**Appendix 10**

**JOINT RUSSIAN – NORWEGIAN SCIENTIFIC RESEARCH PROGRAM ON LIVING MARINE RESOURCES IN 2025**

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### 1. Planning and coordination of investigations and submitting of results.

This appendix contains the program for investigations to be carried out in 2025 by Russia and Norway within the frames of the bilateral cooperation between the Norwegian and Russian Parties. The program is in accordance with the national research programs.

Planning and co-ordination will be settled between the institutes involved.

Russian and Norwegian research institutes will exchange results and data from agreed investigations.

Norwegian and Russian scientists and specialists will meet online during 17-19 March 2025 to discuss research programs and co-ordinate survey plans for the rest of 2025. The cruise plans listed below are preliminary and may change. Missing names of vessels and periods for surveys in this report will be agreed by correspondence, latest by the annual Russian-Norwegian scientists’ meeting. Survey plans and methodology for preparing biological and acoustic data will be discussed and coordinated. Urgent data from surveys carried out before the scientists’ meeting will be exchanged by correspondence after agreement with the relevant institutions.

It is very important that future work takes into account the knowledge of recent developments in the ecosystem, such as environmental conditions, distribution and stock sizes of commercially and ecologically important species, invasive species and species interactions.

A preliminary program for the planned surveys and cooperation for 2025 is presented below. The outlined plans should be considered as a draft and will be shared when final plans are available.

In order to increase robustness of surveys the parties considered increasing the flexibility of mutual access to each other’s zones. Different mechanisms are possible and need to be considered further. Appropriate applications for research vessels entering the EEZ’s must be ready in sufficient time before Winter and Barents Sea ecosystem surveys.

Assessments of shared stocks will be carried out by the Joint Russian-Norwegian Working Group on Arctic Fisheries (JRN-AFWG).

### 2. Investigations on fish and shrimp stocks, including stock size, structure and distribution.

IMR and VNIRO will continue the research and monitoring of the most important commercial species, stock structure and distribution. The parties will exchange primary information during joint investigations according to the agreed formats.

***Norwegian surveys***

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-2-01 | Survey title: | Cod spawning stock |
| Organization: | IMR | | |
| Time period: | March – April | Vessel: | R.V. “Johan Hjort” |
| Target species: | Cod | Secondary species: | Haddock, saithe |
| Area: | Spawning areas in Troms – Lofoten. | | |
| Purpose: | Acoustic survey of the North East Arctic Cod spawning stock. Investigations on maturity, fecundity and egg abundance. | | |
| Reported to: | IMR survey report, ICES AFWG, JRN-AFWG | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-2-02 | | Survey title: | Fjord and coastal ecosystem survey |
| Organization: | IMR | | | |
| Time period: | October-November | | Vessel: | R.V. “Johan Hjort”  R.V. “Prinsesse Ingrid Alexandra” |
| Target species: | Saithe, coastal cod, 0-group herring | | Secondary species: | Haddock, *Sebastes norvegicus* |
| Area: | Norwegian fjords and coastal areas. | | | |
| Purpose: | Acoustic and trawl abundance estimation of saithe, coastal cod and other groundfish species. Acoustic abundance estimation of 0-group herring. Environmental investigations. | | | |
| Reported to: | IMR survey report, ICES WGWIDE, ICES AFWG | | | |
|  | |  |  |  |
| Nation:  Reference No.: | | Norway  N-2-03 | Survey title: | International ecosystem survey in the Nordic Seas |
| Organization: | | IMR | | |
| Time period: | | May – June | Vessel: | R.V. “G.O. Sars”,  3 international R.V. |
| Target species: | | Herring, blue whiting | Secondary species: | Other pelagic species |
| Area: | | The Norwegian Sea, fishing zone of the Faeroe Islands, international waters, Exclusive Economic Zone of Norway, UK fishery zone, The Barents Sea and adjacent waters, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation. | | |
| Purpose: | | Estimation of year-class strength, abundance and biomass of herring and blue whiting, studies of their distribution and behaviour, marine mammal distribution and quantity. Acoustic survey of the stocks, oceanography, plankton. | | |
| Reported to: | | ICES WGWIDE | | |

***Norwegian and Russian surveys***

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Russia/Norway  J-2-01 | Survey title: | Winter Ecosystem trawl-acoustic survey for demersal fish stocks (Winter Survey)\* |
| Organization: | IMR, VNIRO | | |
| Time period: | January-March | Vessel: | R.V. “Kronprins Haakon”  R.V. “Johan Hjort”  R.V. “Vilnyus” оr оther R.V. |
| Target species: | Cod, haddock, saithe, catfishes, redfishes, Greenland halibut, plaice, herring, capelin, polar cod, shrimp, snow crab | Secondary species: | Other pelagic and demersal fish species, benthic organisms, marine mammals and sea birds, oceanographic and hydrobiological parameters |
| Area: | The Barents Sea and adjacent waters, international waters, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation, Exclusive Economic Zone of Norway, Spitsbergen area. | | |
| Purpose: | Estimation of year-class strength, abundance and biomass of cod, haddock and other demersal species. Collection of biological samples, oceanographic measurements. | | |
| Reported to: | Joint IMR/ VNIRO Report Series, JRN-AFWG | | |

\*Russian part as a part of comprehensive marine investigations in the Northern Seas of the Russian Federation after agreement with relevant institutions.

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Russia/Norway  J-2-02 | Survey title: | Ecosystem survey in the Nordic Seas (if funding is secured) |
| Organization: | IMR, VNIRO | | |
| Time period: | March – May | Vessel: | R.V. “G.O.Sars”,  R.V. “Vilnyus” or other R.V.,  3 international R.V. |
| Target species: | Herring, blue whiting | Secondary species: | Other pelagic species |
| Area: | The Norwegian Sea, fishing zone of the Faeroe Islands, international waters, Exclusive Economic Zone of Norway, UK fishery zone, The Barents Sea and adjacent waters, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation. | | |
| Purpose: | Estimation of year-class strength, abundance and biomass of herring and blue whiting, studies of their distribution and behaviour, marine mammal distribution and quantity. Acoustic survey of the stocks, oceanography, plankton. | | |
| Reported to: | Joint IMR/ VNIRO Report Series | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Russia/Norway  J-2-03 | Survey title: | Ecosystem survey in the Barents Sea and Adjacent waters of the Arctic Ocean (BESS)\* |
| Organization: | IMR, VNIRO | | |
| Time period: | August-October | Vessel: | R. V. “Vilnyus” or other R.V.  R.V. “G.O. Sars”  R.V. “Johan Hjort”  R.V. “Helmer Hanssen” |
| Target species: | Cod, haddock, saithe, catfishes, redfishes, Greenland halibut, plaice, herring, capelin, polar cod, shrimp, snow crab | Secondary species: | Other pelagic and demersal fish species, benthic organisms, marine mammals and sea birds, oceanographic and hydrobiological parameters |
| Area: | The Barents Sea and adjacent waters, Spitsbergen area, Exclusive Economic Zone of Norway, international waters, Exclusive Economic Zone of the Russian Federation, and territorial waters of the Russian Federation. The Kara Sea, Arctic Ocean. | | |
| Purpose: | Investigations of distribution and abundance of 0-group of different fish species, estimation of abundance and biomass of pelagic and demersal fish species, including Greenland halibut juveniles, shrimp, snow crab, mapping marine mammal and sea bird distribution and quantity. Oceanography, plankton, benthos, species interactions, sampling for determining pollution levels. | | |
| Reported to: | Joint IMR/VNIRO Report Series, NAFO WGHARP, JRN-AFWG | | |

\*Russian part as a part of comprehensive marine investigations in the Northern Seas of the Russian Federation after agreement with relevant institutions.

### 3. Research program on deep sea fishes

To assess the stock of *Sebastes mentella* in the open Norwegian Sea a redfish survey has been established. This survey was run as a coordinated effort by Norway, Russia and the Faroes in 2009. It was not conducted in 2010-2012, but was run by Norway in September 2013, August 2016, August 2019 and August 2022. Results are reported to JRN-AFWG.

A multi annual survey plan for monitoring of deep-sea species is in action for Norwegian surveys. In 2025 the northern deep-water slope will be surveyed with Greenland halibut and beaked redfish as main target species. In 2024 the southern deep-water slope was surveyed with Greater argentine, beaked redfish and Greenland halibut as main target species.

Indices for Greenland halibut are derived from the Ecosystem Survey (BESS), and precursor surveys. In this context, it is important that coverage of the nursery area in the northern Barents Sea and northern Kara Sea is sustained in the survey.

According to this, the following surveys will be carried out in 2025:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | | Norway  N-3-01 | Survey title: | Northern Deepwater Slope Survey (Egga-Nord) |
| Organization: IMR | | | IMR | |
| Time period: | | November | Vessel: | R.V. “G.O.Sars” |
| Target species: | | Greater argentine, beaked redfish and Greenland halibut | Secondary species: | Other deepwater species and elasmobranches |
| Area: | | | Ecosystem along the Norway slope from 68 to 80 degrees north. | |
| Purpose: | Primary objective: to assess the state of commercial deepwater fish stocks. Secondary objective: to monitor the state of deepwater ecosystems along the slope. Part of IMR's multiannual survey strategy for deepwater species. | | | |
| Reported to: | IMR survey report, ICES AFWG, ICES WGEF, ICES WGDEEP, ICES WGIDEEPS, JRN-AFWG | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Nation:  Reference No.: | | Norway  N-3-02 | Survey title: | | Norwegian Sea Deepwater Pelagic |
| Organization: | | | IMR | | |
| Time period: | | August | Vessel: | | R.V. “G.O.Sars” |
| Target species: | | Beaked redfish | Secondary species: | | Other Deep water species and elasmobranches |
| Area: | Norwegian Sea deep water. | | |  |  |
| Purpose: | Primary objective: To assess the stock of *Sebastes mentella* in the open Norwegian Sea.  Secondary objective: Part of IMR's multiannual survey strategy for deepwater species. | | | | |
| Reported to: | IMR survey report, ICES AFWG, ICES WGDEEP, ICES WGIDEEPS, JRN-AFWG | | | | |

### 4. Red king crab (*Paralithodes camtschaticus*) and snow crab (*Chionoecetes opilio)*

The Parties exchanged information about the ongoing national red king crab and snow crab research and fishery in 2024 and the research plans for 2025.

The Parties agreed that some of the questions of biology, stock assessment and fishery of crabs require further research. The parties confirmed their intention to continue the study of the following issues:

- Ecological role of the red king crab and the snow crab in the Barents Sea;

- Main life history parameters of these two new crab species in the Barents Sea;

- New methods for crab stock assessments and monitoring (sampling gears, survey area etc.).

Scientists from Russia and Norway will conduct a number of national surveys on the red king crab and snow crab in the Barents Sea. The objectives of these surveys are: to assess distribution, abundance, size/sex composition and biological characteristics of the crabs, in addition to tagging experiments.

Information will be exchanged between scientists and the results will be presented in survey reports and publications.

### 5. Fishing technology and selectivity of fishing gears

Research activity in these fields continues to be carried out with the aim to:

- develop fishing gears that are more species and size selective and have less negative impact on fish that escape the gear, and have less negative ecosystem effects in general;

- improve survey gears and methodology.

### 6. Marine mammals

The Russian-Norwegian research program on marine mammals should be aimed at assessments of distribution and abundance of the most important species and their trophic linkages, with particular emphasis on fish. The low population size of hooded seals in the Greenland Sea in recent years requires increased research and monitoring effort.

Norwegian activities in 2025 include efforts to keep the populations of harp and hooded seals data rich (i.e., data used in assessment models should be less than 5 years old), and to improve the models used in the assessments of these stocks. Analyses of biological material from hooded seals, collected during research surveys in the Greenland Sea (the West Ice), and from harp seals, collected during commercial seal hunt in the West Ice and in the south-eastern parts of the Barents Sea (the East Ice), continues. Furthermore, boat-based surveys to estimate abundance and genetic structuring of harbour seals will be carried out in Norwegian coastal areas. These surveys are included in a five-year cycle (2022-2026) which will result in a new, updated population estimates for the entire Norwegian coast in 2026. Comprehensive line-transect sighting surveys for minke whales (and other whales) will be conducted in the Norwegian Sea in 2025. These surveys were previously based on annual effort over a six-year cycle of dedicated sighting surveys which resulted in new, updated whale estimates for the Northeast Atlantic area. From 2025, the whale sighting surveys will be performed on multipurpose cruises, primarily as part of a cruise designed for mackerel assessment. Experiments with tagging of minke whales by a new type of electronic tags will be carried out in Norway as well as experiments to test effects of acoustic alarms to reduce interactions of humpback and killer whales with coastal fisheries.

Russian activities in 2025 will include the traditional study of correlation between ice conditions in the White Sea and adjacent areas of the Barents Sea and harp seals of the White Sea/Barents Sea population. Scientific observers onboard commercial fisheries vessels will collect data on marine mammal distribution in the North Atlantic, including the Barents Sea. Traditional annual coastal and motor-boat surveys with the purpose to observe marine mammal species and to collect biological material will be carried out. Sampling of biological material will be performed during the Russian commercial harp seal hunt (if there is hunt). Also, there are plans to continue work on the improvement of the White Sea/Barents Sea harp seal population abundance assessment model.

Joint observations of marine mammals on the ecosystem surveys will continue.

***Norwegian surveys***

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-01 | Survey title: | Monitoring of biological parameters, harp seals |
| Organization: | IMR | | |
| Time period: | March-May | Vessel: | 1 sealer |
| Target species: | Harp seal | Secondary species: |  |
| Area: | Greenland Sea | | |
| Purpose: | Collection of biological material from harp seals during commercial sealing. | | |
| Reported to: | ICES, NAMMCO, JNRFC | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-02 | Survey title: | Fisheries survey-based line transects of minke whales and other cetaceans |
| Organization: | IMR | | |
| Time period: | July - August | Vessel: | Rented vessels |
| Target species: | Minke whales | Secondary species: | Other marine mammals |
| Area: | Norwegian Sea, including the Jan Mayen zone. | | |
| Purpose: | Marine mammal observations on the annual Norwegian mackerel survey, to assess abundance of minke whales, and abundance, distribution and species composition of other marine mammals. | | |
| Reported to: | IWC, NAMMCO | | |
|  |  | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-03 | Survey title: | Satellite tagging and biopsy sampling of minke whales, and testing of image-based observation methods for marine mammals | |
| Organization: | IMR | | | |
| Time period: | May- August | Vessel: | | IMR or rented vessel for a 2-3-week campaign in the period mid-May to late August. |
| Target species: | Minke whales | Secondary species: | | Humpback whales, fin whales, other marine mammals |
| Area: | Coast of North Norway, shelf regions between Northern Norway, Bjørnøya and South Cape (Svalbard) | | | |
| Purpose: | See title | | | |
| Reported to: | IWC, NAMMCO | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-04 | | Survey title: | Boat- and drone-based studies of harbour seal abundance |
| Organization: | IMR | | | |
| Time period: | August-September | | Vessel: | Rented vessel |
| Target species: | Harbour seals | Secondary species: | |  |
| Area: | Troms and Finnmark | | | |
| Purpose: | Estimation of the total number of harbour seals by visual observations and use of drones. | | | |
| Reported to: | NAMMCO, ICES | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-05 | Survey title: | | Boat based survey of harbour seal genetic structure |
| Organization: | IMR | | | |
| Time period: | June | Vessel: | Rented vessel | |
| Target species: | Harbour seals | Secondary species: |  | |
| Area: | Finnmark | | | |
| Purpose: | Collection of tissue samples from harbour seal pups for subsequent DNA analyses. | | | |
| Reported to: | NAMMCO, ICES | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nation:  Reference No.: | Norway  N-6-06 | Survey title: | Testing methods to avoid whales in purse seine fisheries |  |
| Organization: | IMR | | | |
| Time period: | November | Vessel: | Rented vessel | |
| Target species: | Humpback whales | Secondary species: | Killer whales | |
| Area: | North Norwegian coast (Troms-Finnmark) | | | |
| Purpose: | Test effect of acoustic alarms to reduce interactions between whales and purse seine fisheries for herring. | | | |
| Reported to: | IWC, NAMMCO | | | |

***Russian surveys***

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Russia  R-6-03 | Survey title: | Marine mammal coastal research and observations including collection of biological samples |
| Organization: | VNIRO (Polar Branch) | | |
| Time period: | March-September | Vessel: | Coastal expedition with the use of available transport and different types of motor-boats |
| Target species: | Harp seal, minke whale, fin whale, humpback whale white whale, ringed, grey, common, and bearded seals | Secondary species: | Other species of marine mammals and fishes |
| Area: | Coast of the Barents and White Seas. | | |
| Purpose: | Collection of biological data, study of distribution and migration routes, estimation of numbers, marine mammals monitoring, assessment of marine mammal influence on fish species, assessment of climatic changes and human activities on marine mammals, data for ecosystem modelling. | | |
| Reported to: | Internal VNIRO (Polar Branch) survey reports, JRNFC | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Nation:  Reference No.: | Russia  R-6-04 | Survey title: | Opportunistic marine mammal sightings during Russian ecosystem and complex surveys in the Barents Sea (if funding is secured) |
| Organization: | VNIRO (Polar Branch) | | |
| Time period: | February-October | Vessel: | PINRO research vessels |
| Target species: | Minke whale, fin whale, humpback whale, white whale, white-beaked dolphin | Secondary species: | Hooded seal, harp, ringed, grey, common, and bearded seals, walrus, and other species of marine mammal, seabirds, fish schools, oceanographic and hydrobiological parameters |
| Area: | The Barents Sea including coastal zone and south-eastern part of the Norwegian Sea | | |
| Purpose: | Study of marine mammal distribution and abundance in relation to environmental conditions, fish species and other marine organisms distribution for better understanding of the effect of marine mammals on the main commercial fishes and for use in ecosystem models for management of commercial living marine resources | | |
| Reported to: | Internal VNIRO (Polar Branch) survey reports, JRNFC | | |

### 7. Investigations on age determination of fish

VNIRO and IMR’s views on age reading methods needs further exploration towards a common best practice. A system for quality assurance of age reading techniques for all shared stocks needs to be implemented. These points will be addressed during the annual meeting of Russian and Norwegian scientists in March 2025.

### 8. Investigations on survey methodology, index calculations and assessment methods

***Handling and exchange of data for assessments***

Russian and Norwegian scientists and technical experts continue to develop new databases and software to make stock size estimates in a consistent, common, and quality assured way.

***Surveys in the Barents Sea***

Russian and Norwegian institutions see the need to continue the optimization of survey strategies, given the limited access to resources, both in terms of experts, vessels and financial supporting for such activities. This issue remains one of the most difficult and requires very careful consideration. Many aspects such as assessment needs, finance, prioritization of work, timing etc. need be taken into account. Scientists will discuss survey strategies and implementation of an appropriate multi-year survey plan during the annual scientist meeting.

### 9. Benchmarks and evaluation of harvest control rules

An overview of previous and planned benchmarks and evaluations of harvest control rules (HCR) of shared stocks are given in Table 1.

**Table 1**. An overview of previous and planned benchmarks and evaluations of harvest control rules.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Stock** | **Last benchmark** | **Planned benchmark** | **Last HCR evaluation** | **Planned HCR evaluation** |
| Cod | 2021 | \* | 2016 | \* |
| Haddock | 2020 | \* | 2016 | \* |
| S. mentella | 2018 | 2026 | 2018 | 2026 |
| G. halibut | 2023 | - | - | - |
| Capelin | 2022 | - | 2024 | - |

\*Timing will be discussed at the scientist meeting in March 2025.

The results of the work on harvest control rule evaluation for capelin and shrimp requested at the 53rd session of JNRFC and carried out inter-sessionally were presented and discussed at the 54th session of JNRFC.

The scientists will continue to work on comparing assessment models and modeling results for Greenland halibut and report on progress to the 55th session of JNRFC.

### 10. Research and long-term monitoring on benthic organisms

Long term monitoring on benthic organisms on both Russian and Norwegian side of the Barents Sea should be continued. This includes standardisation of trawl samples, processing and species identification.

Russian and Norwegian scientists will continue investigations of vulnerable habitats and species in the Barents Sea and adjacent waters.

### 11. Determination of conversion factors

Accurate conversion factors are necessary in order to estimate the actual catches of the joint exploited stocks. Varying fishing and processing conditions, such as fishing areas and seasons, length-weight characteristics, fishing gear, technological parameters of raw fish processing including different ways of processing (machine or manual), processing equipment, ways of freezing, packing and storage require continuous investigations. It is necessary to obtain additional data on conversion factors for fish and selected crustaceans, taking into account inter-annual biological variations and effects of fishing gear and technological processing equipment.

Russia and Norway will continue efforts to set accurate conversion factors for products of deep sea shrimp.

Research will be carried out in accordance with paragraph 4.2 of the Protocol of the Permanent Russian-Norwegian committee on management and control issues in the fisheries sector in 2021.

To determine conversion factors, Russian and Norwegian scientists will collect data on-board commercial vessels. Survey reports will be available for appropriate authorities in Russia and Norway.

### 12. Development of genetic database for fish species

The further development of joint VNIRO/IMR genetic database for Atlantic salmon populations will continue in 2025 and include sampling for farmed salmon escapees in coastal areas and in rivers. The aim of sampling for farmed salmon escapees in rivers is to provide data for quantifying genetic introgression of farmed fish into wild Atlantic salmon populations.

Russian and Norwegian scientists will continue to explore genetic polymorphism and to investigate population structure of several fish species in the Barents Sea. The studies are focused on but not confined to cod, capelin, polar cod and the redfish, with the DNA markers for these species to be identified within the next years. The basis for sampling is the surveys conducted by both sides. For polar cod, more samples from the southeastern Barents Sea are needed.

Various types of genetic markers for the identification of species within the genus *Sebastes* have been tested at IMR and VNIRO. IMR have collected fish samples that can be used for such analyses. Workshops on this topic should be planned for in the future.

### 13. Monitoring of pollution levels in the Barents Sea

VNIRO and IMR will continue to monitor pollution levels in accordance with national programs. Monitoring pollutants is an important task to understand potential impacts on the Barents Sea food web and related food safety. Samples of seawater, sediments and fish will be collected and analysed for organic pollutants, heavy metals and micro-plastic. Parties will continue monitoring of marine litter.

### 14. Monitoring of the hydrochemical conditions in the Barents Sea

Monitoring of the hydrochemical conditions in the Barents Sea will contribute to improving knowledge about the state and variability of the marine ecosystem. It was agreed to continue exchanging results of chemistry analysis of water samples utilizing national institutes.

### 15. Russian-Norwegian Fisheries Science Symposia

The 19th Joint Symposium, entitled “Multispecies management: species interactions and trade-offs, environmental changes and multiple pressures”, was held as a fully digital meeting 4-5 June 2024. The symposium had participation from several Russian and Norwegian institutions and was considered successful.

The program included 4 theme sessions with 33 presentations. The theme sessions were coordinated by the nominees from the Russian and Norwegian parties:

Session 1: Predation and competition (Tore Haug / Andrey Dolgov)

Session 2: Mixed fisheries and bycatch (Bjarte Bogstad / Konstantin Sokolov)

Session 3: Pressures on environment and ecosystems (Harald Gjøsæter / Andrey Krovnin)

Session 4: Multispecies and ecosystem modelling (Elena Eriksen / Yury Kovalev)

The symposium language was English, and Proceedings of the symposium will be published in the IMR/VNIRO Joint Report Series. The deadline for submitting contributions to the symposium Proceedings is set at 1 December 2024. In addition, authors with good contributions have been invited to submit manuscripts to be published in a special issue of the journal Progress in Oceanography. The deadline for submitting manuscripts is 1 February 2025. Guest editors for this special issue are Tore Haug, Bjarte Bogstad, Andrey Dolgov, Elena Eriksen and Andrei Krovnin.

### 16. Advisory process for shared stocks

The Joint Russian-Norwegian Working Group on Arctic Fisheries (JRN-AFWG) prepares data and assesses shared stocks in the Barents Sea (cod, haddock, capelin, Greenland halibut, redfish (*S. mentella*) and deep-sea shrimp). The finalization and approval of advice is made by an advisory committee, chaired by research directors of IMR and VNIRO.

The annual JRN-AFWG working schedule is as follows: Cod, haddock, Greenland halibut and *S. mentella* will be assessed at a meeting on dates agreed by the parties by correspondence during the March meeting in 2025. Capelin will be assessed in October immediately after the ecosystem survey. For Greenland halibut and *S. mentella*, advice will be for two years, while for the other stocks advice is given annually. There will be no new advice for Greenland halibut and *S. mentella* in 2025.

A working group report is made to document the advisory process for cod, haddock, Greenland halibut and *S. mentella*, and a separate report are made for capelin together with a draft advice. The draft advice will be reviewed and approved by the Advisory committee. The committee will meet two weeks after the end of the JRN-AFWG meeting, and as soon as possible after the capelin working group meeting.

Templates for assessment reports and advice have been agreed upon. The assessment report and advice are subsequently published in the joint report series between IMR and VNIRO. IMR will send the published version of working group reports and advice to appointed points of contact at VNIRO immediately after publication.

### 17. Data exchange

It was agreed to exchange data collected in scientific surveys and by observers on board of commercial vessels:

* all data collected in surveys relevant to stock assessments and environment conditions;
* field data on temperature and salinity in the Barents Sea with 1 m depth interval from oceanographic stations;
* results of hydrochemical analysis obtained during surveys in the Barents Sea;
* data on marine litter and pollution, including micro-plastic;
* mean length and weight at age as well as maturity at age used in commercial stock assessments;
* surveys abundance indexes and acoustic data used in commercial stock assessments;
* stomach content of commercially important species;
* otoliths and scales collected under the program for age validation of bottom and pelagic fish;
* data on plankton and benthic fauna;
* scales and tissue samples collected for further development of joint genetic database for Atlantic salmon;
* data on the biology of seals of the White Sea population (mortality, maturation, size-at-age, feeding data, ice conditions in the White Sea and adjacent waters of the southeastern Barents Sea);
* data on marine mammal and sea bird distribution and numbers from annual joint ecosystem surveys;
* fisheries statistics for key commercial fish species in ICES Sub-areas 1, 2a, 2b needed for stock assessments of commercial fishes (catches, age composition of catches, mean weights at age in catch).

The above list will be updated during the scientists meeting in 2025. All data should be exchanged as soon as possible after the agreement of the relevant institutions.

### 18. Research catch allocated for investigations of marine resources and monitoring

The catch volumes shall enable to carry out all tasks described in “Joint Norwegian – Russian Scientific Research Program on Living Marine Resources in 2025” including surveillance activities to provide recommendations on area closures/reopening as well as other decisions on management of fishing activities on living marine resources in ICES Subarea 1 and 2 including respective EEZs of Russia and Norway, international waters (“Loophole”) and Svalbard (Spitsbergen) area.

To solve these tasks the following catch quantities are decided and shall be available in equal parts for both Parties in 2025:

* 14 000 tonnes of cod in addition to volumes mentioned in Appendix 3
* 8 000 tonnes of haddock in addition to volumes mentioned in Appendix 3
* 100 tonnes of capelin in addition to volumes mentioned in Appendix 3
* 1 500 tonnes of Greenland halibut in addition to volumes mentioned in Appendix 3

The Parties will make all efforts to fulfil the program.

All catches taken for research and management purposes should be recorded in the catch statistics separately.

Under “The Joint Russian – Norwegian Scientific Research Program on Living Marine Resources in 2025” the Norwegian party will grant permission to fish and catch their living marine resources to vessels owned or hired by VNIRO or other Russian scientific institutions in the Norwegian Economic Zone in amounts not exceeding:

* 5 000 tonnes of cod
* 3 000 tonnes of haddock
* 50 tonnes of capelin
* 700 tonnes of Greenland halibut

Under “The Joint Russian – Norwegian Scientific Research Program on Living Marine Resources in 2025” the Russian party will grant permission to fish and catch their living marine resources to vessels owned or hired by IMR and other Norwegian scientific institutions in the Exclusive Economic Zone of the Russian Federation and in amounts not exceeding:

* 5 000 tonnes of cod
* 3 000 tonnes of haddock
* 50 tonnes of capelin
* 700 tonnes of Greenland halibut