

Conservation and sustainable use of marine resources: fish perspective

Bringing marine nature back to our lives – the
role of science

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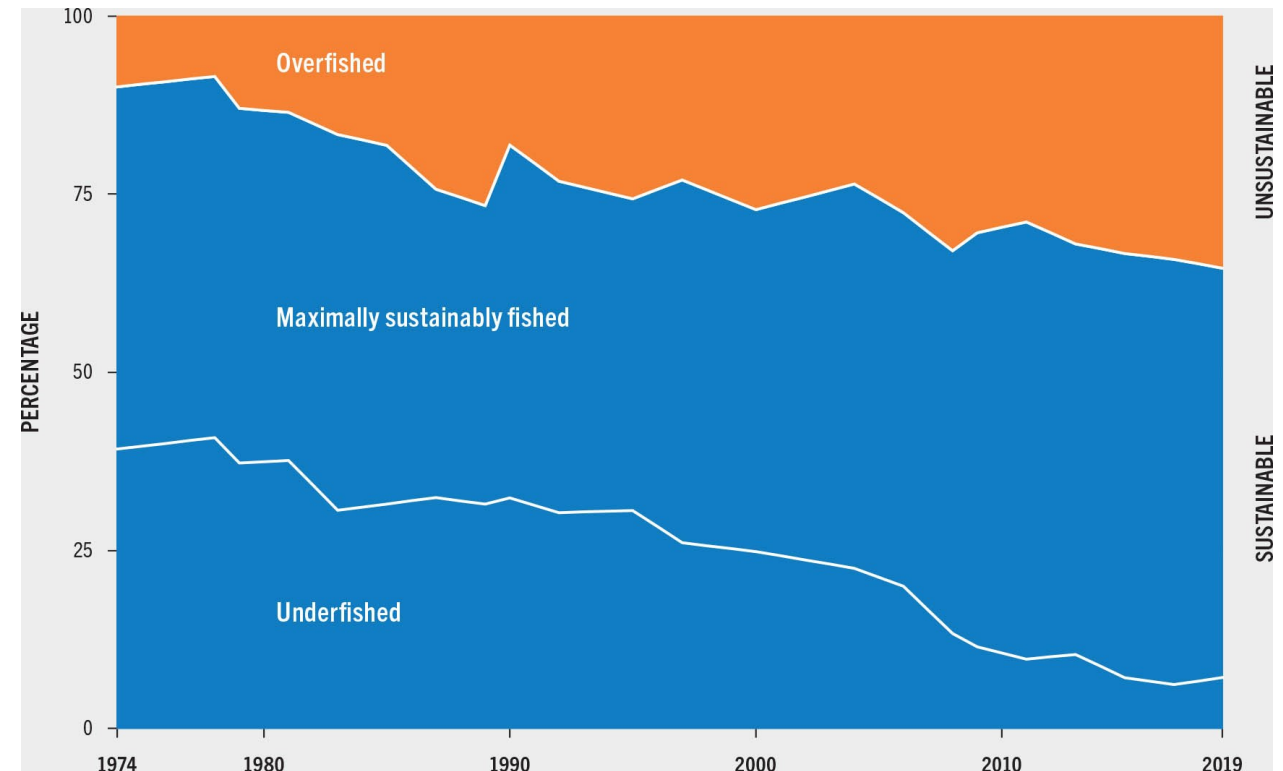
When you think of
fish and fisheries...



OVERFISHING

Global overfishing is a huge problem for biodiversity

- Global production of fish and seafood has quadrupled over the past 50 years
- Demand for fish protein anticipated to keep on increasing, aquaculture plays vital role
- 35% of global fish stocks in danger due to too heavy fishing and environmental changes
- Fishing (e.g. bottom-trawling) also harms habitats



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Migratory fish most endangered fish species in Finland

- Altogether 12/75 species endangered: arctic charr, landlocked salmon, grayling, eel, trout, whitefish... (Hyvärinen et al. 2019)
- Migration barriers main problem, prevent access to spawning areas
- Also too strong fishing pressure: especially bycatch is problematic
 - There is room for tightening of fishing regulation (Lappalainen et al. 2021)



Situation is substantially better in Finland

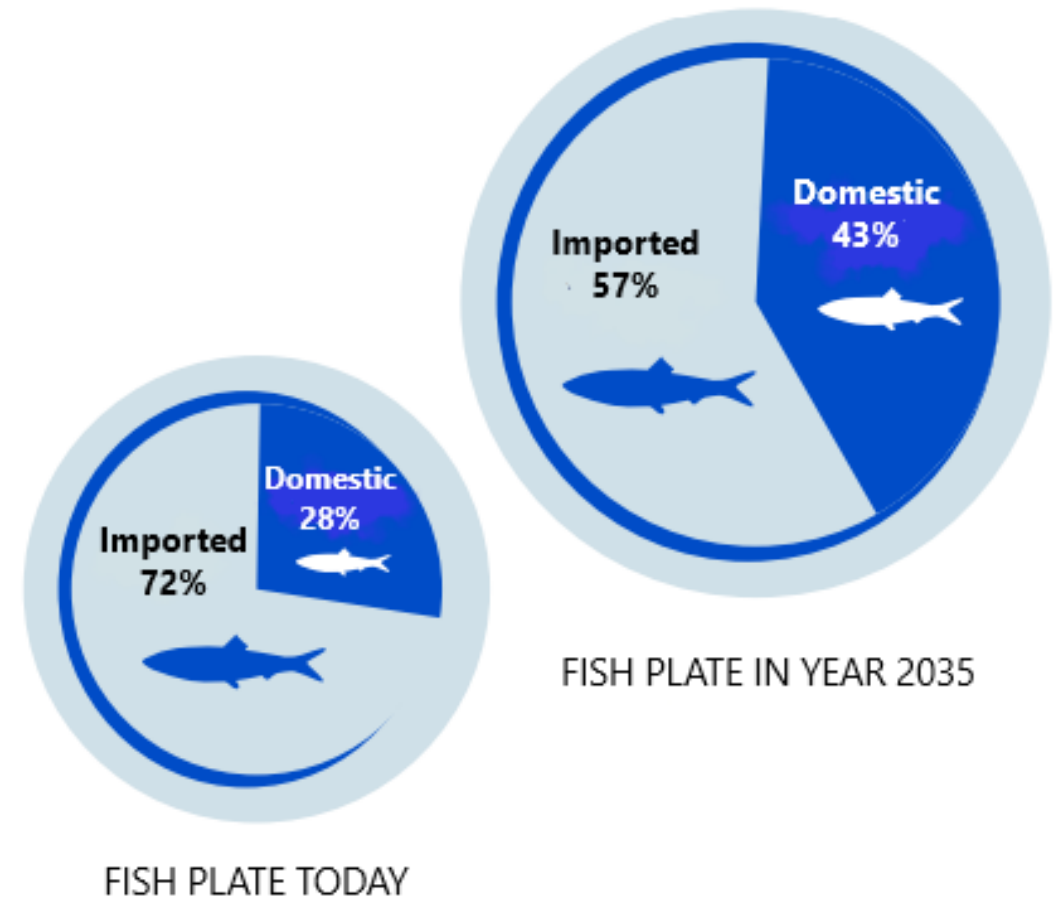
- In Finland fish stocks mostly (88%) in good state (Hyvärinen et al. 2019)
- Fishing mostly at a sustainable level (Raitaniemi & Sairanen 2022)
- Most invasive fishing methods not used here
- Environmental changes and other anthropogenic pressures affect the fish stocks

→ Improvement in the ecological state of the waters benefits also fish stocks



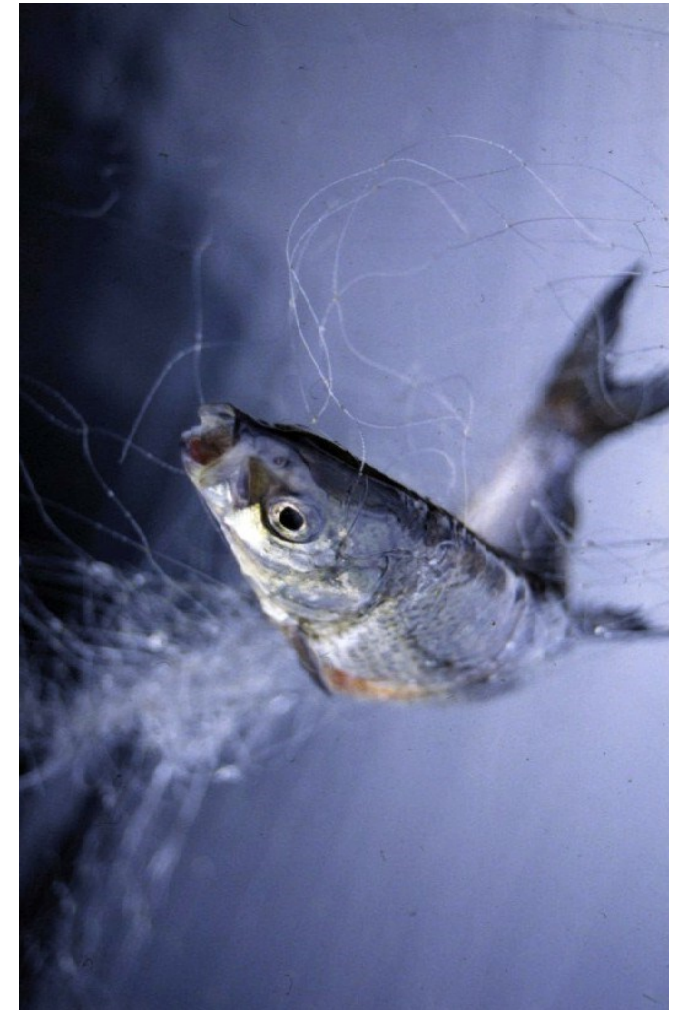
Ambitious aim to increase domestic fish consumption in Finland

- Domestic fish promotion programme aims to double domestic fish consumption by year 2035
- Positive economic, health and climate effects, increased security of supply



Where do we get the additional fish resources?

- We could reach the goals of Domestic fish promotion programme if
 - Use of herring and other underutilized fish such as cyprinids increases fivefold
 - Use of other domestically caught fish such as pike, perch, pikeperch and whitefish doubles
 - Aquaculture production triples
- Fishing can also be good for the environment: most significant nutrient removal act



How to increase fish consumption without endangering our fish stocks?

- Increase in use of underutilized fish should be doable
 - Change in fishing fleet, logistics and especially in consumer behavior, need for innovative new products
- Increase in use of other domestically caught fish more challenging
 - Need for reconciliation, restorations, and fishermen!
- Increase in aquaculture must be done without endangering the good condition of the aquatic environment
 - Semi-enclosed production systems, advanced technologies etc.
- Sustainability critically important!



We can boost fish production by restoring reproduction habitats



Restoration pilots show promising results

- We have long tradition of restoring river habitats
- Now restorations carried out also at the coastal area
 - ~30 sites in the Quark and at the Gulf of Finland: flad bays, wetlands, reproduction habitats for spring-spawning and endangered fish species
- We were surprised how immediate the results were (at least in some cases)
 - Research needs
- Next: expansion of the activity to the entire coast
 - More sites, more impact, more fish, more support to biodiversity



Conflicts are (too) easily associated with utilization of natural resources



- We have (potential) conflicts between
 - Protection of biodiversity (endangered species) and fisheries
 - Ecological state of the waters and aquaculture production (licenses)
 - Wind power, coastal constructions, dredging and several other uses of water and fisheries
 - Environmental protection areas basically do not prevent fishing at the moment – we could utilise more temporal and local fishing restrictions
- We need science-based advice and coordination in order to proceed from conflicts to synergy in human and nature coexistence

Reconciliation needed – science-based advice can help

- Stakeholder-involved approaches and societal practices to bridge the gap between public, researchers, and decision-makers
- Evaluate the sustainable levels and methods for harvesting of natural resources maintaining biodiversity
- Co-creating adaptive and sustainable management tools
- More EU level regulation → fantastic test environment!



Thank you!

