Socioeconomic impacts

… of marine mammals and human interactions



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Topics

- Harvesting of marine mammals
  - Whales and seals
  - Sustainable harvest – quotas exceeding harvest
  - Between biology and economy
- Marine mammals in the eco-system (briefly)
  - Influence on stocks
- Fishing (and aquaculture) industry interactions
- Marine Eco-tourism
- Human impacts on marine mammals
  - Climate change impacts

Harvesting of marine mammals

- 18 **whale** species in our waters
- Harvest only minke whale
  - Based on advice from ICES
  - Quota 2026: 1641 animals
  - Catch (closed Sept. 9th): 418 animals
- Issues regarding animal welfare and food availability
- First-hand value: mNOK 12-15, 380 t
  - 10 vessels participated (3 vessels 65 %)
- Export value (2025): 14 mNOK, 230 t

- 6 **seal** species:
  - Coastal: Harbour and grey seal
  - Arctic (pack-ice): Harp, hooded, ringed and bearded seal
- Hunt 2026:
  - Regional quotas for harbour seal: tot. 469
  - West Ice quota for harp seal: 8 935
    - Catch: about 7800
- 1-2 vessels participating later years
  - Subsidy: mNOK 1.5

«Sealing and whaling are regulated from market considerations, not stocks»

Marine mammals in the ecosystem

- Skern-Mauritzen *et al*. (2022)
  - Marine mammals annually consume several times the biomass removed by commercial fisheries, but at much at lower trophic levels than major fisheries
  - «*Marine mammals are a significant component of the food webs and must be included in fisheries management strategies in a multispecies, ecosystem context*»
- Planque et al. (2024) – (1988–2021; Norwegian and Barents seas)
  - «*Fish have annually consumed an average of 9.5 mill. t of fish, marine mammals consumed 11 mill. t of fish, and fisheries have captured 4.4 mill. t of fish and 7 000 t of marine mammals»*
  - (2026): *«… an increase of marine mammals by 1000 t would lead to a reduction in fish by 1100 t or more the following year»*
- Bencour et al. (2026)
  - «*The fact that marine mammals consume the same species targeted by fisheries does not imply that they exert a significant competitive or regulatory impact. This is particularly true in complex food webs, which are characterized by long-lived species, delayed population responses and high natural variability.*»

Marine mammals and industry interactions

- Bycatch - mainly gill nets:
  - 2500–3000 harbour purpoises
  - 900 coastal seals;
    500 harbour seals and 400 grey seals
- High density of larger whales (killer whales and humpbacks) during seasonal seine fishery for herring in northern fjords
  - A few casualties, but most escapes
- Records of bycatch in krill trawling
- 80 stranded whales and seals in a year
  - Unknown cause of death
  - Entangeled in gears or moorings, bycatch, ship collisions or natural deaths?
- «Pingers» mandatory in cod gillnets under Lofoten fishery (Jan–Apr) since 2021
  - Reduced bycatch, but at a lower rate with time
- Coastal seals are a challenge for fishery and aquaculture – an argument for sealing
- Coastal seals are definitive host of anisakis/roundworms
  - Quality issue – seafood from the fjords, with «kveis»

Marine ecotourism

- Since 2010 the winter herring fishery has moved northeast to northern fjords Troms
- Coincided with a huge increase in tourism in the Tromsø region – many hunting for Aurora borealis
- A whole new industry evolved where vessels bring tourists to the fishing fields – hunting for whale
  - Some incidents where tourist vessels have come too close to whales and fishing operations
- Also whale watching elsewhere (Andøy)



Human impacts on marine mammals

- Human activities impact marine mammals through:
  - Vessel traffic (noise, light), oil exploration (seismic activity) and extraction, off-shore wind mills, fishing, whale watching, military activities (coexistence challenges)
  - Emissions; pollutants, toxins – aggregated up the food-web
  - Food availability – herring or seal (for killer whales)

- Climate change may impact:
  - Sea ice cover
  - Ocean physics (currents)
  - Primary (and secondary) production
  - Prey and predator dynamics
- Sea ice decline might impact the viability of bearded seals, ring seals and polar bears
- Primary productivity might alter fish distribution and migration patterns, with impacts on marine mammals


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Thank you for your attention!



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