# NOAA's Marine Debris Monitoring and Assessment Project: What Do the Data Tell Us?

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Photo: NOAA

# NOAA Marine Debris Program

Established in **2006** by Congress as the federal lead for marine debris. Reauthorized in **2018**.

**Mission:** to investigate and prevent the adverse impacts of marine debris

*Photo: NOAA*

# Marine Debris Monitoring and Assessment Project (MDMAP)

EBIIL SOCIETY, INC.

Sea Grant

NOAA

NATIONAL MARINE SANCTUARIES

Heal the Bay

PACIFIC WHALE FOUNDATION

BOY SCOUTS OF AMERICA

THE SCIENCE EXCHANGE

U.S. COAST GUARD AUXILIARY

HAWAI'I WILDLIFE FUND

Washington Conservation Corps

REDFISH ROCKS COMMUNITY TEAM

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

CITY OF NEWPORT BEACH CALIFORNIA

SURFRIDER FOUNDATION

SAVE OUR SHORES

BRITISH COLUMBIA | Ministry of Environment

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MISSION ★ ARANSAS
NATIONAL ESTUARINE RESEARCH RESERVE

California Coastal National Monument

Dauphin Island Sea Lab • Alabama •

COASTWATCH
A PROGRAM OF OREGON SHORES

OREGON COAST AQUARIUM NEWPORT

HUMBOLDT STATE UNIVERSITY

Pūlama Lānaʻi

# MDMAP Goals

- National program to support research and science-based policies
- Provide tools to partners
- Spatial and temporal changes in debris loads by material type
- What is the total marine debris load over 100 m of a beach over a 28 day (± 3d) period?
- Raise awareness
- **Guide prevention**

Photo: NOAA

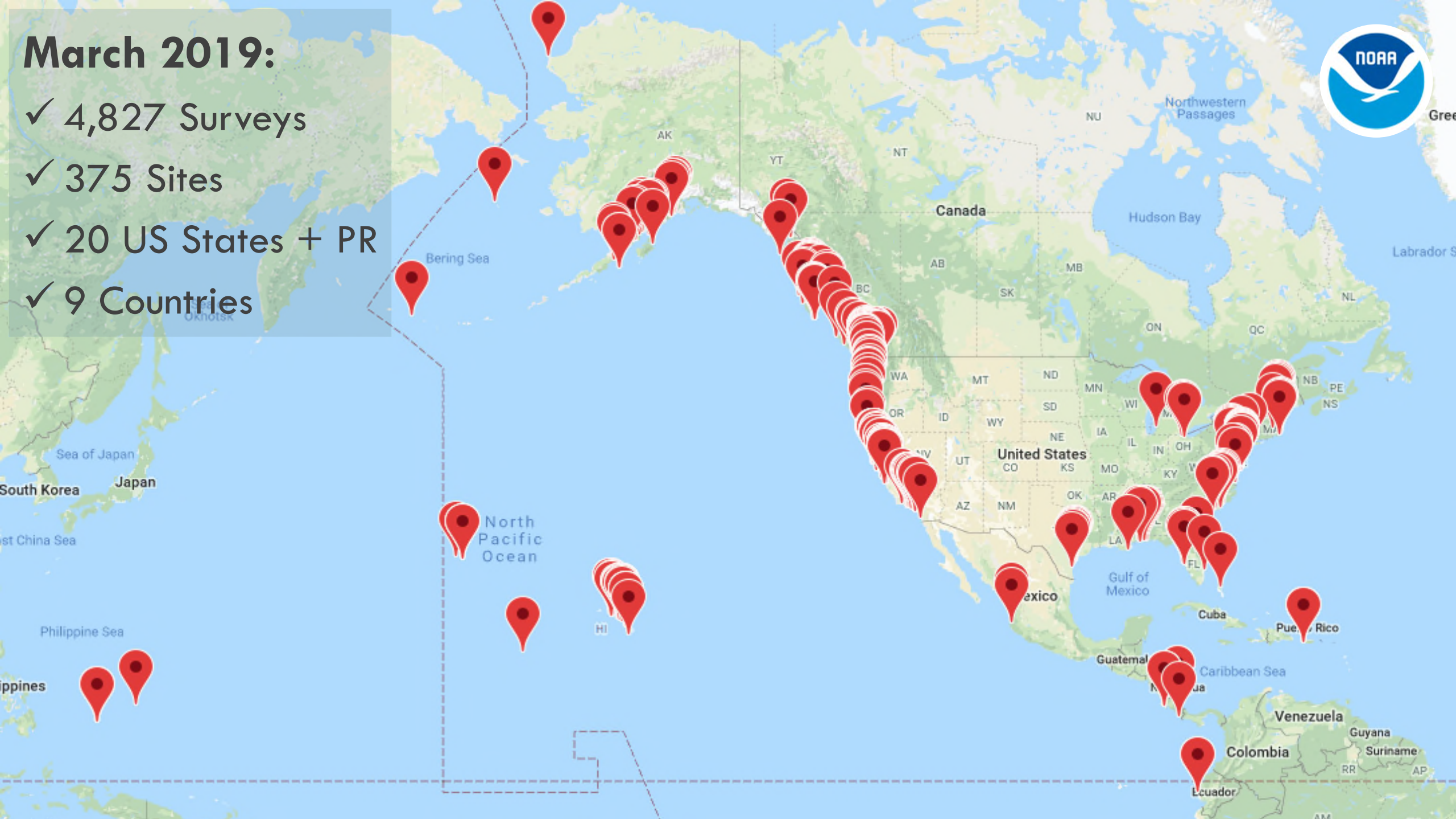
# Methods Overview

- Shoreline sites are partner-selected
- Monthly surveys
- Data entry to online database
- All items > 2.5 cm

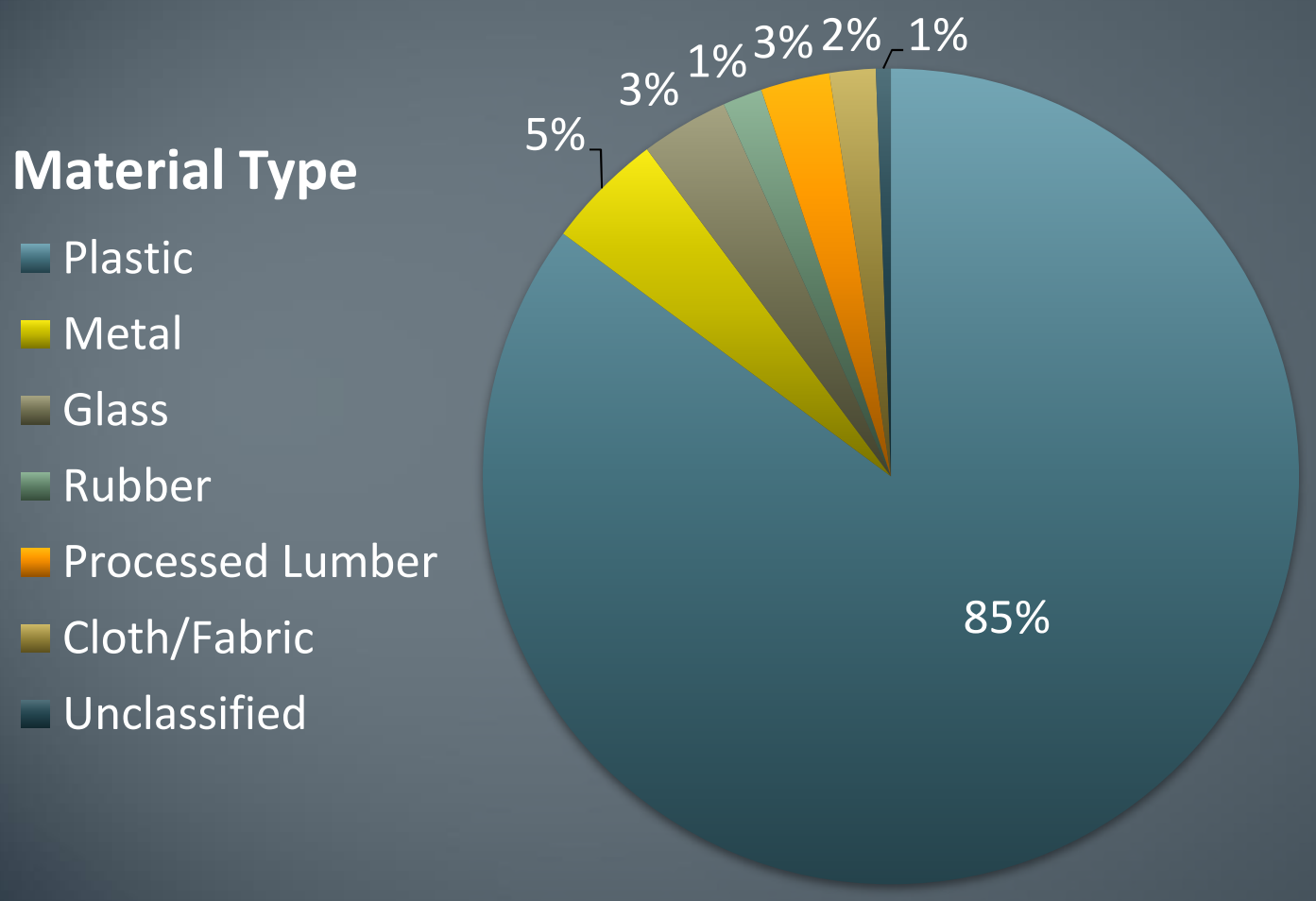
Photo: NOAA

# March 2019:

- ✓ 4,827 Surveys
- ✓ 375 Sites
- ✓ 20 US States + PR
- ✓ 9 Countries



# Results – Debris Types (February 2019)




| Top 10 Items | |
|---|---|
| ITEM | COUNT |
| Hard Plastic Fragments | 226,387 |
| Foamed Plastic Fragments | 82,408 |
| Plastic Rope/Net | 60,431 |
| Bottle/Container Caps | 50,845 |
| Filmed Plastic Fragments | 38,446 |
| Plastic Other | 31,844 |
| Plastic Beverage Bottles | 21,444 |
| Glass Fragments | 21,292 |
| Cigarettes | 20,081 |
| Food Wrappers | 18,461 |

712,928 total items

# Results - Trends

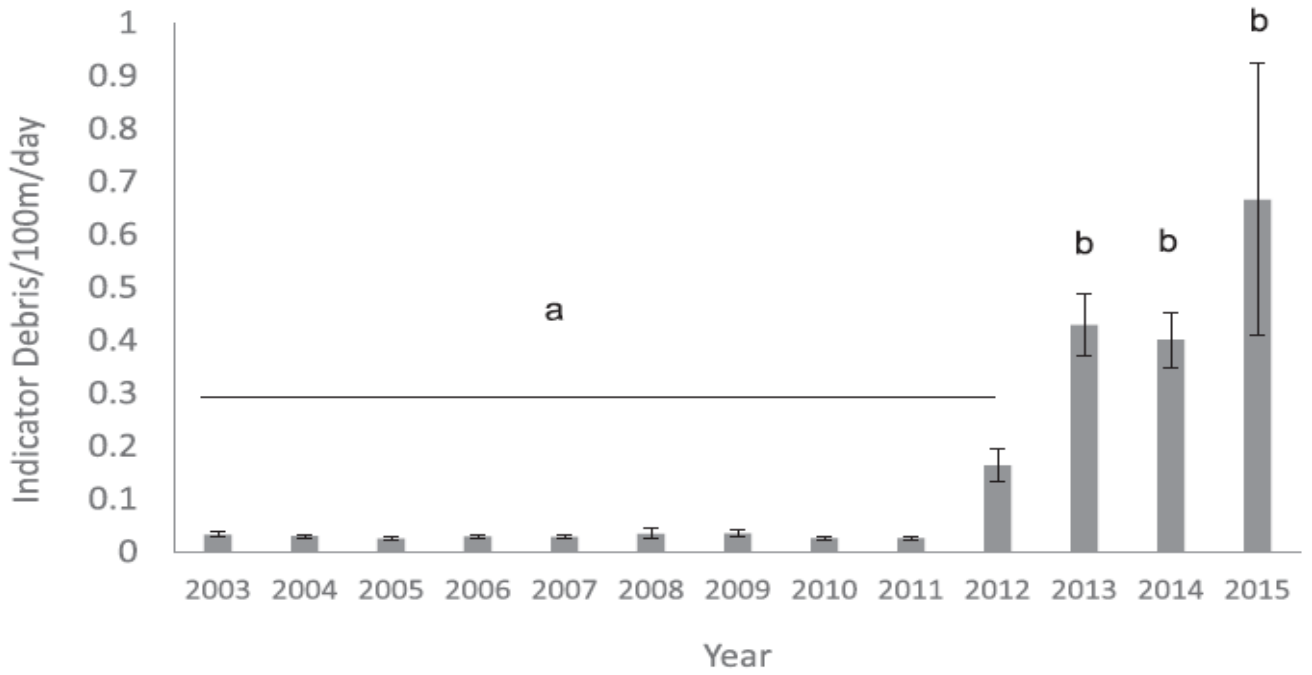
Contents lists available at ScienceDirect

Marine Pollution Bulletin

journal homepage: www.elsevier.com/locate/marpolbul

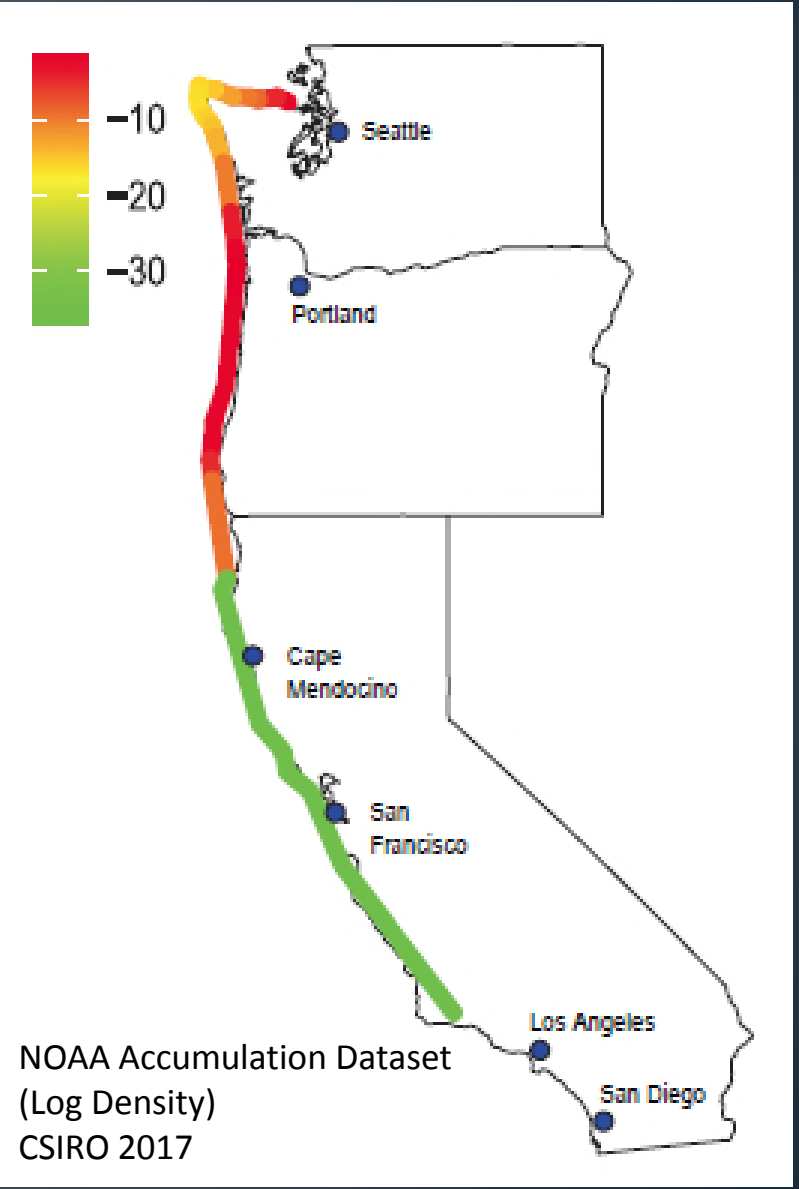
The influx of marine debris from the Great Japan Tsunami of 2011 to North American shorelines

Cathryn Clarke Murray[a,b,*], Nikolai Maximenko[c], Sherry Lippiatt[d,e]



# Results - Status of Marine Debris

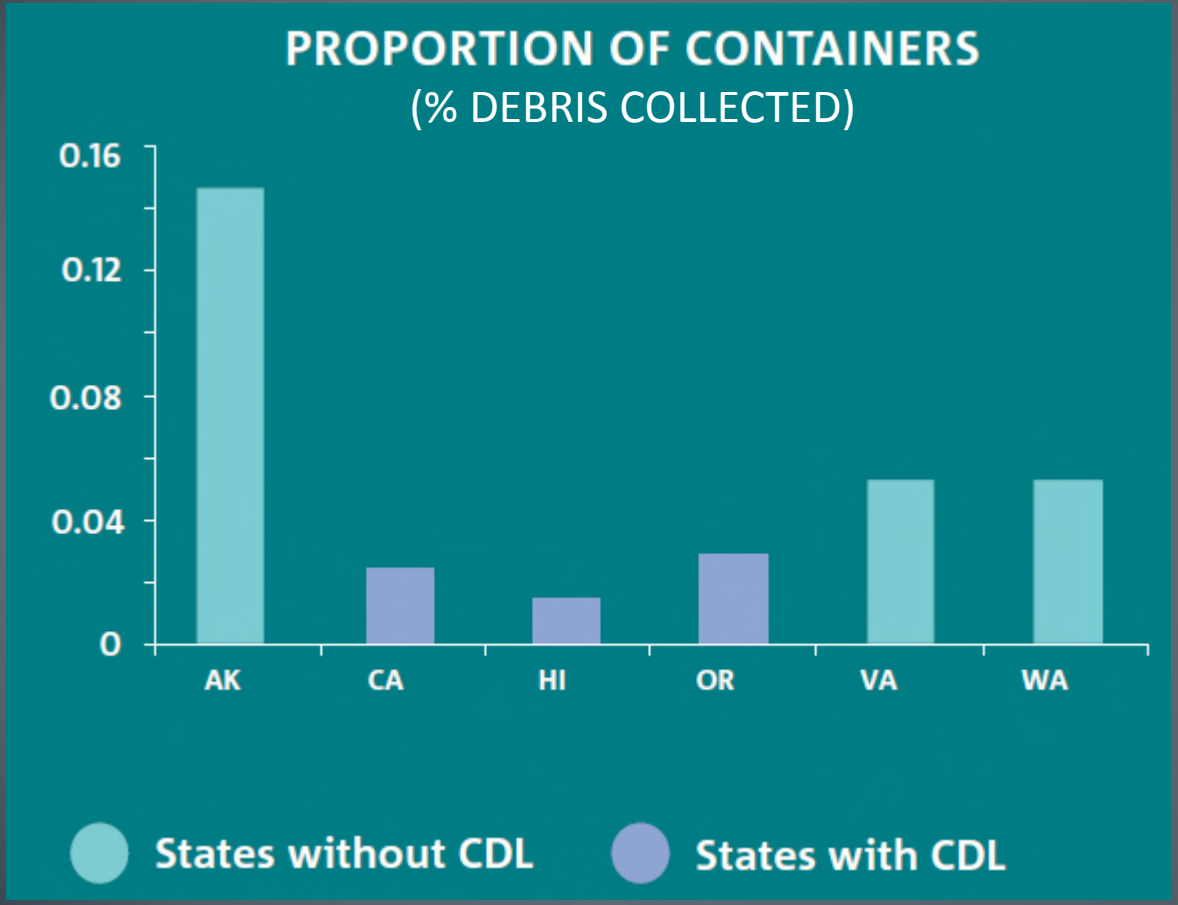
- GAM to assess sources and drivers (urbanization, land use type, accessibility, socioeconomics)
- 20 million - 1.8 billion items




NOAA Accumulation Dataset
(Log Density)
CSIRO 2017

Hardesty, Britta Denise, Chris Wilcox, Qamar Schuyler, TJ Lawson and Kimberley Opie. (2017) Developing a baseline estimate of amounts, types, sources and distribution of coastal litter – an analysis of US marine debris data. Version 1.2. CSIRO: EP167399

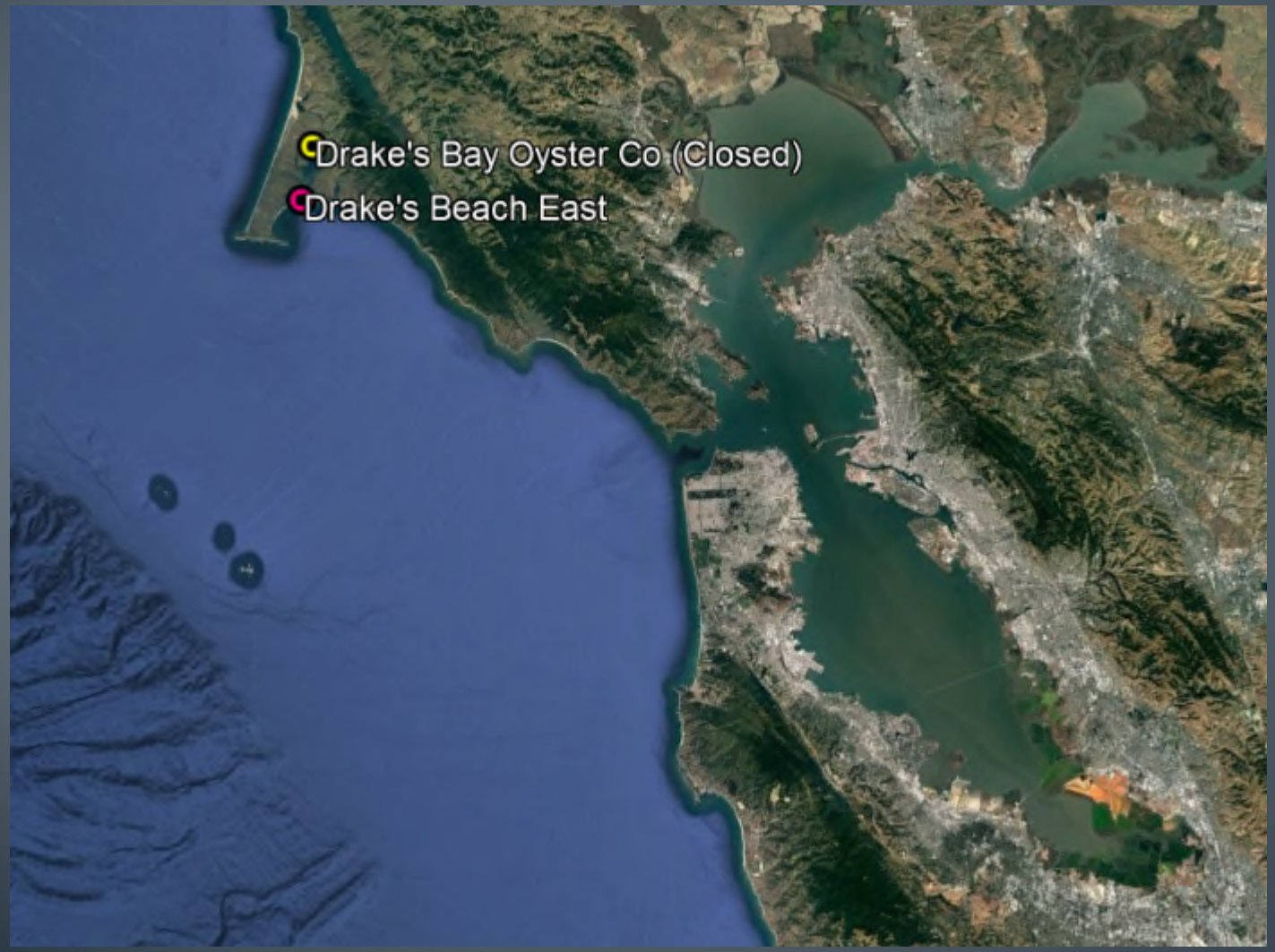
# Results – Policy Effectiveness




CSIRO 2017

- 40% less beverage container debris in states with CDL (Schuyler et al. 2018, *Marine Policy*)
- Less leakage of beverage containers from the waste stream
- Small economic incentive is effective

# Results – Policy Effectiveness



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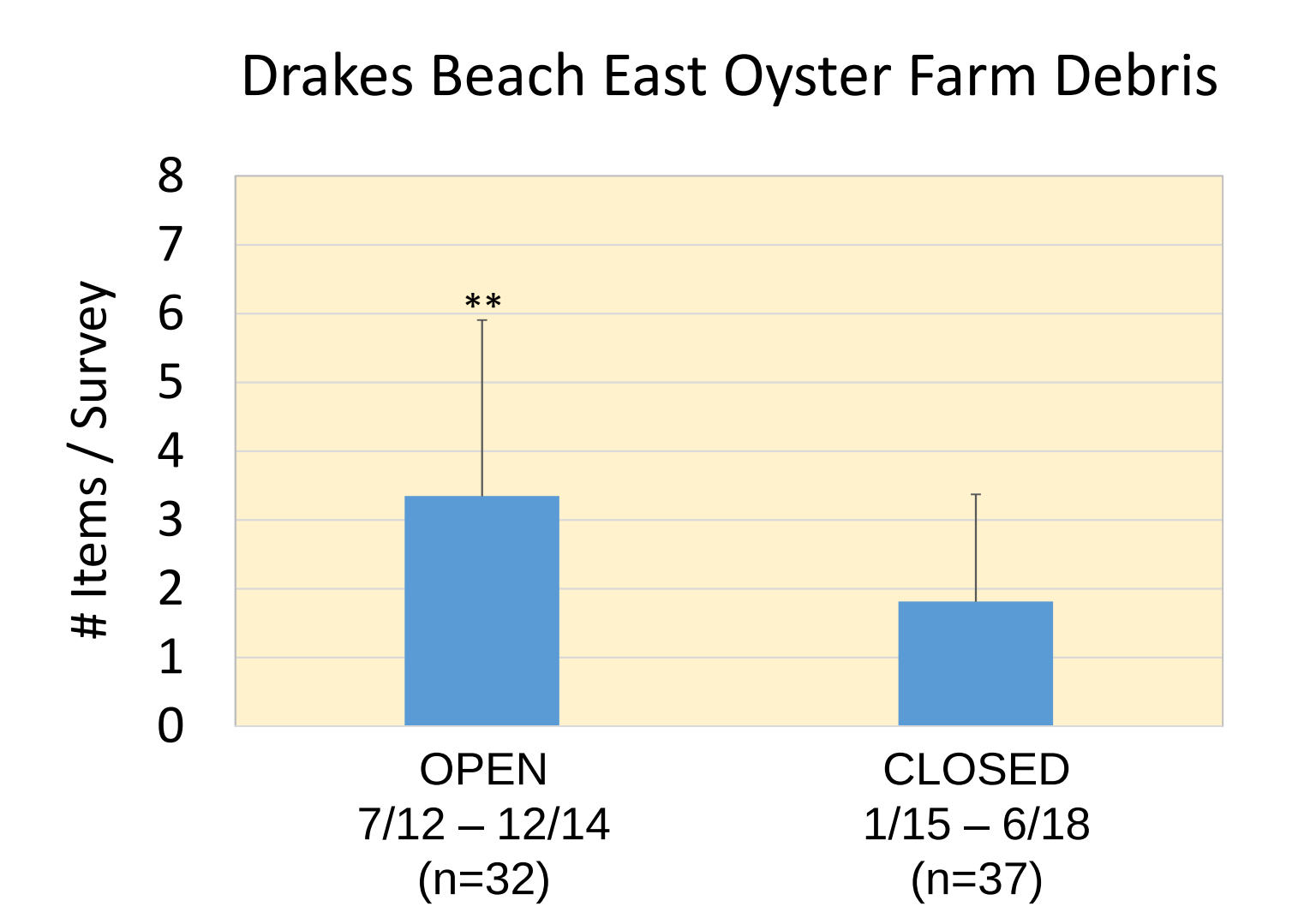

# Challenges

1. Continuity / retention
2. In-person training & outreach
3. Levels of volunteer experience
4. Site self-selection

Photo: NOAA

# Lessons Learned

1. High level of interest (field vols and data users)
2. Japan Tsunami Marine Debris
3. Protocol rigor vs. volunteer retention

Photo Credit Redfish Rocks

# Next Steps

1. Survey / observer bias project with COASST
2. User feedback for database enhancements / visualizations

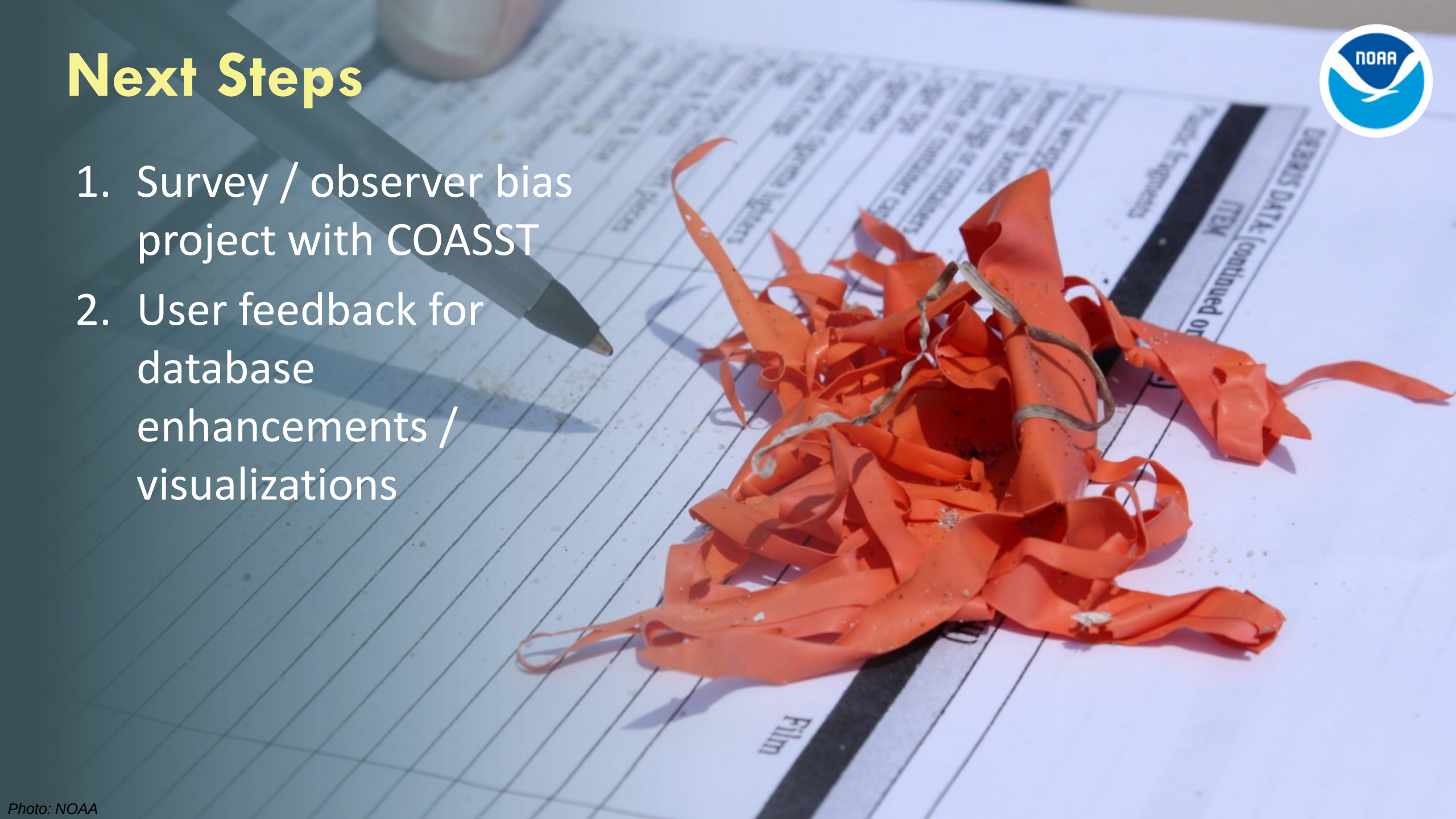

*Photo: NOAA*

# Thank You!

- Subscribe to Litter Letters Newsletter: MD.Monitoring@noaa.gov
- Acknowledge Naomi Wilkins & Lexter Tapawan

Photo Credit Hawai'i Wildlife Fund