Decarbonising fisheries- to supply low-carbon and nutritious food for the future

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Energy transition in the Nordic seafood sector
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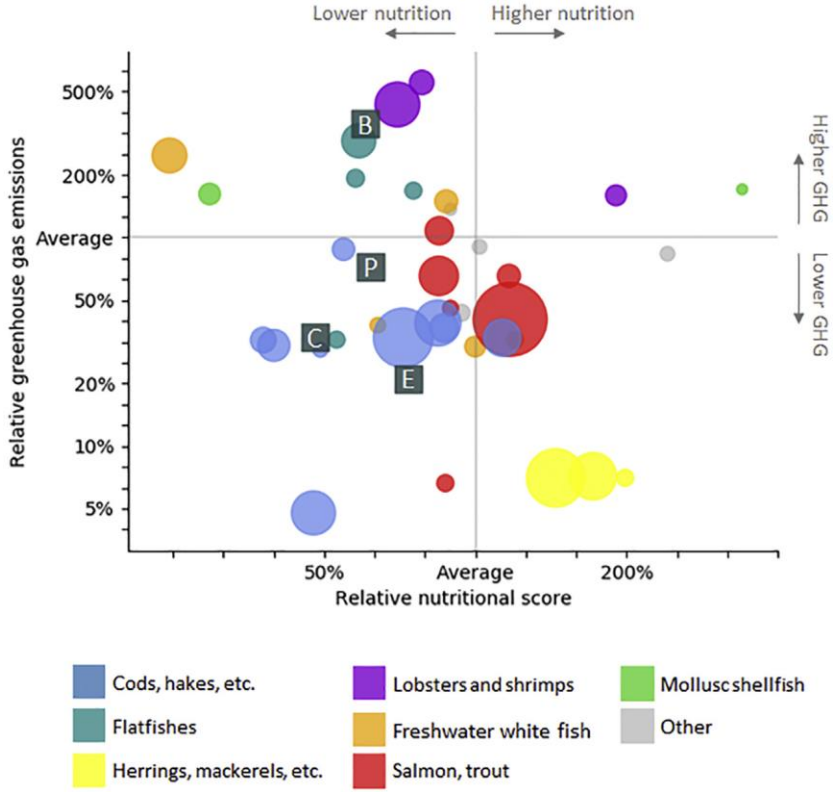
This talk

- Seafood = low-carbon, nutritious food?
- Why the focus on fuel use?
- Decarbonise- how?
- Nordics take the lead

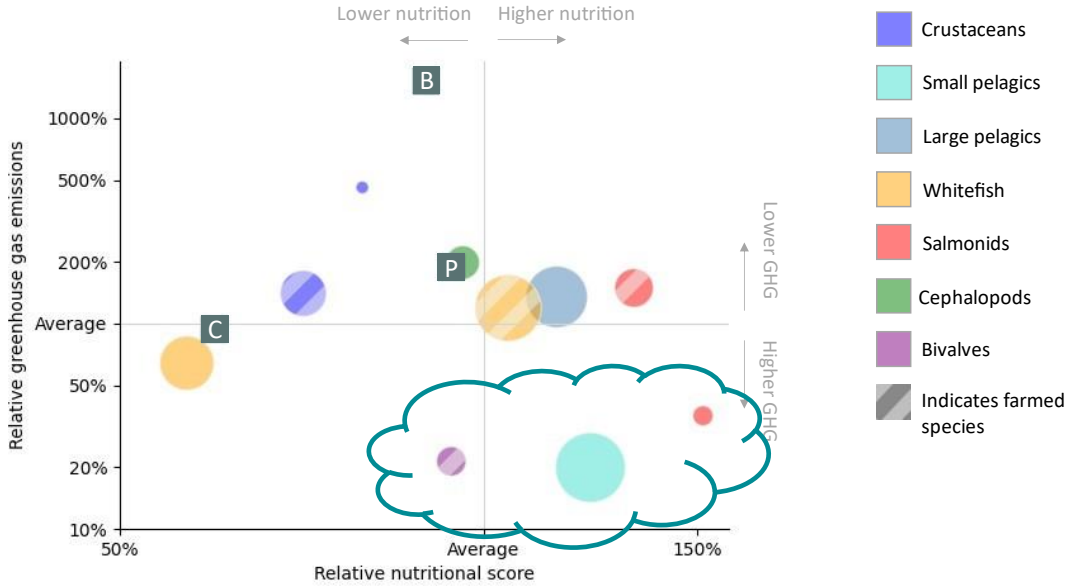
Climate in relation to nutrition quality



B=Beef
P=Pork
C= Chicken
E= Egg

Hallström et al. 2019 Combined climate and nutritional performance of seafoods

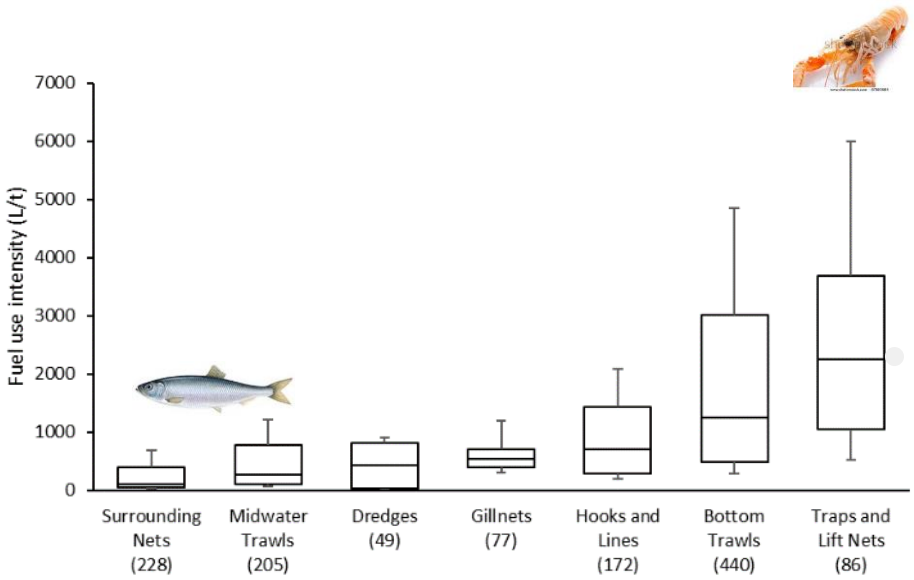
Nutrition and climate



- Seafood is on average more nutritious than meat and less climate intensive than red meat
- Pelagic fish, wild salmon and farmed bivalves are best-performers

Bianchi et al. 2022 Assessing seafood nutritional diversity together with climate impacts informs more comprehensive dietary advice

Fishing method matters

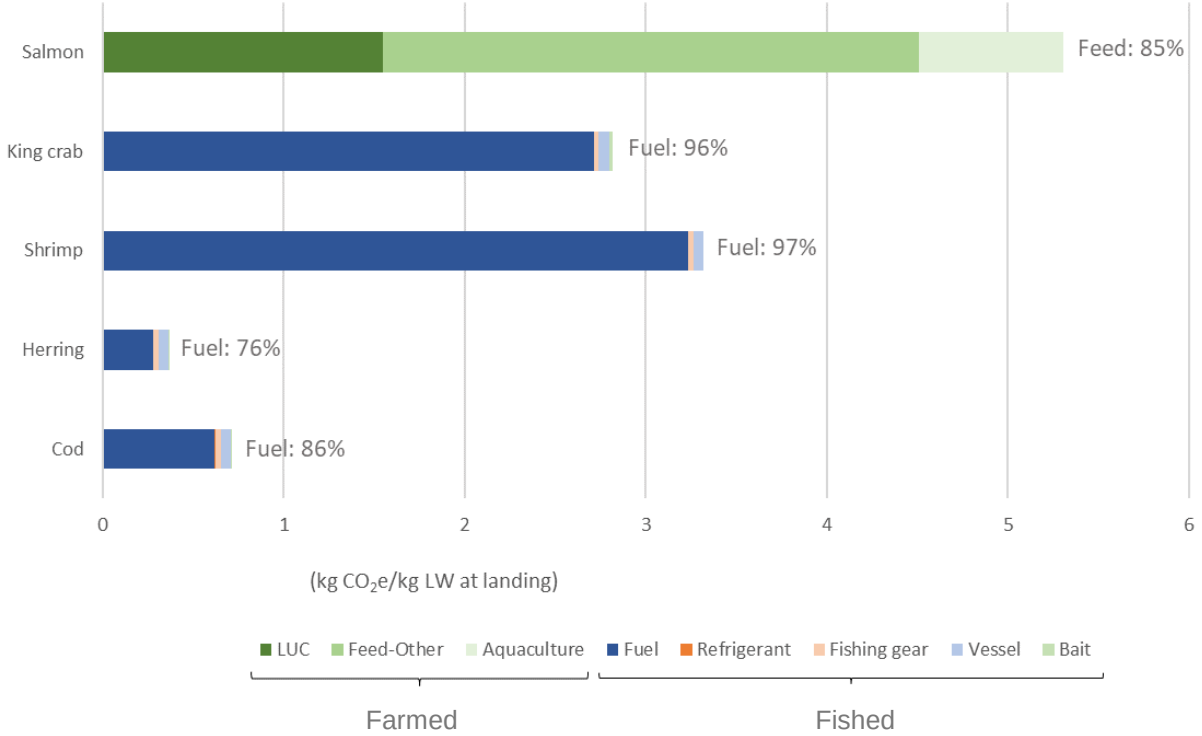


Bon appetit!

>2L diesel/kg
trap-caught seafood

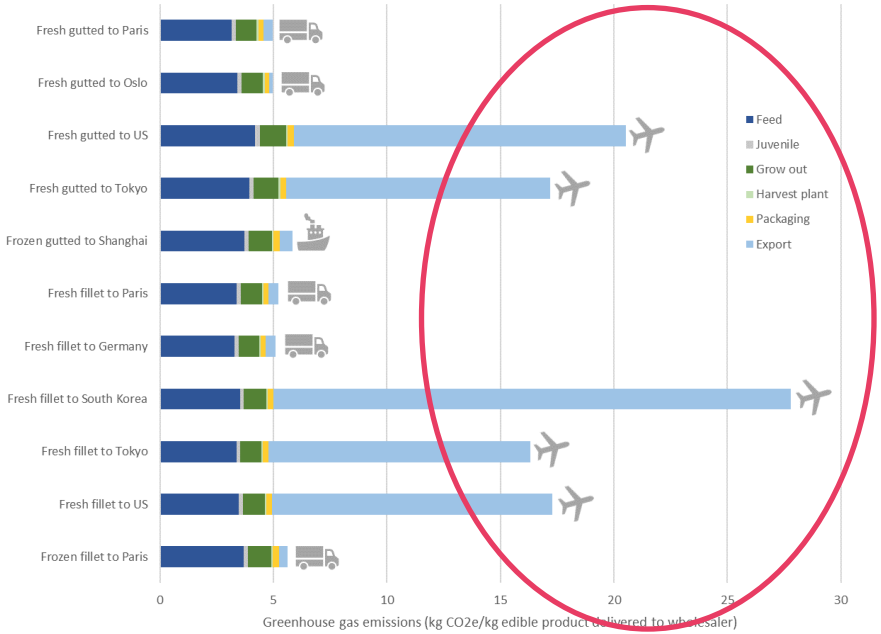
Data from the Fisheries Energy Use Database FEUD,
graph prepared by Rob Parker for report Ziegler & Hornborg 2023 Decarbonising the fishing sector

Fuel dominates fisheries GHGs



Ziegler et al. 2021 Greenhouse gas emissions of Norwegian seafoods

Transports generally don’t, unless…



Johansen et al. 2022 Greenhouse gas emissions of Norwegian salmon products

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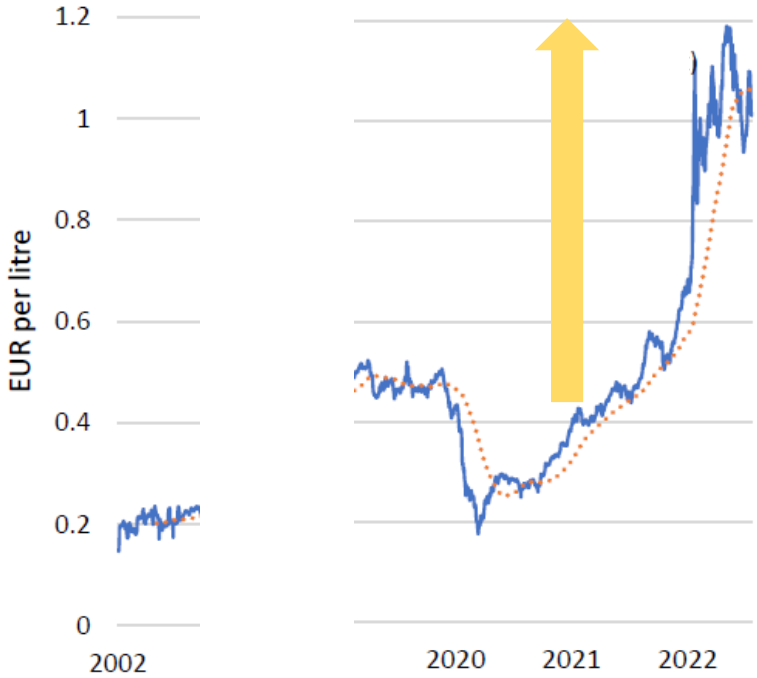
Fuel price development



200-300% increase in main cost

Source: EUMOFA

Two (or three) ways to decarbonise fisheries

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1. Energy efficiency

Measures for increased energy efficiency

- Make fuel efficiency an **explicit** goal of fisheries management
- Create a baseline and collect and share data
- Implement current regulations (rebuild stocks, remove overcapacity, aim for MEY, use Article 17 to allocate fishing opportunities based on transparent and objective criteria e.g. GHG performance among gears, fleets, vessels)
- Allow more flexible choice of fishing gear, without causing tradeoffs

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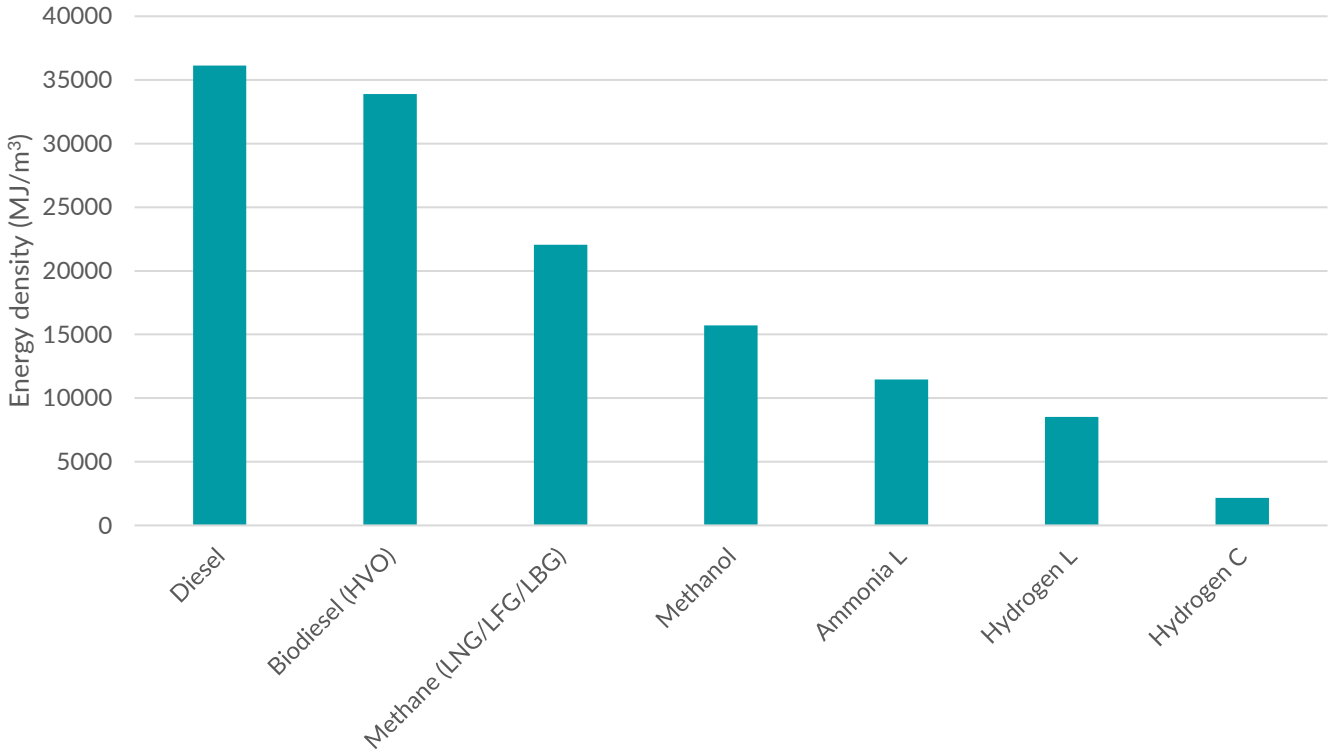
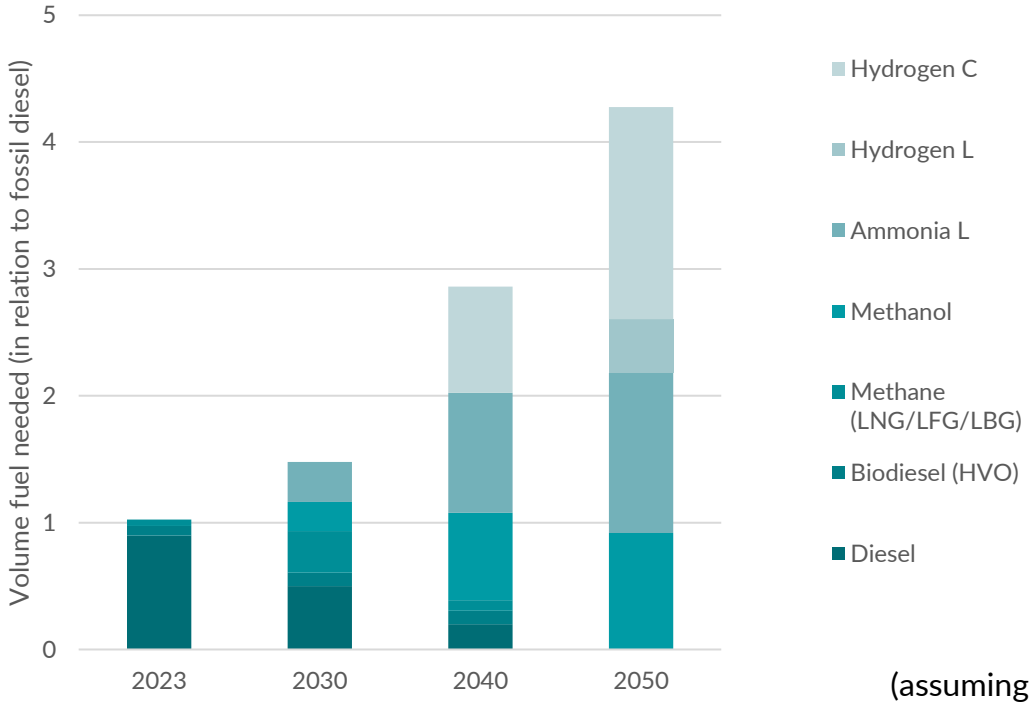
2. Alternative fuels

Energy density of fuels

L= Liquid
C= Compressed
LNG/LFG Liquid Natural/Fossil Gas
LBG Liquid Biogas
HVO Hydrotreated Vegetable Oil

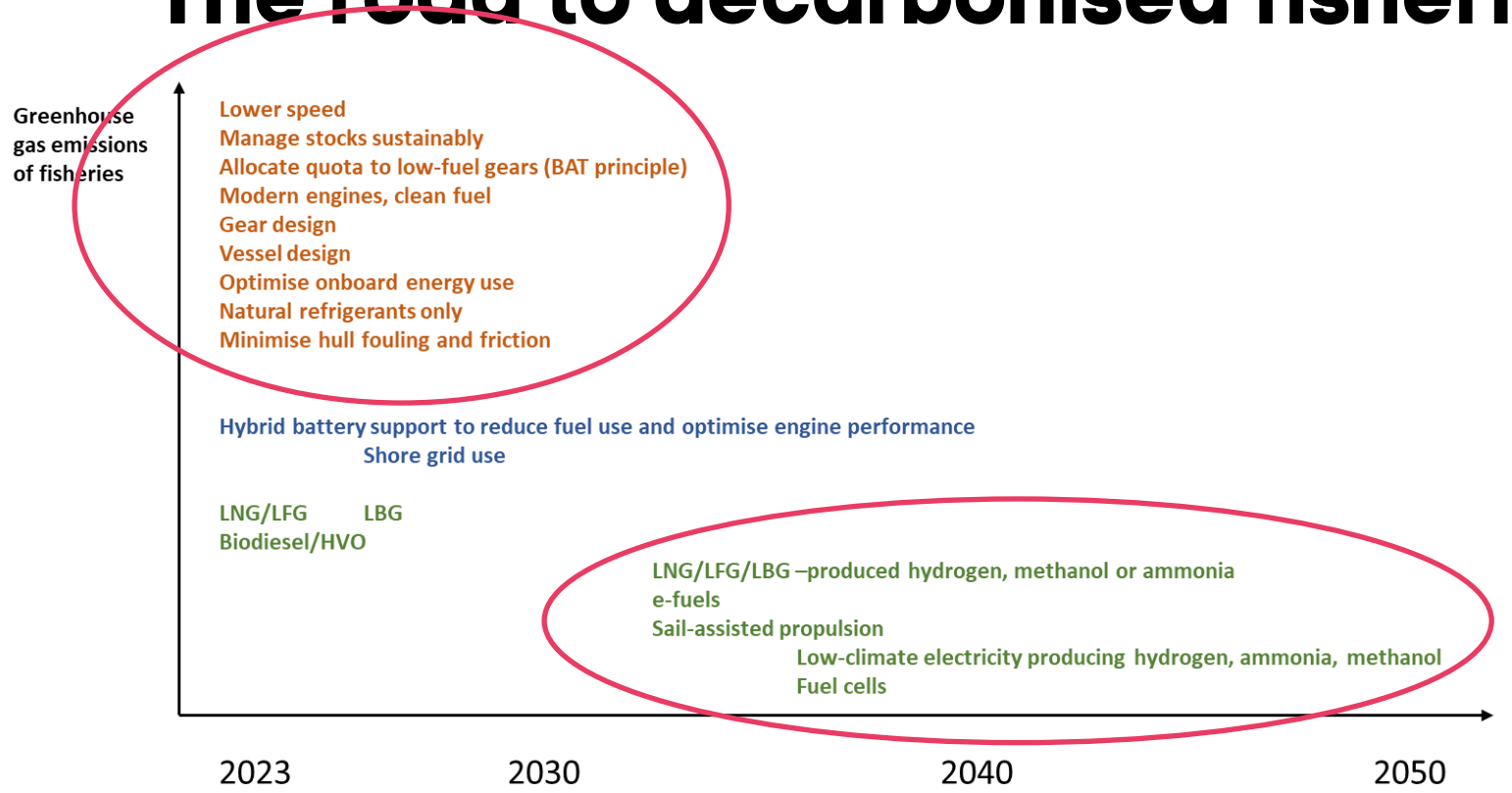


Fuel volume development during the transition



(assuming same use of energy)

The road to decarbonised fisheries



LNG/LFG Liquid Natural/Fossil Gas
LBG Liquid Biogas
HVO Hydrotreated Vegetable Oil

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The road to decarbonised fisheries

”High-hanging fruits”

Sail-assisted propulsion
Low-climate electricity producing hydrogen, ammonia, methanol
Fuel cells

”Low-hanging fruits”

Lower speed
Manage stocks sustainably
Allocate quota to low-fuel gears (BAT principle)
Modern engines, clean fuel
Gear design
Vessel design
Optimise onboard energy use
Natural refrigerants only
Minimise hull fouling and friction

Measures for conversion to alternative fuels

- Tax exemption only for renewable fuels
- Introduce clever economic instruments- fee or tax for fossil (per energy content…), while basing compensatory measures on landing value or volume to keep the incentive to reduce fuel use intensity and shifting fuel
- Relax vessel restrictions (length, engine replacement) for vessels using alternative fuels
- Support infrastructure- in collaboration with the shipping sector!
- Compensate fishers for green investments
- Training needs for skippers and crews
- Ban the maritime use of fossil fuels by 2050!

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3. Utilization of catches

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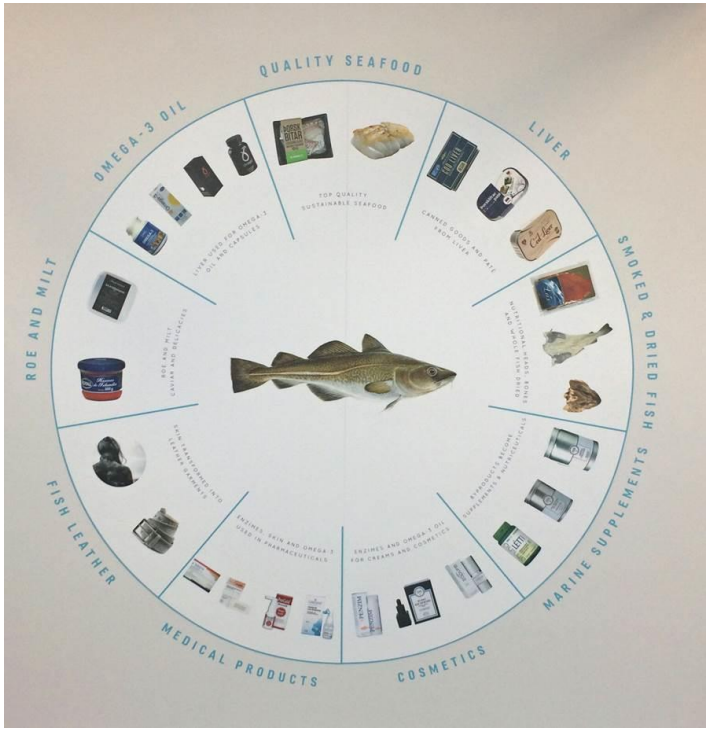
Increase the denominator



- Maximise utilization
- Minimize losses through the supply chain

Photo of famous Iceland Ocean Cluster figure taken at whitefish processor in Grindavik

The Nordics can lead

- Make fuel efficiency an **explicit** goal of fisheries management
- Collect and share data on fuel use in fisheries- establish a joint database?
- Compare and share data and experiences of technologies and regulations/taxes/funding mechanisms
- Make a timeline for the phasing out of fossil fuels from Nordic fisheries

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It will have a cost, but it will be worth it!
(and it will cost anyway)

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Thank you!

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