

Office of National Marine Sanctuaries  
National Oceanic and Atmospheric Administration



NATIONAL  
MARINE  
SANCTUARY  
FOUNDATION



NATIONAL MARINE  
SANCTUARIES

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FLORIDA KEYS

Office of National Marine Sanctuaries  
National Oceanic and Atmospheric Administration



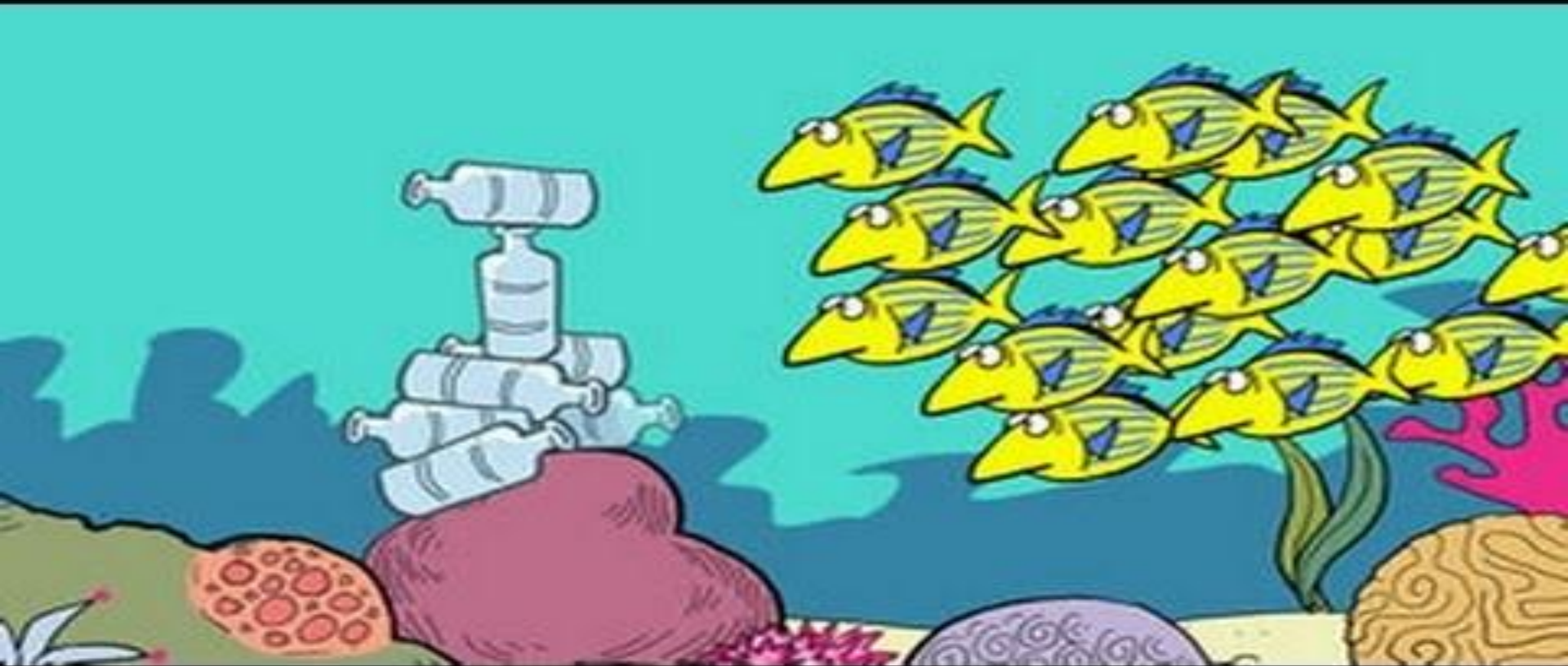
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NATIONAL MARINE  
SANCTUARIES



GOAL  
CLEAN  
SEAS  
FLORIDA KEYS



**Two Minutes on Oceans w/ Jim Roomey: Marine Litter**  
*Created by Jim Toomey and the United Nations Environment Program (UNEP)*

# What is **Marine** **Debris?**

# DON'T YOUR TO



# TEACH TRASH SWIM

## HOW LONG DOES TRASH LAST?



© 2004 Reef Relief. Special thanks to Dorothy Lee Witwer and George Witwer. Concept, graphics design, and photos by Joel Sidle. Reef photo by Craig Quirle. Source of information: Bureau of Land Management, Oregon Department of Environmental Quality, Southern California Water Research Project and NABAS - the Balloon Association.

**Reef World**  
& Reef Relief Gift Store  
201 William Street #5  
Key West, FL

**REEF RELIEF**  
Post Office Box 430, Key West, Florida 33041  
reef@bellsouth.net tel (305) 294-3100  
[www.reefrelief.org](http://www.reefrelief.org)

Captain Roland Roberts House  
Environmental Center  
Parliament Street, New Plymouth  
Green Turtle Cay, Abaco, Bahamas  
tel 242-365-4014



### RAIN & WINDS

*Rain and wind can sweep debris into nearby waterbodies.*

### LITTERING

*Intentional littering or improper disposal of trash can cause marine debris.*

### STREAMS & STORM DRAINS

*Streams and storm drains can carry debris directly into the ocean or Great Lakes.*

**Humans**  
are the source of all  
marine debris

Plastics are the most common form of marine debris. They can come from a variety of land- and ocean-based **SOURCES**. **ENTER THE WATER** in many ways, and **IMPACT** the ocean and Great Lakes. Once in the water, plastic debris never fully biodegrades.

### COMMONLY FOUND PLASTICS



Cigarettes Butts



Food Wrappers



Beverage Bottles



Straws



Caps & Plates



Bottle Caps



Single Use Bags

### HOW TO HELP?



Reduce



Reuse



Recycle



DISPOSE OF WASTE PROPERLY no matter where you are.



GET INVOLVED and participate in local cleanups in your area.



REMEMBER that our land and sea are connected.

# PLASTICS IN THE OCEAN



## ENTANGLEMENT

Marine life can get caught and killed in derelict fishing nets and other plastic debris.



## MICROPLASTICS

Microplastics are small plastics less than 5mm. They can come from large plastics breaking down, or can be produced as small plastics such as microbeads, which can be found in products such as toothpaste and face wash.



## BOATS/NETS

Fishing gear can become marine debris when it is lost or abandoned.



## INGESTION

Animals can easily mistake plastic debris for food.



## RAIN & WINDS

Rain and wind can sweep debris into nearby waterbodies.

## LITTERING

Intentional littering or improper disposal of trash can cause marine debris.

## STREAMS & STORM DRAINS

Streams and storm drains can carry debris directly into the ocean or Great Lakes.



<https://marinedebris.noaa.gov/>



# TRASH TALK: Impacts of Marine Debris

*Created by NOAA's Ocean Today*



# IMPACTS OF MARINE DEBRIS



## INGESTION

Animals mistakenly eat plastic and other debris.



## ENTANGLEMENT & GHOSTFISHING

Marine life gets caught and killed in ghost nets, trapped in derelict gear, and entangled in plastic bands and other marine debris.



## HAZARD TO NAVIGATION

Marine debris can be difficult to see in the ocean if it's floating below the water's surface. Encounters with large items at sea can result in costly vessel damage, either to its structure or through a tangled propeller or obstruct mechanical gears.



## HABITAT DAMAGE

Heavy marine debris crushes sensitive habitat, such as coral reefs and sea grass.



## NON-NATIVE SPECIES

Marine debris transports alien and invasive species from one region to another.



## ECONOMIC COST

Communities lose a lot of money cleaning up trash, as well as the economic benefit of beach tourism and recreation.



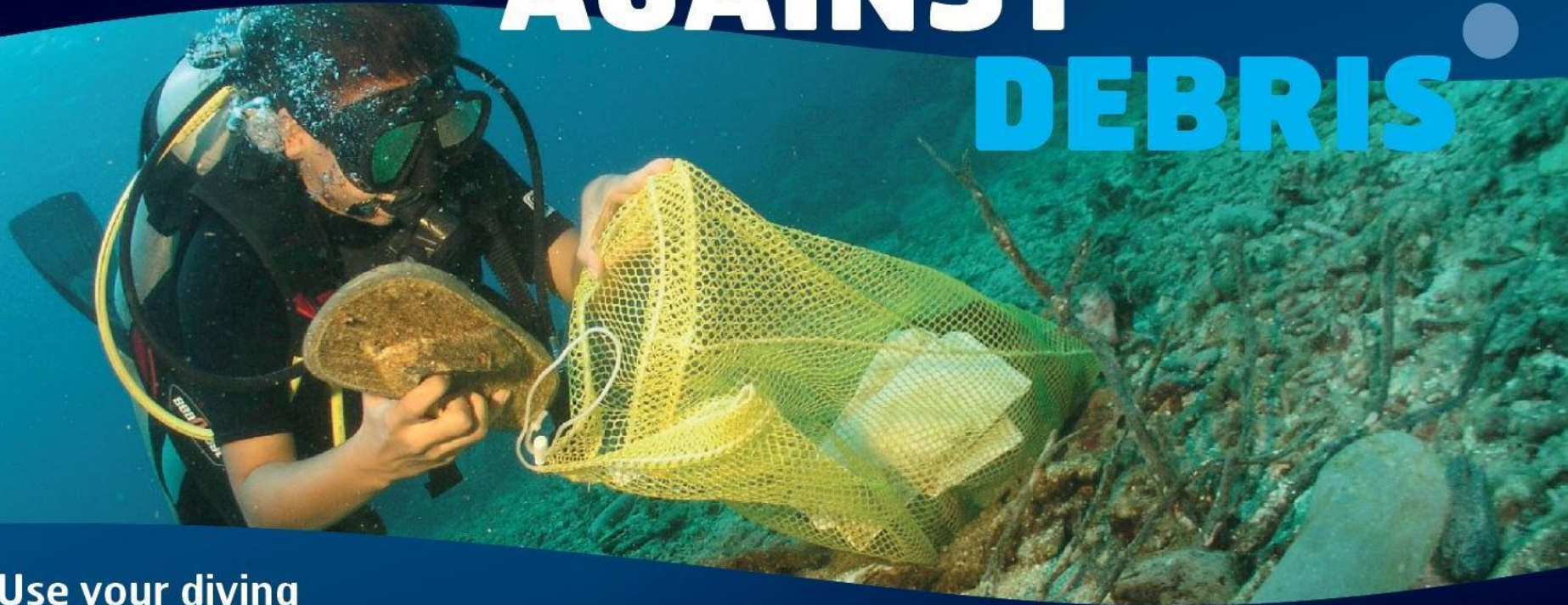
The background is a solid light blue color. It features several stylized, flat-design elements: a few white birds in flight, several light blue clouds of various shapes, and a silhouette of a city skyline on the right side. The city includes several tall buildings and a small green hill with two palm trees in the foreground. The title text is centered in the upper half of the image.

# THE UGLY JOURNEY OF OUR TRASH

**Marine Debris: The Ugly Journey of Our Trash**

*Created by Project Aware*

# DIVE AGAINST DEBRIS



Use your diving  
to help keep our ocean free of rubbish  
and stop plastics from harming marine animals.

**PROJECTAWARE.ORG**



# Top 10 Trash Items Found in the Ocean

More than **one million pieces** removed & reported through Dive Against Debris®



**PROJECTAWARE.ORG**  
Where Conservation Meets Adventure™

\*Data as of March 2018

# Removing Marine Debris in Florida Keys National Marine Sanctuary



# NATIONAL MARINE SANCTUARY SYSTEM



# The Florida Keys National Marine Sanctuary boundaries encompass the entire Florida Keys

Special permits are required and rules must be followed to remove marine & trap debris within FKNMS



# Care must be taken to minimize further damage to the fragile sanctuary habitats







Photo: Eric Raslich/NOAA



Photo: Rainbow Reef Dive Center



Photo: NOAA Marine Debris Program

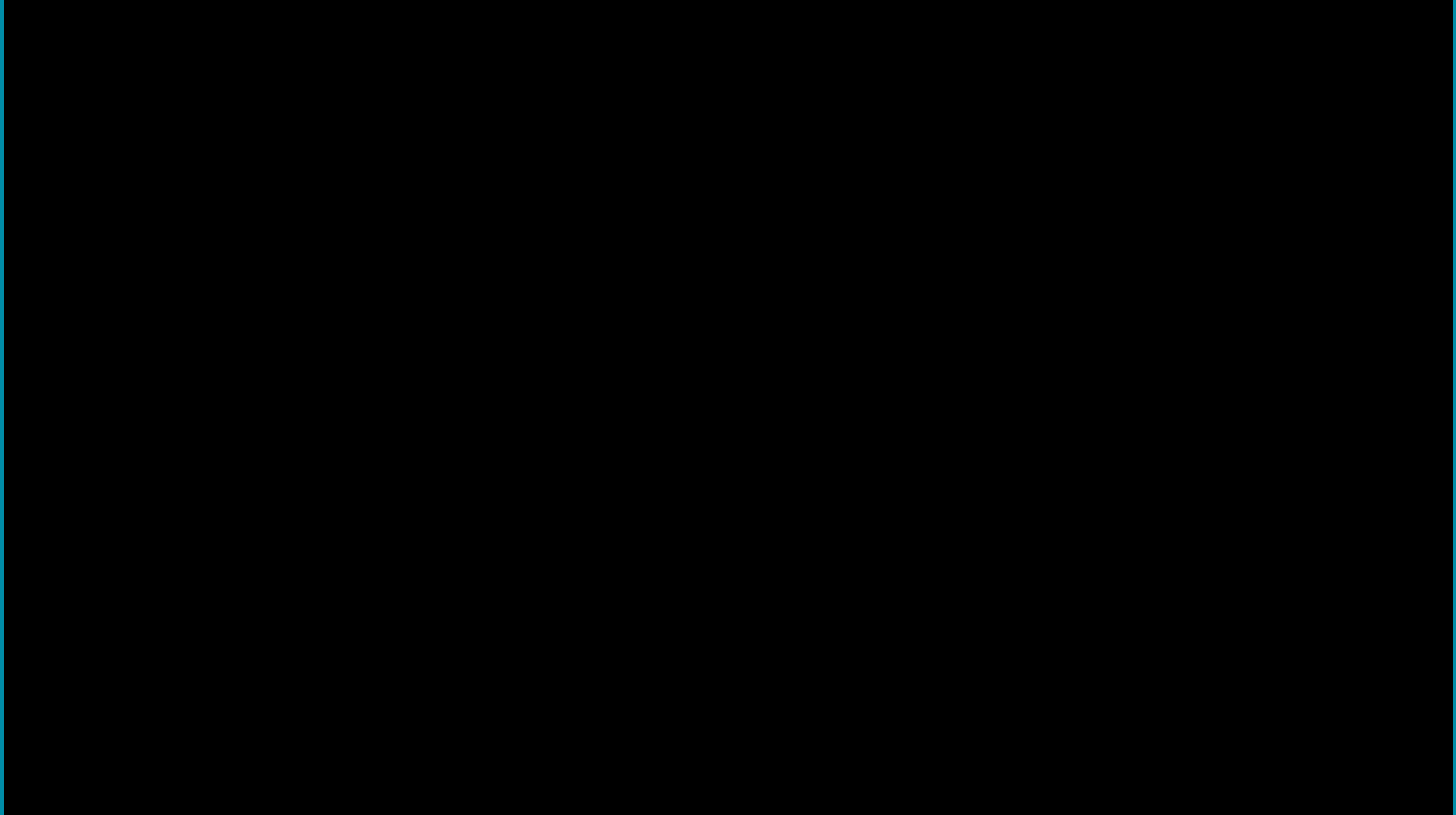


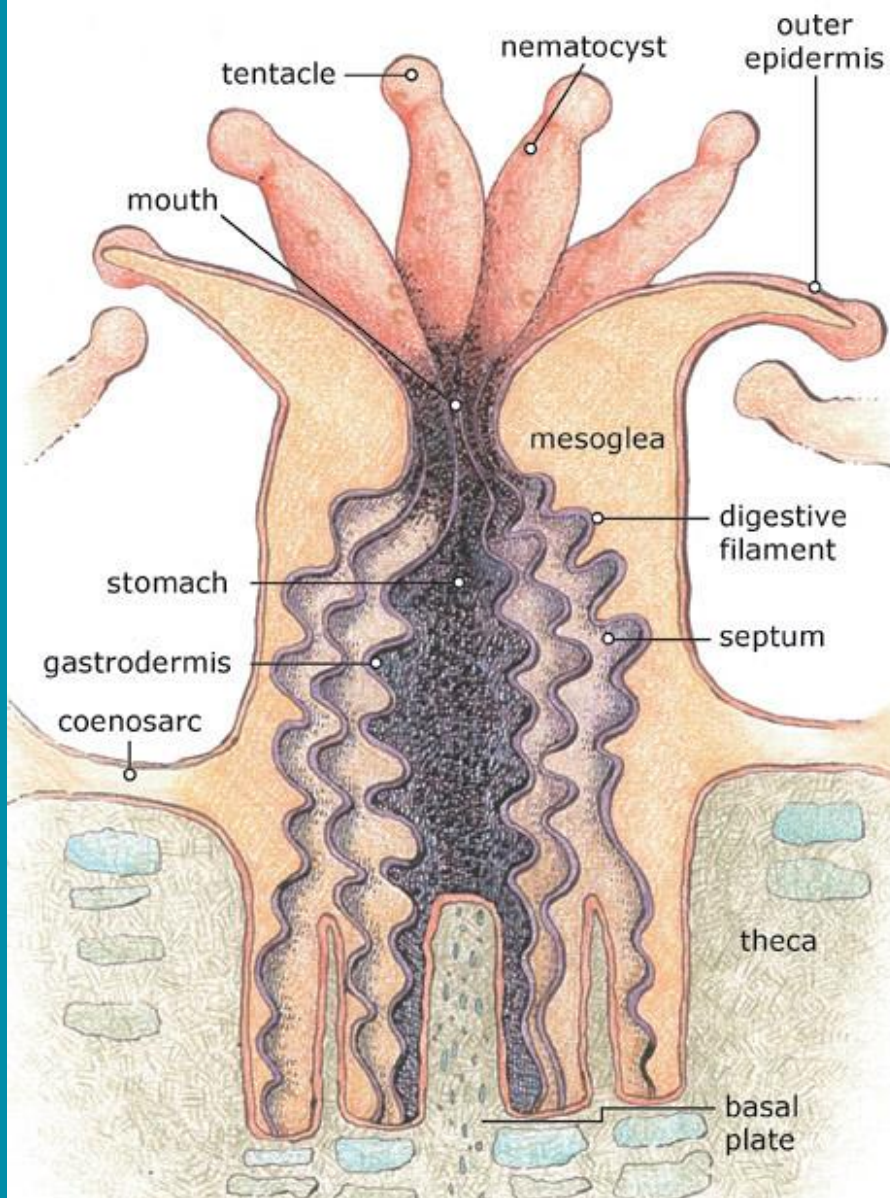
(c) NOAA

Photo: NOAA Marine Debris Program



**PATIENCE** is the key to a reef-friendly cleanup. Do not rip, tear, or jerk at debris. Take your time and **GENTLY** remove items.

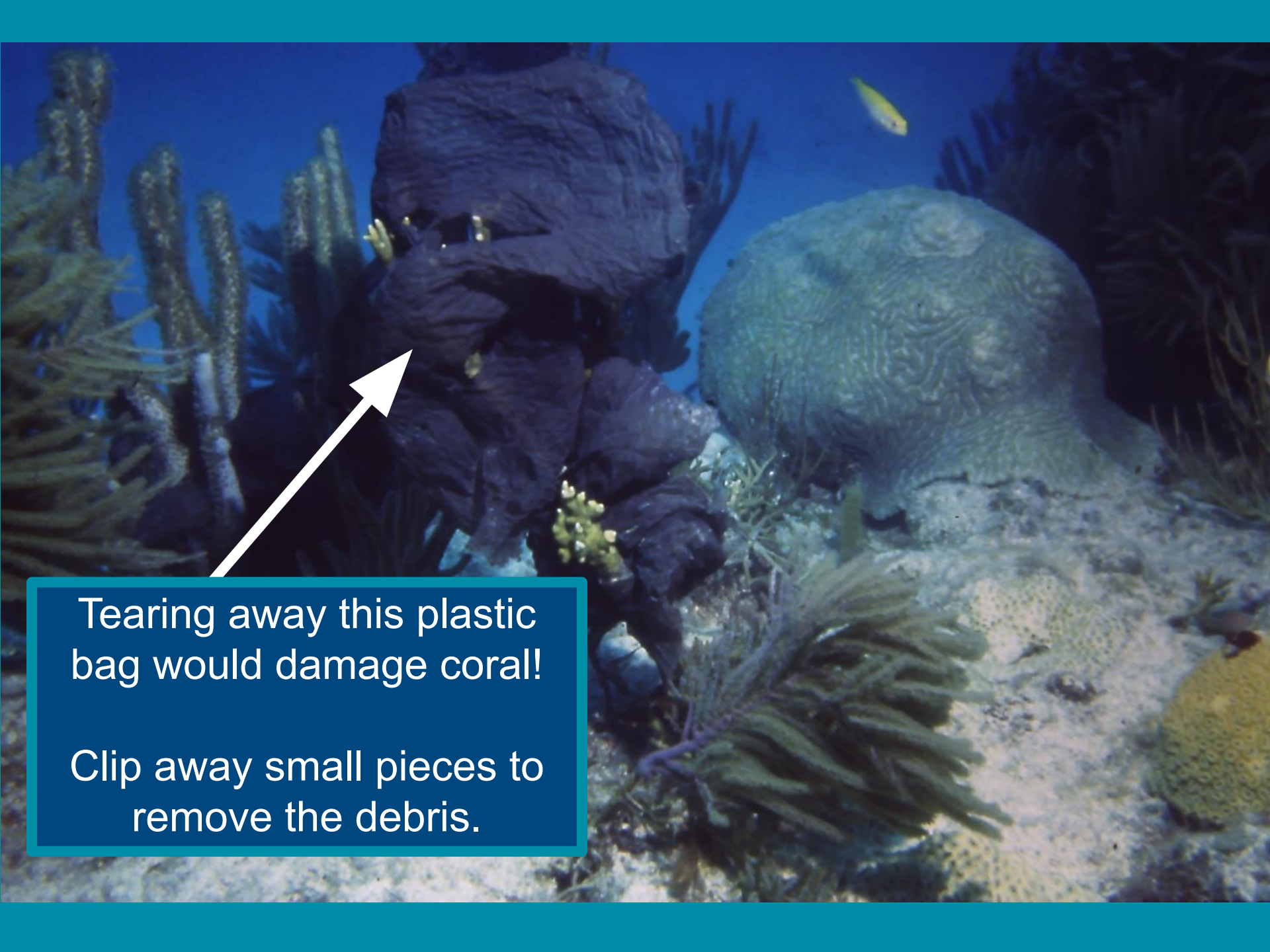




**Avoid touching coral!**

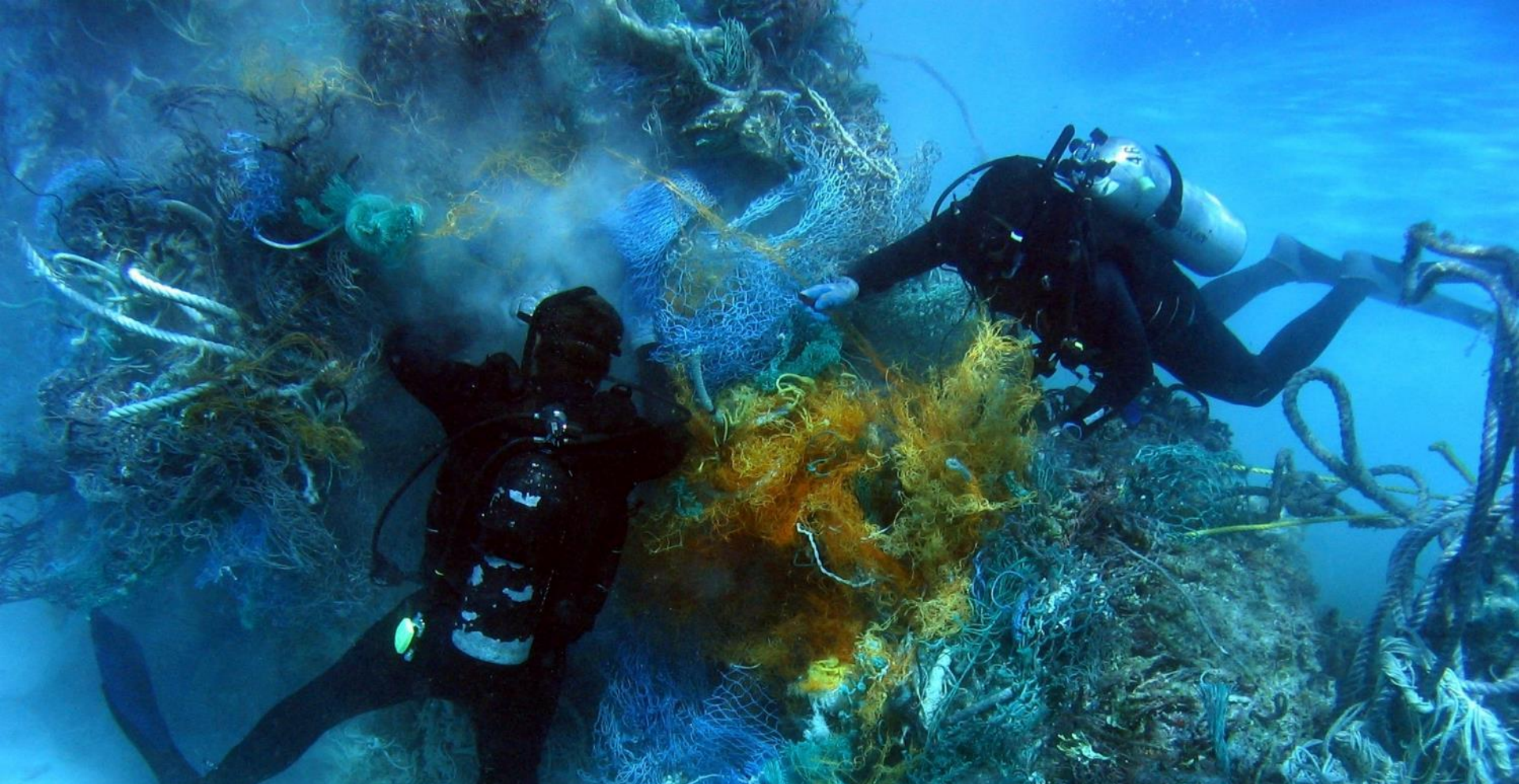


**Clip away debris  
leaving new coral  
growth in place.**



Tearing away this plastic bag would damage coral!

Clip away small pieces to remove the debris.



**Only conduct removals within the parameters  
of your recreational dive training**





# DO NOT REMOVE:



Photo Credit: Charles Lawson/Biscayne National Park

- ✓ **Debris embedded in the seafloor which requires more than just pulling it out (i.e. – digging or excavating)**





# DO NOT REMOVE:

- ✓ Debris with live coral growing on it





# DO NOT REMOVE:



- ✓ Debris whose removal would disturb, damage, or remove historical resources

# Florida Fish and Wildlife Conservation Commission (FWC) permit is required to remove trap debris.

## *Trap Debris* is:

- Any piece of a trap
- Any combination of trap pieces that do not make up a fishable trap



Photo credit: NOAA Marine Debris



Photo credit: Florida Keys National Marine Sanctuary

# Florida Fish and Wildlife Conservation Commission (FWC) Permit is **REQUIRED** to remove *derelict* spiny lobster and stone crab traps

## Example of a wood Commercial Spiny Lobster Trap

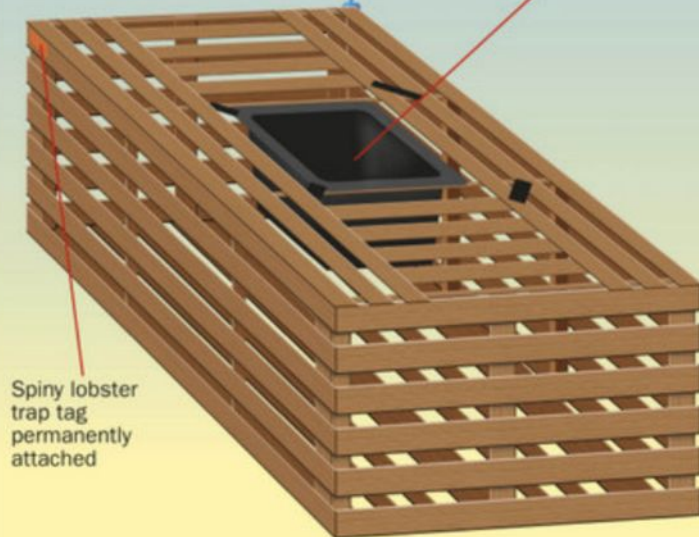
Wood Slat Trap size shall be no larger than 3' x 2' x 2' or a volume of 12 cubic feet

These traps shall be constructed with wood slats that are a min. of 1 1/4" wide with a max. spacing between slats of 2 1/4"



Buoy min. 6" in diameter  
Must have spiny lobster endorsement number permanently affixed in legible figures at least 2" tall

Throat (Entrance) min. 6" x 3 1/2"  
Shall be located on the top horizontal section



Spiny lobster trap tag permanently attached

## Example of standard plastic Commercial Stone Crab Trap

Trap size 2' x 2' x 2' or a volume of 8 cubic feet

Construction materials: wood, wire or plastic

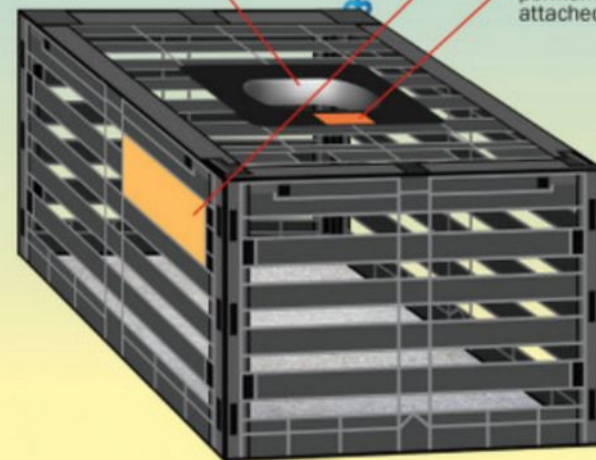
Throat (Entrance) 5 1/2" x 3 1/2" (5 1/2" x 3 1/8" in Collier, Monroe and Miami-Dade counties)

Round throats shall not exceed 5" in diameter and are prohibited in Collier, Monroe and Miami-Dade



Buoy: no smaller than 6"  
Must have legible stone crab endorsement number at least 2" tall

Degradable Panel 5 1/2" x 3 1/2"  
Cypress or untreated pine slat no thicker than 3/4"



Stone crab trap tag permanently attached

# A trap is DERELICT if:

- In the water during the CLOSED season for that fishery

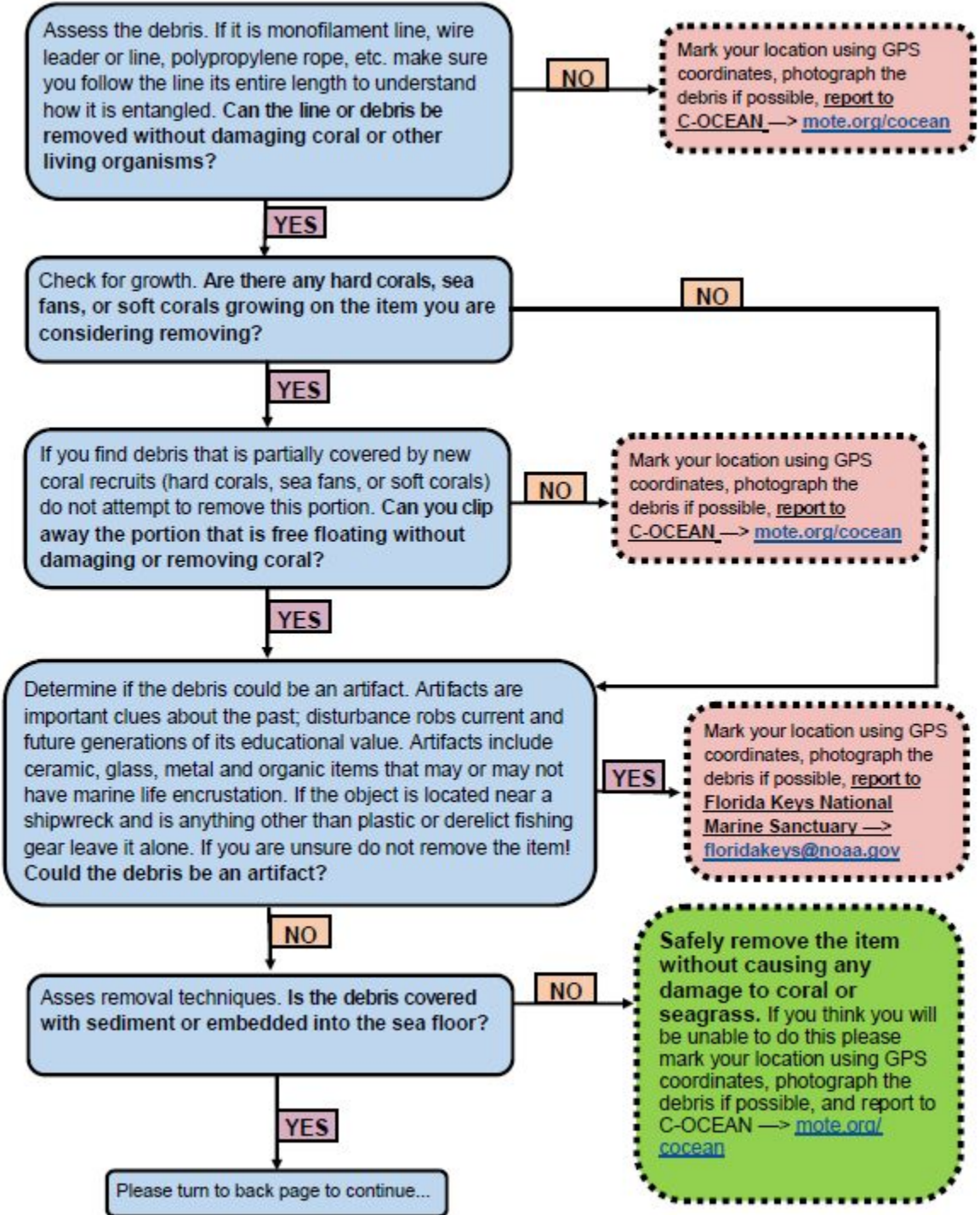
OR

- Missing 3 or more of the following during OPEN season:

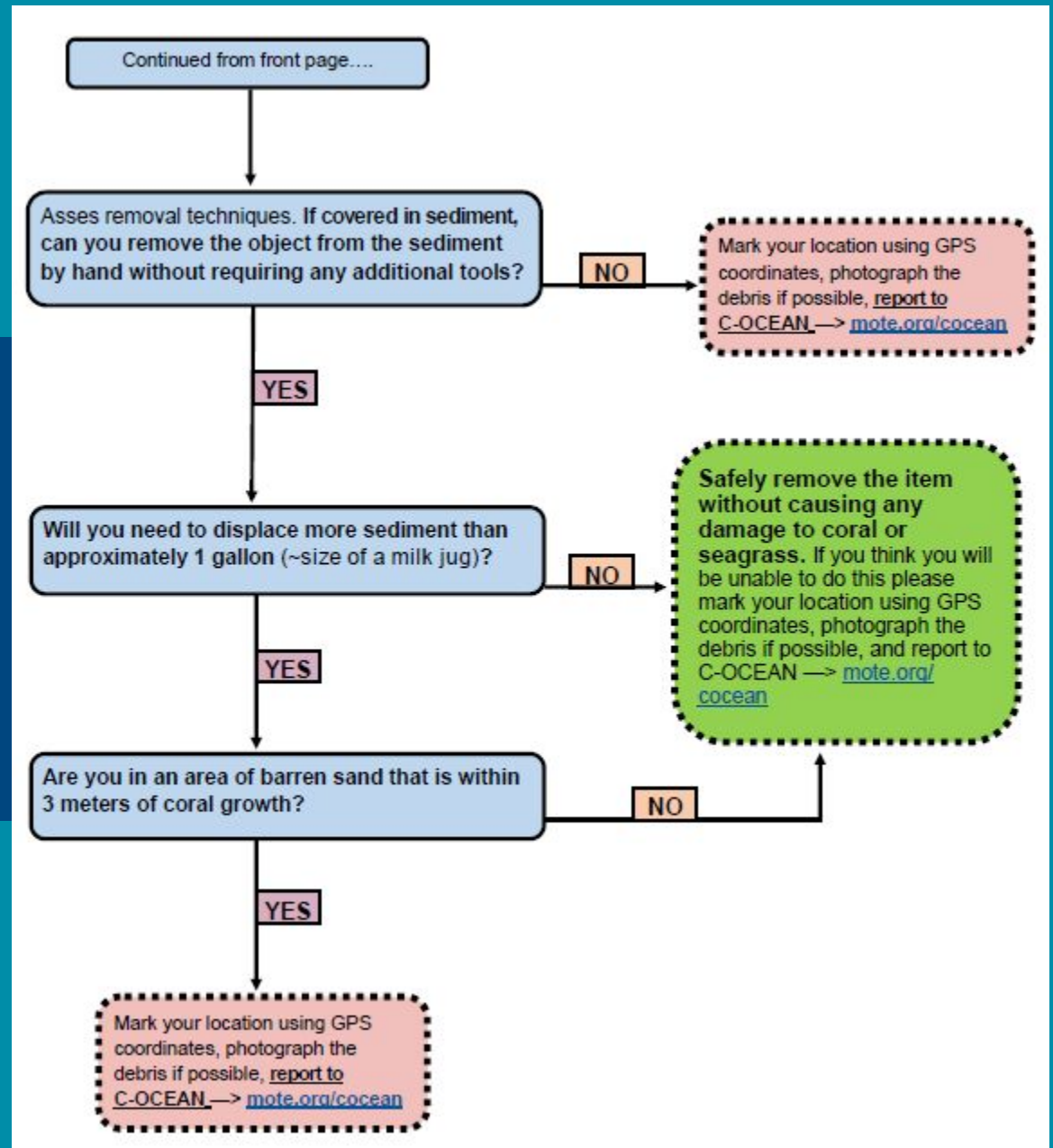
- ✓ Buoy
- ✓ Line
- ✓ Current Commission-issue trap tag/ID (if required)
- ✓ Current License



# Marine Debris Removal— Decision Making Flowchart



# Marine Debris Removal— Decision Making Flowchart



**When in doubt, leave debris in place! Find your dive guide and ask for assistance.**







# Dive Against Debris<sup>®</sup> Survey Lesson Guides

## A Survey of Underwater Marine Debris For Scuba Divers



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To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/>

# Plan Your Dive

Repeat surveys at the same location give the best results

- Build an argument for change
- Help identify seasonal trends
  - Weather patterns
  - Tourist seasons
- How often should we survey?
  - No requirement, but
    - Monthly - best
    - Every other month - good
    - Once per season - minimum



# Choose Your Survey Site

Use these considerations to choose your survey site:

- Can return regularly
- Within dive skills and experience of all participants
- Survey fresh water lakes and rivers
- Permission required?

## Underwater or a Land Cleanup?

Only report marine debris found by divers underwater through Dive Against Debris®



*Plan Your Dive*

# Survey Dive Profiles

## Consider the experience levels of all divers

- Safety is your primary consideration
- Bottom time and depth
  - Set safe dive profiles
- Buoyancy
  - Properly weighted
  - Gear streamlined and secured
- Survey Area
  - No set area
  - Try to cover the same area each time you survey your site
- Number of participants
- Buddy team strategies



*Plan Your Dive*

# Dive Your Plan

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

- Work with your buddy
- Do not use your BCD as a lifting device
- Do not overfill your mesh bag
- Items weighing more than 4kg/7lb should only be removed by divers trained in the use of lift bags
- Do not use lift bags without training/experience



*Dive Your Plan*

# Buoyancy Objects

Pay attention to your buoyancy and trim

- Keep your
  - gear
  - body
  - and finsoff the bottom
- Remain aware of your body's positioning throughout your dive



*Dive Your Plan*

# Sharp Objects

Take care with objects that can cause a puncture wound

- Do not remove if unsafe
- Use a strong container
- Use extra caution when removing medical sharps:
  - syringes, needles, scalpels, lancets, suture needles



*Dive Your Plan*

# Take Pictures to Tell the Story

Photos are not required but they illustrate the problem and convince others to act

Two types of photos to take:

## 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
- 
- Share these photos when you submit your data

## 2. Photos that tell your story:

- Group shots
  - Divers in action
  - Divers counting and recording debris
  - Surface shot of the rubbish you removed
- 
- Use for your blog on My Ocean
  - Consider sharing via Facebook® or ScubaEarth®
  - Use them to illustrate a story in your local paper

*Dive Your Plan*



# Things to Leave Behind

Marine life soon grows on, or lives in, marine debris – should we remove these items?

- SAFETY FIRST
- Is item harmless?
  - Perhaps leave in place
- Could item cause harm?
  - Perhaps worth small short-term disturbance to remove

**If unsure  
leave it in place**



# Things to Leave Behind

Consider these points when deciding to remove a debris item:

- **Material of construction?**
  - Glass bottles & steel cans
    - perhaps leave
  - Hard plastics, fish traps, packaging material, etc
    - perhaps remove,
- **Contents of Item?**
  - Batteries, fuel containers, paint cans etc
    - remove if safe to do so
- **Fishing nets, line and rope**
  - Selective removal
    - scissors work well



# Make Your Survey Count

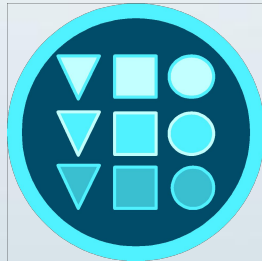


# 5 Easy Steps to Make Your Survey Count

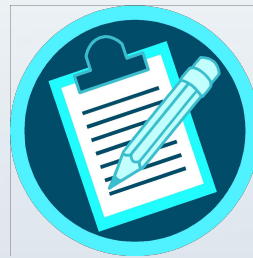
Sorting and recording debris is quick when everyone works together, follow these 5 easy steps:



1. Weigh



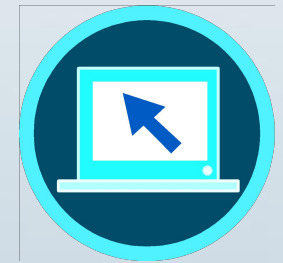
2. Sort



3. Record

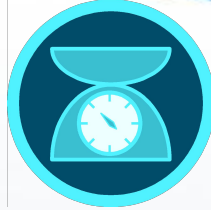


4. Dispose



5. Report

## Step 1: Weigh



Weigh debris while still in the mesh bags:

- Subtract weight of empty bags if significant
- Can use fishing or kitchen scales
- Estimate if no scales
- Record in kilograms or pounds



*Step 1: Weigh*

## Step 2: Sort



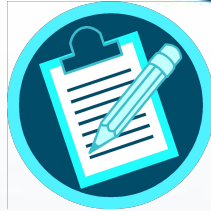
Empty mesh bags and sort debris into piles under the 9 material of construction categories:

- Plastic
- Glass & Ceramic
- Metal
- Rubber
- Wood
- Cloth
- Paper/Cardboard
- Mixed Materials
- Other



*Step 2: Sort*

## Step 3: Record



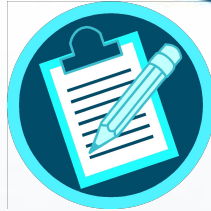
Work through each pile to record every item onto the Dive Against Debris<sup>®</sup> Data Card

- Record each debris item as 1
- Count miscellaneous pieces as “fragments”
- Combine all diver’s findings from the same survey dive on one Data Card



*Step 3: Record*

## Step 3: Record



### Too Small to Count?

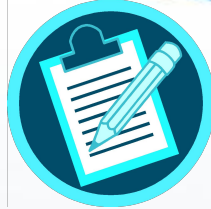
- Here's a quick way to count many small pieces:
  - Sort into similar sized piles
  - Count pieces in one pile
  - Multiply by number of piles
- Record as “fragments”



*Step 3: Record*



## Step 3: Record



### More information on your survey

- **Entangled Animals**
  - Record species and type of marine debris
  - Take photos and submit with your data
- **Survey Depth Range**
  - Max and min depths from which you removed debris
  - May be less deep than the max depth of your dive
  - Do not report 0 for min depth
    - Floating debris should not be reported

*Step 3: Record*

## Step 4: Dispose



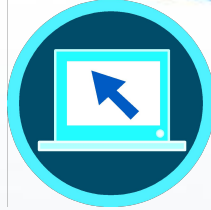
Dispose of your debris carefully so it cannot return to the ocean:

- Sort for recycling
- Small amounts in street bins
- Local government authority may collect
- Transport to a waste collection site
- Know local laws governing disposal
  - Check procedures for disposing hazardous items such as fluorescent light tubes, light sticks/cyalumes, fuel/oil containers, etc



*Step 4: Dispose*

## Step 5: Report



### Now report your data

#### English data submissions:

Use the online data submission form

Submit all English data using the online data submission form

[www.projectaware.org/DiveAgainstDebrisData](http://www.projectaware.org/DiveAgainstDebrisData)

- You will need a My Ocean profile
  - Log in or create new
- Follow instructions on the online form
- Refer to the Dive Against Debris® Survey Guide for clarification

#### Non-English submissions:

Email your completed Data Card

For all data in languages other than English, please email your completed Dive Against Debris® Data Card and any photos to

[diveagainstdebris@projectaware.org](mailto:diveagainstdebris@projectaware.org)

Ensure that all fields are completed accurately

*Step 5: Report*

# Online Dive Against Debris Submission Form

Project AWARE, working with the National Marine Sanctuary Foundation, will track cleaned sites to determine which high priority sites remain to be cleaned

ABOUT YOUR SURVEY

Survey Date \*

Organisation/Dive Centre

City

State\Province

Country \*

Include **/FKNMS** after your store name so we can track cleaned up sites

Report underwater debris removal data via the **Dive Against Debris App** or online submission form:

### App Store:

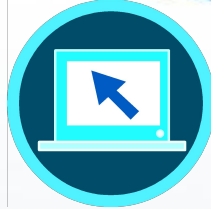
[itunes.apple.com/us/app/project-aware-dive-against-debris/id1260943783?ls=1&mt=8](https://itunes.apple.com/us/app/project-aware-dive-against-debris/id1260943783?ls=1&mt=8)

### Google Play:

[play.google.com/store/apps/details?id=com.project.rantmedia.projectaware](https://play.google.com/store/apps/details?id=com.project.rantmedia.projectaware)

Online Submission Form: <https://www.projectaware.org/DiveAgainstDebrisData>

## Step 5: Report



Before submitting data you will be asked to confirm the Dive Against Debris<sup>®</sup> Surveyor Statement:

I have read the Dive Against Debris<sup>®</sup> 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<sup>®</sup> Map following a review and provided it satisfies Project AWARE's internal quality review process.

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

*Step 5: Report*

# We've talked about

## SECTION 3: Make Your Survey Count

### Reporting your data

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

**Any Questions?**

- SECTION 4:

# Now It's Your Turn!



# Some Final Dive Against Debris® Thoughts

Start your regular Dive Against Debris® survey, then:

- Share Your Actions to Help Change Behaviours
- Project AWARE's My Ocean [www.projectaware.org/MyOcean](http://www.projectaware.org/MyOcean)
  - Blog stories on your actions
  - Upload photos and videos
  - Seek participants to join events
  - Find events to join





# Some Final Dive Against Debris® Thoughts

- Report Clean Sites
- Any Dive, Any Time
- What About Land Cleanups?
  - Only report debris found underwater by divers
- Provide Feedback:

[www.projectaware.org/contact](http://www.projectaware.org/contact)



# Join the Project AWARE Movement

Project AWARE divers protect our ocean planet - one dive at a time

- Battle the Big Two:
  1. Sharks and Rays in Peril  
Become an **AWARE Shark Conservation Diver**
  2. Marine Debris  
Dive Against Debris®
- Be an AWARE Diver
  - Ten Tips for Divers to Protect the Ocean Planet





*Protecting Our Ocean Planet -  
One Dive at a Time<sup>SM</sup>*

# Thank you

## Questions?

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