

False Killer Whale Research Update

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Acoustic Monitoring of the Fishery

Goal- Deploy acoustic recorders on longline gear to assess:

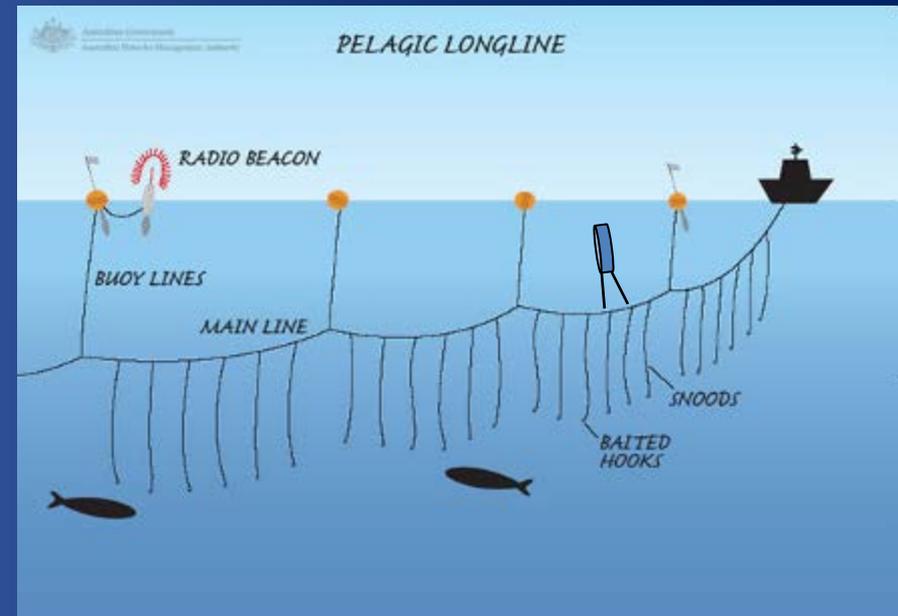
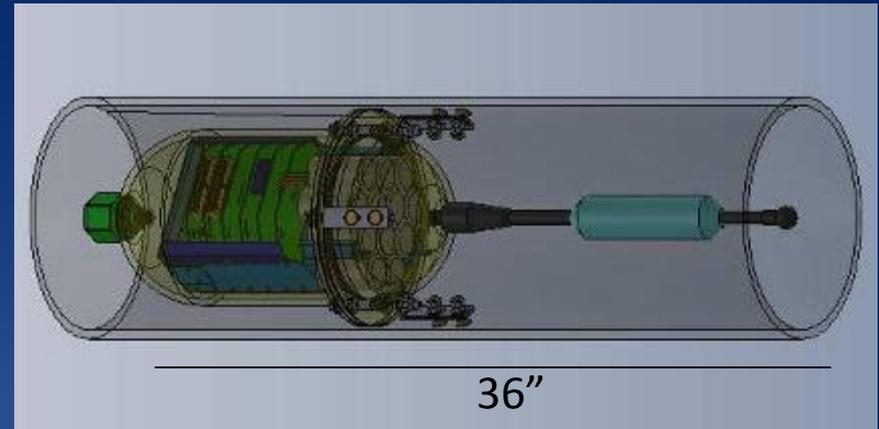
1. False killer whale behavior around the gear
2. Vessel and gear sounds
3. False killer whale occurrence throughout fishing grounds
4. Identify potential acoustic cues

- Originally funded by Marine Mammal Commission in 2010.
- NMFS Bycatch Reduction Engineering Program provided funding for individual instrument and multi-instrument charters since 2011
- Collaboration between HLA, PIFSC, and the PIRO Observer Program



Longline acoustic monitors

- Instrument Specs:
 - Capable of continuous broadband (>100kHz) sampling
 - Storage for > 15 days @ 15 hours/day
 - Small & robust
 - Saltwater switch, no field programming
 - Vibration isolation
 - Uses standard fishing gear for attachment



Data Collection

On each set the recorder collects:

- Acoustic data sampled at 200kHz
- Temperature and depth at recorder

The captain or observer collects:

- Time and location of start and end of set and haul
- Time and location of recorder deployment and recovery
- Sightings of marine mammals and occurrence of depredation on catch
- On multi-instrument deployments, the observer also collects all standard data, including missing or depredated bait

To date...

- 2 trips with one recorder- January-February, 2013
 - Captain volunteered to deploy recorder whenever feasible
- 2 charters with 5 recorders deployed- March-May, 2013
 - Vessel chartered with goal of acoustically recording 8 depredated sets
- Preliminary analysis for cetacean sounds from trips 1-3



Cetacean Sounds Recorded During the First Charter

Sounds have not yet been definitively identified as false killer whales



Setting ←

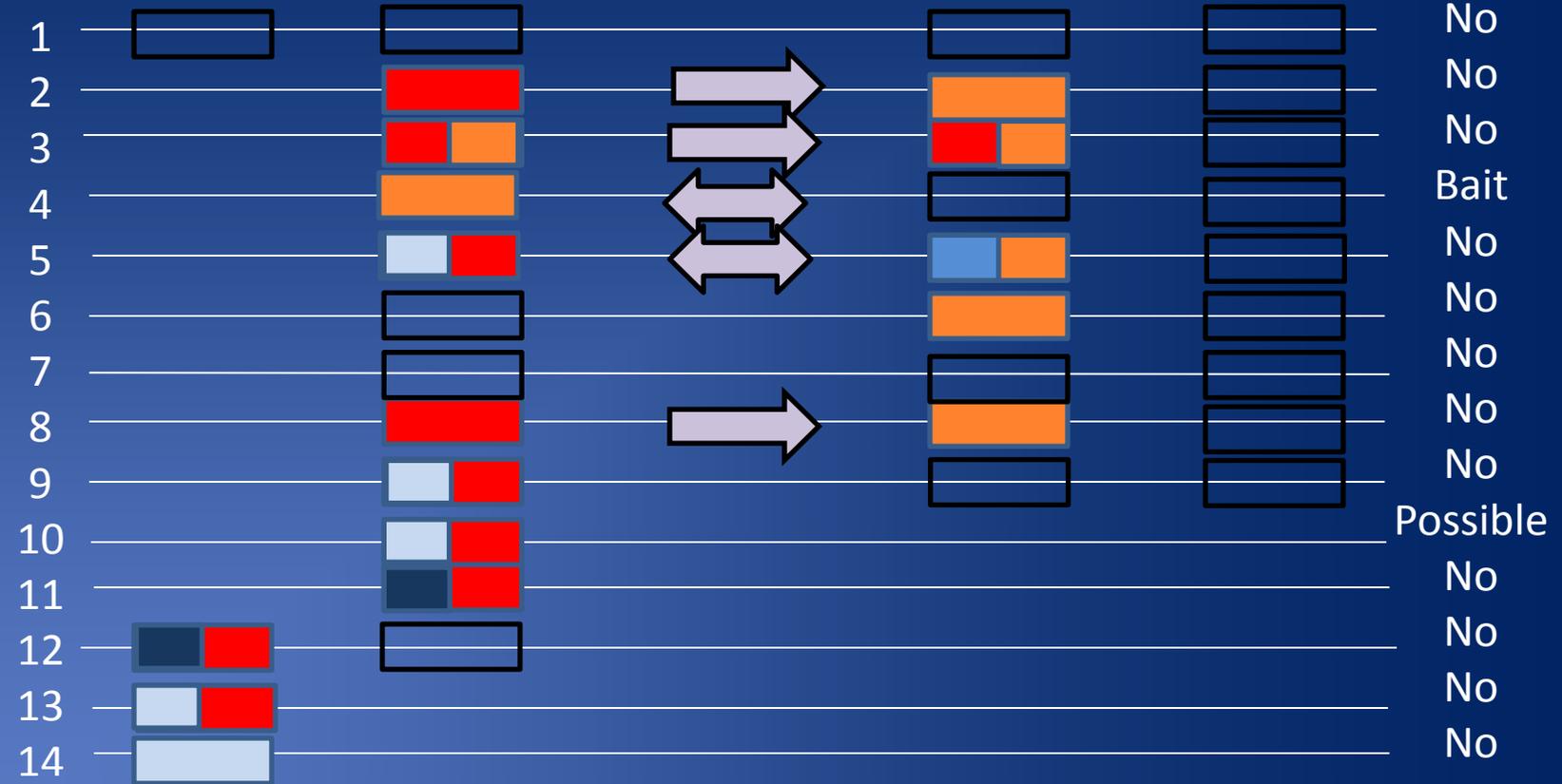
→ Hauling

FR10 FR07 FR06 FR04 FR03

Not yet analyzed

Depredation?

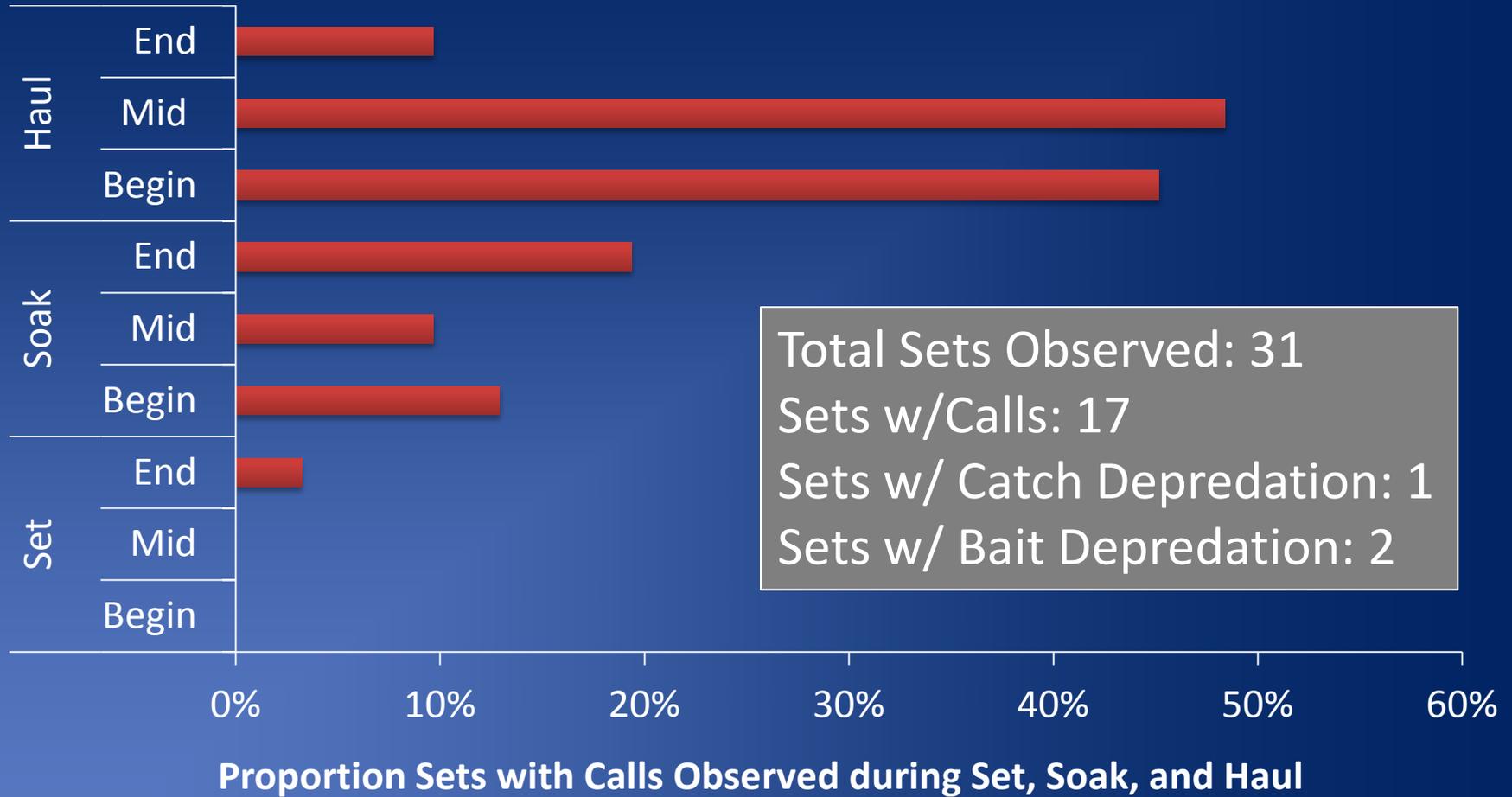
Set



Timing of Recorded Sounds: Begin Middle End Begin Middle End Begin Middle End No Sounds

Cetacean Call Occurrence during a Set

Includes all sets recorded to date



Much More to Do

- Conduct more charters
- Verify calls are from false killer whales
- Characterize other sounds- vessel, gear, etc.
- Details of calling behavior over duration of set
- ...

Other Ongoing FKW Research

- Classification of FKW by stock ID
 - Currently working on whistle extraction and measurement
- Assessment of vessel attraction using towed array detections
- Evaluating FKW occurrence within HARP datasets

