THE IMPORTANCE OF PROTECTING WHALES

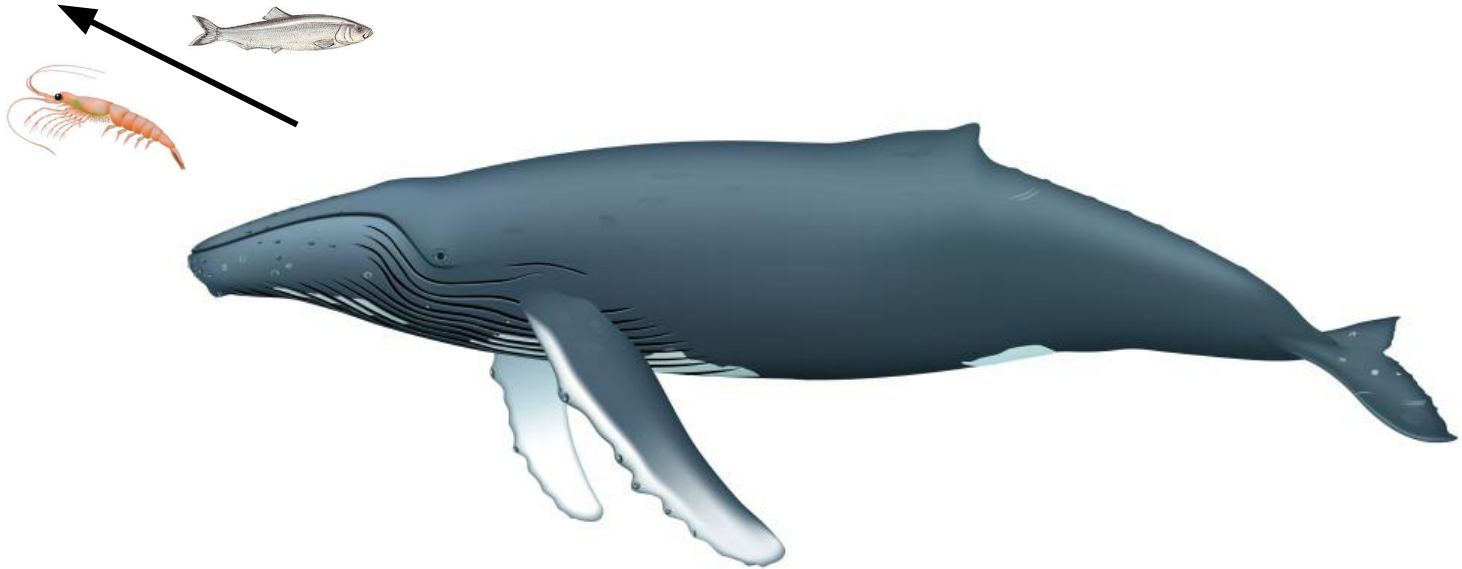


From nutrient cycling and marine productivity to animal welfare and sustainable ocean management

Joe Roman, Marine Ecologist, Fulbright University of Iceland
Valgerður (Vala) Árnadóttir, Chair of Hvalavinir-Whale friends

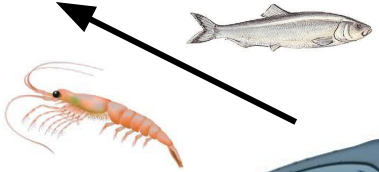
Whale Ecology

Predators

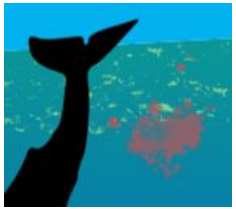


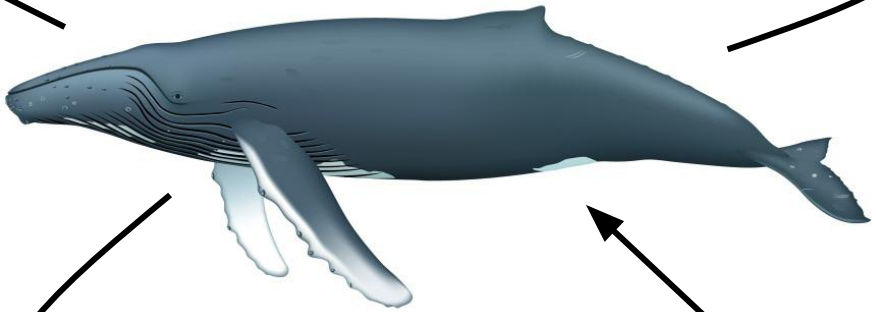
Four Ecological Pathways

Predators



Nutrient transfer



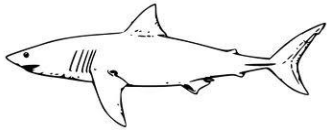


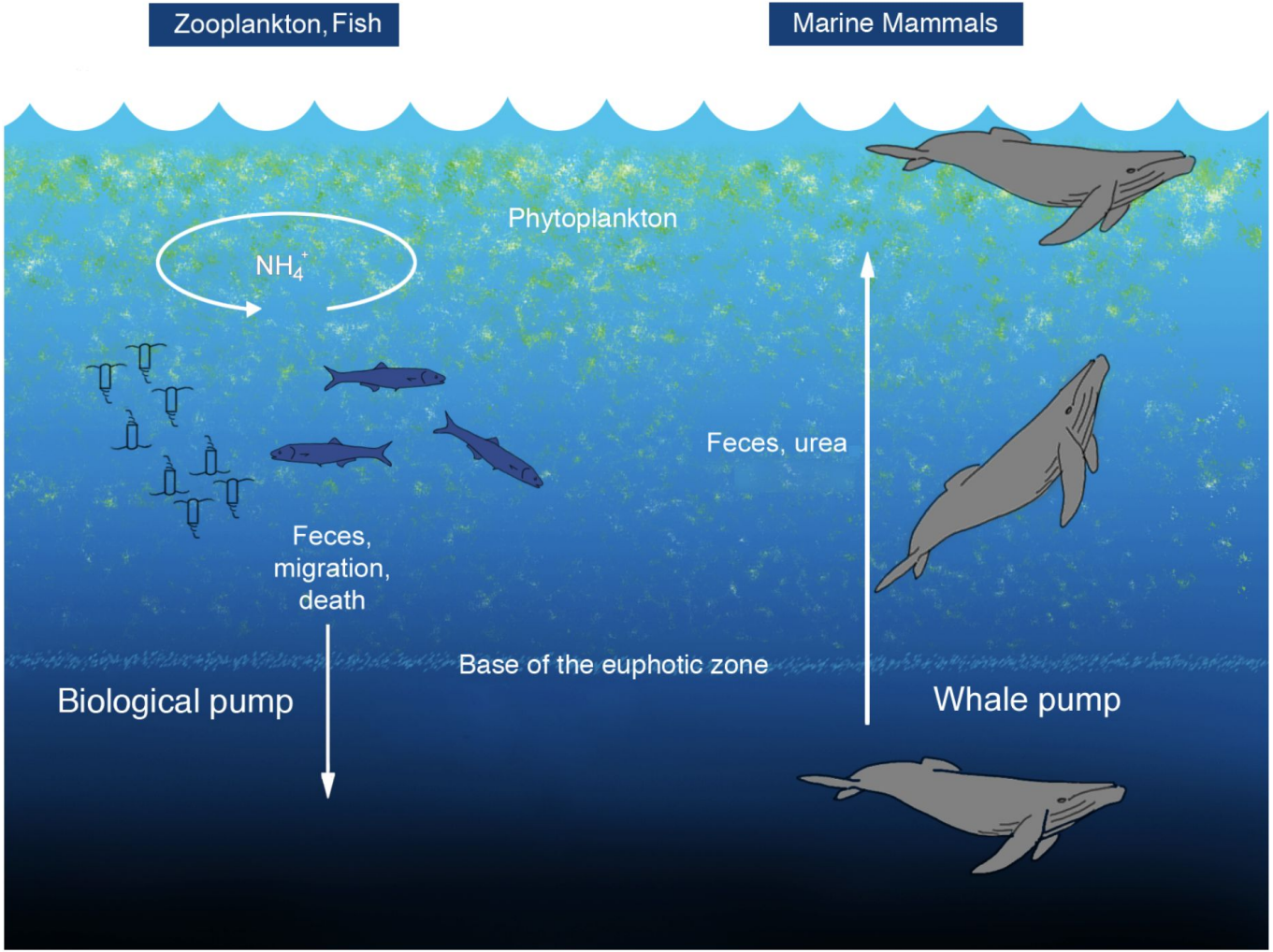


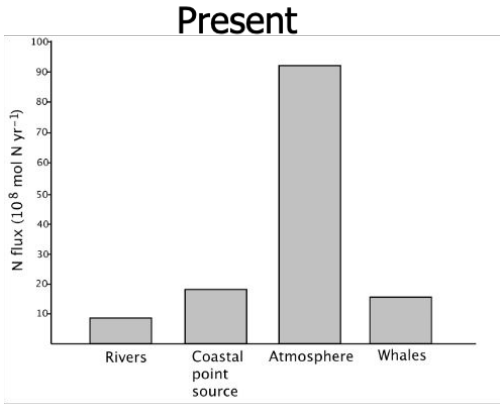
Carcasses

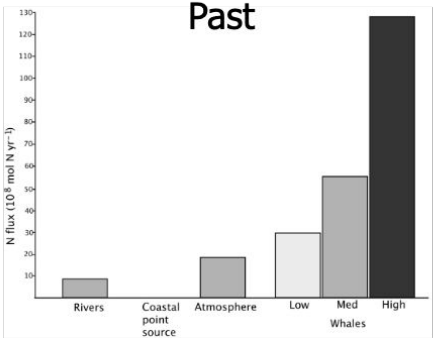


Prey, trophic cascades









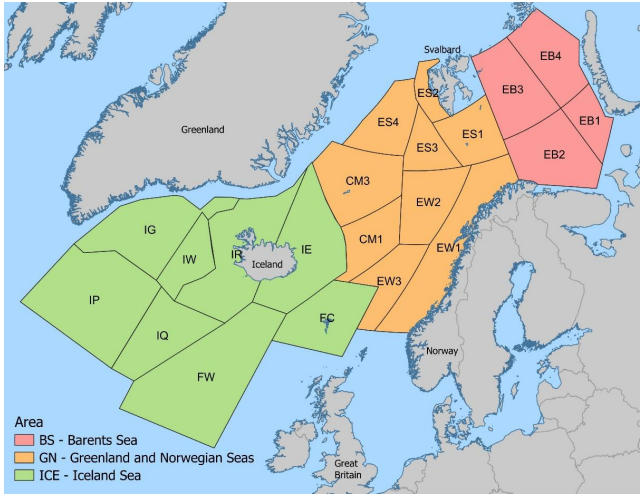
Roman and McCarthy
PLoS ONE 2010

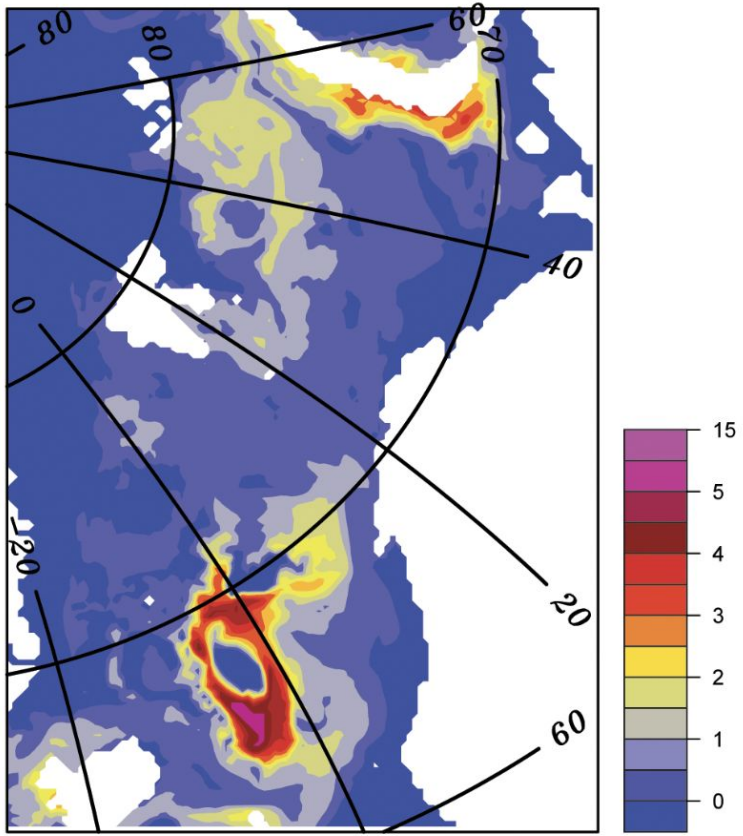
PNAS RESEARCH ARTICLE | ECOLOGY OPEN ACCESS

Impact of baleen whales on ocean primary production across space and time

Carla Freitas[a,b,1], Morten D. Skogen[c], Guðjón M. Sigurðsson[d], Martin Biuw[e], Tore Haug[e], Lotta Lindblom[e], and Kjell Gundersen[c]

Edited by Lisa Levin, University of California San Diego, La Jolla, CA; received March 11, 2025; accepted September 10, 2025



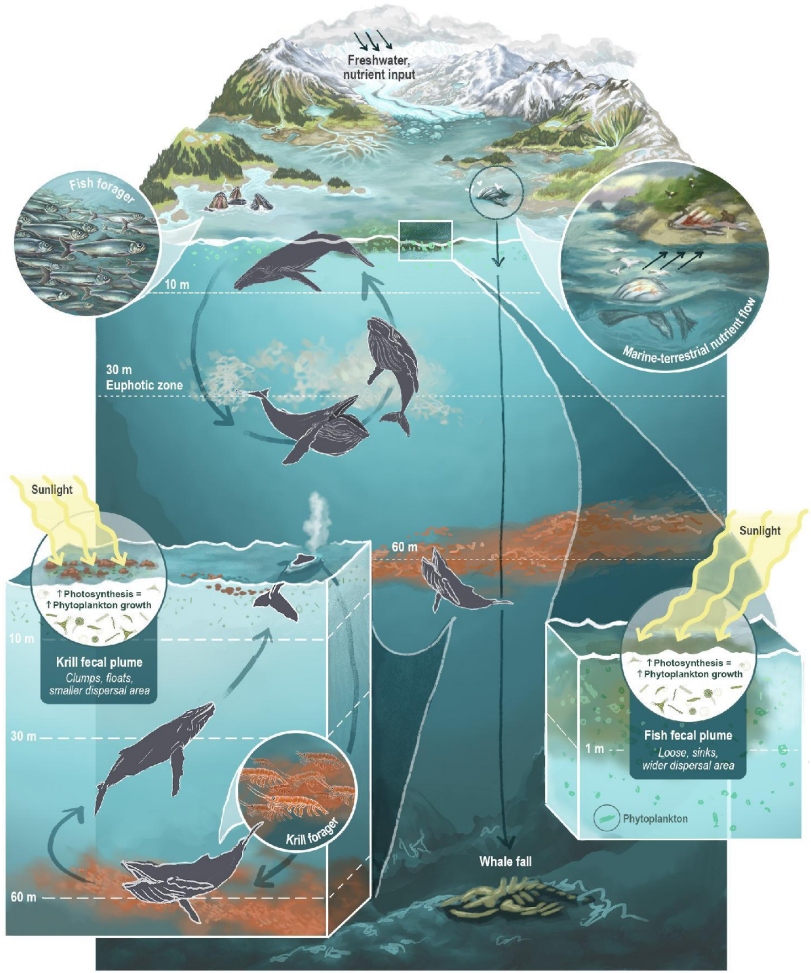


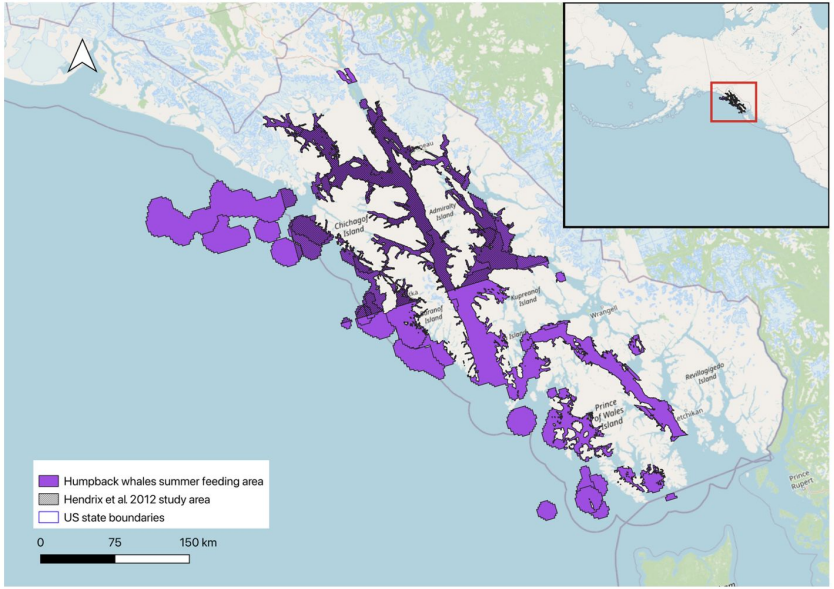
Increase in primary production reached up to 10% during summer

Supports higher zooplankton biomass

Potential increase in food availability for fish and fish larvae

Author affiliations: [a]Institute of Marine Research, Research Station Flødevigen, His 4817, Norway; [b]Marine and Environmental Sciences Center, Madeira Research Unit, Funchal 9020-105, Portugal; [c]Institute of Marine Research, Main Office, Bergen 5817, Norway; [d]Marine and Freshwater Research Institute, Pelagic Division, Hafnarfjörður 220, Iceland; and [e]Institute of Marine Research, Tromsø Department, Tromsø 9296, Norway



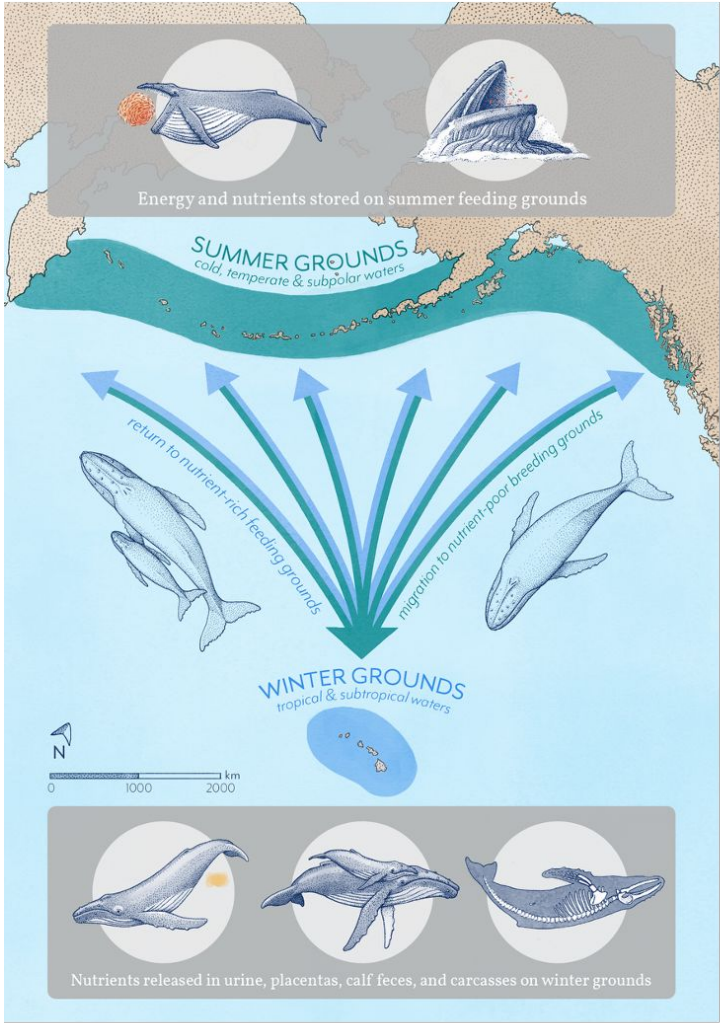


Annual potential dockside values range from ~$41,550 for Pacific cod to $4.62 million for Dungeness crab

Carbon sequestration through whale falls was valued separately at approximately $126,900 per year

Bloch et al. in prep; Hernández-Blanco & Pearson, IWC SC70, *Frontiers in Conservation Science*, 2026.

Great Whale Conveyor Belt



A. Boersma



Courtesy L. Bejder

- Nutrients move from high to low latitudes
- Placentas, urine, carcasses, sloughing skin
- More N from whales than local physical forces
- Largest long-distance mammalian transport

Roman et al. 2025. *Nature Communications*

Whale Falls

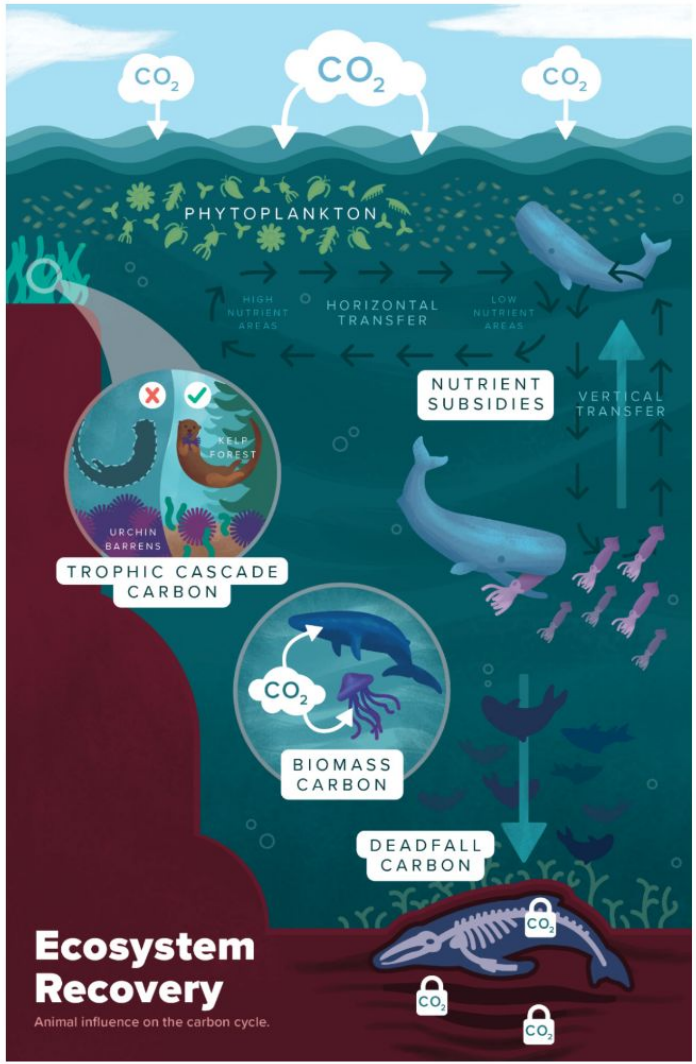




Vrijenhoek et al. 2009 *BMC Biol*

Davies et al. *Nature Reviews Biodiversity*, in review

- Enhance biodiversity, resilience, and connectivity
- Provide habitat for > 100 endemic species



National Academies 2022 *Ocean-based CO2 Removal*

Ecosystem Services from Nutrient Subsidies and Whale Carcasses

Enhanced primary productivity

Fisheries productivity

Enhanced biodiversity and evolutionary potential

Climate regulation and resilience

Commercial whaling is not sustainable

HVALAVINIR

An assessment through the three pillars of sustainability



- **Economic**: Hvalur hf. commercial whaling generated 3.03 billion ÍSK in losses in 2011-2021.
- **Environmental**: Whales provide essential ecosystem services, which extends beyond their commercial value.
- **Social:** Growing opposition to whaling, driven in part by concerns over animal welfare and prolonged times to death.

Sources: Gæðaendurskoðun (2023)

Animal Welfare: Iceland's 2022 Fin-Whale Hunt

HVALAVINIR

59%	11.5 min
Killed instantaneously	Median time to death among non-instantaneous kills

- Many whales required multiple harpoons.
- Two whales reportedly took approx. one and two hours to die.
- Iceland's Expert Council on Animal Welfare subsequently concluded that the hunting methods were incompatible with the Animal Welfare Act.

"There is no way to kill a whale humanely"



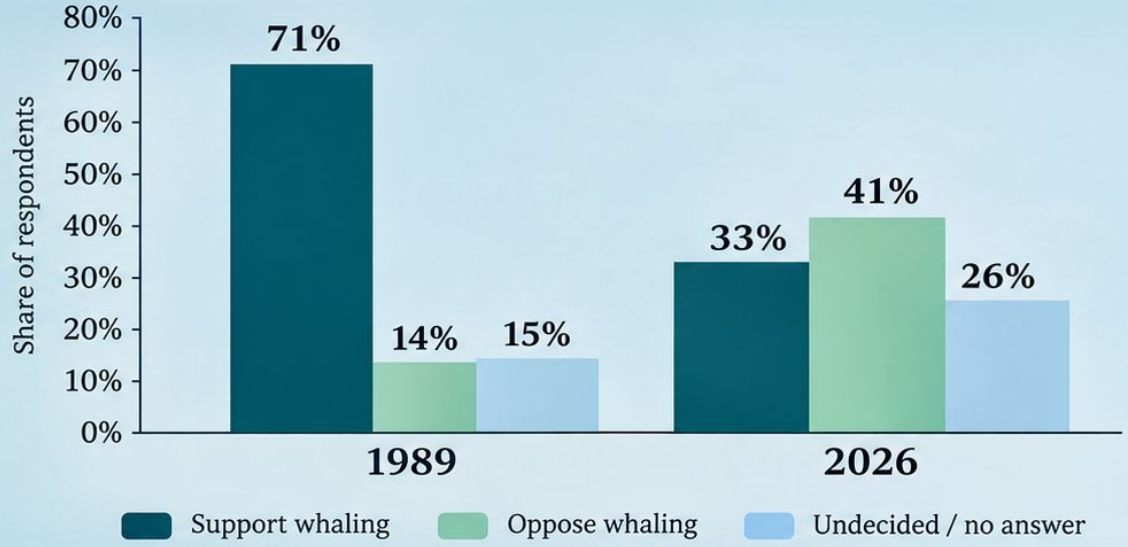
Sources: MAST (2022); Icelandic Expert Council on Animal Welfare (2023) Image: Yael BC



Icelanders Are Turning Away from Whaling

HVALAVINIR

Public attitudes towards commercial whaling in Iceland



−38 percentage points
change in support for whaling (1989–2026)

+27 percentage points
change in opposition to whaling (1989–2026)

Support for whaling has fallen from 71% to 33%, while opposition has risen from 14% to 41%.

Sources: DV (1989), nationwide survey of 600 respondents; Maskína (2026), survey of attitudes towards fin whaling.
Figures rounded. Percentage-point comparisons are indicative because the survey questions may differ.

Sources: MAST (2022), Icelandic Expert Council on Animal Welfare (2023) Image: Yael BC

Whales are worth more alive

HVALAVINIR

ISK 3.85bn
Estimated annual ticket revenue, Iceland (2018)

425,000+
Whale-watching participants (2024)

~274 FTEs
Estimated jobs in whale-watching companies (2024)

Living whales support tourism, employment and coastal economies.

Whales provide ecological, economic and cultural benefits.

Ecosystem services extend beyond direct market value.

Sustainable management should consider natural, human, social and financial capital.



Cook et al. (2020); Icelandic Tourism Research Centre (2024); Institute of Economic Studies, University of Iceland (2019).

IWC Initiatives addressing key threats to cetaceans today

HVALAVINIR

Threat-based work

Whale Watching
Online handbook with advice for industry, guides, regulators and whale watchers

Strandings Initiative
Two training programmes and real-time support for strandings response teams

Bycatch Mitigation Initiative
Global, multi-disciplinary collaboration on solutions for bycatch

Ocean Noise
Research, awareness raising, and international collaboration

Small Cetacean Voluntary Fund
Priority research into the most vulnerable dolphin and porpoise populations

Entanglement Response Network
Training, apprenticeship programmes, internationally endorsed best-practice

Ship Strikes
Developing a global database of ship strikes to pinpoint collision hotspots

Climate Change
Collaborative research programme to fill knowledge gaps and prioritise management action

Chemical Pollution
Long-term work plan focused on multiple contaminants and stressors

Marine Debris
Workshop series and long-term scientific research plan

Species/Population-based work

Conservation Management Plans
Formal but flexible frameworks helping governments support vulnerable populations in their waters.

- Western gray whale
- South Atlantic southern right whale
- South Pacific southern right whale
- Franciscana dolphin

Small Cetacean Task Teams
Rapid and targeted response mechanism where there is a significant or swift population decline.

- South Asian river dolphin
- Africa-focused Sousa
- Lahille's dolphin


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