



Protecting Our Ocean Planet -
One Dive at a Time

Dive Against Debris

Self Study Guide

Test Phase Version

Please email your feedback about this tool to

DiveAgainstDebris@projectaware.org

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In This Guide:

1. Why Dive Against Debris?

The marine debris problem and how you can help

2. Before You Dive

The data you will collect and materials you will use

3. During the Dive

Completing your survey dive

4. After the Dive

Sort, record, dispose and report



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One Dive at a Time*

Section 1

WHY DIVE AGAINST DEBRIS?

Section 1

Why Dive Against Debris?

In Section 1 we introduce the marine debris issue and explain how divers are uniquely positioned to help

- What is Marine Debris?
- The Problem of Marine Debris
- Marine Debris Impacts
- Marine Debris Sources
- How Can We Fix This Mess?
- What Is Dive Against Debris?
- Dive Against Debris in a Nutshell
- How Will Your Participation Help?
- How Can Data Make the Ocean Cleaner?

What is Marine Debris?

Marine debris is our waste in the water.

Marine debris can come from great distances inland. It reaches even the most remote places of the world's ocean. It floats on the surface, ends up on beaches, and sinks to the ocean floor. It clogs mangroves and smothers corals. It is responsible for the death of thousands of marine animals and seabirds every year.

Marine debris is any **manufactured** or **processed solid material** that, regardless of size, finds its way into the marine and coastal environment. These include materials **discarded into the sea or on beaches**; **brought indirectly to the sea** by rivers, sewage, storm water, or winds; **accidentally lost** or **deliberately discarded** at sea; or deliberately left by people on **beaches** and **shores**.

Divers can play a major role in helping fix this problem.

The Problem of Marine Debris



The Problem of Marine Debris

A global problem with local solutions and a local problem with global solutions.

- **Plastics in the ocean around the world can be prevented by**
 - local regulation of manufacturing, use, recycling and proper disposal and
 - changes in our behavior and choices we make
- **Lost and discarded fishing gear that smothers local coral reefs can be prevented by**
 - international fishing policies that regulate gear management

Need to tackle the marine debris problem and seek solutions at each of these levels to reduce its devastating impacts...

Marine Debris Impacts

Marine debris kills marine life and seabirds.

Debris fills stomachs so animals cannot digest food



©Claire Fackler/Marine Photobank

Debris wraps around fins, flippers and wings so they cannot move



©Projeto Tamar Brazi Marine Photobank

Marine Debris Impacts

Marine debris damages habitats, costs local economies and puts human health at risk.

Debris destroys coral reefs
and seagrass beds



Debris makes beaches unhealthy
to visit and ugly to see



Marine Debris Sources

Marine debris comes from many sources. We can prevent it with more care, adequate policies, and waste management practices.

It moves from land:

- No waste facilities
- Public littering
- Commercial sources
- Building construction waste
- Landfill escapes

It is discarded or lost at sea:

- Thrown overboard from ships
- Commercial and recreational fishing gear
 - Accidentally lost
 - Purposefully discarded or abandoned

How does land trash become marine debris?

- Rain washes waste into rivers, streams and drains that transport it to the ocean
- Wind blows trash a long distance

How Can We Fix This Mess?

It will take many changes to fix the marine debris problem.

- Changes in **policies** that drive **individuals, businesses, and governments** to better manage waste
- Changes in **infrastructure** to prevent rubbish from getting into the ocean
- Changes in attitudes and behaviors so that we can **rethink, reduce, reuse, and recycle** our way out of this mess



Small actions all over the world add up to a big difference

What is Dive Against Debris?

AWARE divers have a proud history of completing beach and underwater cleanups. Dive Against Debris turns your cleanup into a data driven dive for change. Your actions will lead to a permanent reduction in marine debris.

- Dive Against Debris is an underwater survey of marine debris - the first one written specifically for volunteer divers.
- Only divers have the skills to collect this information.
- Divers remove and report online marine debris they find - anytime and anywhere
- Data you report will
 - expand our understanding of the impacts of marine debris on underwater environments
 - help drive changes in how waste is managed, both locally and globally.

Dive Against Debris in a Nutshell

Here is a brief overview of how Dive Against Debris works.

- Buddy teams remove debris from underwater
- Debris items grouped by material of construction
- Consult the Dive Against Debris ID Guide for reference photos
- You choose your survey area, dive time and depth limits
- After the dive record your findings on the Data Card
- Each separate item counts as 1 entry
- Weigh as one item all the debris you collected
- Combine ALL participant's data onto ONE survey Data Card
- Report your data online at www.projectAWARE.org

How Will Your Participation Help?

This is how you make a difference with Dive Against Debris.

- **Inform improvements in waste management**
 - The data you report informs and strengthens demands for improved infrastructure and policies that prevent trash from entering the ocean
- **Make the ocean cleaner and safer for marine life**
 - The underwater debris you remove will no longer damage habitat. Fewer marine animals will die from swallowing or becoming entangled in marine debris.
- **Support local leaders to reach local marine debris solutions**
 - Project AWARE will support local leaders who work in their communities to make real changes that stop rubbish from entering the ocean. Your involvement supports these leaders. Or become a local leader yourself!
- **Tell others about the issues and change their behaviours**
 - There would be a lot less marine debris if people were more careful with their waste. Tell everyone what you have learnt and what you see underwater. Help drive changes in people's behaviors to reduce, reuse and recycle our way to an ocean free of marine debris.

How Does Data Make the Ocean Cleaner?

To change policies governments and businesses need to be convinced that marine debris is a problem before they will act. The data from your Dive Against Debris survey will help convince them.

- Here is a simplified example of how your data could lead to real changes:
 - Supermarkets and bag manufacturers resist regulations, such as charges or bans, on single use plastic shopping bags.
 - Your data can help show that these cause real problems in real places
 - Project AWARE leaders work with local stakeholders including community leaders, businesses and other conservation groups on a solution.
 - Improved management of single use plastic shopping bags is implemented through local, regional or even national regulations.

As divers we all know plastic bags cause problems in the water, but without data no action will be taken.



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Section 2

BEFORE YOU DIVE

Section 2

Before You Dive

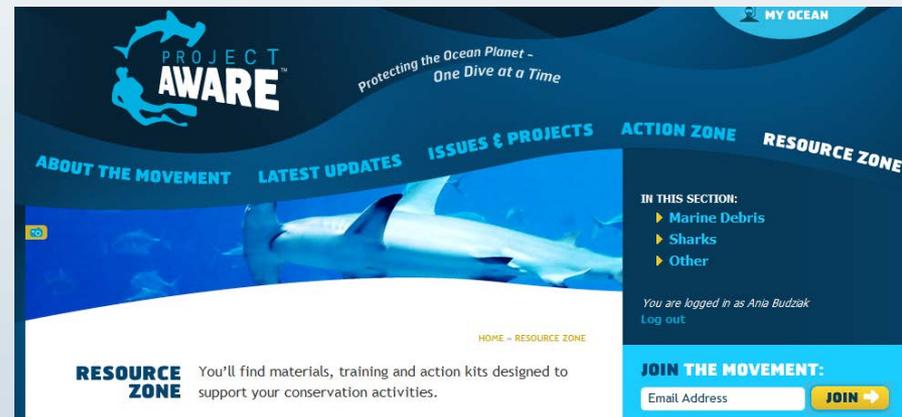
In Section 2 we look at the Dive Against Debris survey; the items we are looking for and how to prepare for your survey dive.

- Dive Against Debris Resources
- The Debris Items You Are Looking For
- Recording Your Findings
- Selecting Your Survey Site
- Your Survey Dive
- Your Survey In Detail
- Completing your Data Card
- Other Considerations
- Gear and Materials
- Use of Photography

Dive Against Debris Resources

Before you continue make sure you can access these resources. You can find these in the Resource Zone of www.projectaware.org

- **Dive Against Debris Data Card**
 - This is the sheet on which you enter your data after your survey dive.
- **Dive Against Debris ID Guide**
 - This guide contains pictures of all the marine debris items you are looking for.
 - Consult this guide regularly and when you need to identify debris items.



Debris Items You Are Looking For

Dive Against Debris is the first survey written specifically for volunteers to tackle underwater marine debris. Your survey will tell us about all the major debris items currently fouling marine environments.

- **Grouped by material of construction**
 - Items are listed by their main material of construction, and then alphabetically.
- **9 material categories:**
 - Plastic, Glass & Ceramic, Metal, Rubber, Wood, Cloth, Paper/Cardboard, Mixed, Other (any item that cannot be placed in another category)



Recording Your Findings

Take care with recording your findings, your data is important information.

- Each item you find counts as an entry of 1 on your Data Card.
- If you pick up a plastic fork, turn to **Plastic** on your Data Card and then look down the list to find fork.
- Enter a finding of 1.
- Repeat for all items.
- Use a tally system that works for you, for e.g. $\text{HHH I} = 6$
- Add your findings for each item and enter the total.



Selecting Your Survey Site

Carefully choose your survey site using these considerations.

- **Join an existing survey**
 - Check www.projectaware.org to join an existing survey is in your area.
- **Choose a site you can return to regularly**
 - The more often you collect data from the same site, the stronger your results.
- **Choose a site known to have marine debris**
- **Make any dive a Dive Against Debris**
 - Report the debris you find on any dive



©Honduras Mayan Divers, Roatan

Selecting Your Survey Site

Selecting your survey site *continued.*

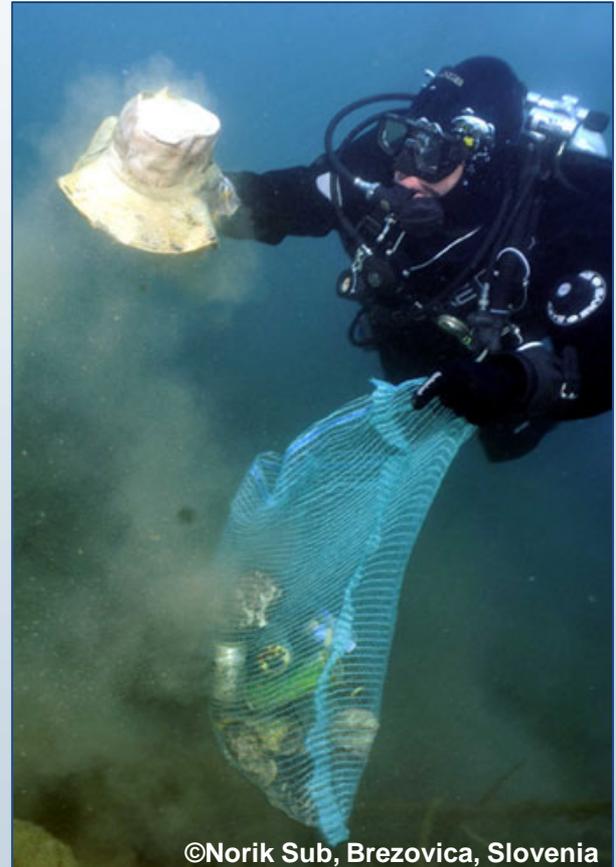
- **Report clean sites**
 - Finding no debris is an important finding as it can help identify when new problems arise.
- **Choose a site within your dive skills and experience.**
- **Seek permission to dive**
 - Check if you need permission to access the dive site from the land-owner or the authorities.



Your Survey Dive

Safety is your main consideration during your survey dive.

- **No set survey time or depth limits**
 - Dive within your and your buddy's skills and experience.
 - Stay within the limitations of your dive table or dive computer
- **No set area to be covered.**
 - Use dive flags to mark your area.
- **No limits on number of participants**
 - Work in buddy teams.
 - Report all divers' findings from the same survey on one Data Card.



©Norik Sub, Brezovica, Slovenia

Your Survey in Detail

After your dive you will record your findings on the Dive Against Debris Data Card.

- Information about you and your survey
- Information about your survey site
- Amounts and types of debris found
- Anecdotal information

| Dive Against Debris | | | Data Card |
|---|---|--|--|
| Survey Date (day/month/year) | Dive Site Name | Organisation/Dive Centre | |
| Dive Site Location (post/zip code, nearest city/town, state/province, country) | | | Survey Depth Range (circle one: meters or feet) |
| Survey Site GPS Coordinates (latitude, longitude) | | | |
| Survey Duration (in minutes) | Dive Site Area Surveyed (circle one: m ² or ft ²) | Total Weight of all Debris Collected (circle one: kg or lbs) Estimated: _____ OR Measured: _____ | |
| Circle one: Survey or Buddy Team Leader Name | | Circle one: Survey or Buddy Team Leader Email | |
| Number of Participants | Weather Conditions from Previous Week | Ecosystem | Dominant Substrate |
| Wave Conditions | Did You Find Enlarged Animals? <input type="checkbox"/> YES <input type="checkbox"/> NO | If YES, identify animal(s) found _____ If YES, identify debris item using the list provided _____ | |
| Are you aware of an event that could have contributed to the debris you have documented? <input type="checkbox"/> YES <input type="checkbox"/> NO If so, describe and provide verification—link to the news, etc. | | | |
| Additional anecdotal information on large (e.g. fishing net) or numerous debris (e.g. pile of construction waste, tires, etc.) applicable | | | |
| What is the Most Unusual Item Found? | | | Photos: <input type="checkbox"/> YES <input type="checkbox"/> NO If yes, be sure to submit and tag your photos online |
| INSTRUCTIONS FOR COMPLETING SURVEY FORM | | | |
| Each buddy team should record every debris item they collect. For ease of use items are listed under the main material of construction. Survey leaders should compile and tally all diver findings into one survey before submitting the results online at www.projectaware.org | | | |
| Other Debris Items (Identify Material) | | Debris Tally (max = 6) | |
| | | | |
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| | | | |

Data Card: About You

Information about you and your survey.

- **Survey or Buddy Team Leader Email**
 - Someone we can contact if we need to clarify your data.
- **Survey duration (in minutes)**
 - Time spent removing debris underwater.
 - Report time for a buddy pair, do **not** report combined time of both divers.
 - Exclude time for surface swims and ascents/descents.
 - Report the average time for all buddy teams if compiling information from multiple divers.
- **Number of participants**
 - Total number of divers collecting rubbish underwater.
 - Count individual divers, not buddy teams.
 - Do not include surface only participants.

Data Card: About Your Survey Site

Information about your survey site

- **Location of Your Survey Site - Point and Click**
 - Use the convenient map found when uploading your survey information
 - Zoom in to your location, locate your site and click on the map
 - Your site location is automatically recorded
 - Works best for sites with adjacent landmarks
- **Location of Your Survey Site - GPS**
 - Make sure your GPS unit is set to the correct map datum: WGS84
 - Set your GPS to take readings in decimal degrees
 - **Boat dives:** take your GPS reading while the boat is moored, or with the boat directly over the dive site (beware divers in the water).
 - **Shore dives:** take your reading standing on the beach, rocks, etc as close to the dive site as possible.
- **Dive site area surveyed (square meters/feet)**
 - Estimate the area you have surveyed (square meters or square feet)
 - This builds an understanding of the density of marine debris at the site.

Data Card: Taking a Closer Look

Information about your survey site

- **Location of Your Survey Site - Additional Information**
 - Include any information that will help verify the position of your survey site.
 - Post/zip code, nearest city/town, state/province, country, nearby landmarks (eg, nearby park, memorial statue, adjacent street names etc).
- **Type of marine ecosystem**
 - Define the marine ecosystem in which your survey takes place. See <http://www.nceas.ucsb.edu/globalmarine/ecosystems> for full list.
 - For the purposes of this survey use: coral reef, rocky reef, kelp, mangroves, seagrass, or other (please describe)

Data Card: Taking a Closer Look

Information about your survey site

- **Dominant substrate**
 - Describe the seafloor that covers the greatest area of your survey site.
 - Use sand, silt, gravel, rock, coral, seagrass, or other (please describe)
- **Wave Conditions**
 - Report wave conditions using the following characteristics:
 - **Calm** (glassy to rippled) for waves **0 – 0.1 meter** high
 - **Smooth** (wavelets) for waves **0.1 - 0.5 meter** high
 - **Slight** for waves **0.5 -1.25** meter high
 - **Moderate to rough** for wavers **greater 1.25** meters

Data Card: Additional Information

Use these fields to provide more detail about what you found.

- **Weather conditions from previous week**
 - Report strong winds, storms, heavy rain or any weather event that may have moved debris onto or away from your site.
- **Other events that have taken place that could have contributed to the debris that you found?**
 - Briefly describe and if possible provide a link to a news story etc.
 - Hurricanes, building demolition, major festival or street celebration, fireworks display, etc.
- **Additional information on large or numerous debris**
 - For example fishing nets, dumped construction waste, pile of car tires etc.

As we have seen marine debris comes from many sources. The additional information you provide may help build a better understanding of what you found and how it got there.

Gear and Materials: Gear

Having the correct gear will make your dive safe and more enjoyable

- **Required gear**
 - **Mesh bags:** mesh lets the water flow out
 - **Dive tool/knife**
 - **Gloves:** when permitted underwater to protect your hands, kitchen or garden gloves are ok to use
 - **Sharps container:** take great care handling sharps, leave in place if there is a risk of personal injury
- **Optional gear**
 - **Scissors:** easily cut fishing line and smaller nets
 - **GPS:** record your site location, see *Information About Your Survey Site*
 - **Weighing scales**
 - weigh all your debris as one item
 - estimate if scales not available, use of scales highly recommended
 - **Underwater camera:** optional, see below for more info

Use of Photography

Taking photos is not a requirement, but your marine debris photos are worth a 1000 words

- **Your photos will:**
 - Help identify types of marine debris
 - Add to a much needed library of marine debris images
 - Illustrate the scale of the problem including impacts on habitats and marine life
 - Document items that you do not remove
 - Show the non-divers and decision makers what debris does underwater



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Section 3

DURING THE DIVE

Section 3

During The Dive

In Section 3 we examine in-water techniques for completing your Dive Against Debris survey.

- Before You Enter The Water
- General Considerations
- Things To Leave Behind
- Underwater Photography

Before You Enter The Water

It's a golden rule that works everywhere: plan your dive and dive your plan!

- **Assign and discuss your underwater roles with your buddy, for example:**
 - Buddy 1: carries mesh bag
 - Buddy 2: removes items / takes photographs
- **Both divers in a buddy team are responsible for normal dive monitoring**
- **Review communications on land**
- **Streamline, share and secure gear as needed:**
 - Camera, dive knife/tool, scissors, mesh bags, slate

General Considerations

Take a cautious approach to your survey, move slowly around the site collecting rubbish. Remember all your safe diving practices.

- Work with your buddy
- Do not overfill your mesh bag
- Do not use your BCD as a lifting device
- Do not use lift bags without appropriate training/experience
- Monitor your dive profile and survey profile
- Remain within your survey area



Things To Leave Behind

After a period of time marine debris can become so overgrown with marine life it becomes part of the environment. In other instances it can provide a home for marine creatures.

In these cases make a judgment call on whether to remove an item or leave it in place. Sometimes it is worth a small amount of short-term disturbance to remove an item, other times it is preferable to leave the item behind. Points to consider when deciding to remove such items are:

- **Safety is your primary consideration. In some cases you should not attempt to remove an object:**
 - Do not touch or remove weapons or ammunition. Inform the local police what you found after the dive.
 - Items containing chemicals that can't be removed safely
 - When in doubt, leave an object behind.

Things To Leave Behind

- **Material of construction**
 - A glass bottle or a steel can will not cause much harm to the environment so it's OK to leave if removal will disturb marine life.
 - Plastic items, foam insulation, packaging material, boat buoys and other similar items are dangerous even after becoming encrusted with marine life. They should be removed.
- **Contents of the item**
 - If an item contains chemicals that may leak and cause harm it should be removed no matter what might be living on it.
 - Included in this category are car, truck and boat batteries; oil and fuel drums; chemical containers; paint cans; fuel filters and; electronic equipment.
 - If you can't remove it safely, mark its location and report it.

Things To Leave Behind

- **Nets, fishing line and rope**
 - Removing line and nets can be dangerous. Do not attempt unless it's safe to do so and you have sufficient support, training and safety procedures in place.
 - Even when safe, removing these items can be difficult. Especially when they are wrapped around corals, or have corals growing over them.
 - The best approach may be to selectively remove accessible parts of the item, and leave the sections that have become overgrown.
 - Strong, sharp scissors are a good way to cut through fishing line but a sharp dive knife is your best bet for thicker rope and nets.
- **Sharp Objects**
 - Any object that can cause a puncture wound such as syringes, broken bottles and metal cans.
 - Use a dedicated container for sharps
 - Before removing carefully consider the safety of all participants.

Underwater Photography

Taking photos is not mandatory but photos are very useful when teaching people about the problem.

- **Take underwater pictures of:**
 - Debris in its original position to show its location or impacts it may have caused
 - Divers in action
- **Do not spend long taking photos**
 - A quick well framed snap is OK
- **Follow AWARE's 10 Tips for Underwater Photographers**
 - Download your copy
www.projectaware.org/resources





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Section 4

AFTER THE DIVE

Section 4

After The Dive

In Section 4 we look at the most important part of your Dive Against Debris activity: reporting your data.

- Sorting Debris
- Recording What You Have Found
- Disposing
- Reporting Your Data
- Last, but not least
- It's Your Turn Now

Sorting Debris

Reporting your data is critical to drive changes that prevent rubbish from entering the water. Working together will make reporting your data quick and easy.

- Sort your debris into piles under the 9 material categories
 - Plastic
 - Glass & Ceramic
 - Metal
 - Rubber
 - Wood
 - Cloth
 - Paper/Cardboard
 - Mixed Materials
 - Other, any item that cannot be placed in another category



©Kenna Eco Diving, L'Escala, Spain

Recording What You Have Found

Record each item as 1 under its appropriate group. Add together all the items under that group to reach the figure you will report.

- **Find your debris item under its material category.**
 - If you have found a plastic fork, look under the **Plastic** category until you find **cups, plates, forks, knives, spoons**
 - Mark this box as 1
 - If you find a second fork mark this box as 2
- **Combine all diver's findings on one Data Card**
 - One buddy pair on your survey or ten buddy pairs - you only submit one Data Card
- **Weigh all the debris found on your survey as one item to reach a total weight**
 - Estimate the weight if scales are not available

Recording What You've Found

Take photos of your rubbish on the surface to record your achievements and to help us understand your findings.

- **Take photos on the surface of:**
 - The total of all the debris you found
 - Weird, large, or unidentifiable items (if possible provide a scale reference i.e. a ruler or snorkel)
 - People counting and recording their find
 - Groups with bags of rubbish
- **Use your photos:**
 - Upload them with your data
 - Post them to your My Ocean page
 - Gain media about marine debris issues
 - Post them to your Facebook site to educate others

Disposing

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

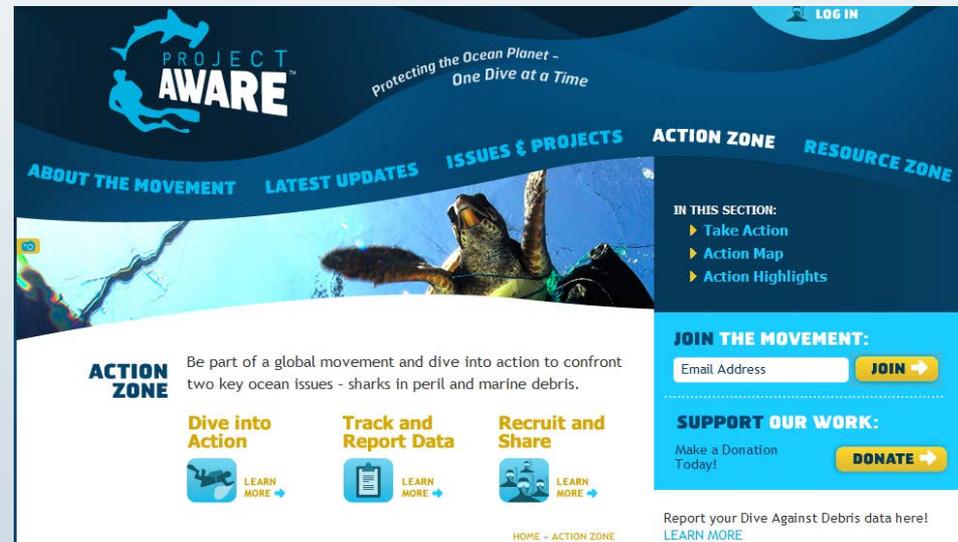
- Sort for recycling if available
- Dispose of correctly
 - Small amounts can be placed in a bin if available
 - If leaving for collection by local authorities make sure bags are securely tied
 - Ask a volunteer to drive it to the local waste collection site.



Reporting Your Data

Your entire Dive Against Debris activity has been leading up to this - reporting your data online

- To report your data you first need to create a user profile.
 - Click on **Log In**, top right hand corner of the Project AWARE website.
- Once logged on simply click on any **REPORT DATA** link



The screenshot shows the Project AWARE website homepage. At the top, the Project AWARE logo is on the left, and the tagline "Protecting the Ocean Planet - One Dive at a Time" is on the right. A "LOG IN" button is in the top right corner. Below the header is a navigation bar with links: "ABOUT THE MOVEMENT", "LATEST UPDATES", "ISSUES & PROJECTS", "ACTION ZONE", and "RESOURCE ZONE". The main content area features a large image of a sea turtle. Below the image, there are three columns: "ACTION ZONE" with the text "Be part of a global movement and dive into action to confront two key ocean issues - sharks in peril and marine debris.", "Dive into Action" with a "LEARN MORE" link, "Track and Report Data" with a "LEARN MORE" link, and "Recruit and Share" with a "LEARN MORE" link. On the right side, there is a "JOIN THE MOVEMENT:" section with an "Email Address" input field and a "JOIN" button, and a "SUPPORT OUR WORK:" section with "Make a Donation Today!" and a "DONATE" button. At the bottom right, there is a link to "Report your Dive Against Debris data here! LEARN MORE".

Reporting Your Data

Easy to follow prompts guide you through the data submission process.

[Make a Donation Today!](#)

Create Debris Data

⊕
Click the gray tabs on the left to reveal more survey options.

Dive Site Name: *

⊕
- ▶ [Input format](#)

| | |
|--|--|
| Survey Information | Add information about the dive site. |
| Dive Site Area Surveyed | Survey Date: * |
| Conditions | <input style="width: 100%; height: 20px;" type="text"/> |
| Total Weight of all Debris Collected | Format: 06/06/2011 |
| Group Information | Organisation/Dive Centre: |
| Plastic Materials | <input style="width: 100%; height: 20px;" type="text"/> |
| Glass & Ceramic Materials | ⊕ Dive Site Location |
| Metal Materials | ⊕ Enter the nearest city/town, or nearest landmark. We will use this information to confirm the GPS coordinates given, so please be as specific as possible. |
| Rubber Materials | Location Name: <input style="width: 100%; height: 20px;" type="text"/> |
| Wood Materials | e.g. a place of business, venue, meeting point |
| Cloth Materials | City: <input style="width: 100%; height: 20px;" type="text"/> |
| | State/Province: <input style="width: 100%; height: 20px;" type="text"/> |

Last, But Not Least...

A few final steps will add value to your contribution.

- Update your My Ocean profile at www.projectaware.org/myocean
- **Help improve the program**
 - Take a few minutes to share with us your feedback on your Dive Against Debris experience
 - Your comments will help us improve the program
 - Send your comments and suggestions to DiveAgainstDebris@projectaware.org



It's Your Turn Now

Now you are ready to join AWARE divers around the world tackling the marine debris issue. Together we are making a real difference.

- Go complete a Dive Against Debris survey!
- Report your data and tell us how it went
- Do it again
- Take an action to prevent, reduce, and manage waste in your home or your community
- Share what you do to prevent marine debris with others on www.projectaware.org/myocean
- Help us improve the Dive Against Debris program. Email your suggestions to us at DiveAgainstDebris@projectaware.org



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**Thank You For Protecting Our
Ocean Planet**