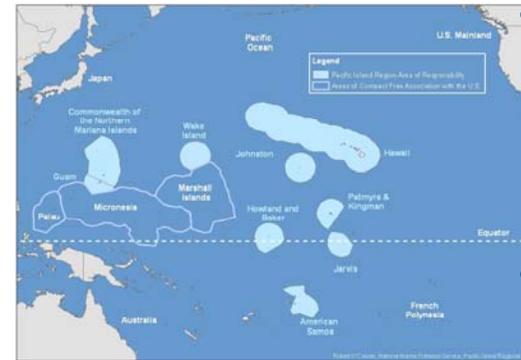


Appendix C3: Economic Supports of Protected Resources in Pacific Islands Region

Pacific Islands Region Areas



- Areas of responsibility
 - Hawaii
 - Guam
 - CNMI
 - PRIAs (Pacific remote island areas)
- 48% of total U.S. EEZ





Economic Supports of PR in Pacific Islands Region

Dr. Minling Pan

September 9, 2014
Economics of Protected Resources Workshop 2014
La Jolla, CA

Pacific Islands Region PR

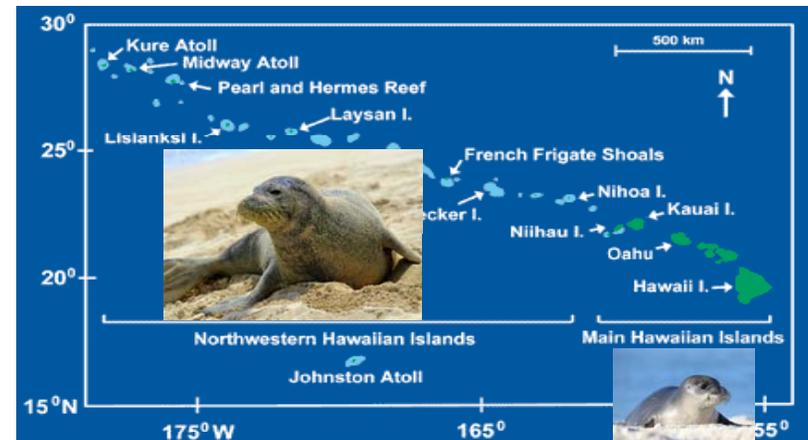
- Species in concerns: monk seal, cetaceans, turtles,

Species	Central Pacific EEZ regions	Various	Various	Problems
1 P Marine Mammal	Hawaii EEZ	Hawaiian monk seal (<i>Monachus schlegelii</i>)	Endangered	Failure of NOAA to achieve monk seal recovery
2 P Marine Mammal	Hawaii EEZ	Hawaiian monk seals (<i>Monachus schlegelii</i>)	Endangered	Takes of ESA listed species occurring in EEZ
3 P Marine Mammal	Hawaii EEZ	Hawaiian monk seal (<i>Monachus schlegelii</i>)	Endangered	Potential for catastrophic disease events; loss of demographic resolution will impair recovery
4 P Marine Mammal	Hawaii EEZ	Hawaiian Monk Seal (<i>Monachus schlegelii</i>)	Endangered	Loss of demographic resolution will impair recovery
5 P Marine Mammal	Hawaii EEZ, Guam EEZ, CNMI EEZ	All cetaceans	Endangered	Insufficient data for recovery plans
6 P Marine Mammal	Hawaii EEZ, Guam EEZ, CNMI EEZ, American Samoa EEZ	Americ false killer whales (<i>Pseudorca crassidens</i>)	Endangered	continued high cost of ship-based surveys
7 P Marine Mammal	Hawaii EEZ, Guam EEZ, CNMI EEZ, American Samoa EEZ	Americ false killer whales (<i>Pseudorca crassidens</i>)	Endangered	fishery closures, lawsuits
8 P Marine Mammal	Hawaii EEZ, Guam EEZ, CNMI EEZ, American Samoa EEZ	Endangered large whales (<i>Balaenoptera edeni</i> , <i>Balaenoptera borealis</i>)	Endangered	insufficient data for recovery plans
9 P Marine Mammal	Hawaii EEZ, Guam EEZ, CNMI EEZ, American Samoa EEZ	Americ false killer whales (<i>Pseudorca crassidens</i>)	Endangered	insufficient data for recovery plans
10 P Marine Mammal	Hawaii EEZ, Main Hawaiian Islands, high-seas	Hawaiian false killer whales (<i>Pseudorca crassidens</i>)	Endangered	lawsuits, fishery closure
11 P Marine Mammal	Hawaii EEZ, Palmyra EEZ, high-seas	Hawaiian false killer whales (<i>Pseudorca crassidens</i>)	Endangered	fishery closures, lawsuits
12 P Marine Mammal	Main Hawaiian Islands	Insular false killer whales (<i>Pseudorca crassidens</i>)	Endangered	delay in ESA Critical Habitat and Recovery Plan
13 P Marine Mammal	Main Hawaiian Islands	Hawaiian spinner dolphin stock complex (<i>Stenella longirostris</i>)	Endangered	population decline
14 P Marine Mammal	Main Hawaiian Islands, American Samoa	Island-associated stocks - Hawaiian spinner dolphin stock complex	Endangered	ESA-listing actions
15 P Sea Turtles	Central Pacific - Hawaii	Hawaiian monk seal	Endangered	reduction of the population in the near future
16 P Sea Turtles	Main Hawaiian Islands	green turtle	Threatened	lawsuits from not dealing with disease risks
17 P Sea Turtles	North Pacific	leopard sea turtle	Endangered	inaccurate final rule, possible lawsuits from stakeholders
18 P Sea Turtles	North Pacific	leopard sea turtle	Endangered	potential severe fishery regulations
19 P Sea Turtles	North Pacific	leopard sea turtle	Endangered	improper sea estimates of population status
20 P Sea Turtles	Northwestern Hawaiian Islands	green turtle	Threatened	lawsuits due to inadequacy of dealing with disease risks
21 P Sea Turtles	Pacific Ocean (not-ETP)	green turtle	Threatened	fragmentation of different PRs, recovery
22 P Sea Turtles	Pacific Ocean (not-ETP)	leopard sea turtle	Endangered	improper management strategies for recovery
23 P Sea Turtles	Pacific Ocean (not-ETP)	leopard sea turtle	Endangered	inadequate and insufficient information on recovery
24 P Sea Turtles	South Pacific	green turtle	Threatened	inaccurate assessments due to insufficient information
25 P Coral (15/20)	Guam	4 species	Threatened	What is Hot: Now
26 P Coral (15/20)	N. Marianas	2 species	Threatened	What is Hot: Now
27 P Coral (15/20)	A. Samoa	8 species	Threatened	What is Hot: Now
28 P Coral (15/20)	The Pacific Remote Island Areas	3 species	Threatened	What is Hot: Now

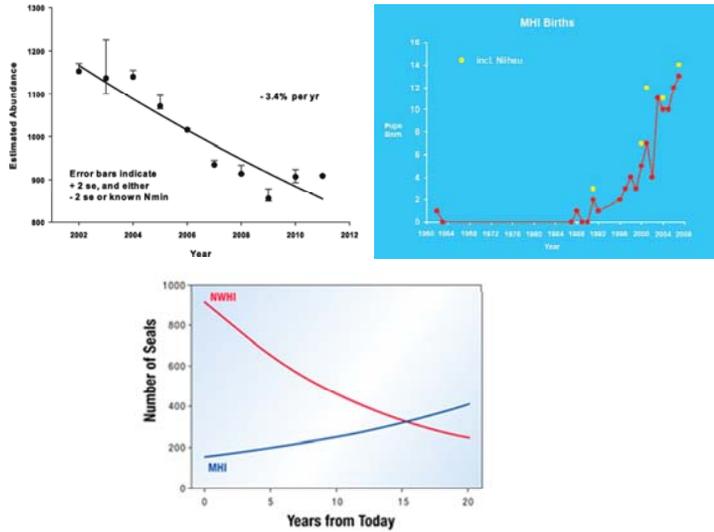


Concerns about Monk Seal (www.fpir.noaa.gov)

- Endangered marine mammal



Concerns about Monk Seal (www.fpir.noaa.gov)



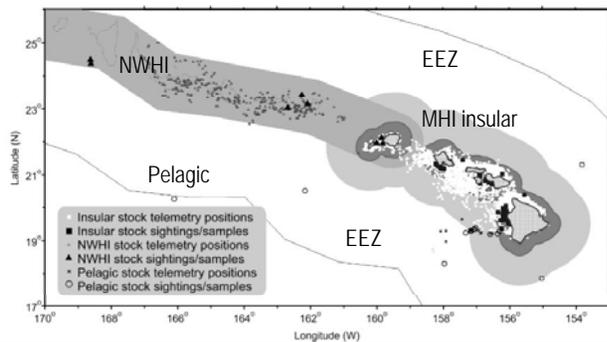
Why Monk Seal Is Coming to MHI?

- This is a question from biologists
 - ✓ Not coming, but newly born
- This is a question from fishermen
 - ✓ Are fishermen and monk seal are competitor for fish?
 - ✓ If yes, how many fish a monk seal eat in a day?
- Need to establish critical habitat
 - ✓ NWHI established in 1988
 - ✓ MHI in progress/proposed - Created a lot of fear
- Need for economic study
 - ✓ Post-regulation economic impacts (access to fishing ground and loss in food chain)



Concerns about False Killer Whale

- Three stocks (stock assessment report in 6/4/2014)
 - ✓ Main Hawaiian Islands (MHI) Insular – endangered ;
 - ✓ Northwestern Hawaiian Islands (NWHI) – not endangered;
 - ✓ Hawaii Pelagic – not endangered



Interactions with Fisheries



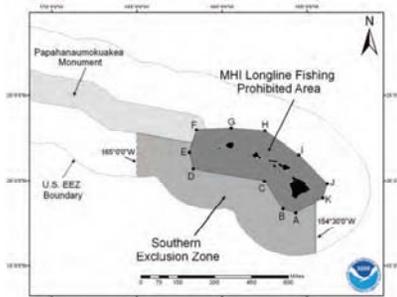
	Potential Biological Removal (PBR)	Hawaii longline (Tuna set)	Hawaii longline (Swordfish set)
MHI insular	0.3	0.5*	0
NWHI	2.6	0	0
Hawaii Pelagic	9.1	24.8*	0.3

* MHI insular & Hawaii Pelagic are "Strategic" stocks: Take > PBR



Take Reduce Plan

- The False Killer Whale TRT is the first TRT in the Pacific Islands;
- “Strategic” stocks: MHI insular & Hawaii false killer whale
- Regulations – different from the stocks
 - ✓ Types of hook and line;
 - ✓ No LL fishing zone in MHI insular;
 - ✓ Southern Exclusion Zone (will be closed after certain bycatch is observed)
- Need for Economic Study
 - ✓ Unknown recreational interactions
 - ✓ Non-market value of fishing activities



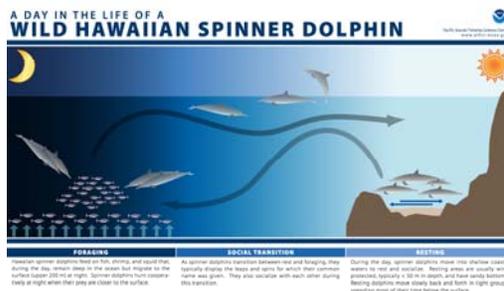
Spinner Dolphin

- Not listed as "threatened" or "endangered"
- Human disturbance on dolphins due to increasing tours (Swimming with dolphins)



Current Regulations

- Spinner dolphin rest at daytime near shore
 - Swimming with wild dolphins is getting popular
- PI Regional Guideline
 - DON'T feed, swim with, or harass wild dolphins.
 - We encourage you to observe them from a distance of at least 50 yards

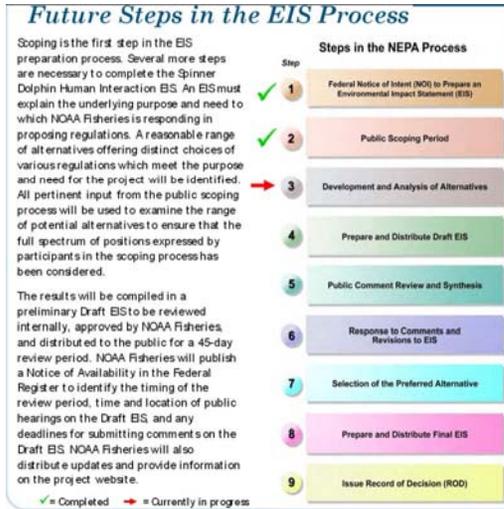


To Change Regulations?

- Current viewing guideline (50 yards)
 - ✓ Not effective
 - ✓ Not enforceable
- Proposed rulemaking in December 2005
 - ✓ Encouraging viewing, not swimming
 - ✓ Restricting certain activities (in developing alternatives)



Regulatory in Progress



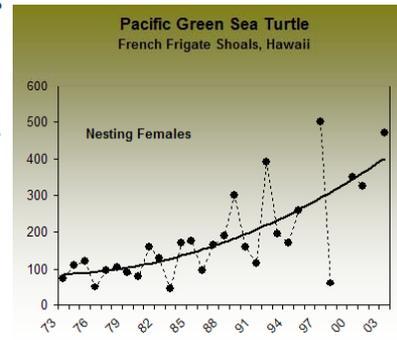
To Change Regulations?

- Current viewing guideline (50 yards)
 - ✓ Not effective
 - ✓ Not enforceable
- Proposed rulemaking in December 2005
 - ✓ Encouraging viewing, not swimming
 - ✓ Restricting certain activities (in progress)
- Questions of interests?
 - ✓ Industry scale and economic impacts (tours, medical healing related activities) <https://www.youtube.com/watch?v=jnCQEmvDlq>
 - ✓ Non-market value of swimming with wild dolphins (non-tour participants)



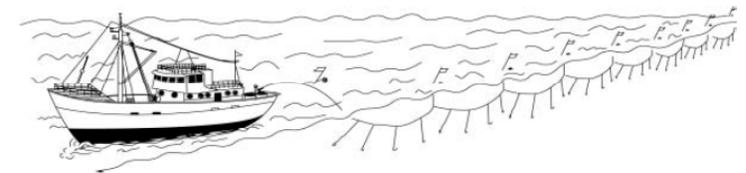
Sea Turtles

- Hawaii Green Sea Turtle
 - ✓ Endangered Species but recovered
 - ✓ Increased 53% over the last 25 years
- Rec. Fishing and Tourist interactions
 - ✓ Market value
 - ✓ Non-market value of human activities



Leatherback & Loggerhead Interactions with Longline

- Hawaii longline is the largest fishery with \$100 millions revenue;
- Lawsuits started in 1999 led of swordfish longline close;
- Re-open with new regulations in 2004;
- Unstable fisheries and sea turtle catches.



Coral (15 of 20 species)

- Newly listed (all 15 species in territory areas)
 - ✓ Guam (4); North Mariana (2); American Samoa (8); Pacific remote island areas (3 species)
- Primary threats are related to larger global scale processes
 - ✓ Cost-benefit of small scale management actions
 - ✓ Market and non-market value of the resources



Economic Works Contracted by Regional Office

- Economic analyses for the **Hawaiian monk seal** (~critical habitat);
- Economic analyses for the insular **false killer whale** (~critical habitat) ;
- The Regulatory Impact Review (RIR) was done for the take reduction for **false killer whales**;
- The **monk seal** Programmatic Environmental Impact Statement (PEIS RIR) was done under NEPA.



Economic Works Related to Turtle Funded by the Council

- A study on the spillover effect of turtle regulation in Hawaii longline
 - Import increase
- A study for cost-effectiveness of alternative conservation strategies
 - Reduce bycatch in coastal areas and nesting beaches
- Social economic study and conservation education
 - Looking at improving social and economic condition of the communities in the nesting beaches



PR Economic Supports from PIFSC

	Interaction	Data Support	Analysis /Studies
Marine Mammals			
False Killer Whales	Hawaii Longline	✓	
Hawaiian Monk Seal	Hawaii small boats	✓	
Spinner Dolphins	Hawaii tourists	✓	✓
Sea Turtles			
Loggerhead & Leatherback	Hawaii	✓	✓



Any Questions?

