

Electronic monitoring video expands opportunities for making determinations of post release condition of protected species

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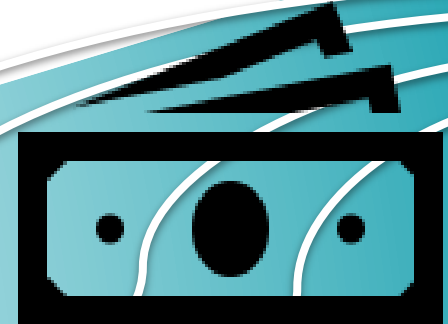
³ Pacific Islands Regional Office National Marine Fisheries Service

Project funded by Fishery Information System

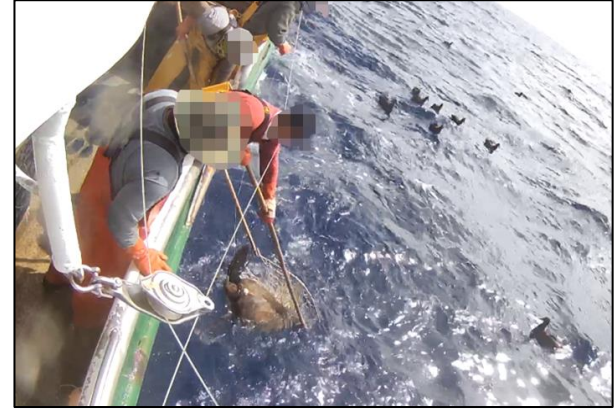


PROBLEM!!!

- Protected species caught worldwide.
- Limited documentation when no observer.
- Observer coverage limited and/or expensive.



Hawai'i Longline Fisheries



Fishery	Target	Observers	Haul time	Protected species
Deep-set	Tuna	20%	Day	More cetaceans
Shallow-set	Swordfish	100%	Night	More turtles

Can EM determine post-release condition?



Sea turtles	Probability of mortality	Ryder et al. 2006
Cetaceans	Mortality, non-serious, or serious injury determinations	NOAA Policy Directive 2012

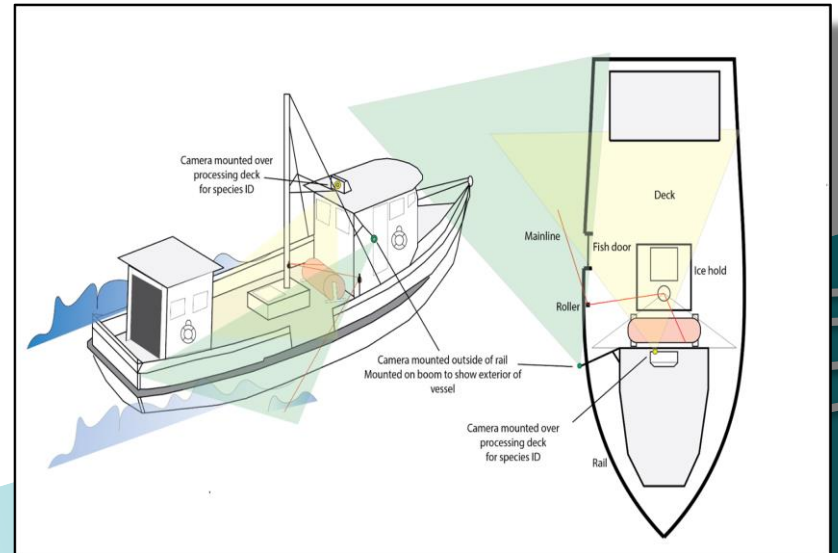
Post-release Condition Data

- Species
- Condition of animal
- Location fishing gear attached at capture
- Fishing gear attached at release



Hawaii Longline EM Systems

- Computer
- 2 cameras, deck and water views
- GPS sensor, location/speed
- Reel rotation and pressure sensors, trigger recording when hauling



Sea Turtle Interactions - 37 reviewed

→ High certainty in probability of mortality:

- ◆ Daytime
- ◆ Hooks visible externally
- ◆ Boarded & released with all fishing gear removed

→ More uncertainty if:

- ◆ Mouth-hooked
- ◆ Released with line



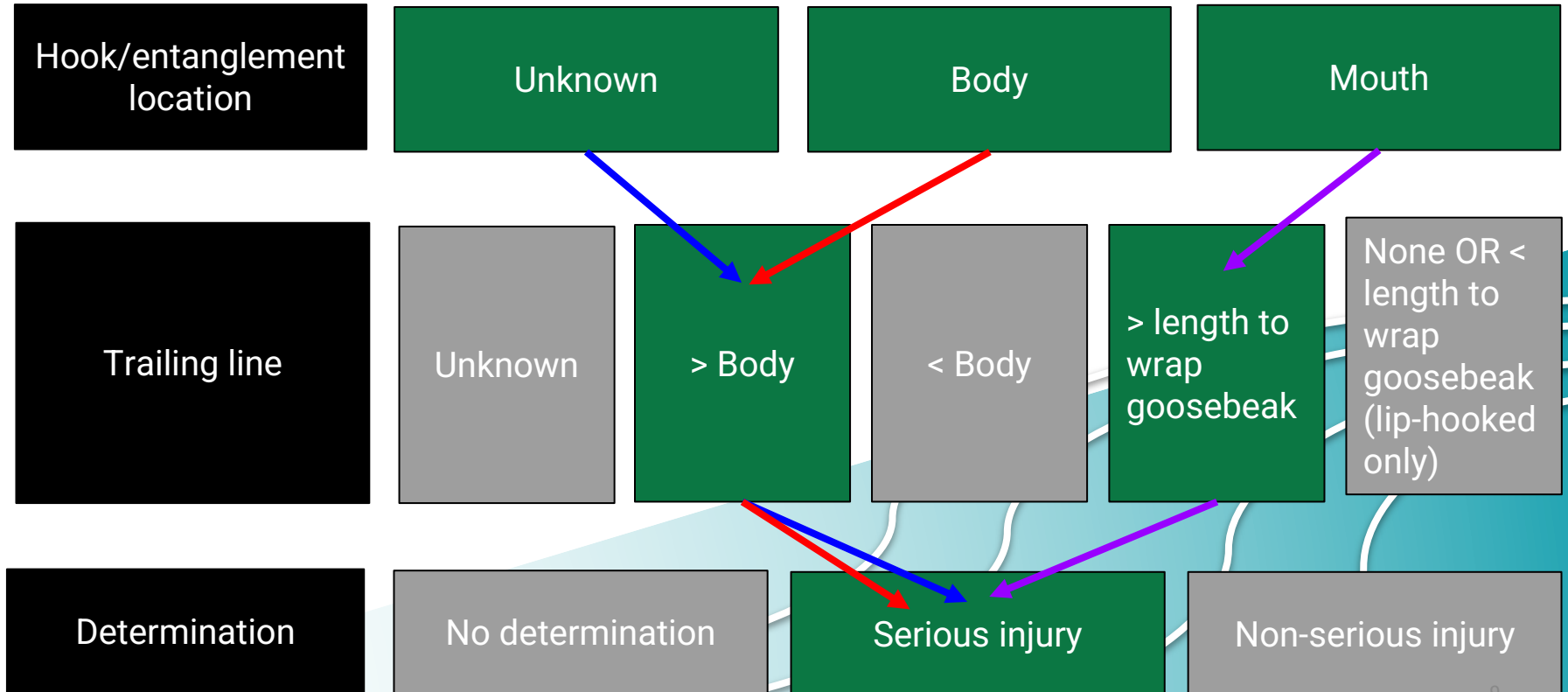
Cetacean Interactions - 8 reviewed

→ Challenges for most interactions...

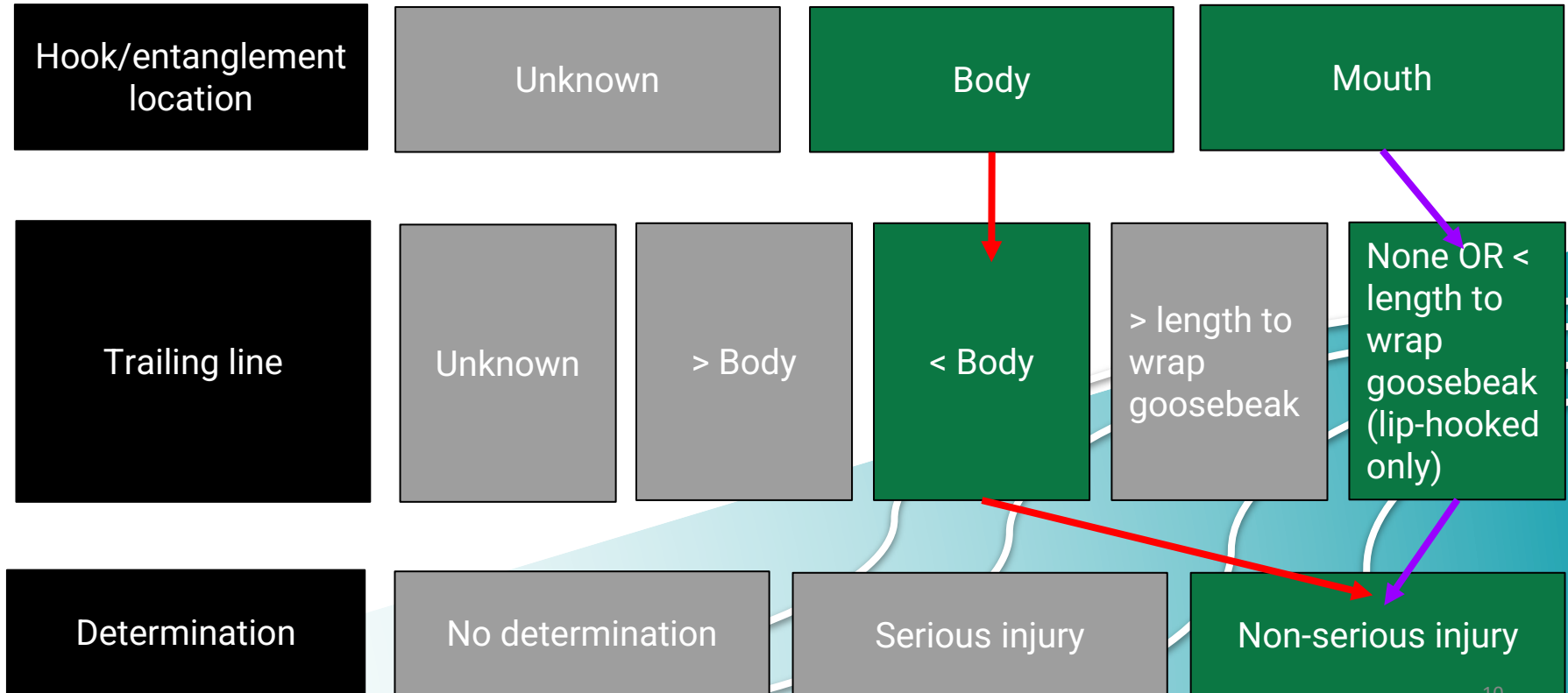
- ◆ At night
- ◆ Mouth-hooked,
hard to discern where in mouth
- ◆ Released with trailing line



Cetacean Determinations - Serious Injury



Cetacean Determinations - Non-serious Injury



Cetaceans - Determinations

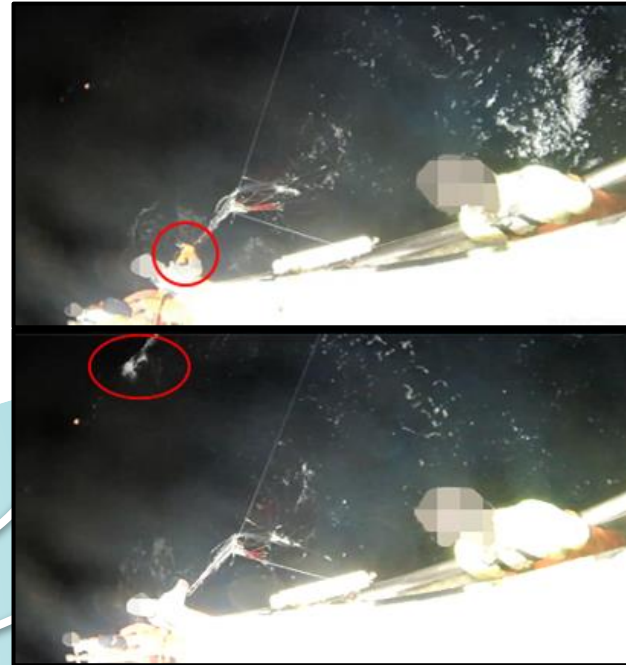
Non-serious Injury

→ Dislodged hook visible.



Serious Injury

→ Line cut while at a distance



Species Identification

→ More challenging at night especially when at a distance.



Recommendations

- Camera views - “bird’s eye view”
- Camera clarity - clean, focused cameras
- Camera resolution - 4 megapixels, 1080p
- Fisher handling - remove from gear and coil line in view



Thanks for Listening!



Cetacean Determinations - Undetermined

