Nordic Co-operation

matís

Marine Mammals in the North-Atlantic and their role in the ecosystem






Jonas R. Viðarsson – Director of Research & Innovation Division at Matís
jonas@matis.is

Welcome – Why are we here?

Debate on:

- The distribution and populations of marin mammals
- The role of marine mammals in the ecosystem
- The impact of marine mammals on commercial fish stocks and fisheries
- Animal welfare
- Food security & food safety
- Markets for marine mammal products
- …….



Conversation between different stakeholders is often lacking!

- Our aim is to facilitate such conversation in coastal states in the North-Atlantic
- Local and international meetings/conferences
- TemaNord report published at end of project

50 years of protection

- The US banned imports of marine mammals in 1972.
- The European Economic community banned import of sealskin in 1983
- The International Whaling Commission implemented a global moratorium on whaling in 1986
- The EU banned imports of seal products in 2009
- As results commercial whaling and sealing have been almost non-existent for 40 years



Are the restrictions having an impact?

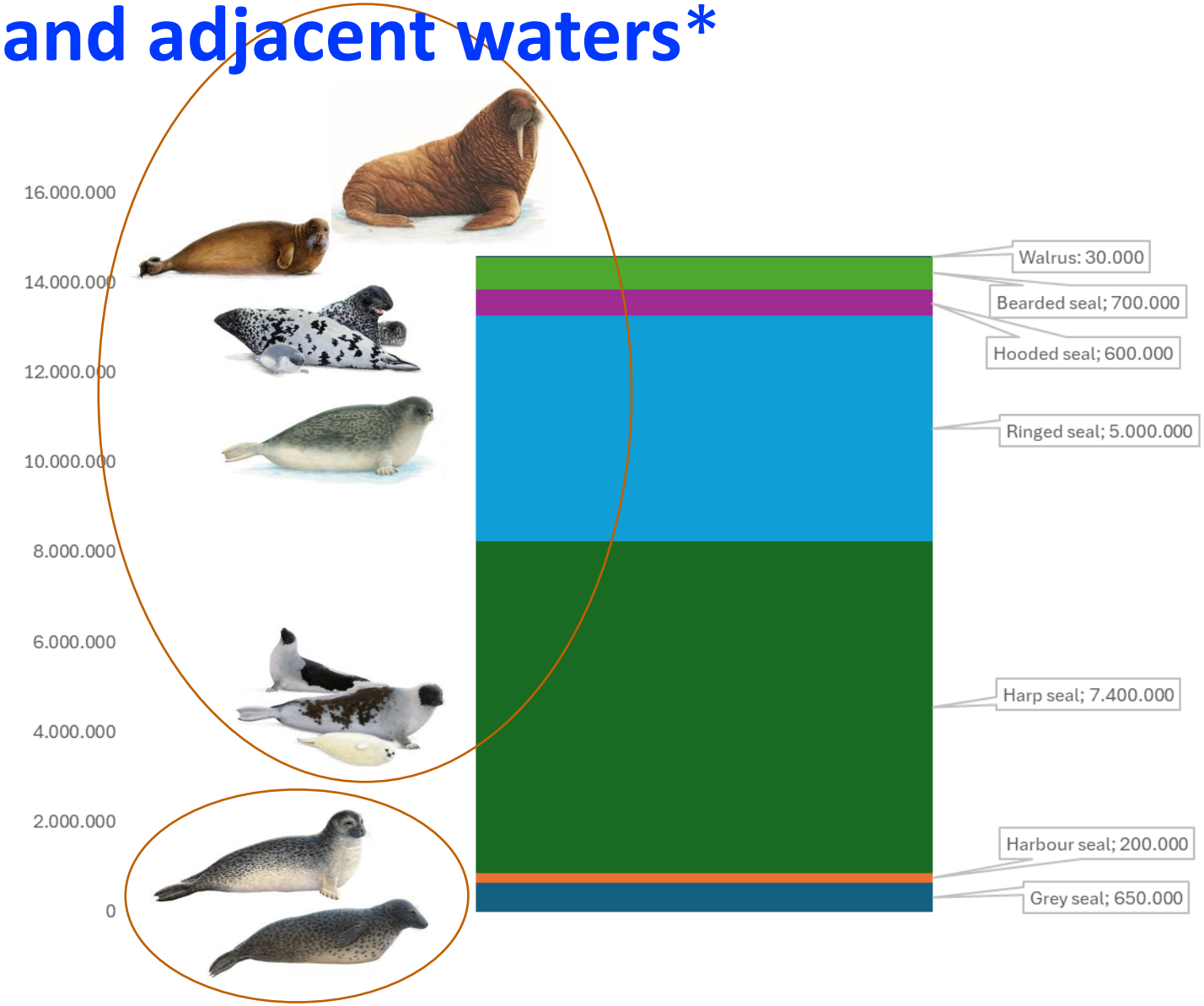
- Some seal populations are growing. but others are declining
- Some whale populations are growing, but others are still endangered.
- We are still lacking knowledge on the role of marine mammals in the ecosystem.
- We are also lacking knowledge to what extent marine mammals are having effect on commercial fisheries and livelihoods.



There are now 14.5 million seals in the Arctic, N-Atlantic and adjacent waters*

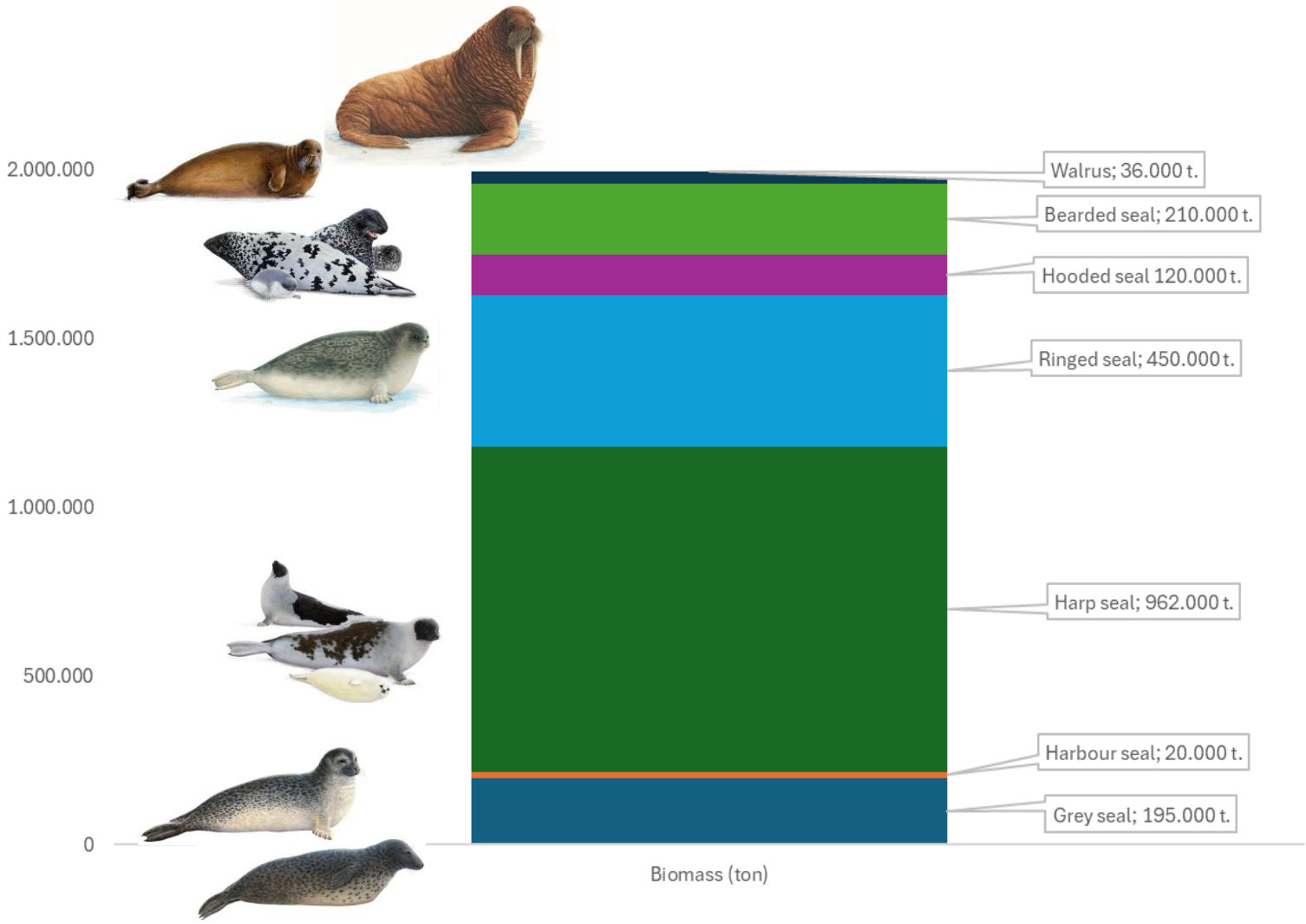
Ice seals

Coastal seals

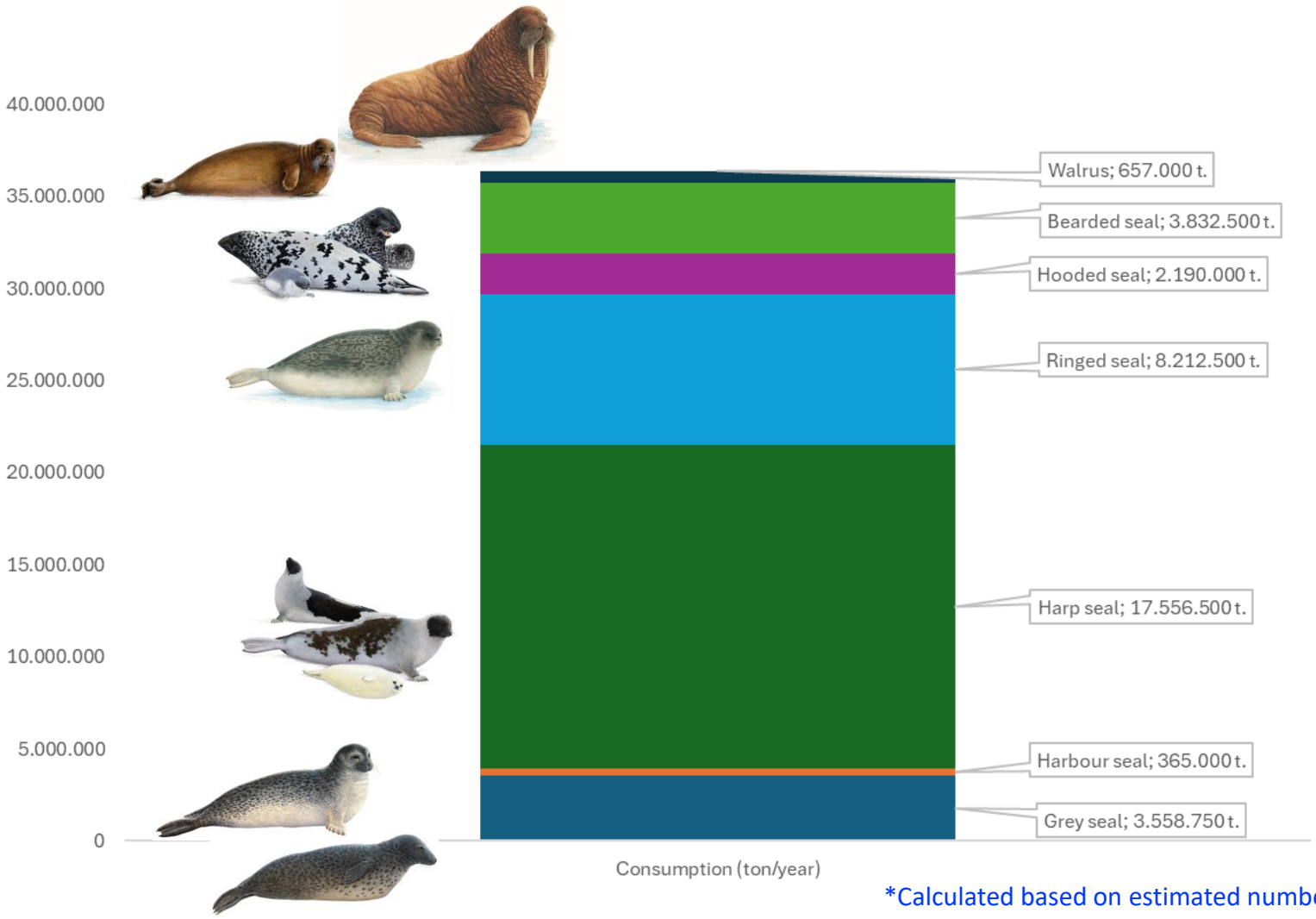


*Source: NAMMCO

The biomass of these seals is around two million tons



These seals are estimated* to consume 36-million-ton of biomass



*Calculated based on estimated number of seals, average weight of each seal species and the assumption that seals eat 4-5% of their body weight every day

What is on the menu?



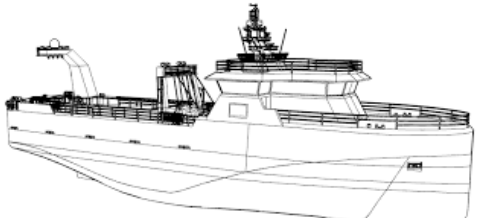




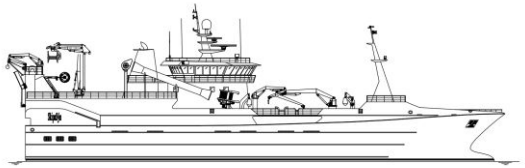


Estimated population size and biomass consumption of seals in the Arctic, North Atlantic and adjacent waters

Species	Population (no of animals)	Biomass (ton)	Consumption (ton/year)	Feeding
Grey Seals	650.000	195.000	3.558.750	Demersal and benthic fish
Harbour Seals	200.000	20.000	365.000	Demersal and pelagic fish
Harp Seals	7.400.000	962.000	17.556.500	Krill, amphipods, invertebrates, demersal and pelagic fis
Ringed Seals	5.000.000	450.000	8.212.500	Demersal- and pelagic fish, crustaceans, cephalopods
Hooded Seal	600.000	120.000	2.190.000	Pelagic fish and squid
Bearded Seal	700.000	210.000	3.832.500	Demersal fish and invertebrates
Walrus	30.000	36.000	657.000	Bivalve molluscs, clams, and benthic invertel
Total	**14.580.000**	**1.993.000**	**36.372.250**	







The diet of seals depends on the species and area:

- Some target mostly species of little to no commercial value, such as. krill, amphipods, bivalves and benthic invertebrates
- Others target commercially important pelagic and demersal fish species

Cetaceans & whales in the N-Atlantic

Many whale species were in critical condition in the early 80's after centuries of overexploitation. A 40-year moratorium is however starting to show results, as some whale populations are returning in some areas.

We however still have whale populations that are critically endangered



Humpback whales following a school of capelin in the waters east of Iceland

Cetaceans & whales in the N-Atlantic

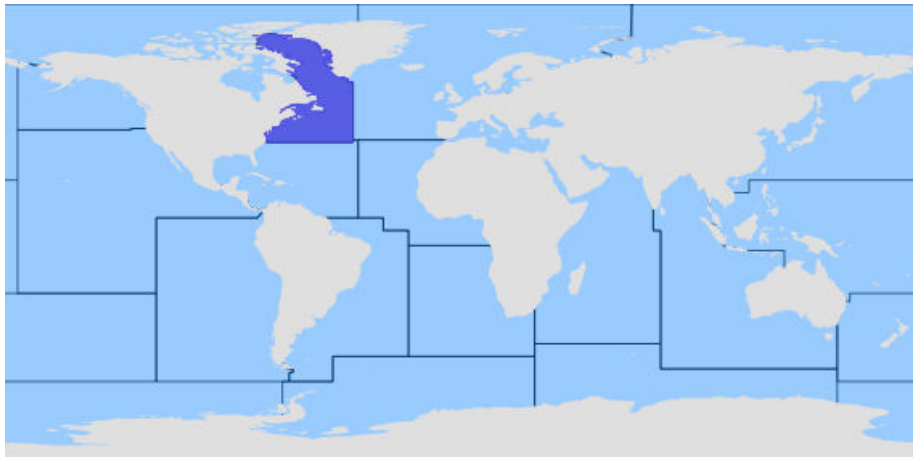
A very rudimentary assessment suggests that there are 3.7 million cetaceans and whales living in the N-Atlantic and that they consume around 166 million tones of biomass annually*.

Estimated population size and biomass consumption of cetaceans and whales in the Arctic, North Atlantic and adjacent waters

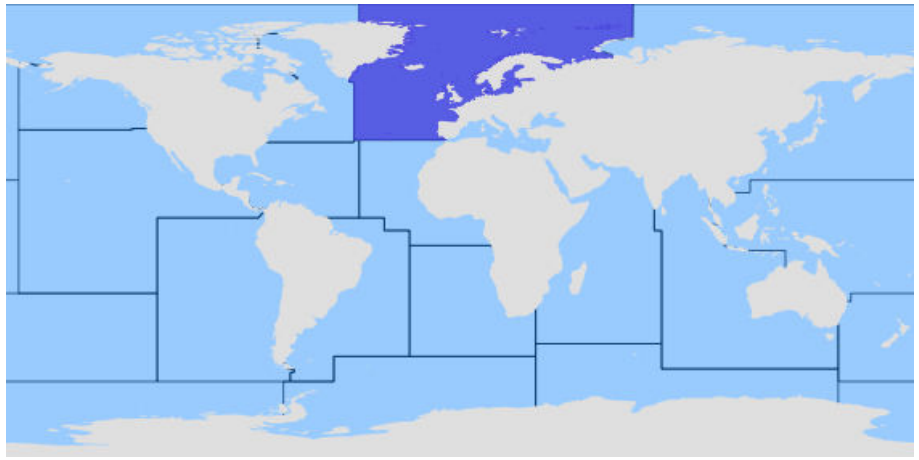
Species	No. of animals	Average weight (ton)	Total biomass (ton)	Biomass consumption (ton)
Fin Whale	80.000	60,0	4.800.000	70.080.000
Common Minke Whale	220.000	9,0	1.980.000	28.908.000
Humpback whale	35.000	30,0	1.050.000	15.330.000
Sperm Whale	30.000	30,0	900.000	13.140.000
Bowhead whale	8.000	80,0	640.000	9.344.000
Long-finned pilot whale	380.000	1,2	456.000	6.657.600
Blue Whale	3.000	100,0	300.000	4.380.000
Beluga	180.000	1,2	216.000	3.153.600
Northern Bottlenose Whale	25.000	8,0	200.000	2.920.000
Sei Whale	10.000	15,0	150.000	2.190.000
Narwhal	100.000	1,4	140.000	2.044.000
Common Bottlenose Dolphin	600.000	0,2	132.000	1.927.200
Common dolphin	640.000	0,2	128.000	1.868.800
Killer Whale	15.000	6,0	90.000	1.314.000
White-beaked dolphin	300.000	0,3	75.000	1.095.000
The Atlantic white-sided dolphin	200.000	0,2	40.000	584.000
Harbour Porpoise	700.000	0,1	35.000	511.000
Striped dolphin	200.000	0,2	30.000	438.000
North Atlantic right whale	370	50,0	18.500	270.100
Risso's dolphin	11.000	0,4	4.400	64.240
	3.737.370		**11.384.900**	**166.219.540**

** Using the widely used assumption that they consume 4% of body weight per day*

Total wild capture fisheries in the same area is 10 million ton



NW-Atlantic catches 1.54 million ton*



NE-Atlantic catches 8.31 million ton*

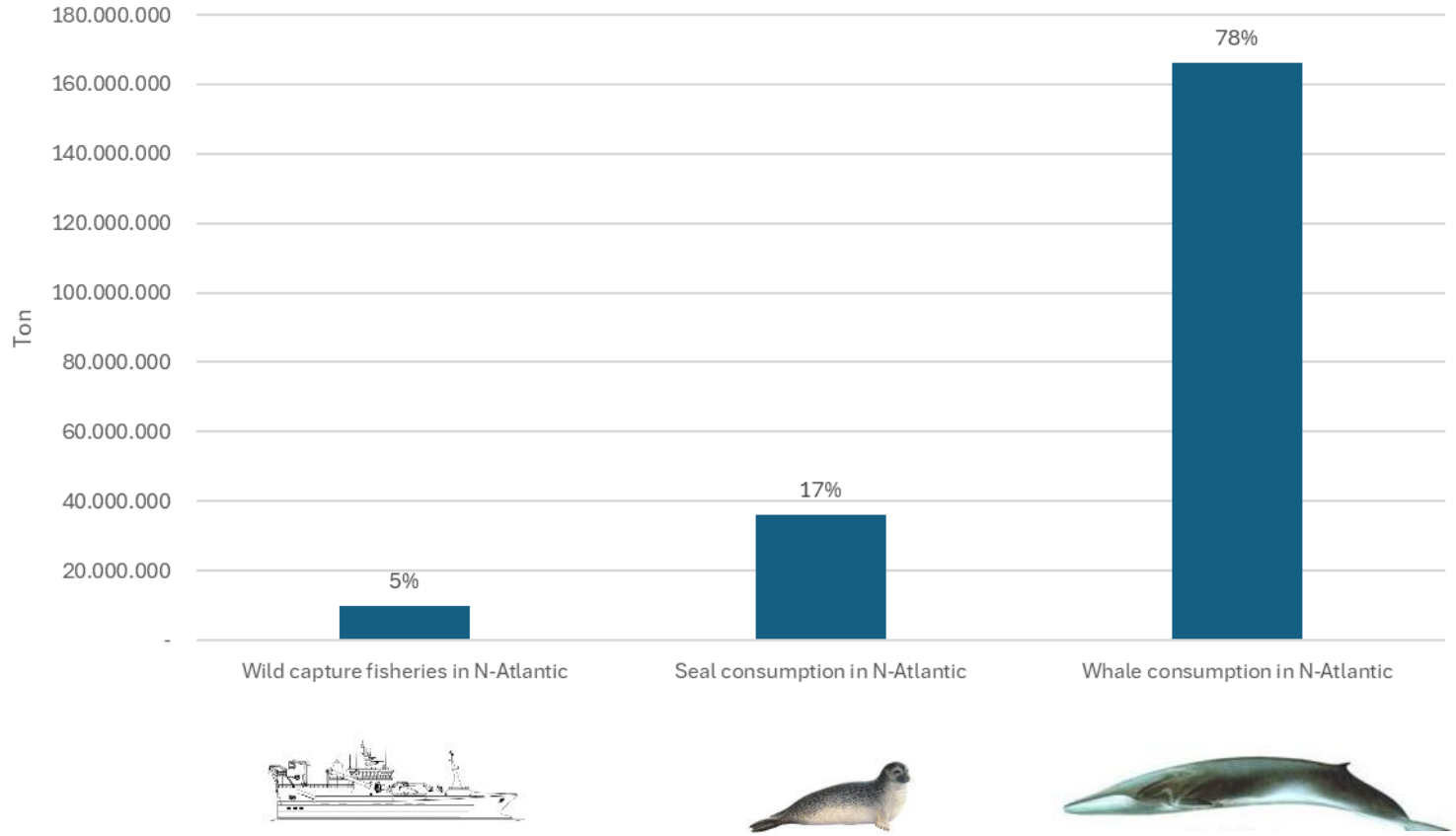


*FAO catch statistics for 2022

Biomass extraction in FAO21 and FAO27

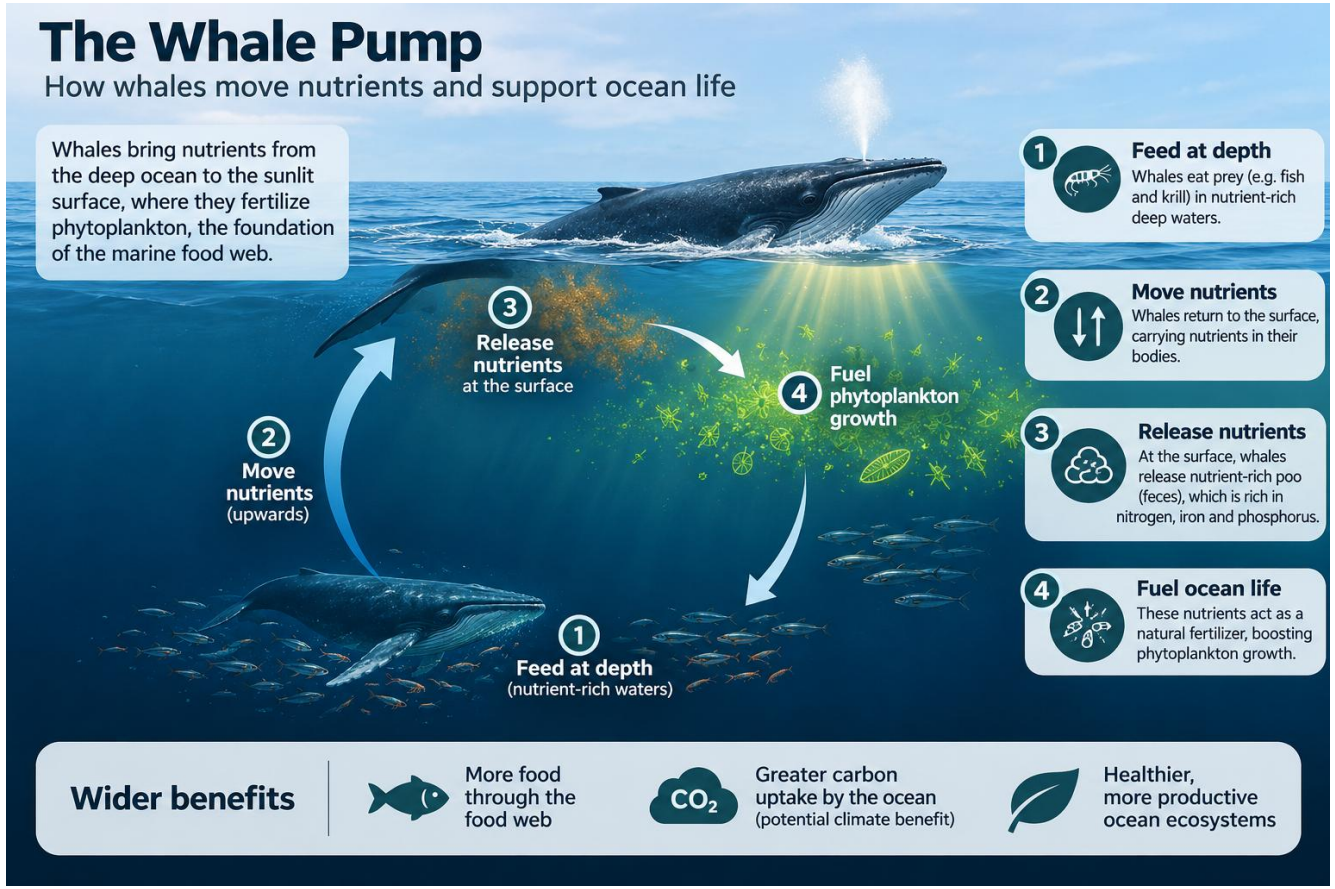
- The consumption of marine mammals in the N-Atlantic and arctic is therefore around 200 million tones of biomass, compared to 10 million tones for wild capture human catches.

- Target species are however not the same, especially since much of the whale species are baleen whales that feed on zooplankton



Marine mammals play an important role in the ecosystem

- Nutrient Cycling ("Whale Pump")
- Carbon Sequestration
- Predator-Prey Regulation
- Indicator Species



Marine mammals play also important economic role

- Whale watching tourism 425 thousand customers a year
- Positive / negative publicity?
- 1% increase / decrease in Icelandic tourism is worth around 6 Billion ISK



TIME	SESSION / PRESENTATION	SPEAKER / AFFILIATION
13:00–13:15	Welcome and introductions	Jónas R. Viðarsson - Matís (Iceland)
13:15–13:30	Distribution and populations of marine mammals in the North Atlantic	Birna Daníelsdóttir & Guðjón Már Sigurðsson - MFRI/Hafró (Iceland)
13:30–13:45	Ecosystem-based approach to management: How is the role of marine mammals in the ecosystem assessed?	Bjarni Mikkelsen - Havstovan (Faroe Islands)
13:45–14:00	The role of IWC, NAMMCO, ICES and national marine research institutes in the management of marine mammals	Jónas R. Viðarsson - Matís (Iceland)
14:00–14:15	ICES Working Group on Bycatch of Protected Species (WGBYC)	Lotte Kindt-Larsen - DTU (Denmark)
14:15–14:30	Socio-economic impacts of marine mammal and human interactions	John Isaksen - Nofima (Norway)
14:30–14:45	Marine mammals as a food source and other alternative uses	Heather Burke - Marine Institute (Newfoundland - Canada)
14:45–15:15	Coffee break	—
15:15–15:30	The impacts of marine mammals on fisheries and the need for managing their populations	Jóhannes Pálsson & James Hinchcliffe - Marine Ingredients (Denmark)
15:30–15:45	Why is it important to protect marine mammals?	Valgerður Árnadóttir & Joe Roman - Whale Friends (Iceland)
15:45–16:30	Panel discussions and wrap-up	—