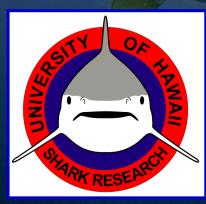
#### **SHARK RESEARCH IN HAWAII**

#### Kim Holland, Carl Meyer, Shark Lab Team



Hawaii Institute of Marine Biology UnUniversity of Hawaii at Manoa

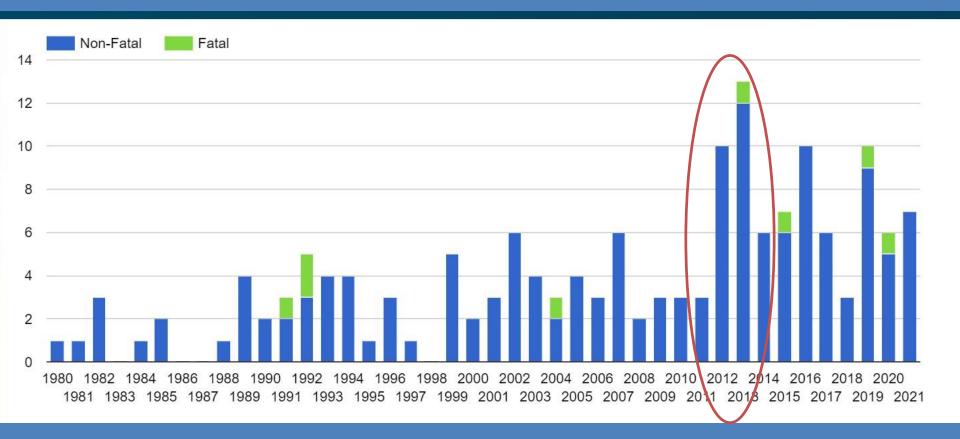


# **Two Main Themes**

Tracking and "Sharks as Oceanographers"

• Shark Deterrent Research

# **Annual Shark Attacks**

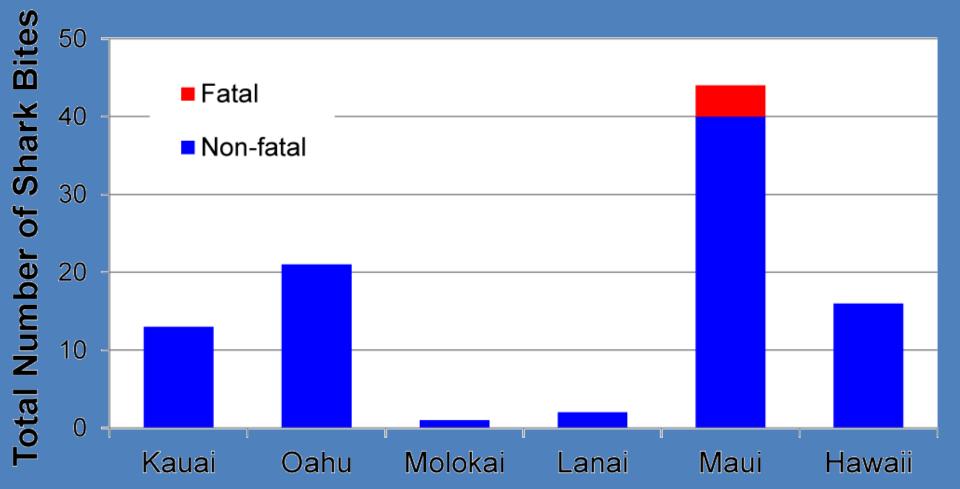




Hawaii Institute of Marine Biology

Shark & Reef Fish Research

#### Shark Bite Frequency By Island 1995-2015



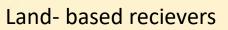






((((1)))))

Argos Satellite System

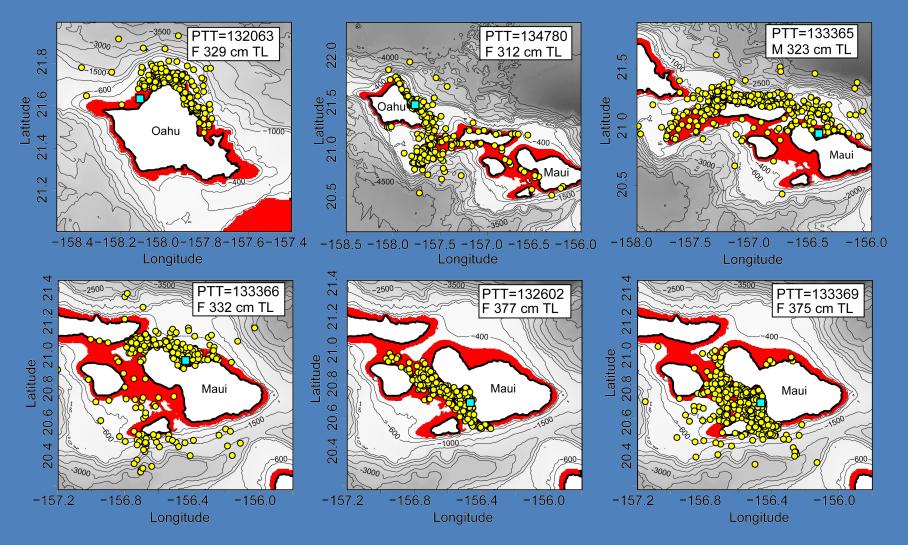




#### Hawaii Institute of Marine Biology

Shark & Reef Fish Research

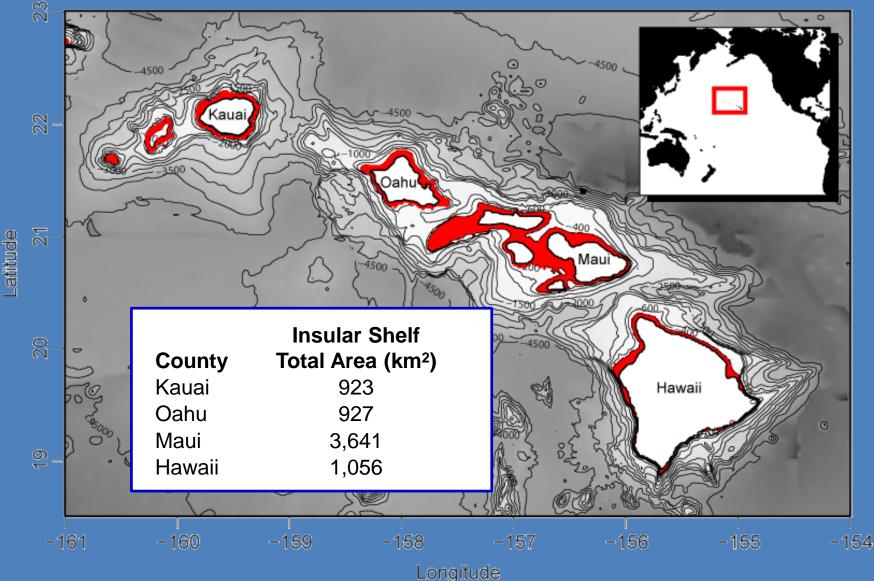
#### Satellite Tracks of 6 Tiger Sharks Captured Around Maui & Oahu

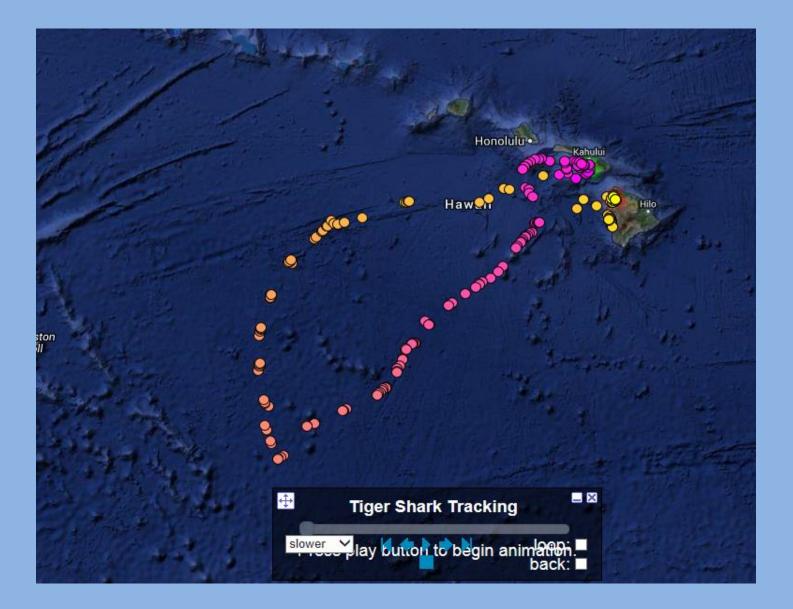


#### Hawaii Institute of Marine Biology

Shark & Reef Fish Research

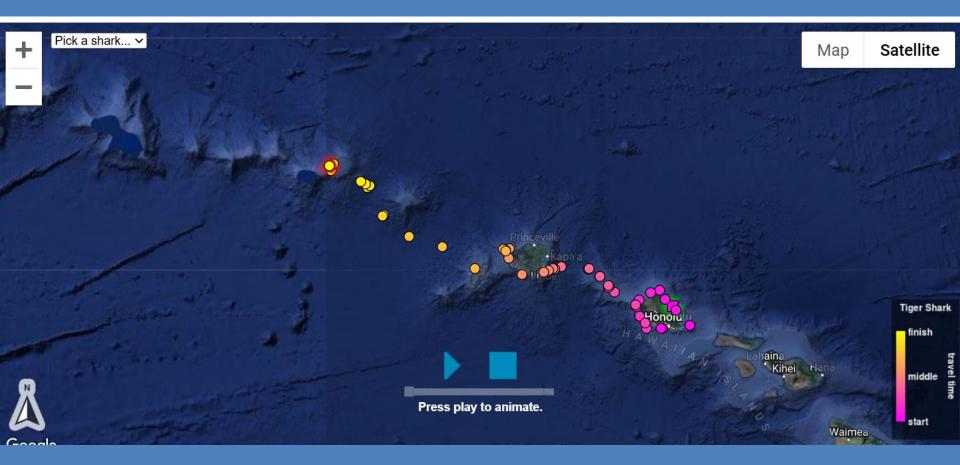
#### Distribution of Insular Shelf Habitat Within the Main Hawaiian Islands



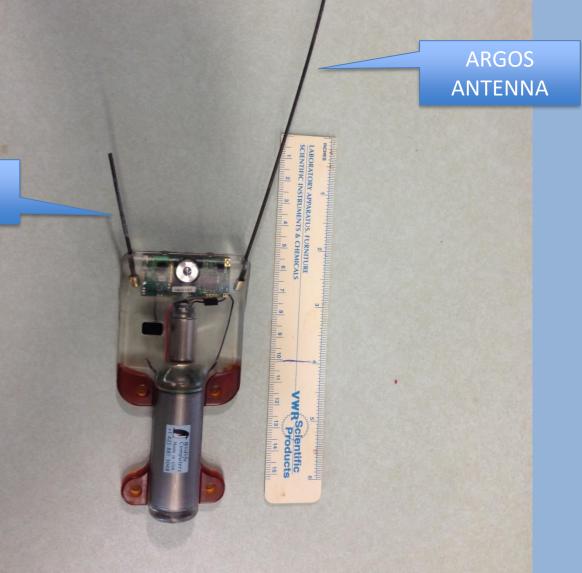




### https://www.pacioos.hawaii.edu/projects/sharks/

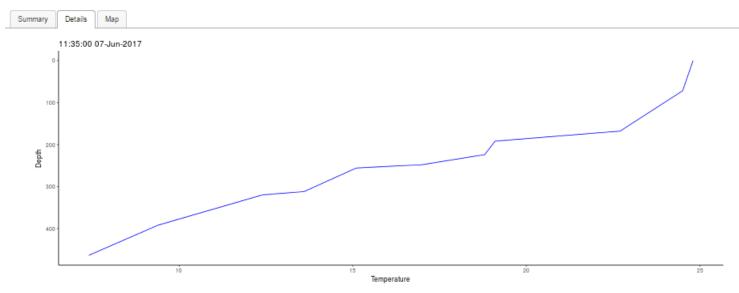


# "Bathygraph" Profiling Tag

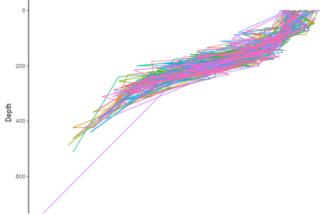


GPS ANTENNA

#### OCEAN DEPTH/TEMPERATURE PROFILES



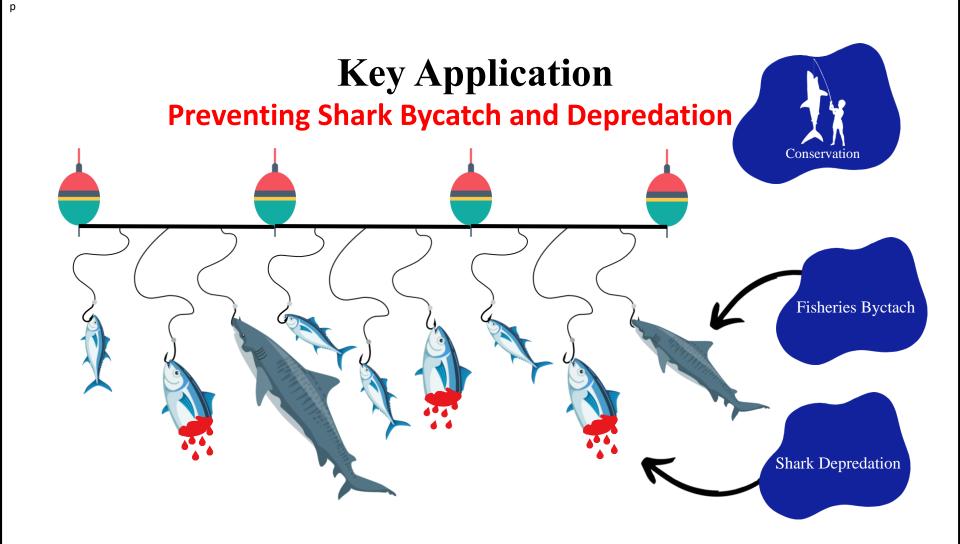
All Profiles



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- 00:55:00 13-Apr-2017 - 05:45:00 29-Jan-2017 - 09:45:00 31-Jan-2017 - 13:35:00 07-Jun-2017 - 16:35:00 16-Mar-2017
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- 05:05:00 30-Mar 2017 - 09:35:00 27-Feb-2017 - 12:35:00 12-Feb-2017 - 16:25:00 14-Feb-2017

# **Deterrent Applications**

- Human safety
  - Swimmers
  - Surfers/Divers
- Shark Bycatch Reduction
  - Primarily longline fisheries
- Shark Depredation Reduction
  - Longlines (pelagic and benthic)
  - Bottom fish handline ("snapper") fisheries



## **Capture and Transport to Captivity**





# Holding Pen and Test Arena

Two sets of calibrated stereo video cameras





