

# The Complete Cleanup of Kanapou, Kaho'olawe (2010-2011)

A large pile of debris on a beach, including plastic crates, buckets, and driftwood. The debris is scattered across the beach, extending from the water's edge towards the background. The background shows a rocky coastline with green vegetation.

**Cheryl  
King**



# KAHO'OLAWE ISLAND RESERVE COMMISSION



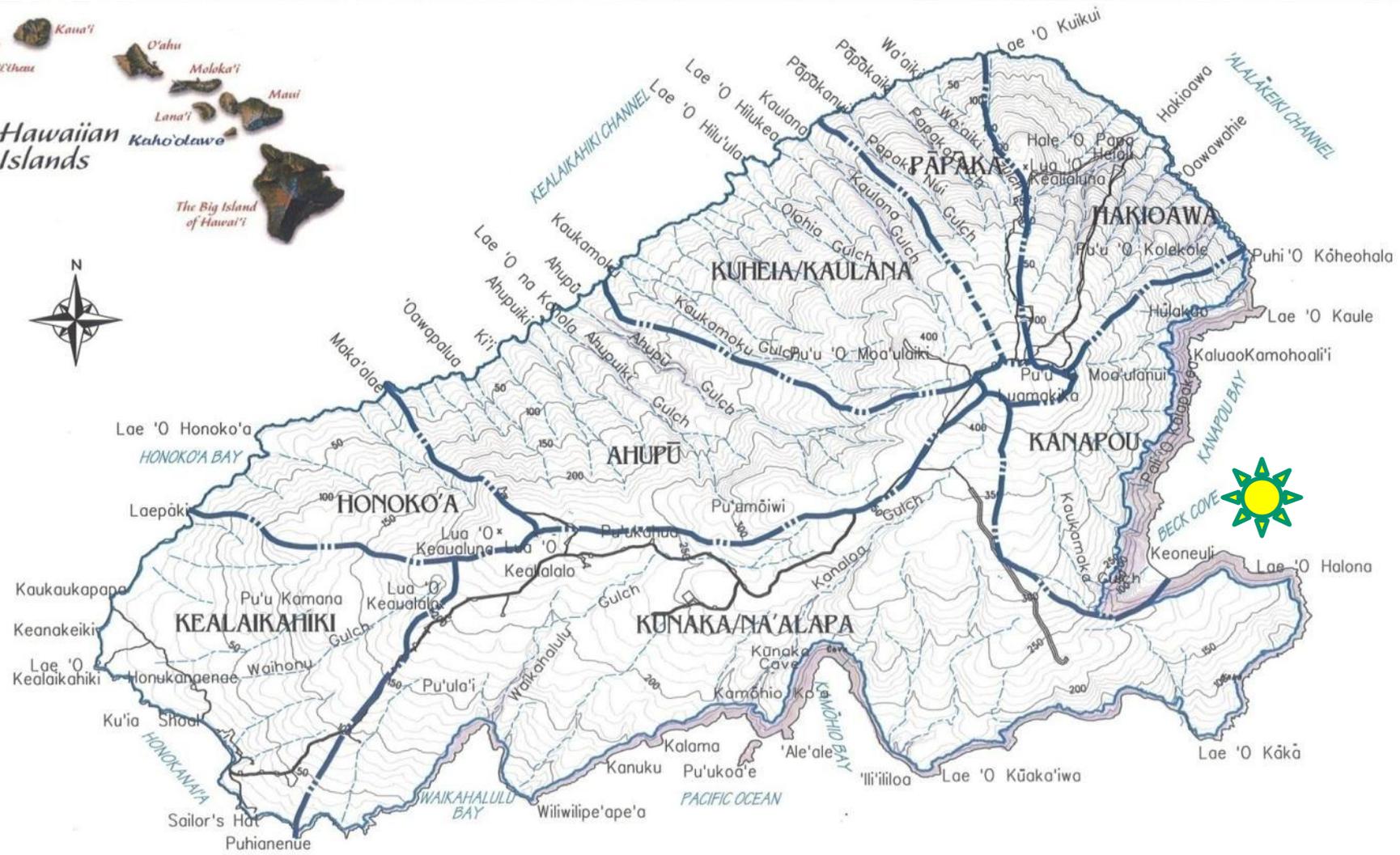
*Kūkulu Ke Ea A Kanaloa*

**Re-establish the life and spirit of Kaho'olawe**

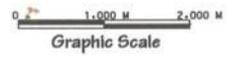


Hawaiian Islands

The Big Island of Hawai'i

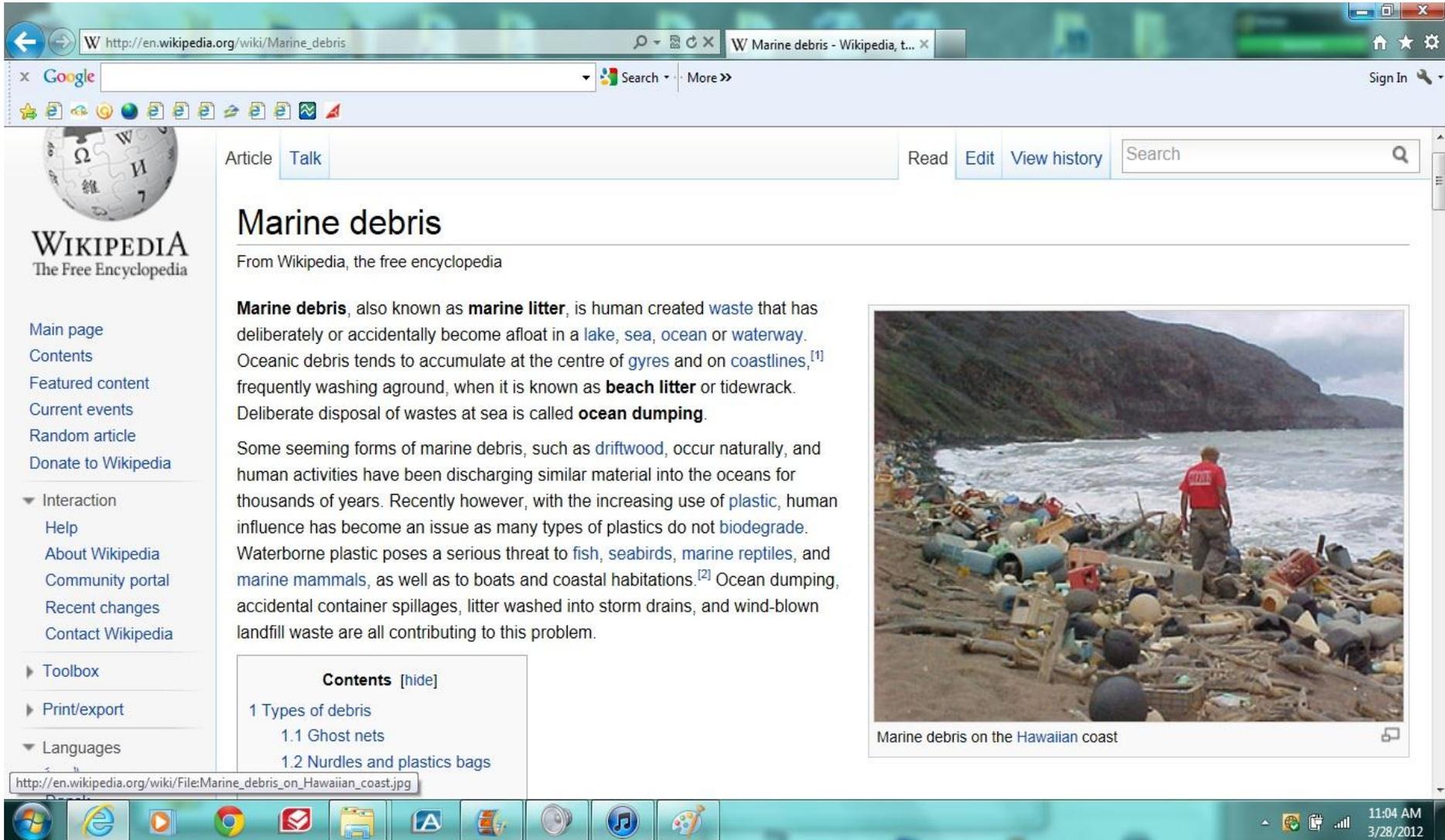


**KAHO'OLAWE ISLAND RESERVE**



- 'Ili Boundary
- Contours
- Coast Line

# Kanapou Bay is in the “definition” of marine debris!



The image is a screenshot of a web browser displaying the Wikipedia article for "Marine debris". The browser's address bar shows the URL "http://en.wikipedia.org/wiki/Marine\_debris". The page features the Wikipedia logo on the left and a navigation menu with options like "Main page", "Contents", and "Interaction". The main content area has a title "Marine debris" and a sub-header "From Wikipedia, the free encyclopedia". The text defines marine debris as human-created waste in waterways and discusses its environmental impact, mentioning plastic and ocean dumping. A photograph on the right shows a person on a beach covered in trash, with a caption "Marine debris on the Hawaiian coast". A mouse cursor is hovering over a file link at the bottom: "http://en.wikipedia.org/wiki/File:Marine\_debris\_on\_Hawaiian\_coast.jpg". The Windows taskbar at the bottom shows the time as 11:04 AM on 3/28/2012.

Wikipedia  
The Free Encyclopedia

Article Talk

Read Edit View history Search

## Marine debris

From Wikipedia, the free encyclopedia

**Marine debris**, also known as **marine litter**, is human created *waste* that has deliberately or accidentally become afloat in a *lake*, *sea*, *ocean* or *waterway*. Oceanic debris tends to accumulate at the centre of *gyres* and on *coastlines*,<sup>[1]</sup> frequently washing aground, when it is known as **beach litter** or tidewrack. Deliberate disposal of wastes at sea is called **ocean dumping**.

Some seeming forms of marine debris, such as *driftwood*, occur naturally, and human activities have been discharging similar material into the oceans for thousands of years. Recently however, with the increasing use of *plastic*, human influence has become an issue as many types of plastics do not biodegrade. Waterborne plastic poses a serious threat to fish, *seabirds*, *marine reptiles*, and *marine mammals*, as well as to boats and coastal habitations.<sup>[2]</sup> Ocean dumping, accidental container spillages, litter washed into storm drains, and wind-blown landfill waste are all contributing to this problem.

**Contents** [hide]

- 1 Types of debris
  - 1.1 Ghost nets
  - 1.2 Nurdles and plastics bags

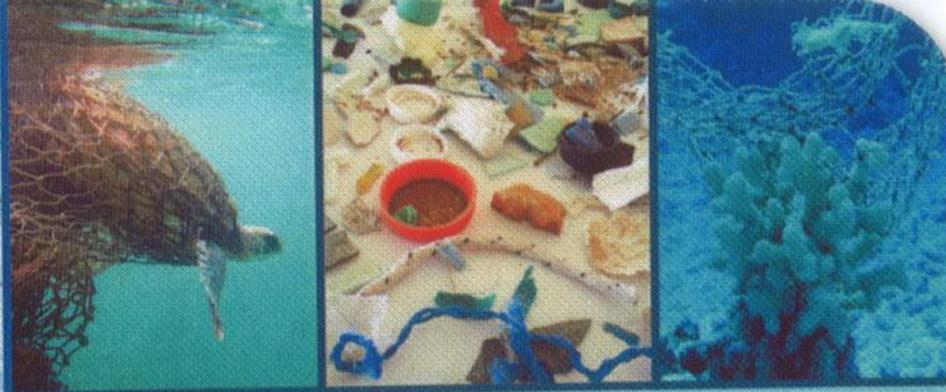
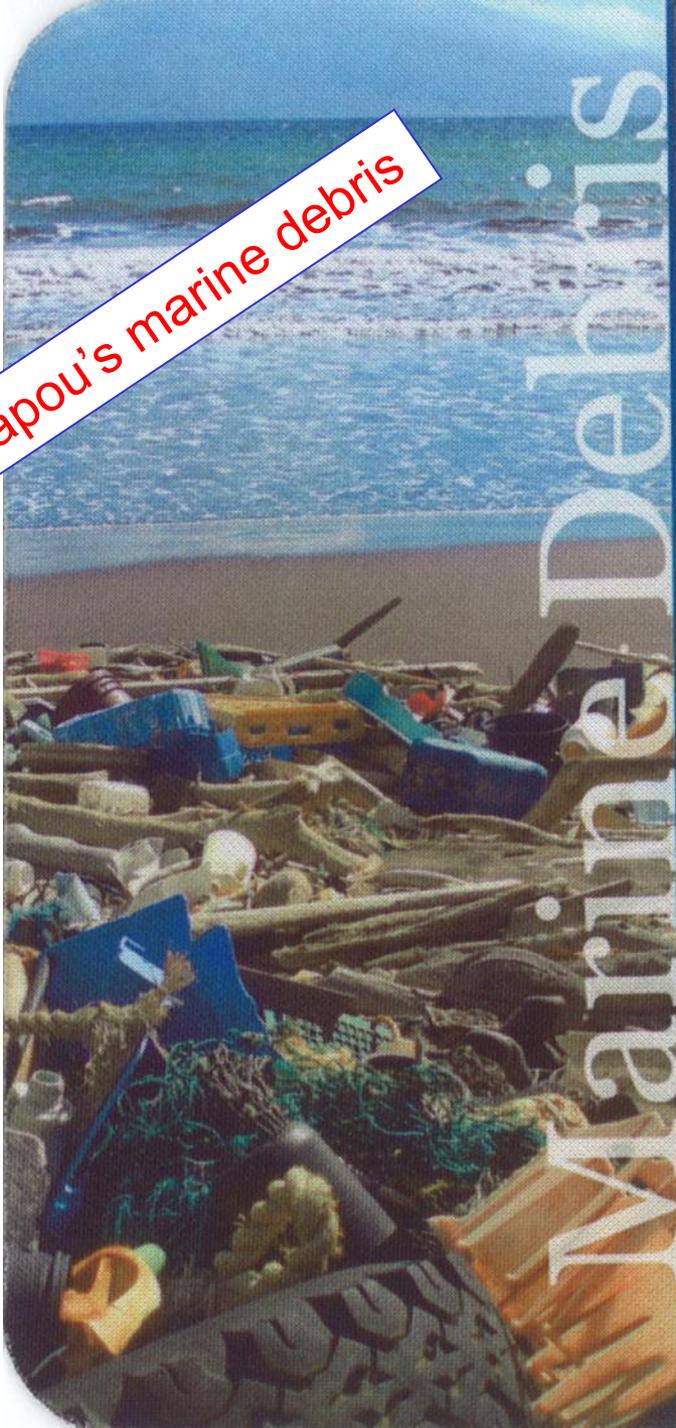


Marine debris on the Hawaiian coast

http://en.wikipedia.org/wiki/File:Marine\_debris\_on\_Hawaiian\_coast.jpg

11:04 AM  
3/28/2012

Kanapou's marine debris



**Marine debris is everyone's problem.** It threatens oceans, coasts, wildlife, human health, safety, and navigation. We can all help prevent marine debris by participating in cleanups and reducing, reusing, and recycling.



NOAA Marine Debris Program  
[www.MarineDebris.noaa.gov](http://www.MarineDebris.noaa.gov)

# Kanapou Bay



It's been there for  
“as long as anyone can  
remember”...



KIRC has  
conducted  
annual  
cleanups,  
but can't  
keep up  
with it...

# Where does our debris come from?



**Our friendly neighbor islands  
& across the Pacific...**

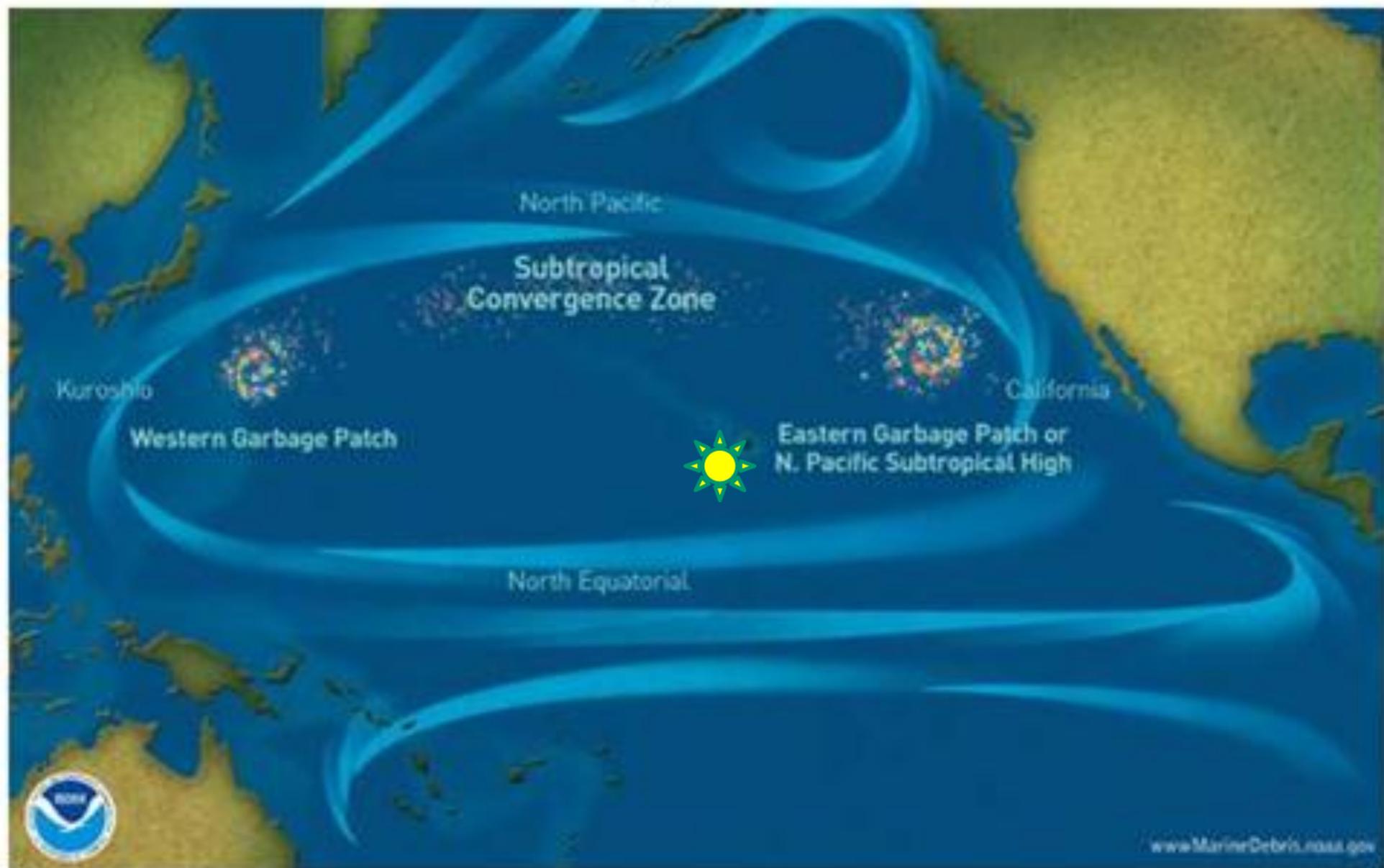
# University of Hawai'i (Hilo)

## “Drifter Experiment”



**We found 4 in Kanapou  
from Hilo**

# "Garbage Patches"



# Japanese, Taiwanese, Korean, & Chinese labels





# Collaboration with the “International Lighter Project”





# SHARKASTICS

“SHARKASTICS” are what we’ve termed pieces of plastic marine debris with obvious bite marks (jagged serrations &/or punctures)...

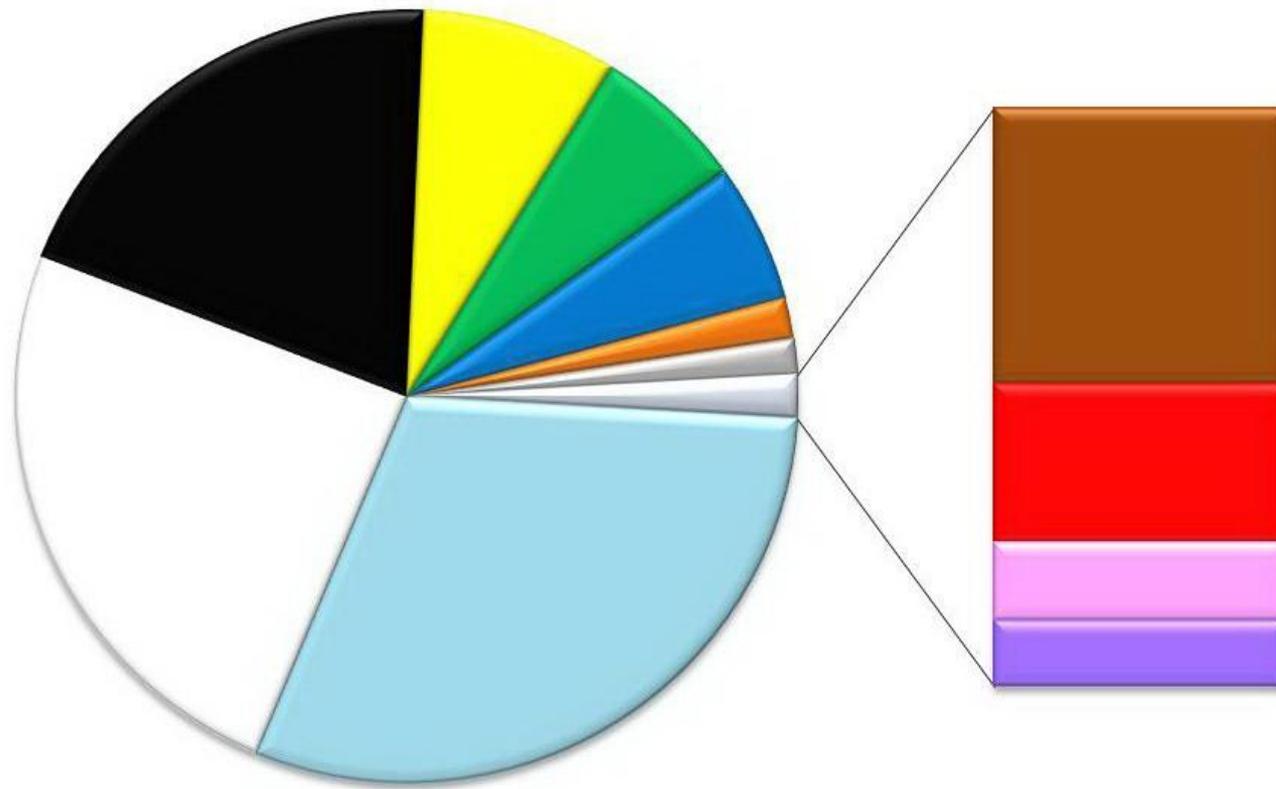
FFS, NWHI (~C~ King)



**Bites from sharks,  
sea birds, turtles,  
marine mammals,  
fish, and/or ??**



# Kanapou Sharkastics Sorted by Color (n=2464)



- Light blue/green (30.4%)
- White (24.6%)
- Black (19.8%)
- Yellow (8.1%)
- Green (6.3%)
- Dark blue (5.8%)
- Brown (5.0%)
- Orange (1.7%)
- Gray (1.5%)
- Red (1.5%)
- Brown (0.9%)
- Red (0.5%)
- Pink (0.2%)
- Purple (0.2%)

{Data source: C.King's 2011 HCC poster}



**Are animals actually eating the marine debris?**

**They're "attracted to it" for some reason(s)...**



**Maybe animals  
are just “test  
biting” the  
plastics...  
but if they’re  
actually  
ingesting these  
materials,  
it can’t be good  
for them...**



INTERNATIONAL MARINE DEBRIS CONFERENCE

# Fifth International Marine Debris Conference

## Waves of Change: Global lessons to inspire local action

### KANAOPO CLEANUPS ~ Kaho'olawe Island Reserve Commission

### What's Eating Kaho'olawe's Marine Debris? "Sharkastics" Are Providing Many Clues, and it's Not Fantastic News...

**2013 King, Oahu Resource Specialist II**  
 Honolulu Ocean Resource Commission, 201 Kalia St., Suite 201, Honolulu, HI 96815  
 honolulu@hocr.com | 808-948-0800 | www.honolulu.gov

**Introduction to Sharkstics**  
 The Island of Kaho'olawe (20 44W 156 57W) is the smallest of the eight main Hawaiian Islands and an inactive volcano, with a history of intense erosion of Kaho'olawe. The Kaho'olawe Island Reserve is the largest island and is currently managed by the U.S. Fish and Wildlife Service. It is a natural laboratory for studying the effects of marine debris on a remote island ecosystem. The island is a natural laboratory for studying the effects of marine debris on a remote island ecosystem. The island is a natural laboratory for studying the effects of marine debris on a remote island ecosystem.

**Research Methodology**  
 The U.S. Fish and Wildlife Service's Sharkstics Program is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks.

**2013 Annual Sharkstics Report of Turtles Associated with Marine Debris (TAMTD)**  
 TAMTD is a national effort to collect and analyze marine debris found in the stomachs of turtles. The program is a national effort to collect and analyze marine debris found in the stomachs of turtles. The program is a national effort to collect and analyze marine debris found in the stomachs of turtles.

**Map of Kaho'olawe, HI**  
 A map of Kaho'olawe Island, Hawaii, showing the island's location and the Kaho'olawe Island Reserve. The map is titled "KAOHOLAWE, HI (20N 156W) (20N 156W)".

**Map of the Western Hemisphere**  
 A map of the Western Hemisphere showing the distribution of marine debris. The map is titled "Map of the Western Hemisphere".

**Map of the Eastern Hemisphere**  
 A map of the Eastern Hemisphere showing the distribution of marine debris. The map is titled "Map of the Eastern Hemisphere".

**Map of the Pacific Ocean**  
 A map of the Pacific Ocean showing the distribution of marine debris. The map is titled "Map of the Pacific Ocean".

**Map of the Atlantic Ocean**  
 A map of the Atlantic Ocean showing the distribution of marine debris. The map is titled "Map of the Atlantic Ocean".

**Map of the Indian Ocean**  
 A map of the Indian Ocean showing the distribution of marine debris. The map is titled "Map of the Indian Ocean".

**Map of the Southern Ocean**  
 A map of the Southern Ocean showing the distribution of marine debris. The map is titled "Map of the Southern Ocean".

### SHARKASTICS™ ~ www.SHARKASTICS.org

**SHARKASTICS™**  
 SHARKASTICS™ is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks.

**PLASTIC**  
 PLASTIC is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks. The program is a national effort to collect and analyze marine debris found in the stomachs of sharks.



Please label the location of your SHARKASTICS!



# Hawai'i Conservation Conference





**SHARKASTICS™**

**TAKING A BITE OUT OF MARINE DEBRIS**

**WWW.SHARKASTICS.ORG**

**2010-2011**

**NOAA Marine Debris Division & KIRC  
co-funded**

**“The Complete Cleanup of Kanapou”**



**>31 tons of marine debris removed**



**Rough ocean  
conditions...**



## 2 & 3-night campouts















**The Biggest Challenge  
(to Us All):  
All the Little Pieces  
That Float in  
with Every Wave...**

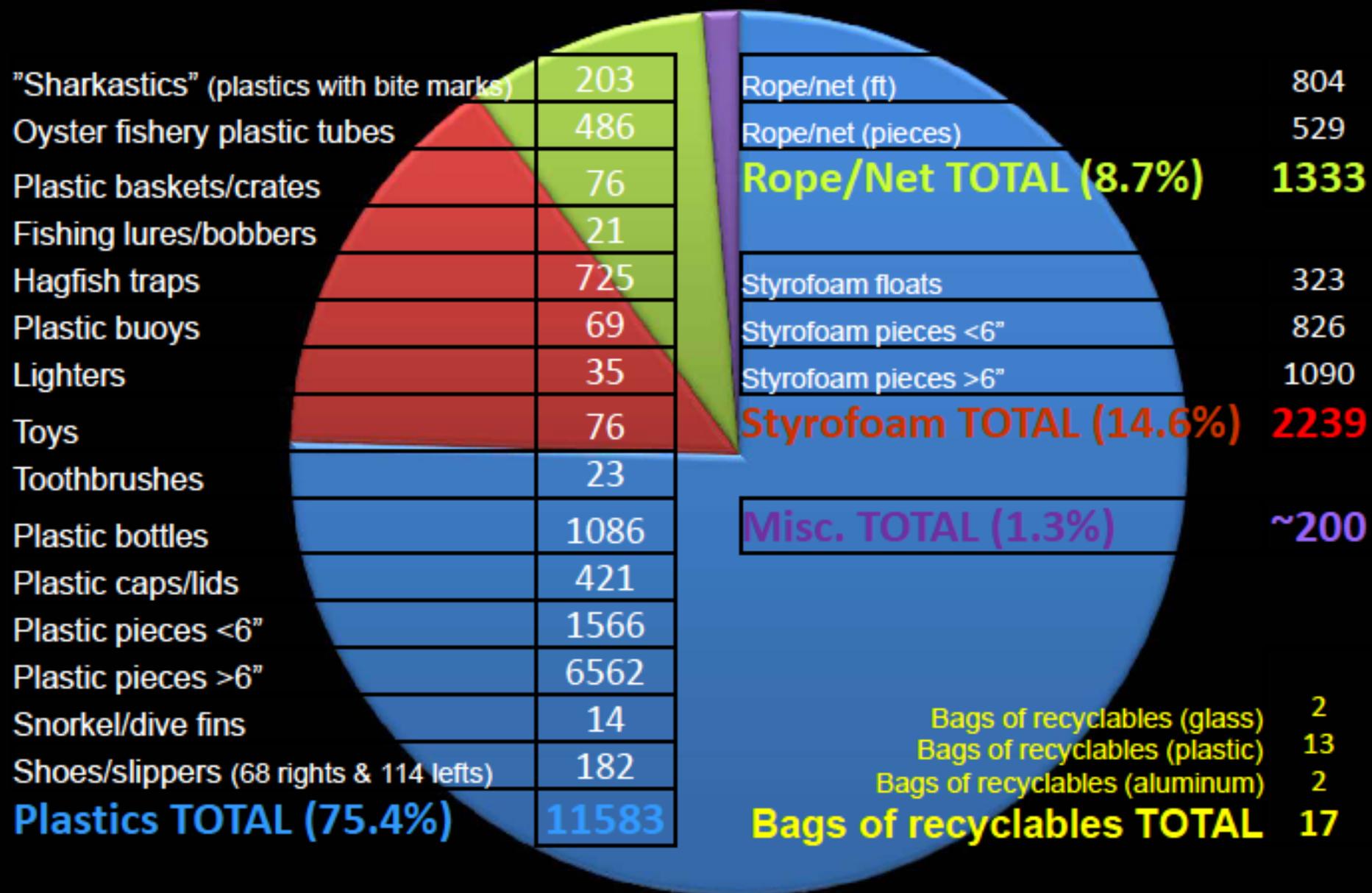




# Counting & Sorting



# Marine Debris Data from Sept 25<sup>th</sup>, 2010 Kanapou Cleanup (~1/2 acre)



# Kanapou Marine Debris Removal Methods:

by Air & by Sea



**Recyclables are sorted and brought to Maui on the boat...**

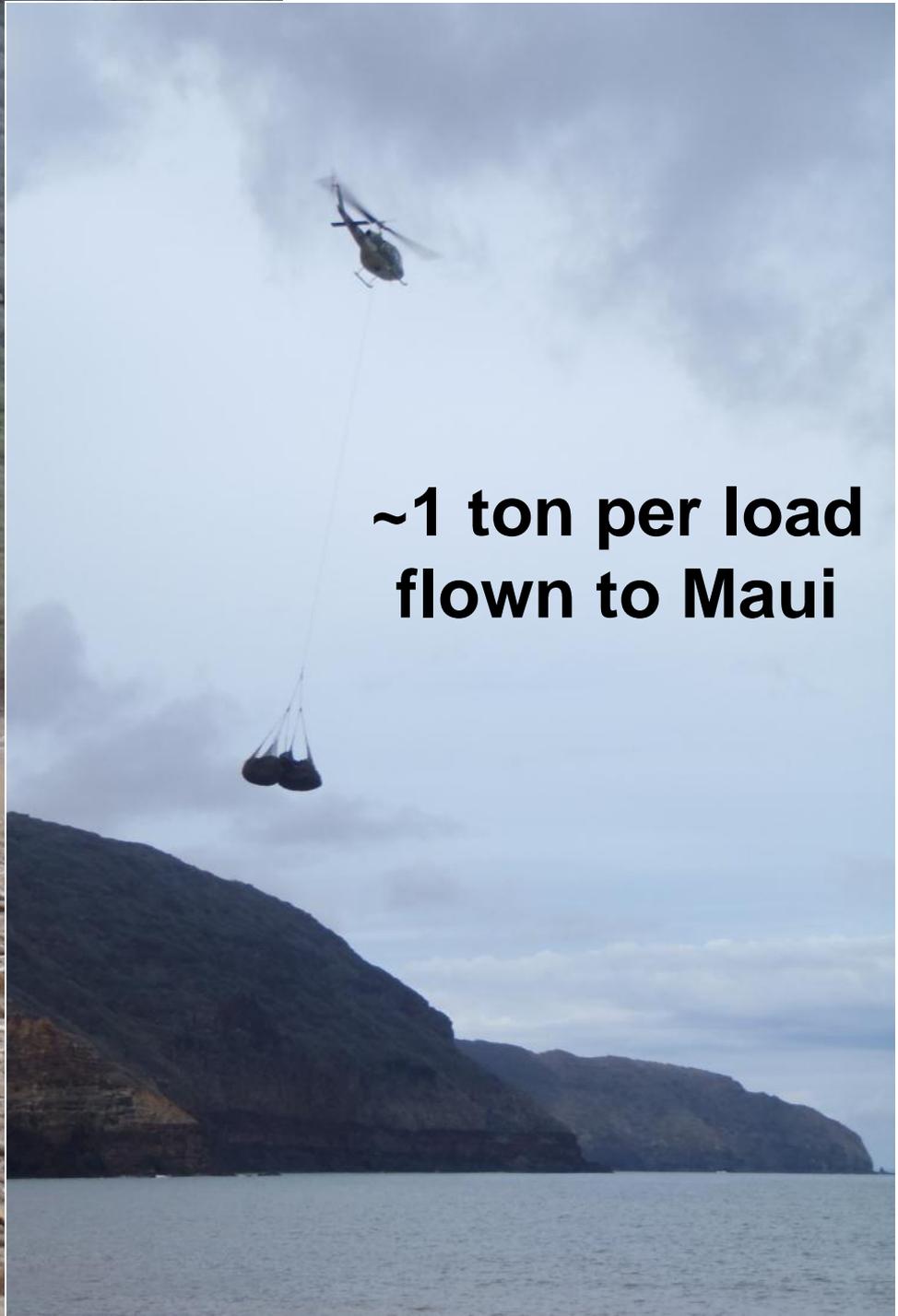


Piles were made  
for slingloads...









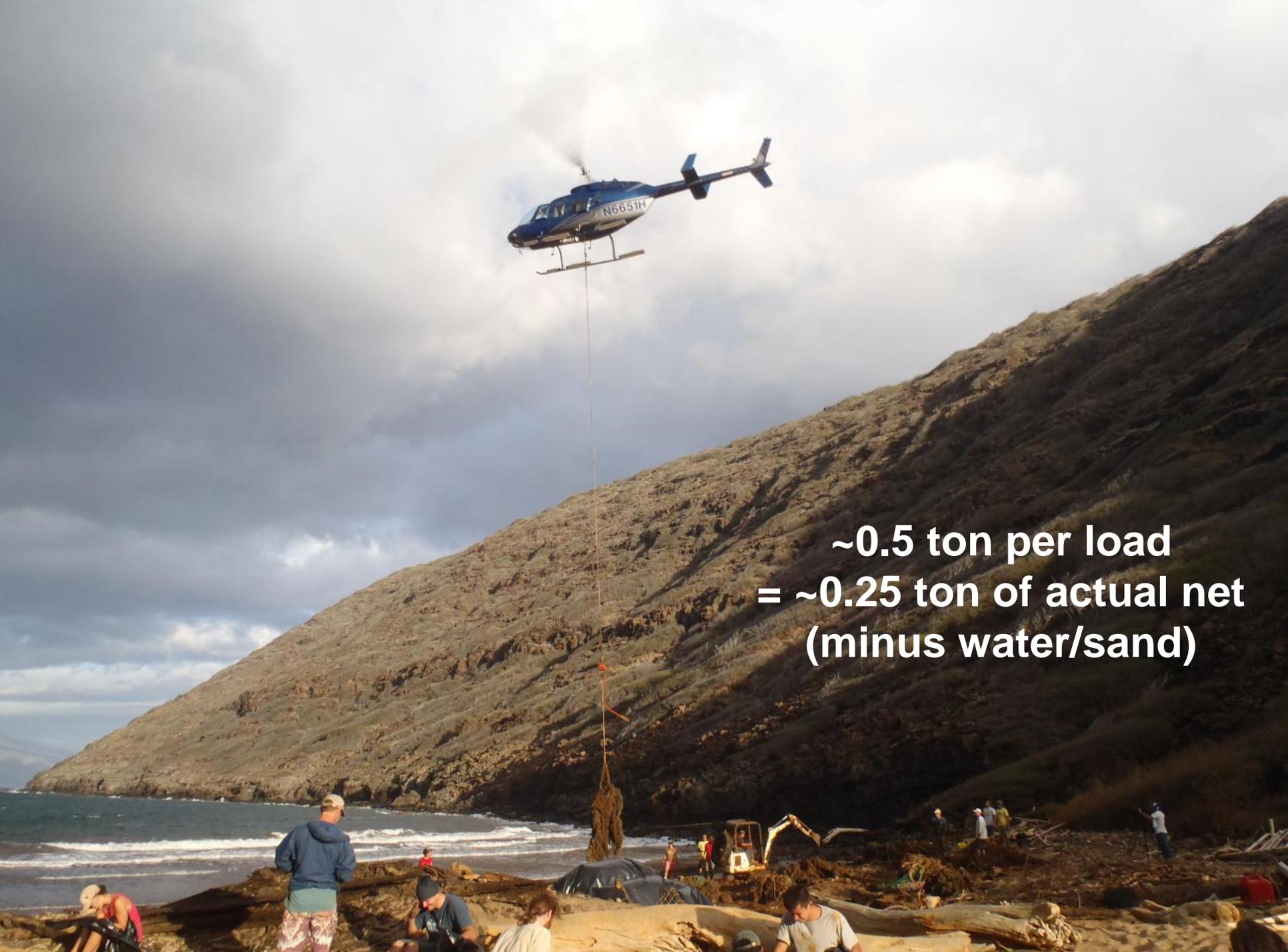
**~1 ton per load  
flown to Maui**

# NETS









**~0.5 ton per load  
= ~0.25 ton of actual net  
(minus water/sand)**



**Kaho'olawe's  
erosion issue**

# Novel Erosion Control Technique: Re-using Nets



**13 tons of nets dropped here.**



6/16/2008

**DANGER**  
KEEP AWAY - KAPU  
BOMBS IN LAND & WATER



9/25/2010  
**CLEANED!**

**DANGER**  
KEEP AWAY - KAPU  
BOMBS IN LAND & WATER



**Re-accumulation**

11/4/2010

**DANGER**  
KEEP AWAY - KAPU  
BOMBS IN LAND & WATER



12/20/2010

**DANGER**  
KEEP AWAY - KAPU  
BOMBS IN LAND & WATER



08/22/11



**More & more debris  
keeps washing ashore...**

**But seemingly in lower  
quantities as we  
repeatedly cleaned  
this spot and the  
rest of the bay...**

11/07/11



12/08/11  
After final  
cleanup!



**Wikipedia**



**After Cleanups**



# Before & After Cleanups



# Before & After Cleanups



**Before  
Cleanups**



**After Cleanups**





**We shipped a 40-foot  
container full of  
debris (6.6 tons)  
to Zurich, Switzerland...**





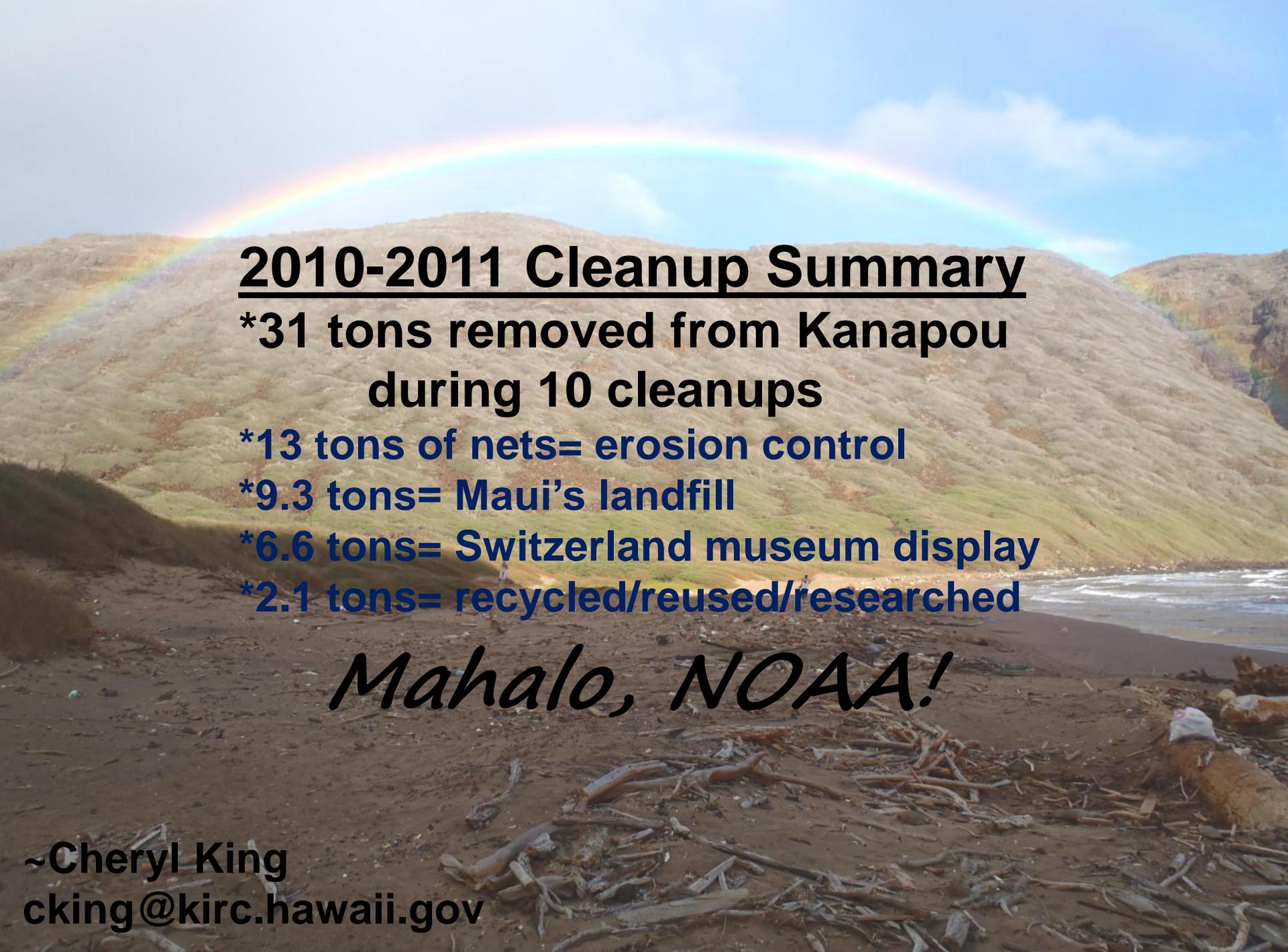
**Hapag-Lloyd**

**Opening  
July 3**



**And it arrived to  
*Museum für  
Gestaltung Zürich!***





## 2010-2011 Cleanup Summary

**\*31 tons removed from Kanapou  
during 10 cleanups**

**\*13 tons of nets= erosion control**

**\*9.3 tons= Maui's landfill**

**\*6.6 tons= Switzerland museum display**

**\*2.1 tons= recycled/reused/researched**

***Mahalo, NOAA!***

**~Cheryl King**

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