



Greenland case study

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Overview of existing knowledge on entanglement of large whales in Greenland

- Description of the fisheries, regulatory regime including species, areas, seasons and gear type
- Description of existing by-catch monitoring programs, including methodology and coverage
- Known or estimated magnitude of marine mammal by-catch by species and fishery, using direct and indirect evidence
- Future plans to improve by-catch monitoring and questions to all of you



Regulatory regime of fisheries and whaling and existing bycatch monitoring programs

- Fisheries in Greenland are regulated primarily by the Parliamentary Law nr 18 of the 31st of October 1996 on Fisheries, with several amendments and follow by:
 - Executive orders on technical conservation measures; catch reporting and by-catches in the fisheries;
- Whaling in Greenland is regulated by the Parliamentary Law nr 12 of the 29th of October 1999 on Hunting, with 3 amendments and
- The Executive order on protection and hunting of large whales , nr 12 of 22. December 2014.



Overview of main regulated fisheries in West Greenland

Species	Areas (West Greenland)	Season	Gear type	Regulation	*Active boats 2005	*Landings in tons 2005	Potential mammalian by-catch
Scallop	Inshore from Nuuk to Upernavik.	Year round	Dredgers	Licences	4	1.399	Low risk. None registered.
Shrimp	Offshore; Inshore Disko Bay	Year round	Shrimp trawl	Licences	15	78.089	Seals observed, few
Snow crab	Inshore from Upernavik and southwards	April - December	Crab pots	Licences	43 3 deep sea	3.811 371	Entanglement of humpback whales
Greenland halibut	1.000-1.500 m depth off Nuuk & Qeqertarsuaq; Inshore Disko, Uummannaq and Upernavik. Qaanaaq	Peak in late summer, ends in November	Trawl Gill net/ long-line	Licences Open boats/dog sledge	274 1000	20.000	Unknown
Redfish	Offshore Southwest Greenland	June-October	Trawlers	Licences		50	Unknown
Cod	Inshore	Year round, peak June and July	Pound nets, hand lines, long-lines and set gillnets	Licences	NA	NA	Entanglement of humpback whales (pound nets)
Capelin	Inshore, mostly Disko Bay and further north	May-July	Seines	Licences	0	0	Very low risk
Atlantic salmon	Inshore	Approximately August 01 – October 31	Gill net Open boats	Licences	14 170	15	Unknown
Lumpfish	Inshore, 59°-72°N	March 01 – June 30	Gill net	Licences	NA	NA	
Arctic char	Fresh water and close to a few rivers in central West Greenland	June 15 – September 25	Gill net		NA	NA	Low

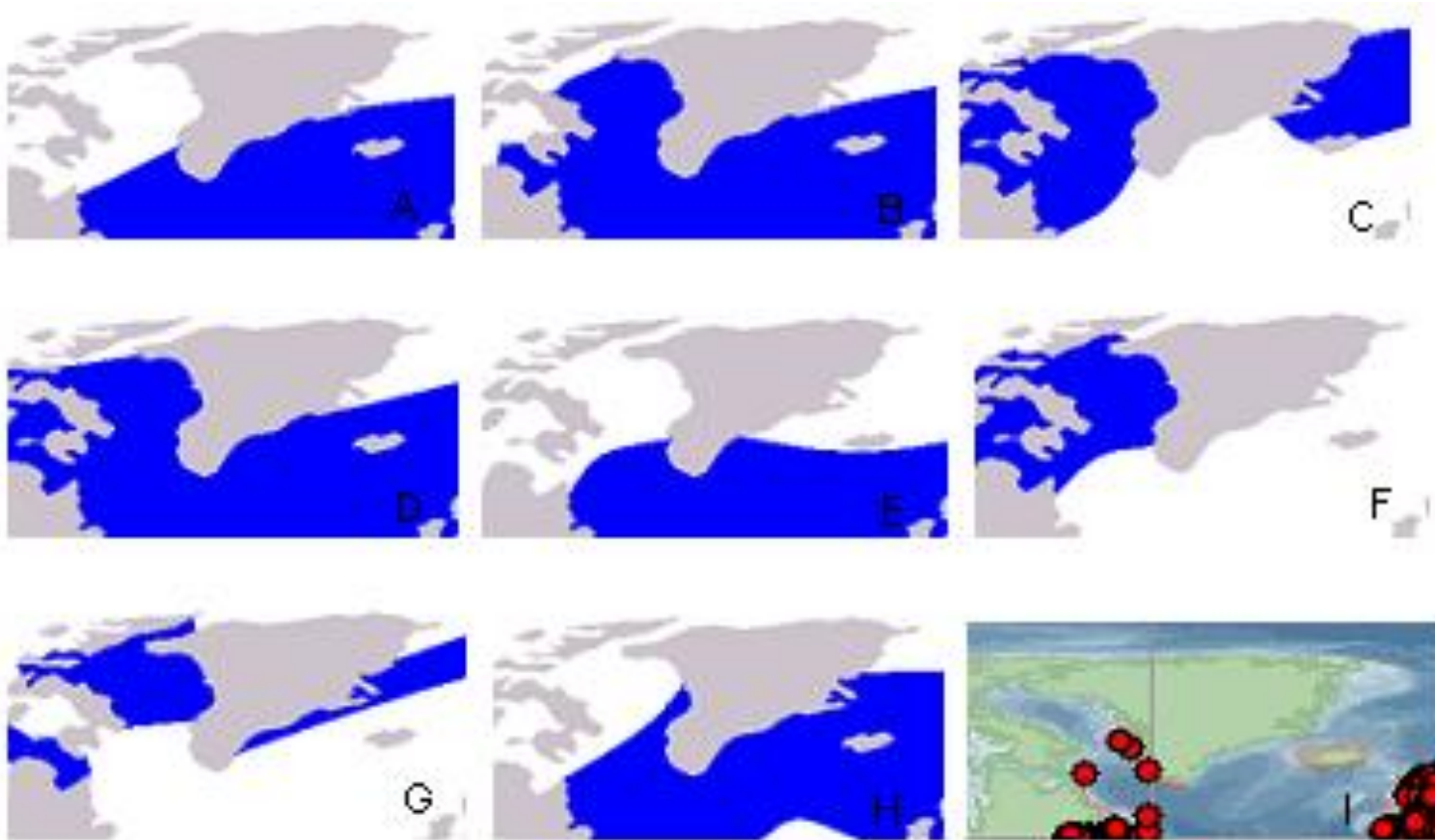


Overview of main regulated fisheries in East Greenland

Species	Areas (East Greenland)	Season	Gear type	Regulation	*Active boats 2005	*Landings in tons 2005	Potential mammalian by-catch
Shrimp		Year round; peak Dec-Apr.	Shrimp trawl	Licences	14	7.000	Seals observed, few
Greenland halibut		Year round	Trawl	Licences	14	9.806	Unknown
Redfish	Offshore Irminger Sea	June-October	Trawlers	Licences	12	4670	Unknown
Cod		Year round, peak June - July	Pound nets, hand lines, long lines and set gillnets	Licences	1	649	Entanglement of humpback whales (pound nets)
Capelin	Offshore 66°-69°N	Offshore: June 20 - April 30	Purse seines	Licences	2	0	Unknown
Lumpfish		March 01– June 30	Gill net	Licences	NA	NA	



Distribution of whales and dolphins commonly occurring in Greenlandic waters



A: blue, sei; B: fin, humpback, minke; C: bowhead



Existing guidelines, entanglement

- Entanglement of large whales must be reported to the Ministry using a report scheme for hunting
- Vessel with whale harpoon canon or more than five hunters with equipment for whaling by skiffs is rented by the Ministry for euthanization
- Edible products are confiscated and given to local institutions as hospital, elderly peoples home, kinder garden etc. if the whale is brought to land and flensed. No cash is allowed earned in these cases
- If total damage to fisheries equipment can be documented, the owner can sell enough products to cover the loss. Requires permission from the Ministry



Conditions for a permitted euthanization

- Confirmation of fisherman/hunters observation of entanglement by wildlife officer, police vessel or administrative law personal
- Documentation by photo of entangled whale, showing how it is entangled
- Information of time for the work involved in the euthanization, which people, equipment, vessels etc. is used
- The whale must be reported on the normal hunting reporting scheme, stating it was a permitted euthanization, samples must be taken to the Institute of Natural Resources
- Products are not allowed for selling, participating skiffs and vessels can be permitted to take meat/mattak for own use. The rest is given to local public institutions
- Whaling vessel with 50 mm whaling gun, species specific whale grenade-99
- In case of skiffs: large caliber rifle must be used preferable .375 / .458, otherwise .30.06. Ammunition should be round nose full metal jacket .



Year	Reported entanglements in Greenland fisheries			
	Humpback whale	Minke whale	Fin whale	Bowhead whale
1998	1	3		
1999	1			
2000	2	2		
2001	2			
2002	3	1	1	
2003	1			
2004	2			
2005	5			
2006				
2007	3			2
2008	3	1		
2009		1		
2010	1			
2011	1			2
2012	2			
2013	1			1
2014	1			
2015	10			





Entanglements 2015

- # 1: 1 humpback whale sex unknown near Nuuk (length unknown) entangled in fishing gear from pound net in front of front flippers was observed, status unknown, June 2015. Observed by local people.
- # 2: 1 humpback whale female near Fiskenæsset (8,6 meter) entangled in fishing gear from pound net was permitted euthanized, June 2015. Observed by the fisherman. Costs 41.000 DKK for euthanization and flensing
- # 3: 1 humpback whale sex unknown near Aasiaat (length unknown) entangled in fishing gear was permitted euthanized but drowned and sank, June 2015. Observed by local people and wildlife officer. Vessel rent costs of 8.000 DKK
- # 4: 1 humpback whale sex unknown near Disko, but off shore (length unknown) entangled in fishing gear or line was observed, status unknown, June 2015. Observed by local fisherman.
- # 5: 1 humpback whale sex unknown near Narsaq (length unknown) entangled in gear for crab fishing was observed, status unknown, July 2015. Observed by local fisherman. No whalers available for hiring



Entanglements 2015

- # 6: 1 humpback whale sex unknown near Paamiut (length unknown) entangled in fishing gear was observed, status unknown, July 2015. Observed by Fisheries inspector, searched for but disappeared between ice and fog
- # 7: 1 humpback whale sex unknown near Nuuk (length unknown) entangled in heavy line from a ship was observed, status unknown, July 2015. Observed by fishermen and hunters. Whalers willing to euthanize but only if allowed to sell products.
- # 8: 1 humpback whale female near Maniitsoq (10 meter) entangled in fishing gear from pound net was permitted euthanized, September 2015. Observed by fishermen/hunters and wildlife officer. Cost of 99.000 DKK for euthanization and flensing
- # 9: 1 humpback whale male near Fiskenæsset (10,5 meter) entangled in fishing gear was permitted euthanized, September 2015. Observed by fisherman. Cost of vessel 12.000 DKK for euthanization. Local people flensed.



Entanglements 2015

- # 10: 1 humpback whale male near Kulusuk (6 meter) entangled in fishing gear was permitted euthanized, October 2015. Observed by local hunters for several days, swimming in circles. Euthanized by local hunters. No costs.



Estimated grouping of mammalian by-catch risk

Gear type	Estimated risk	Comments
Bottom dredges	Green	Low risk. No by-catch registered.
Shrimp trawl	Yellow	A few seals have been observed as by-catch in shrimp trawls.
Crab pots	Yellow	Entanglement of humpback whales observed.
Pelagic trawl	Green	No by-catch registered.
Gill nets	Red	Footnote
Long-line	Green	No by-catch registered.
Pound nets	Red	By-catch of seals and whales reported.
Hand lines	Green	No by-catch registered.
Seine	Green	No by-catch registered.



Revision of guidelines and questions, many questions...

- Whaling vessels not willing to euthanize, reduces their own market for sale. Puts the Ministry in a conflicting situation of animal welfare and the whalers
- Euthanization by responsible party, who? And who pays?
- Should sale be permitted?
- Does other countries require the use of special devices on fixed gear, rigging and design, acoustic devices, length of rope for buoys and anchors etc, floating lines?
- Acoustic release technology, technical specifications? Could be useful in the crab fishery and maybe also in coastal fishery where the loss of gear is large because of ice drifting
- Our crab fishery (snow crab) takes place at depth of 100-500 meters depth. Does Canada have any experiences similar to GRL? Do they see entanglement/bycatch in their turbot/Greenlandic halibut fishery in Davis Strait?



Questions continued...

- Fishing for capelin in East Greenland purse seine gear, experience competition with large whales. Try to keep them away from the net, firecrackers, so the whales will not be inside the fish shoal.
- Norwegian line fishery vessels try to keep sperm whales away from gear with acoustic noise, when taking in the lines. Keeps the whales away until a certain distance and moves close again when noise is off. Which kind of technical equipment is used?