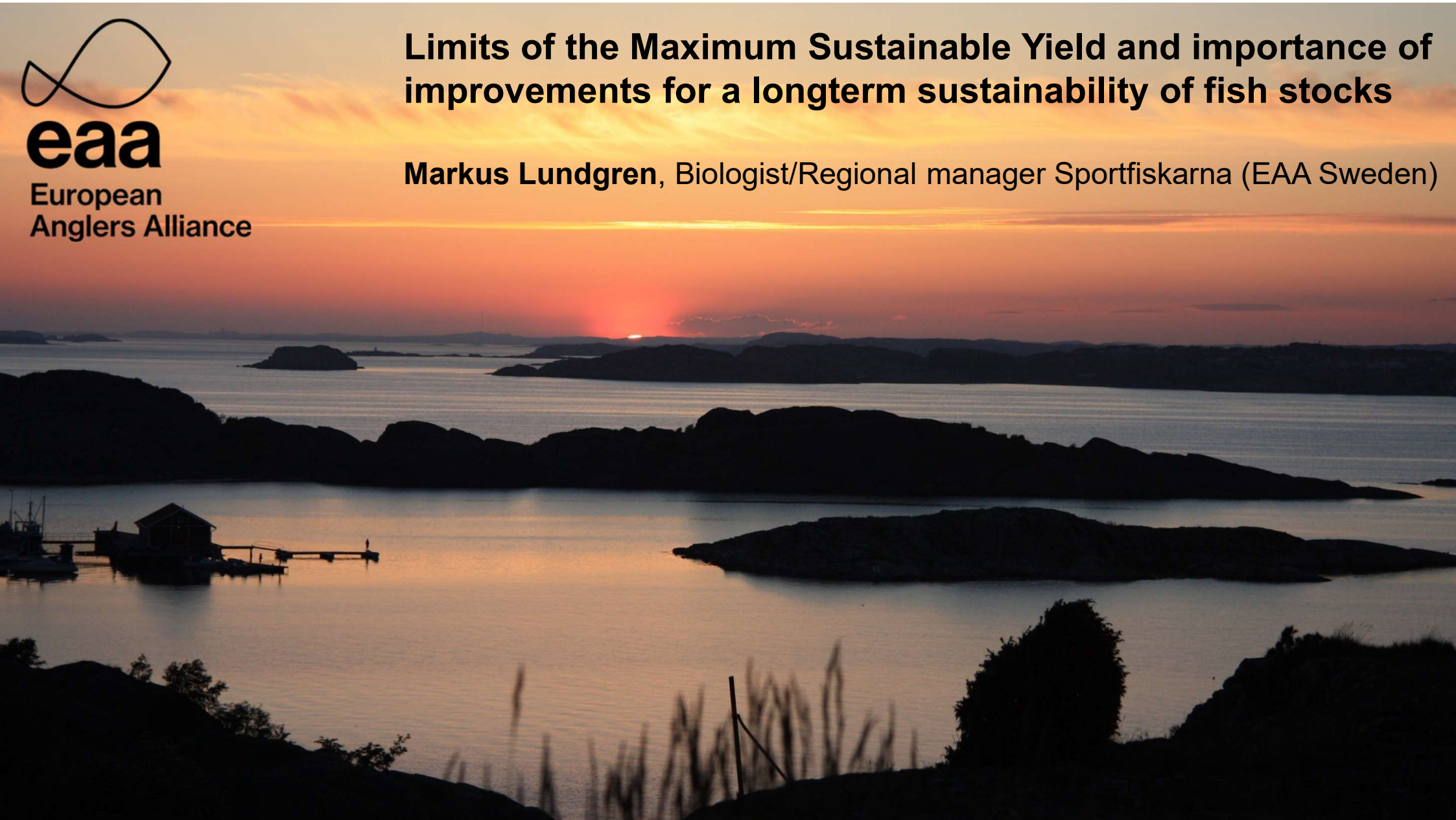




# Limits of the Maximum Sustainable Yield and importance of improvements for a longterm sustainability of fish stocks

**Markus Lundgren**, Biologist/Regional manager Sportfiskarna (EAA Sweden)





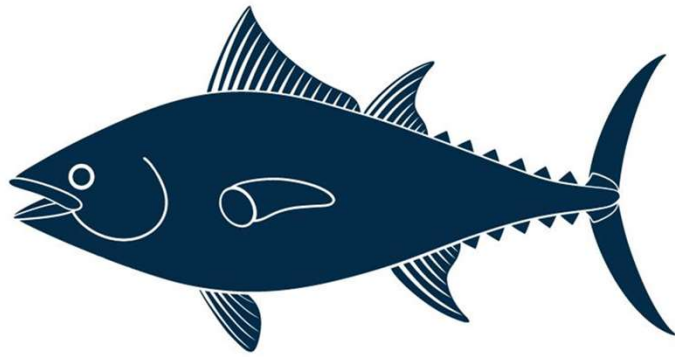


**eaa**

European  
Anglers Alliance







SportFiskarna



SLU

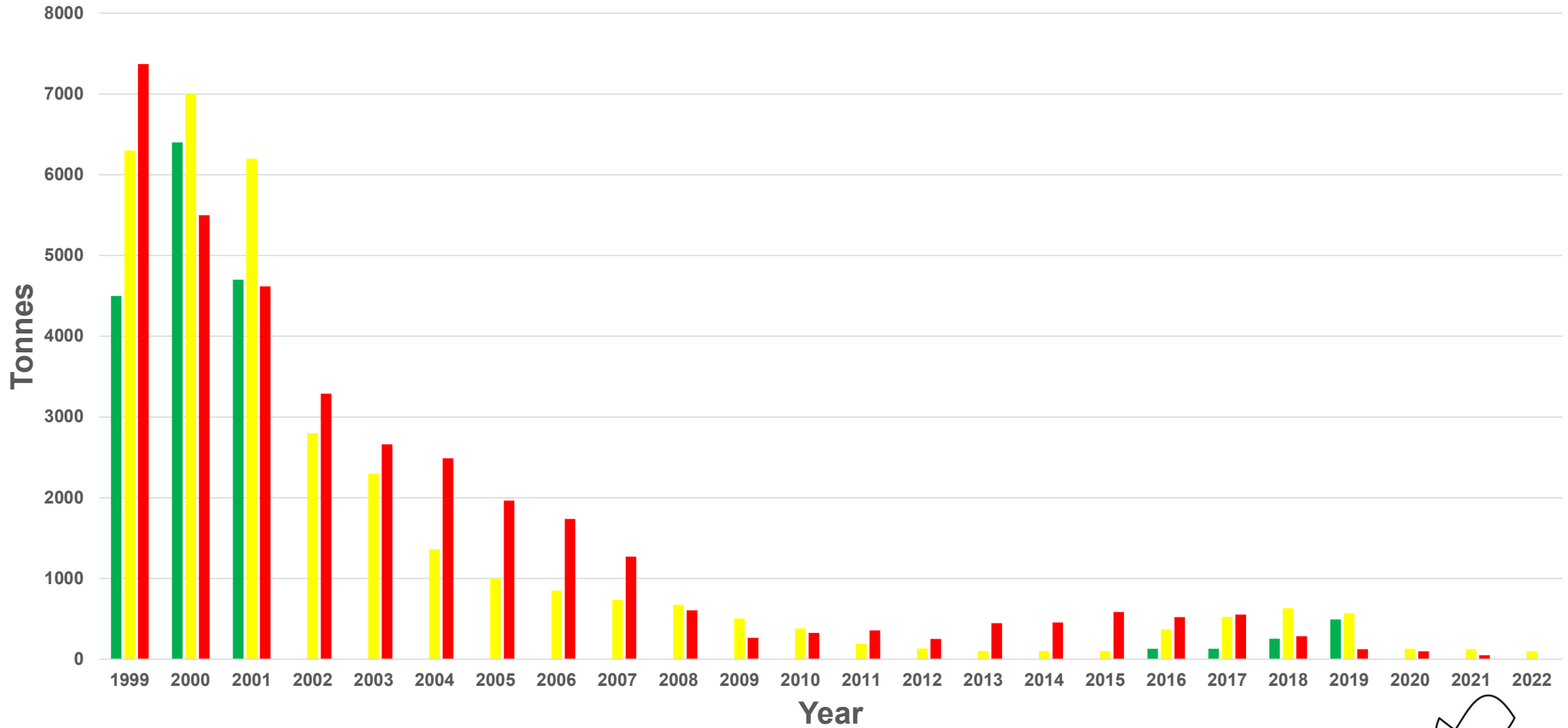
Aqua



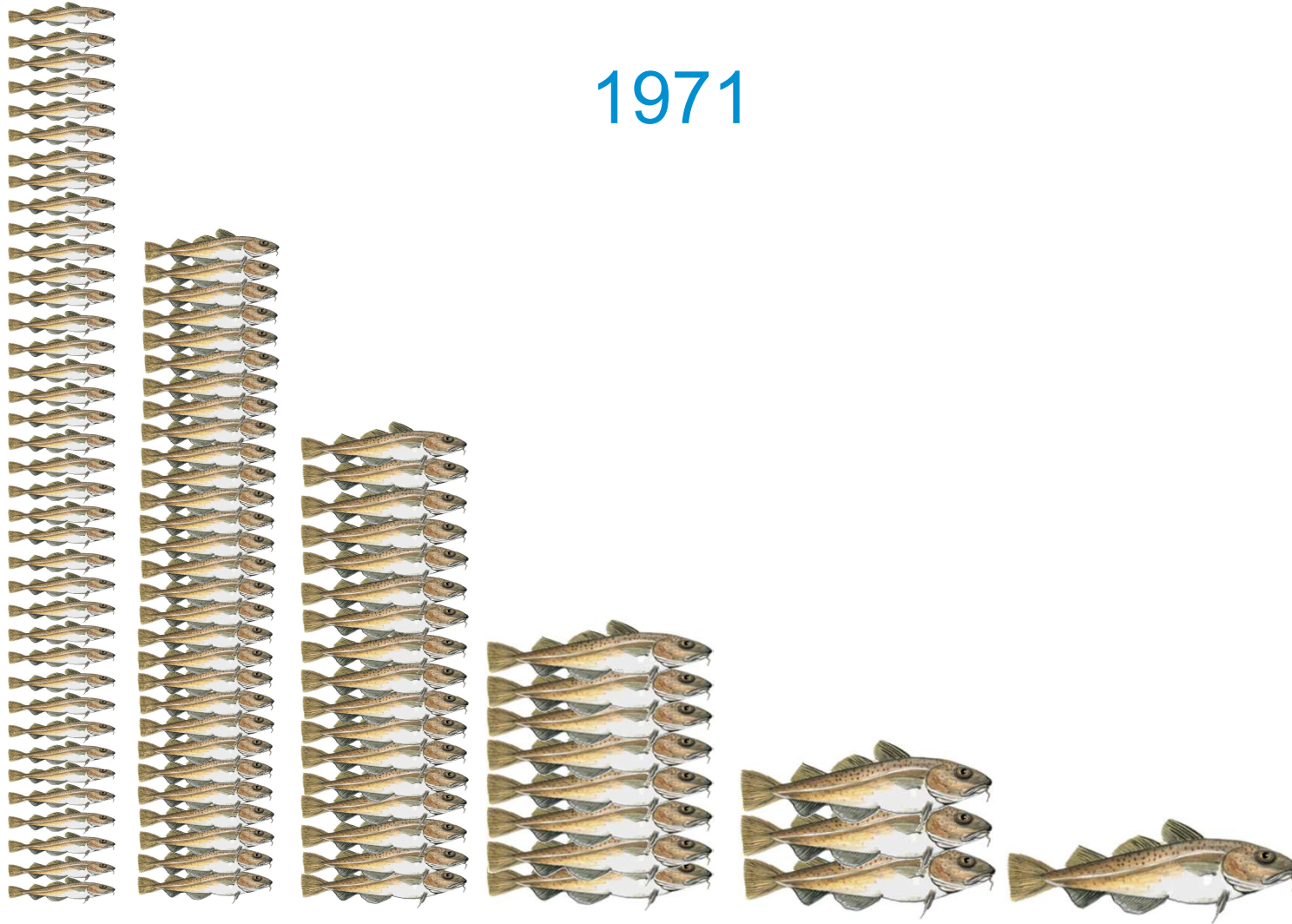
WWF



# Cod, Kattegat 1999-2022

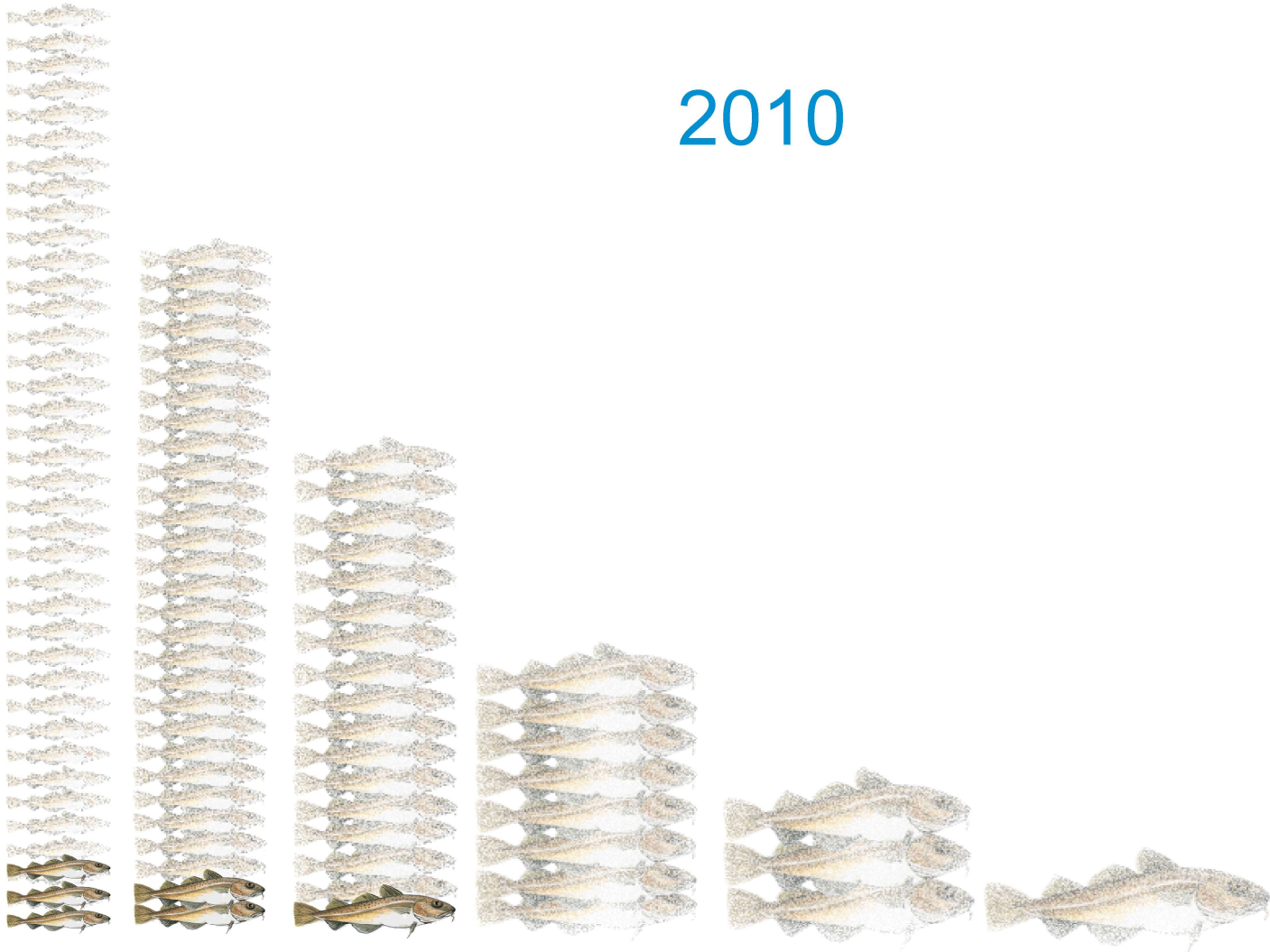


1971

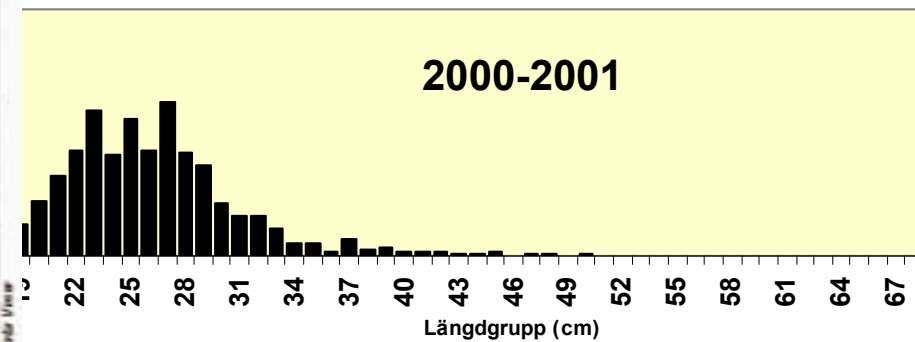
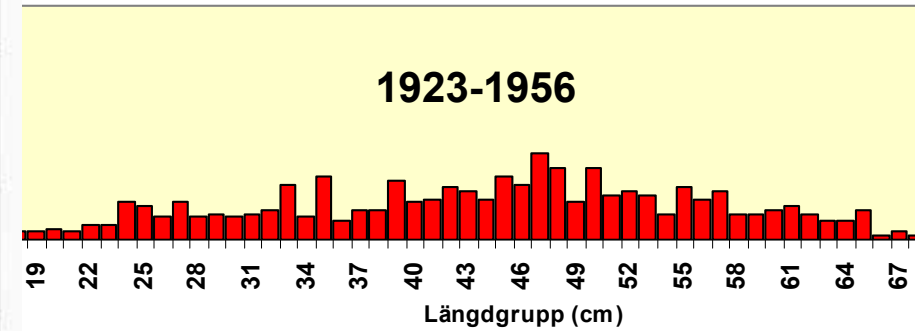
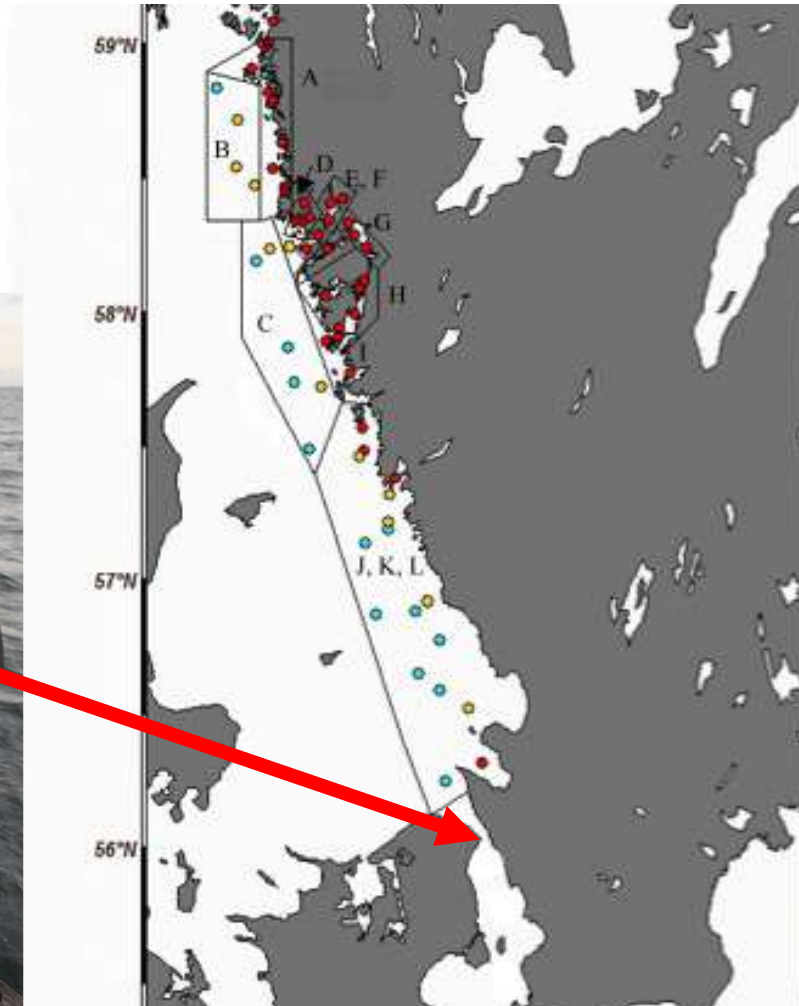




2010



# Swedish trawl surveys – length on cod



Data: Swedish Board of Fisheries

# Baltic and Bothnian herring

## - the engine of the ecosystem

4 CM DECREASE IN AVERAGE SIZE



Källa: Institutionen för akvatiska resurser, SLU.

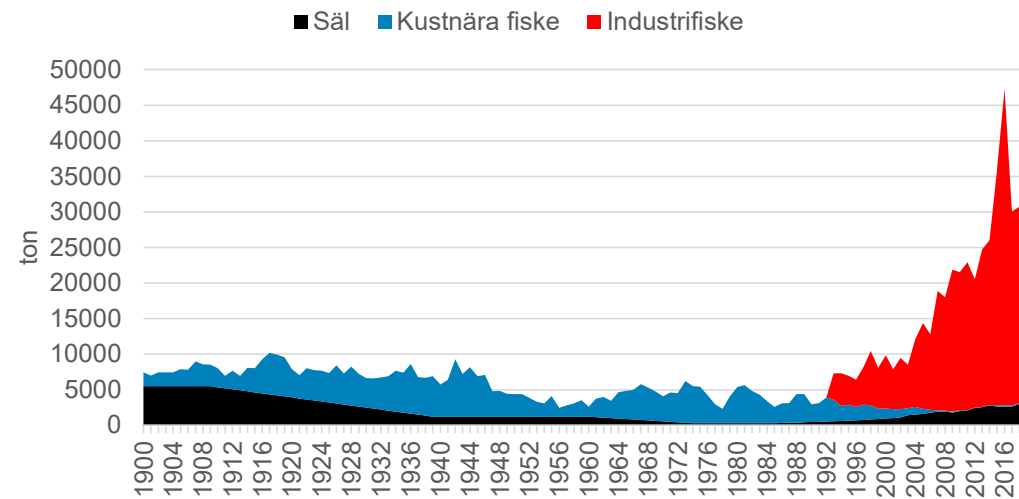
[www.raddaströmmingen.se](http://www.raddaströmmingen.se)



- Large-scale pelagic (fish meal) industry fishing fishing near the coast:
  - Enormously large coastal catches
  - size doesn't matter...
  - neither does effect on local subpopulations...
- Small-scalers:
  - decreased catches
  - almost no larger fish (necessary for human consumption)
- Scientist: disclaimer!

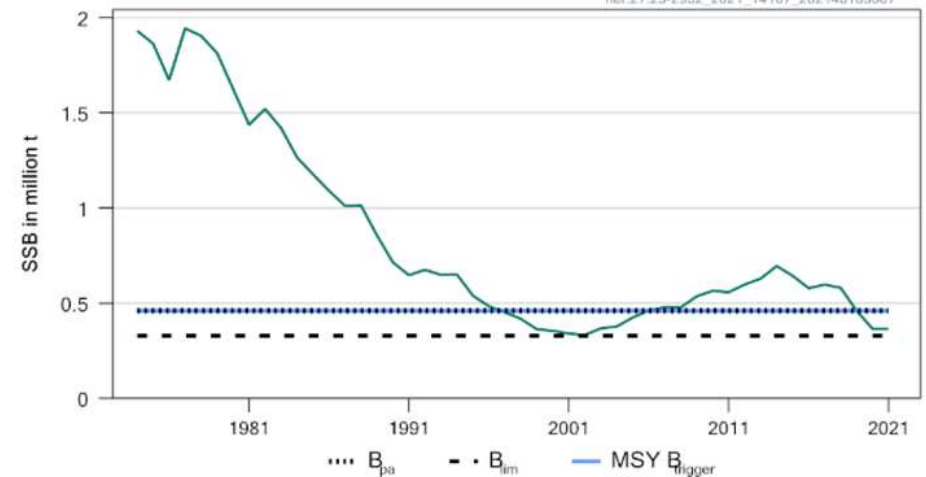


Herring catches, southern Bothnian Sea



Graph: Sportfiskarna

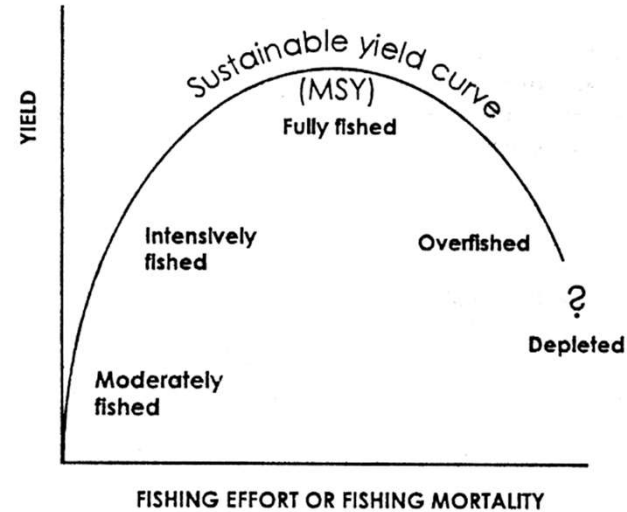
SSB Central Baltic herring





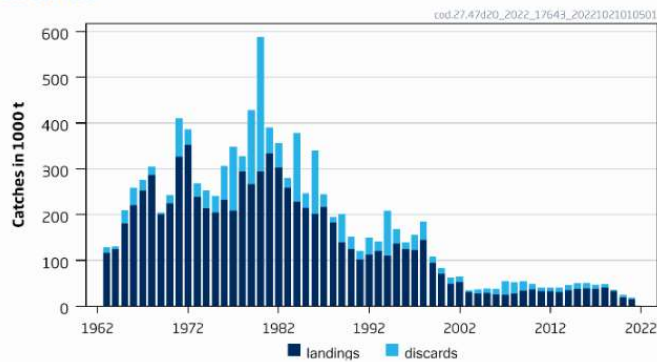
# Maximum "Sustainable" Yield (MSY)

- Production target, maximises yield
- Abundance dependant → culling/cleansing to increase growth
- Decreases size, takes no consideration to size distribution
- Causes goal conflicts with other legislation
- Single-species management
- Reference values change over time, the MSY definition moves...
- Can be called "sustainable" even if stock is weak

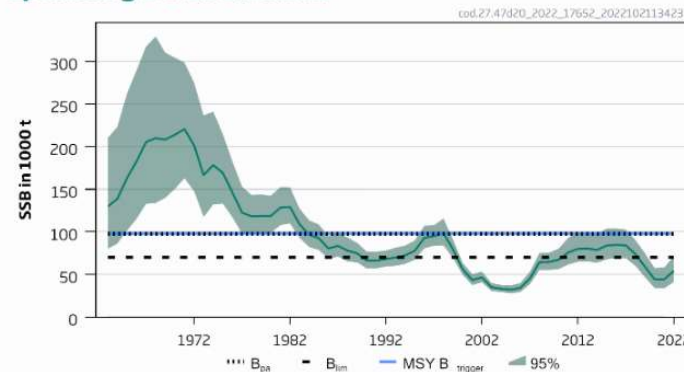


## North Sea cod stock

Catches



Spawning Stock Biomass



“ICES advises that when the MSY approach is applied, catches in 2023 should be no more than 26 008 tonnes.”

# Existing MSY management/advice vs...

- **EU Common Fisheries Policy (CFP)**  
“The objective of the CFP is to ensure that fishing and aquaculture activities contribute to long-term environmental, economic and social sustainability”,  
“ecosystem-based approach to fisheries management”  
and “achieving a good environmental status by 2020”
- **EU Multiannual Plans (MAPs)**  
 (“sustainable use”, “recovery”)
- **Marine Strategy Framework Directive (MSFD)**  
- “achieving a good environmental status by 2020”, age and size distribution, and more...
- **Precautionary principle**
- **Ecosystem-based fisheries**
- **Local populations**
- **Food web interactions**



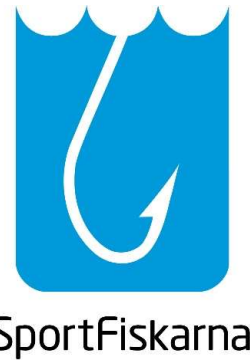
The screenshot shows a webpage from the European Commission. At the top, there is a navigation bar with the European Union flag, the text "English EN", a search box with a "Search" button, and a "Menu" dropdown. Below the navigation bar is a breadcrumb trail: "European Commission > EU Science Hub > MSFD Competence Centre > D3 Fisheries >". The main content area has a dark blue background with the heading "D3 Fisheries" in white. Below the heading, there is a paragraph: "Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock." At the bottom of the page, there is a small text block: "The Marine Strategy Framework Directive (MSFD) is intended to "...contribute to coherence between different policies and foster the integration of environmental concerns into other policies, such as the Common Fisheries Policy (CFP)". To the right of this text is a link: "The Common Fisheries Policy (CFP) ↗". On the far right, there is a sidebar with the heading "Implementation" and the text "Criteria & methodological standards".



# The value of big fish

- ✓ **Biological/ecological**
  - top down-effect, resilience against eutrophication
  - high fecundity, the BOFFF-hypothesis
- ✓ **Genetical**
  - efficient fishery, no big fish, selection on early maturation
- ✓ **Recreational**
  - anglers often want big fish and travel very far for it
- ✓ **Economical**
  - bigger fish = better pay (fish meal industry trawlers the exception)
- ✓ **Social**
  - coastal communities, small-scale fisheries





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