Status, trends, and threats to cetaceans in the Pacific Islands Region

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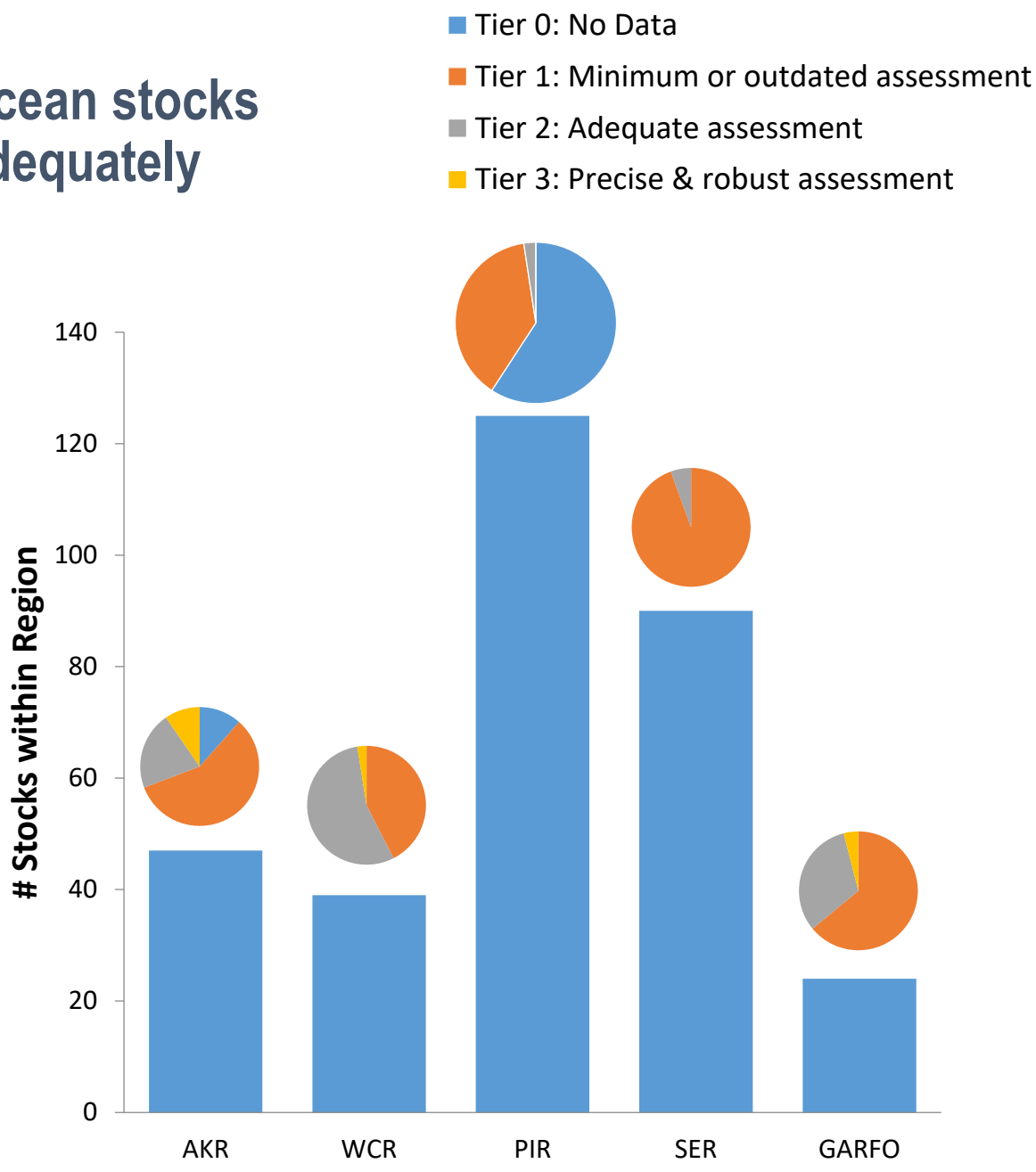
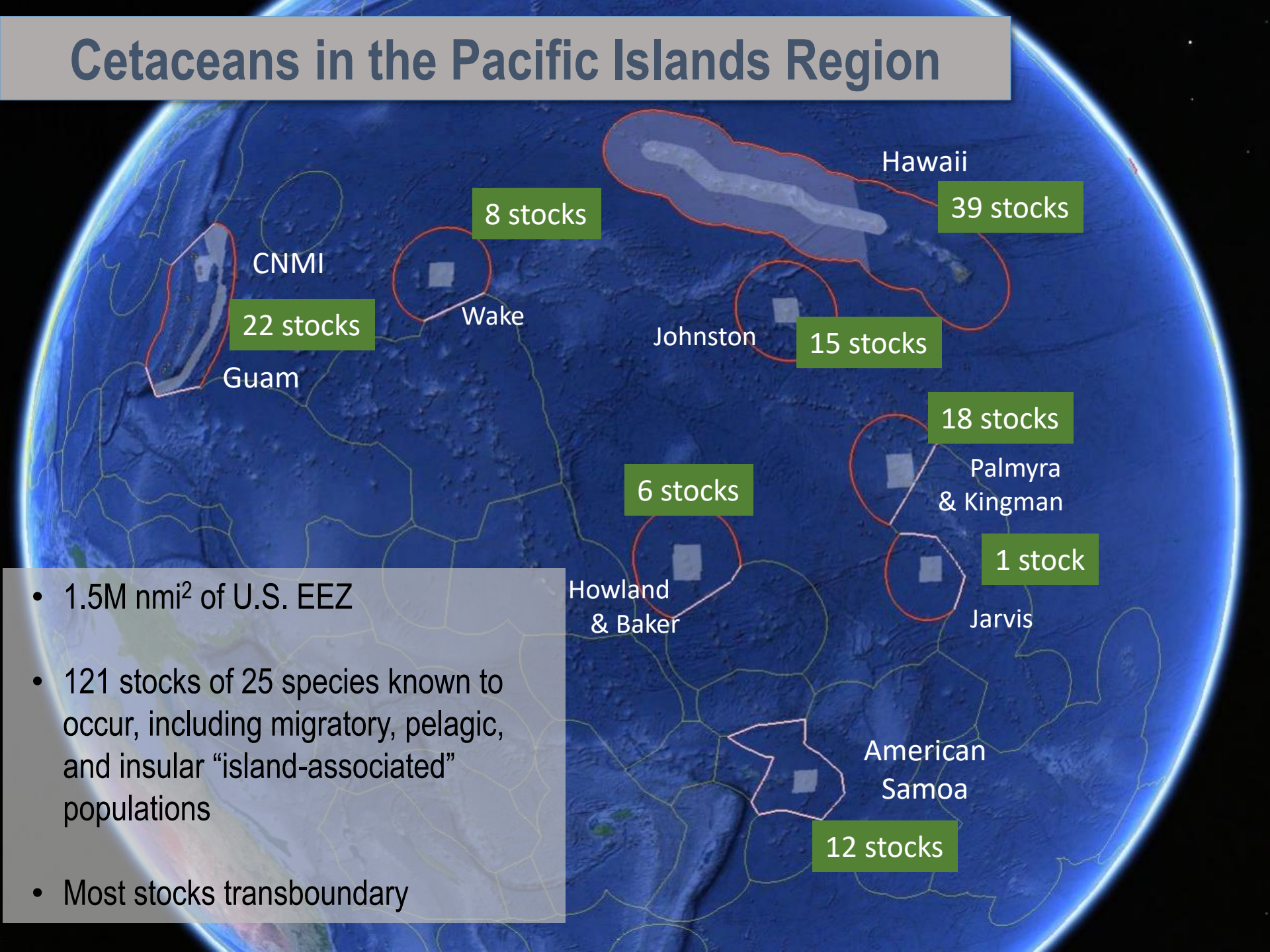
25 species (and counting!) in the central and western Pacific

A large share of NMFS cetacean stocks occur in the PIR. Few are adequately assessed.

- 38% of all NMFS stocks are in the PIR
- 59% of PIR stocks are Tier 0 (No data) and 38% Tier 1 (Minimum or outdated assessment)
- This represents only stocks we know to exist

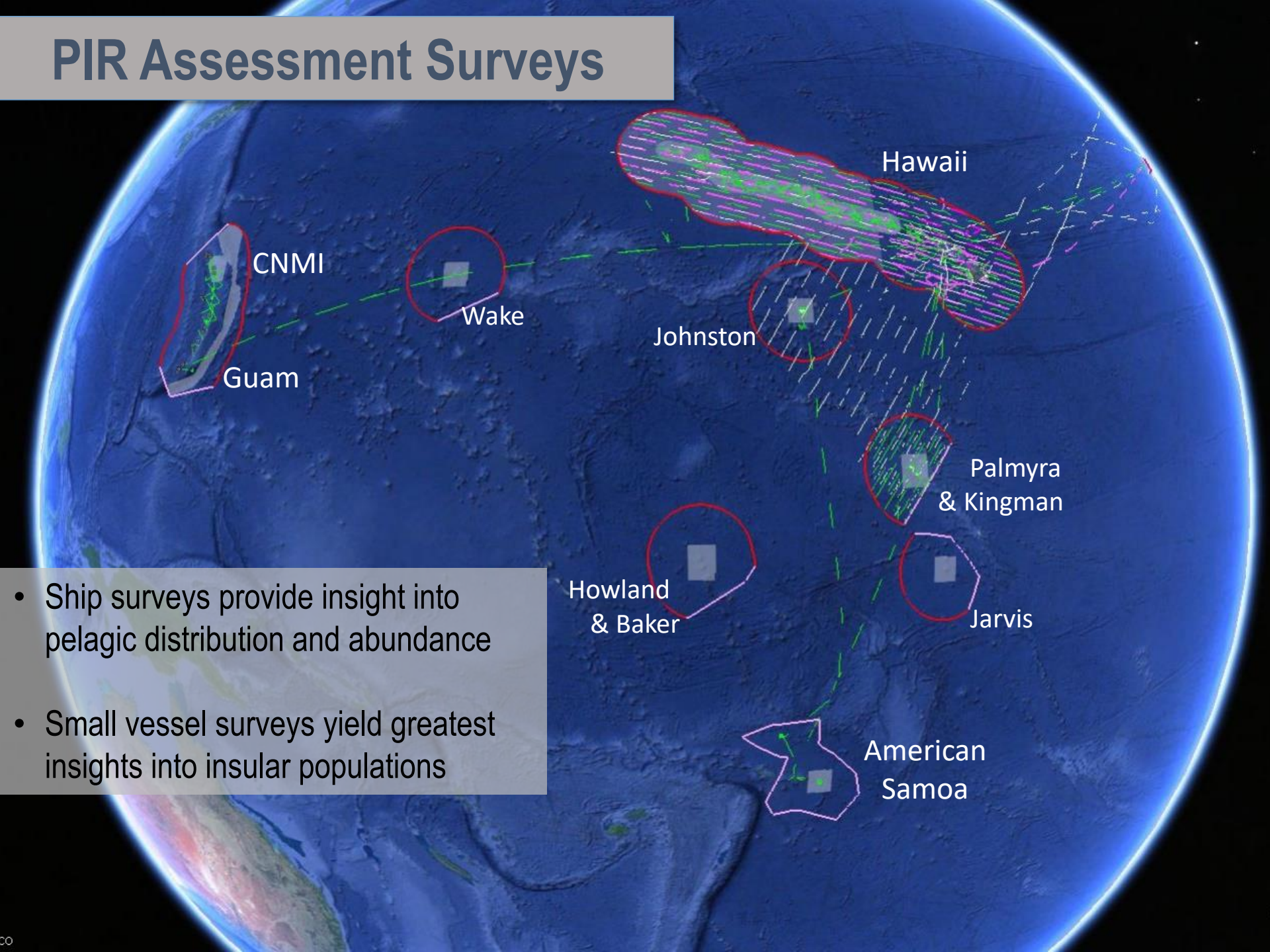


Cetaceans in the Pacific Islands Region



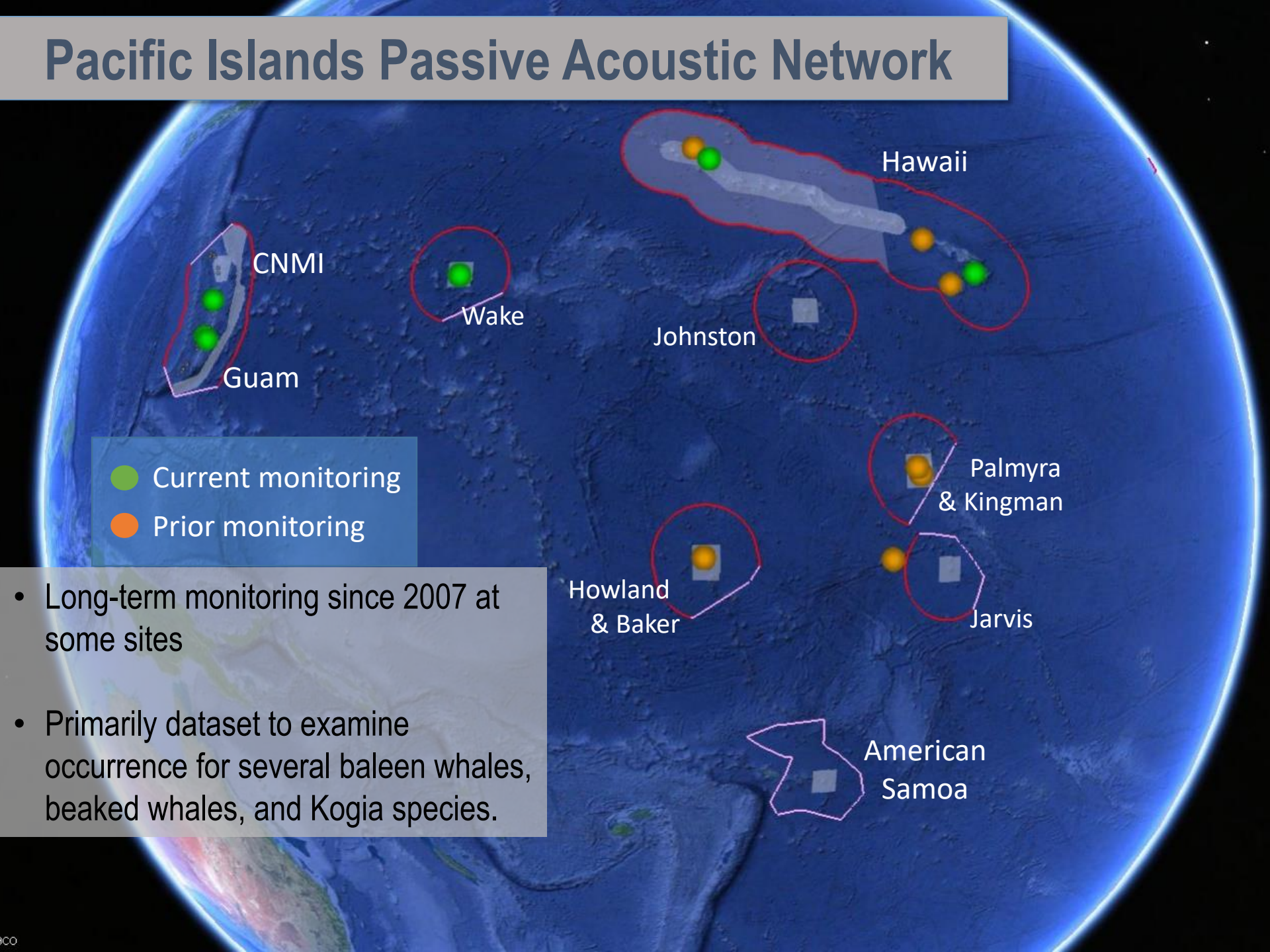
- 1.5M nmi^2 of U.S. EEZ
- 121 stocks of 25 species known to occur, including migratory, pelagic, and insular "island-associated" populations
- Most stocks transboundary

PIR Assessment Surveys



- Ship surveys provide insight into pelagic distribution and abundance
- Small vessel surveys yield greatest insights into insular populations

Pacific Islands Passive Acoustic Network



- Long-term monitoring since 2007 at some sites
- Primarily dataset to examine occurrence for several baleen whales, beaked whales, and Kogia species.

Pacific Islands Region Cetacean Stocks

EEZ	No. Stocks Known	Stocks with Current Abundance Estimate	Stocks with Human-caused Mortality Estimate[2]	# SARs
Hawaii	39	26[1]	18	39[3]
Guam & CNMI	22	0	0	0
Palmyra	18	0	9	1
Johnston	15	0	9	0
American Samoa	12	0	4	4
Wake	8	0	0	0
Howland/Baker	6	0	0	0
Jarvis	1	0	0	0

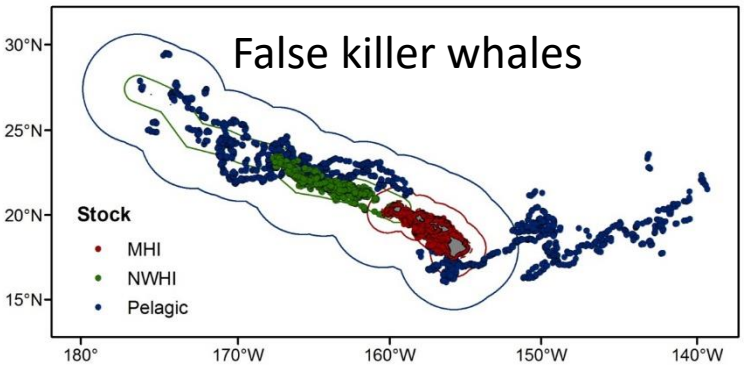
[1] From 2010 survey. Abundance analysis for 2017 underway.

[2] Minimum estimates from observed fisheries and Response Networks

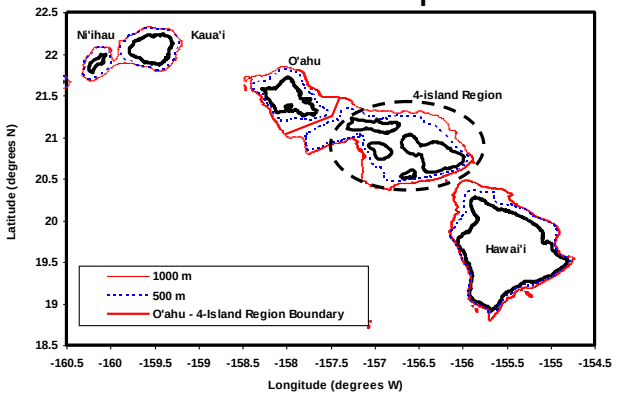
[3] Humpback whale SAR managed by AKR

Stock Structure

- 98 of 121 (81%) of PIR stocks are recognized as an EEZ-wide stock
- Island ecosystems support insular populations
  - When data are available to test for structure, it is usually found
  - All stocks with finer levels of stock structure are island-associated
  - "Pelagic" stock designated by default to account for offshore individuals



Bottlenose dolphins



Pacific Marine Assessment Program for Protected Species (PacMAPS)

Partnership between NMFS, Navy, and BOEM

- NMFS provides the ship time & survey expertise
- Other agencies provide funds to conduct surveys
- Initial 5-yr agreement includes survey effort & modeled density

Year	Survey Region	Analysis Region
2017	Hawaiian Archipelago (summer-fall)	-
2018	US west coast	Hawaiian Archipelago
2019	Main Hawaiian Islands (winter)	US west coast
2020	Mariana Archipelago	Main Hawaiian Islands
2021	Eastern Gulf of Alaska	Mariana Archipelago
2022		Gulf of Alaska

Timing of each survey based on data needs of partner agencies.

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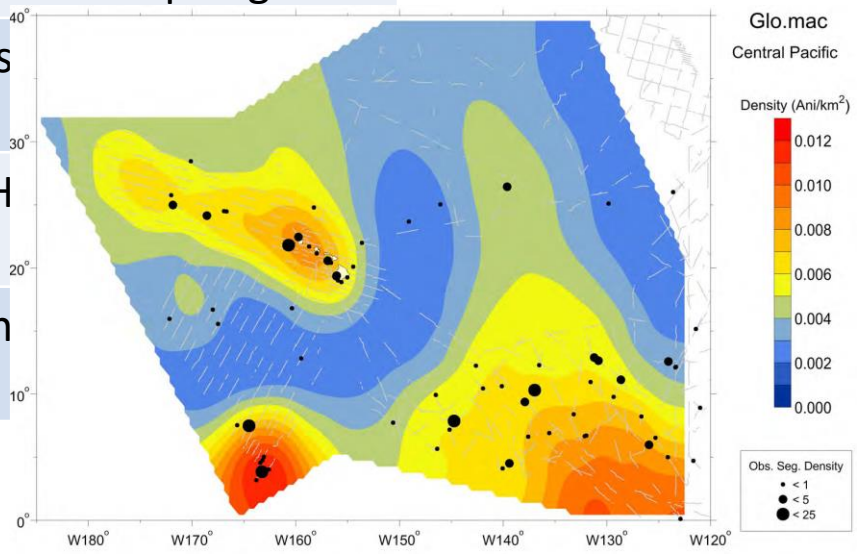
Surveys complete.
Analyses underway.



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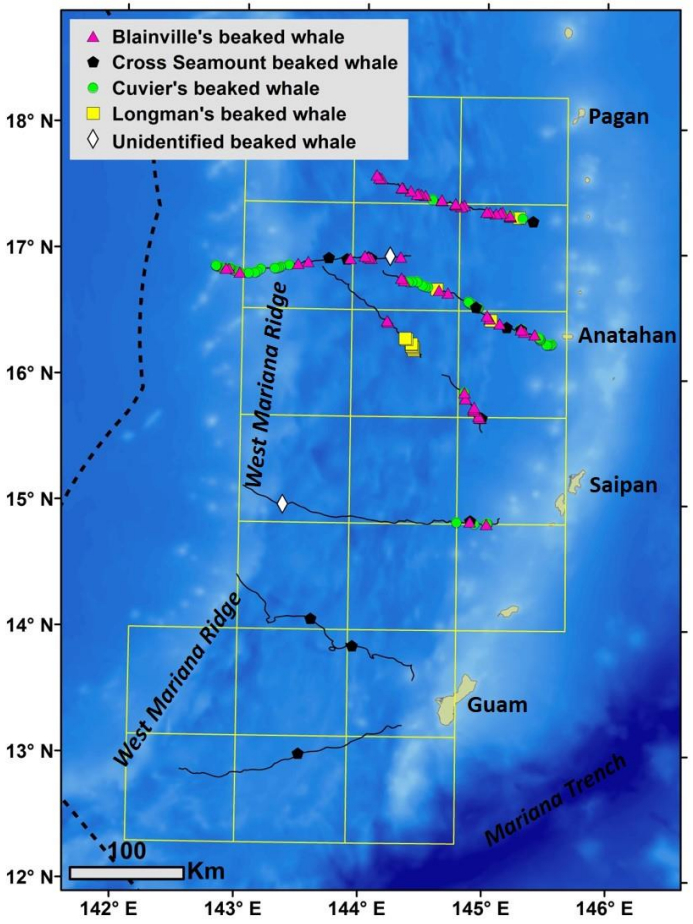
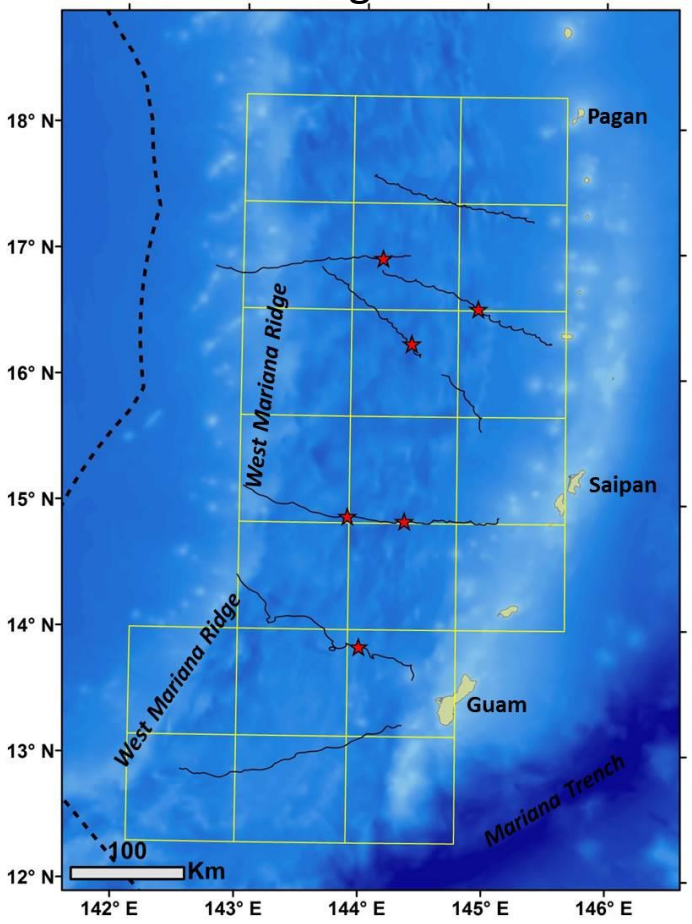
New assessment tools:
Drifting Acoustic Spar Buoy Recorders (DASBRs)

Beaked whales

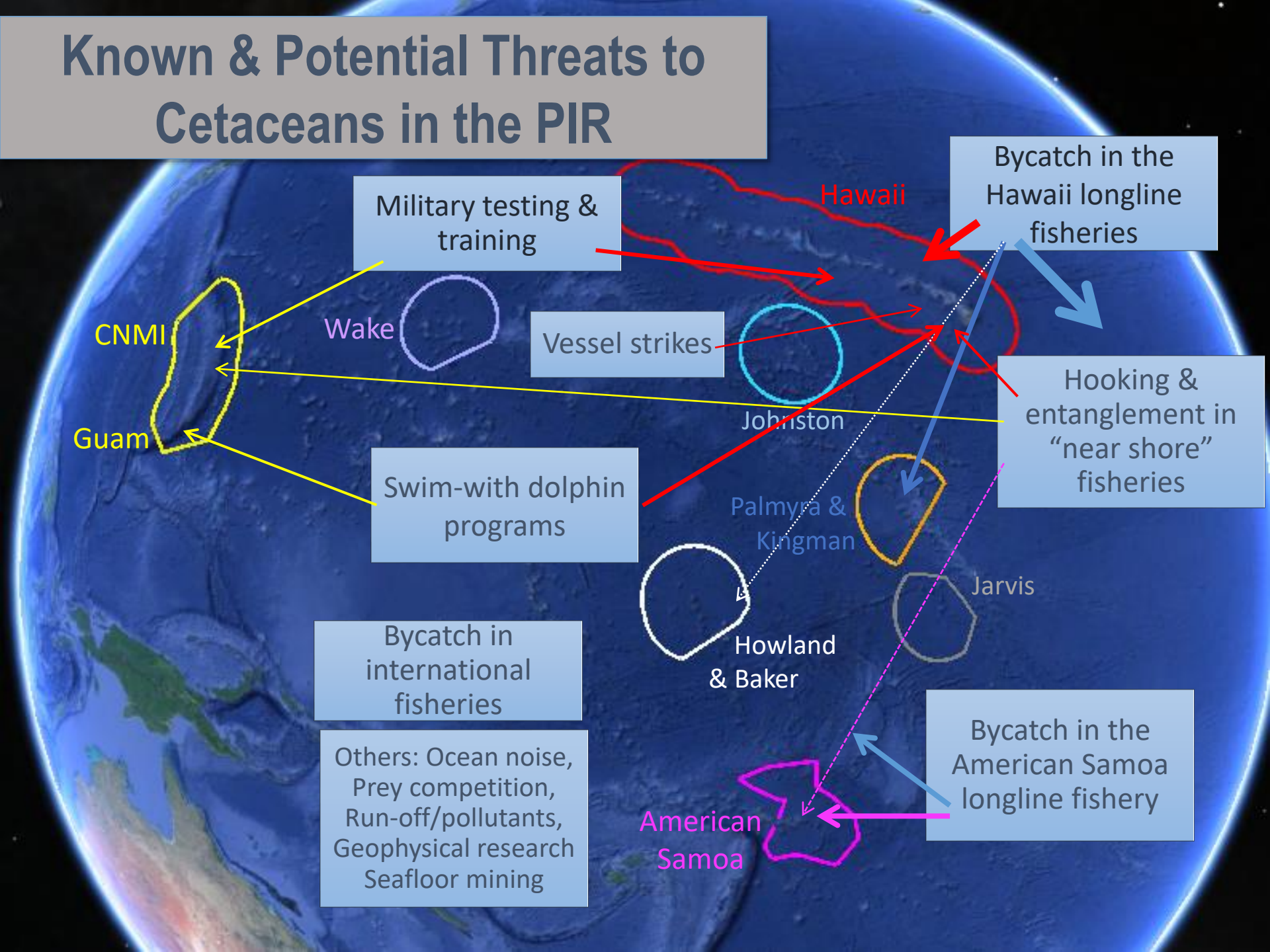


Kogia



Deployed as part of recent Hawaii and Mariana survey efforts.

Known & Potential Threats to Cetaceans in the PIR



Response Network Reports

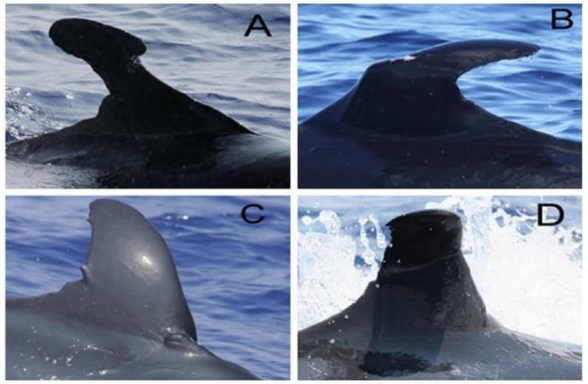
- Reports of injured cetacean in Hawaiian waters made each year to the PIR-MMRN and the HIERN
- Largely involve humpback whales entangled in fishing gear or marine debris or struck by a vessel

Vessel strikes 2007-2017:

- 63 vessel-strikes reported
- 16 considered serious injuries, 12 of those were calves

Threats to cetacean populations in the Pacific Islands Region

- Bycatch in Hawaii & American Samoa longline fisheries-
  - Data from PIRO Observer Program
  - Primarily impacts false killer whales, though other species are also hooked and entangled (short-finned pilot whales, Risso's dolphins, rough-toothed dolphins)



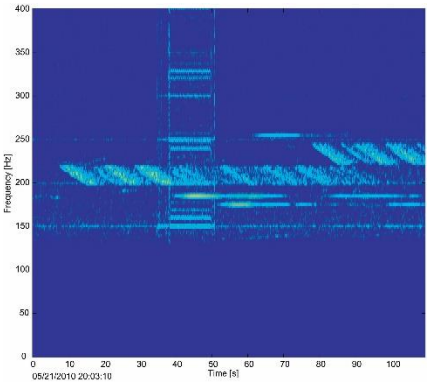
Baird et al. 2015

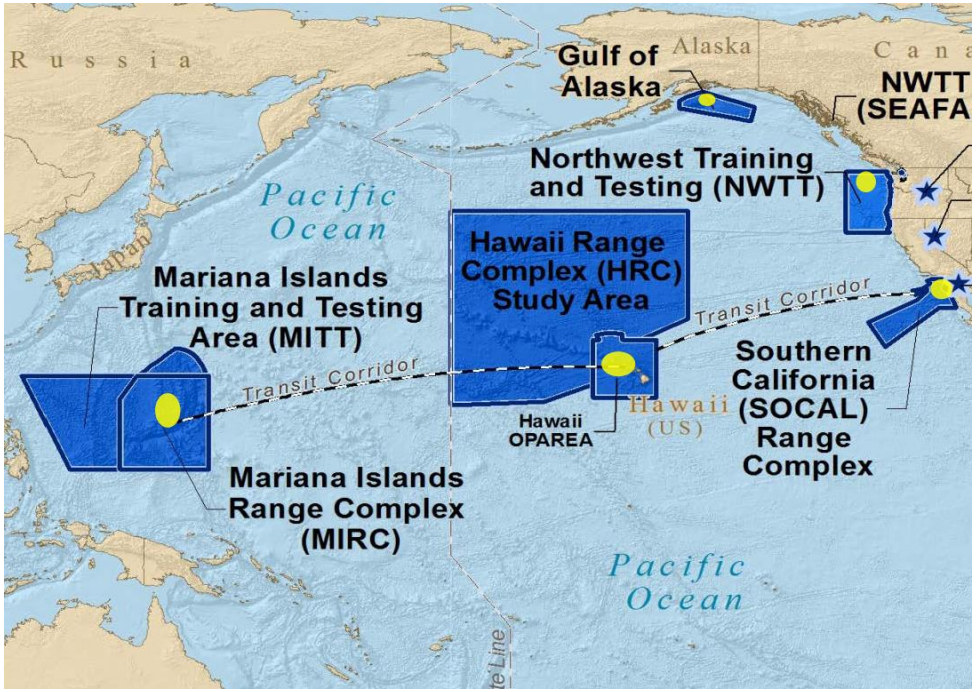
- Interactions with near-shore fisheries
  - Hook-and-line trolling, handline, short-line, and charter fisheries interact with cetaceans to varying degrees
  - No observer programs for insular fisheries

- Swim-with dolphin programs
  - Common in the main Hawaiian Islands, and increasing in resting bays off Guam.
  - Spinners in some regions not susceptible due to differences in habitat preferences.

Threats to cetacean populations in the Pacific Islands Region

- Navy Testing and Training activities
  - Testing & training activities in Hawaii and the Marianas
  - Include mid-frequency active sonar (and low-frequency active sonar in the MITT) and underwater detonations





Cetacean Management Concerns that Require Better Science

- Hawaiian False Killer Whales
  - Mitigating high bycatch in the Hawaii longline fishery
  - Impacts of nearshore fisheries
  - Abundance & trends of insular and pelagic stocks
  - Demographic rates
- Population structure & status for ESA-listed large whales
- Hawaii spinner dolphin abundance & health

Assessment Summary

For the 121 known stocks in 8 PIR areas, only 47 (39%) are accounted for in SARs

- Major successes:
  - Delineated and assessed 38 stocks of 23 species in HI
  - Using robust quantitative approaches for overcoming sample size limitations in abundance estimation
  - Processing previously unaccounted for information on human-caused mortality and incorporating it in SARs
- Major challenges:
  - Assessment approaches strained in PIR given size, high cetacean diversity, and low cetacean density
  - Balancing needs for assessing poorly-known stocks with updating assessments of high priority stocks

NOAA FISHERIES