Appendix 10

JOINT RUSSIAN – NORWEGIAN SCIENTIFIC RESEARCH PROGRAM ON LIVING MARINE RESOURCES IN 2009

Contents

1. Planning and coordination of investigations and submitting of results

This program contains the investigations to be carried out in 2009 by Norway and Russia within the frames of the bilateral cooperation between the Norwegian and Russian Parties. The program is in accordance with the national research programs.

The program envisages broadening of research on the assessment of cod and haddock stocks. Conventional methods based on trawl and acoustic surveys, CPUE and catch statistics will be complemented with research on post-spawning and feeding migrations using tagging, data from satellite synoptical monitoring of the environment, fleet distribution and daily catch reports in the years to come.

Planning coordination and exchange of specialists will be settled between the institutes involved.

PINRO and IMR will exchange results and data from joint investigations.

Scientists and specialists from PINRO, VNIRO and IMR will meet in Murmansk (Russia) during the second part of March 2009 to discuss joint research programs, results from surveys and investigations in 2008/2009 and to coordinate survey plans for the rest of 2009. Missing names of vessels and time periods for surveys in this report will be agreed by correspondence, latest by the March meeting. Future plans for surveys and methodology for preparing biological and acoustic data will be discussed and coordinated. Urgent information according to surveys carried out before the meeting in March will be exchanged by correspondence.

By October 2008, 3 reports have been issued in the Joint IMR-PINRO report series.

A preliminary program for the planned surveys and cooperation for 2009 is presented below.

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

IMR and PINRO will continue the co-operation on the monitoring of the most important commercial fish and shrimp stocks according to the Program listed below. The work will also include continued co-operative research on by-catch of juvenile fish in the shrimp fishery. The parties will exchange primary information during joint investigations according to agreed formats.

Norwegian investigations

Nation:	Norway	Survey title:	Deep water species
Reference No.:	N-2-01		
Organization:	IMR		
Time period:	July-August	Vessel:	Hired commercial fishing vessel
Target species:	Greenland halibut	Secondary species:	Redfishes *(Sebastes mentella, Sebastes marinus)*
Area:	Continental edge, western Barents Sea		
Purpose:	Distribution of deep water species		
Reported to:	Internal IMR survey report, ICES AFWG 2010		

Nation:	Norway	Survey title:	*Sebastes mentella* Norwegian Sea
Reference No.:	N-2-02		
Organization:	IMR		
Time period:	August	Vessel:	Hired trawler
Target species:	*Sebastes mentella*	Secondary species:	*Sebastes marinus,* Greenland halibut, blue whiting, herring
Area:	Continental Slope and Norwegian Sea		
Purpose:	Trawl survey		
Reported to:	Internal IMR survey report, ICES AFWG 2010		

Nation:	Norway	Survey title:	Cod spawning stock
Reference No.:	N-2-03		
Organization:	IMR		
Time period:	March-April	Vessel:	R.V. Johan Hjort
Target species:	Cod	Secondary species:	Haddock, saithe
Area:	Spawning areas Troms – Lofoten		
Purpose:	Acoustic survey of the North East Arctic Cod spawning stock. Investigations on maturity, fecundity and egg abundance.		
Reported to:	Internal IMR survey report, ICES AFWG 2009		

Nation:	Norway	Survey title:	Cod tagging experiments, capelin observations
Reference No.:	N-2-04		
Organization:	IMR – VNIRO		
Time period:	March - April	Vessel:	Coastal purse seiner
Target species:	Cod, capelin	Secondary species:	
Area:	Northern Norwegian coast		
Purpose:	Cod tagging, capelin recordings		
Reported to:	Internal IMR report, VNIRO, ICES AFWG.		

Nation:	Norway	Survey title:	Norwegian Sea survey for *Sebastes mentella*
Reference No.:	N-2-05		
Organization:	IMR		
Time period:	May	Vessel:	Hired commercial trawler
Target species:	*Sebastes mentella*	Secondary species:	Herring, blue whiting
Area:	Norwegian Sea		
Purpose:	Distribution and abundance of *Sebastes mentella*		
Reported to:	Internal IMR survey report, WGWIDE 2009, ICES PGNAPES 2009		

Nation:	Norway	Survey title:	Effects of seismic activity on fish stocks

Reference No.:	N-2-06		
Organization:	IMR		
Time period:	June-September	Vessel:	R.V. H. Mosby + hired vessel
Target species:	Greenland halibut, cod, saithe, coastal cod	Secondary species:	Haddock, *Sebastes marinus*
Area:	North Norwegian coastal area		
Purpose:	Study effects of seismic activity on fish stocks		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Fjord and coastal ecosystem survey
Reference No.:	N-2-07		
Organization:	IMR		
Time period:	October-November November-December	Vessel:	R.V. "Johan Hjort" R.V. H. Mosby
Target species:	Saithe, coastal cod, 0-group herring, sprat	Secondary species:	Haddock, *Sebastes marinus*
Area:	Northern Norwegian fjords and coastal areas from Varanger to Skagerrak.		
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:	Internal IMR survey report, WGWIDE 2010, AFWG 2010		

Russian investigations

Nation:	Russia	Survey title:	Collection of data on CPUE, biological data on species, sex and age composition, Greenland halibut catches for the stock assessment
Reference No.:	R-2-01		
Organization:	PINRO		
Time period:	January-March April-June	Vessel:	2 trawlers
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes (*S. mentella, S. marinus*), other demersal fish
Area:	Exclusive Economic Zone of Norway		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic relationships between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration patterns, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth with the use of deepwater video-acoustic complex.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Collection of data on CPUE, biological data on species, sex and age composition, Greenland halibut catches for the stock assessment
Reference No.:	R-2-02		
Organization:	PINRO		
Time period:	January-March	Vessel:	2 trawlers

	April-June		
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes (*S. mentella, S. marinus*), other demersal fish
Area:	Spitsbergen area, "Grey zone"		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic relationships between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration patterns , timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth with the use of deepwater video-acoustic complex		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Collection of data on CPUE, biological data on species, sex and age composition, Greenland halibut catches for the stock assessment
Reference No.:	R-2-03		
Organization:	PINRO		
Time period:	July-September October-December	Vessel:	2 trawlers
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes (*S. mentella, S. marinus*), other demersal fish
Area:	Exclusive Economic Zone of Norway		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic relationships between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration patterns , timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth with the use of deepwater video-acoustic complex.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2010		

Nation:	Russia	Survey title:	Collection of data on CPUE, biological data on species, sex and age composition, Greenland halibut catches for the stock assessment
Reference No.:	R-2-04		
Organization:	PINRO		
Time period:	July-September October-December	Vessel:	2 trawlers
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfishes (*S. mentella, S. marinus*), other demersal fish
Area:	Spitsbergen area, "Grey zone"		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic relationships between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration patterns , timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth with the use of deepwater video-acoustic complex.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2010		

Nation:	Russia	Survey title:	Refinement of methods for Greenland halibut stock assessment by long-line, CPUE
Reference No.:	R-2-05		
Organization:	PINRO		
Time period:	January-December	Vessel:	1 long-liner and 1 trawler

Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes
Area:	Spitsbergen area, "Grey zone"		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl"		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Evaluation of resources for long-line fishery. Investigation of species and sex-size compositions in long-line and trawl catches.
Reference No.:	R-2-06		
Organization:	PINRO		
Time period:	January-December	Vessel:	2 long-liners
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Catfishes, long rough dab, redfishes (*S. mentella, S. marinus*) and other fish
Area:	Exclusive Economic Zone of Norway, Spitsbergen area, Exclusive Economic Zone of the Russian Federation and "Grey zone"		
Purpose:	Elaboration of recommendations on effective use of resources for long-line fishery		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Complex investigation of stocks of commercial species based on modern research technology.
Reference No.:	R-2-07		
Organization:	VNIRO		
Time period:	January-December	Vessel:	5 vessels, trawl and long-line
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, Greenland halibut, saithe and other species
Area:	Exclusive Economic Zone of the Russian Federation and Norway, "Grey zone", "Loophole", Spitsbergen area		
Purpose:	Complex investigation of stocks of commercial species based on modern research technology. Collection of CPUE data, biological state during wintering and spawning, species composition of catches, including histological data.		
Reported to:	Internal VNIRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
Reference No.:	R-2-08		
Organization:	PINRO		
Time period:	January-March April-June July-September October-December	Vessel:	R.V. "Vilnjus" and 4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, saithe
Area:	"Grey zone", Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of CPUE data, biological state during wintering and spawning, species composition of catches, cod predation on their own juveniles and other fish species and invertebrates, discards of undersized cod and haddock. Study of intra-species structure using genetic methods, quantitative estimation of by-catch of		

	undersized fish.
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
Reference No.:	R-2-09		
Organization:	PINRO		
Time period:	January-March April-June July-September October-December	Vessel:	R.V. "Vilnjus" and 4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, saithe
Area:	Exclusive Economic Zone of Norway, "Grey zone", "Loophole" and Spitsbergen area		
Purpose:	Collection of CPUE data, biological state during wintering and spawning, species composition of catches, cod predation on their own juveniles and other fish species and invertebrates, discards of undersized cod and haddock. Study of intra-species structure using genetic methods, quantitative estimation of by-catch of undersized fish.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	Survey for haddock, saithe and other demersal species
Reference No.:	R-2-10		
Organization:	PINRO		
Time period:	May-June	Vessel:	R.V. "Fridtjof Nansen", R.V. "Professor Boiko"
Target species:	Haddock, saithe, cod	Secondary species:	Redfishes, northern wolfish, spotted catfish, long rough dab
Area:	The Barents Sea basin including Exclusive Economic Zone of Norway, "Grey zone", Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Assessment of immature part of the haddock stock, quantitative estimation of saithe migrating for feeding from the EEZ of Norway to EEZ of the Russian Federation and the "Grey Zone"; oceanography, investigation of possibilities and conditions of summer and autumn fishery for haddock and saithe in the EEZ of the Russian Federation		
Reported to:	Internal PINRO survey report; ICES AFWG in 2010		

Nation:	Russia	Survey title:	Testing of methods to assess juveniles of saithe, cod, haddock and other demersal species in Murman fjords
Reference No.:	R-2-11		
Organization:	PINRO		
Time period:	August-September	Vessel:	1 trawler
Target species:	Cod, haddock, saithe	Secondary species:	Plaice, redfish (*Sebastes mentella*), long rough dab, northern wolfish, spotted catfish
Area:	The Barents Sea basin, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		

Purpose:	Assessment of relative abundance of juvenile saithe, cod, haddock and other demersal species in Murman fjords, collection of data on biology, distribution and density of concentrations
Reported to:	Internal PINRO survey report; ICES AFWG in 2010

Nation:	Russia	Survey title:	Multispecies trawl-acoustic survey for estimation of juveniles and stock assessment of demersal fish in the Barents Sea and adjacent waters
Reference No.:	R-2-12		
Organization:	PINRO		
Time period:	October-December	Vessel:	R.V. "Fridtjof Nansen" R. V. "Vilnjus"
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Northern wolfish, spotted catfish, redfish (*S. mentella*), saithe, long rough dab
Area:	The Barents Sea basin, Exclusive Economic Zone of Norway, Spitsbergen area, "Grey zone", "Loophole", Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Evaluation of strength of yearclasses of cod and haddock at the stage of bottom juveniles, redfishes and other demersal fish; assessment of total and fishable stocks of cod, haddock, Greenland halibut, redfishes, catfishes, long rough dab and other fish species in the survey area; oceanography, estimation of zooplankton biomass; parasitologic and faunistic studies, study of "predator-prey" relations		
Reported to:	Internal PINRO survey report; ICES AFWG in 2010		

Nation:	Russia	Survey title:	Trawl-Acoustic survey for spawning concentrations of herring in the Norwegian Sea
Reference No.:	R-2-13		
Organization:	PINRO		
Time period:	February-March	Vessel:	2 trawlers
Target species:	Herring	Secondary species:	Blue whiting, mackerel, saithe, cod
Area:	Norwegian Sea including areas under jurisdiction of foreign states, international waters		
Purpose:	Study of distribution and migration of spawning and post-spawning herring in the Norwegian Sea, collection of biological data on size-age composition and fecundity of fish.		
Reported to:	Internal PINRO survey report; ICES WGWIDE in 2009		

Nation:	Russia	Survey title:	Delimitation of mackerel feeding concentrations; study of mackerel feeding migration in the Norwegian Sea in summer
Reference No.:	R-2-14		
Organization:	PINRO		
Time period:	May-September	Vessel:	2 trawlers
Target species:	Mackerel	Secondary species:	Blue whiting, herring
Area:	Fishing zone of the Faroe Islands, international waters of the Norwegian Sea		
Purpose:	Study of mackerel feeding migration in the Norwegian Sea in summer and the effect of biotic and abiotic factors on spatial and temporal distribution of pelagic fish		

Reported to:	Internal PINRO survey report; ICES WGWIDE in 2009

Nation:	Russia	Survey title:	Complex aerial survey on the research into distribution and biomass assessment of feeding mackerel within the frames of international herring survey in the Barents and Norwegian Seas (ecosystem survey)
Reference No.:	R-2-15		
Organization:	PINRO		
Time period:	July-August	Vessel:	2 trawlers, 1 R. V. Airborne laboratory AN-26 "Arktika"
Target species:	Mackerel	Secondary species:	Herring, blue whiting, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters on the sea surface
Area:	Fishing zone of the Faroe Islands, international waters of the Norwegian Sea, exclusive Economic Zone of Norway and Iceland, UK Fishery zone		
Purpose:	Distribution of feeding mackerel and other pelagic fish, approaches to assess biomass of feeding mackerel; abundance, distribution and species composition of marine mammals and seabirds; environmental parameters on the sea surface including identification of areas with high biological productivity		
Reported to:	Internal PINRO survey report; ICES PGNAPES, ICES WGWIDE, NAMMCO, NEAFC Annual meeting.		

Nation:	Russia	Survey title:	Study of formation of herring concentrations
Reference No.:	R-2-16		
Organization:	PINRO		
Time period:	August-September	Vessel:	2 trawlers
Target species:	Herring	Secondary species:	Blue whiting, saithe, mackerel
Area:	Norwegian Sea, Exclusive Economic Zone of Norway, Spitsbergen area, international waters		
Purpose:	Study of formation of herring concentrations during feeding period, herring distribution and behaviour in dependence on the environmental conditions, biological state and intensity of fishing. Collection of fisheries and biological data necessary for the stock assessment		
Reported to:	Internal PINRO survey report; ICES WGWIDE in 2009		

Nation:	Russia	Survey title:	Improvement of a method to assess biomass of feeding mackerel
Reference No.:	R-2-17		
Organization:	VNIRO		
Time period:	June-July	Vessel:	2 rented vessels
Target species:	Mackerel	Secondary species:	Herring, blue whiting
Area:	Norwegian Sea, international waters		
Purpose:	Estimation of biomass of feeding mackerel in the international waters. Study of population structure of the mackerel stock		
Reported to:	Internal VNIRO survey report; ICES WGWIDE in 2009 and 2010		

Nation:	Russia	Survey title:	Study of distribution of capelin fishable concentrations
Reference No.:	R-2-18		
Organization:	PINRO		
Time period:	January-April October-December	Vessel:	3 trawlers
Target species:	Capelin	Secondary species:	Polar cod
Area:	The Barents Sea basin, Spitsbergen area, "Grey zone", "Loophole", Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Study of distribution of capelin fishable concentrations, migration routes and rates and conditions of formation of concentrations in dependence on biological state of the object and abiotic environmental factors.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009		

Nation:	Russia	Survey title:	International ecosystem survey of herring and blue whiting stocks in the Barents and Norwegian Seas
Reference No.:	R-2-19		
Organization:	PINRO		
Time period:	May-June	Vessel:	R.V. "Fridtjof Nansen", R. V. "Vilnjus"
Target species:	Herring, blue whiting	Secondary species:	Other pelagic species
Area:	The Barents and Norwegian Seas, Exclusive Economic Zone of Norway, Exclusive Economic Zone of the Russian Federation, "Grey zone", internal sea waters and territorial sea of the Russian Federation		
Purpose:	Acoustic survey of the stocks, oceanography		
Reported to:	Internal PINRO survey report; ICES WGWIDE, ICES PGNAPES in 2009		

Nation:	Russia	Survey title:	Trawl-acoustic survey for redfish *(Sebastes mentella)* of the Norwegian-Barents Sea population. Evaluation of strength of redfish yearclasses
Reference No.:	R-2-20		
Organization:	PINRO		
Time period:	April-May	Vessel:	trawler
Target species:	Redfish (*Sebastes mentella*)	Secondary species:	Redfish (*Sebastes marinus*), cod, haddock, northern wolfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway and Spitsbergen area		
Purpose:	Study of distribution of redfish and other species; collection of biological data; evaluation of resources for fisheries through analysis and collection of statistical data on CPUE to enhance the database.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2009 and 2010		

Nation:	Russia	Survey title:	International trawl-acoustic survey for pelagic fish
Reference No.:	R-2-21		
Organization:	PINRO		
Time period:	June-August	Vessel:	trawler
Target species:	Pelagic fish survey	Secondary species:	Herring, mackerel, blue whiting, other pelagic fish, marine mammals, seabirds, chlorophyll, zooplankton

Area:	The Norwegian Seas, Fishing zone of the Faroe Islands, international waters, Exclusive Economic Zone of Norway, UK fishery zone
Purpose:	Stock assessment, delimitation of feeding concentrations, study of feeding migration and the effect of biotic and abiotic factors on spatial and temporal distribution of pelagic fish in summer in the Norwegian Sea; oceanographic and hydrobiological surveys
Reported to:	Internal PINRO survey report; ICES WGWIDE, PGNAPES in 2009; NEAFC Annual meeting

Joint investigations

Nation:	Norway/Russia	Survey title:	Joint Winter Survey
Reference No.:	J-2-01		
Organization:	IMR, PINRO		
Time period:	January-March	Vessel:	R.V. Jan Mayen R.V. Johan Hjort R.V. "Fridtjof Nansen" R.V. "Vilnjus"
Target species:	Cod, haddock, capelin, herring	Secondary species:	Redfishes (*Sebastes mentella*, *Sebastes marinus)*, Greenland halibut, catfishes, saithe
Area:	Exclusive Economic Zone of the Russian Federation and Exclusive Economic Zone of Norway, "Grey zone"		
Purpose:	Distribution and stock assessment, collection of biological samples. Multi-species interactions with focus on cod diet, oceanography and plankton		
Reported to:	Joint IMR/PINRO Report Series and ICES AFWG in 2009		

Nation:	Norway/Russia	Survey title:	Acoustic survey for prespawning capelin
Reference No.:	J-2-02		
Organization:	IMR, PINRO		
Time period:	January - March	Vessel:	R.V. "Libas", R.V. "Eros", R. V. "Fridtjof Nansen" or R. V. "Vilnjus", 2 trawlers
Target species:	Capelin	Secondary species:	Herring, cod, polar cod, haddock
Area:	Russian Exclusive Economic Zone, Norwegian Exclusive Economic Zone, "Grey" zone, "Loophole", Svalbard area.		
Purpose:	Methodological investigations, with aim to test the feasibility of acoustic measurements of capelin approaching the coast for spawning		
Reported to:	Internal IMR and PINRO survey reports, Joint reports for JRNFC, ICES AFWG in 2009		

Nation:	Norway/Russia	Survey title:	Survey of blue whiting spawning areas
Reference No.:	J-2-03		
Organization:	IMR, PINRO		

Time period:	March-April	Vessel:	1 Norwegian hired vessel 1 Russian R.V.
Target species:	Blue whiting	Secondary species:	Other pelagic species
Area:	To the west of British Islands, international waters, UK and Faroese fishery zones, Exclusive Economic Zone of the Ireland and Norway		
Purpose:	Estimation of abundance, biomass and distribution of spawning blue whiting, oceanography, plankton, survey of the Rockall haddock, methods for acoustic survey, oceanography and plankton		
Reported to:	Joint IMR/PINRO survey report; ICES WGWIDE, ICES PGNAPES in 2009		

Nation:	Russia/Norway	Survey title:	International ecosystem survey of herring and blue whiting stocks in the Norwegian Sea
Reference No.:	J-2-04		
Organization:	PINRO, IMR		
Time period:	May - June	Vessel:	R. V. "Fridtjof Nansen", R.V."Vilnjus" R.V. "Johan Hjort" 3 other RVs
Target species:	Herring, blue whiting	Secondary species:	Other pelagic species
Area:	The Norwegian Seas, fishing zone of the Faroe Islands, international waters, Exclusive Economic Zone of Norway, UK fishery zone		
Purpose:	Acoustic survey of the stocks, oceanography		
Reported to:	Internal PINRO survey report; ICES WGWIDE, ICES PGNAPES in 2009		

Nation:	Norway/Russia	Survey title:	Joint survey for feeding mackerel in the Norwegian Sea
Reference No.:	J-2-05		
Organization:	IMR, PINRO		
Time period:	June - August	Vessel:	2 vessels chartered by IMR R. V. "Fridtjof Nansen" and 2 chartered vessels Airborne laboratory AN-26, "Arktika"
Target species:	Mackerel	Secondary species:	Herring, blue whiting, other pelagic fishes, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters
Area:	The Norwegian Sea, fishing zone of the Faroe Islands, international waters, exclusive Economic Zone of Norway and Iceland, UK fishery zone		
Purpose:	Distribution and approaches to assess biomass of feeding mackerel; abundance, distribution and species composition of marine mammals and seabirds; a complex of oceanographic and hydrobiological data, joint experimental and calibration works.		
Reported to:	Joint IMR/PINRO survey report; ICES WGs; NAMMCO, NEAFC Annual meeting.		

Nation:	Norway/Russia	Survey title:	Joint annual ecosystem survey, autumn
Reference No.:	J-2-06		

Organization:	IMR, PINRO		
Time period:	August-September	Vessel:	R.V. "G.O Sars" R.V. "Johan Hjort" R.V. "Jan Mayen" R.V. "Fridtjof Nansen" R.V. "Vilnjus" and 1 chartered vessel Airborne laboratory AN-26, "Arktika"
Target species:	Greenland halibut, redfishes, shrimp, herring, capelin, cod, haddock, polar cod, catfishes, 0-group of different species	Secondary species:	Other pelagic and demersal species, benthic organisms, sea mammals and birds, oceanographic and hydrobiological parameters
Area:	The Norwegian, Barents and Kara Seas, Exclusive Economic Zone of the Russian Federation, "Grey zone", Exclusive Economic Zone of Norway, "Loophole" area and area adjacent to Spitsbergen and territorial waters of the Russian Federation		
Purpose:	Abundance and distribution of Greenland halibut (including juveniles north and east of Spitsbergen), redfish *Sebastes mentella, Sebastes marinus,* shrimp, herring, capelin, polar cod, cod, haddock, catfishes, 0-group of different species. Oceanography, plankton, marine mammals, seabirds, species interactions, sampling for determining pollution levels.		
Reported to:	Joint IMR/PINRO Report Series; ICES WGs in 2010; ACOM in autumn 2009, WGHARP, NAMMCO		

3. Research program on Greenland Halibut

The Joint Russian-Norwegian Fisheries Commission at its 34th session (2005) requested scientists from Russia and Norway to develop a joint Russian-Norwegian research program for Greenland halibut aimed at improvement of its stock assessment methods and elaboration of optimal management strategy for this stock (Appendix 10 to the Protocol).

The content of the program was agreed at the Russian-Norwegian meeting of scientists in March 2006 and approved at the 35th session of the Joint Russian-Norwegian Fisheries Commission (Appendices 10 and 12 to the Protocol).

The program includes the following studies:
- improve the methods of ageing;
- improve methods of survey and aggregation of data from different surveys;
- make quantitative estimation of Greenland halibut stock which is distributed in pelagic layers;
- investigate sexual dimorphism and effect of fisheries on population structure;
- improve methods of stock assessment;
- develop an optimal long-term harvesting strategy.

The program is to be implemented in 2007-2009. A final report on the program will be presented to the Joint Russian-Norwegian Fisheries Commission in 2010.

The scientists at PINRO and IMR will continue investigations according to purposes mentioned above.

In compliance with Protocol of the 36th Session of the JRNFC (Appendix 10, item 3) in August-September 2008 PINRO organized a cruise of the research vessel that conducted a trawl survey of

Greenland halibut in the northern Kara Sea and adjacent waters of the Barents Sea and Arctic basin. In line with the same protocol, a scientist from the Institute of Marine Research took part in this cruise.

To clarify the question about the fish population status relevant material for following genetic investigations was gathered during the cruise. The genetic samples will be transferred from PINRO to the IMR laboratory in Tromsø before the end of year 2008, where these samples will be analyzed. A scientist from PINRO will participate in this work. Any matters related to his/her stay and activity will be agreed between PINRO and IMR by correspondence. Joint publications about genetics studies of Greenland halibut are expected.

4. Red king crab (Paralithodes camtschaticus)

Both Parties exchanged information about the ongoing national Red king crab research and the plans for 2009.

A report from a three-year joint program (2005-2008) was presented for the Commission.

The scientists discussed and agreed upon a new joint three-year research program on the Red king crab and snow crab in the Barents Sea. The issues of this program will be discussed at the annual scientist meeting in March, 2009.

Norwegian investigations

Nation:	Norway	Survey title:	Red king crab survey
Reference No.:	N-4-01		
Organization:	IMR		
Time period:	August-September	Vessel:	Research vessel
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Abundance estimation and ecological investigations		
Reported to:	Internal IMR survey report. PINRO and VNIRO		

Nation:	Norway	Survey title:	Red king crab survey
Reference No.:	N-4-02		
Organization:	IMR		
Time period:	September-October	Vessel:	4-6 Hired vessel
Target species:	Red king crab	Secondary species:	
Area:	Off the coast of Finnmark		
Purpose:	Abundance estimation and ecological investigations		
Reported to:	Internal IMR survey report. PINRO and VNIRO		

Nation:	Norway	Survey title:	Red king crab trial fishing

Reference No.:	N-4-03		
Organization:	IMR		
Time period:	August-December	Vessel:	3 Hired vessels
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Methodological investigations		
Reported to:	Internal IMR survey report. PINRO and VNIRO		

Russian investigations:

Nation:	Russia	Survey title:	Stock assessment of the red king crab by trawl survey
Reference No.:	R-4-01		
Organization:	PINRO		
Time period:	August-September	Vessel:	1 medium-tonnage vessel
Target species:	Red king crab	Secondary species:	Snow crab, cod, haddock
Area:	The Barents and White Seas, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of data for assessment of the total and fishable stock of the red king crab; study of the crab distribution in the period before commencement of its fishery; collection of biological data, crab tagging to study migration, underwater video.		
Reported to:	Internal PINRO survey report. IMR		

Nation:	Russia	Survey title:	Red king crab trap survey
Reference No.:	R-4-02		
Organization:	VNIRO		
Time period:	January-March, September - December	Vessel:	3 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Study of the distribution of red king crab. Stock assessment. Trap survey.		
Reported to:	Internal VNIRO survey report. PINRO		

Nation:	Russia	Survey title:	Investigations aimed at elaboration of measures to decrease the red king crab by-catches in the trawl fishery for demersal fish.
Reference No.:	R-4-03		
Organization:	PINRO		
Time period:	August-November	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	Cod, haddock and other demersal fish species
Area:	The Barents and White Seas, Exclusive Economic Zone of the Russian		

	Federation, internal sea waters and territorial sea of the Russian Federation
Purpose:	Search of means for minimization of the red king crab by-catches in fisheries for cod and haddock. Recommendations on improvement of trawl design.
Reported to:	Internal PINRO survey report. IMR

Nation:	Russia	Survey title:	SCUBA-diving survey of red king crab
Reference No.:	R-4-04		
Organization:	VNIRO		
Time period:	June-September	Vessel:	1 vessels, boats SCUBA-divers
Target species:	Red king crab	Secondary species:	
Area:	Internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of biological data (size, sex and age composition of aggregations and other data necessary for the stock assessment and estimation of TAC). Estimation of juvenile red king crab abundance.		
Reported to:	Internal VNIRO survey report. PINRO		

Nation:	Russia	Survey title:	SCUBA-diving survey of red king crab
Reference No.:	R-4-05		
Organization:	PINRO		
Time period:	July	Vessel:	Vessel, boat SCUBA-divers
Target species:	Red king crab	Secondary species:	
Area:	Internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of biological data (size, sex and age composition of aggregations and other data necessary for the stock assessment and estimation of TAC). Estimation of juvenile red king crab abundance.		
Reported to:	Internal PINRO survey report. IMR		

Nation:	Russia	Survey title:	Collection of data on CPUE. Biological sampling
Reference No.:	R-4-06		
Organization:	PINRO		
Time period:	January-December	Vessel:	5 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of data on catch per unit effort, study of biology, abundance dynamics, migration, feeding, trophic links with local species and distribution of the crab. Evaluation of the red king crab effect on the benthos ecosystem.		
Reported to:	Internal PINRO report.		

Nation:	Russia	Survey title:	Stock assessment of the snow crab by trawl survey
Reference No.:	R-4-06		
Organization:	PINRO		

Time period:	September-November	Vessel:	1 medium-tonnage vessel
Target species:	Snow crab	Secondary species:	Red king crab, cod, haddock
Area:	The Barents Sea, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of data for assessment of the total stock of the snow crab; study of the crab distribution; collection of biological data.		
Reported to:	Internal PINRO survey report. IMR		

5. Fishing technology and selectivity of fishing gears

Research activity in these fields is carried out with the aim to develop:

- Fishing gears that are more species and size selective and that have less negative impact on fish that escape the gear, and have less negative ecosystem effects in general.
- Improved survey gears and methodology

Norwegian investigations:

Nation:	Norway	Survey title:	Shrimp trawl selectivity
Reference No.:	N-5-01		
Organization:	IMR		
Time period:	May -June	Vessel:	Hired vessel
Target species:	Shrimp	Secondary species:	
Area:	The Barents sea		
Purpose:	Experiments with shrimp trawls		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Comparison of catch efficiency for pelagic and bottom trawls
Reference No.:	N-5-02		
Organization:	IMR		
Time period:	April - May	Vessel:	Hired vessel
Target species:	Cod, haddock	Secondary species:	Saithe
Area:	The Barents Sea		
Purpose:	Pelagic trawl catch efficiency and selectivity		
Reported to:	Internal IMR survey report		

Russian investigations:

Nation:	Russia	Survey title:	Study of comparative fishing efficiency "trawl – long-line". Refinement of methods for Greenland halibut stock assessment
Reference No.:	R-5-01		
Organization:	PINRO		
Time period:	May-December	Vessel:	1 long-liner

			1 trawler
Target species:	Greenland halibut, cod, haddock	Secondary species:	Catfishes, skates
Area:	Exclusive Economic Zone of Norway and Spitsbergen area		
Purpose:	Collection of data to validate a method of trawl and long-line survey of Greenland halibut stocks. Collection of data to reveal peculiarities of bottom fish long-lining selectivity, to substantiate a procedure of trawl – long-line survey for Greenland halibut stocks.		
Reported to:	Internal PINRO survey report; ICES AFWG in 2010		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems and codends, improvement of their design.
Reference No.:	R-5-02		
Organization:	PINRO		
Time period:	January -December	Vessel:	1 trawler
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Saithe, northern wolfish, spotted catfish
Area:	Exclusive Economic Zone of the Russian Federation		
Purpose:	Evaluation of actual results of application of technical regulatory measures in the fishery for cod and haddock in areas with different regimes of their application, including midwater trawls. Evaluation of application of modern materials in sorting systems, improvement of system design. Study of effect of new materials and fishing gear design on selectivity characteristics.		
Reported to:	Internal PINRO survey report. JRNFC		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems and codends, improvement of their design.
Reference No.:	R-5-03		
Organization:	PINRO		
Time period:	January -December	Vessel:	1 trawler
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Saithe, northern wolfish, spotted catfish
Area:	The Barents Sea, Spitsbergen area, Exclusive Economic Zone of Norway		
Purpose:	Evaluation of actual results of application of technical regulatory measures in the fishery for cod and haddock in areas with different regimes of their application including midwater trawls. Evaluation of application of modern materials in sorting systems, improvement of system design. Study of effect of new materials and fishing gear design on selectivity characteristics.		
Reported to:	PINRO survey report for internal use, JRNFC		

Nation:	Russia	Survey title:	Study of a possibility to use Danish seine
Reference No.:	R-5-04		
Organization:	PINRO		
Time period:	April -November	Vessel:	1 Danish seiner
Target species:	Cod	Secondary species:	Saithe, northern wolfish, spotted catfish, flatfishes
Area:	The Barents Sea, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation,		
Purpose:	Study of a possibility to use Danish seine with the purpose of application of resource-saving technology to fisheries.		
Reported to:	Internal PINRO survey report. JRNFC		

Nation:	Russia	Survey title:	Methods to study the effect of bottom trawl on benthic organisms in bottom trawl fishery.
Reference No.:	R-5-05		
Organization:	PINRO		
Time period:	January - February	Vessel:	1 trawler
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Catfishes, skates, others demersal fish, benthic organisms
Area:	The Barents Sea, Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Study of bottom trawl effect on benthic organisms, operations with pelagic trawl.		
Reported to:	Internal PINRO survey report, JRNFC		

6. Optimal harvesting of commercial species in the Barents Sea ecosystem

According to the mandate from the Joint Norwegian-Russian Fisheries Commission this project has been going since 2005 and is scheduled to continue until 2014. The objective is to evaluate the long-term yield of the main commercial species in the Barents Sea. Details of the work are given in the report from the Basic Document Working Group. The work involves several projects and researchers that may work independently of each other. In many cases, the same data will be used in different sub-projects. In the end, the different sub-projects will be synthesized to give an overall picture of the ecosystem and what long-term yield from each stock might be expected when taking into account its interaction with other stocks and with the environment.

7. Monitoring of pollution levels in the Barents Sea

PINRO and IMR will continue to monitor pollution levels in accordance with national programs. Scientists from both institutes plan to discuss and exchange results from investigations during the meeting of scientists in March 2009.

The investigations of both countries are based on the material collected during the surveys in the Barents Sea (see chapter 2 of this appendix).

IMR, PINRO and VNIRO scientists will probably be involved in the development of a new joint programme for measurement and reporting of contaminants in seafood and the marine environment under the domain of the Food Control Authorities in Norway and Russia.

8. Investigations on age and growth of fish

The Parties will continue the cooperation on establishing an international historic database on growth in length and weight of fish as well as catch statistics archived at PINRO and IMR. The exchange of age reading specialists and material will continued in 2009 according to the established routines. Two meetings between age reading specialists (capelin, cod and haddock) will be held in Bergen in spring 2009. Exact timing of the meetings will be decided by correspondence.

9. Marine mammals

The effect of various marine mammal species, including the White Sea population of harp seals, on biological resources of the Barents and Norwegian Seas is considerable. Besides, harp, hooded and grey seals and minke whales have traditionally been target species for hunting operations. Other

species, such as white whales, ringed and bearded seals, may also be of potential future interest for hunting. There is, therefore, a need for joint research on marine mammals, including boat based and airborne surveys, in offshore as well as coastal areas. The joint Russian-Norwegian research should be aimed at assessments of distribution and abundance of the most important species, and their trophic relations with other resources. The possible dramatic decrease in harp seal pup production in the White Sea in recent years is a matter of concern which requires increased research and monitoring effort.

Norwegian activities in 2009 include sampling of biological material from harp seals during commercial sealing in the southeastern Barents Sea and in the Greenland Sea, and from grey seals research surveys. Abundance estimation surveys of grey seals will also be conducted at the Norwegian coast. Surveys to estimate abundance of harbor seals will be carried out in the eastern Barents Sea, whereas satellite tags will be deployed on minke whales and other whale species. Studies of harbor seal ecology will be conducted with telemetric tagging of seals, scat sampling and concurrent mapping of resources in the Porsangerfjord, Finnmark.

In 2009, the Russian Party will continue to carry out annual multispectral aerial surveys of harp seals of the White Sea population on their whelping patches in the White Sea as well as during their feeding migrations, using the Russian research aircraft. Besides, complex airborne surveys are planned during investigations of white whale as well as joint surveys on the ecology of minke whales and other whales and seals in the framework of the annual joint ecosystem surveys, and also during dedicated aerial surveys. In addition, annual coastal and vessel expeditions with the purpose to observe marine mammals species and to collect biological material will be carried out. Sampling of biological material will occur during the commercial harp seal catch.

As part of the Joint Norwegian-Russian Research Program on Harp Seal Ecology, telemetric investigations of harp seals will be carried out in the White Sea in a joint Norwegian-Russian project. Alternatively, the parties agreed to organize a cruise in late May / early June in 2009, to deploy satellite tags on harp seals on ice in the Hopen area. Joint observations of marine mammals on the ecosystem surveys will continue. If funding becomes available, it is planned to carry out aerial surveys to investigate whether a southward relocation of breeding has occurred for parts of the harp and hooded seal populations in the Greenland Sea. If new breeding patches are observed, this will have considerable implications for future research, management and hunting activities in the area.

Norwegian investigations

Nation:	Norway	Survey title:	Monitoring of harbor seal ecology
Reference No.:	N-9-01		
Organization:	IMR		
Time period:	January-October	Vessel:	Research vessel “Johan Ruud”
Target species:	Harbour seals	Secondary species:	
Area:	Norwegian coast (Porsangerfjord in Finnmark)		
Purpose:	Telemetric tagging of seals, scat sampling, concurrent estimates of prey availability, repeated surveys within the given period)		
Reported to:	Internal IMR survey report, NAMMCO, ICES		

Nation:	Norway	Survey title:	Monitoring of biological parameters in Grey seals
Reference No.:	N-9-02		

Organization:	IMR		
Time period:	February-March	Vessel:	Rented vessel
Target species:	Grey seals	Secondary species:	
Area:	Norwegian coast		
Purpose:	Collection of necessary input data for modeling the grey seal population status and catch forecast		
Reported to:	NAMMCO, ICES		

Nation:	Norway	Survey title:	Monitoring of biological parameters in harp seals
Reference No.:	N-9-03		
Organization:	IMR		
Time period:	March-April	Vessel:	1 sealer
Target species:	Harp seal	Secondary species:	
Area:	Southeastern part of the Barents Sea		
Purpose:	Collection of biological material from harp seals during commercial sealing		
Reported to:	ICES, NAMMCO; JNRFC		

Nation:	Norway	Survey title:	Monitoring of biological parameters in harp seals
Reference No.:	N-9-04		
Organization:	IMR		
Time period:	April-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:	Norway	Survey title:	Sighting survey for Minke whale
Reference No.:	N-9-05		
Organization:	IMR		
Time period:	July-August	Vessel:	2 rented vessels
Target species:	Minke whale	Secondary species:	Other whales
Area:	North Sea		
Purpose:	Sighting survey for Minke whale		
Reported to:	IWC, NAMMCO		

Nation:	Norway	Survey title:	Telemetric tagging of minke whales

Reference No.:	N-9-06		
Organization:	IMR		
Time period:	August-September	Vessel:	1 rented vessel
Target species:	Minke whales	Secondary species: Other whales	
Area:	Barents Sea, Spitsbergen area		
Purpose:	Telemetric tagging of minke whales		
Reported to:	IWC, NAMMCO		

Nation:	Norway	Survey title:	Monitoring of harbor seal abundance
Reference No.:	N-9-07		
Organization:	IMR		
Time period:	August	Vessel:	Rented vessel
Target species:	Harbour seals	Secondary species:	
Area:	Norwegian coast (Troms-Finnmark)		
Purpose:	Visual counting of harbor seals, boat based		
Reported to:	NAMMCO, ICES		

Joint Norwegian/Russian investigations:

Nation:	Norway/Russia	Survey title:	Aerial survey to assess possible new harp and hooded seals breeding patches
Reference No.:	J-9-01		
Organization:	IMR, PINRO		
Time period:	March-April	Vessel:	Airborne laboratory AN-26 "Arktika"
Target species:	Harp and hooded seals	Secondary species:	Other seal species, whales
Area:	The Denmark Strait		
Purpose:	To assess if harp and hooded seals may have established new breeding areas south of those traditionally used by the two species for breeding purposes in the Greenland Sea. The driving force behind such a shift maybe ice reductions.		
Reported to:	Joint IMR/PINRO survey report; JRNFC, ICES/NAFO WGHARP, NAMMCO.		

Nation:	Russia/Norway	Survey title:	Harp seal tagging in the White Sea
Reference No.:	J-9-02		
Organization:	PINRO, IMR		
Time period:	February-May	Vessel:	1 helicopter, vessel, boats
Target species:	Harp seal	Secondary species:	
Area:	The White Sea area		
Purpose:	Study of the harp seal biology and ecology using satellite telemetry. Part of the Norwegian Russian Research Program on Harp Seal Ecology initiated by JNRFC.		
Reported to:	Joint IMR/PINRO survey report, WGHARP; NAMMCO; JNRFC		

Nation:	Norway/Russia	Survey title:	Tagging of harp seals with satellite tags
Reference No.:	J-9-03		
Organization:	IMR, PINRO		
Time period:	May-June	Vessel:	Research vessel ("Jan Mayen")
Target species:	Harp seal	Secondary species:	
Area:	Northern Barents Sea		
Purpose:	Study of the harp seal biology and ecology using satellite telemetry. Part of the Norwegian Russian Research Program on Harp Seal Ecology initiated by JNRFC.		
Reported to:	Joint IMR/PINRO survey report, WGHARP; NAMMCO; JNRFC		

Nation:	Russia/Norway	Survey title:	Marine mammals survey
Reference No.:	J-9-04		
Organization:	PINRO, IMR		
Time period:	August-September	Vessel:	2 research vessels from Norway, 2 research vessels from Russia, Airborne laboratory AN-26 "Arktika"
Target species:	Pelagic fishes, 0-group of different species, marine mammals	Secondary species:	Seabirds, oceanographic and hydrobiological parameters at the sea surface, ice conditions
Area:	The Barents Sea		
Purpose:	Investigation of the effect of marine mammals and seabirds as well as oceanographic conditions including ice conditions on the main commercial fish species		
Reported to:	Joint IMR/PINRO survey report; NAMMCO; JNRFC		

Russian investigations:

Nation:	Russia	Survey title:	Multispectral aerial survey of harp seal whelping patches in the White Sea
Reference No.:	R-9-01		
Organization:	PINRO		
Time period:	February-March	Vessel:	Airborne laboratory AN-26 "Arktika"
Target species:	Harp seal	Secondary species:	White whale and other species of marine mammals
Area:	The White Sea and the Barents Sea south-eastern part		
Purpose:	Study of distribution and estimation of number of the White Sea harp seal on whelping patches for estimation of pup production		
Reported to:	Internal PINRO survey report; ICES/NAFO WGHARP, ICES AFWG; ICES WGMME, JRNFC, NAMMCO		

Nation:	Russia	Survey title:	Investigation of reproduction biology and ecology of harp seal in the White Sea
Reference No.:	R-9-02		
Organization:	PINRO		
Time period:	February-May	Vessel:	Coastal and ice hunting,

			1 helicopter 1 sealer or R.V.
Target species:	Harp seal	Secondary species:	Bearded seal, white whale and other species of marine mammals
Area:	The White Sea		
Purpose:	Investigation of biology and ecology of harp seal in the White Sea, estimation of number of animals in the population, data for the ecosystem modeling.		
Reported to:	Internal PINRO survey report; WGHARP, ICES AFWG; JRNFC, NAMMCO		

Nation:	Russia	Survey title:	Coastal research and observations for the White Sea harp seal and minke whale
Reference No.:	R-9-03		
Organization:	PINRO		
Time period:	April-September 4 expeditions of 20-30 days duration each	Vessel:	Coastal expedition with the use of available transport, motor boat "Zodiak"
Target species:	Harp seal, Minke whale	Secondary species:	White whale and other species of marine mammals
Area:	Coast of the Barents and White Seas		
Purpose:	Collection of biological data, study of distribution and migration routes, estimation of number, data for the ecosystem modeling.		
Reported to:	Internal PINRO survey report; WGHARP, ICES AFWG; NAMMCO, JRNFC		

Nation:	Russia	Survey title:	Aerial survey of marine mammals within the frames of their complex estimation including annual Russian-Norwegian ecosystem research
Reference No.:	R-9-04		
Organization:	PINRO		
Time period:	May-September	Vessel:	2 vessels Airborne laboratory AN-26 "Arktika"
Target species:	Minke whale humpback whale, white-beaked dolphin, white whale	Secondary species:	Harp seal, walrus and other species of *Cetacea* and *Pinnipedia*, seabirds
Area:	The Barents Sea		
Purpose:	Study of the effect of marine mammals and seabirds on the main commercial fishes for further use in ecosystem models for management of commercial living marine resources.		
Reported to:	Internal PINRO survey report; JRNFC, ICES AFWG, NAMMCO		

Nation:	Russia	Survey title:	Vessel observations and coastal research on harp seal
Reference No.:	R-9-05		
Organization:	PINRO		
Time period:	February-July	Vessel:	Coastal and ice hunting, 1 helicopter 1 sealer or R.V., boats
Target species:	Harp seal	Secondary species:	Bearded seal, white whale and other species of marine mammals

Area:	The White and Barents Seas
Purpose:	Investigation of biology and ecology of harp seal the White Sea, estimation of number of animals in the population, data for the ecosystem modeling.
Reported to:	Internal PINRO survey report; WGHARP, ICES AFWG; JRNFC, NAMMCO

Nation:	Russia	Survey title:	Vessel observations, coastal and aerial research on white whale
Reference No.:	R-9-06		
Organization:	PINRO		
Time period:	May-September	Vessel:	2 vessels, coastal observations and hunting, boats, research aircraft
Target species:	White whale	Secondary species:	All other species of marine mammals
Area:	The White and Barents Seas		
Purpose:	Investigation of biology and ecology of white whale, their tagging, study of distribution and calculations of number of animals in the population, data for the ecosystem modeling.		
Reported to:	Internal PINRO survey report; ICES AFWG; JRNFC, NAMMCO		

Nation:	Russia	Survey title:	Coastal and boats observations and surveys on ringed and bearded seals
Reference No.:	R-9-07		
Organization:	PINRO		
Time period:	February-December	Vessel:	Coastal and boats observations and surveys, coastal catches
Target species:	Ringed and bearded Seals	Secondary species:	All other species of marine mammals
Area:	The Barents Sea		
Purpose:	Investigation of biology and ecology of ringed and bearded seals study of distribution and calculations of number of animals, data for the ecosystem modeling.		
Reported to:	Internal PINRO survey report; ICES AFWG; JRNFC, NAMMCO		

10. Investigations on survey methodology

The long-term objective of the work is a transition to absolute abundance estimates of fish stocks including acoustic estimate of target strength and catchability of fishing gears.

It is necessary to develop a common methodology of acoustic estimation of target strength (TS) of fish and to examine a possibility to establish a joint database on TS estimates.

There is a need to continue studying trawl catchability, differentiated coefficients for fish of different sizes including the use of underwater video and acoustic methods.

Scientists from both countries supported the program on the LIDAR use, especially as regards research on feeding mackerel in the Norwegian Sea.

Commercial CPUE data is an important source of information for stock assessment. However, methodology of the analysis of this data and procedure of their collection require further improvement.

The future investigations in these issues will be discussed by correspondence and during the March meeting 2009.

11. Russian-Norwegian Fisheries Science Symposia

The parties realised that the title of the 13th symposium is "Development of the stock of Kamtchatka crab in the Barents Sea, and its effects on the Barents Sea ecosystem", but suggests that also the Snow crab issues will be included in the symposium.

Themes:

- State of abundance
- Distribution area and spreading
- Impacts on the native ecosystem
- Impact on other fisheries
- Management

The 13th Russian-Norwegian Symposium will be arranged in August 2009, Moscow, Russia. A special issue with selected papers will be attempted to be published in an international scientific journal.

The conveners are
Sokolov Vasily, VNIRO, Moscow
Lepesevich Yury, PINRO, Murmansk
Misund Ole Arve, IMR, Bergen
Sundet Jan, IMR, Tromsø

12. Development of an exchange program of scientists

In 2006 it was suggested to develop a program for exchange of scientists between PINRO, VNIRO and IMR, on all levels (students – research technicians – senior scientists).

The program will be further developed in 2009, and considered during the March meeting. The program should include exchange of scientists between the institutions at their laboratories and at their research vessels during investigations. The institutions will agree on the program before its implementation.

13. Development of joint assessment model for herring stock

The new assessment model for the Norwegian spring spawning herring stock (TASACS) has been successfully developed and applied in WGWIDE in 2008. Further development will be needed to take into account ecosystem aspects.

14. Joint three-year program on benthic animals

Work on this program has proceeded according to the decisions made during the March Meeting 2008. Joint field work was done during the ecosystem survey in September 2008 to collect material at PINRO historical stations. Analysis of benthic invertebrates taken by bottom trawl (by-catch) was carried out together with the sampling at the historical stations.

Joint three-year experience in work with by-catch in bottom trawls showed the necessity to make an electronic atlas of demersal macro-organisms adapted for field works. Work on such atlas was initiated by PINRO in 2005. In 2007 first results from the work were presented to Norwegian colleagues. At the meeting of scientists in March it was decided to combine efforts of both Parties

in the work on the atlas within the frames of the joint three-year program on benthic living organisms. The Atlas is still under development by PINRO.

In 2007, workshops were arranged to calibrate benthic species identification by the two Parties.

The 3 year program report will be presented to the joint Russian-Norwegian Fishery Commission in 2009.

15. Determination of conversion factors for cod, haddock and other gadoids

Scientific and research institutes of Russia and Norway continue investigations on establishing true conversion factors for products produced at sea from cod, haddock and other gadoids.

True conversion factors are necessary to estimate actual catch of objects of the joint fishery.

Varying fishing conditions, such as fishing areas and seasons, length-weight characteristics of fishing objects, technological parameters of raw fish processing including different ways of cutting (manual or mechanized), types of equipment, ways of freezing, packing and storage require continuous investigations.

It is necessary to obtain additional data during fishery onboard Russian vessel taking into account biological variations in cod, haddock and other gadoids, analysis of technological process including norms of raw materials consumption during production of their products.

Joint investigation:

Nation:	Russia/Norway	Survey title:	Cod and haddock conversion factors
Reference No.:	J-15-01		
Organization:	PINRO, VNIRO, Norw. Dir. of Fisheries.,		
Time period:	All fishing seasons	Vessel:	Rented vessels
Target species:	Cod, haddock	Secondary species:	Saithe
Area:	The main joint areas of fisheries		
Purpose:	To conduct experimental and checking works, to determine conversion factors		
Reported to:	Joint and internal surveys reports; Norw. Dir. of Fisheries., VNIRO, PINRO.		

16. Joint project "The Barents Sea Ecosystem Book"

In 2007 Russian and Norwegian scientists agreed to begin works on a joint book summarizing 50-year experience of research and management of stocks in the Barents Sea.

The focus in 2008 has been on the structure of the book and on identifying authors for each chapter. This process was concluded in June, and the project will include 89 authors from Norway and Russia. In addition there have been discussions, but not yet signing of a contract with a publisher. There has been some contact between authors to discuss the contents of their chapters, but the actual drafting is not expected to start until 2009 for most of the chapters.

17. Catch volumes needed for investigations of marine resources and monitoring of the most important commercial species, as well as management tasks

The catch volumes shall enable each party to carry out all tasks described in "Joint Norwegian – Russian Scientific Research Program on Living Marine Resources in 2009" 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 I and II including respective EEZs of Russia and Norway, "Grey zone", "Loophole" and Spitsbergen area.

To solve these tasks the following catch quantities are decided for each party for 2009:

- 9 000 tonnes of cod in addition to volumes mentioned in Appendix 3
- 4 000 tonnes of haddock in addition to volumes mentioned in Appendix 3
- 5 000 tonnes of capelin in addition to volumes mentioned in Appendix 3
- 4 000 tonnes of Greenland halibut
- 2 500 tonnes of other fish species in addition to volumes mentioned in Appendix 6, as follows:
  - Saithe - 250
  - Redfish *S. mentella* - 100
  - Redfish *S. marinus* - 30
  - Northern wolfish - 850
  - Spotted catfish - 640
  - Atlantic wolfish - 5
  - Long rough dab - 120
  - Skates - 5
  - Sea plaice - 500

Both Parties will make all efforts to fulfill their respective parts of the program.

If needed, an additional scientific catch quantity of capelin can be allocated.

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