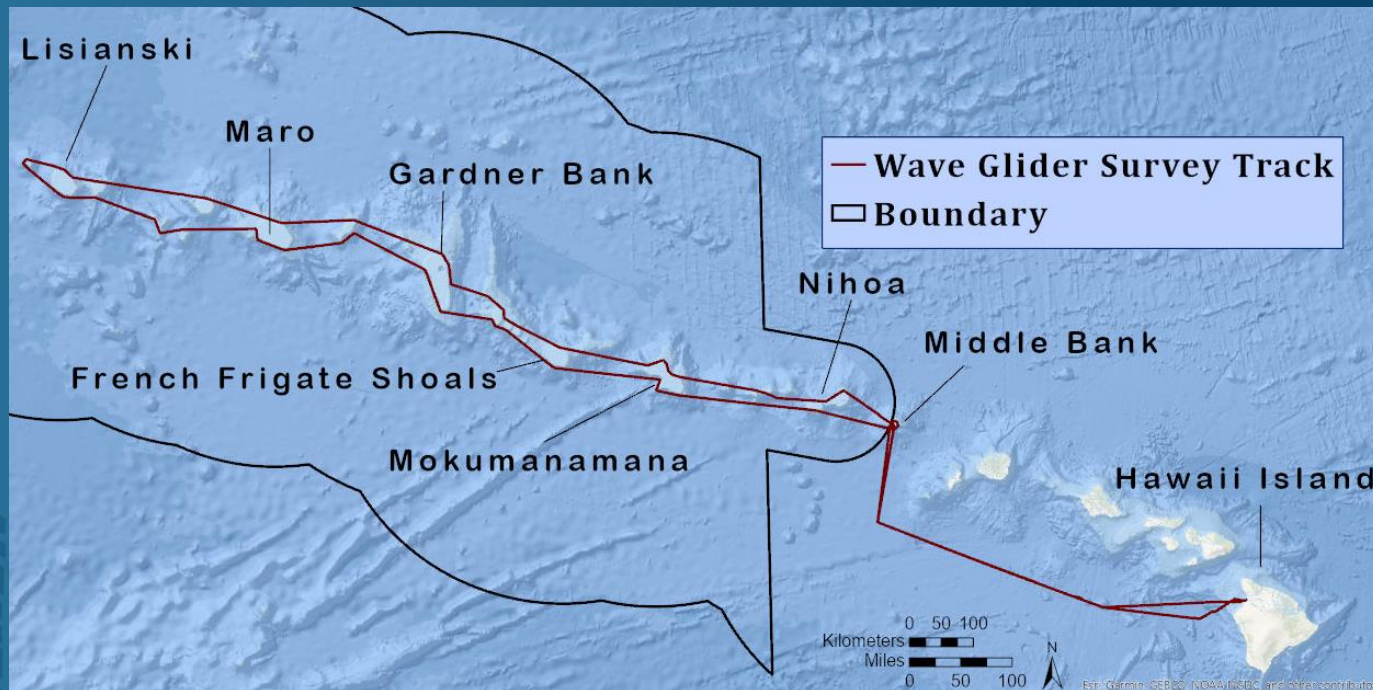


PAPA HĀNAUMOKUĀKEA  
Marine National Monument

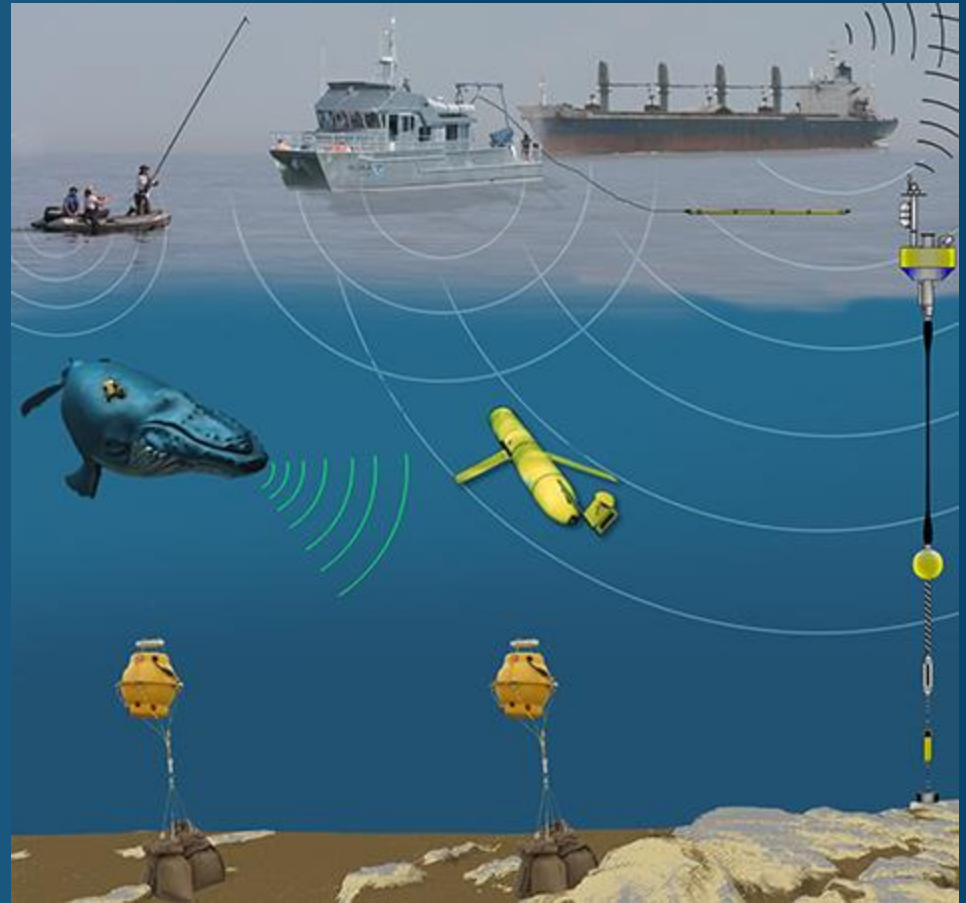
*A World Heritage Site*

# 2020 Wave Glider Mission to Papahānaumokuākea



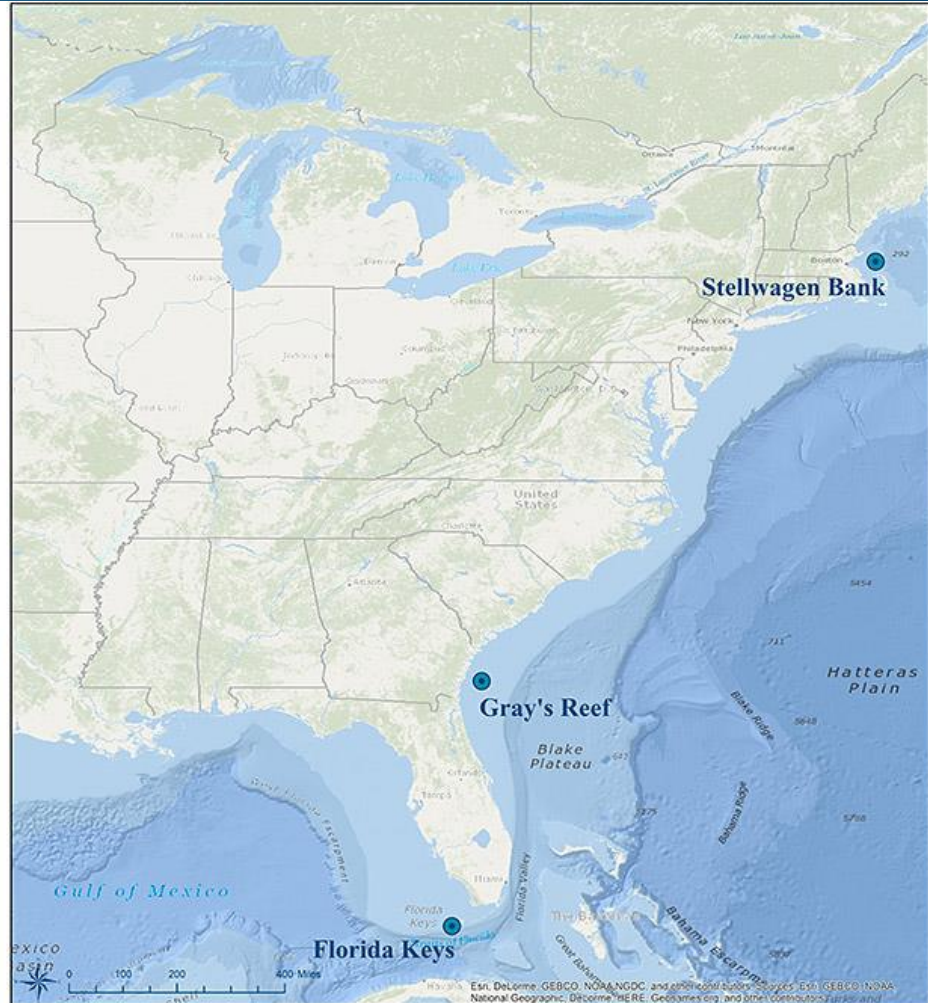
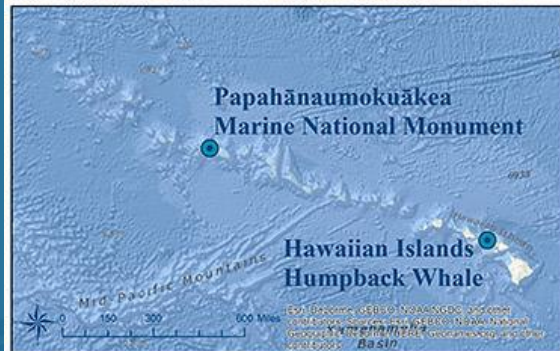
# Passive Acoustic Research

- Cetaceans
  - Humpbacks
- Vessels
  - Acoustic
  - Satellite AIS
- Soundscape
  - Storms
  - Fish

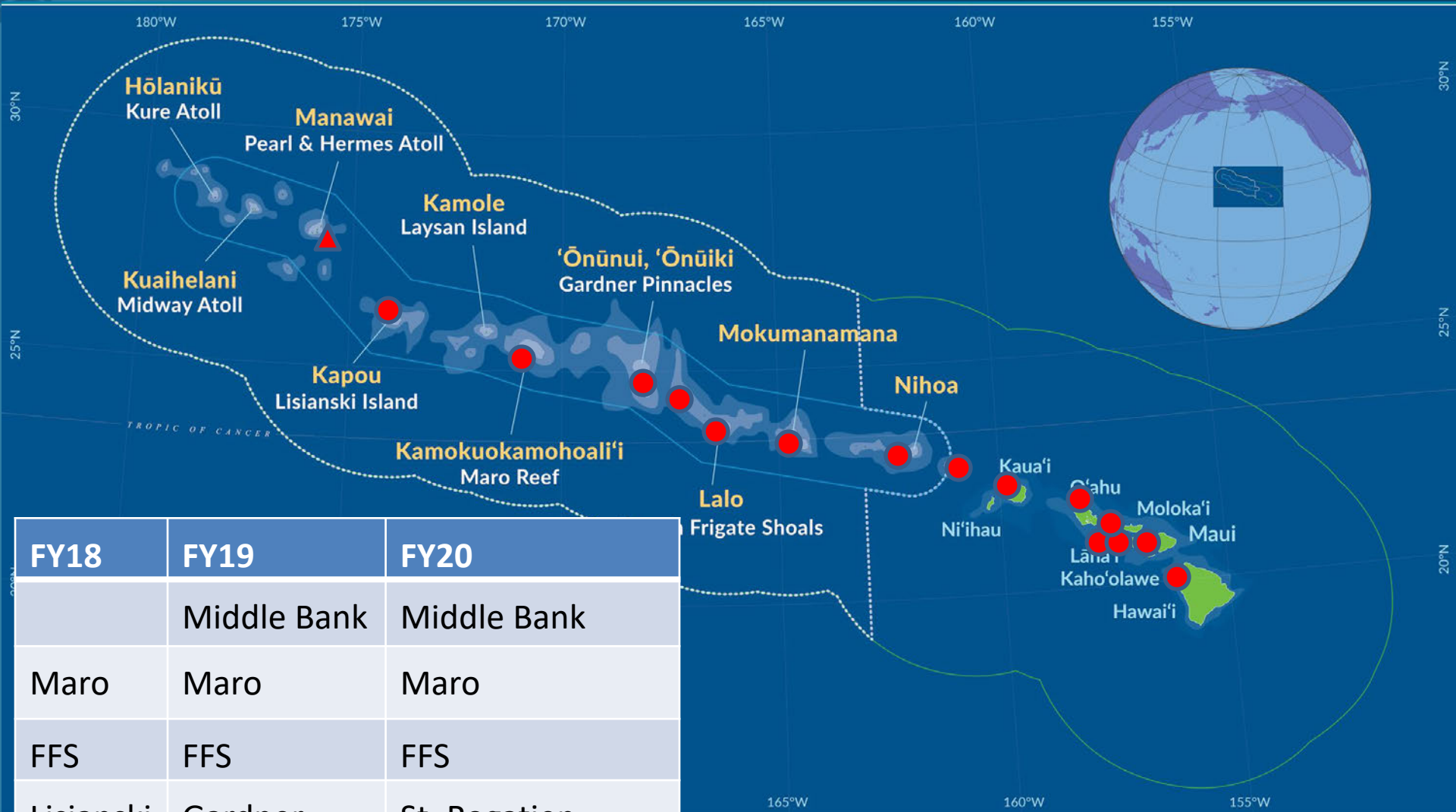




# SanctSound Project



# Papahānaumokuākea Marine National Monument



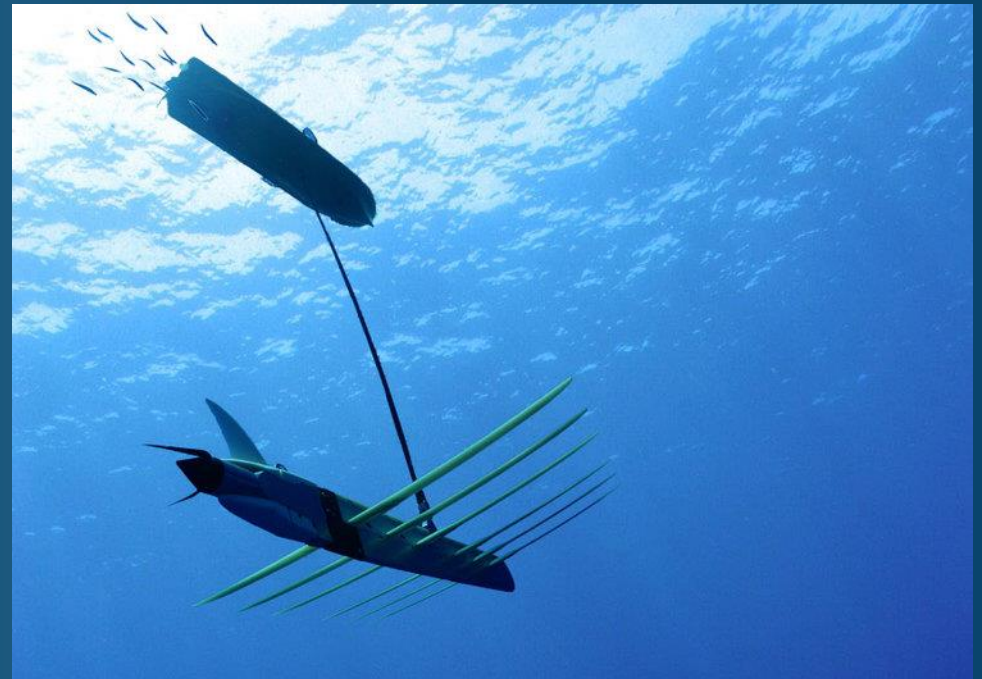
FY18	FY19	FY20
	Middle Bank	Middle Bank
Maro	Maro	Maro
FFS	FFS	FFS
Lisianski	Gardner	St. Rogatien
	Nihoa	Mokumanamana



# SV3 Wave Glider & Jupiter Research Foundation

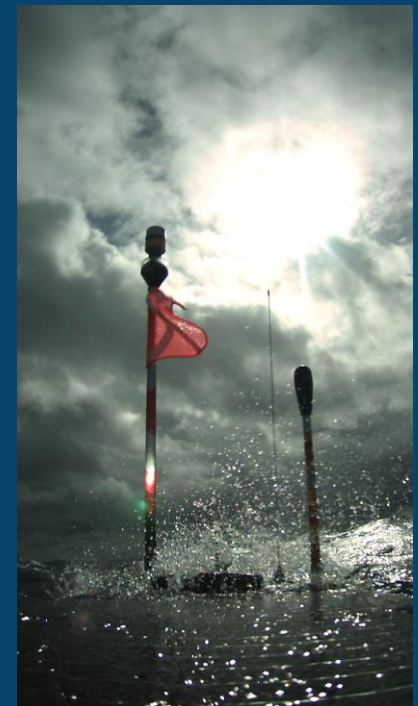
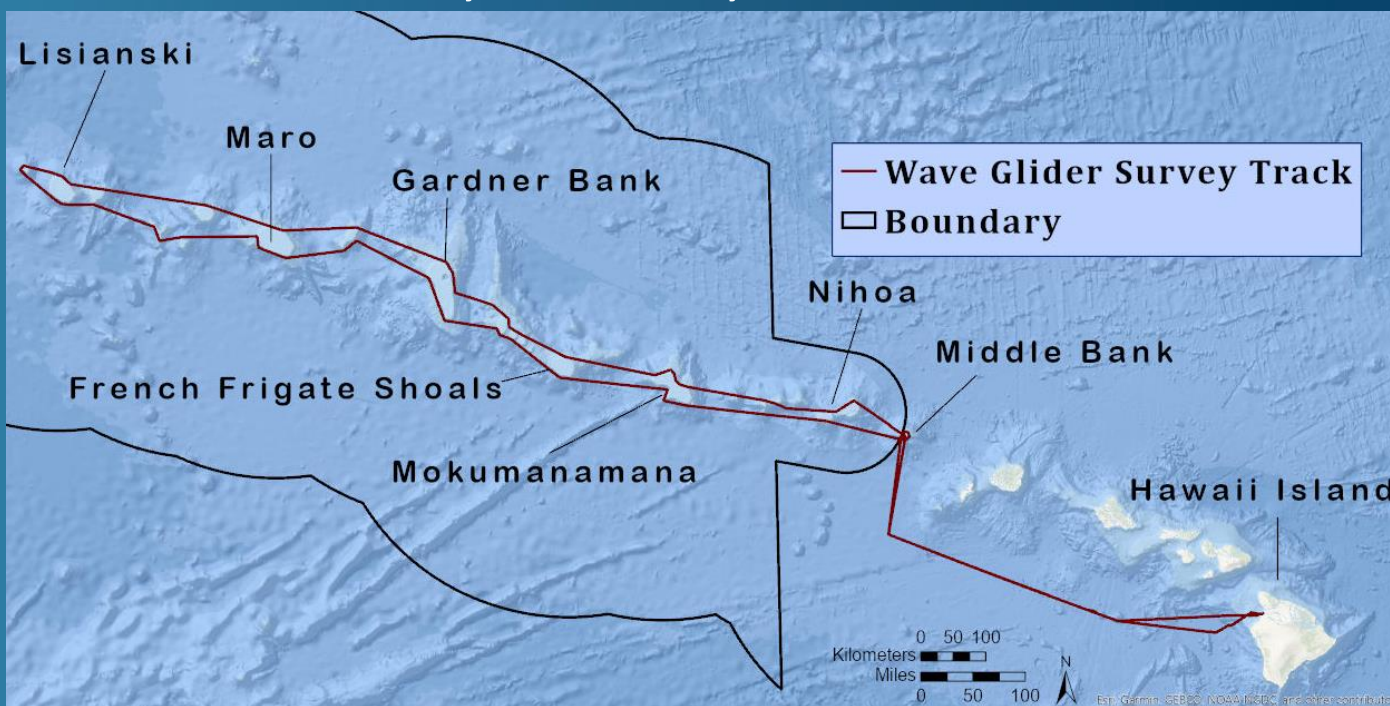
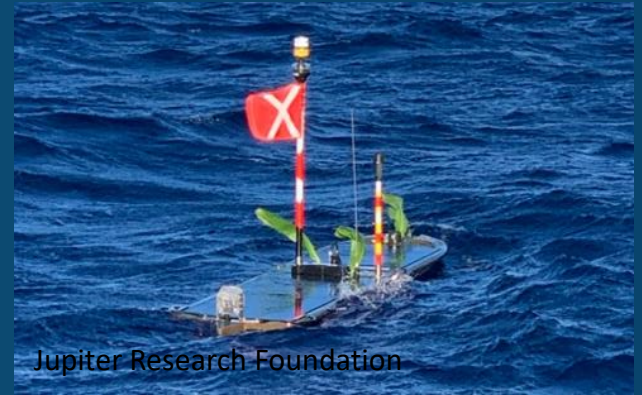


Liquid Robotics



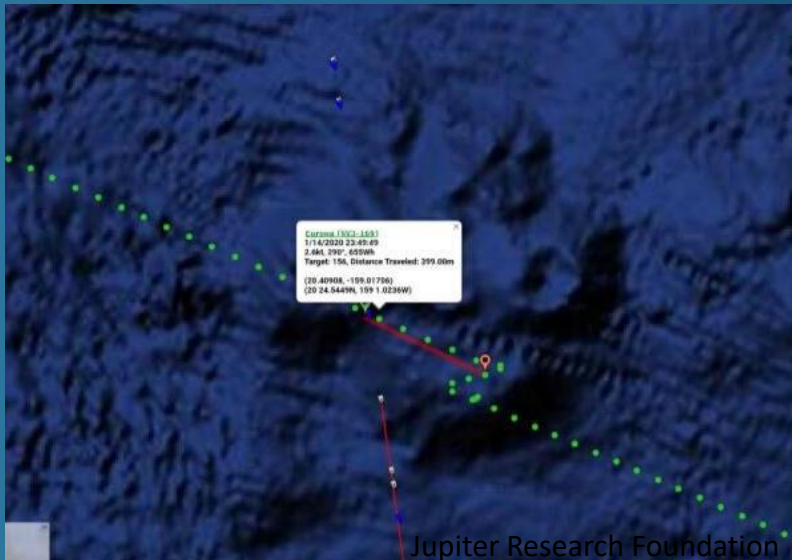
# The Mission - 2,500 nmi

- 2,500 nmi Roundtrip
- 67 Days
- 18 Banks, Shoals, Seamounts

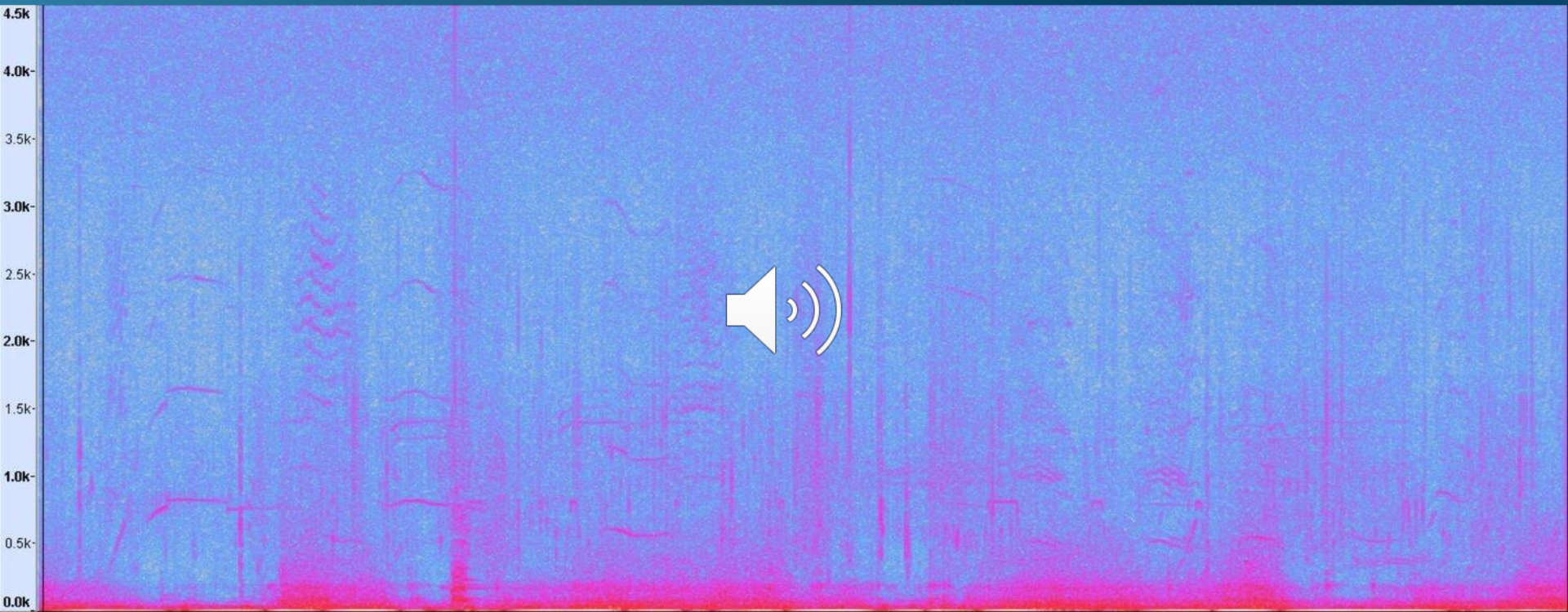




# Findings - Vessel Collision Avoidance



# Findings - Marine Mammals

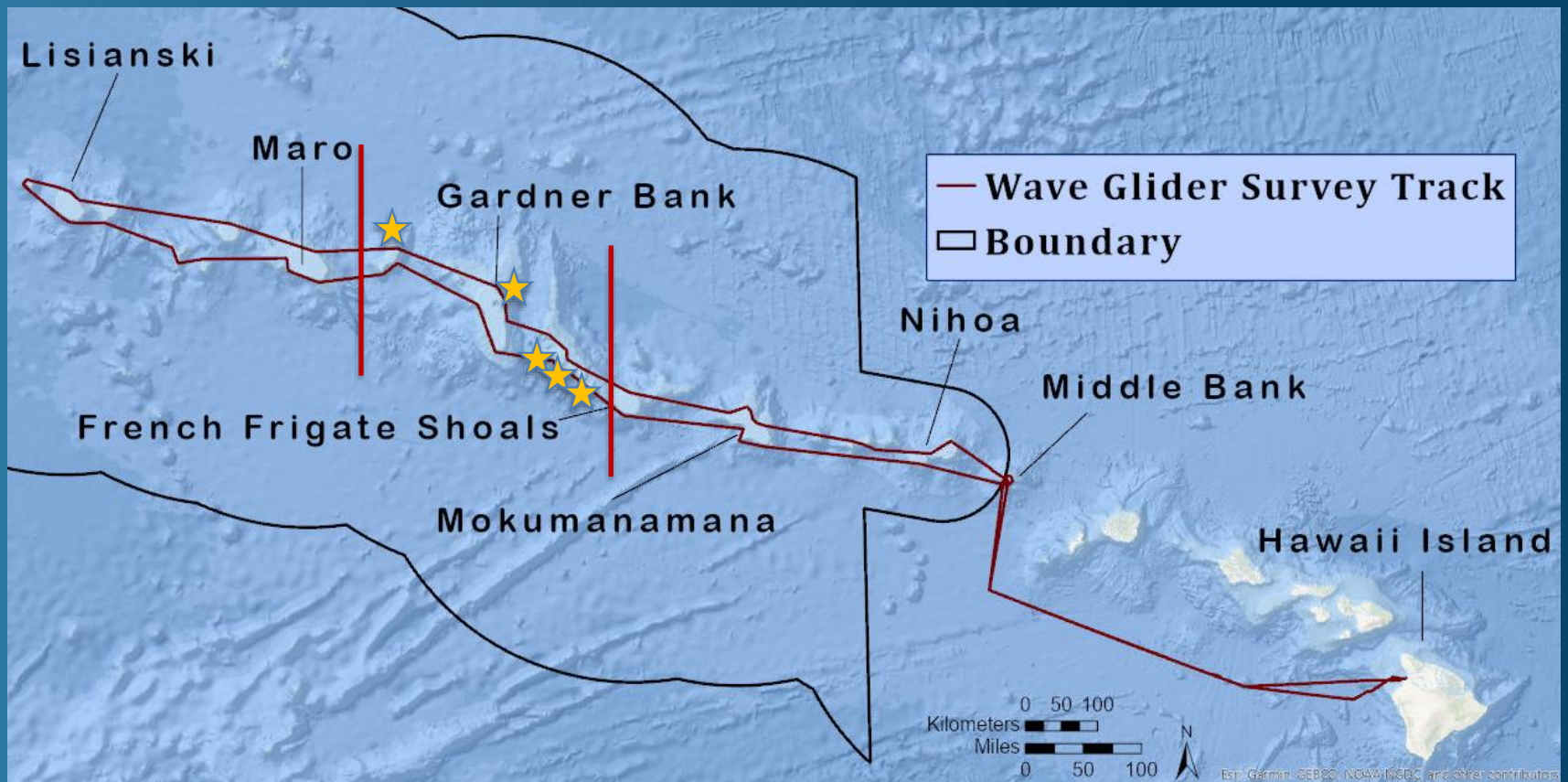


- Humpback, Minke, Misc. Odontocetes



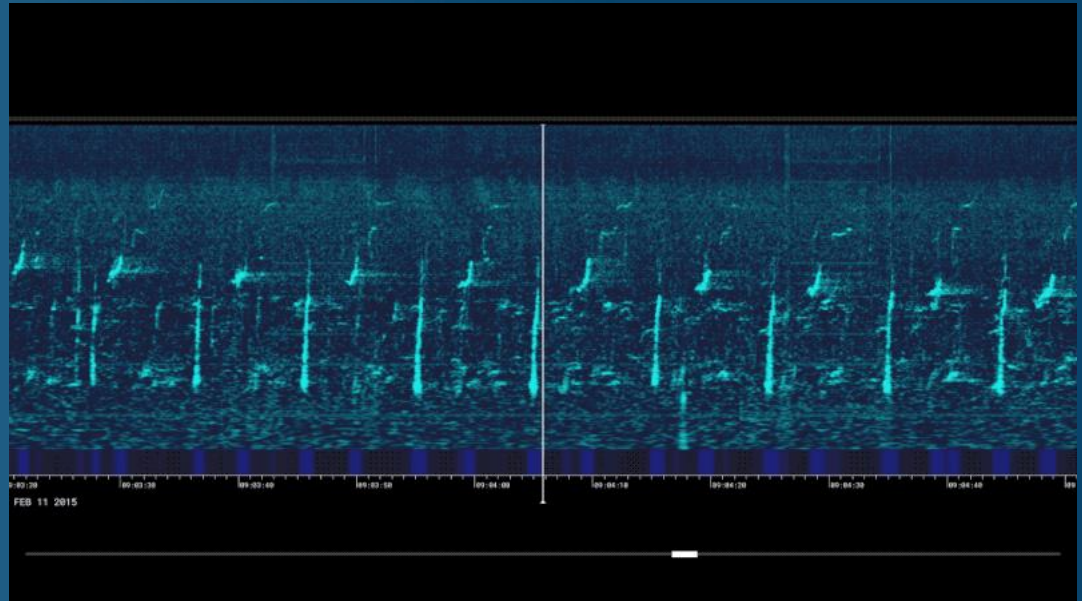
# Findings - New Locations Surveyed

- Middle Bank, Raita Bank, Lisianski



# Data Analysis

- Google AI for Social Good Program
  - Humpbacks

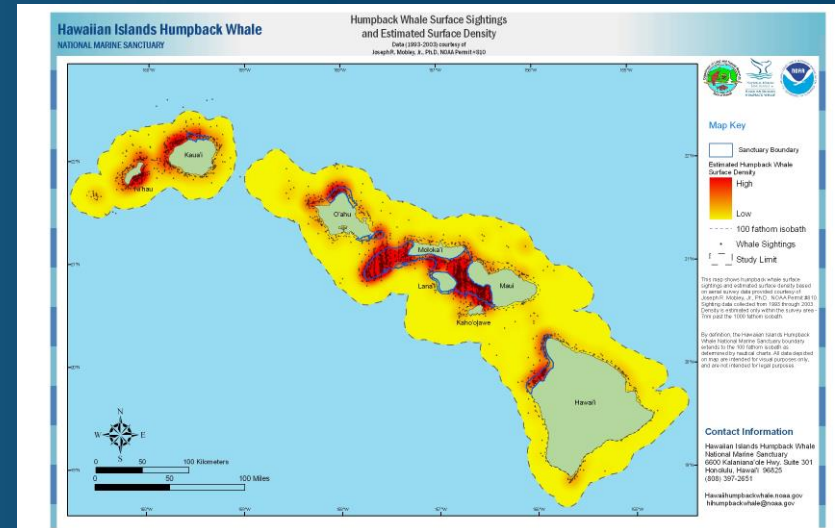


- **Pattern Radio Webpage** - <https://medium.com/@alexanderchen/pattern-radio-whale-songs-242c692fff60>



# Data Products

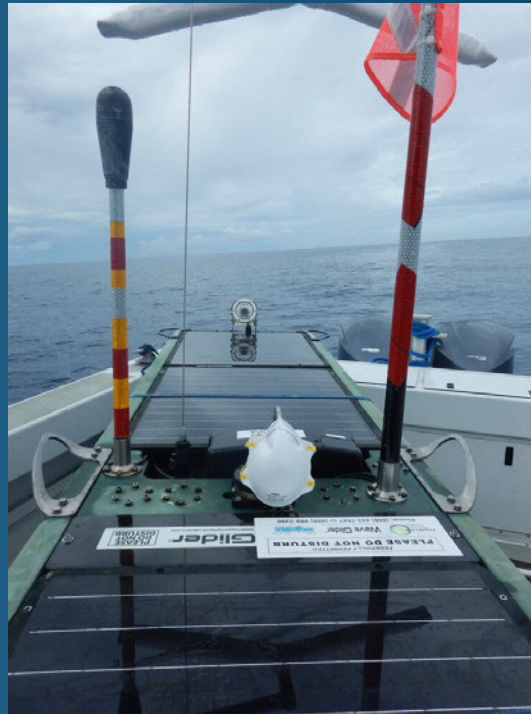
- Maps
- Vessels and Soundscape
- Archived Data NCEI





# PAPA HĀNAUMOKUĀKEA Marine National Monument

Mahalo! *A World Heritage Site*



- **Jupiter Research Foundation Blogs** - <http://jupiterfoundation.org/current>
- **Wave Glider Slide Show**
- **SanctSound Webpage** - <https://sanctuaries.noaa.gov/science/monitoring/sound/>
- [Jonathan.Martinez@noaa.gov](mailto:Jonathan.Martinez@noaa.gov)

