Submission Form. Report your findings to Project AWARE by transferring data from your Data Card to the online Data Submission form - using the link www.projectaware.org/DiveAgainstDebrisData.

Liability Release. All divers should read and sign the Liability Release prior to entering the water.

Surveyor Checklist. This checklist helps you remember everything when planning your survey.

Dive Against Debris® Events

These resources are for dive centres and dive professionals organising a Dive Against Debris® event. Events have additional activities to complement a Dive Against Debris® survey, such as a family fun day, a BBQ lunch, fundraising, promotion and more.

Organise Your Dive Against Debris® Event. Tips on making your event a success, from planning to recruiting an event organiser, attracting participants, gaining promotion, fundraising and more.

Event Poster. Personalise the poster with your event details to gain publicity and attract participants.

Press Release. Gain media coverage to attract participants and change public behaviours that lead to rubbish entering our ocean.

Participant Certificate. People join your event to help protect the ocean, but they will greatly appreciate this recognition of their contribution.

Badges and Banner. Place these badges and banners on your website and in your email signature to promote your action on marine debris.

For all Dive Against Debris® resources go to:

www.projectaware.org/DiveAgainstDebris

Data Card - You and Your Survey

Familiarise yourself with the Dive Against Debris® Data Card to make it easier to record your data after your survey.

Do not report rubbish found on land through Dive Against Debris®

Only include divers collecting rubbish underwater

The max and min depth from which rubbish was removed by any diver - do not record 0 for min depth, see page 21

Carefully calculate your Survey Duration, see page 20

Select this box if you didn't remove any marine debris during your survey

Record debris items that do not fit into one of the marine debris categories

Dive Against Debris® Data Card

Dive Against Debris® is a survey of underwater marine debris. Only report debris you find underwater while on SCUBA through Dive Against Debris®. Survey leaders should record all diver findings for the same individual survey dive, onto one Data Card. Then, for all English data submissions report your data online at www.projectaware.org/DiveAgainstDebrisData, for all other languages, please email your completed Data Card to diveagainstdebris@projectaware.org. See the **Dive Against Debris® Survey Guide** for instructions on using this form.

Survey Date (DD/MM/YYYY)		Survey Site Name		Organisation/Dive Centre	
Survey Site Location (nearest landmark to help verify location, i.e. adjacent road name, nearest city/town, state/province, country)				Number of Participants	
Survey Site GPS Coordinates		Latitude		Longitude	
(Set your GPS Map Datum to WGS84) (Take your readings in decimal degrees)				Survey Duration (in minutes)	
Survey Depth Range (circle one: metres or feet) _____ max _____ min		Area surveyed (circle one: m ² or ft ²)		Total weight of all Debris Collected (circle one: kg or lb) Estimated: _____ OR Measured: _____	
				OR <input type="checkbox"/> Our Survey Site Was Free Of Debris	
Survey Leader Name			Survey Leader Email		
Dominant Substrate (circle one)		Ecosystem (circle one)		Waves (circle one)	
<ul style="list-style-type: none"> • Sand • Silt • Gravel • Rock 		<ul style="list-style-type: none"> • Coral • Seagrass • Other (please describe) 		<ul style="list-style-type: none"> • Mangroves • Seagrass • Other (please describe) 	
				<ul style="list-style-type: none"> Calm (0-0.1 metres/0-4 inches high) Smooth (0.1-0.5 metres/4-19 inches high) Slight (0.5-1.25 metres/19 inches-4 feet high) Moderate (greater than 1.25 metres/4 feet high) 	
Weather Conditions from Previous Week			Did You Find Entangled Animals?		
			Identify animal(s) found Identify debris item		
			Record number of each Entangled Animal		
			Was the animal: dead? <input type="checkbox"/> injured? <input type="checkbox"/> released unharmed? <input type="checkbox"/>		
Are you aware of an event that could have contributed to the debris you have documented? YES <input type="checkbox"/> NO <input type="checkbox"/>					
If so, describe and provide verification – link to the news, etc					
Items of Local Concern					
List the top three debris items you consider a problem in your location and tell us why					
1.					
2.					
3.					
What is the most unusual item found?				Photos <input type="checkbox"/> Entangled Animals, marine debris impacts, items you cannot identify, items you did not remove, etc. See the Survey Guide for more info.	
				Yes <input type="checkbox"/>	
Count all debris items as one, regardless of size. See Too Small to Count in the Dive Against Debris® Survey Guide for counting large quantities of small pieces. Debris items are listed under the main material of construction. List items that do not fit into a category here:					
Other Debris Items (Identify Material)	Tally (### I = 6)				

Data Card – Your Debris Items

Each debris item you find is counted as one, regardless of size. Refer to the Marine Debris Identification Guide for a visual reference to help you place your items in the correct category.

Plastic Materials	Tally (### I= 6)	Metal Materials	Tally (### I= 6)
01. bags: grocery/retail (plastic)		52. aerosol/spray cans	
02. bags: trash (plastic)		53. appliances: household	
03. bait containers/packaging		54. batteries: AA, AAA, C & D, 6V, 9V, etc	
04. balloons		55. batteries: car or boat	
05. balls		56. beverage cans (aluminium)	
06. baskets, crates		57. cans: food, juice, other (tin)	
07. beverage bottles: less than 2 litres (plastic)		58. caps & lids (metal)	
08. beverage bottles: 2 litres or more (plastic)		59. cars & car parts	
09. bottles: bleach, cleaner		60. cups, plates, tableware, dishes (metal)	
10. bottles: oil/lube		61. drums: 55 gallon	
11. buckets, drums & jerry cans: 2 litres or more		62. fishing: sinkers, lures, hooks	
12. buoys & floats (plastic & foamed)		63. fishing: traps & pots	
13. caps & lids (plastic)		64. forks, knives, spoons (cutlery)	
14. carpet (synthetic)		65. gas bottles/cylinder, drums: more than 4 litres	
15. cigarette filters		66. pipes & rebar	
16. cigarette lighters		67. pull tabs: beverages	
17. cigar tips		68. scuba weights	
18. containers: fast food, lunch boxes & similar		69. strapping bands (metal)	
19. cotton bud sticks		70. wire, wire mesh, barbed wire	
20. cups, plates, forks, knives, spoons (plastic)		71. wrappers (foil/metal)	
21. diapers/nappies		72. metal fragments	
22. fishing: line		Rubber Materials	
23. fishing: lures, rods/poles		73. condoms	
24. fishing: nets & pieces of nets		74. gloves (rubber)	
25. fishing: traps & pots		75. inner-tubes & rubber sheets	
26. foam insulation & packaging		76. rubber bands	
27. food wrappers (plastic)		77. tires/tyres	
28. furnishings (plastic)		78. rubber fragments	
29. gloves (latex)		Wood Materials	
30. light sticks/cyalumes		79. fishing: traps & pots	
31. mesh bags: fruit, vegetable, shellfish		80. furnishings (wood)	
32. pipes (plastic/PVC)		81. lumber (processed or cut/milled wood)	
33. rope (plastic/nylon)		82. pallets	
34. scuba & snorkel gear, masks, snorkels, fins		83. wood fragments	
35. sheeting: tarpaulin, plastic sheets, palette wrap		Cloth Materials	
36. six-pack rings, ring carriers		84. bags (burlap/hessian)	
37. strapping bands (plastic)		85. bags (cloth)	
38. straws, stirrers		86. gloves (cloth)	
39. syringes (plastic)		87. rope & string (cloth)	
40. tampon applicators		88. towels, rags	
41. tobacco packaging & wrappers		89. cloth fragments	
42. toothbrushes		Paper/Cardboard Materials	
43. plastic fragments		90. bags (paper)	
Glass & Ceramic Materials		91. cardboard: packaging & cartons	
44. beverage bottles (glass)		92. paper: books, newspapers, magazines, etc	
45. buoys (glass)		93. paper/cardboard fragments	
46. cups, plates, tableware, dishes (glass & ceramic)		Mixed Materials	
47. fluorescent light tubes		94. bricks, cinderblocks, chunks of cement	
48. jars: food (glass)		95. clothing	
49. light globes: bulbs, etc		96. computer equipment & other electronic devices	
50. syringes (glass)		97. fireworks	
51. glass & ceramic fragments		98. shoes, flip flops, sandals, tennis, etc	
		99. tampons	
		100. toys	

Record small pieces of debris under fragments for the material of construction

See page 18 of the Survey Guide for handling large quantities of small pieces

Having trouble identifying a debris item?
Refer to the **Dive Against Debris® Marine Debris Identification Guide**
for images of all debris items.

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 _____