Appendix 10

JOINT RUSSIAN – NORWEGIAN SCIENTIFIC RESEARCH PROGRAM ON LIVING MARINE RESOURCES IN 2008

Contents

1. Planning and coordination of investigations and submitting of results 2

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

3. Research program on Greenland Halibut 16

4. Red king crab (Paralithodes camtschaticus) 17

5. Fishing technology and selectivity of fishing gears 20

6. Optimal harvesting of commercial species in the Barents Sea ecosystem 22

7. Monitoring of pollution levels in the Barents Sea 23

8. Investigations on age and growth of fish 23

9. Marine mammals 23

10. Investigations on survey methodology 27

11. Russian-Norwegian Fisheries Science Symposia 28

12. Development of an exchange program of scientists 28

13. Development of joint assessment model for herring stock 28

14. Joint three-year program on benthic living animals 28

15. Determination of conversion factors for cod, haddock and other gadoids 29

16. Joint project “The Barents Sea Ecosystem Book” 29

17. Catch volumes needed for investigations of marine resources and monitoring of the most important commercial species, as well as management tasks 30

1. Planning and coordination of investigations and submitting of results

This program contains the investigations to be carried out in 2008 by Norway and Russia within the frames of the bilateral cooperation between the Norwegian and the Russian Parties. The program is in accordance with the national research programmes.

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 postspawning 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, accomplishment of the investigations, exchange of specialists, data and results will be settled between the institutes involved.

Scientists and specialists from PINRO, VNIRO and IMR will meet in Tromsø, Norway 4-7 March 2008, to discuss joint research programmes, results from surveys and investigations in 2007/2008 and to coordinate survey plans for the rest of 2008. 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 2007, 3 reports have been issued in the Joint IMR-PINRO report series.

A preliminary program for the planned surveys and cooperation for 2008 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:	Acoustic survey for prespawning capelin
Organisation:	IMR		
Time period:	February - March	Vessel:	R/V Libas R/V Eros, and possibly a third vessel
Target species:	Capelin	Secondary species: Herring	
Area:	Russian Exclusive Economic Zone and Norwegian Exclusive Economic Zone		
Purpose:	Methodological investigations, with aim to test the feasibility of acoustic measurements of capelin approaching the coast for spawning		
Reported to:	Joint Report Series PINRO/IMR; ICES AFWG in 2008		
Comment:	A similar survey is planned on the Russian side, but it is not finally decided whether this survey will be carried out. PINRO will inform IMR about this decision as soon as possible, and cooperation will be established		

Nation:	Norway	Survey title:	Herring spawning area
Organisation:	IMR		
Time period:	February	Vessel:	Hired commercial fishing vessel
Target species:	Herring	Secondary species:	
Area:	Herring spawning areas off Norwegian coast from 58º-63ºN		
Purpose:	Spawning migration and behaviour		
Reported to:	Internal IMR survey report WGNPBW 2008		

Nation:	Norway	Survey title:	Young pelagic Greenland halibut
Organisation:	IMR		
Time period:	July-August	Vessel:	Hired commercial fishing vessel
Target species:	Greenland halibut	Secondary species:	*Sebastes mentella, S. marinus,*
Area:	Barents Sea, north and east of Spitsbergen		
Purpose:	Distribution of young Greenland halibut		
Reported to:	Internal IMR survey report, ICES AFWG 2008		
Comment:	***It is of critical importance that both parties are given access to the other party's EEZ***		

Nation:	Norway	Survey title:	DST tagging experiment Greenland halibut
Organisation:	IMR		
Time period:	May	Vessel:	Hired long-liner
Target species:	Greenland halibut	Secondary species:	
Area:	68ºN - 80ºN		
Purpose:	Tagging survey and fishing experiments		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Adult pelagic Greenland halibut
Organisation:	IMR		
Time period:	August - September	Vessel:	Hired trawler
Target species:	Greenland halibut	Secondary species:	*S. marinus, Sebastes mentella*
Area:	68ºN - 75ºN, Continental Slope and Norwegian Sea		
Purpose:	Trawl survey		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Cod spawning stock
Organisation:	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 2008		

Nation:	Norway	Survey title:	Cod tagging experiments, capelin observations
Organisation:	IMR - VNIRO		
Time period:	March - April	Vessel:	Coastal purse seiner
Target species:	Cod, capelin	Secondary species:	
Area:	Northern Norwegian coast		
Purpose:	Cod tagging (ref. IMR-VNIRO MoU, Oct 2007), capelin recordings		
Reported to:	Internal IMR report, VNIRO, ICES.		

Nation:	Norway	Survey title:	Herring larvae
Organisation:	IMR		
Time period:	April	Vessel:	R/V Håkon Mosby
Target species:	Herring	Secondary species:	Saithe
Area:	Norwegian shelf areas from Karmøy to Tromsø		
Purpose:	Distribution and abundance of herring larvae		
Reported to:	Internal IMR survey report, WGNPBW 2008		

Nation:	Norway	Survey title:	Norwegian Sea survey
Organisation:	IMR		
Time period:	May	Vessel:	R/V G.O. Sars
Target species:	Herring, Blue whiting	Secondary species:	Zooplankton
Area:	Norwegian Sea		
Purpose:	Acoustic abundance estimation of pelagic fish and plankton, hydrography		
Reported to:	Internal IMR survey report, WGNPBW 2008, ICES PGNAPES 2008		

Nation:	Norway	Survey title:	Bottom trawl survey Greenland halibut Pelagic trawl survey *Sebastes mentelle*
Organisation:	IMR		
Time period:	August-September	Vessel:	1 hired commercial vessel
Target species:	Greenland halibut	Secondary species:	*S. marinus, Sebastes mentella*
Area:	68ºN - 80ºN, 400 – 1500 meter depth		
Purpose:	Bottom trawl survey with fixed trawl stations		
Reported to:	Internal IMR survey report, ICES AFWG 2008		

Nation:	Norway	Survey title:	Fjord and coastal ecosystem survey
Organisation:	IMR		
Time period:	Oktober-November	Vessel:	R/V "Johan Hjort"
	November-December		R/V H. Mosby
Target species:	Saithe, coastal cod, 0-group herring, sprat	Secondary species:	Haddock, *Sebastes marinus*
Area:	North Norwegian fjord 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, WBNPBW 2008, AFWG 2008		

Nation:	Norway	Survey title:	Herring wintering area
Organisation:	IMR		
Time period:	November-December	Vessel:	R/V G O Sars
Target species:	Herring	Secondary species:	
Area:	Vestfjorden and shelf areas outside Lofoten-Vesterålen		
Purpose:	Acoustic abundance estimation and distribution of herring		
Reported to:	Internal IMR survey report, WGNPBW 2008		

Nation:	Norway	Survey title:	Tagging young Greenland halibut
Organisation:	IMR		
Time period:	July-August	Vessel:	Hired vessel
Target species:	Greenland halibut	Secondary species:	
Area:	Spitsbergen area		
Purpose:	Tagging of Greenland halibut		
Reported to:	Internal IMR report, AFWG 2008		

Nation:	Norway	Survey title:	Greenland halibut absolute abundance estimation
Organisation:	IMR		
Time period:	April	Vessel:	Hired commercial trawler
Target species:	Greenland halibut	Secondary species:	*Sebastes sp.*
Area:	Continental slope of the Barents Sea		
Purpose:	Absolute abundance estimation		
Reported to:	Internal IMR report, AFWG2009		

Nation:	Norway	Survey title:	Survey Strategy NSS herring
Organisation:	IMR		
Time period:	November - December	Vessel:	Hired commercial vessel
Target species:	Herring	Secondary species:	
Area:	Norwegian Sea		
Purpose:	Survey strategy/Absolute abundance estimation		
Reported to:	Internal IMR report, NPBWWG2009		

Nation:	Norway	Survey title:	Sonar measurments
Organisation:	IMR		
Time period:	November-December	Vessel:	Hired commercial vessel
Target species:	herring	Secondary species:	
Area:	Norwegian Sea		
Purpose:	Acoustic measurements		
Reported to:	Internal IMR report, NPBWWG2009		

In addition to these surveys, Norway will conduct the following surveys in connection with the International Polar year (IPY):

Nation:	Norway	Survey title:	NESSAR Norwegian Sea
Organisation:	IMR		
Time period:	May-June	Vessel:	R/V Johan Hjort
Target species:	Herring	Secondary species: Blue whiting:	
Area:	Polar front area of the Norwegian Sea		
Purpose:	Environmental studies in frontal areas		
Reported to:	IPY framework		

Nation:	Norway	Survey title:	NESSAR Barents Sea
Organisation:	IMR/University of Tromsø		
Time period:	April-May	Vessel:	R/V Jan Mayen
Target species:	Capelin	Secondary species:	
Area:	Polar front area of the Barents Sea		
Purpose:	Environmental studies in frontal areas		
Reported to:	IPY framework		

Russian investigations

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
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 links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
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:	Spitsbergen area, Grey zone		
Purpose:	Study of spatial and temporal distribution of concentrations; study of trophic links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
Organisation:	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 links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2009		

Nation:	Russia	Survey title:	Collection o data on CPUE, biological data on species, sex and age composition Greenland halibut catches for the stock assessment
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 links between Greenland halibut and other species; study of seasonal dynamics of catches, investigation of Greenland halibut migration paths, timing and distance using tagging; investigation of Greenland halibut behaviour in the trawl mouth area with the use of deepwater video-acoustic complex.		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2009		

Nation:	Russia	Survey title:	Refinement of methods for Greenland halibut stock assessment by long-line, CPUE
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:	PINRO survey report for internal use; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Evaluation of resources for long-line fishery. Investigation of species and sex-size compositions in long-line and trawl catches.
Organization:	PINRO		
Time period:	January-December	Vessel:	2 long-liners
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, redfishes (*S. mentella*, *S. marinus*), Greenland halibut and other
Area:	Exclusive Economic Zone of Norway and Spitsbergen area, Exclusive Economic Zone of RF and "Grey zone"		
Purpose:	Elaboration of recommendations on effective use of resources for long-line fishery		
Reported to:	Survey report for internal use; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Complex investigation of stocks of commercial species based on modern research technology.
Organization:	VNIRO		
Time period:	January-December	Vessel:	5 vessels, trawl and long-line
Target species:	Cod, haddock	Secondary species:	Catfishes, long rough dab, halibut and other species
Area:	Exclusive Economic Zone of RF and Norway, "Grey zone", Loophole, Spitsbergen area		
Purpose:	Complex investigation of stocks of commercial species based on modern research technology. Tagging experiments (ref. IMR- VNIRO MoU, Oct 2007). Collection of CPUE data, biological state during wintering and spawning, species composition of catches, including histological data.		
Reported to:	Survey report for internal use; ICES AFWG in 2007 and 2008		

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
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 RF and "Grey zone", inland 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 bycatch of undersized fish.		
Reported to:	Survey report for internal use; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Assessment of stocks and distribution of commercial species of living marine resources. Collection of CPUE data
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 bycatch of undersized fish.		
Reported to:	For internal use by PINRO; ICES AFWG in 2008 and 2009		

Nation:	Russia	Survey title:	Survey for haddock, saithe and other demersal species
Organization:	PINRO		
Time period:	May-June	Vessel:	R/V "Fridtjof Nansen" or R/V "Smolensk", R/V "Professor Boiko"
Target species:	Haddock, saithe, cod	Secondary species:	Redfish, northern wolfish, spotted catfish, long rough dab
Area:	The Barents Sea basin including Exclusive Economic Zone of Norway, "Grey zone", Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Assessment of immature part of the haddock stock, quantitative estimation of saithe migrating for feeding from the EEZ of Norway to EEZ of RF and the "Grey Zone"; oceanography, investigation of possibilities and conditions of summer and autumn fishery for haddock and saithe in the EEZ of RF		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2009		

Nation:	Russia	Survey title:	Testing of methods to assess juveniles of saithe, cod, haddock and other demersal species in Murman fjords
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 RF including internal sea waters and territorial sea of RF		
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:	PINRO survey report for internal use; ICES AFWG in 2009		

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
Organization:	PINRO		
Time period:	October-December	Vessel:	R/V “Fridtjof Nansen”, R/V “Smolensk
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 RF including internal sea waters and territorial sea of RF		
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:	Survey report for internal use; ICES AFWG in 2009		

Nation:	Russia	Survey title:	Trawl-Acoustic survey for spawning concentrations of herring in the Norwegian Sea
Organization:	PINRO		
Time period:	February-March	Vessel:	2 rented vessels
Target species:	Herring	Secondary species:	
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:	PINRO survey report for internal use; ICES WG NPBW in 2008		

Nation:	Russia	Survey title:	Delimitation of mackerel feeding concentrations; study of mackerel feeding migration in the Norwegian Sea in summer
Organization:	PINRO		
Time period:	May-September	Vessel:	2 rented vessels
Target species:	Mackerel	Secondary species:	Blue whiting, herring
Area:	Fishing zone of the Faroe Islands, open 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:	PINRO survey report for internal use; WG ICES		

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)
Organization:	PINRO		
Time period:	July-August	Vessel:	1 research vessel of PINRO Airborne laboratory AN-26 "Arktika"
Target species:	Mackerel	Secondary species:	Herring, blue whiting, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters at the sea surface
Area:	Fishing zone of the Faroe Islands, open Norwegian Sea, exclusive Economic Zone of Norway, 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 at the sea surface including identification of areas with high biological productivity		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2008, Planning Group on Ecosystem Surveys in the Pelagic Northeast Atlantic, Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (WGMHSA).		
Comment:	NEAFC Annual meeting.		

Nation:	Russia	Survey title:	Study of formation of herring concentrations
Organization:	PINRO		
Time period:	August-September	Vessel:	2 rented vessels
Target species:	Herring	Secondary species:	Blue whiting, saithe, mackerel
Area:	Norwegian Sea, Exclusive Economic Zone of Norway, Spitsbergen area, open sea		
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:	PINRO survey report for internal use; ICES WG NPBW in 2008		

Nation:	Russia	Survey title:	Improvement of a method to assess biomass of feeding mackerel
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:	VNIRO survey report for internal use; ICES WG in 2008		

Nation:	Russia	Survey title:	Estimation of biomass of spawning spring-spawning herring based on the methodology of synoptical monitoring
Organization:	VNIRO		
Time period:	January-March	Vessel:	1 rented vessel
Target species:	Herring	Secondary species:	Blue whiting, saithe, cod
Area:	Norwegian Sea, Norwegian EEZ		
Purpose:	Introduction of new methods of pelagic fish stocks assessments based on satellite monitoring of environment and fishery.		
Reported to:	VNIRO survey report for internal use; ICES WG in 2008		

Nation:	Russia	Survey title:	Trawl-acoustic survey for capelin spawning stock
Organization:	PINRO		
Time period:	January-March	Vessel:	1 rented vessel
Target species:	Capelin, herring	Secondary species:	
Area:	The Barents Sea basin including Exclusive Economic Zone of Norway, Exclusive Economic Zone of RF and “Grey zone”, internal sea waters and territorial sea of RF		
Purpose:	Estimation of abundance and biomass of capelin from older age groups to control estimates of the capelin stock		
Reported to:	Joint Report Series PINRO/IMR; ICES AFWG in 2008		
Comment:			

Nation:	Russia	Survey title:	Study of distribution of capelin fishable concentrations
Organization:	PINRO		
Time period:	November-December	Vessel:	1 rented vessel
Target species:	Capelin	Secondary species:	Polar cod
Area:	The Barents Sea basin, Spitsbergen area, “Grey zone”, “Loophole”, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
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:	Survey report for internal use; ICES AFWG in 2008		

Nation:	Russia	Survey title:	International ecosystem survey of herring and blue whiting stocks in the Barents and Norwegian Seas
Organization:	PINRO		
Time period:	May-June (15 vessel/days)	Vessel:	Russian RV “F. Nansen” 5 foreign RVs
Target species:	Herring, blue whting	Secondary species:	Other pelagic species
Area:	The Barents and Norwegian Seas, Exclusive Economic Zone of RF, “Grey zone”, internal sea waters and territorial sea of RF		
Purpose:	Acoustic survey of the stocks, oceanography		
Reported to:	Survey report for internal use; ICES WG NPBW in 2008, ICES PGNAPES in 2008		

Nation:	Russia	Survey title:	Trawl-acoustic survey for redfish *(S. mentella)* of the Norwegian-Barents Sea population. Evaluation of strength of redfish yearclasses
Organization:	PINRO		
Time period:	April-May	Vessel:	R/V "Fridtjof Nansen" or R/V "Smolensk"
Target species:	Redfish (*Sebastes mentella*)	Secondary species:	Redfish (*S. 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:	PINRO survey report for internal use; ICES AFWG in 2007 and 2008		

Joint investigations

Nation:	Norway/Russia	Survey title:	Joint Winter Survey
Organization:	PINRO/IMR		
Time period:	January-March	Vessel:	R/V Jan Mayen and R/V Johan Hjort
	January – March		R/V "Fridtjof Nansen" and R/V "Smolensk"
Target species:	Cod, Haddock, capelin, herring	Secondary species:	Redfish *Sebastes mentella, S. marinus*, Greenland halibut, catfishes
Area:	Exclusive Economic Zone of Russia and Exclusive Economic Zone of Norway		
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 2008		

Nation:	Norway/Russia	Survey title:	Survey of blue whiting spawning areas
Organization:	PINRO/IMR		
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		
Purpose:	Estimation of abundance and distribution of spawning blue whiting, oceanography, plankton, survey of the Rockall haddock, methods for acoustic survey		
Reported to:	Joint IMR/PINRO survey report for internal use; ICES WGNPBW in 2008, ICES PGNAPES in 2008		

Nation:	Russia	Survey title:	International ecosystem survey of herring and blue whiting stocks in Norwegian Sea
Organization:	PINRO		
Time period:	May - June (20 vessel/days)	Vessel:	RV "F. Nansen" R/V "G.O.Sars" 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:	Survey report for internal use; ICES WG NPBW in 2008, ICES PGNAPES in 2008		

Nation:	Russia	Survey title:	International trawl-acoustic survey for pelagic fish
Organization:	PINRO		
Time period:	June-August	Vessel:	1 Russian 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 pelgic fish in summer in the Norwegian Sea; oceanographic and hydrobiological surveys		
Reported to:	Survey report for use at PINRO; ICES AFWG in 2008; NEAFC Annual meeting		
Comment:			

Nation:	Norway/Russia	Survey title:	Joint survey for feeding mackerel in the Norwegian Sea
Organization:	PINRO/IMR		
Time period:	15.07-06.08 June - August	Vessel:	2 vessels chartered by IMR 1 R/V "PINRO" 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
Area:	The Norwegian Sea		
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:	Survey report for IMR and PINRO; ICES WG; NEAFC meeting		

Nation:	Norway/Russia	Survey title:	Joint ecosystem survey, autumn
Organization:	PINRO/IMR		
Time period:	August-September August-September August-September August-September	Vessel:	R/V "G.O Sars" R/V "Johan Hjort" R/V "Jan Mayen" R/V "Smolensk" R/V "Fridtjof Nansen" Airborne laboratory AN-26, "Arktika"
Target species:	Greenland halibut, redfishes, shrimp, herring, capelin, 0-group of different species	Secondary species:	Other pelagic and demersal species, benthic organisms, sea mammals and birds
Area:	The Norwegian Sea, Exclusive Economic Zone of Russia, "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, 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 WGNPBW in 2009; ACFM in autumn 2008		

3. Research program on Greenland Halibut

The Joint Russian-Norwegian Fisheries Commission at its 34th session (2005) requested scientists form 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 who distribute in pelagic layers;
- investigate sexual dimorphism and effect of fisheries on population structure;
- improve methods of stock assessment;
- develop optimal long-term harvesting strategy.

The program is to be implemented in 2007-2009. Primary data and preliminary results will be presented at the ICES Arctic Fisheries Working Group. Final report on the program will be presented in 2010.

In summer-autumn 2008, PINRO plan to carry out trawl acoustic survey on Greenland halibut in the eastern part of the Barents Sea and the western part of the Kara Sea, in which the participation of Norwegian specialists are welcomed.

4. Red king crab (Paralithodes camtschaticus)

Based on the decisions of the 35th session of the Joint Russian-Norwegian Fisheries Commission and meeting of scientists in March, a joint Working Group on the red king crab was established.

The main aim of this Working Group is coordination of joint scientific research of the Atlantic population of the red king crab conducted by PINRO, VNIRO and IMR, as well as exchange of knowledge from national research programs. This working group will respond to requests from the Joint Russian-Norwegian Fisheries Commission.

The working group will meet at least once a year in the period of the traditional March meeting of scientists. A list of participants to the meetings of the Working Group will be made in accordance with the exact subject of each meeting. Scientists from other institutions suggested by PINRO, VNIRO and IMR may attend meetings of this WG.

The ongoing three-year program will be reported to the Commission in 2008.

Norwegian investigations

Nation:	Norway	Survey title:	Red king crab survey
Organisation:	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
Organisation:	IMR		
Time period:	SeptemberOctober	Vessel:	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
Organisation:	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:	Research on the red king crab stock in the spawning period by trawl survey
Organization:	PINRO		
Time period:	April-May	Vessel:	1 medium-tonnage vessel
Target species:	Red king crab	Secondary species:	Snow crab *Opilio*, cod, haddock
Area:	The Barents Sea, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	Study of spatial distribution of the red king crab during moulting and spawning; collection of biological data (size, sex and age composition, eksoskeleton, etc.); crab tagging to study migration; underwater video.		
Reported to:	PINRO report for internal use		

Nation:	Russia	Survey title:	Stock assessment of the red king crab by trawl survey
Organization:	PINRO		
Time period:	August-September	Vessel:	1 medium-tonnage vessel
Target species:	Red king crab	Secondary species:	Snow crab *Opilio*, cod, haddock
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
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:	PINRO report for internal use. VNIRO		

Nation:	Russia	Survey title:	Red king crab trap survey
Organization:	VNIRO		
Time period:	January-February and September - December	Vessel:	5 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:	VNIRO report for internal use. PINRO		

Nation:	Russia	Survey title:	Estimation of trap's effective area and coefficient of catchability of trawl
Organization:	VNIRO		
Time period:	September-November	Vessel:	1 trawler and 2 vessel with traps
Target species:	Red king crab	Secondary species:	Demersal fish species
Area:	The Barents and White seas, Exclusive Economic Zone of RF, internal sea waters and territorial sea of RF		
Purpose:	The estimation of trap's effective area and coefficient of catchability of bottom trawl for the stock assessment of red king crab including parallel trap and trawl investigation and use of autonomous underwater video-computer recorder.		
Reported to:	VNIRO report for internal use.		

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.
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 RF, internal sea waters and territorial sea of RF		
Purpose:	Search of means for minimization of the red king crab by-catches in fisheries for cod and haddock. Recommendation on improvement of trawl design.		
Reported to:	PINRO report for internal use.		

Nation:	Russia	Survey title:	SCUBA-diving survey of red king crab
Organization:	PINRO, VNIRO		
Time period:	March-April June August-September	Vessel:	2 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:	PINRO report for internal use.		

Nation:	Russia	Survey title:	Aquaculture of red king crab
Organization:	PINRO, VNIRO		
Time period:	January-December	Vessel:	2 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, internal sea waters and territorial sea of the Russian Federation		
Purpose:	Collection of material for experimental works on the crab males rearing until optimal filling of the legs. Development of biotechniques for aquaculture of red king crab		
Reported to:	PINRO report for internal use.		

Nation:	Russia	Survey title:	Collection of data on CPUE. Biological sampling
Organization:	PINRO		
Time period:	January-December	Vessel:	10 vessels 10 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, 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:	PINRO report for internal use.		

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
Organisation:	IMR		
Time period:	May	Vessel:	Hired vessel
Target species:	Shrimp	Secondary species:	
Area:	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
Organisation:	IMR		
Time period:	August - December	Vessel:	Hired vessel
Target species:	Cod and Haddock	Secondary species:	Saithe
Area:	Barents Sea		
Purpose:	Trawl efficiency		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Development of trawl sampling gear
Organisation:	IMR		
Time period:	February	Vessel:	R/V "Johan Hjort" R/V "Jan Mayen"
Target species:	Cod, haddock	Secondary species:	saithe
Area:	Barents Sea		
Purpose:	Development of new survey trawl,		
Reported to:	Internal IMR survey report, ICES		

Nation:	Norway	Survey title:	Impact of bottom trawl on benthic habitats, experiments with pelagic trawl
Organisation:	IMR		
Time period:	October	Vessel:	R/V "G.O.Sars"
Target species:	Cod, haddock	Secondary species:	saithe
Area:	Barents Sea		
Purpose:	Impact of bottom trawl on benthic habitat, pelagic trawling		
Reported to:	Internal IMR survey report, EU report		

Russian investigations:

Nation:	Russia	Survey title:	Study of comparative fishing efficiency "trawl – long-line". Refinement of methods for Greenland halibut stock assessment
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		
Reported to:	PINRO survey report for internal use; ICES AFWG in 2009		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems
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.		
Reported to:	PINRO survey report for internal use. Joint Russian-Norwegian Fisheries Commission		

Nation:	Russia	Survey title:	Selectivity studies of new sorting systems
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.		
Reported to:	PINRO survey report for internal use, Joint Russian-Norwegian Fisheries Commission		

Nation:	Russia	Survey title:	Study of a possibility to use Danish seine
Organization:	PINRO		
Time period:	April -November	Vessel:	1 Danish seiner
Target species:	Cod	Secondary species:	Saithe, northern wolfish, spotted catfish, flatfishes
Area:	Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of RF		
Purpose:	Study of a possibility to use Danish seine with the purpose of application of resource-saving technology to fisheries.		
Reported to:	PINRO survey report for internal use. Joint Russian-Norwegian Fisheries Commission		

Nation:	Russia	Survey title:	Study of efficiency of “windows” in traps to allow juvenile crab escapement
Organization:	PINRO		
Time period:	January –February October-December	Vessel:	1 medium-tonnage vessel
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone of the Russian Federation, internal sea waters and territorial sea of RF		
Purpose:	Evaluation of the efficiency of “windows” in net cover of traps for decrease of juvenile crabs caught by them.		
Reported to:	PINRO survey report for internal use, Joint Russian-Norwegian Fisheries Commission.		

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

The project will be carried out according to the mandate from the Joint Norwegian-Russian Fisheries Commission. 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 the taking into account its interaction with other stocks and with the environment. The work plan consists of two steps:

- In step 1 (2005 - 2007) the possible long-term yield of cod will be evaluated using

existing data and models
- In step 2 (2008 - 2014) the long-term yield of the main commercial species will be evaluated taking into account species interdependence using a joint multispecies model

7. Monitoring of pollution levels in the Barents Sea

PINRO and IMR will continue to monitor pollution levels in accordance with national programmes. Scientists from both institutes plan to discuss and exchange results from investigations during the meeting of scientists in March 2008.

The investigations of both countries are based on 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 continue in 2008 according to the established routines. Meeting between specialists in age reading of capelin will be held in Bergen in spring/summer 2009, and similar meeting on cod, haddock and Greenland halibut will take place in Murmansk in summer 2008. Exact timing of the meeting will be decided by correspondence.

9. Marine mammals

The effect of marine mammals, 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 are hunted. There is, therefore a need for joint research on marine mammals, including boat based as well as airborne surveys. The joint Russian-Norwegian research should be aimed at assessments of distribution and abundance of the most important species, and their trophic linkages with other resources.

Norwegian activities in 2008 include sampling of biological material from harp seals during commercial sealing in the southeastern Barents Sea and in the Greenland Sea, and from hooded seals during research surveys. Abundance estimation surveys of grey seals will also be conducted at the Norwegian coast. Surveys to estimate abundance of minke whale will be carried out in the eastern Barents Sea, whereas satellite tags will be deployed on minke whales and other whale species in the Barents Sea.

In 2008, the Russian Party will conduct annual multispectral aerial surveys of harp seals of the White Sea population on their whelping grounds 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.

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.

Norwegian investigations:

Nation:	Norway	Survey title:	Monitoring of biological parameters in harp seals
Organisation:	IMR		
Time period:	March-April	Vessel:	1 sealer
Target species:	Harp seal	Secondary species:	
Area:	Southeastern 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
Organisation:	IMR		
Time period:	March-April	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:	Monitoring of biological parameters in hooded seals
Organisation:	IMR		
Time period:	June-July	Vessel:	Research vessel (“Jan Mayen”)
Target species:	Hooded seal	Secondary species:	
Area:	Greenland Sea		
Purpose:	Collection of biological material from hooded seals during research survey		
Reported to:	ICES, NAMMCO; JNRFC		

Nation:	Norway	Survey title:	Abundance estimation Grey seals
Organisation:	IMR		
Time period:	November	Vessel:	GM Dannevig
Target species:	Grey seals	Secondary species:	
Area:	Norwegian coast		
Purpose:	Abundance estimation Grey seals		
Reported to:	NAMMCO		

Nation:	Norway	Survey title:	Sighting survey Minke whale
Organisation:	IMR		
Time period:	July-August	Vessel:	2 rented vessels
Target species:	Minke whale	Secondary species: Other whales	
Area:	Greenland Sea, Spitsbergen, Western Barents Sea		
Purpose:	Sighting survey Minke whale		
Reported to:	IWC, NAMMCO		

Nation:	Norway	Survey title:	Telemetric tagging of minke whales
Organisation:	IMR		
Time period:	May-June	Vessel:	1 rented vessel
Target species:	Minke whales	Secondary species: Other whales	
Area:	North Sea, Norwegian cpoast		
Purpose:	Telemetric tagging of minke whales		
Reported to:	IWC, NAMMCO		

Joint investigations:

Nation:	Noway/Russia	Survey title:	Aerial survey to assess possible new harp and hooded seal breeding patches
Organisation:	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:	Survey report for internal use at IMR and PINRO; Joint Russian-Norwegian Fisheries Commission, ICES/NAFO WG on Harp and Hooded Seals (WGHARP), NAMMCO.		
	(dependent on project approval from Norw.Res.Council)		

Nation:	Russia/Norway	Survey title:	Harp seal tagging in the White Sea
Organisation:	PINRO, IMR		
Time period:	April-May	Vessel:	1 helicopter
Target species:	Harp seal	Secondary species:	
Area:	The White Sea coast		
Purpose:	Study of the harp seal biology and ecology, using satellite telemetry		
Reported to:	Survey report for internal use at IMR, PINRO; ICES; NAMMCO; JNRFC		

Nation:	Russia/Norway	Survey title:	Marine mammals survey
Organisation:	PINRO, IMR		
Time period:	August-October	Vessel:	2 research vessels from Norway, 2 research vessels from Russia, Airborne laboratory AN-26 "Arktika"
Target species:	Pelagic fishes, 0-group, 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:	Survey report for internal use at IMR and PINRO; NAMMCO; JNRFC		

Russian investigations:

Nation:	Russia	Survey title:	Multispectral aerial survey of whelping and moulting grounds of harp seal in the White Sea
Organization:	PINRO		
Time period:	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		
Purpose:	Study of distribution and estimation of number of the White Sea harp seal on whelping and moulting grounds for further calculation of number of animals in the population and the use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), ICES AFWG; ICES WG on Marine Mammal Ecology (WGMME), Joint Russian-Norwegian Fisheries Commission, NAMMCO		

Nation:	Russia	Survey title:	Investigation of reproduction biology and ecology of harp seal in the White Sea
Organization:	PINRO		
Time period:	February-May	Vessel:	Coastal and ice hunting 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 for further use in calculations of number of animals in the population and the use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP),, ICES AFWG; Joint Russian-Norwegian Fisheries Commission,		

Nation:	Russia	Survey title:	Coastal research and observations on the White Sea harp seal and minke whale
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 estimation of number, as well as migration routes of the target and secondary species for further use of data obtained in the ecosystem modelling.		
Reported to:	Survey report for internal use at PINRO; ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP), ICES WG on Marine Mammal Ecology (WGMME), ICES AFWG; NAMMCO, IWC		

Nation:	Russia	Survey title:	Aerial survey of marine mammals within the frames of their complex estimation during annual Russian-Norwegian ecosystem research
Organization:	PINRO		
Time period:	September	Vessel:	Airborne laboratory AN-26 "Arktika"
Target species:	Minke whale humpback whale, white-beaked dolphin	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:	Survey report for internal use at PINRO; Joint Russian-Norwegian Fisheries Commission, ICES AFWG, ICES WG on Marine Mammal Ecology (WGMME), NAMMCO, IWC.		

10. Investigations on survey methodology

The Joint Working Group on the improvement of survey methodology took place in Bergen on 11-12 April 2007. The Working Group discussed the following themes: "Improvement of standard survey methods", "Combination of survey methods for the full assessment" and "Future development in the survey methods". Summary of discussions and recommendations were presented to the 36th session of the Joint Russian-Norwegian fisheries Commission.

The Working Group agreed that 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 2008.

11. Russian-Norwegian Fisheries Science Symposia

The 12th Russian-Norwegian Symposium was held on 21-22 August 2007 in Tromsø, Norway.

The title of the symposium is: "Long term bilateral Russian-Norwegian scientific co-operation as a basis for sustainable management of living marine resources in the Barents Sea"

Theme sessions:

- Establishment and maintenance of long time marine data bases
- Development and implementation of new methods and models
- Long term changes in the Barents Sea ecosystem

The 13th Russian-Norwegian Symposium shall be arranged in Russia in 2009. The topic is suggested to be on the Red King Crab population development and ecosystem effects in the Barents Sea. Further planning of the Symposium will be done during the March Meeting in Tromsø 2008.

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 2008, and considered during the March meeting. The program should include exchange 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

On 27-28 August 2007 ICES Northern Pelagic and Blue Whiting Fisheries Working Group was informed about the progress in the development of a unified model for the herring stock assessment. A general concept of such model was designed in 2005-2006 during meetings of Russian and Norwegian experts. At present, realization of the model has been started but because of a lack of specific financing the program is far from its final stage. It is necessary to consider a possibility of bilateral financing of this project. It is expected that the next meeting of Russian and Norwegian experts participating in the model development will take place in Bergen in the first half of 2008.

14. Joint three-year program on benthic living animals

Work on this program has proceeded according to the decisions made during the March Meeting. Joint field work was done during the ecosystem survey in August to September 2007.

Joint three-year experience in work with bycatch in bottom trawls showed the necessity to make an electronic atlas of demersal macroorganisms 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.

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

The 3 year program will be presented to the joint Russian-Norwegian Fishery Commission in 2009. At the March meeting in 2008 special emphasis should be given to discuss the structure and contents of the final report.

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
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:	Survey report for internal use; 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. There were three meetings during which the period of the project (2007-2010), content and structure of the book as well as some technical details were agreed. It was also agreed to hold the next meeting of Russian and Norwegian scientists within the frames of this project in Kirkenes in December 2007.

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 2007" 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 2008:

- 11 000 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
- 4 000 tonnes of Greenland halibut
- 2 000 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

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

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