
INSTITUTE OF MARINE RESEARCH
HAVFORSKNINGSINSTITUTTET

The IMR Organization

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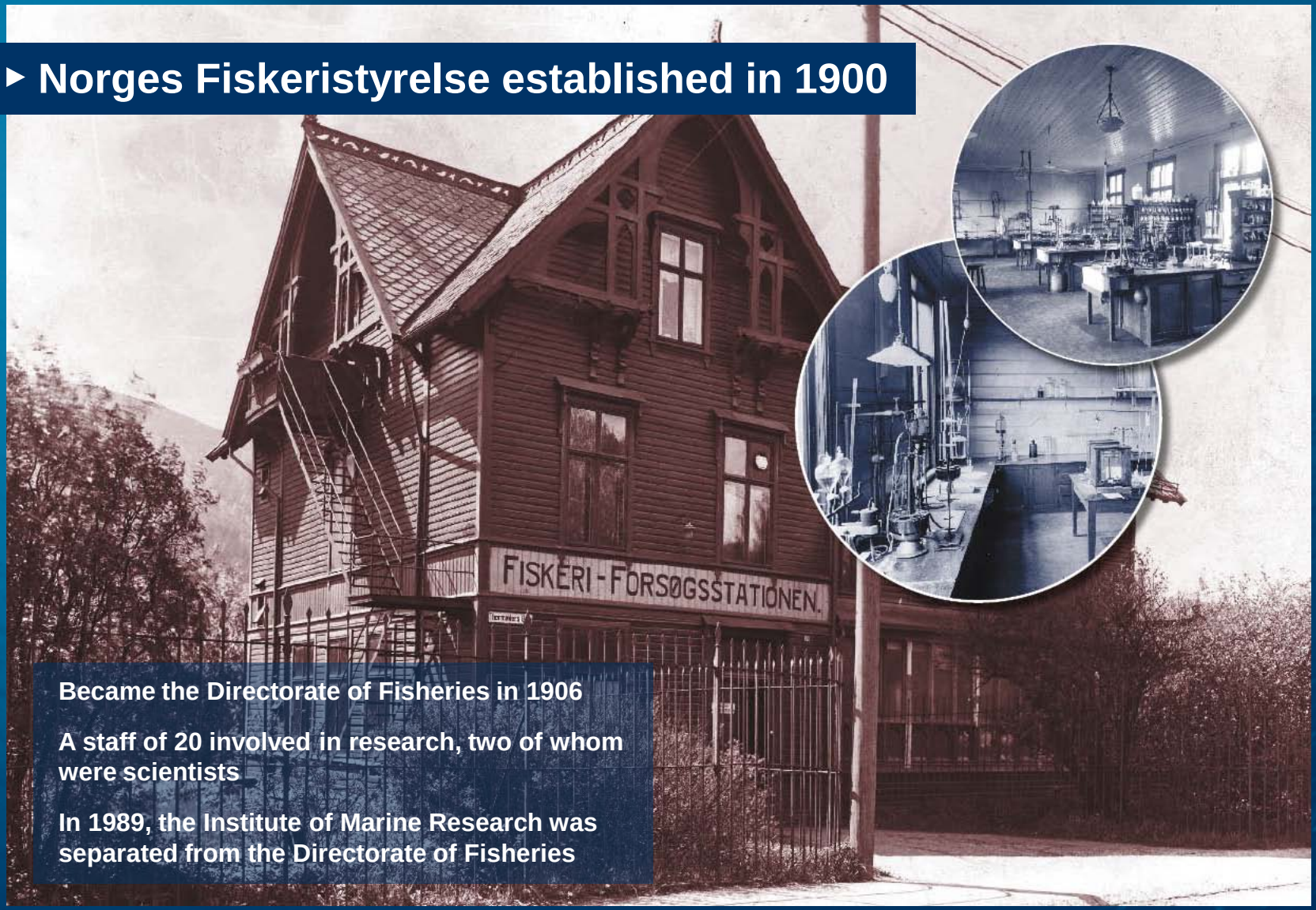
Norges Fiskeristyrelse established in 1900



- Became the Directorate of Fisheries in 1906
- A staff of 20 involved in research, two of whom were scientists
- In 1989, the Institute of Marine Research was separated from the Directorate of Fisheries

▸ Today: Norway's largest centre for marine research

NUMBER OF EMPLOYEES

	Bergen	Tromsø	Flødevigen	Matre	Austevoll	**Total**
Scientists	132	18	11	8	13	**181**
Technicians	167	9	14	16	20	**234**
Administrative personnel	67	3	3	2	2	**77**
Crew	106	0	0	0	0	**106**
Total	**472**	**30**	**28**	**26**	**35**	**590**

Other positions

Associate Chief Scientists	12
Post-doctoral researchers	12
Research students	26
Cleaning personnel	6
Apprentices	7
Trainee-scheme positions	1
Total	**64**

▸ A national institute

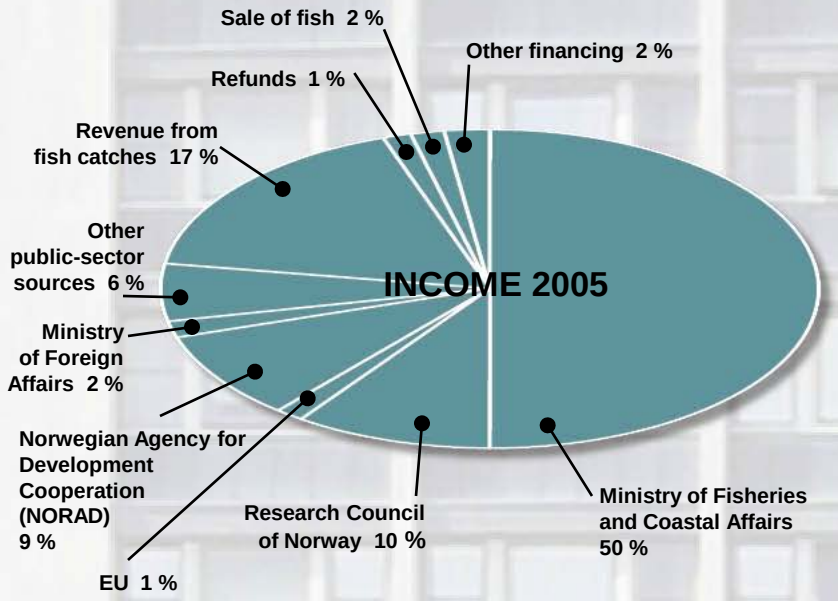
Bergen: the IMR headquarters. Offices and laboratories in several buildings at Nordnes

▸ Research for better management advice

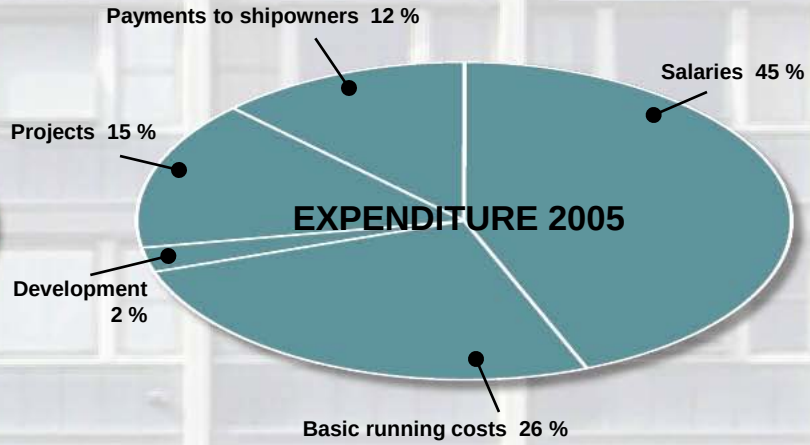
- on AQUACULTURE
- on THE ECOSYSTEMS of
  - the Barents Sea
  - the Norwegian Sea
  - the North Sea
  - the Norwegian coastal zone

► 50 % financed by the Ministry of Fisheries and Coastal Affairs

Our goal is to help ensure that Norway can harvest from the marine resources today and in the future



TOTAL: NOK 680 MILL.



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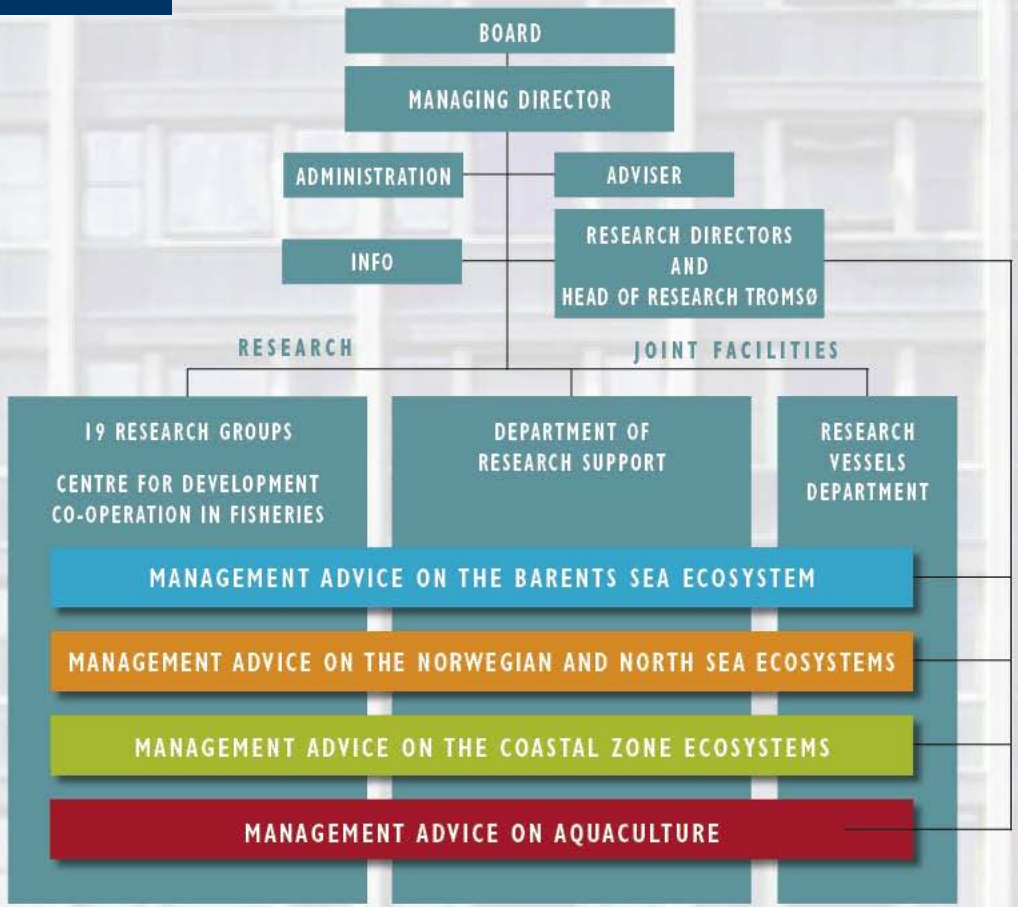
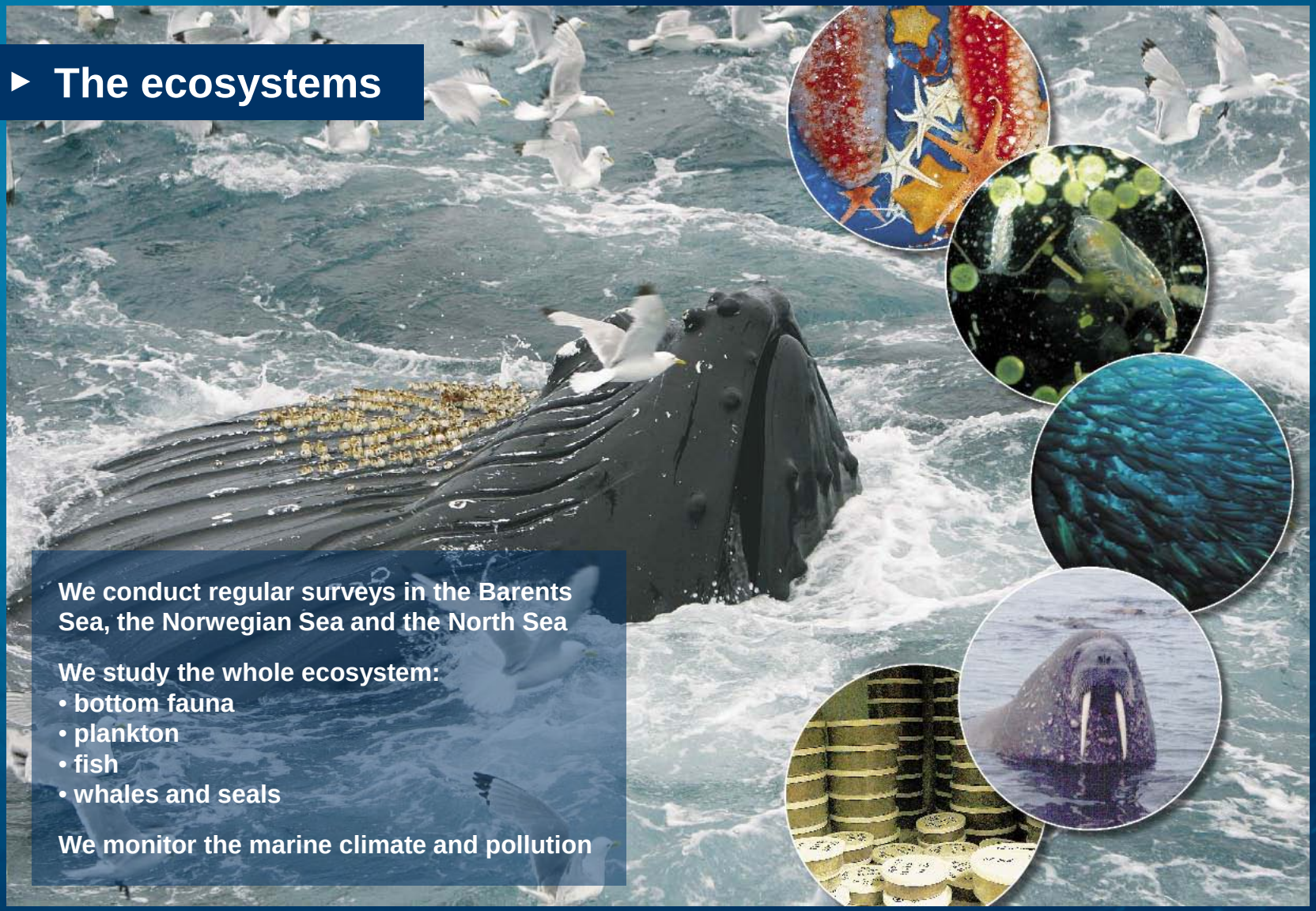
Organisation



The ecosystems



We conduct regular surveys in the Barents Sea, the Norwegian Sea and the North Sea

We study the whole ecosystem:
- bottom fauna
- plankton
- fish
- whales and seals

We monitor the marine climate and pollution

The research vessels

Our most important tools for collecting data on the ecosystems

CRUISE ACTIVITY

Vessel	Days at Sea
G.O. Sars	317
Johan Hjort	300
Håkon Mosby	309
G.M. Dannevig	174
Dr. Fridtjof Nansen	349
Fangst	162
Chartered vessels	1048
Total	**2659**

G.O. SARS
BUILT: 2003
4067 GRT.
L.o.a.: 77,5 M

JOHAN HJORT
BUILT: 1990
1828 GRT.
L.o.a.: 64,4 M

G.M. DANNEVIG
BUILT: 1979
171 GRT.
L.o.a.: 27,9 M

HÅKON MOSBY
BUILT: 1980
701 GRT., L.o.a.: 47,2 M
OWNER: UNIVERSITY OF BERGEN

DR. FRIDTJOF NANSEN
BUILT: 1993
1444 GRT.
L.o.a.: 56,8 M
OWNER : NORAD

Research groups targeting the ecosystems

- THE BARENTS SEA
- THE NORWEGIAN SEA AND THE NORTH SEA
- THE COASTAL ZONE

Study what affect the ecosystems:
- climate
- human activities
- stock interactions

Provides the basis for management advice

- **The Barents Sea: top prioritiy for several decades**

▸ Focus on: Bottom fauna

Improve our understanding of the role of bottom fauna in the ecosystem

- **research group: Bottom habitats**
- **mapping of and research on coral reefs**
- **in MAREANO: mapping of bottom fauna in the Barents Sea**

Document effects of:
- **bottom trawling**
- **climatic changes**
- **oil and gas industry**
- **introduced species (king crab)**

▸ Focus on: Climate effects

We have monitored the climate in Norwegian waters since the 1920s

Climatic changes may:
- alter the composition of species in the marine ecosystem
- affect the growth, migration and distribution of fish

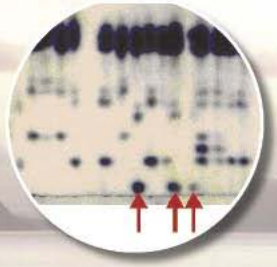
Studies performed by the research group on Oceanography and Climate Participation in the Bjerknes Centre for Climate Research

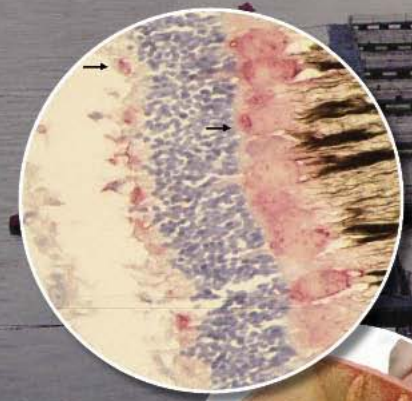
▸ Focus on: Environmental effects of aquaculture

Such as:
- **spread of salmon louse**
- **transfer of DNA from escaped to wild fish**
- **pollution**

Multidiciplinary expertise and the facilities needed to provide management advice

▸ Many fields within aquaculture





- **POPULATIOIN GENETICS**
  genetic characterisation of wild and farmed fish
- **MARINE GENOME RESEARCH**
  composition and function of the DNA of marine species
- **PHYSIOLOGY OF GROWTH AND REPRODUCTION IN FISH**
  environmental effects on growth and sexual maturation in fish
- **FISH WELFARE IN AQUATIC PRODUCTION**
  prevention of stress, pain and disease
- **FISH HEALTH AND DISEASE**
  spread of disease and preventive treatments
- **FEED, FEEDING AND QUALITY**
  uptake and utilisation of nutrients in feed

▸ The research stations

AUSTEVOLL, MATRE AND FLØDEVIGEN

Mostly used for aquaculture research, but also other experiments such as:

- **acoustic measuring of krill**
- **spawning behaviour of herring**

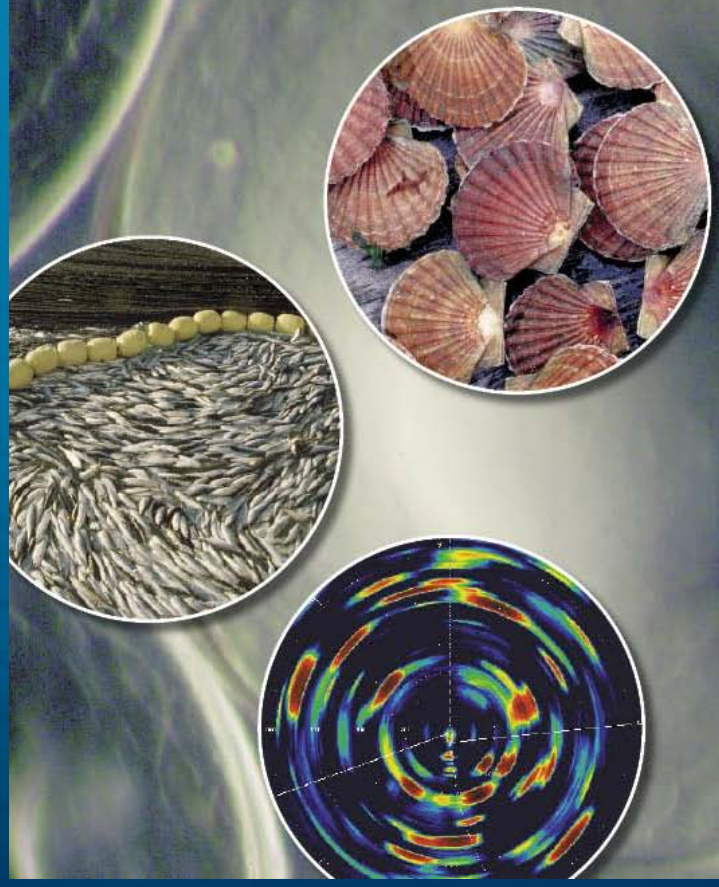
Matre Research Station

Upgraded in 2006 into one of the world's most advanced research stations

Research on salmonid farming since 1971. Several methods now in worldwide use.

Today: Increased focus on fish behaviour

▸ Other research groups



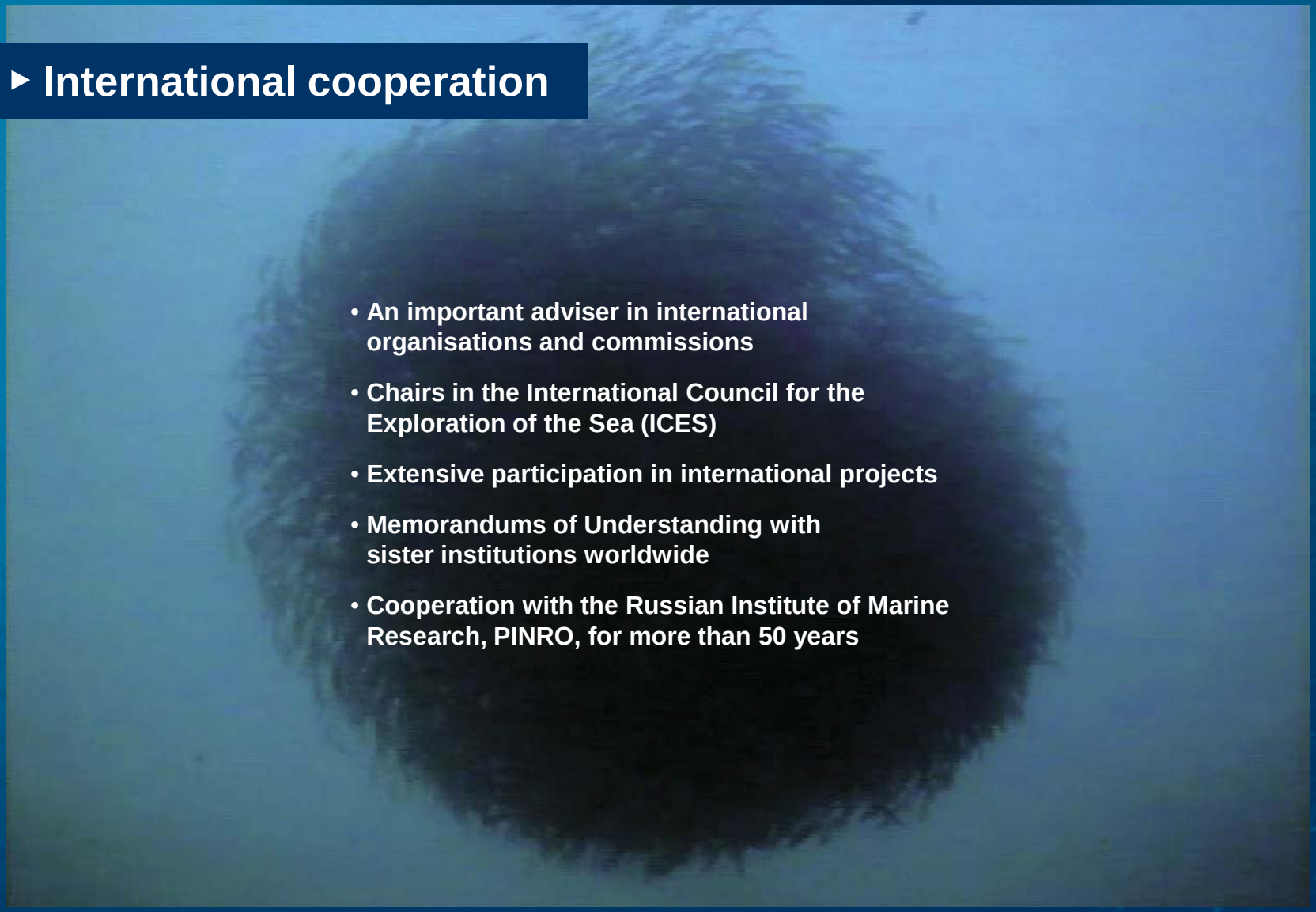
- **PLANKTON**
  phyto- and zooplankton and their role in the ecosystem
- **SHELLFISH**
  species living near the sea bed and sea ranching of shellfish
- **MARIN ENVIRONMENT QUALITY**
  chemical pollution
- **FISHERIES AND FISH STOCKS**
  collection of fisheries data and their use in stock assessment
- **OBSERVATION METHODOLOGY**
  technology and methods for data collection, including acoustics
- **MARINE MAMMALS**
  seals and whales
- **RESPONSIBLE FISH CAPTURE**
  fish behaviour and development of capture methods
- **RECRUITMENT BIOLOGY AND BEHAVIOUR**
  what affects the production of eggs and larvae

Centre for Development Cooperation in Fisheries

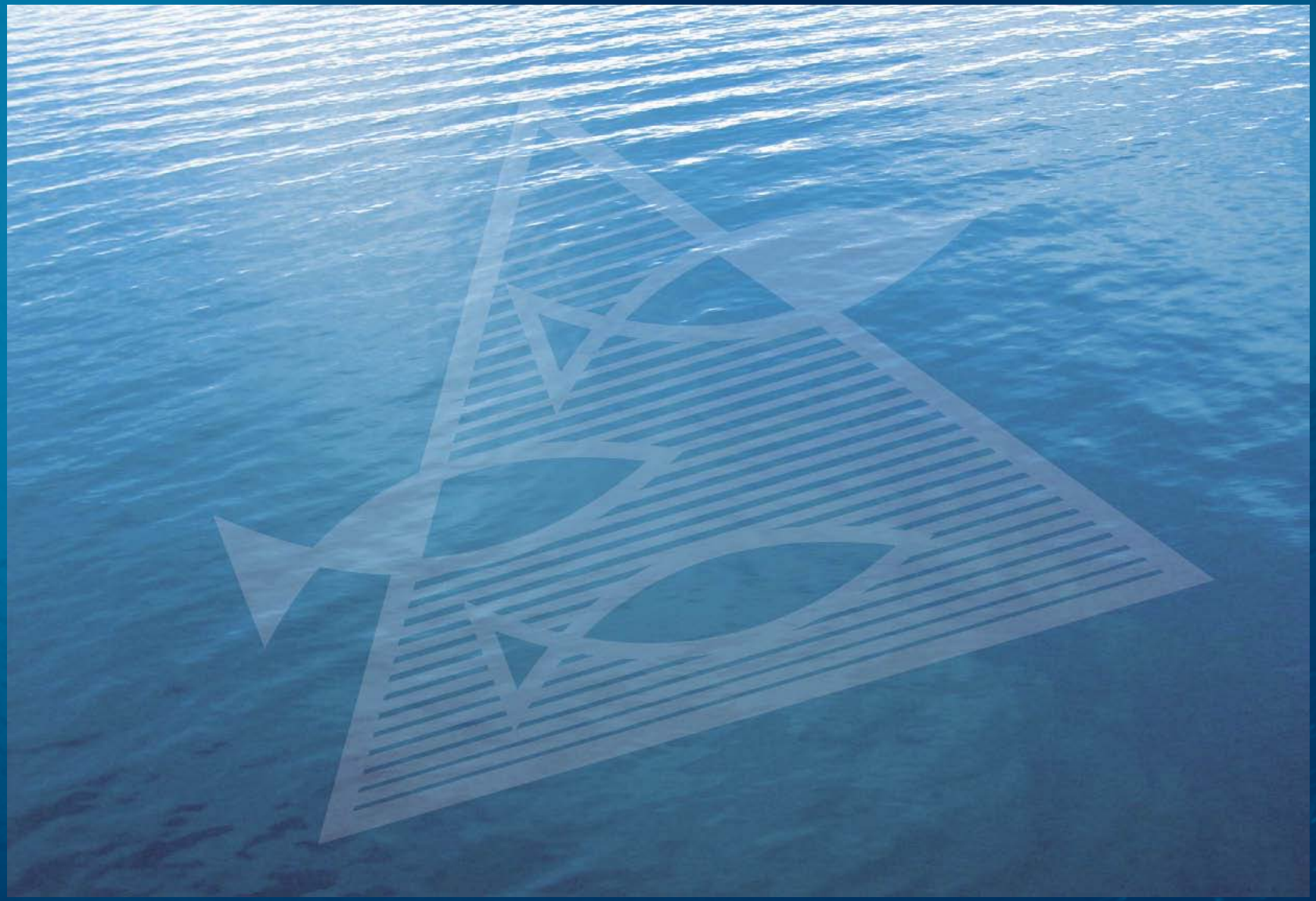
Support to develop research and fisheries management systems in developing countries

Projects in more than 40 countries over the past 30 years

▸ International cooperation

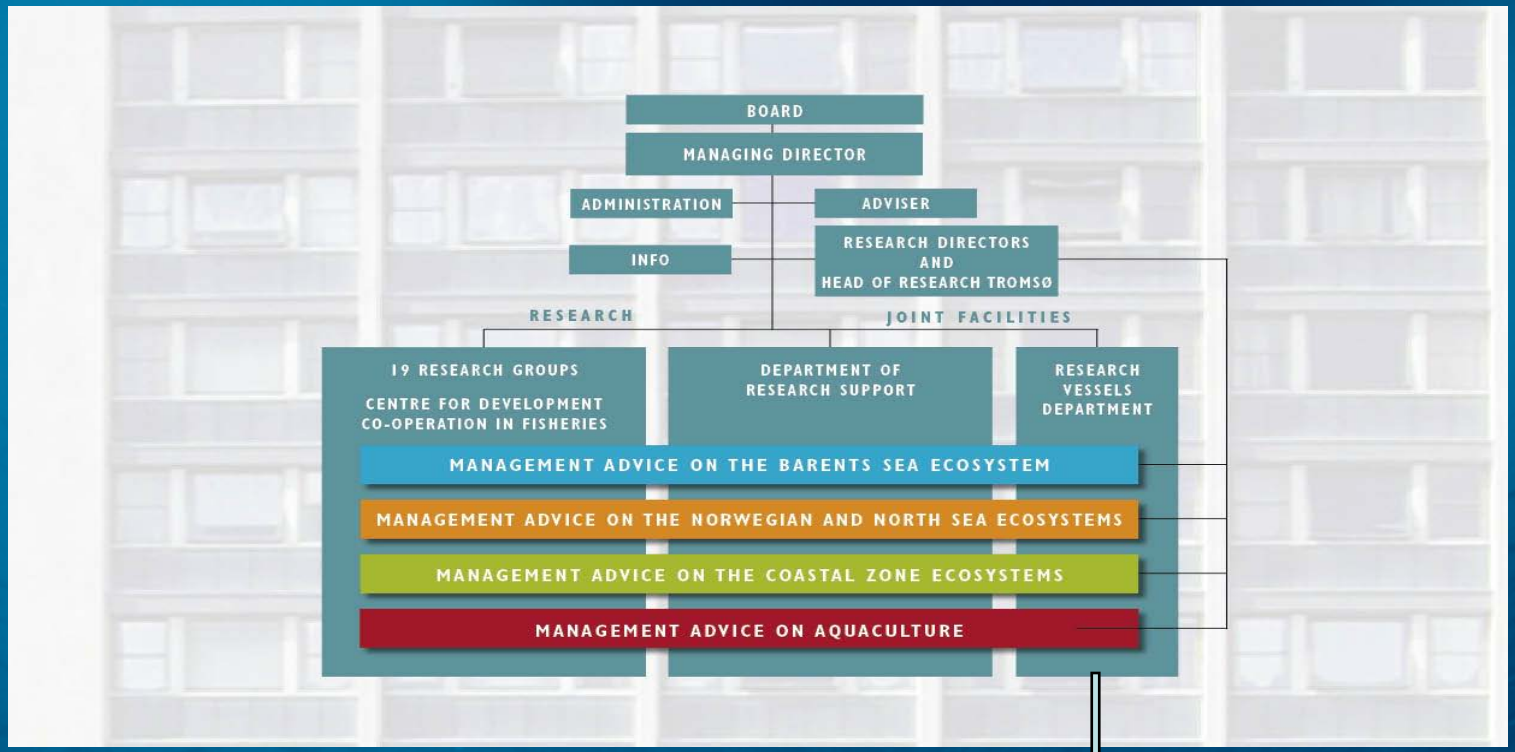


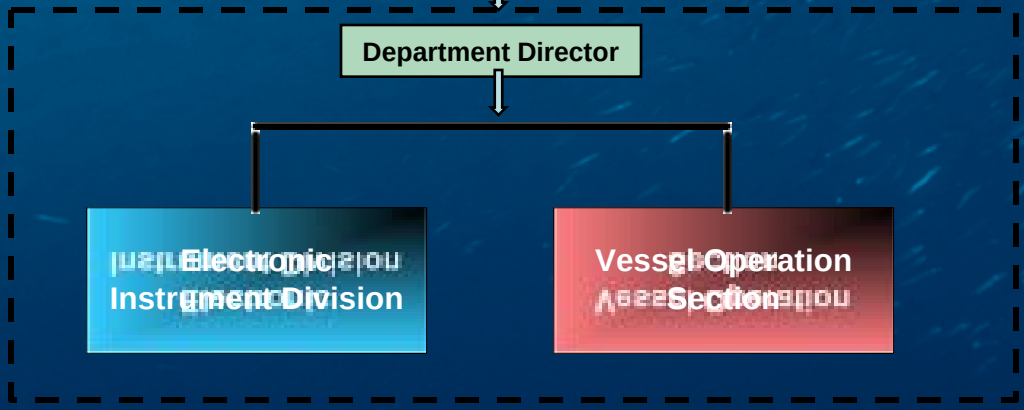
- An important adviser in international organisations and commissions
- Chairs in the International Council for the Exploration of the Sea (ICES)
- Extensive participation in international projects
- Memorandums of Understanding with sister institutions worldwide
- Cooperation with the Russian Institute of Marine Research, PINRO, for more than 50 years



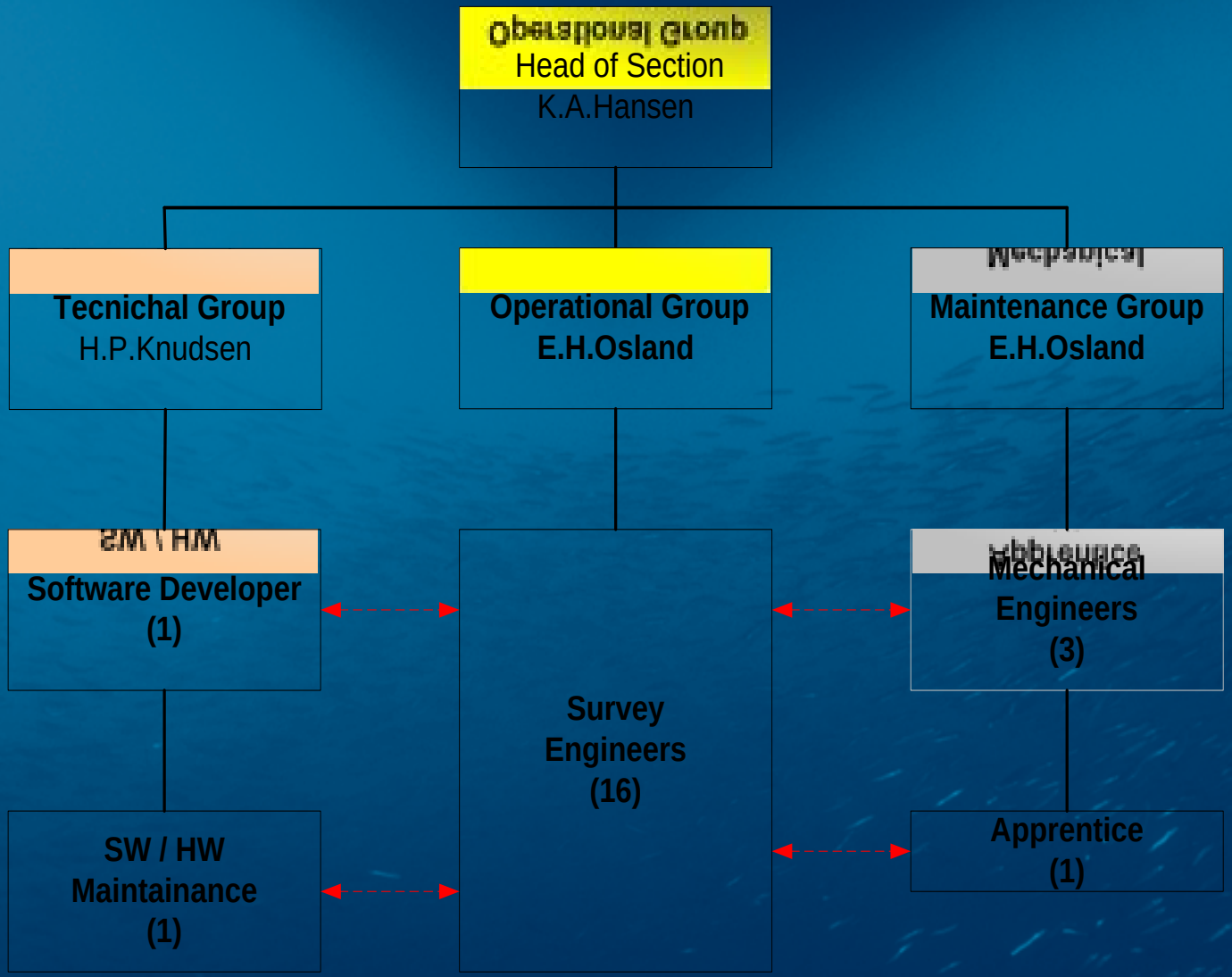
Electronic Instrument Division

Research Vessel Department





Electronic Instrument Division



Main tasks

- Calibration, operation and maintainance of all scientific equipment onboard
- Operation and maintainance of data network and communication equipment
- Assisting in maintainance of navigational equipment
- Responsible for execution of valid measurement methods and quality evaluation of collected acoustic data
- Responsible for maintainance and preparation of land based portable equipment for survey work

Staff (1)

- 5 Land based engineers
- 5 Partly land based engineers
- 16 Survey engineers

- For support on administrative matters, we are utilizing the departments common office services

Staff (2)

- In addition to general survey work, each engineer has been assigned an in-depth-study instrument category where he(she) has the main responsibility
- These categories are :

CTD- operations

ROV –operations

ADCP -equipment

Trawl instrumentation

Plankton nets equipment

Electronic scales and measurings boards

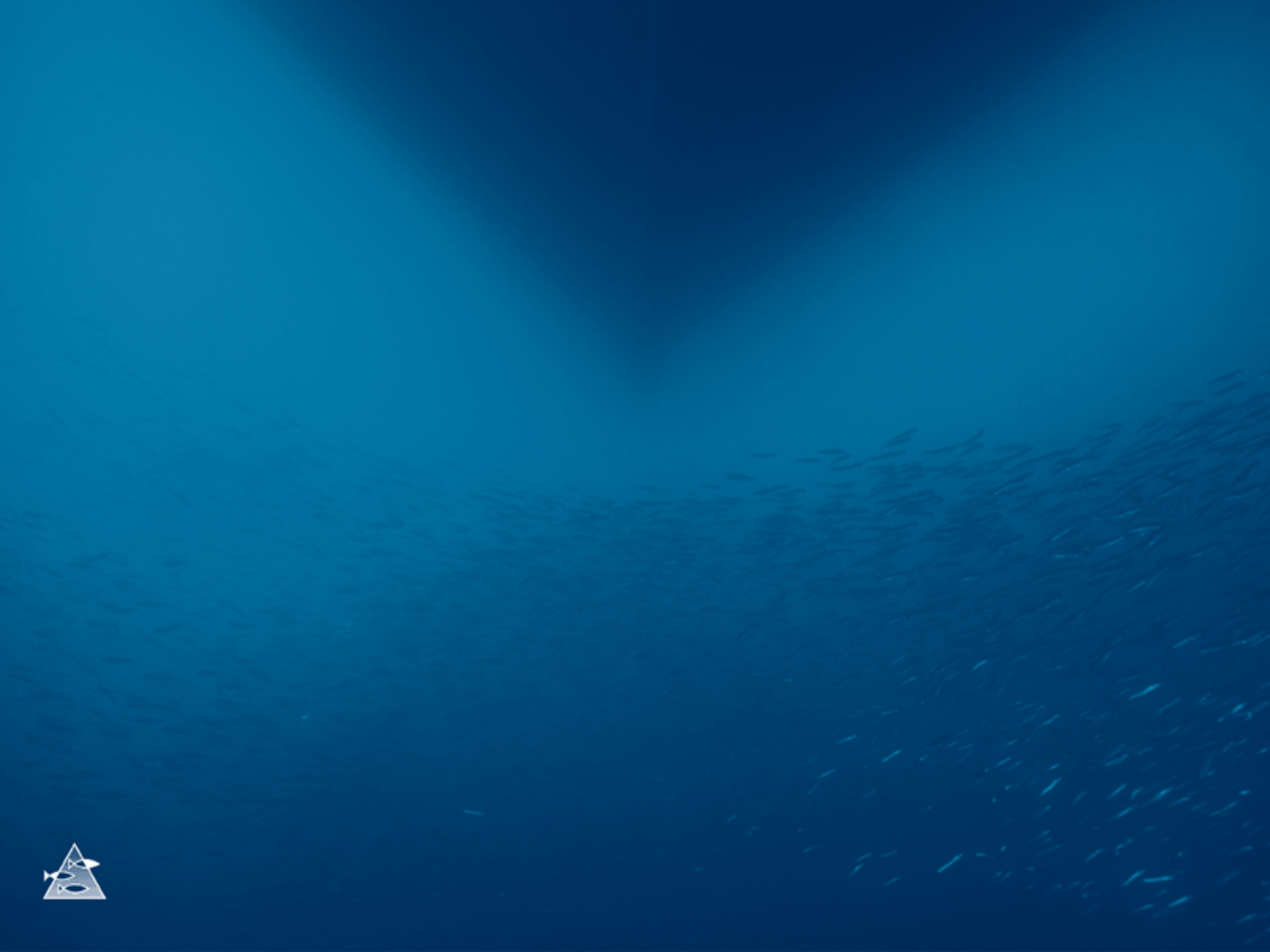
Presicion navigation equipment

Seabed mapping

Coring equipment

Computer and network

OPC- operations



Facilities

Apart from the operational offices in Bergen we have :

- CTD- calibration laboratory
- Workshop for calibration and maintainance of electronic scales and measuring boards (FishMeters)
- Small mechanical workshop
- Workshop for mending and production of different plankton nets
- Storerooms for scientific equipment
- Calibration field for acoustic equipment
- Workshop and storage for large scientific equipment (ROV's, towed bodies, seismic equipment, etc.)
- Workshop for control measurement and maintainance of trawl gears

In Tromsoe we have store facilities for trawl gears and scientific equipment together with the University of Tromsø

IMR/UiB Equipment Pool

- In 2003 IMR and UIB established a joint Equipment Pool for scientific equipment used on research vessels owned by the two institutions.
- The IMR/Electronic Instrument Division has had the operational responsibility for the pool, including preparation and maintenance work.

National Instrument Pool

- In the autumn 2005 a National Marine Instrument Pool (NIT) was established in Norway. The following 9 institutions are members :

  Institute of Marine Research (IMR)

  Norwegian Polar Institute (NPI)

  Defense Research Institute (FFI)

  Norwegian Geological Survey (NGU

  University of Bergen (UiB)

  University of Oslo (UiO)

  University of Tromsø (UiTø)/Norw. College of Fishery Science (NFH)

  The University Centre in Svalbard (UNIS)

  Norwegian Geological Survey (NGU)

- The Research Council of Norway (RCN) has observer status

National Instrument Pool (cont.)

- Equipment might be owned by the National Instrument Pool and utilized be several institutions .
- Equipment utilization rate will thereby increase
- Purchase of new expensive equipment might have a common funding instead of each institutions individually requesting grants for bying their own equipment

Equipment database

- The IMR has a detailed internal equipment database
- Parts of the database is exported and can be viewed at

  http://www2.imr.no/equipment

- The idea is that this exsternal database could be shared by our partners in the National Instrument Pool (NIT)

Quality Control System

- The Research Vessel Department are building up a quality control system to cover most of its operations.
- The aim is to achieve ISO 9001:2000 certification.
- The system also includes detailed procedures for handling and operation of all kind of scientific equipment on board our vessels together with descriptions for logging and post processing of data.

Future development in Norway

- More joint purchases and utilization of equipment
- More joint use of research vessels
- More used of well equipped commersial fishing vessels
- Need for more specialized and skilled engineers
- Need for more data analysis and post processing systems