

Return of the Urban Seal

MMPA Success and the Situation in New England



**NOAA
FISHERIES**

Northeast Fisheries
Science Center
Protected Species Branch



Chatham Harbor

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Framing the Situation in New England



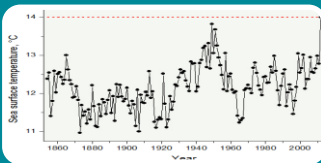
Seal hunts and bounty programs, 1891-1962

- Effectively eradicated gray and harbor seals
- During most of our lifetimes, seals have been seasonal and few



MMPA & other protections have worked

- Both gray and harbor seals have returned and are visible
- Gray seals are now repopulating coastal areas also important for tourism, beach use, and fishing



Many perturbations have impacted this ecosystem over the last 60 years

- Recent record high water temperatures (NOAA Fisheries 2012 Ecosystem Advisory Report)
- Fish distribution shifts due to climate change (Nye et al. 2009)
- Changes in species assemblages (Rothschild and Jiao 2012)



Increasing overlap with human activities

- Entanglement in fishing gear and depredation
- Growing ecotourism
- Competition with recreational fishing & beach use; Concerns about water quality



A new call for managing seals

- Research lags public discourse
- MMC can help

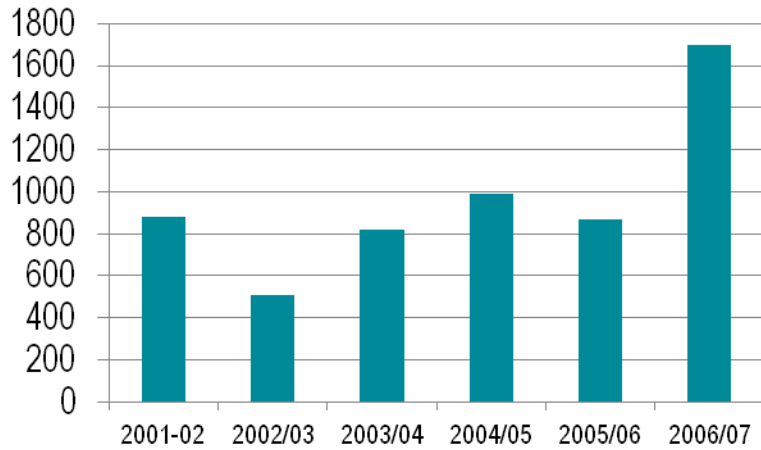
Science and Common Perceptions

Science Question	Common Perception	What We Know	Research Agenda
How many seals are there?	Too many	2012 harbor seal (70,141, CV=0.29); March 2011 gray seal (16,000) SE Mass	Regional monthly aerial surveys/UAS pilot studies
What is the direction and velocity of the population trend?	They are growing rapidly	Gray seals are known to be increasing & expanding range; Harbor seal less clear	Develop gray seal population model & monitor regional trends
What do seals eat and how much?	Too much of our fish	Diverse diet, diverse prey, prey switching likely	Monthly scat collection & examine bycaught stomachs
To what extent are sharks and seals overlapping offshore?	Sharks are at the beaches to eat seals and now swimmers have to beware	Seals seem to affect the local density of white sharks, though the sharks may be transient	Documenting seal/shark habitat use overlap beyond the beach
What is important habitat and how do they use it?	They stay close to shore, our beaches, foul our waters, and cause beach closures	Recent WHOI study does not suggest a link between seal haul-outs and beach closures due to water quality	Live capture, electronic tagging to establish use patterns

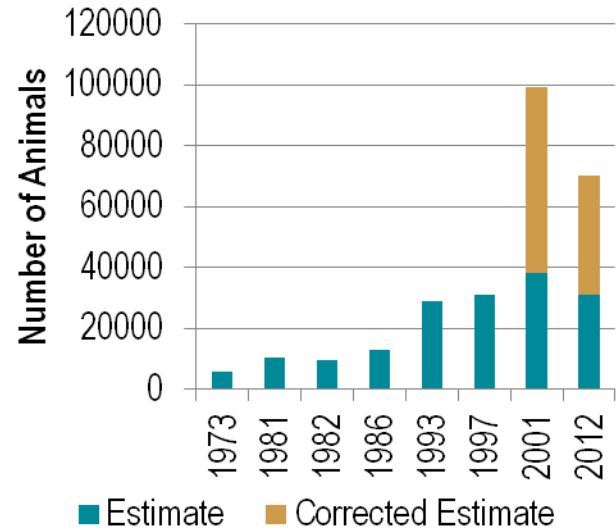
Population Trends

Gray Seals

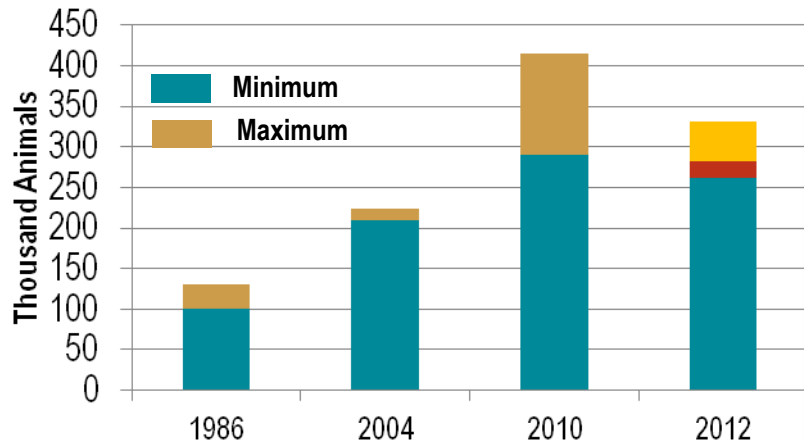
Pup Count Muskeget Island



Harbor Seals



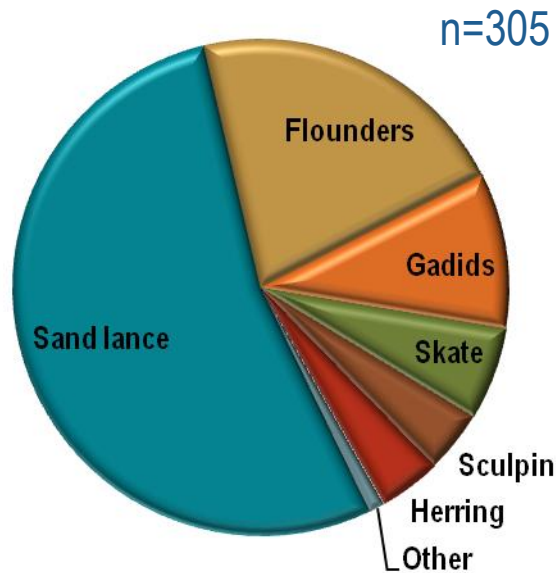
Sable Island
(2012 includes Nova Scotia and Gulf of St. Lawrence)



Gray Seal Food Habits

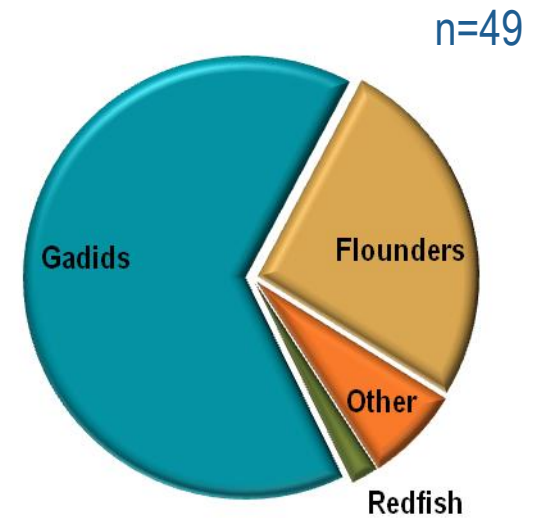


Percent wet weight of prey in **scat**



Gadids
 6% cod
 3% Red/white hake
 1% Silver hake
 (Ampela 2010)

Percent wet weight of prey in **stomachs**



Gadids
 33% Red/white hake
 29% Silver hake
 3% Pollock

Seals and Sharks

As the gray seal population has increased, so have sightings of white sharks around the seals in waters very near shore

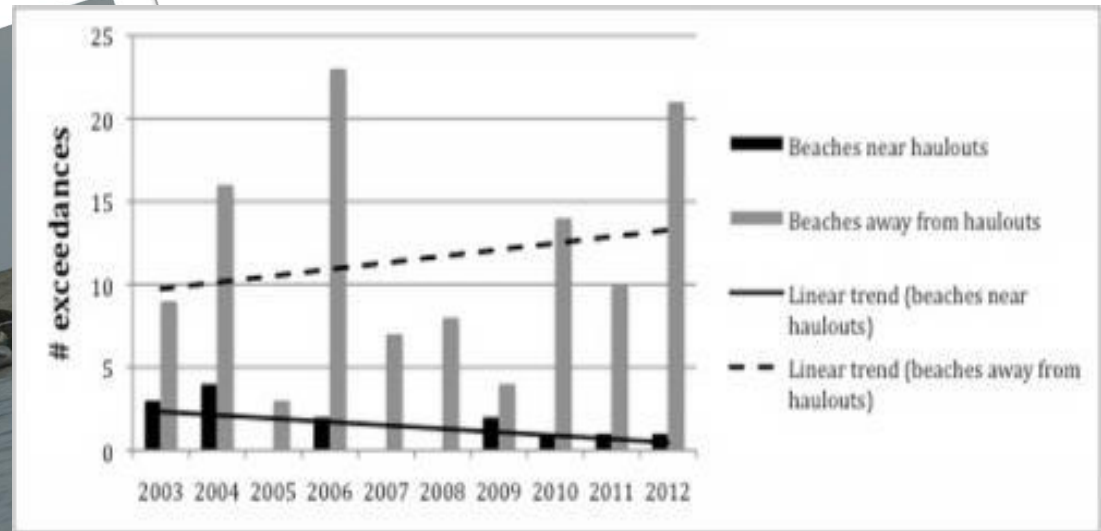
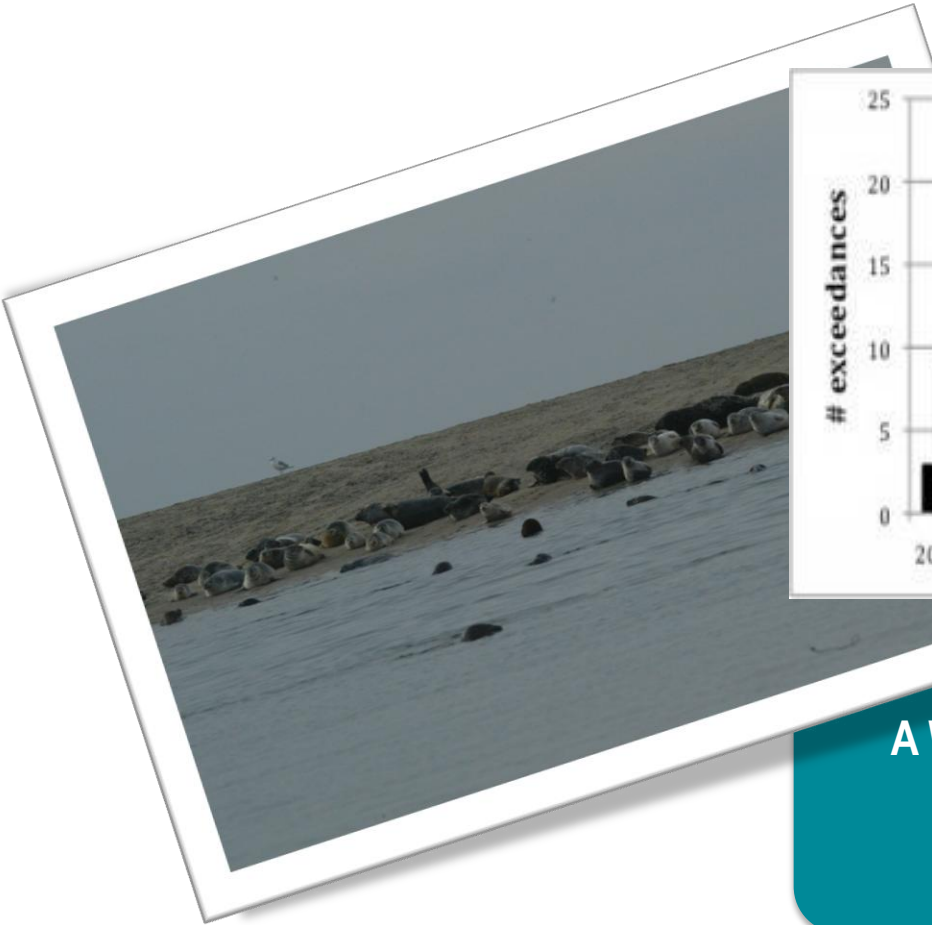
Shark and seal biologists are tracking animals captured in the area and then fitted with electronic tags – number of sharks present is still uncertain

Skomal – pers. comm. 5/1/14- “acoustic data indicate that ~65% of the sharks tagged off Cape Cod waters are transients, only staying a few days in the area.”

“Jaws” lives. The public fears about sharks are heightened by news reports & beach closures. But ecotourism has developed around it.



Seals & Water Quality



A WHOI study found that outer Cape Cod beach closures due to bacterial counts were not related to seal haul-out sites

Research Agenda

Research Topic	Project	Current Activity	Future Plans (Resource Dependent)
Population Status – Abundance	Harbor seal abundance survey	2012 most recent survey – population stable or declining	Repeat survey, with sufficient tagging to obtain robust correction factor
	Develop gray seal population model	Survey of pupping colonies; counting images	3-5 aerial surveys/yr +UAS & molt staging of pups to enhance modeling
Population Status - Trends	Southeast Massachusetts monthly aerial surveys	Collaborative 1-yr (?) project with Center for Coastal Studies	Expand monitoring region, north & west; UAS pilot study
	Historic surveys of trend sites during 1-3 winter months	Archived survey images being counted, collaborations	Model habitat changes and uses, gray seal impacts on harbor seals?
Foraging Ecology and Habitat Use	Monthly scat collection & examine bycaught stomachs	May 2014 begin scat trips; bycatch sampling is ongoing	Expand geographic region for scat trips; enhance bycatch sampling
	Live capture, electronic tagging to investigate behaviors and use patterns	June 2013 multi-organization adult gray seal tagging; Jan 2014 flipper tag weaned pups	10-15 electronic tags on harbor & gray seals (alternate years) for 5-yr period
	Depredation assessment	Outreach with industry	Develop collaborative project to quantify depredation
Entanglement	Surveys of entangled seals on haulout sites	Collaborative project, sharing survey images	Continue collaborative project

How the Commission Can Help

Acknowledge that, as marine mammal populations increase, both positive and negative interactions will increase, and we need to respond to both

Support research required to address ecological and socio-economic interactions

Engage in the ongoing public discourse about how best to deal with interactions between recovering marine mammals and increasing human activities

Questions

