

Mega-trends in sustainable Atlantic fisheries and wild resources:

A strategic perspective on Atlantic Fisheries, resource development and sustainability



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North Atlantic Seafood Forum
Oslo, 1-3 March 2011

FISHERIES DEVELOPMENT; 1900-present

- 1900-1945: Fishing capacity less than net production from fish stocks; little/no overfishing.
- 1945-75: Increased fishing capacity, overfishing and depletion of stocks.
- 1975-present: Gradual development of sustainable fisheries management, rebuilding of stocks – towards sustainable fisheries – and increasing public awareness and number of NGO's with a "save the oceans agenda".
- Future trends in fisheries and marine resource development in the N. Atlantic ?



SUSTAINABLE FISHERIES

- Norway: among world leading countries in fisheries and sustainable fisheries management.
- But: WE HAVE LEARNED IT THE HARD WAY – FROM SERIOUS MISTAKES WITH OVERFISHING AND STOCK DEPLETION in the 1960-70ies – to gradual rebuilding of stocks and fisheries.
- To-day: most major stocks rebuilt to sustainable levels, but still several stocks to recover



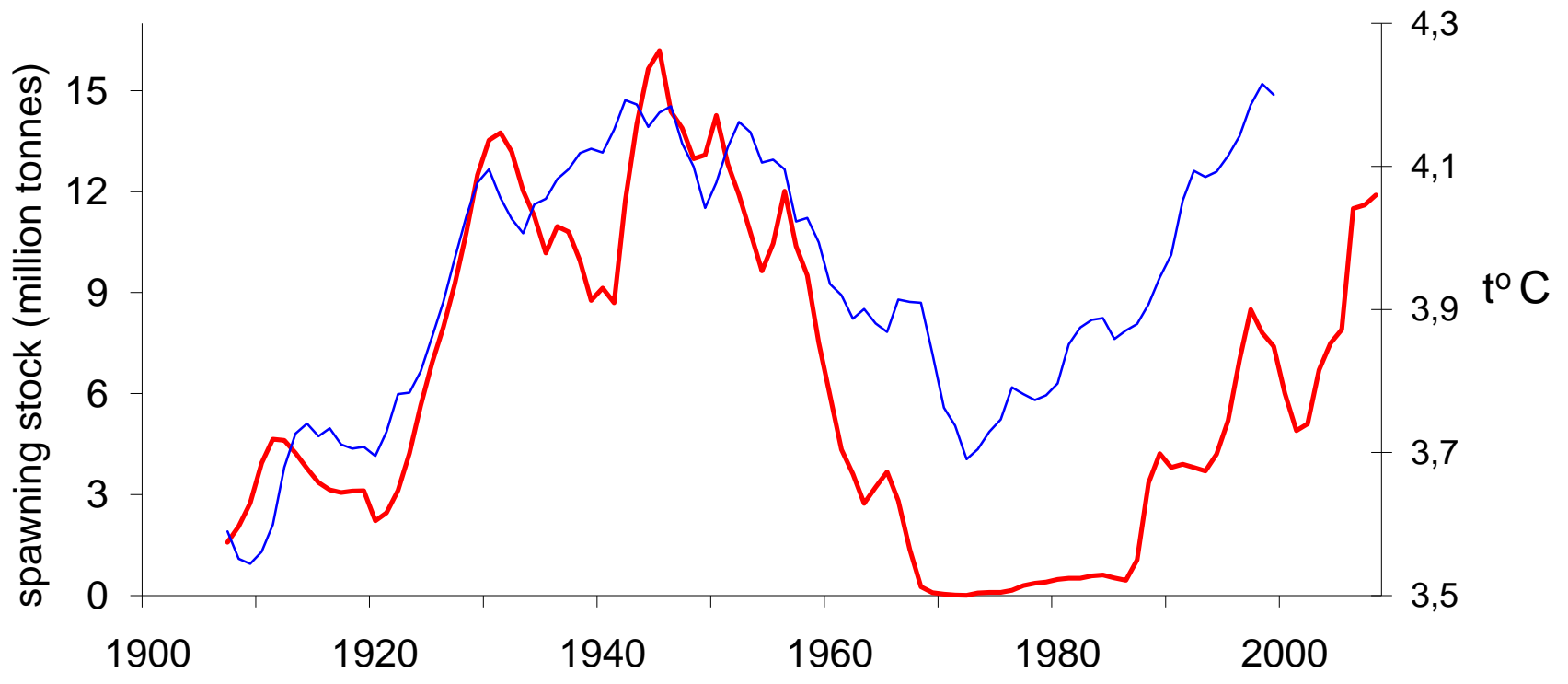
**From depletion to
Sustainable fisheries
management:**

**”The fall and rise ” of
the Norwegian spring
spawning herring – a
major example of stock
depletion and
rebuilding**



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Depletion of the largest fish stock in the N. Atlantic (NSS-Herring) in the 1960-ies: an eye opener and point of departure for development of sustainable fisheries management



(Based on Toresen and Østvedt 2000)



FAO: The State of World Fisheries and Aquaculture 2010 (SOFIA)

- Present (2008) catch: NW- Atlantic: 2 mill tons, NE-Atlantic: 8,6 mill tons
- EXPECTED TREND:
- Further development of sustainable fisheries management – leading to:
- Stability of catches at present level (11 mill t.) – with potential for increase with the recovery of still overfished stocks (N. Cod and others)



Mega trends in fisheries and the SUSTAINABILITY concept:

- However, expected stability and possible increase in N.Atlantic catches – also depends on the development of the Sustainability concept and limits to acceptable ecosystem effects (“footprints”) caused by fisheries.
- Hence; mega trends in fisheries also depend on the “tug of war” between different stakeholders over the sustainability concept and the limits to acceptable footprints made by the fisheries and aquaculture.



Fishing activity

- Normally carried out in a sustainable way
- Two challenges
 - IUU
 - Discards
 - Ghost - fishing
- No difference whether the stocks are overfished as a result of IUU or discard-policy
- Fisheries technology



CONFLICTING AGENDAS on ocean governance and sustainability:

- **A) Conservation for use: seafood from sustainable harvest of living marine resources vs.**
- **B) Conservation for protection – eventually with little or no room – even for sustainable fisheries – with some stakeholders constantly misinterpreting facts and spreading false information**
- **SOME EXAMPLES:**



COMMON HEADLINES/ FALSE MESSAGES TO THE PUBLIC:

- "Most fish stocks are depleted or overfished"
- "Fisheries management has failed"
- "Marine protected areas is the only solution"
- "All commercial fish stocks will be gone in 2048"
- "Most large pelagic stocks depleted in the 1980-ies"
- etc



Different interpretations of the FAO/SOFIA-report:

- GLOBAL STATUS OF FISH STOCKS:
- 15% underexploited or moderately exploited
- 53% fully exploited
- 32% overexploited, depleted or recovering
- From a fisheries management perspective: 68% of world fisheries are sustainable
- From a NGO perspective: 85% of world fisheries in crisis/ not sustainable



Seafood WATCH (MBARI)

BEST CHOICES

Arctic Char (farmed)
Barramundi (US farmed)
Catfish (US farmed)
Clams (farmed)
Cod: Pacific (Alaska longline)⁺
Crab: Dungeness, Stone
Halibut: Pacific⁺
Lobster: Spiny (US)
Mussels (farmed)
Oysters (farmed)
Pollock (Alaska wild)⁺
Salmon (Alaska wild)⁺
Scallops: Bay (farmed)
Striped Bass (farmed or wild)^{*}
Sturgeon, Caviar (farmed)
Tilapia (US farmed)
Trout: Rainbow (farmed)
Tuna: Albacore (US⁺, British Columbia troll/pole)
Tuna: Skipjack (troll/pole)

GOOD ALTERNATIVES

Basa, Swai (farmed)
Clams (wild)
Cod: Pacific (trawled)
Crab: Blue^{*}, King (US), Snow
Crab: Imitation/Surimi
Flounders, Soles (Pacific)
Herring: Atlantic/Sardines
Lobster: American/Maine
Mahi mahi/Dolphinfish (US)
Oysters (wild)^{*}
Scallops: Sea
Shrimp (US farmed or wild)
Squid
Swordfish (US longline)^{*}
Tuna: Bigeye, Yellowfin (troll/pole)
Tuna: canned light, canned white/Albacore^{*}

AVOID

Chilean Seabass/Toothfish^{*}
Cod: Atlantic
Crab: King (imported)
Flounders, Soles (Atlantic)
Groupers^{*}
Halibut: Atlantic
Lobster: Spiny (Caribbean imported)
Mahi mahi/Dolphinfish (imported)
Marlin: Blue^{*}, Striped^{*}
Monkfish
Orange Roughy^{*}
Rockfish (Pacific)
Salmon (farmed, including Atlantic)^{*}
Sharks^{*}
Shrimp (imported farmed or wild)
Snapper: Red
Sturgeon^{*}, Caviar (imported wild)
Swordfish (imported)^{*}
Tuna: Albacore, Bigeye, Yellowfin (longline)^{*}
Tuna: Bluefin^{*}

Support Ocean-Friendly Seafood

Best Choices are abundant, well-managed and caught or farmed in environmentally friendly ways.

Good Alternatives are an option, but there are concerns with how they're caught or farmed—or with the health of their habitat due to other human impacts.

Avoid for now as these items are caught or farmed in ways that harm other marine life or the environment.

Key

- * Limit consumption due to concerns about mercury or other contaminants. Visit www.edf.org/seafood
- + Some or all of this fishery is certified as sustainable to the Marine Stewardship Council standard. Visit www.msc.org

Seafood may appear in more than one column.



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The UNEP Large Marine Ecosystem Report

A Perspective on Changing Conditions in LMEs of the World's Regional Seas



UNEP Regional Seas Report and Studies No. 182



Regional Seas



2009

The UNEP Large Marine Ecosystem Report: A perspective on changing conditions in LMEs of the world's Regional Seas.

UNEP Regional Seas Report and Studies No. 182. United Nations Environment Programme. Nairobi, Kenya.

LINK:

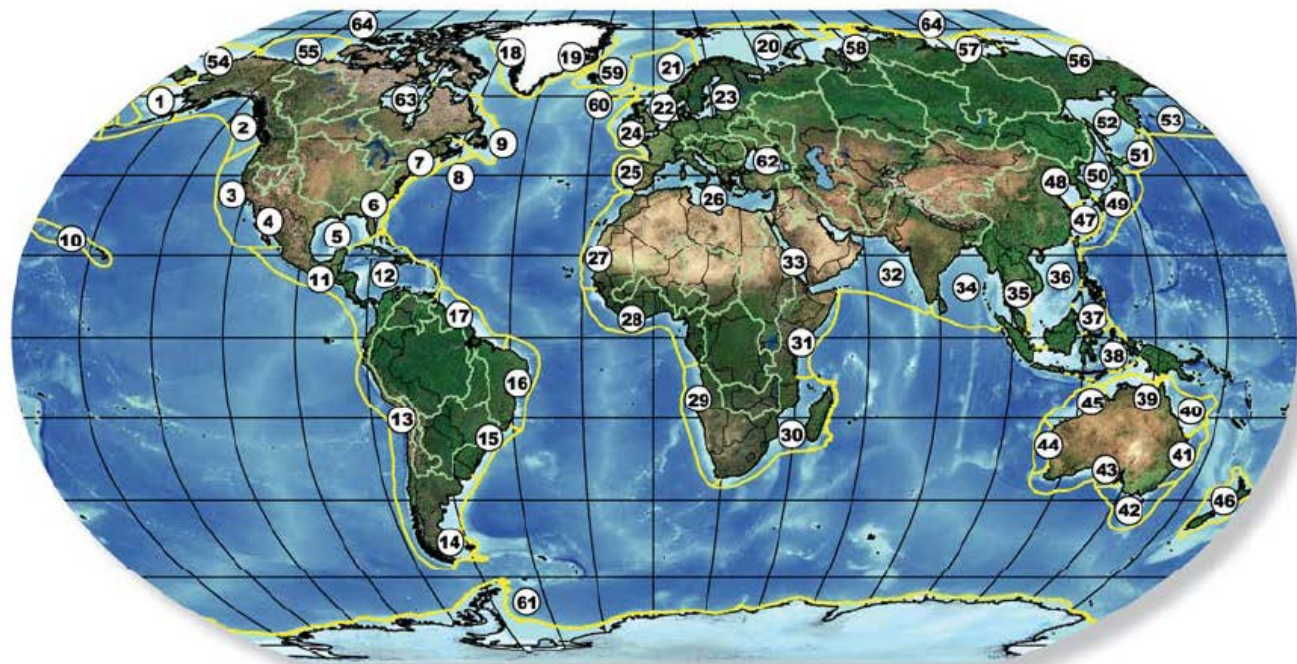
http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=178:unep-lme-report&catid=39:reports&Itemid=62

Download the full UNEP LME Report. 872 pages, 100Mb.



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Large Marine Ecosystems of the World and Linked Watersheds

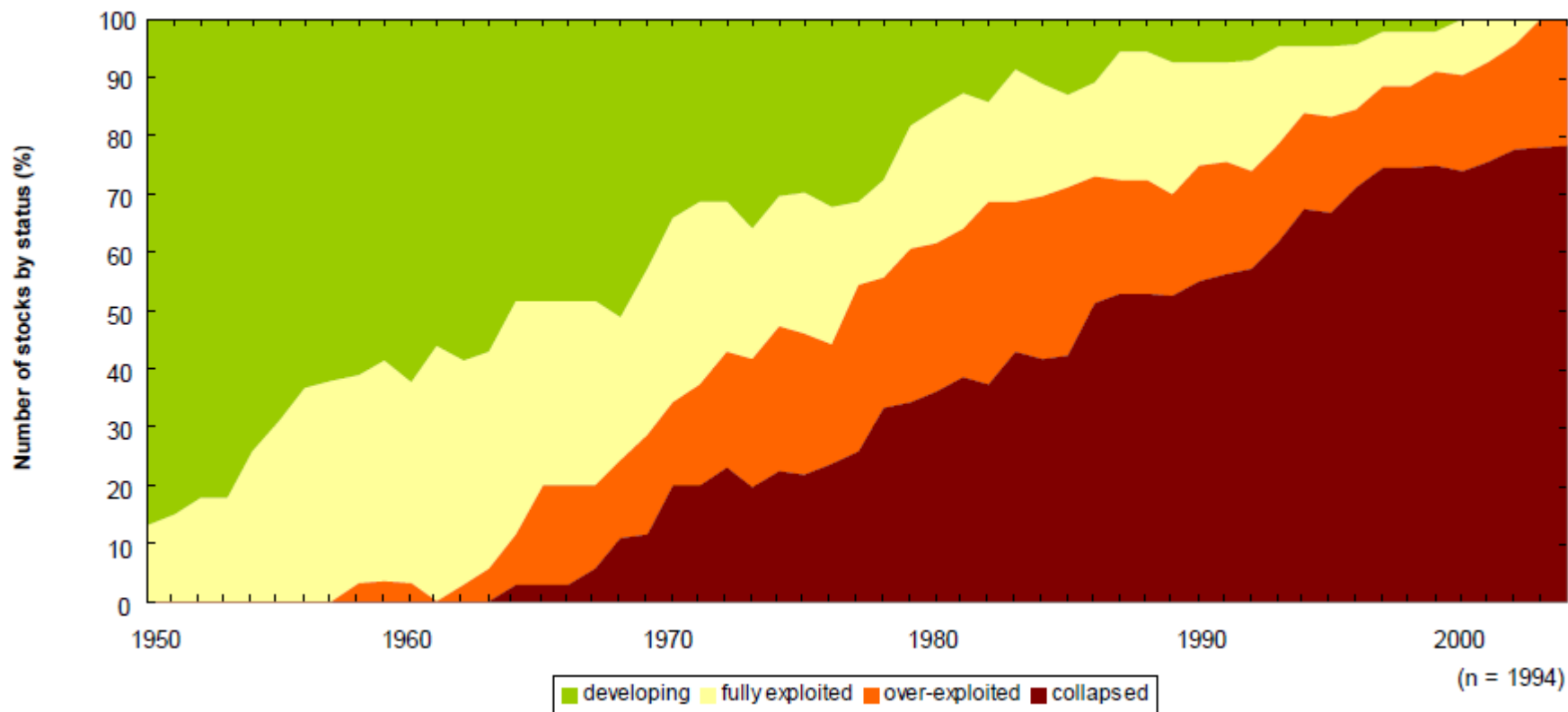


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|-------------------------------------|-------------------------|---------------------------|--|----------------------|------------------|
| 1 East Bering Sea | 13 Humboldt Current | 25 Iberian Coastal | 37 Sulu-Celebes Sea | 48 Yellow Sea | 60 Faroe Plateau |
| 2 Gulf of Alaska | 14 Patagonian Shelf | 26 Mediterranean Sea | 38 Indonesian Sea | 49 Kuroshio Current | 61 Antarctic |
| 3 California Current | 15 South Brazil Shelf | 27 Canary Current | 39 North Australian Shelf | 50 Sea of Japan | 62 Black Sea |
| 4 Gulf of California | 16 East Brazil Shelf | 28 Guinea Current | 40 Northeast Australian Shelf-
Great Barrier Reef | 51 Oyashio Current | 63 Hudson Bay |
| 5 Gulf of Mexico | 17 North Brazil Shelf | 29 Benguela Current | 41 East-Central Australian Shelf | 52 Okhotsk Sea | 64 Arctic Ocean |
| 6 Southeast U.S. Continental Shelf | 18 West Greenland Shelf | 30 Agulhas Current | 42 Southeast Australian Shelf | 53 West Bering Sea | |
| 7 Northeast U.S. Continental Shelf | 19 East Greenland Shelf | 31 Somali Coastal Current | 43 Southwest Australian Shelf | 54 Chukchi Sea | |
| 8 Scotian Shelf | 20 Barents Sea | 32 Arabian Sea | 44 West-Central Australian Shelf | 55 Beaufort Sea | |
| 9 Newfoundland-Labrador Shelf | 21 Norwegian Shelf | 33 Red Sea | 45 Northwest Australian Shelf | 56 East Siberian Sea | |
| 10 Insular Pacific-Hawaiian | 22 North Sea | 34 Bay of Bengal | 46 New Zealand Shelf | 57 Laptev Sea | |
| 11 Pacific Central-American Coastal | 23 Baltic Sea | 35 Gulf of Thailand | 47 East China Sea | 58 Kara Sea | |
| 12 Caribbean Sea | 24 Celtic-Biscay Shelf | 36 South China Sea | | 59 Iceland Shelf | |

Figure 10B. Map of the 64 Large Marine Ecosystems of the world and their linked watersheds (Sherman et al. 2004).

THE UNEP LARGE MARINE ECOSYSTEMS REPORT

XIII North East Atlantic. 36. Barents Sea LME



The Stock-Catch Status Plots indicate that the number of collapsed stocks has been rapidly increasing, to about 80% of the commercially exploited stocks, with the remainder classed as overexploited (Figure XIII-36.8, top).



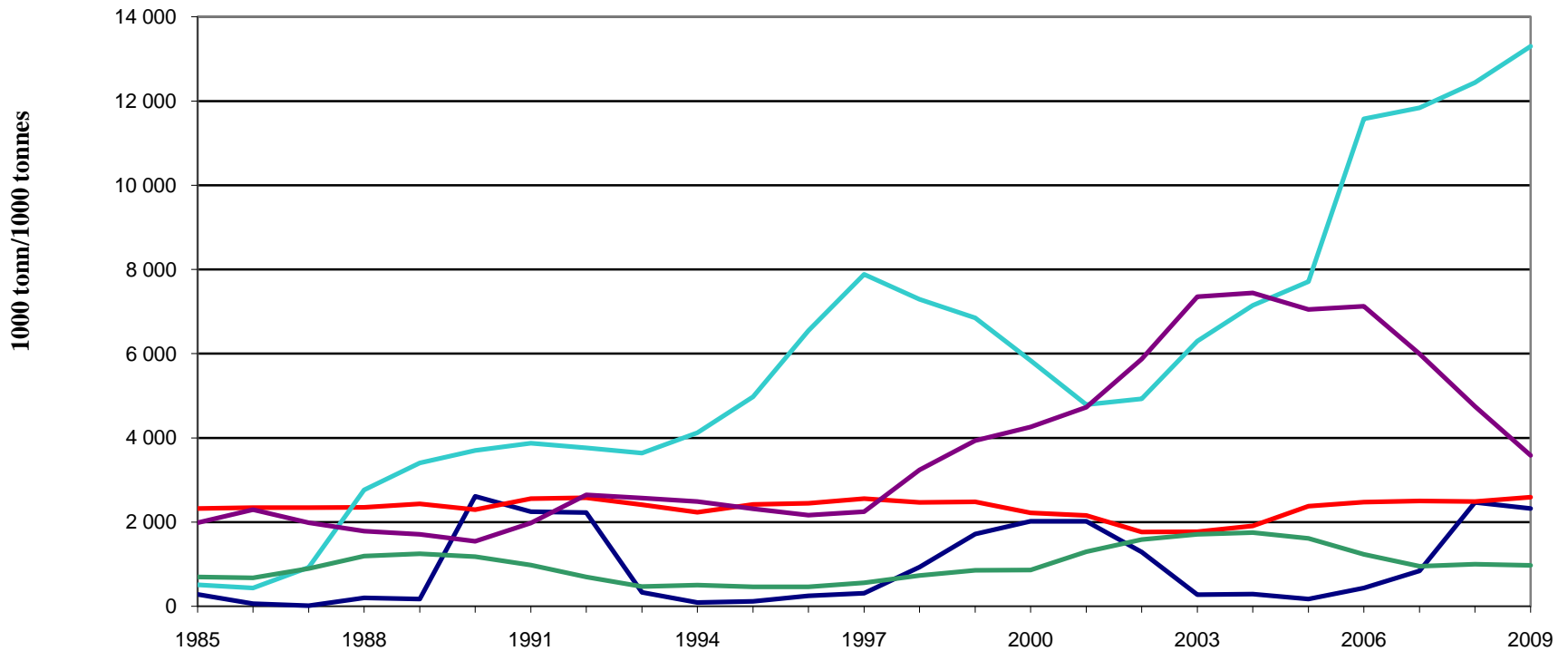
TRUE OR FALSE MESSAGE?

- Let's have a look at the development of some major NE-Atlantic stocks and fisheries during the period of building sustainable fisheries management systems (1985+)



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Spawning stock development of important pelagic species 1985 – 2009 (1000 tonnes)



— Barentshavlodde/Barents Sea capelin

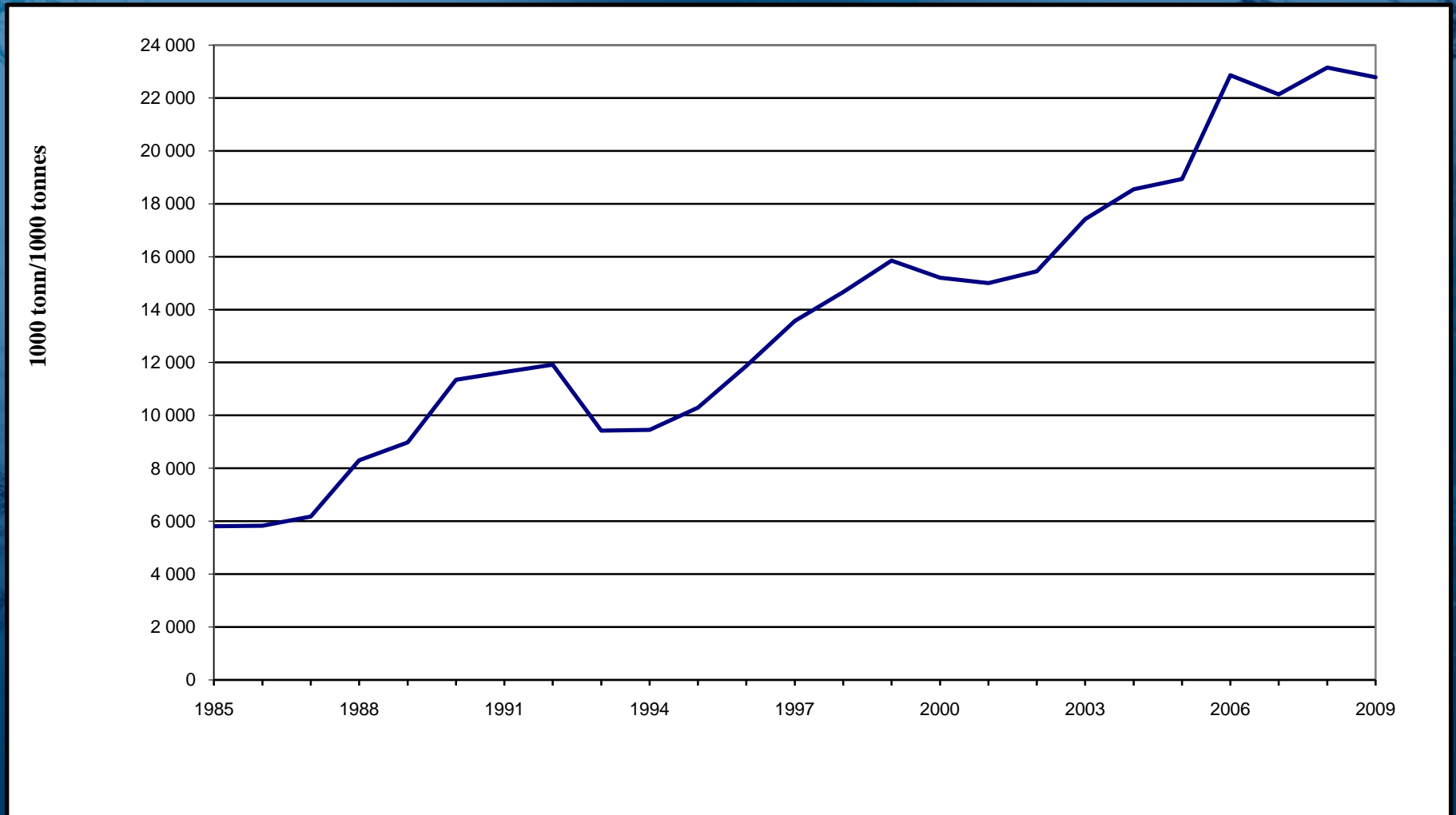
— Makrell/Northeast Atlantic mackerel

— NVG-sild/NSS herring

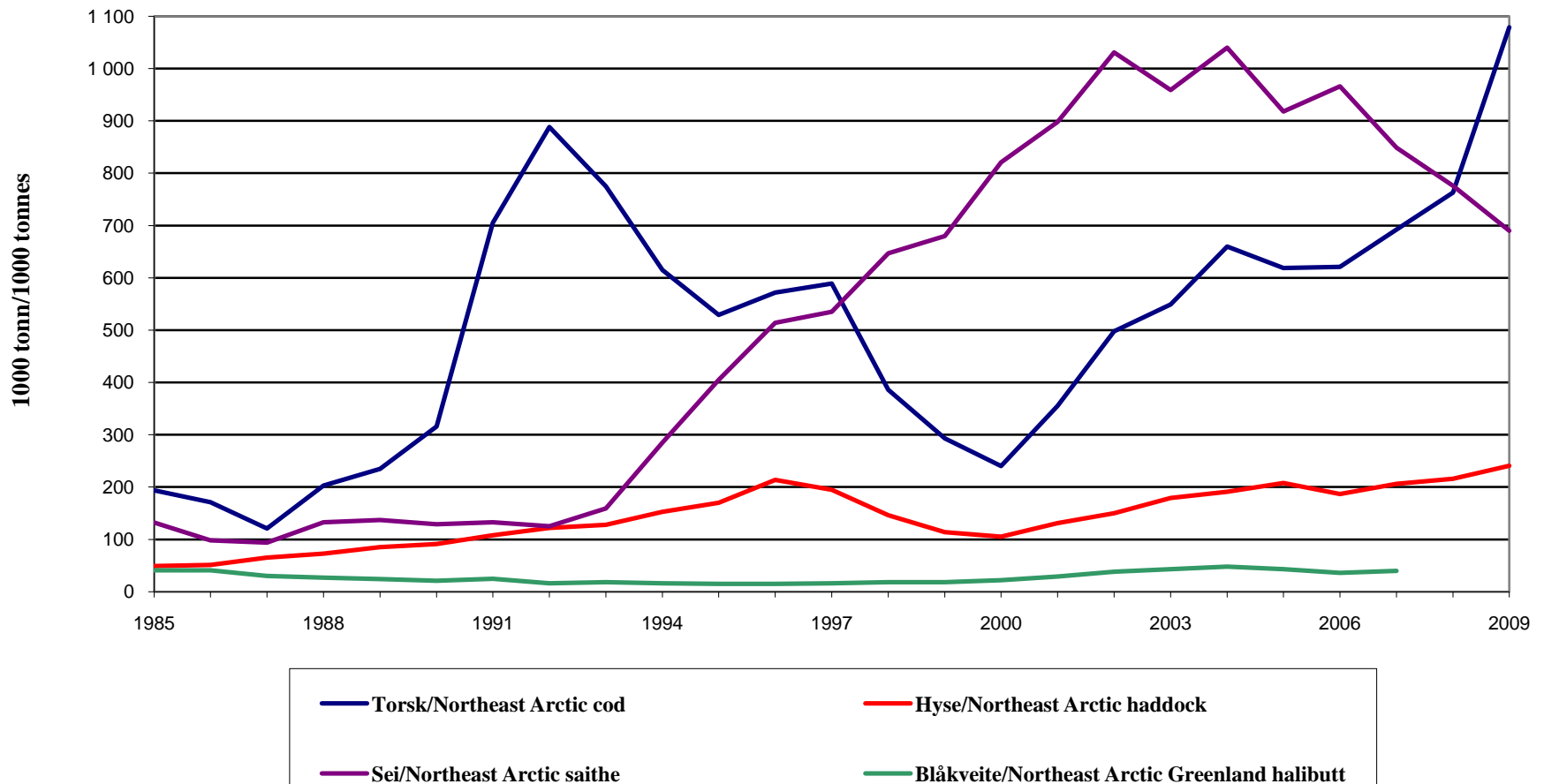
— Nordsjøsild/North Sea herring

— Kolmule/Blue whiting

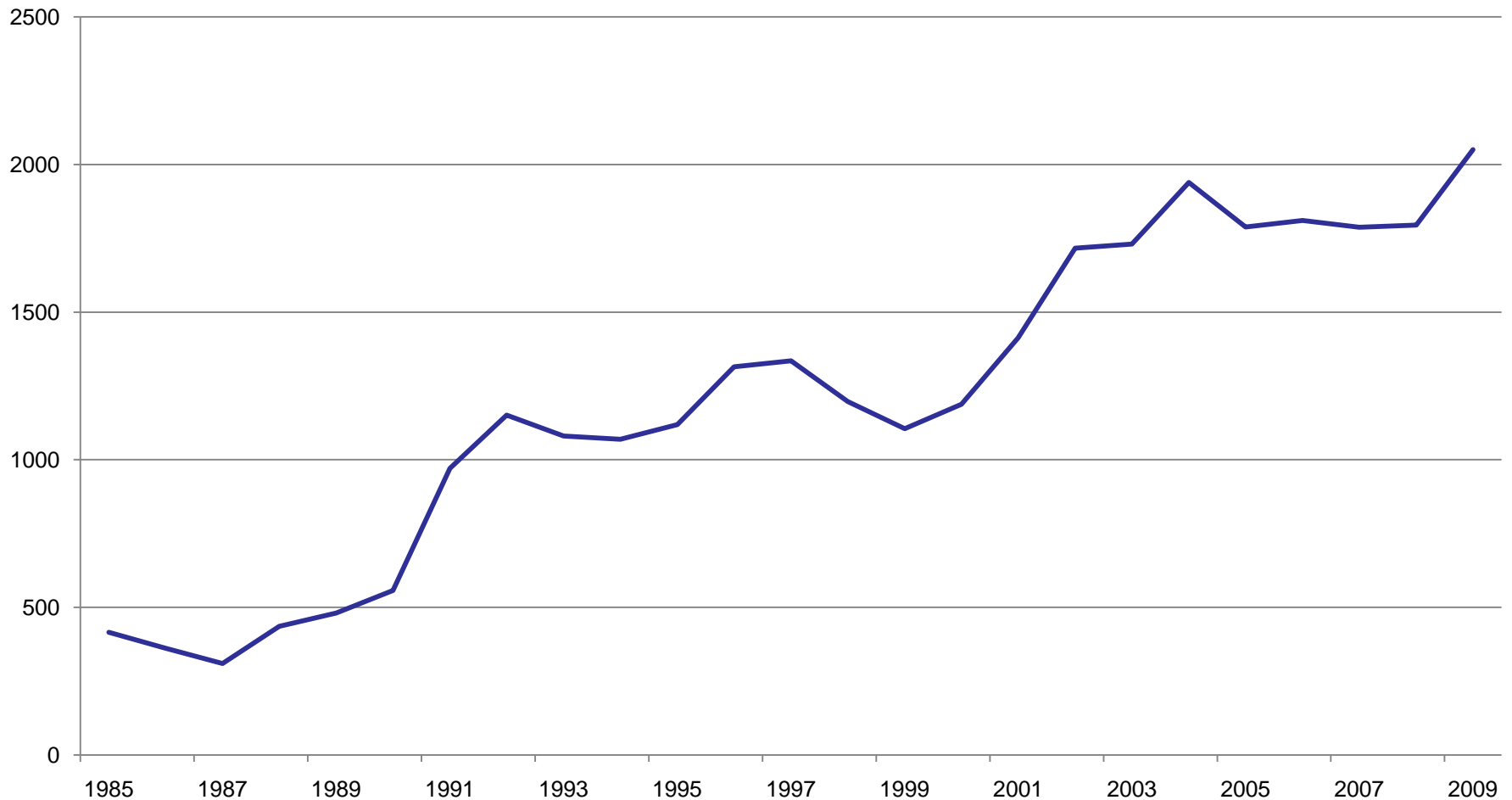
Aggregated spawning stock development of important pelagic species 1985 – 2009 (1000 tonnes)



Spawning stock development of important groundfish species in The Barents and Norwegian Sea 1985 – 2009 (1000 tonnes)



Aggregated spawning stock development of important groundfish species in The Barents- and Norwegian Seas 1985 – 2009 (1000 tonnes)



TRUE OR FALSE MESSAGE?

- After strong criticism of the poor quality of the LME-report – UNEP decided to withdraw the whole report (fall- 2010).
- BUT: In an IUCN-report (2011): ” In the case of the Barents Sea LME, there is a **decreasing biomass trend attributed** to the over-exploited condition of many fish stocks inhabiting the LME”. (IUCN, UNDP, NOAA, Moore Foundation, 248 pp).
- So – the disinformation campaign continues – even against sustainably managed fisheries



CONCLUSIONS

- N-Atlantic fisheries: picture is not black nor white
- Sustainable fisheries management works
- Several major fish stocks are rebuilt and harvested sustainably
- Still many stocks to be rebuilt
- Expected stability and slight increase of catches
- Stronger effort needed to correct false messages about fisheries – and in the development of the sustainability concept (by marine research institutions, ICES, NEAFC, NAFO.....).

