The BioPs Network:

Seabirds as Biological Indicators and Outreach Ambassadors

Michelle Hester

michelle@oikonos.org

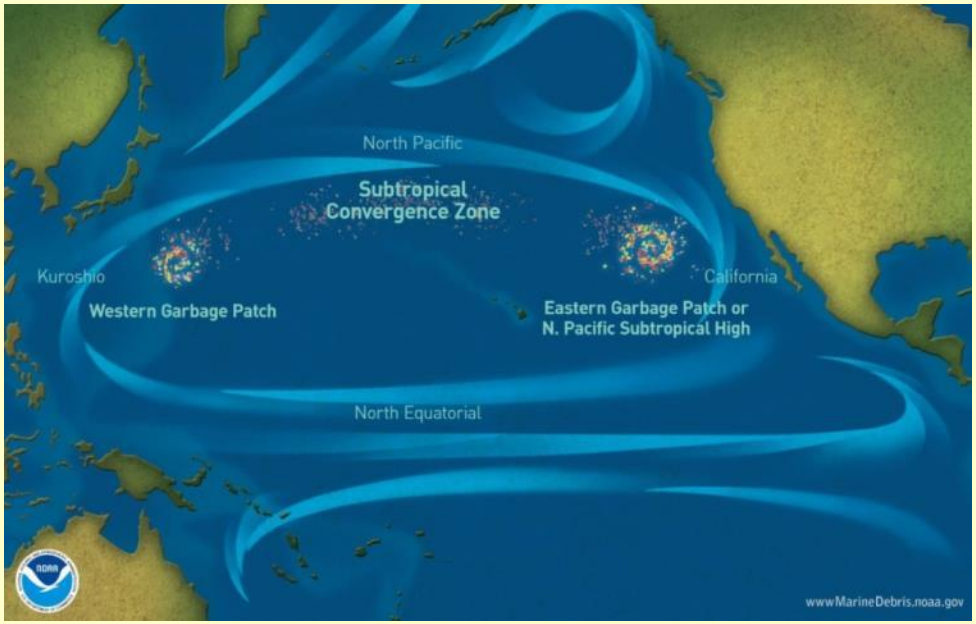
oikonos

RACE FOR WATER ODYSSEY

Motivation: Monitoring Pollution Trends

Monitoring plastic pollution trends in the North Pacific

Ship-based surveys are time consuming and very expensive



Approach: Let the Birds do the Sampling

Use seabirds as biological indicators of plastic in the marine environment

- Geographic Scope: AK, CA, HI, WA

- Approach:

  Legacy species (time series)
  New metrics (local / regional indices)
  Sentinel species (emerging issues)

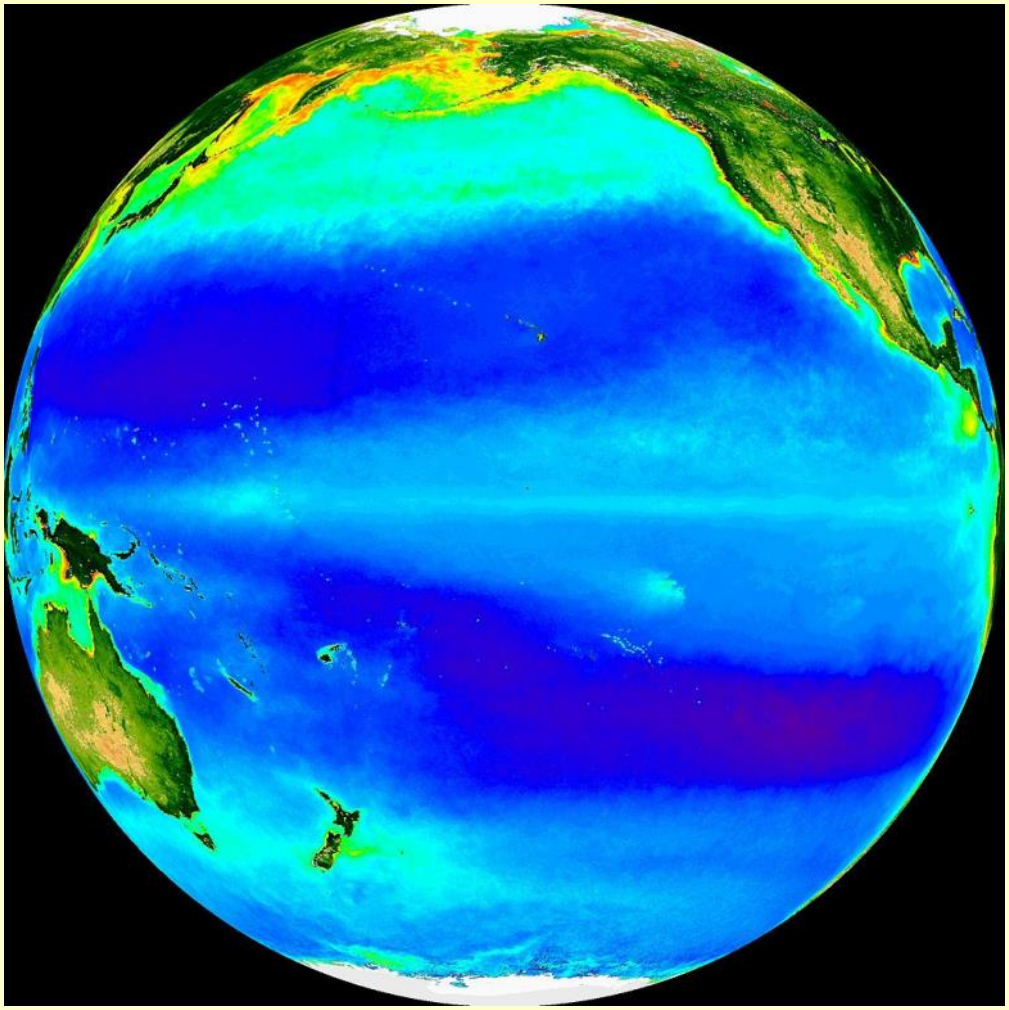
Results: Scope of Seabird Plastic Ingestion

- North Pacific:

To date, 75 % of 88 seabird species studied have been documented ingesting plastic (17,727 stomachs)

- Globally:

Plastic ingestion documented in 116 seabird species

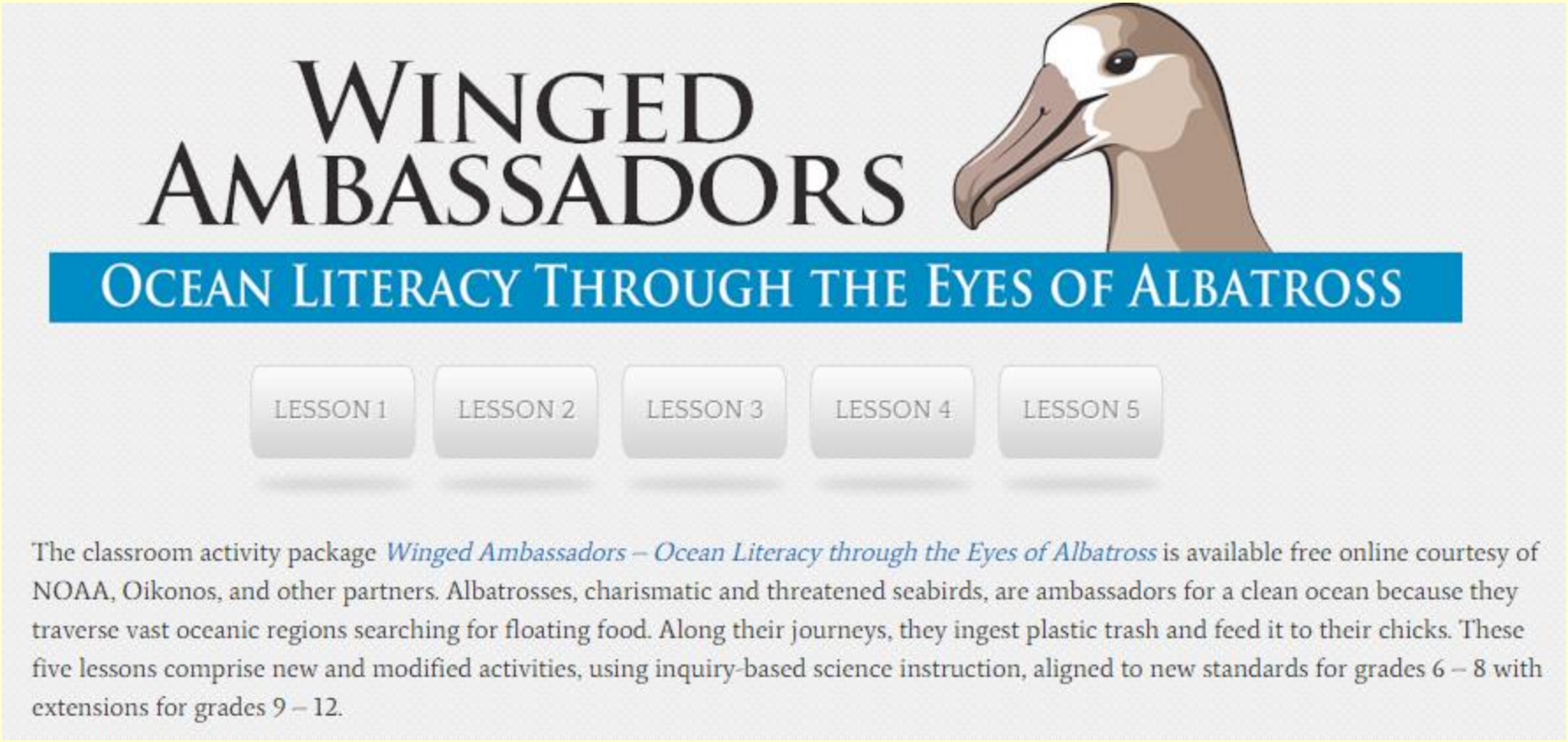


(Laist 1997, Ocean Studies Board 2008, BioPs Network)

Today's Focus:

Using Science To Stimulate Stewardship

Winged Ambassadors: Ocean Literacy



PAPAHĀNAUMOKUĀKEA
Marine National Monument

www.oikonos.org/education/

Winged Ambassadors: Ocean Literacy

Five classroom activities meet standards (Common Core & State)

Integrate Art and Science

current THE JOURNAL OF MARINE EDUCATION
Volume 28 • Number 2 • 2012

WINGED AMBASSADORS: OCEAN LITERACY THROUGH THE EYES OF ALBATROSS

BY MEGHAN MARRERO, MICHELLE HESTER, DAVID HYRENBACH, PAMELA MICHAEL, JOSH ADAMS, CAROL KEIPER, JENNIFER STOCK, ANDY COLLINS, CYNTHIA VANDERLIP, TARA ALVAREZ, AND SOPHIE WEBB

Focus: Black-footed Albatross

Activities: Analyze Tracks

Lessons:

Migration Connections
Protecting Ocean Hotspots

Activities: Characterize Boluses

Lesson: Bolus Analysis

- Prey
  - Beaks / Lenses
- Other Natural
  - Pumice / Coral
  - Seeds
- Plastic
  - Sheets, Line
  - Foam, Fragments

Size and color of fragments

Recognizable items

Outcomes

Approaching 2nd WA birthday: July 2015

- Based on 302 teacher surveys submitted online
- Used by 4400 teachers and 200,000 students
- From 22 countries and 42 U.S. states

Next Steps: Spread the Word

Partners

- **Funding:** National Fish & Wildlife Foundation marine debris program, Papahānaumokuākea Marine National Monument, Hawaii Pacific University, Oikonos – Ecosystem Knowledge

- **Field / Lab:** Students & field crews:

  USFWS, State of Hawai'i – DOFAW