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Endangered Cook Inlet Beluga Whales and the Threats to Their Recovery

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Photo credit: Chris Garner, DOD

Alaska Beluga Stocks – Summer Distribution



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Cook Inlet Population



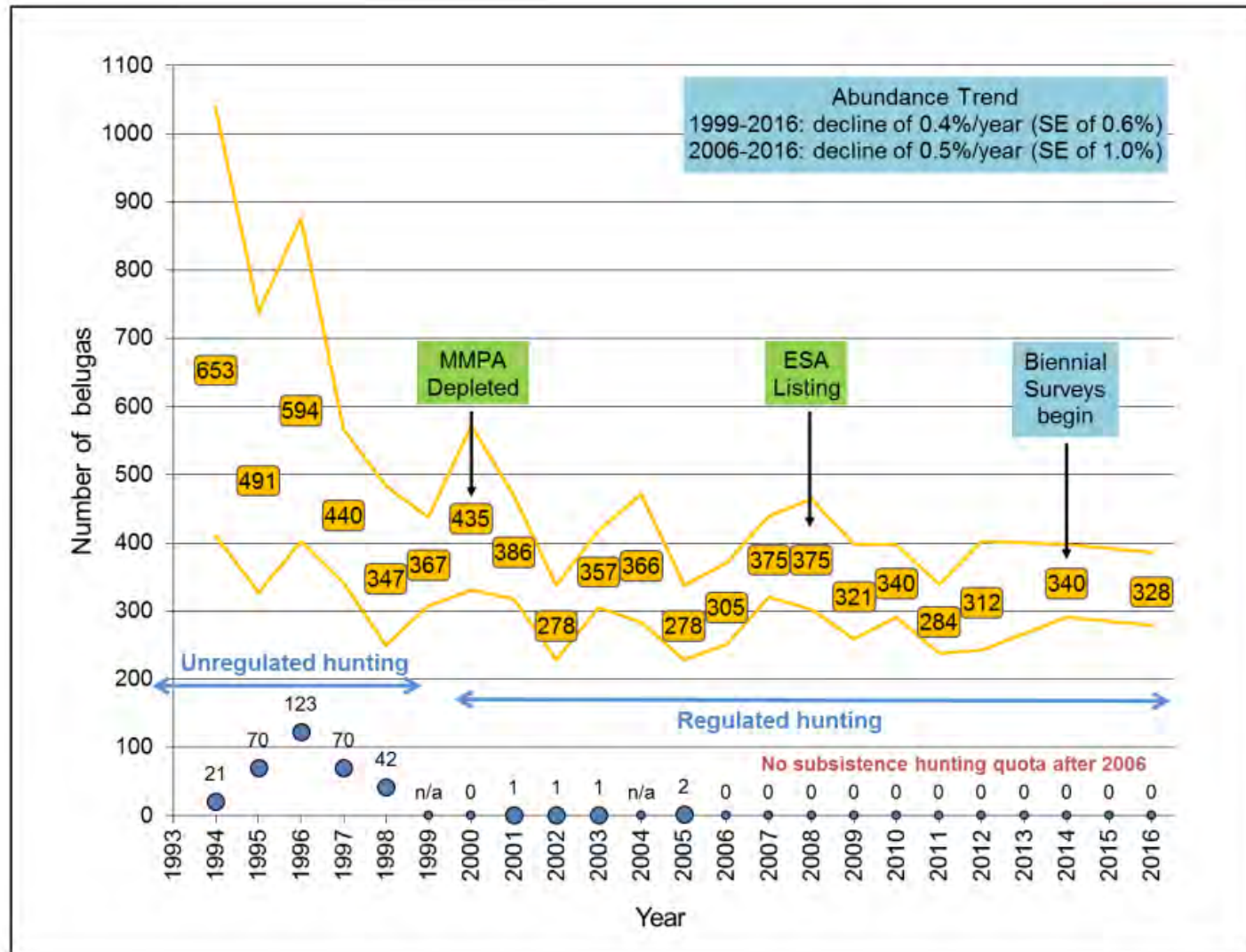
Cook Inlet

- 180 mi from Gulf of Alaska to Anchorage
- Encompasses 38,610 mi²
- Largest tidal range in US (4th in the world)
- Extensive mudflats & very turbid water associated with glacial runoff
- Most of Alaska's population surrounds Cook Inlet

★ = Anchorage



Population Timeline

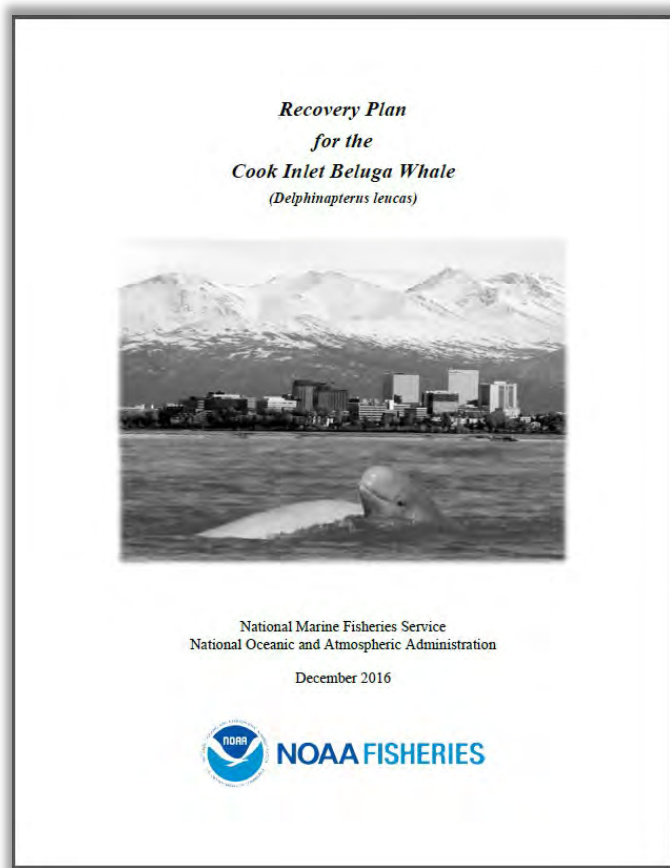


Present Realities

- The Cook Inlet beluga population is not showing signs of recovery
- Their use of habitats in Cook Inlet is shrinking
- Human activity in Cook Inlet is increasing
- No single threat adequately explains lack of growth
- Cumulative impacts to belugas will become a prominent issue



CIB Recovery Plan



- Finalized December 2016
- Summarizes information about C.I. belugas
- Reviews and ranks threats
- Identifies criteria, actions, timeline, and cost for recovery



Threats to Recovery

Natural Threats

- Live Strandings
- Predation
- Interspecific Competition for Prey
- Disease
- Natural Disasters

Anthropogenic Threats

- Noise
- Prey Reduction
- Unauthorized Take
- Habitat Loss and Degradation
- Pollution
- Hunting, Poaching, or Intentional Harassment
- Catastrophic Events

Cumulative Effects





Natural Threats

Live Strandings



Predation



Predation



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Natural Disasters



Prey Competition



Disease



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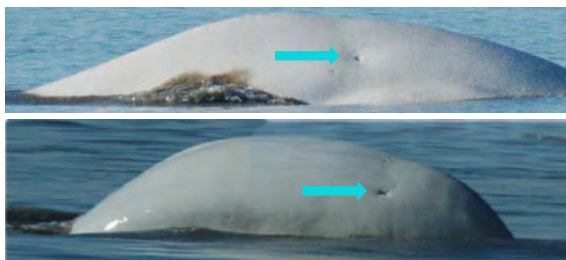
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Anthropogenic (Human) Threats

Subsistence



Poaching



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Prey Competition



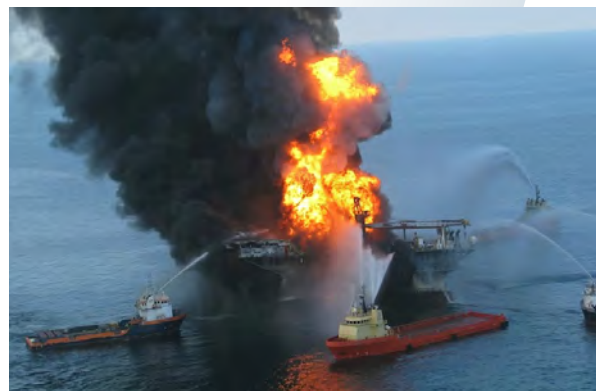
Unauthorized Take



Pollution



Catastrophic Events

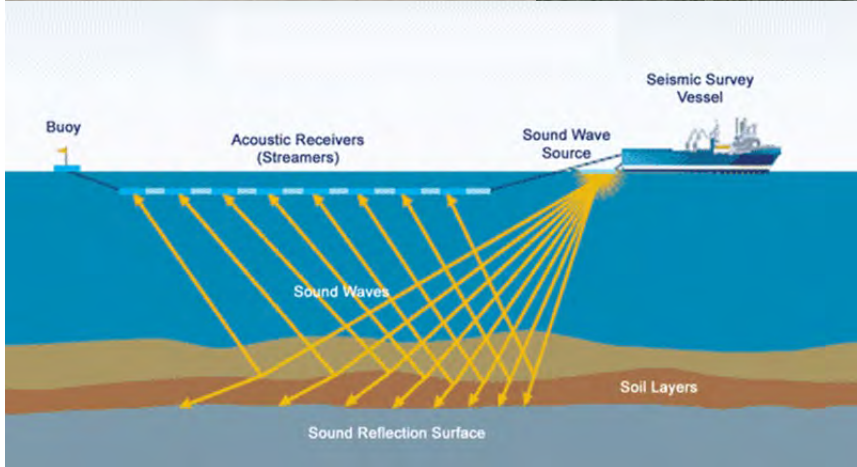


Anthropogenic Threats Continued...

Noise



Habitat Loss & Degradation



Cumulative Effects



Possible Effects to Beluga Population

Direct Effects	Indirect Effects
Behavioral changes	Loss or degradation of beluga habitat quality
Displacement from key habitats	Reduced access to key habitats
Harassment	Loss or alteration of beluga prey habitat
Compromised health	Displacement of prey from beluga foraging habitats
Injury	Reduced health or quality of prey
Mortality	Reduced availability of prey to beluga

Reduction in recovery potential

Increase the time to recover

Lack of recovery



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Recovery Plan Threats Ranking

THREAT	LEVEL OF CONCERN
Catastrophic Events	High
Cumulative Effects of Multiple Stressors	High
Noise	High
Disease Agents	Medium
Habitat Loss or Degradation	Medium
Reduction in Prey	Medium
Unauthorized Take	Medium
Pollution	Low
Predation	Low
Subsistence Hunting	Low



Beluga Whale Prey Species

Fish

- Salmon
- Cod: saffron cod, pollock, and pacific cod
- Smelt: eulachon
- Flounder : yellowfin sole and starry flounder

Invertebrates

- Shrimp
- Polychaetes
- Amphipods

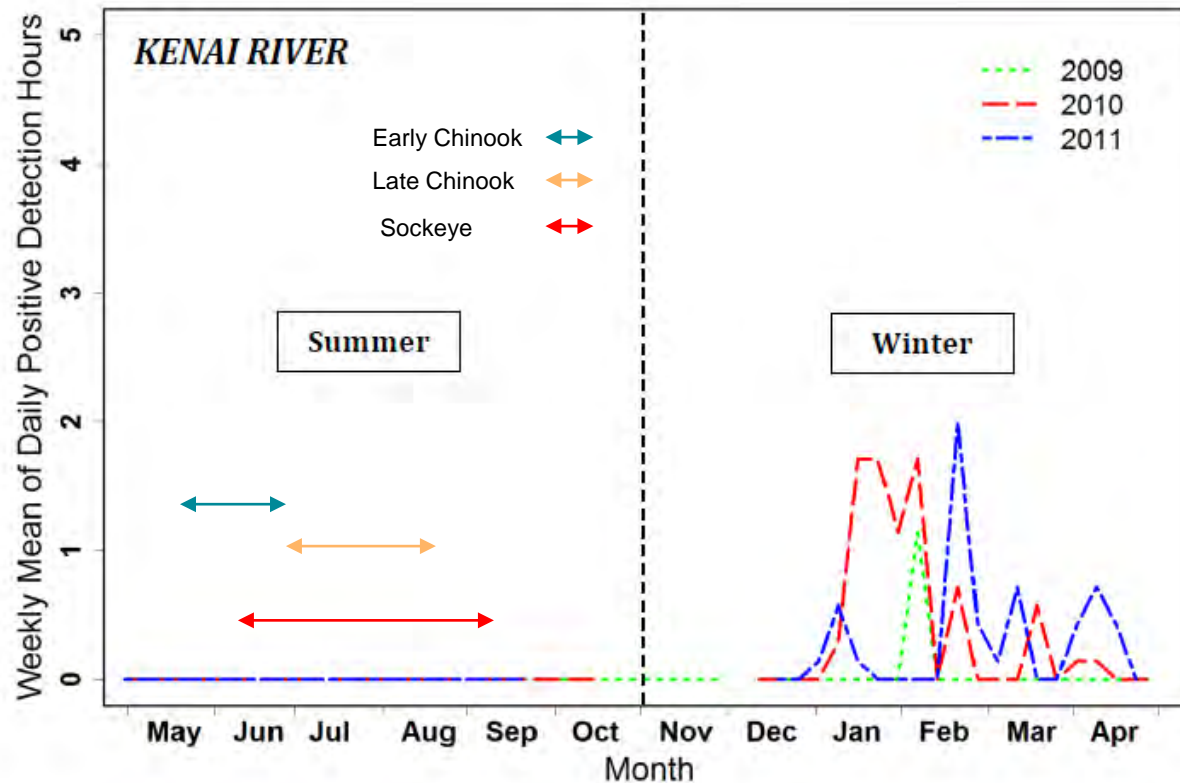


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Reduction in Prey



Acoustic detections of Cook Inlet beluga whales in the Kenai River from 2009 through 2011 compared to Chinook and Sockeye run timing. From Castellote et al. (2016) and fish run timing data at <http://www.adfg.alaska.gov/sf/FishCounts/index.cfm?adfg=main.home>.

Noise / Habitat Loss and Degradation

- Ecological changes – increased water temperature, siltation, and salinity.
- Anthropogenic activities – temporary or permanent changes to habitat



Recent, Current, & Future Projects

Projects in Mid & Upper Cook Inlet

- JBER Eagle River Flats
 - military exercises
- Port of Alaska
 - Pile Driving
 - Dredging at Port of Alaska
- Port MacKenzie
 - Pile Driving
- Oil and Gas Activities – AK LNG, Hilcorp, Furie, Sabre
 - Platform & pipeline maintenance, drilling, geohazard surveys
- Vessel Traffic



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CIB Outreach

- Belugas Count
- Alaska Beluga Monitoring Partnership



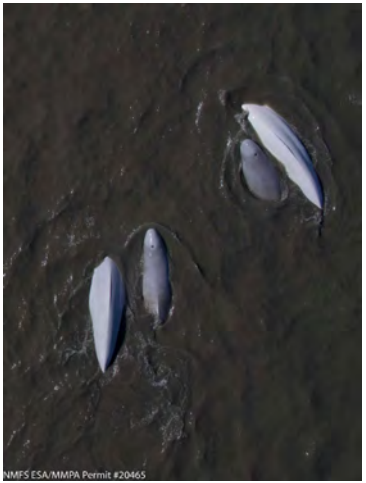
Photo: BWA



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How does this fit within the framework and identified goals of the Mat-Su Salmon Fish Habitat Partnership's Strategic Action Plan?



Thank You



Photo Credit: Chris Garner, US Army, JBER, AK