



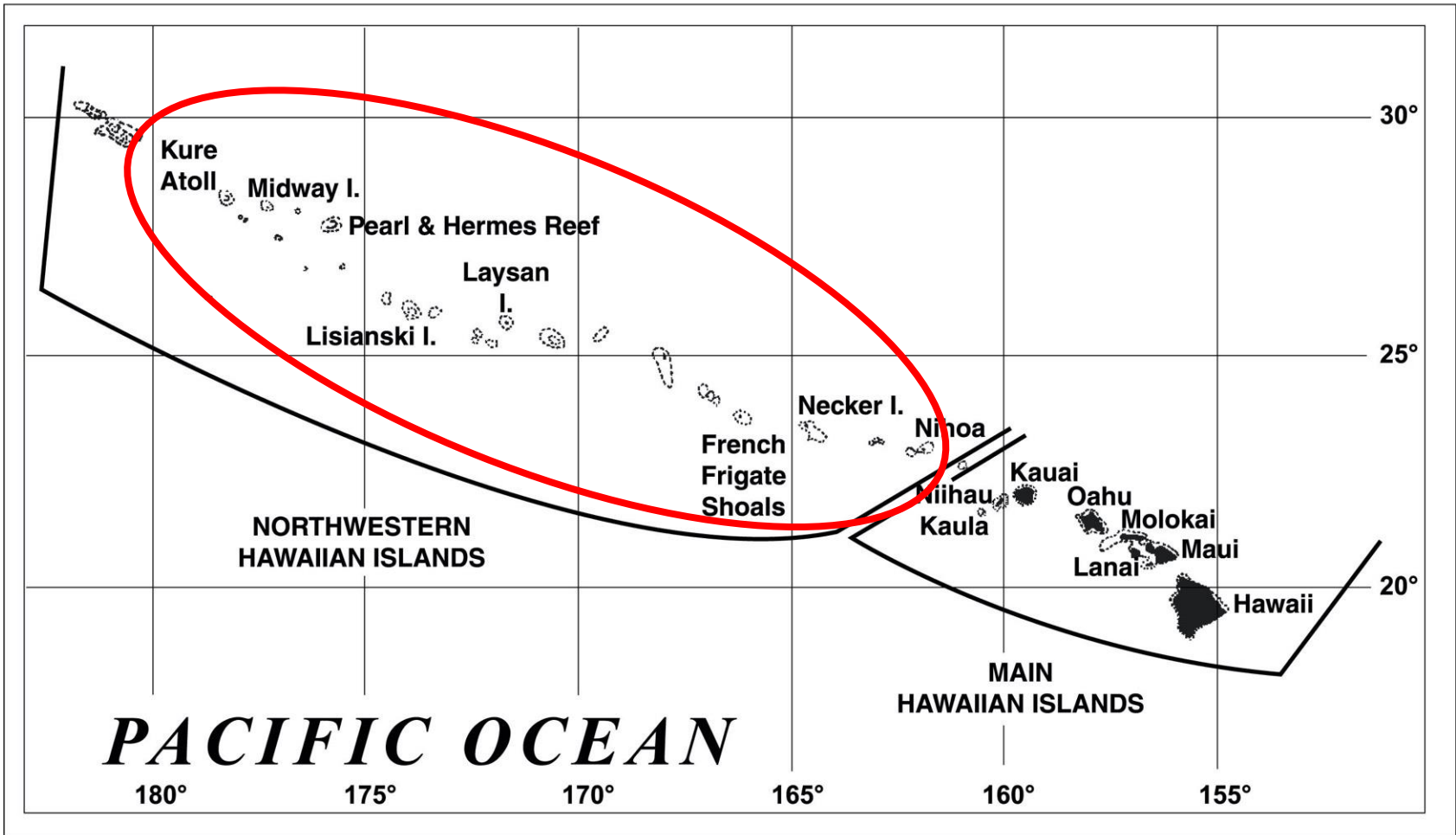
# Hawaiian monk seal—Terrestrial habitat loss due to climate change and potential mitigation

Jason Baker

MMC Committee of Scientific Advisors

NMFS Pacific Islands Fisheries Science Center

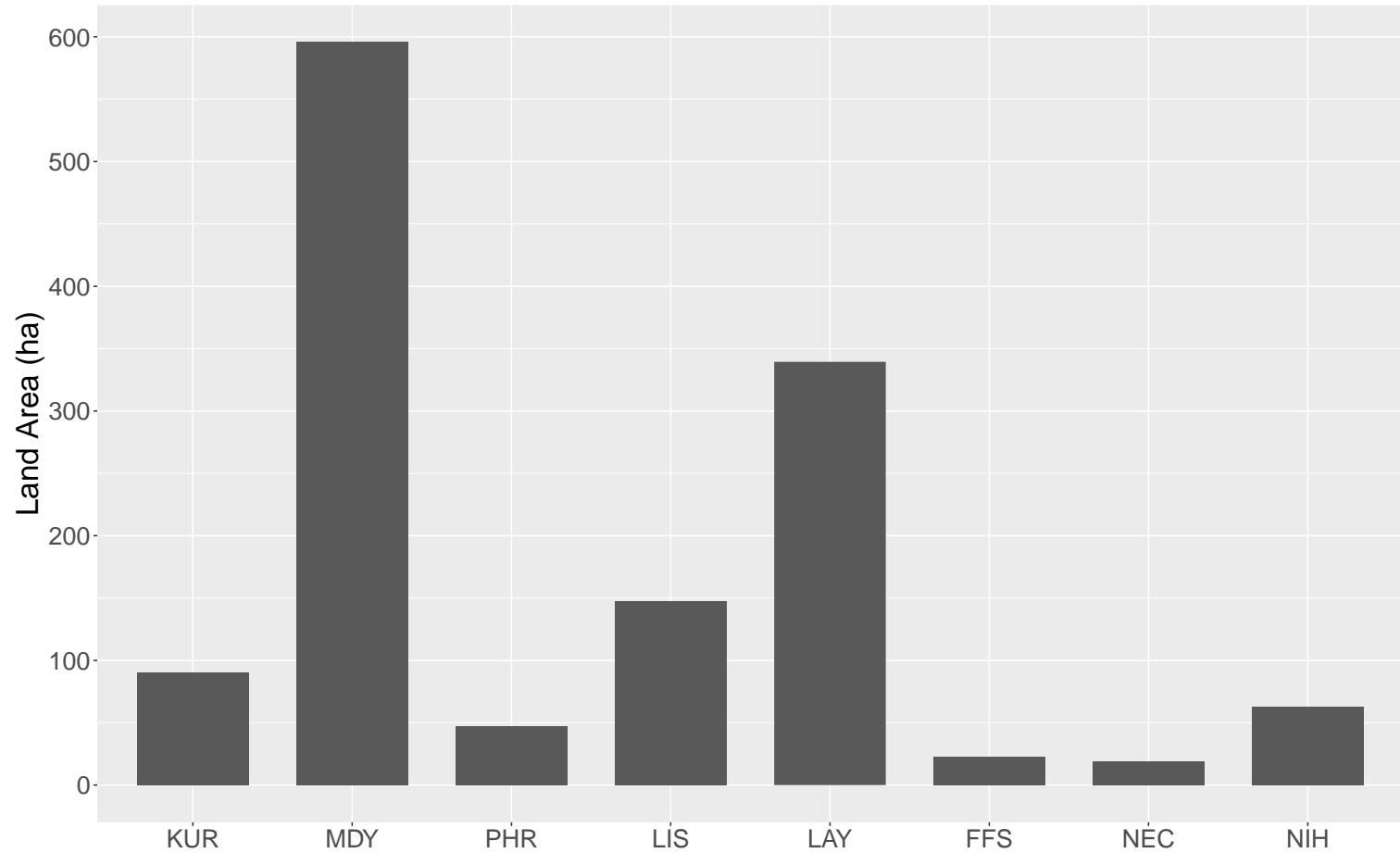




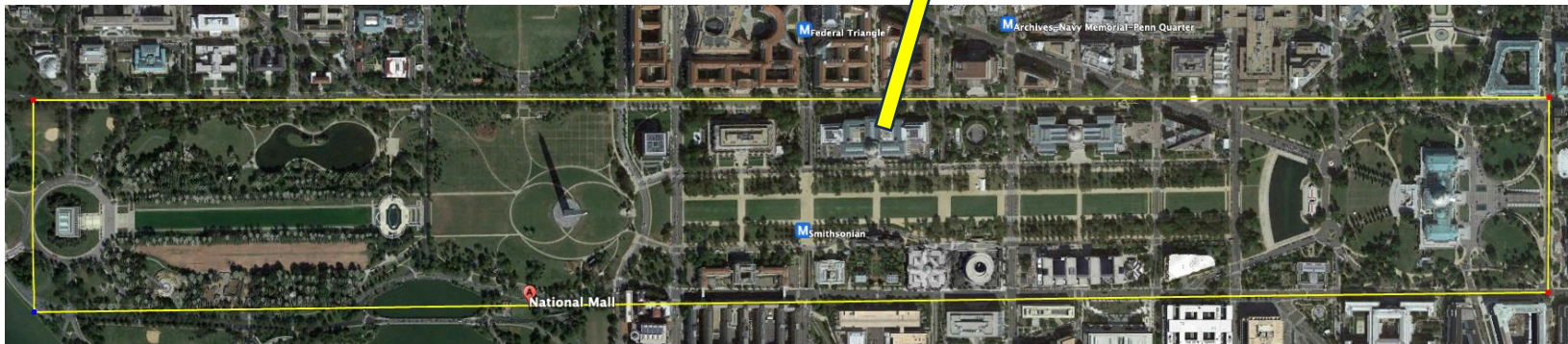
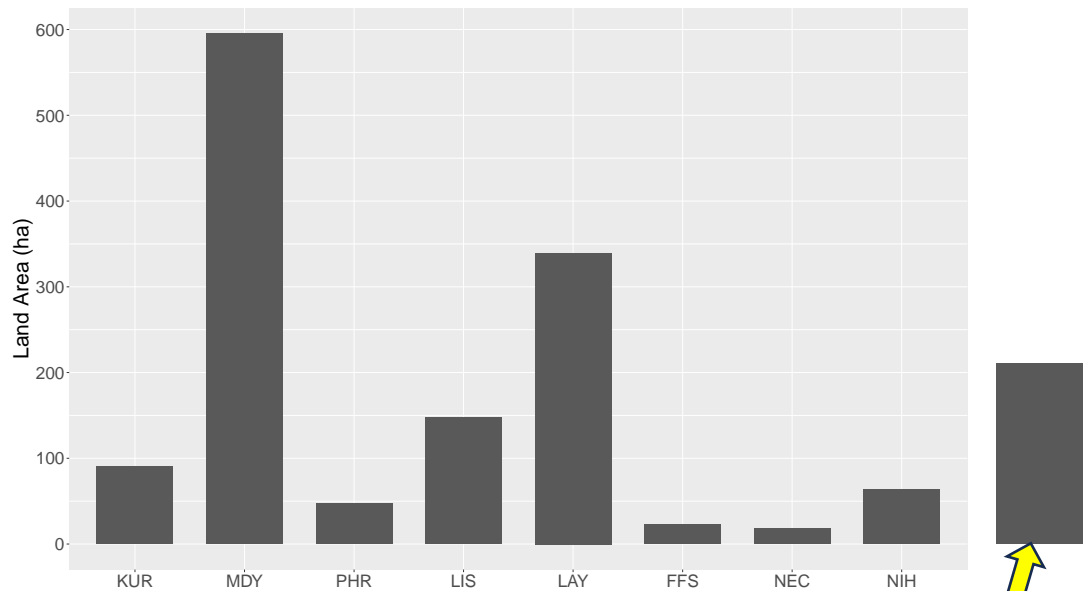


# Land areas of the NWHI in 2010

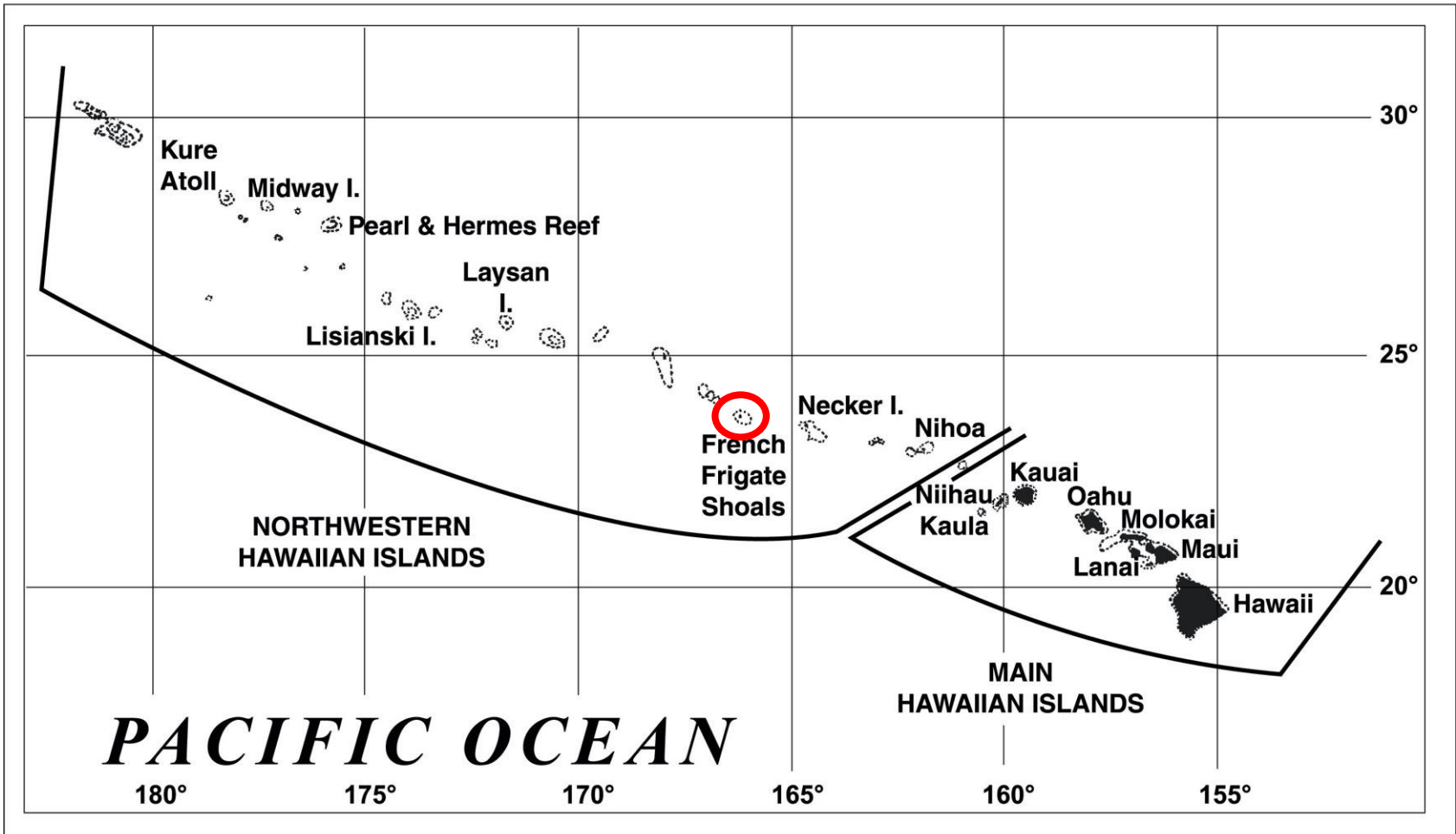
*Reynolds et al. 2012*

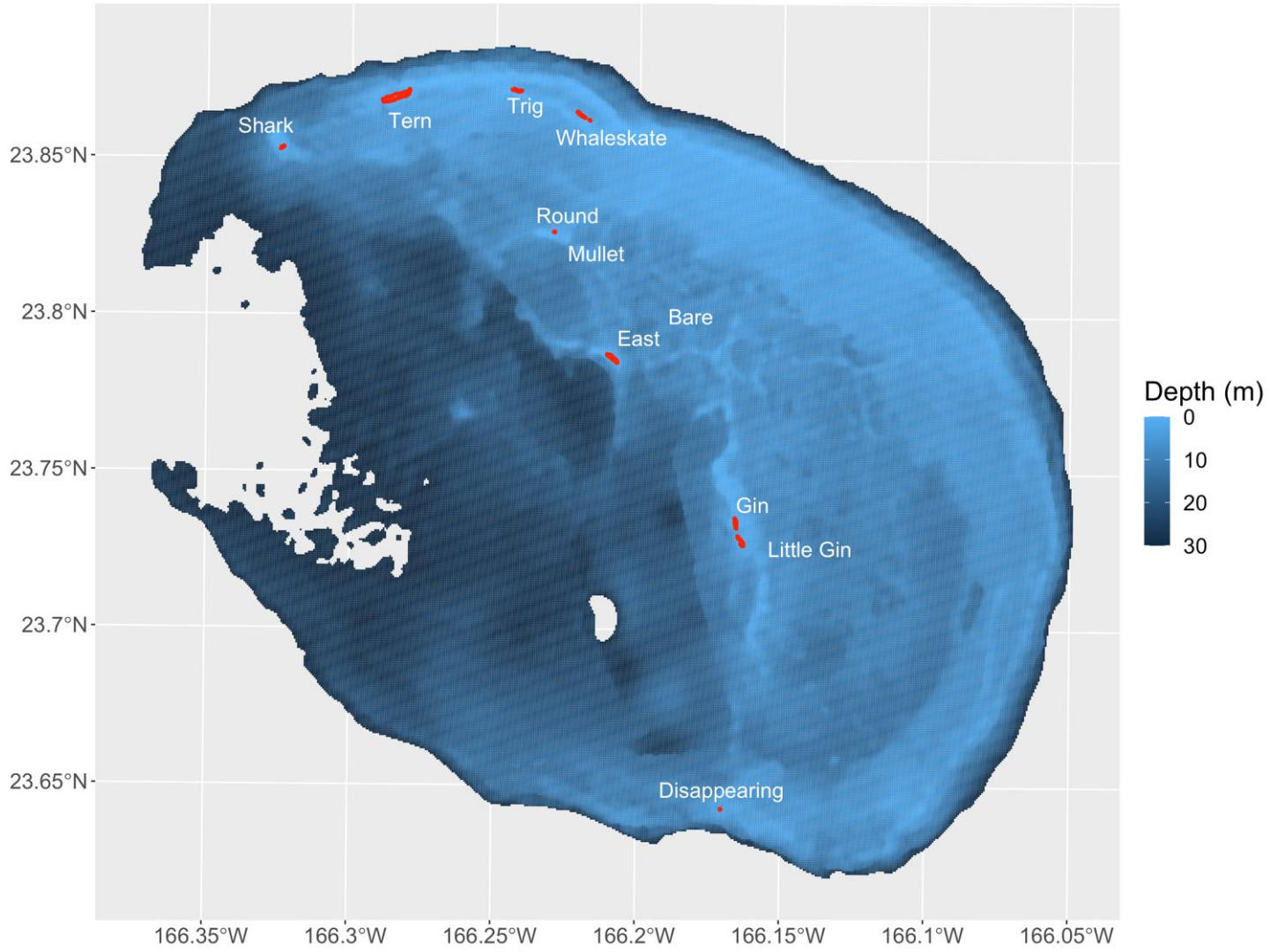


# Land areas of the NWHI in 2010

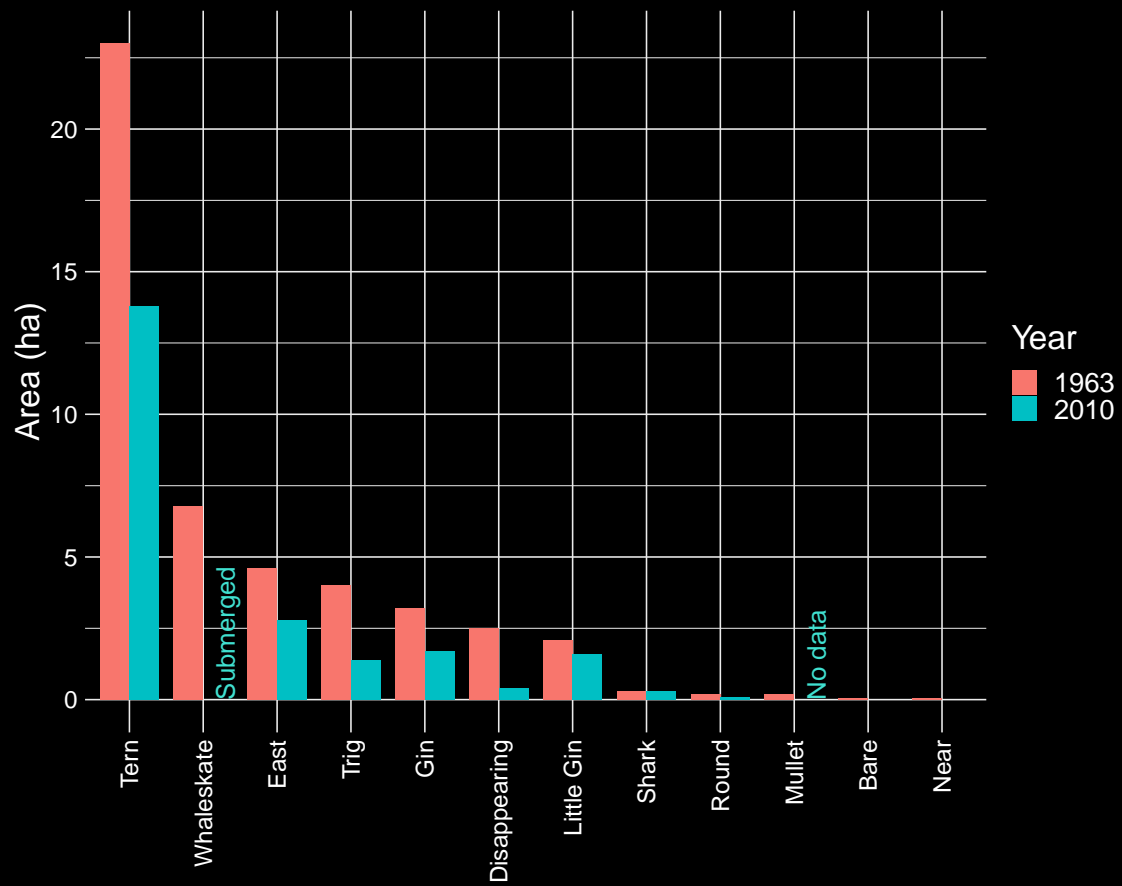












Whaleskate 1963



Whaleskate 2002



Trig 2017



Trig 2019

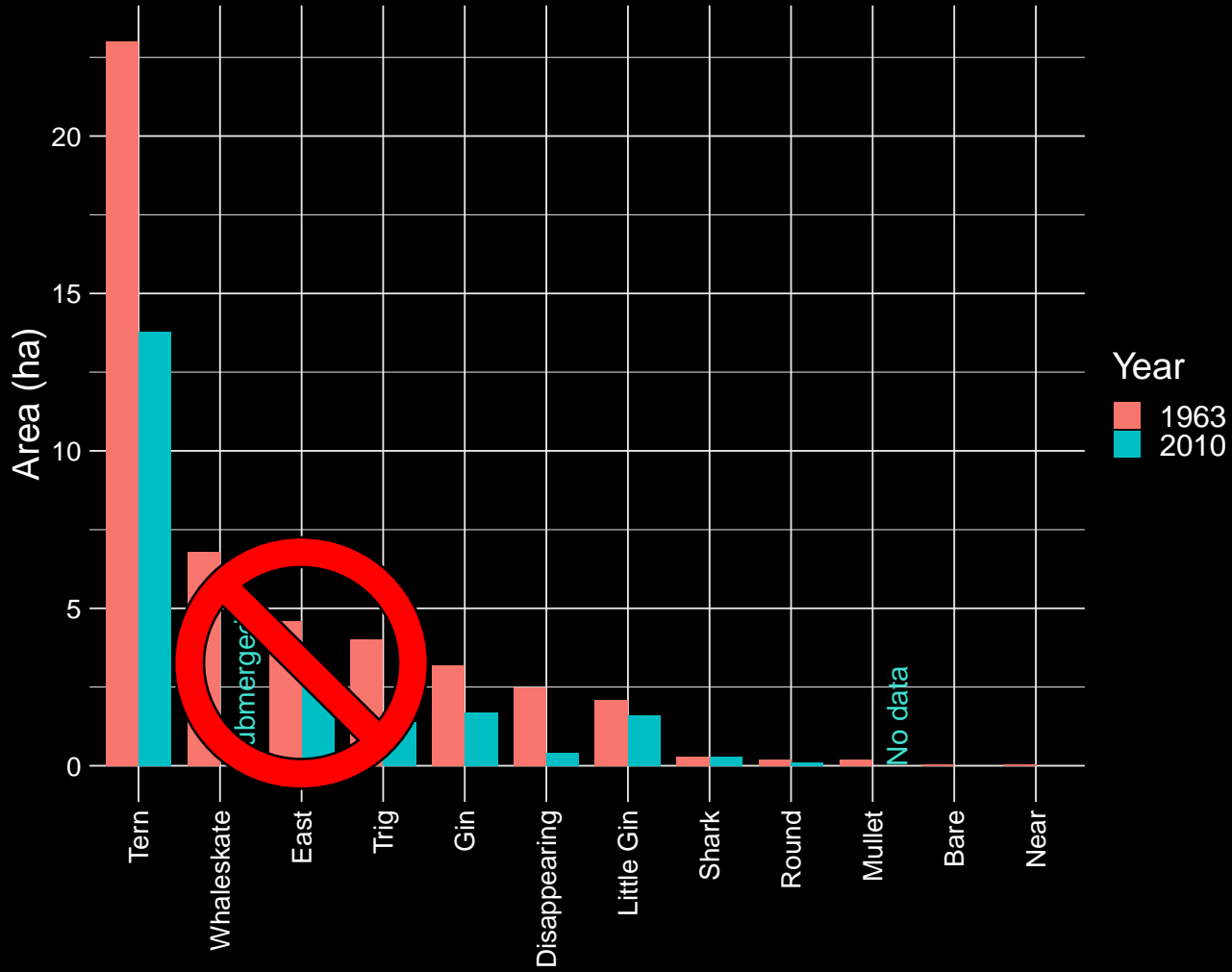


May, 2018 - East Island  
French Frigate Shoals

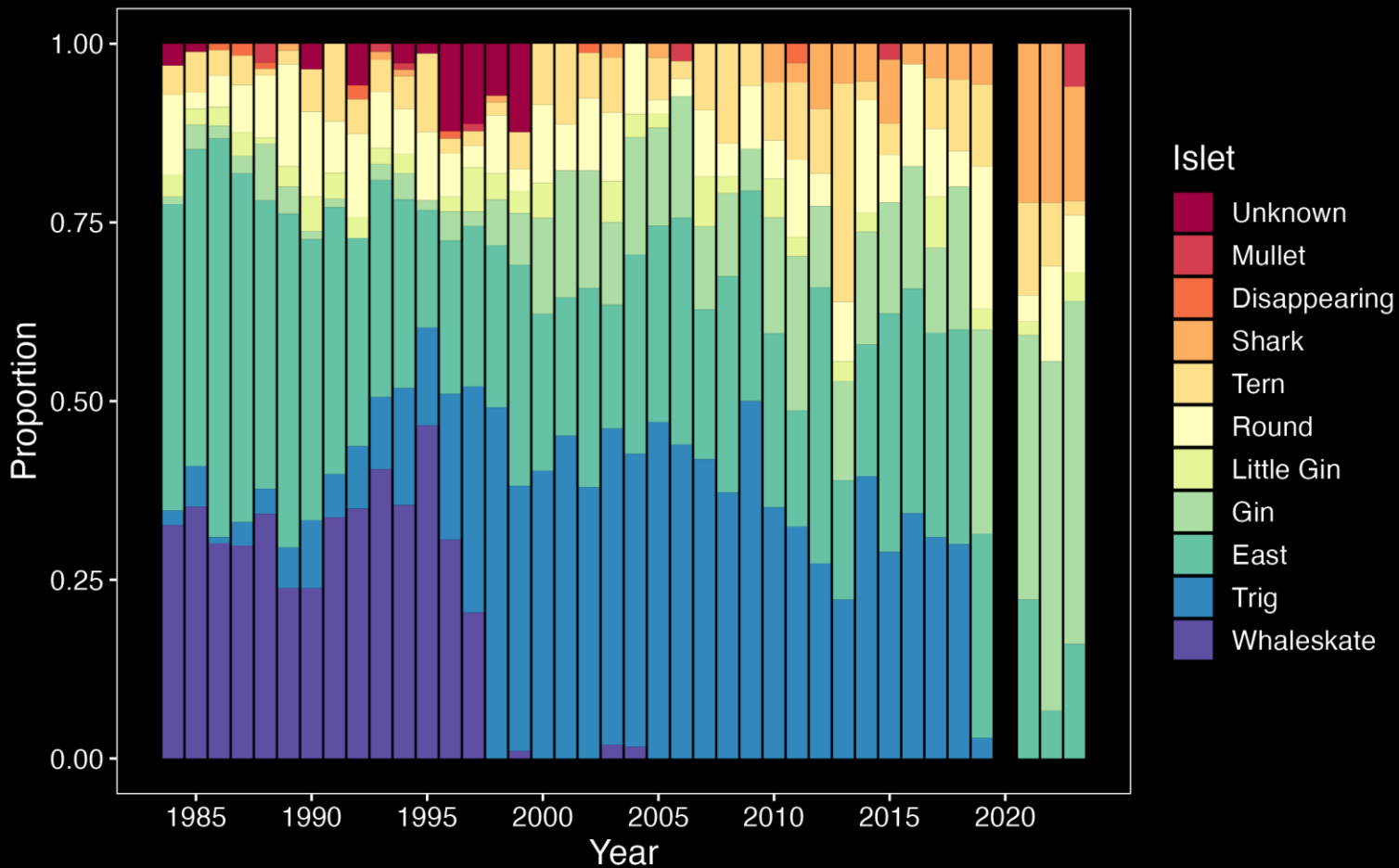


October, 2018 -  
Following Hurricane  
Walaka





# Changes in pupping distribution

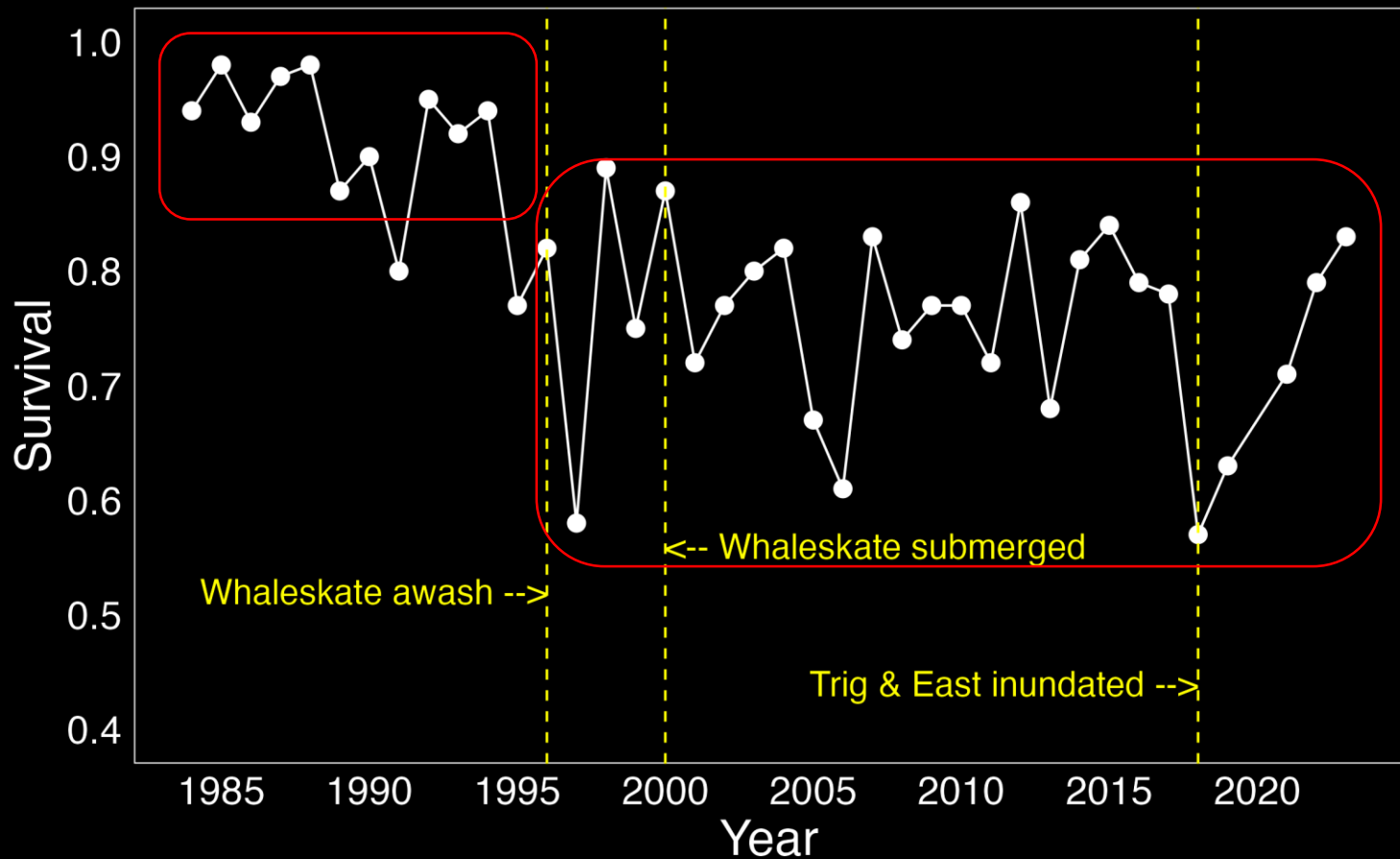




# Causes of death of young pups

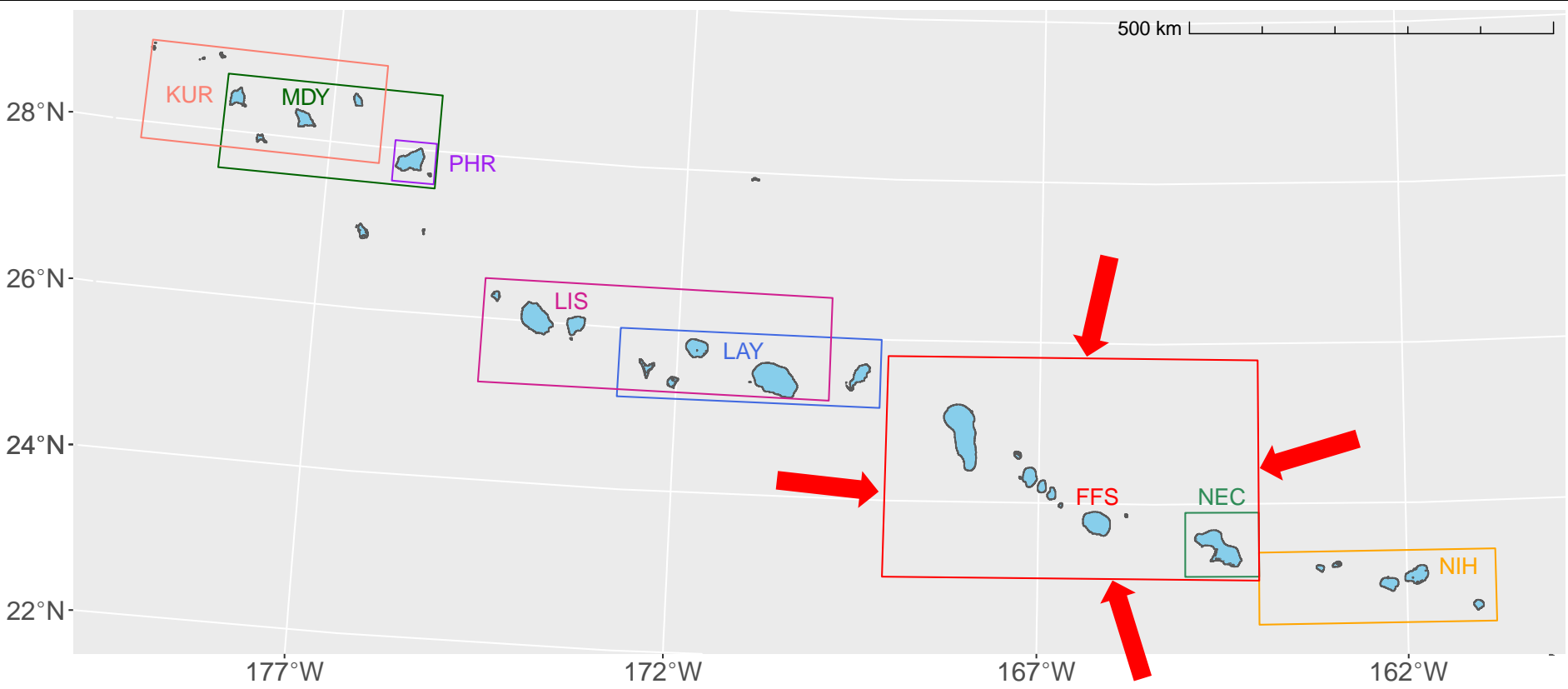


# Changes in young pup survival





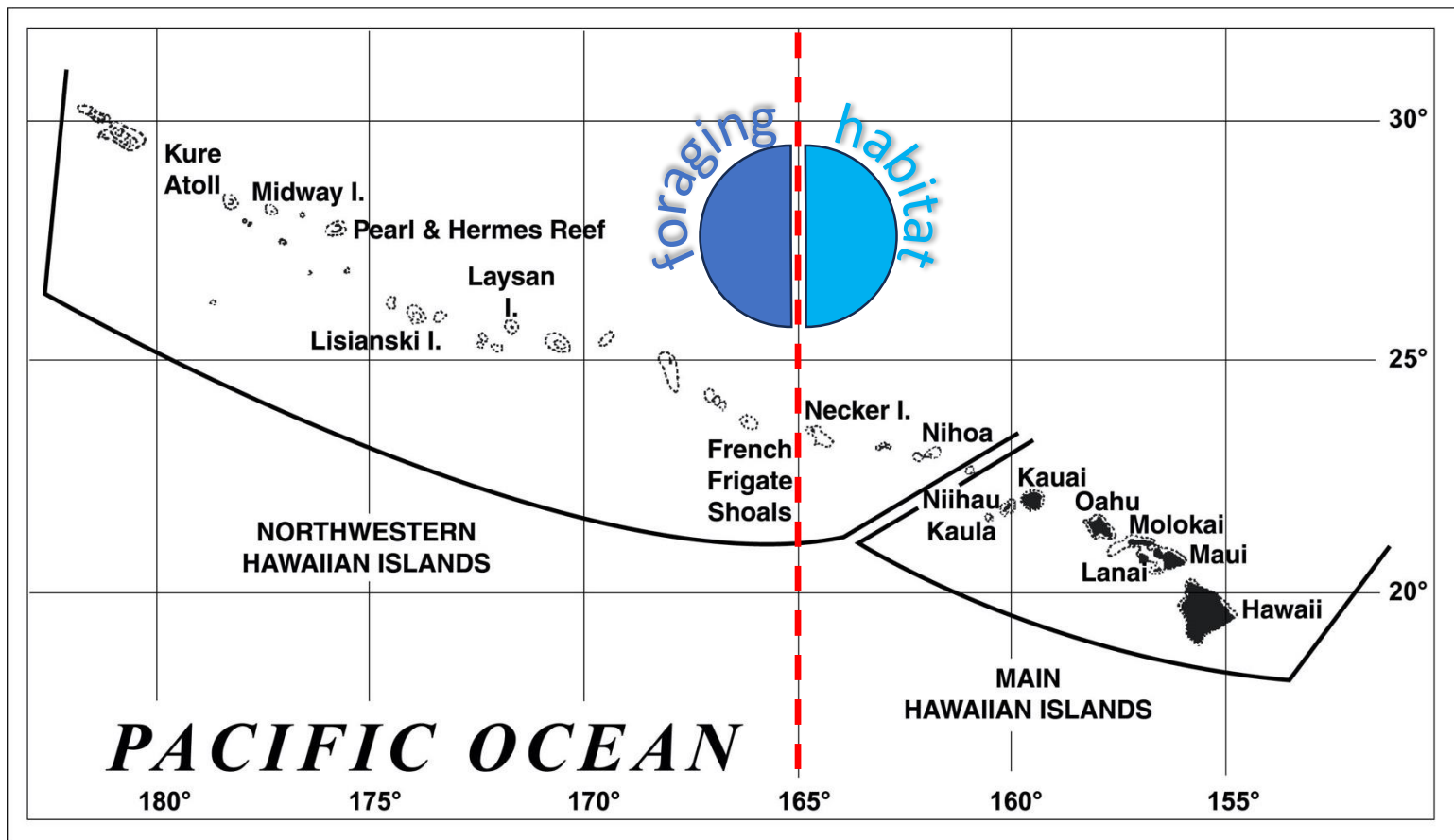
500 km



## Two apparent paths

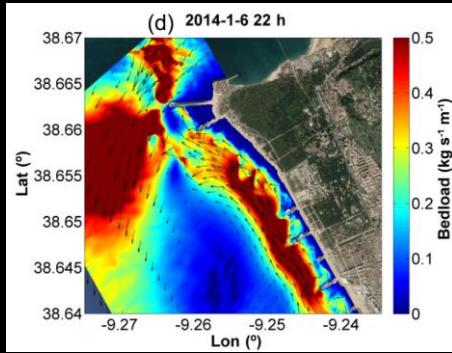
- Managed retreat
- Restore islets and make them resilient







# The technical capability exists

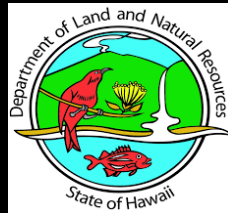
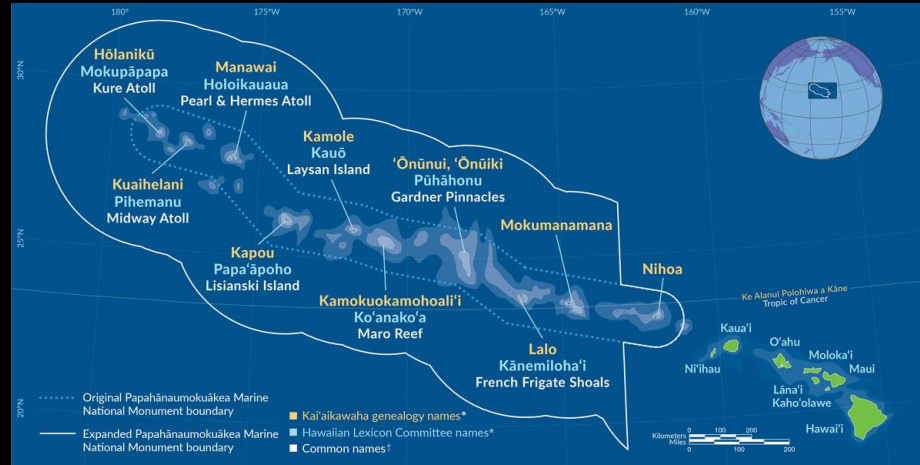


Franz et al. 2017

Tern I. Naval Air Facility, 1943



# Favorable management structure exists



# Key points: French Frigate Shoals

- Portends wider NWHI loss
- Opportunity to trial interventions
- Preservation vs Conservation
- Key to NWHI biodiversity

