

# Ecosystems and fisheries: Understanding cumulative effects and managing change

Arctic Biodiversity Congress,  
Trondheim 2-4 December 2014

# Relevant ABA recommendations

- 3: Advance and advocate ecosystem-based management efforts in the Arctic as a framework for cooperation, planning and development
- 10: Promote the sustainable management of the Arctic's living resources and their habitat

# Fish and Fisheries in the Arctic

- This intro will be about both fish, fisheries, and fisheries management

## *Fish:*

> 200 species are found in the Arctic, only a few are harvested commercially

## *Fisheries:*

- Large-scale commercial marine fisheries
- Coastal fisheries (smaller-scale, subsistence and recreational)
- Freshwater fisheries (subsistence and recreational)

# Fisheries management

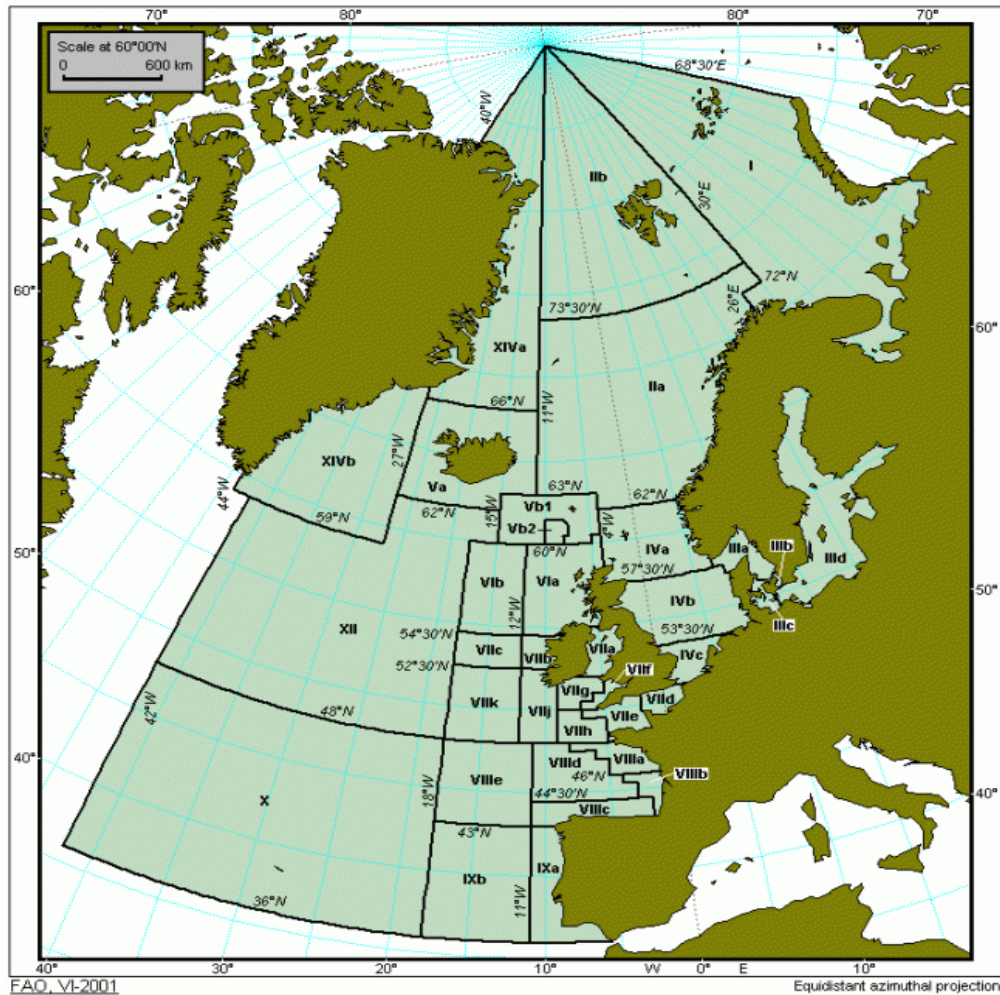
- Most fisheries in the Arctic and adjacent areas are already managed, nationally or internationally, by:
    - Quotas
    - Technical regulations (gear type restrictions, minimum sizes, spatial and temporal closures, by-catch regulations, effort restrictions+++)
- But - management is mostly single-species!*

# ICES ([www.ices.dk](http://www.ices.dk))

- ICES – International Council for the Exploration of the Sea
- Founded 1902, 20 member nations (all North Atlantic countries), secretariat in Copenhagen
- Network of more than 4000 marine scientists from 350 institutions, covering most fields of marine research and meeting in more than 50 working and study groups
- Provides annual advice on harvesting of fish, shellfish and marine mammal stocks in the Northeast Atlantic
- Arctic Research is a priority area for ICES and ICES is ready to extend its work from the Arctic areas in the Barents and Nordic Seas into the Arctic Ocean in cooperation with other Arctic organisations



# ICES areas



# ICES working groups in the Arctic (I)

- ICES Arctic Fisheries Working Group (Chair: Bjarte Bogstad) – in operation since 1959
- Provides advice of fisheries in the Barents Sea and adjacent areas (from about 62° to 82° N)
- These stocks are managed by Norway and Russia, and total annual harvest is about 1.5 million tonnes with a first-hand value of more than 2 billion US \$
- Cod is the most economically important stock
- Management plans are in place for the most important commercial stocks in this area and they are generally in good shape



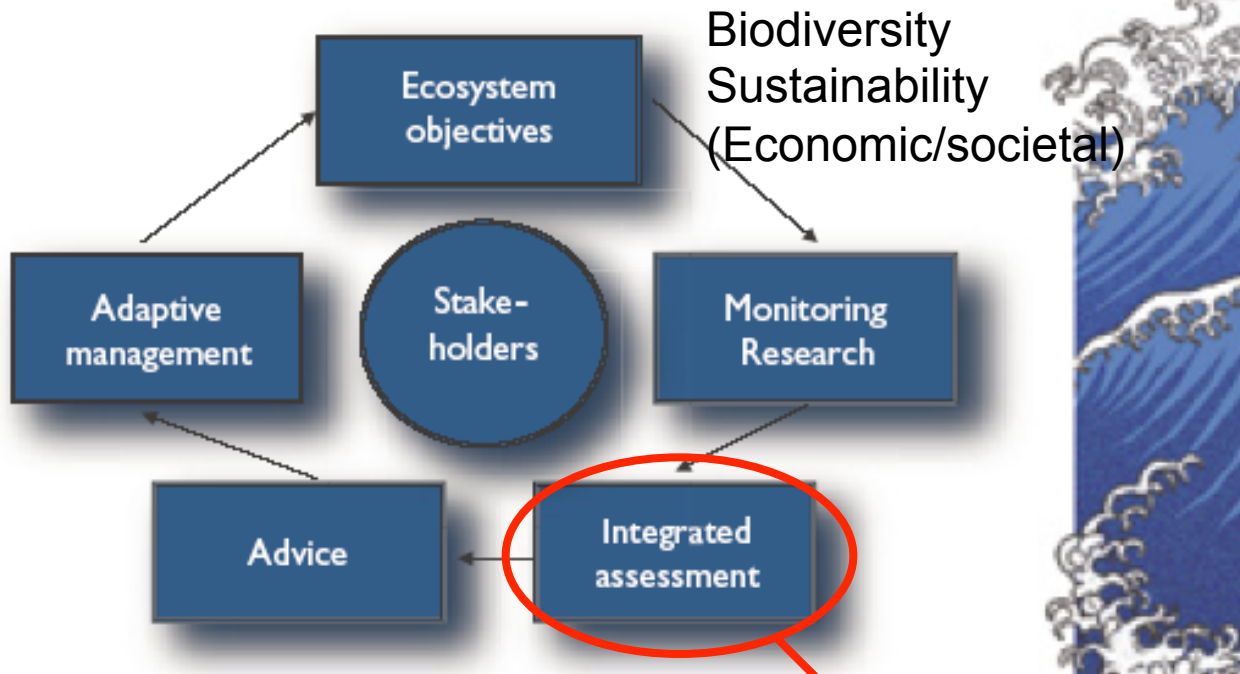
# ICES working groups in the Arctic (II)

- WGIBAR - ICES WG on Integrated Assessment of the Barents Sea
- Norwegian and Russian members (Co-chairs: Edda Johannesen and Yuri Kovalev)
- Started 2014
- One of 7 Integrated ecosystem assessment WG in the ICES system (North Sea, Baltic Sea, Norwegian Sea, Mediterranean, East coast of US/Canada, Celtic Sea-Bay of Biscay)
- Integrated ecosystem assessment important part of ICES strategic plan 2014-2018



# Integrated ecosystem assessment: Part of the Ecosystem approach to management

## Framework for an ECOSYSTEM APPROACH to Ocean Management



Fisheries most important human activity/sector in the BS

-WGIBAR works with: **AFWG** (provides stock advice)

-**Norwegian management plan** for the Norwegian part of the BS = advice across sectors

Modified from Skjoldal and Misund (2008)

Assess the state of the ecosystem