



**Knipovich Polar Research Institute of Marine Fisheries
and Oceanography (PINRO)**

On Contribution of Russian Science to Studies of Biological Resources in the Nordic Seas

**III International Conference
«Fishery in the Arctic: challenges, international practice, prospects»**

**Murmansk
2016 г.**

The Andrey Pervozvanny, the world's first research vessel



Following the decisions from the Stockholm Conference, Russia, for the first time, undertook hydrographic and biological research along the Kola Section from the Murman Coast to 73° 00'N in May 1900.

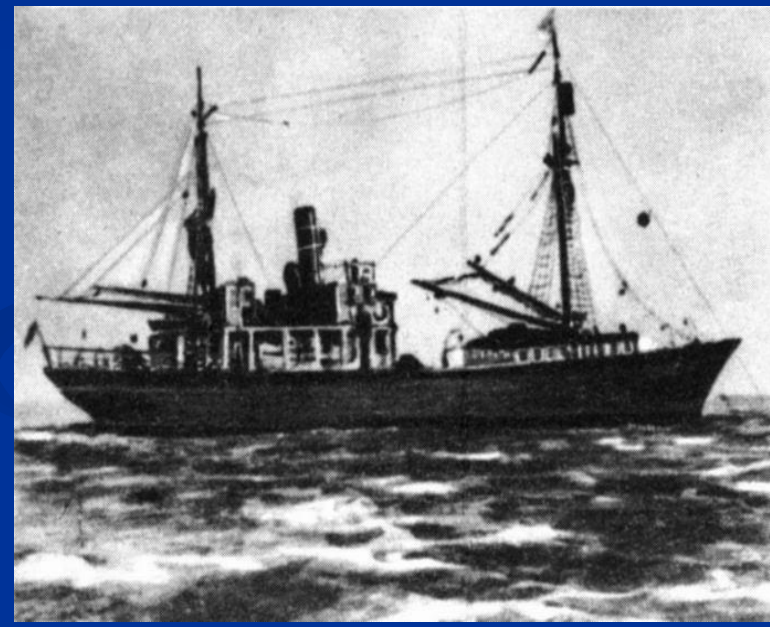
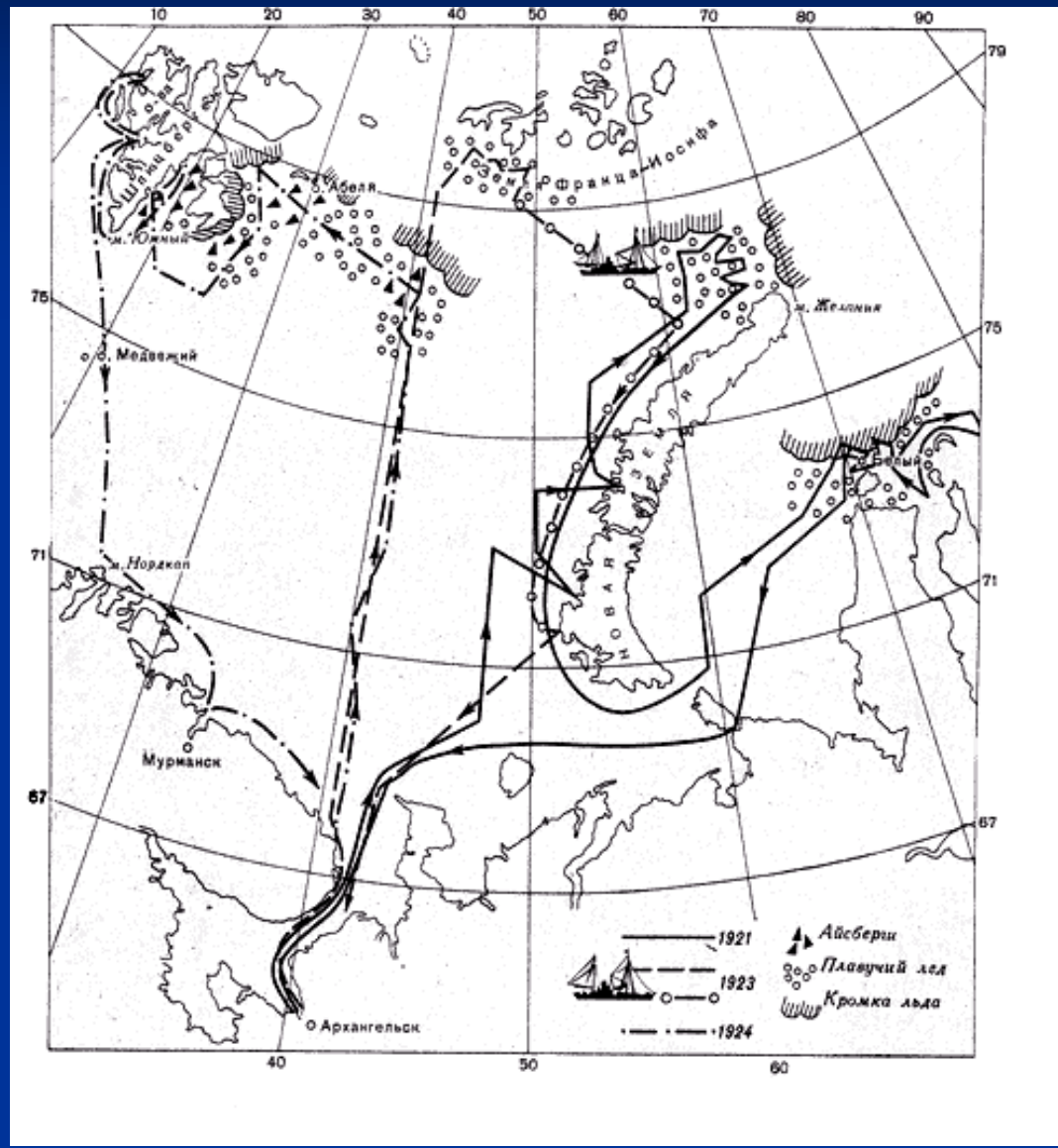


Observations along the Kola Section





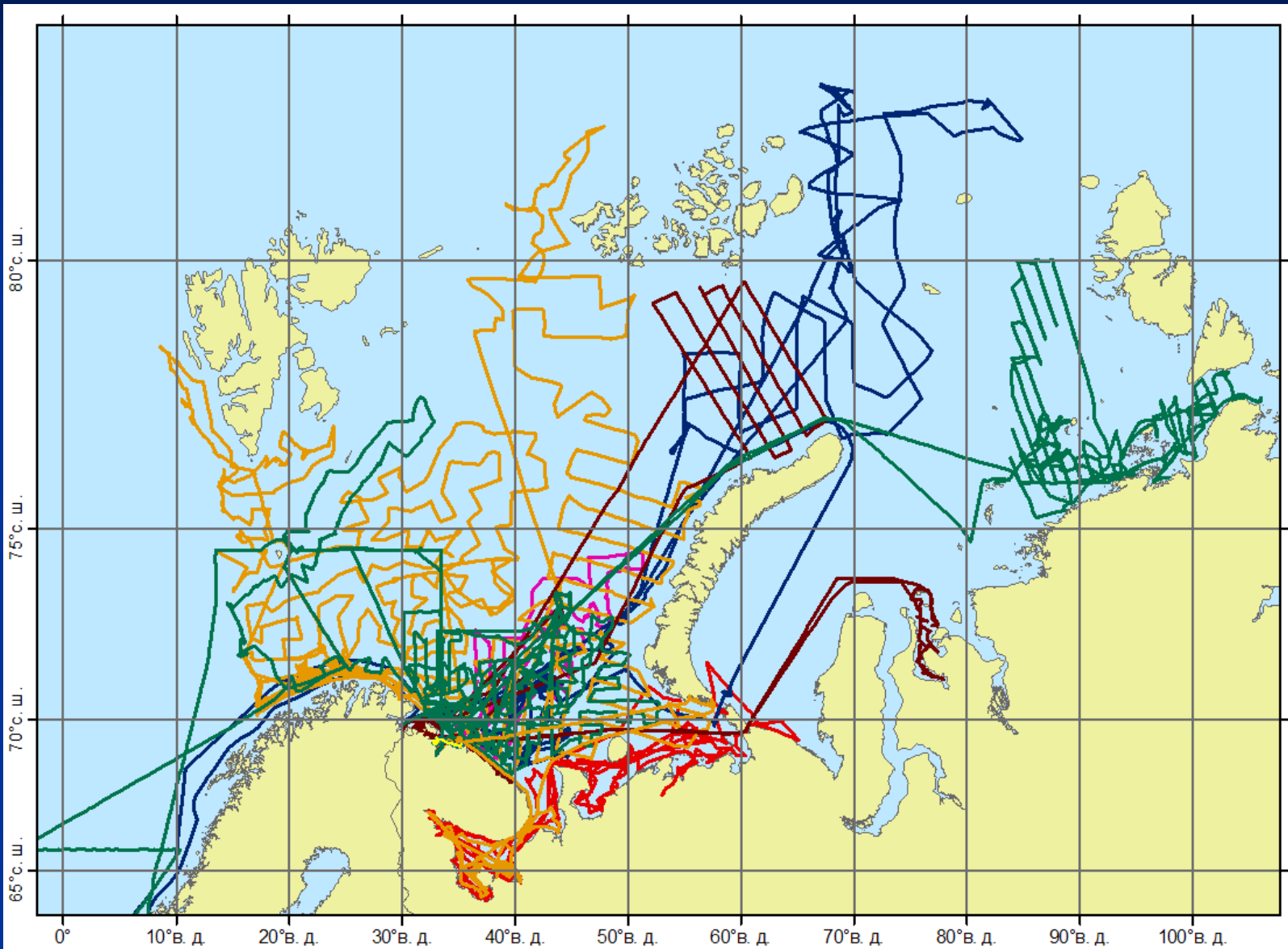
Tracks of the first scientific expeditions in 1921, 1923 and 1924



The sailing steam vessel *Persey*, a pioneer of the Soviet research fleet

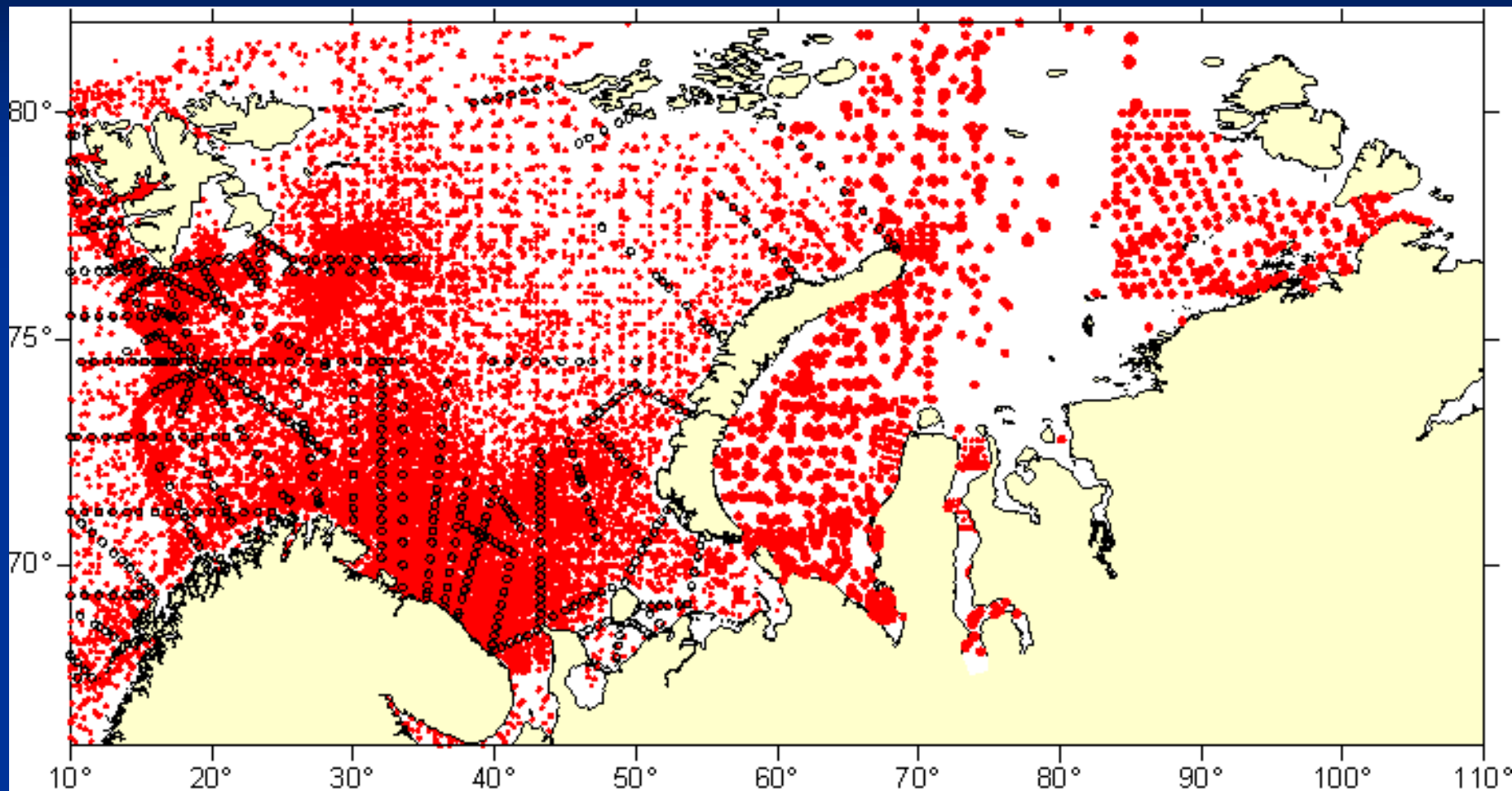


Tracks of PINRO research vessels (example)





Oceanographic stations in 2000-2013



Ichthyofauna in the BS and KS

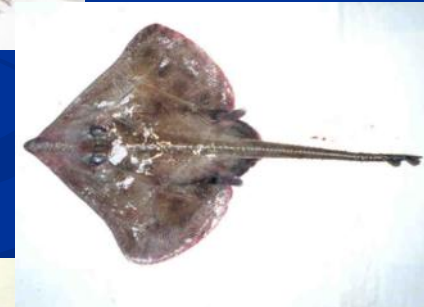
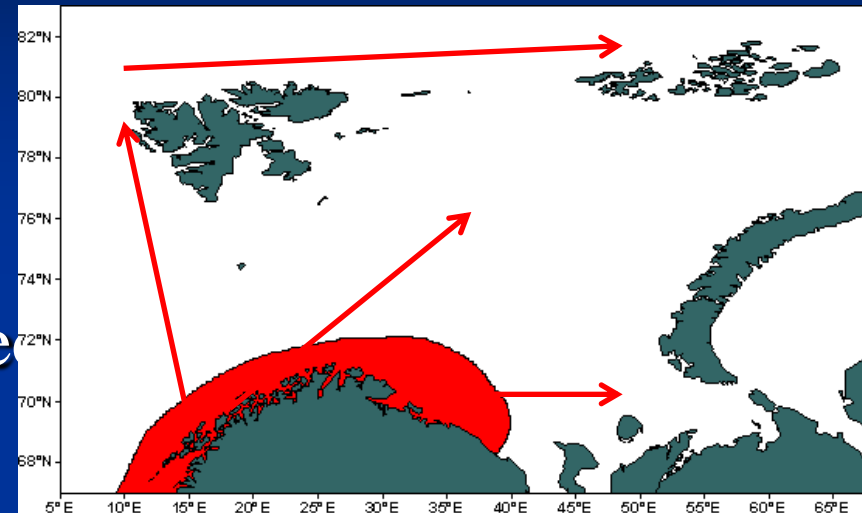
Barents Sea

- 147 species – Knipovich 1926
- 149 species – Andryashev 1954
- 206 species – Dolgov 2004
- 2015 – > 222 species and subspecies from 69 families of 27 orders

Kara Sea

- ◆ 40 species – Esipov 1933
- ◆ 62 species – Esipov 1952
- ◆ 70 species – Borkin et al. 2008
- ◆ 2013 – 77 species and subspecies from 24 families of 14 orders

Occurrence of new warm water species





PINRO is engaged in cooperation with scientific and research centers in other countries



Institute of Marine Research, Bergen



Nansen Environmental and Remote Sensing Centre, Solheimsvik



Norwegian Institute for Nature Research, Trondheim



Universities of Bergen and Tromsø



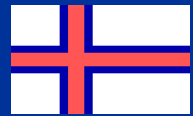
University in Svalbard



Norwegian Institute of Fisheries and Aquaculture, Tromsø



Institute for Sea Fisheries, Hamburg



Fisheries Laboratory of the Faroes, Torshavn



Marine Research Institute, Reykjavik



Greenland Institute of Natural Research, Nuuk





Some key aspects of cooperation between PINRO and IMR in the Barents Sea and adjacent waters



1921 - First negotiations on cooperation in harvesting of marine living resources in the Barents Sea

1965 - First program on joint marine investigations

1965 - First joint marine survey to estimate abundance of major commercial fish species in the Barents Sea

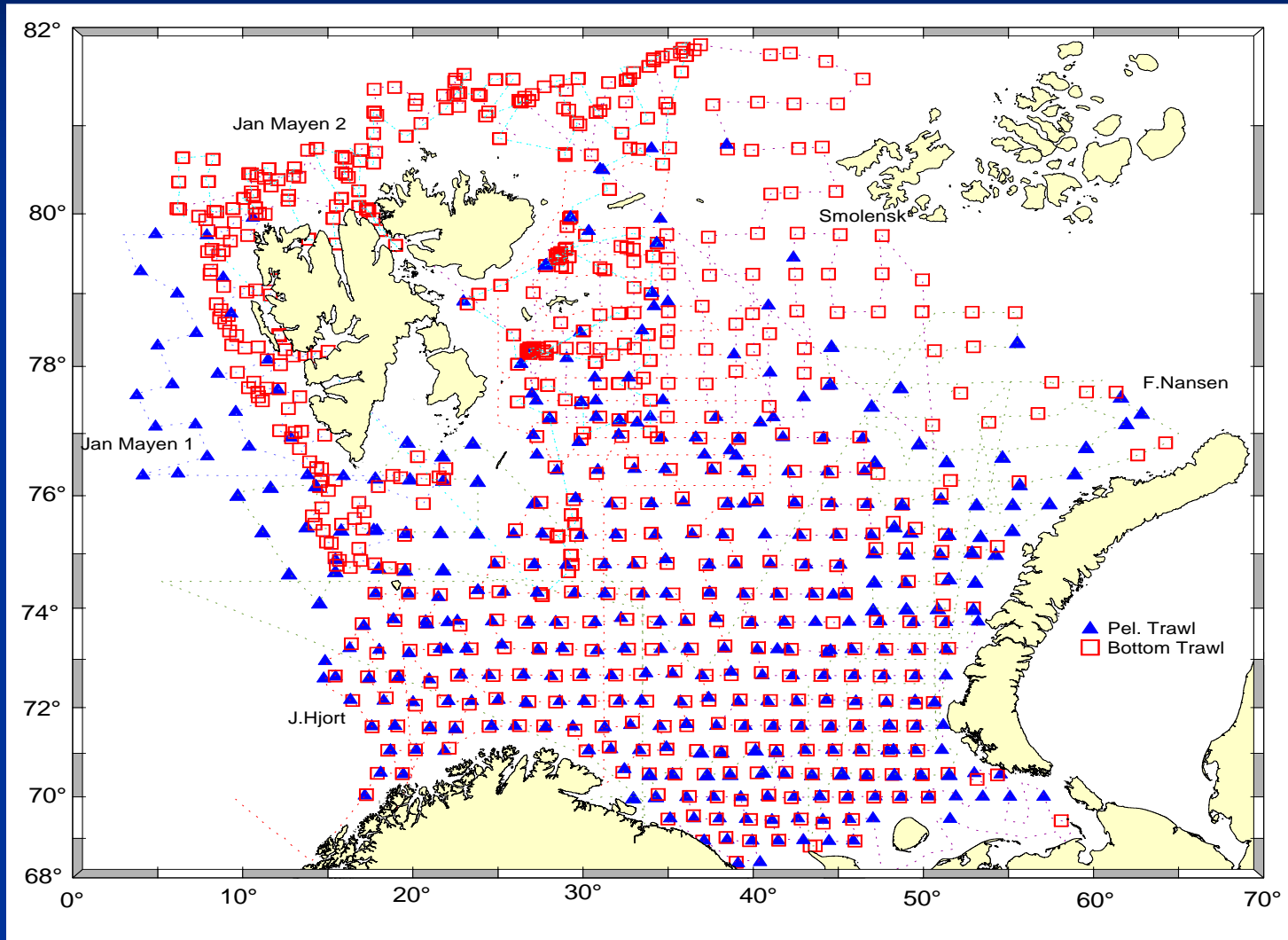
Since 1965 - Estimation of the strength of year classes in major commercial fish species in the Barents Sea and adjacent waters

Since 1975 - Investigations on the status of pelagic fish stocks in the Barents Sea and adjacent waters

Since 2000 – Estimation of the status of bottom fish stocks in the Barents Sea and adjacent waters

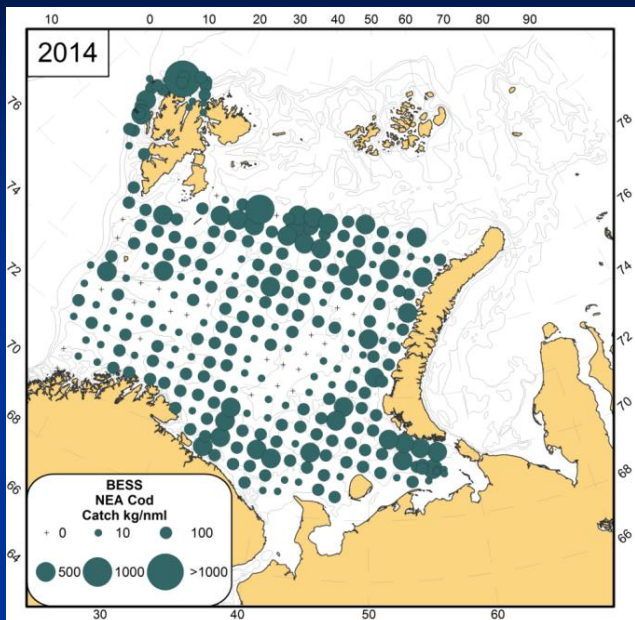
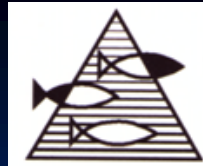


Joint Russian-Norwegian Ecosystem Survey of the Barents Sea

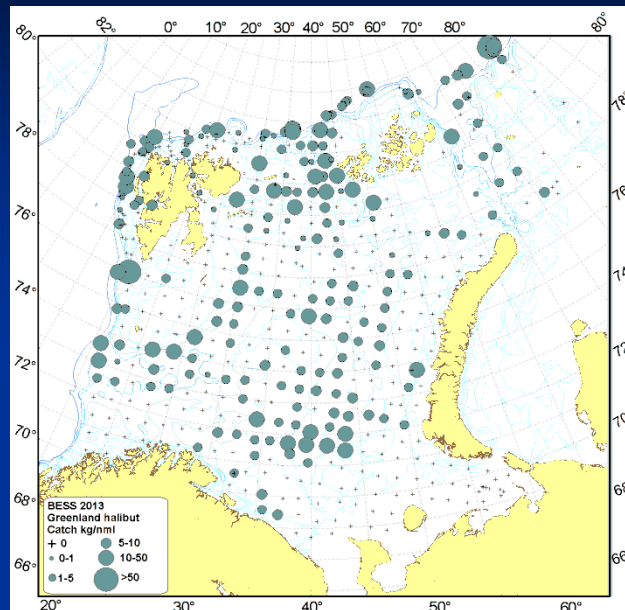




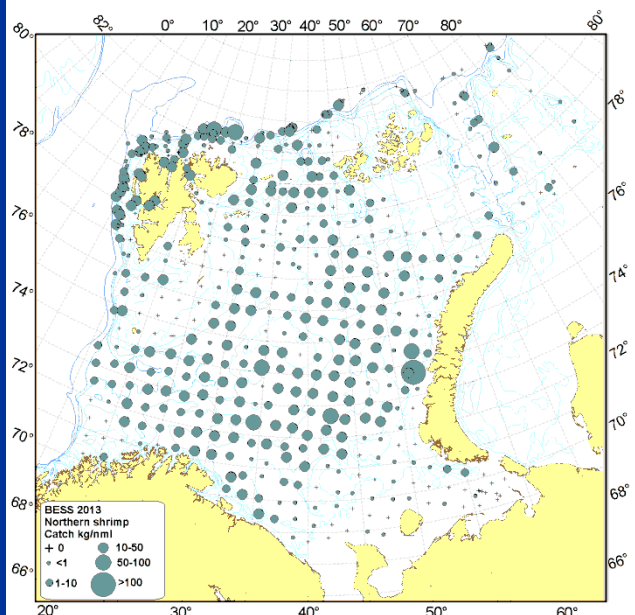
Distribution in August-September



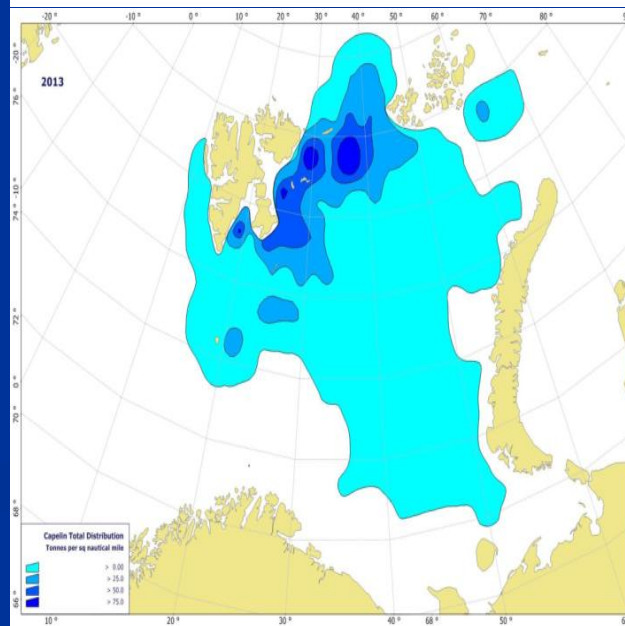
Cod



Greenland halibut



Shrimp



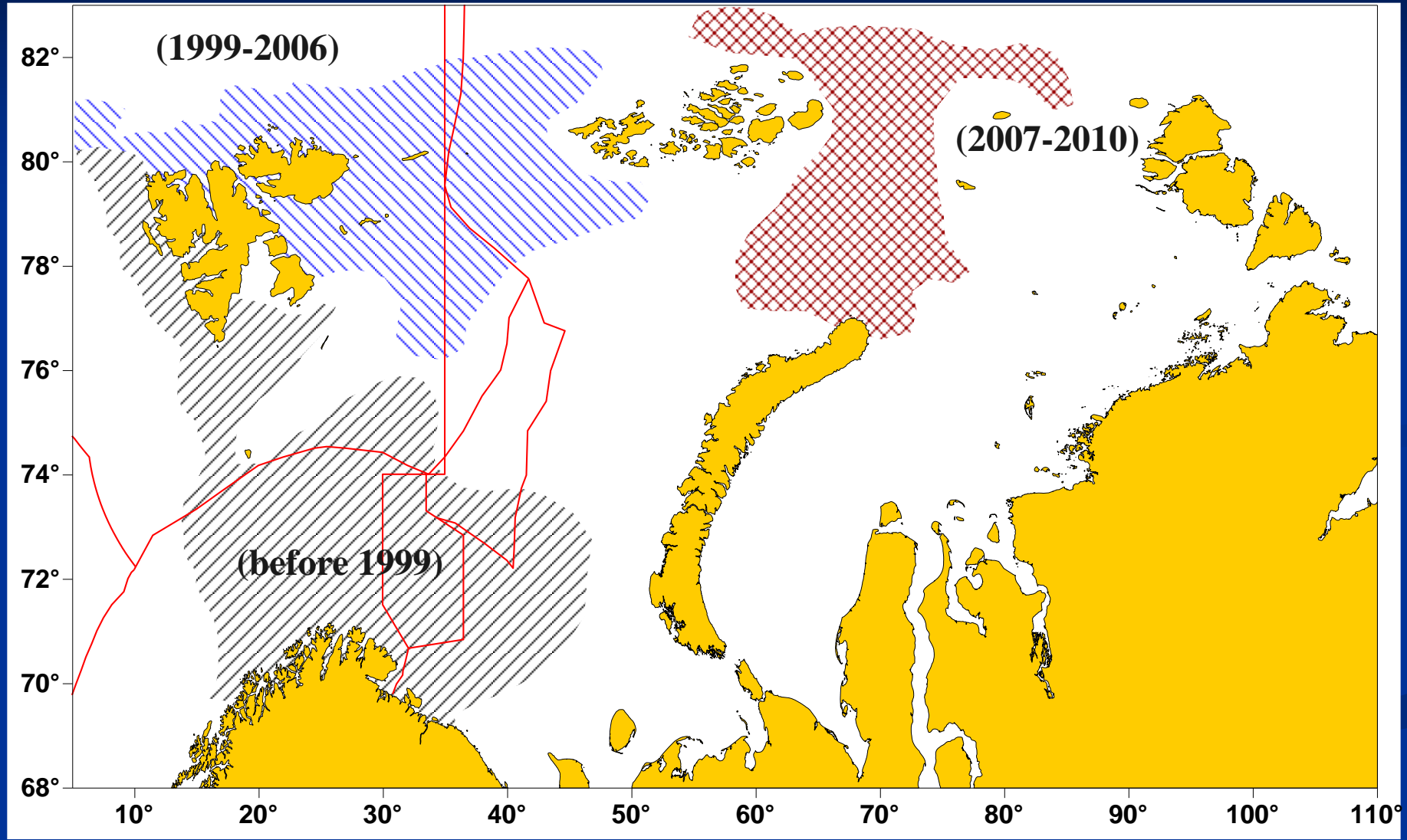
Capelin

Cod and Greenland halibut stocks and catch dynamics





Distribution areas of Greenland halibut

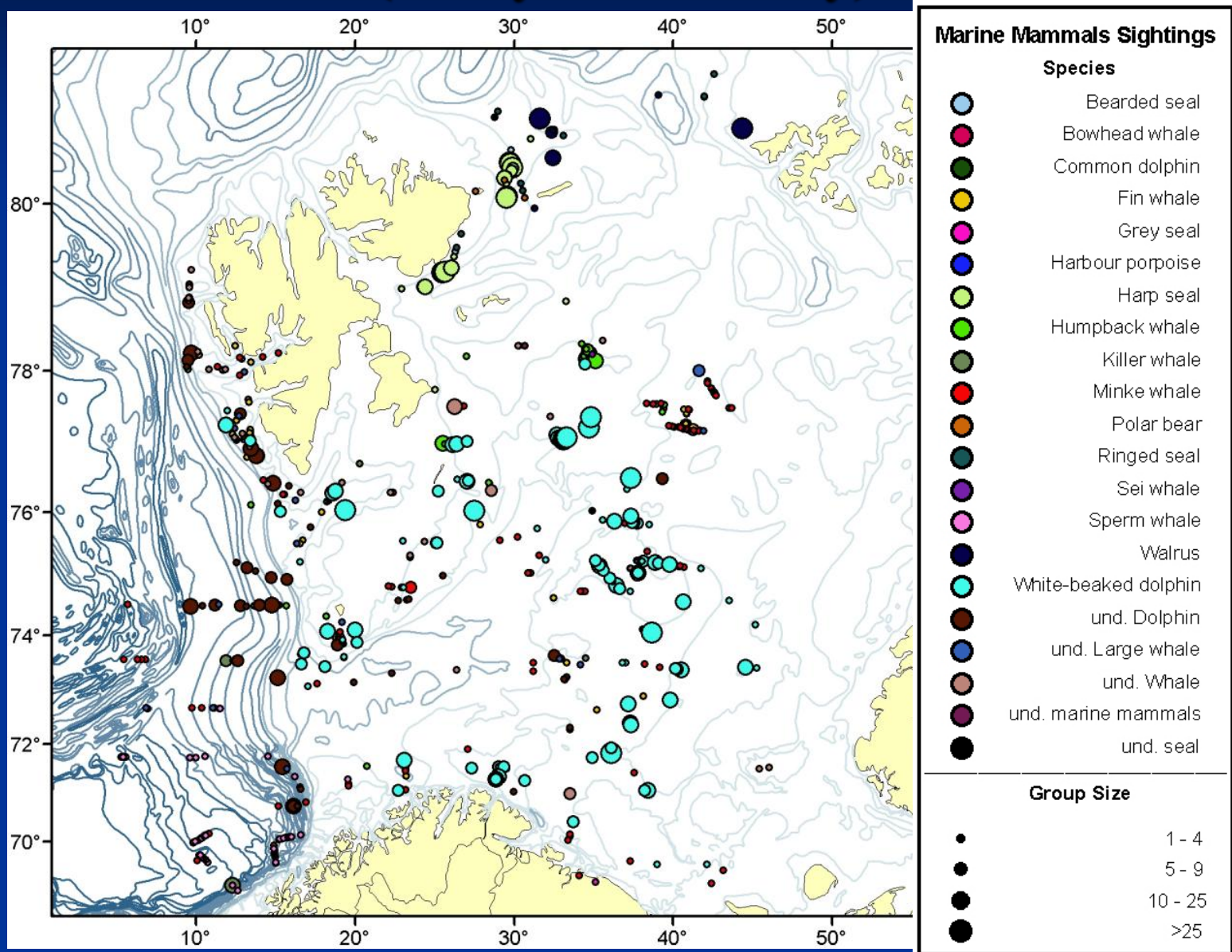


Marine mammals in the Barents Sea

- Totally 23 species of marine mammals (seasonally or during whole year) and polar bear inhabit the Barents Sea
- 7 species of pinnipeds
- 6 species of baleen whales
- 10 species of toothed whales
- Commercially important species are harp seals and minke whales
- Threatened species in the Barents Sea are the Atlantic walrus, grey seal and harbour seal, as well as polar bear.

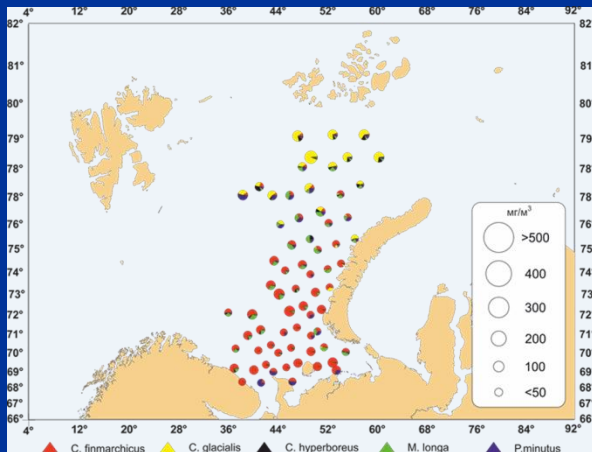


Distribution of Marine Mammals (Ecosystem Survey)

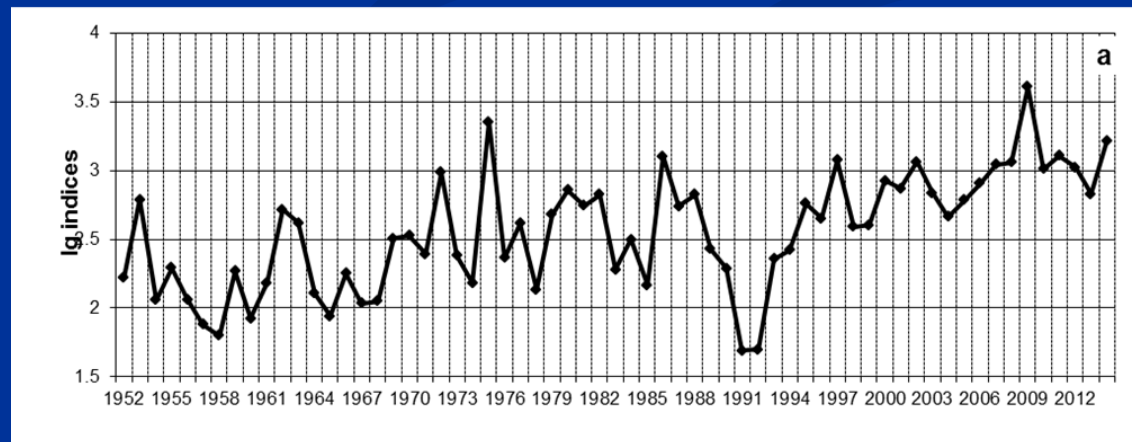


Plankton in the Barents and Kara Seas

- Approximately 300 species of zooplankton occur in the BS and 70 species in the KS.
- Most important species/groups – Copepoda (*Calanus finmarchicus*, *C. glacialis*), Euphausiidae, Hyperiididae, Chaetognatha, Scyphozoa and Pteropoda
- PINRO has been conducting plankton investigations since the 1930s in the BS and since 2007 in the KS (Russia – since the 1920s)
- Longterm series of abundance of euphausiids 1952-2015

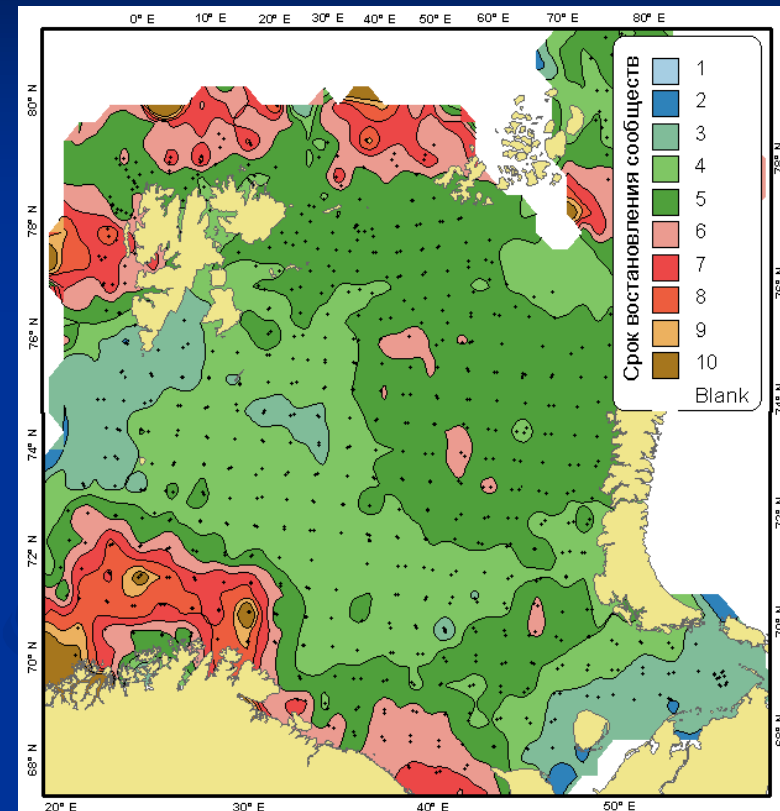
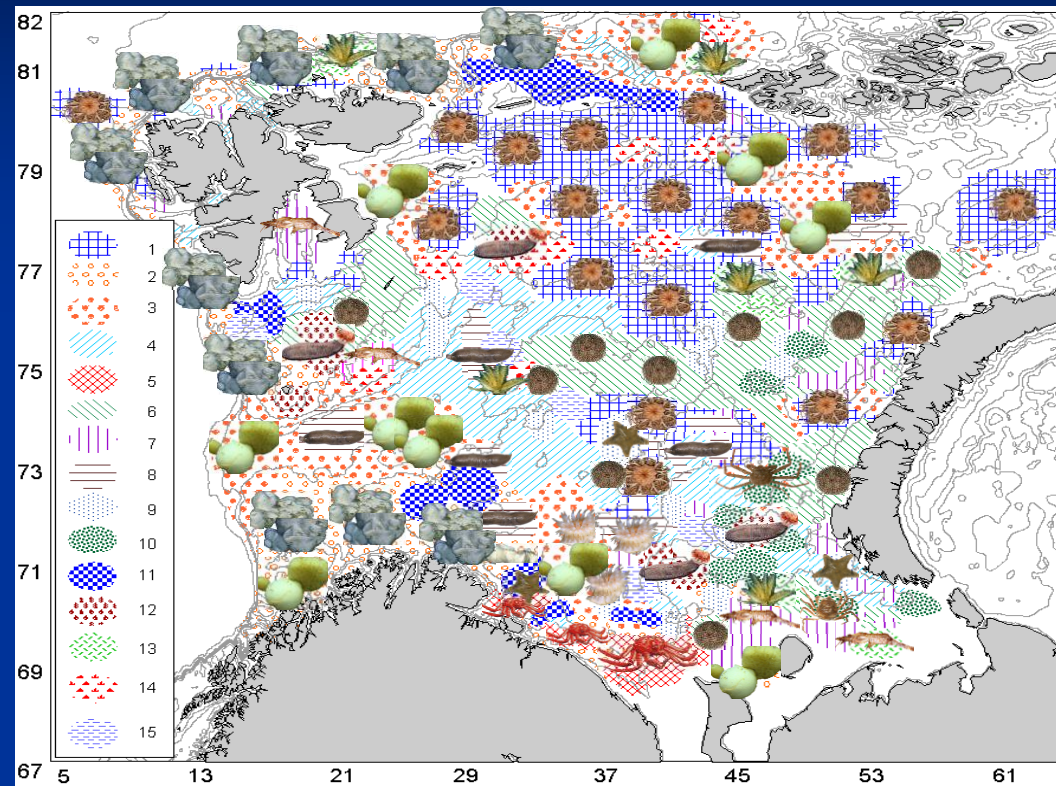


Copepods - 2014



Abundance of euphausiids, 1952-2015

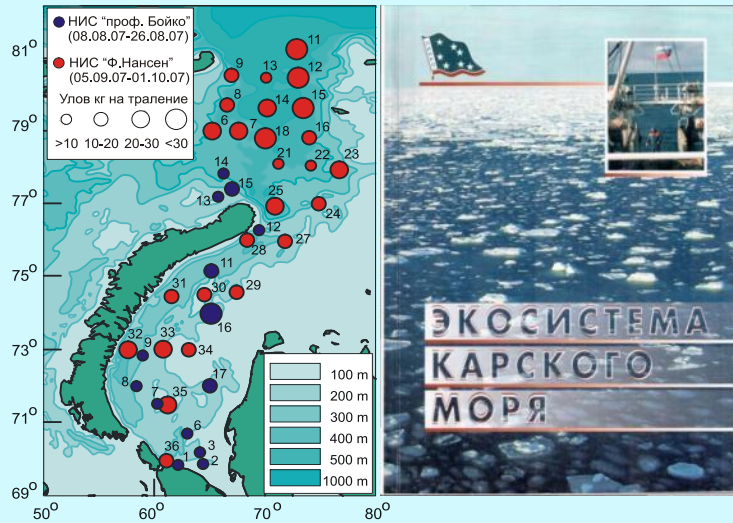
Benthic investigation in the Barents Sea (megabenthos)



1 – *Gorgonocephalus* sp., 2 – *Geodia* sp., 3 – *Spongia* sp., 4 – *Ctenodiscus crispatus*, 5 – *Paralithodes camtschaticus*, 6 – *Strongylocentrotus* sp., 7 – *Sabinea septemcarinata*, 8 – *Molpadiidae* g. sp., 9 – *Urasterias linckii*, 10 – *Chionoecetes opilio*, 11 – *Hippasteria phrygiana*, 12 – *Cucumaria frondosa*, 13 – *Sclerocrangon* sp., 14 – *Crinoidea* g. sp., 15 – *Icasterias panopla*.

Benthic investigation in the Kara Sea

Megabenthos

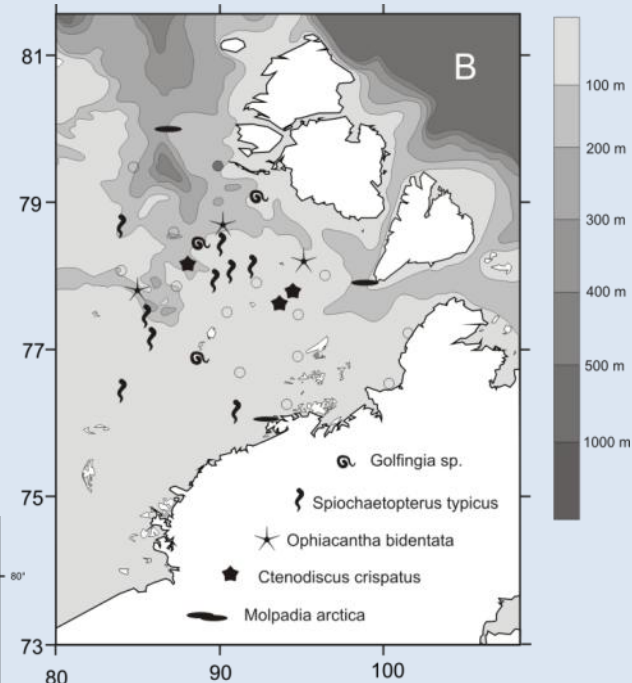
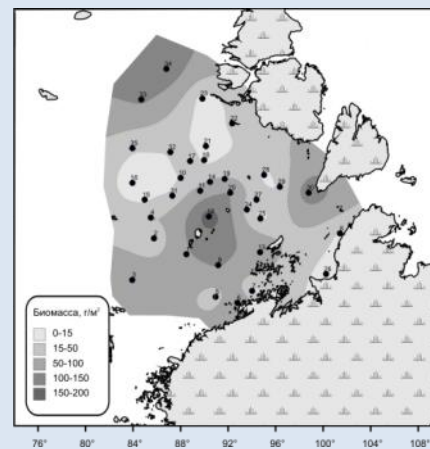


Distribution of 157 megabenthic species was identified and published



Macrobenthos

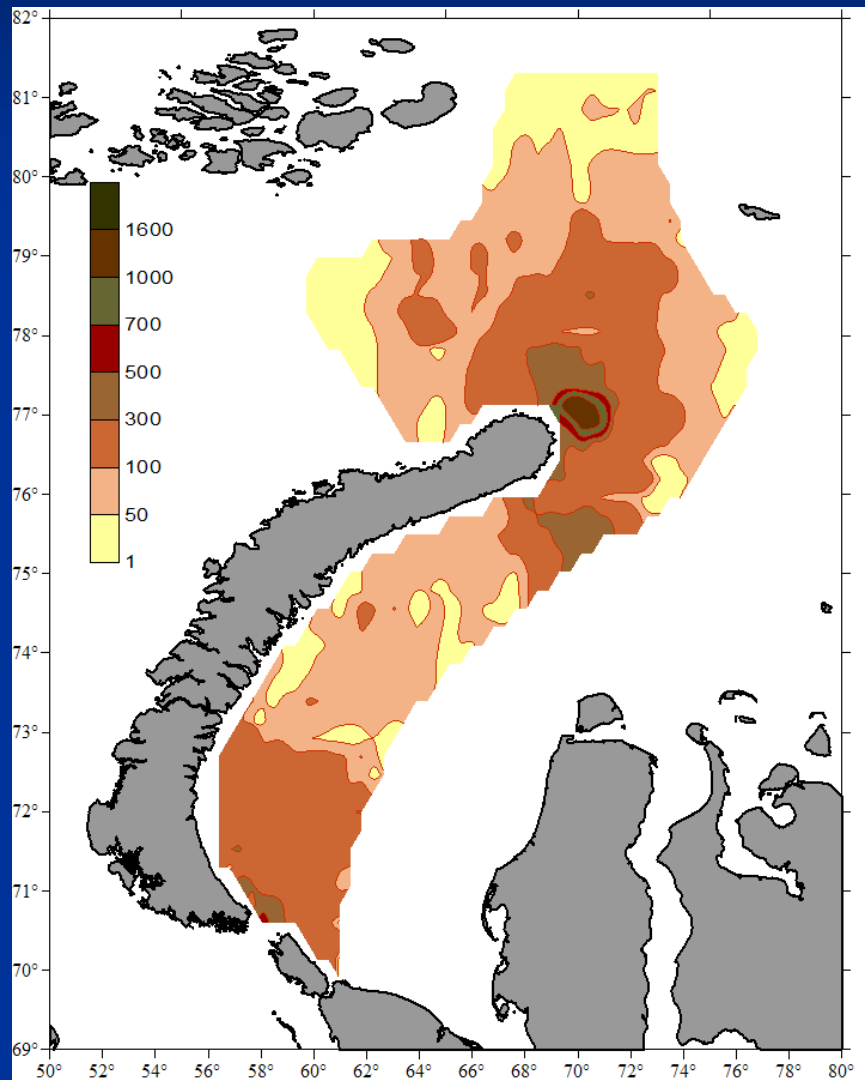
Benthos has been studied in the least accessible part of the Kara Sea. The data on quantitative distribution of benthos in the area were received and published for the first time



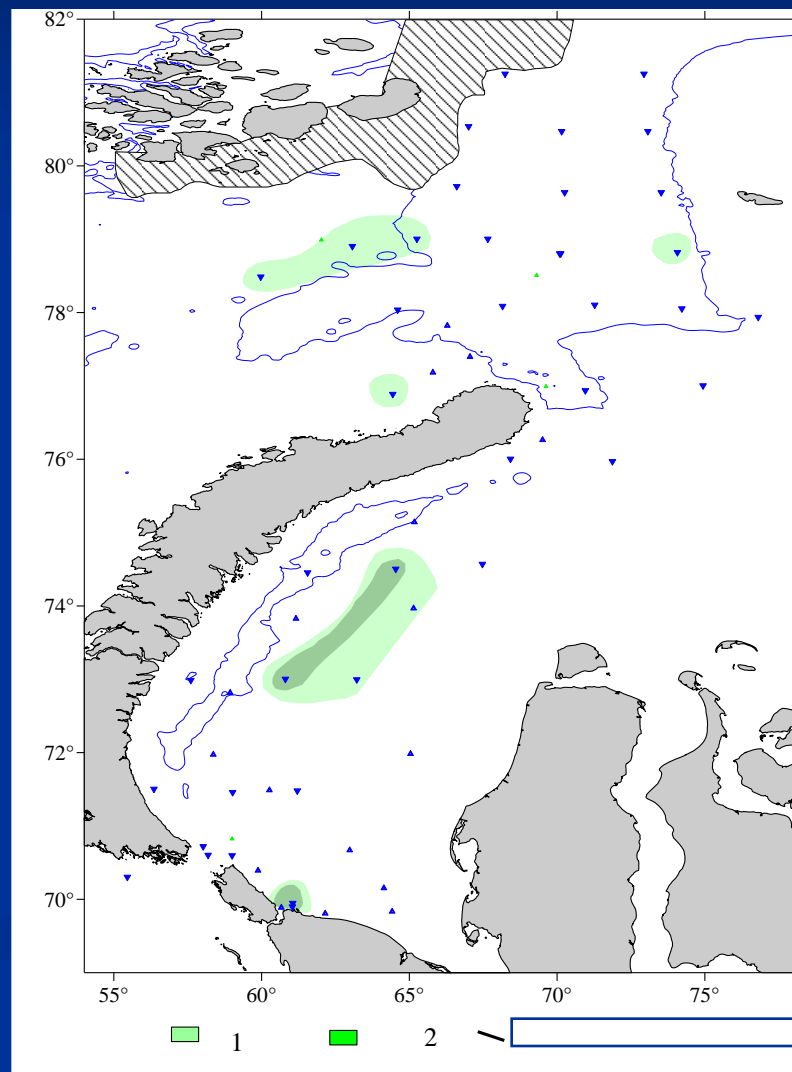
Distribution of the biomass and macrobenthic communities in the eastern part of the Kara Sea in 2009



Polar cod (*Boreogadus saida*)

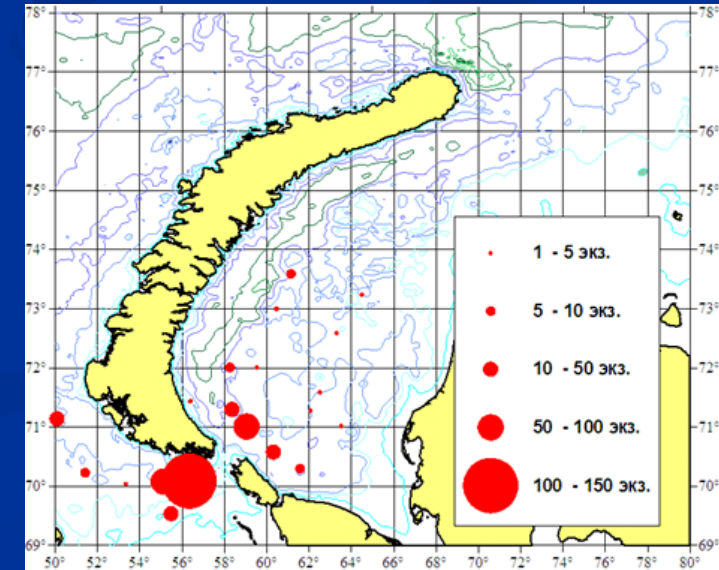
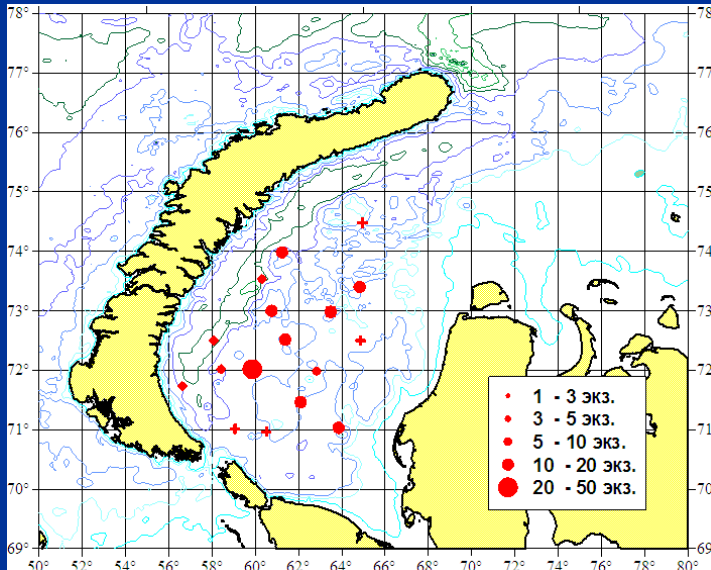
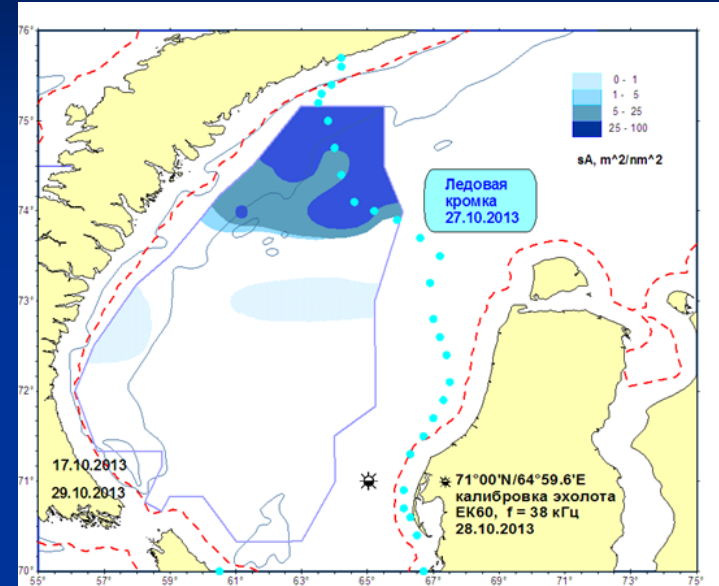
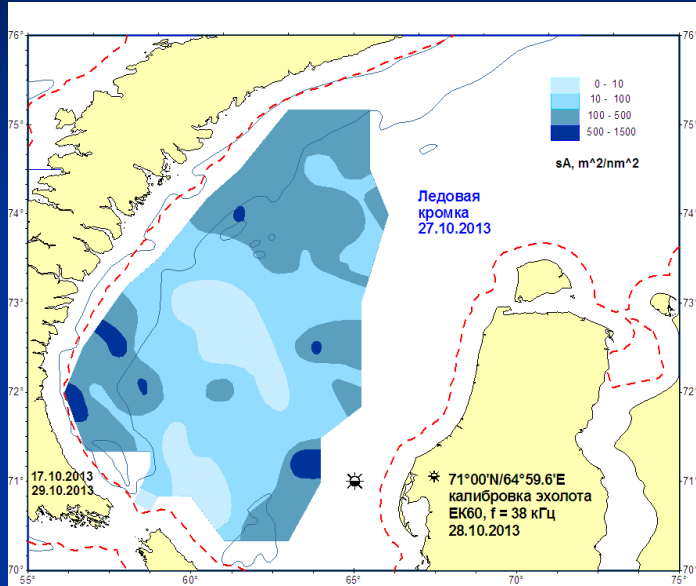


Capelin (*Mallotus villosus*)





Distribution of polar cod, capelin, long rough dab and snow crab in the Kara Sea in 2013



ПОЗВОНОЧНЫЕ
АРКТИКИ

СБОРНИК СТАТЕЙ

Year 1957, Volume 205

Vertebrates of the
Arctic

шении льда), но ни разу не видели больших скоплений. Л. И. Леонов пытался ловить рыбу ставными сетями, но безрезультатно. Глушение пироксилином с аммоналом оказалось удачнее. После каждого взрыва, произведенного на глубине 10—15 м всплывало около сотни саяк. По све-



Обнаружена в августе 1932 г. вблизи становища Бугрино. В августе того же года, вблизи того же становища, обнаружены залежи и богатые залежи

no one has ever seen large shoals. L.I. Leonov tried to catch fish using stationary nets, but in vain. Dynamite fishing with pyroxyline containing ammonal turned out to be more successful. After each blast conducted at a depth of 10-15 meters, about a hundred of polar cods surfaced.