Mitigating Marine Mammal Bycatch: 
Technological and economic efficiency

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Overview

- Marine mammals and fishery bycatch
- U.S. bycatch management
- A look at incentivizing approaches
- Two case studies
Top killer of marine mammals worldwide
– over 650,000 mortalities each year
Bycatch – Why do we care?

- Marine mammals:
  - Protected species – some endangered
  - Non-consumptive value (e.g., tourism)

https://www.st.nmfs.noaa.gov/marine-mammals-turtles/PRSIPP
Baiji: first human-caused extinction of a cetacean species
Bycatch – Why do we care?

- The “Whale Pump”
- Whales add more productivity than they remove

From: Roman et al. 2010
Most intense bycatch

Small cetaceans: *dolphins* & *porpoises in gillnets*

Large cetaceans - *baleen whales in vertical lines, longlines*
U.S. Bycatch Management

- **U.S. Fisheries**
  - Take Reduction Teams (TRTIs)
  - 40% reduction in bycatch
  - Primarily “top-down” measures

- Increased focus on U.S. imports
  - Pelly, MMPA, Magnuson Stevens
Imports – 90% of U.S. seafood

- Pelly Amendment
- Magnuson-Stevens Bycatch Provisions
- Marine Mammal Protection Act import provisions – 8/1/16
Incentivizing Bycatch Reduction

- Bycatch rights or credits
- Payments for ecosystem services (PES)
- Offsets
- Market measures
- Integrated Conservation and Development Projects
Vaquita: critically endangered

- First described in 1958
- Endemic to the northern Gulf of California, Mexico

Rojas-Bracho et al. 2006
Vaquita

* 92% decline in population from 1997-2015
* Only one cause: gillnet bycatch
* Legal gillnet fishery closed, illegal fishing continues
Addressing vaquita bycatch

Short Term:
Gillnet 2-year closure with compensation ("PES-like")

Longer term
Alternative gear
Blue markets
Alternative livelihoods – ICDP
Other actions for vaquita

- USG Market Measures:
  - Pelly filed 2014 – just updated
  - Potential MMPA import provisions
- Intense international focus
- Alternative sources of PES funding?
Bycatch Case Study: North Atlantic Right Whale

• Some 85% of whales have gear on them or entanglement scars

• Primarily vertical line from lobster pot gear
Addressing NARW bycatch

Top-down measures:
- Gear mods
- T/A closures

Incentivizing measures:
- Tax on landings/deployment
- Gear marking
Canada’s Atlantic Lobster Fishery

* Nearly all is exported to the U.S. market

• Potential action under MMPA regulations?
Conclusions

• Marine mammal bycatch is a continued threat
• Need a wide range of tools
• Incentivizing approaches are working for finfish bycatch – let’s get creative
Thank you!