Appendix 10

JOINT NORWEGIAN – RUSSIAN SCIENTIFIC RESEARCH PROGRAM ON LIVING MARINE RESOURCES IN 2005

Contents

1. Planning and coordination of investigations and submitting of results

This program contains the investigations to be carried out in 2005 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. Planning, coordination, accomplishment of the investigations, exchange of specialists, data and results will be settled between the two institutes involved. Scientists and specialists from PINRO and IMR will meet in Russia 15-17 March 2005, to discuss joint research programmes, results from surveys and investigations in 2004/2005 and to coordinate survey plans for the rest of 2005. Missing names on vessels and time periods for surveys in this report will be submitted, latest at 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.

One report has been issued in the Joint IMR-PINRO Report Series by 27. October 2004. In 2003, three reports were issued.

A preliminary program for the planned surveys and cooperation 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:

- the stock structure of Northeast arctic cod, based on the joint research program 2004-2005.
- shrimp research as recommended by the ICES/NAFO working group – with the objective to give recommendations that include the conservation of biodiversity
- by-catch of juvenile fish in the shrimp fishery

Norwegian investigations

Nation:	Norway	Survey title:	Herring spawning area
Time period:	14.02 – 06.03	Vessel:	R/V "Håkon Mosby"
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 2005		

Nation:	Norway	Survey title:	Bottom trawl survey Greenland halibut
Time period:	21.02 – 20.03	Vessel:	Hired trawler "Havstrand"
Target species:	Greenland halibut *Sebastes mentella*	Secondary species:	*S. marinus*
Area:	68ºN - 80ºN, 400 – 1500 meter depth		
Purpose:	Bottom trawl survey with fixed trawl stations		
Reported to:	Internal IMR survey report, ICES AFWG 2005		

Nation:	Norway	Survey title:	Tagging experiment Greenland halibut
Time period:	21.02 – 05.03	Vessel:	Hired longliner "Kamaro"
Target species:	Greenland halibut	Secondary species:	
Area:	68ºN - 80ºN		
Purpose:	Tagging survey and fishing experiments with vertical lines		
Reported to:	Internal IMR survey report, ICES AFWG 2005		

Nation:	Norway	Survey title:	Bottom trawl survey Greenland halibut
Time period:	21.02 – 20.03	Vessel:	Hired trawler "Varegg"
Target species:	Greenland halibut *Sebastes mentella*	Secondary species:	*S. marinus*
Area:	62ºN - 70ºN, 400 – 1500 meter depth + Bear Island channel		
Purpose:	Bottom trawl survey with fixed trawl stations		
Reported to:	Internal IMR survey report, ICES AFWG 2005		

Nation:	Norway	Survey title:	Cod spawning stock
Time period:	18.03 – 08.04	Vessel:	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 2005		

Nation:	Norway	Survey title:	Herring larvae
Time period:	18.03 – 03.04	Vessel:	Håkon Mosby
Target species:	Herring	Secondary species:	Saithe
Area:	Norwegian shelf areas from Andenes to Karmøy		
Purpose:	Distribution and abundance of herring larvae		
Reported to:	Internal IMR survey report, WGNPBW 2005		

Nation:	Norway	Survey title:	Shrimp survey
Time period:	18.04 – 09.05	Vessel:	Jan Mayen
Target species:	Shrimp	Secondary species:	Various groundfish species
Area:	Barents Sea		
Purpose:	Abundance and distribution of shrimp and benthos monitoring, hydrography		
Reported to:	Internal IMR survey report, ICES AFWG 2006		

Nation:	Norway	Survey title:	Norwegian Sea survey
Time period:	06.05 – 08.06	Vessel:	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 2005, ICES PGSPFN 2005		

Nation:	Norway	Survey title:	Greenland halibut, trawl CPUE
Time period:	19.05 – 28.05	Vessel:	Two hired commercial trawlers
Target species:	Greenland halibut	Secondary species:	
Area:	Troms – Spitsbergen 70º30'N - 73º30'N (6 days), 73º30'N - 76º00'N (5 days)		
Purpose:	Abundance of Greenland halibut based on catch rates by commercial trawl (CPUE)		
Reported to:	Internal IMR survey report, ICES AFWG 2006 and PINRO		

Nation:	Norway	Survey title:	Bottom trawl survey Greenland halibut
Time period:	01.08 – 26.08	Vessel:	Hired trawler "Brattegg"
Target species:	Greenland halibut *Sebastes mentella*	Secondary species:	*S. marinus*
Area:	68ºN - 80ºN, 400 – 1500 meter depth		
Purpose:	Bottom trawl survey with fixed trawl stations		
Reported to:	Internal IMR survey report, ICES AFWG 2006		

Nation:	Norway	Survey title:	Fjord and coastal ecosystem survey
Time period:	11.10 – 08.11 11.10 – 11.11	Vessel:	R/V "Johan Hjort" R/V "Jan Mayen"
Target species:	Saithe, coastal cod, 0-group herring	Secondary species:	Haddock, *Sebastes marinus*
Area:	North Norwegian fjord and coastal areas from Varanger to Møre.		
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 2006, AFWG 2006		

Nation:	Norway	Survey title:	Herring wintering area
Time period:	10.11 – 29.11	Vessel:	R/V "Johan Hjort"
Target species:	Herring	Secondary species:	
Area:	Vestfjorden and shelf areas outside Lofoten-Vesterålen		
Purpose:	Acoustic abundance estimation of herring		
Reported to:	Internal IMR survey report, WGNPBW 2006		

Russian investigations

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.01-30.03 01.04-30.06	Vessel:	1 trawler 1 trawler
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfish
Area:	Exclusive Economic Zone of Norway between 70°00'-73°30'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl", mass tagging. Determination of density of Greenland halibut distribution under natural conditions with the use of video-acoustic complexes.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.01-31.03 01.04-30.06	Vessel:	1 trawler 1 trawler
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfish
Area:	Area adjacent to Spitsbergen between 73°30' – 76°00'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl", mass tagging. Determination of density of Greenland halibut distribution under natural conditions with the use of video-acoustic complexes.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.01-31.03	Vessel:	1 long-liner
	01.04-30.06		1 long-liner
Target species:	Greenland halibut	Secondary species:	Cod, catfishes, redfish, tusk, skates
Area:	Exclusive Economic Zone of Norway and area adjacent to Spitsbergen between 70°00' – 76°00'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl"		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.01-31.03	Vessel:	1 long-liner
	01.04-30.06		1 long-liner
Target species:	Cod, haddock	Secondary species:	Catfish, skates, tusk
Area:	Exclusive Economic Zone of Norway and area adjacent to Spitsbergen between 70°00' – 78°00'N		
Purpose:	Study of resources for long-line fishery, morphophysiological characteristics and structure of concentrations		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.01-31.03	Vessel:	1 long-liner
	01.04-30.06		1 long-liner
Target species:	Cod, haddock	Secondary species:	Catfish, skates, tusk
Area:	The Barents Sea, Exclusive Economic Zone of Russian Federation and "Grey zone"		
Purpose:	Study of resources for long-line fishery, morpho-physiological characteristics and structure of concentrations		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	10.01-10.04	Vessel:	4 trawler
Target species:	Cod, haddock	Secondary species:	Catfish, plaice, long rough dab, saithe, redfish
Area:	The Barents Sea, Exclusive Economic Zone of RF and "Grey zone", inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of data on distribution and biological status during wintering and spawning, study of trophic links "predator – prey", intra-species structure using genetic methods, quantitative estimation of by-catch of undersized fish.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	15.01-31.03	Vessel:	5 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, long rough dab, saithe, redfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway, "Grey zone", international waters and area adjacent to Spitsbergen		
Purpose:	Collection of data on distribution and biological status during wintering and spawning, study of trophic links "predator – prey" and other ecological relations		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Distribution and migration of spawning and post-spawning herring
Time period:	February-March	Vessel:	1 trawler
Target species:	Herring	Secondary species:	Other pelagic species
Area:	The Norwegian Sea		
Purpose:	Study of herring distribution, collection of biological data for the stock assessment		
Reported to:	Survey report for internal use; ICES WG NPBW in 2005		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.04-30.06	Vessel:	4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, plaice, long rough dab, saithe, redfish
Area:	The Barents Sea, Exclusive Economic Zone of RF and "Grey zone", inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of data on distribution and biological status during feeding migration, cod tagging, study of trophic links "predator – prey"		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.04-30.06	Vessel:	5 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, long rough dab, saithe, redfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway, "Grey zone", international waters and area adjacent to Spitsbergen		
Purpose:	Collection of data on distribution and biological status during feeding migration, study of trophic links "predator – prey" and genetic structure of cod population		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Redfish *Sebastes mentella*
Time period:	April-May	Vessel:	1 research vessel
Target species:	Redfish *Sebastes mentella*	Secondary species:	Other demersal fishes
Area:	The Barents Sea including Exclusive Economic Zone of Norway and area adjacent to Spitsbergen		
Purpose:	Assessment of redfish abundance and biomass, oceanography		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Shrimp and demersal fishes
Time period:	April-May	Vessel:	1 trawler
Target species:	Shrimp and demersal fishes	Secondary species:	Other demersal fishes
Area:	The Barents Sea including "Grey zone", Exclusive Economic Zone and inland sea waters and territorial waters of the Russian Federation		
Purpose:	Assessment of shrimp abundance and distribution		
Reported to:	Survey report for internal use; Joint ICES/NAFO WG on shrimp in 2005		

Nation:	Russia	Survey title:	Survey for haddock, saithe and other demersal species
Time period:	May-June	Vessel:	2 research vessels
Target species:	Haddock, saithe, cod	Secondary species:	Other demersal fishes
Area:	The Barents Sea including "Grey zone", Exclusive Economic Zone, territorial waters of Russian Federation, territorial waters and inland sea waters of RF: Coastal areas from Varangerfjord to Svjatoj Nos		
Purpose:	Stock assessment of haddock, saithe, cod; collection of biological, genetic data on spawning cod		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod and haddock
Time period:	June	Vessel:	1 trawler
Target species:	Cod	Secondary species:	Catfish, flounders and lumpsucker
Area:	inland sea waters and territorial waters of the Russian Federation: Coastal areas from Varangerfjord to Svjatoj Nos		
Purpose:	Study of coastal cod distribution, intra-species structure with the use of genetic methods, collection of biological data		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	International survey for herring in the Barents and Norwegian Seas
Time period:	May-July	Vessel:	1 research vessel
Target species:	Herring, mackerel	Secondary species:	Other pelagic species
Area:	The Norwegian Sea		
Purpose:	Acoustic survey for the stock		
Reported to:	Survey report for internal use; ICES Northern Pelagic and Blue Whiting Fisheries Working Group (WG NPBW) in 2006, Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (WGMHSA) in 2005, Planning Group on Aerial and Acoustic Surveys for Mackerel (PGAAM) in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.07-30.09 01.10-30.12	Vessel:	1 trawler 1 trawler
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfish
Area:	Exclusive Economic Zone of Norway between 70°00'-73°30'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl", mass tagging. Determination of density of Greenland halibut distribution under natural conditions with the use of video-acoustic complexes.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.07-30.09 01.10-30.12	Vessel:	1 trawler 1 trawler
Target species:	Greenland halibut	Secondary species:	Cod, haddock, catfishes, redfish
Area:	Area adjacent to Spitsbergen between 73°30' – 76°00'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl", mass tagging. Determination of density of Greenland halibut distribution under natural conditions with the use of video-acoustic complexes.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.07-30.09	Vessel:	1 trawler
Target species:	Greenland halibut	Secondary species:	Catfish, plaice, long rough dab, saithe, redfish
Area:	Exclusive Economic Zone of RF and "Grey zone"		
Purpose:	Investigation into the stock status, catch per unit effort for the stock assessment, tagging.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Greenland halibut
Time period:	01.07-30.09 01.10-30.12	Vessel:	1 long-liner 1 long-liner
Target species:	Greenland halibut	Secondary species:	Cod, catfishes, redfish, tusk, skates
Area:	Exclusive Economic Zone of Norway and area adjacent to Spitsbergen between 70°00' – 76°00'N		
Purpose:	Investigation into the stock status, year-to-year dynamics of catch per unit effort, comparative fishing efficiency "long-line – trawl"		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.07-30.09 01.10-31.12	Vessel:	1 long-liner 1 long-liner
Target species:	Cod, haddock	Secondary species:	Catfish, skates, tusk
Area:	The Barents Sea, Exclusive Economic Zone of RF and "Grey zone"		
Purpose:	Study of resources for long-line fishery, morphophysiological characteristics and structure of concentrations		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.07-30.09 01.10-31.12	Vessel:	1 long-liner 1 long-liner
Target species:	Cod, haddock	Secondary species:	Catfish, skates, tusk
Area:	Exclusive Economic Zone of Norway and area adjacent to Spitsbergen between 70°00'-78°00'N		
Purpose:	Study of resources for long-line fishery, morphophysiological characteristics and structure of concentrations		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.07-30.09	Vessel:	5 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, long rough dab, saithe, redfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway, "Grey zone", international waters and area adjacent to Spitsbergen		
Purpose:	Collection of data on distribution, abundance, morphological and biological status during feeding, study of trophic links "predator – prey", the effect of hydrometeorological conditions on fish behaviour		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	03.07-03.10	Vessel:	4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, plaice, long rough dab, saithe, redfish
Area:	The Barents Sea, Exclusive Economic Zone of RF and "Grey zone", inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of data on distribution and biological status during feeding, study of trophic links "predator – prey", morphological and physiological characteristics, cod tagging		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.08-31.08	Vessel:	1 trawler
Target species:	Cod	Secondary species:	Other demersal fishes
Area:	inland sea waters and territorial waters of the Russian Federation: Coastal areas from Varangerfjord to Svjatoj Nos		
Purpose:	Investigations into distribution of coastal cod, intra-specific structure with the use of genetic methods, collection of biological data		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Shrimp and demersal fishes
Time period:	August	Vessel:	1 trawler
Target species:	Shrimp and demersal fishes	Secondary species:	
Area:	Area adjacent to Spitsbergen		
Purpose:	Assessment of shrimp abundance and distribution		
Reported to:	Survey report for internal use; Joint ICES/NAFO WG on shrimp in 2005		

Nation:	Russia	Survey title:	Distribution and migration of feeding concentrations of herring
Time period:	August-September	Vessel:	1 trawler
Target species:	Herring	Secondary species:	Blue whiting, mackerel
Area:	The Barents and Norwegian Seas		
Purpose:	Mapping of distribution of herring feeding concentrations		
Reported to:	Survey report for internal use, ICES WGNPBW		

Nation:	Russia	Survey title:	Complex aerial surveys within the frames of annual Russian-Norwegian research on 0-group and pelagic fishes.
Time period:	01.08-03.10	Aircraft	Flying laboratory AN-26 "Arktika"
Target species:	Capelin, polar cod	Secondary species:	Marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters at the sea surface, ice conditions
Area:	The Barents Sea		
Purpose:	Study of distribution of capelin and polar cod, marine mammals and seabirds; estimation of oceanographic parameters at the sea surface; localization of areas of high biological productivity		
Reported to:	Survey report for internal use; joint IMR/PINRO Report Series; Joint Russian-Norwegian Fisheries Commission		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	30.09-30.12	Vessel:	4 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, plaice, long rough dab, saithe, redfish
Area:	The Barents Sea, Exclusive Economic Zone of RF and "Grey zone", inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of data on distribution and biological status during wintering and feeding migrations, study of trophic links "predator – prey", intra-species structure with the use of genetic methods		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Cod, haddock
Time period:	01.10-31.12	Vessel:	5 trawlers
Target species:	Cod, haddock	Secondary species:	Catfish, long rough dab, saithe, redfish, Greenland halibut
Area:	Exclusive Economic Zone of Norway, "Grey zone", international waters and area adjacent to Spitsbergen		
Purpose:	Collection of data on distribution and biological status during wintering and spawning migrations, study of trophic links "predator – prey". Evaluation of individual readiness to wintering and spawning.		
Reported to:	Survey report for internal use; ICES AFWG in 2006		

Nation:	Russia	Survey title:	Multispecies survey for demersal fishes
Time period:	15.10-30.12 15.10-30.12	Vessel:	1 research vessel 1 research vessel
Target species:	Cod, haddock, Greenl. halibut	Secondary species:	Catfishes, redfish, long rough dab, plaice, saithe, grenadier
Area:	The Barents Sea including Exclusive Economic Zone of Norway, Exclusive Economic Zone of Russia and area adjacent to Spitsbergen, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Stock assessment of cod, haddock, Greenland halibut and other demersal fishes; study of "predator-prey" relationships; oceanography		
Reported to:	ICES AFWG in 2006		

Nation:	Russia	Survey title:	Complex aerial surveys within the research on distribution and biomass assessment of feeding mackerel
Time period:	June-August	Aircraft: Vessel:	Flying laboratory AN-26 "Arktika" 1 research vessel
Target species:	Mackerel	Secondary species:	Herring, juvenile blue whiting, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic parameters at the sea surface
Area:	The Norwegian Sea		
Purpose:	Distribution and 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:	Survey report for internal use; Planning Group on Aerial and Acoustic Surveys for Mackerel (PGAAM) in 2006		

Nation:	Russia	Survey title:	Distribution of fishable concentrations of capelin
Time period:	November-December	Vessel:	1 trawler
Target species:	Capelin	Secondary species:	Polar cod
Area:	The Barents Sea including Exclusive Economic Zone of Norway, Exclusive Economic Zone of Russia and area adjacent to Spitsbergen		
Purpose:	Distribution of capelin fishable concentrations. Study of migration routes and rates and conditions of formation of concentrations in dependence on biological status of the object and abiotic environmental factors. Oceanography.		
Reported to:	Survey report for internal use; ICES Northern Pelagic and Blue Whiting Fisheries Working Group (WG NPBW) in 2005		

Joint investigations

Nation:	Norway/Russia	Survey title:	Joint Winter Survey
Time period:	02.02 – 09.03 01.02 – 15.03 February (14 days) 29.01 – 28.02 20.01 – 05.03 15.02 – 10.03	Vessel:	R/V G.O. Sars R/V Johan Hjort Chartered Norwegian vessel(s) Russian R/V Russian R/V Russian trawler
Target species:	Cod, Haddock, capelin, herring	Secondary species:	Redfish *Sebastes mentella*, *S. marinus*, Greenland halibut, catfishes
Area:	The Barents Sea including Exclusive Economic Zone of Russia and Exclusive Economic Zone of Norway, inland sea waters and territorial waters of the Russian Federation		
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 2005		

Nation:	Norway/Russia	Survey title:	Survey on blue whiting spawning grounds
Time period:	11.03 – 15.04 01.03 - 05.05	Vessel:	R/V "G.O. Sars" 1 Russian research vessel
Target species:	Blue whiting	Secondary species:	Other pelagic species
Area:	West of the British Isles		
Purpose:	Estimation of abundance and distribution of spawning blue whiting; oceanography, acoustic methodology, plankton, survey for the Rockall haddock		
Reported to:	Survey report for internal use at IMR and PINRO, ICES WGNPBW in 2005		

Nation:	Russia/Norway	Survey title:	Joint survey for larval capelin and juvenile herring
Time period:	13.05 – 08.06 15.05 – 30.05	Vessel:	R/V "Johan Hjort" 1 Russian research vessel
Target species:	Capelin, herring	Secondary species:	Blue whiting
Area:	Norwegian coast and southern Barents Sea (including NEZ and REZ), inland sea waters and territorial waters of the Russian Federation		
Purpose:	Abundance and distribution of larval capelin and juvenile herring; oceanography, plankton		
Reported to:	Joint IMR/PINRO Report Series; ICES WGNPBW in 2005		

Nation:	Russia/Norway	Survey title:	Joint survey for feeding mackerel in the Norwegian Sea
Time period:	15.07 – 30.07	Vessel:	2 vessels chartered by IMR 1-2 vessels with PINRO observers Flying laboratory AN-26, "Arktika", 1 R/V
Target species:	Mackerel	Secondary species:	Other pelagic fishes, marine mammals, seabirds, chlorophyll, zooplankton, oceanographic data
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 use at IMR; PINRO; ICES WG; NEAFC meeting		

Nation:	Norway/Russia	Survey title:	Joint ecosystem survey, autumn
Time period:	01.08 – 30.09 01.08 – 08.09 01.09 – 02.10 05.08 – 03.10 05.08 – 03.10	Vessel:	R/V "G.O Sars" R/V "Johan Hjort" R/V "Jan Mayen" 1 Russian R/V 1 Russian R/V
Target species:	Greenland halibut, redfishes, shrimp, herring, capelin, 0-group of different species	Secondary species:	Other pelagic and demersal species
Area:	The Norwegian Sea, Spitsbergen, the Barents Sea, Franz Josef Land, inland sea waters 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 2006; ACFM in autumn 2005		

3. Research program on Greenland Halibut

At its 30th session, the mixed Norwegian-Russian Fishery Commission decided to establish a three-year programme of joint Russian-Norwegian investigations of Greenland halibut stocks in 2002-2004. The content of the programme was agreed upon during the annual meeting between Russian and Norwegian scientists in March 2002, and the working schedule and distribution of responsibilities for individual components of the programme were agreed upon during a meeting in Tromsø 4-5 June 2002.

In the course of a three year program of joint Russian-Norwegian studies of Greenland halibut in 2002-2004 new important data concerning the stock status was derived: The structure,

distribution and migrations, life cycle, reproduction, trophic relation, catchability by different fishing gears etc. Its results will be presented at the 34th meeting of the Joint Russian-Norwegian Fisheries Commission. However, a reliable assessment of the Greenland halibut stock has not so far been achieved and biological reference points required for the management of this fishery remain undefined. ICES concluded that the current assessment of the stock does not reflect its status and allows only to make conclusions confidently regarding its dynamics. The Parties agreed on the need to extend the studies to improve the methodology for Greenland halibut assessment. Such studies shall include:

1. improving the survey methodology;
2. improving the methods of analytical stock assessment by incorporating the size structure and sex ratio;
3. continued collection of data required for stock assessment (size-age structure in catch, biological characteristics of fish by area, season, age etc. as well as time series of data for survey indices and catch per unit of effort)

Studies to improve the methods of analytical stock assessment (models) will be undertaken within the frames of a joint project. A plan of work will be developed during the annual meeting of PINRO and IMR scientists in March 2005. Within the frames of the joint project and in accordance with national programs the Norwegian Party will be collecting data in the course of experimental fishery, and the Russian Party will do this during national scientific research of resources.

4. Red king crab (*Paralithodes camtschaticus*)

At the 33th session of the Commission the parties agreed to initiate a new joint three years research program on red king crab. The program will focus on the following items:

1. Ecological effects of the red king crab
2. Developing new methods for collecting data on surveys
3. Evaluating population parameters including recruitment issues
4. By-catch issues
5. Applying new stock assessment and forecast models for the red king crab stock in the Barents Sea

Details about this three-year joint program will be discussed at the Russian-Norwegian scientist meeting in March 2005, in Russia.

Within the frames of the joint program (2002-2004), the Norwegian Party intends to arrange a joint workshop in 2005 to summarize and discuss new knowledge on the king crab in the Barents Sea. The report from the workshop will be presented to the 34th session Commission. Venue and dates of the workshop will be agreed during the 2005 March meeting.

Norwegian investigations

Nation:	Norway	Survey title:	Red king crab survey
Time period:	15.08 – 03.09	Vessel:	R/V "Johan Ruud"
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Abundance estimation and ecological investigations		
Reported to:	Internal IMR survey report. PINRO		

Nation:	Norway	Survey title:	Red king crab survey
Time period:	15.05 – 22.05	Vessel:	R/V "Johan Ruud"
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Methodological investigations		
Reported to:	Internal IMR survey report. PINRO		

Nation:	Norway	Survey title:	Behaviour of king crab in trawl
Time period:	1.05 – 14.05	Vessel:	Hired vessel
Target species:	Red king crab	Secondary species:	
Area:	Finnmark		
Purpose:	Behaviour of king crab in trawl		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Red king crab survey
Time period:	5 days in October	Vessel:	R/V "Johan Hjort"
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		

Nation:	Norway	Survey title:	Red king crab trial fishing
Time period:	15.09 – 31.12	Vessel:	Hired vessels
Target species:	Red king crab	Secondary species:	
Area:	Fjords in Finnmark		
Purpose:	Methodological investigations		
Reported to:	Internal IMR survey report. PINRO		

Russian investigations:

Nation:	Russia	Survey title:	Red king crab
Time period:	April-May	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Study of Red king crab during spawning. Larvae, juveniles, tagging, benthos		
Reported to:	PINRO and IMR		

Nation:	Russia	Survey title:	Red king crab
Time period:	August-September	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Red king crab distribution, stock assessment, tagging.		
Reported to:	PINRO and IMR		

Nation:	Russia	Survey title:	Red king crab
Time period:	01.09 –30.11	Vessel:	1 trawler
Target species:	Red king crab	Secondary species:	Cod, haddock, other demersal fishes
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Search for ways to decrease the crab by-catch during cod and haddock fisheries		
Reported to:	PINRO and IMR		

Nation:	Russia	Survey title:	Red king crab
Time period:	01.01 –15.12	Vessel:	2 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of material for experimental works on the crab rearing and evaluation of physiological status of legal males		
Reported to:	PINRO, VNIRO and IMR		

Nation:	Russia	Survey title:	Red king crab
Time period:	01.04 –30.12	Vessel:	2 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Ecosystem research, study of the crab distribution and biology, and the effect of crab on coastal communities		
Reported to:	PINRO, VNIRO and IMR		

Nation:	Russia	Survey title:	Red king crab
Time period:	01.01 –28.02 01.09 – 31.12	Vessel:	10 vessels 10 vessels
Target species:	Red king crab	Secondary species:	
Area:	Exclusive Economic Zone, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Collection of data on catch per unit effort, study of biology, abundance dynamics, migration, feeding, trophic links with indigenous species and distribution of the crab		
Reported to:	PINRO, VNIRO and IMR		

Nation:	Russia	Survey title:	Benthos
Time period:	01.06 -31.08	Vessel:	1 research vessel
Target species:	Macrozoobenthos	Secondary species:	Macrozoobenthos
Area:	The Barents Sea including Exclusive Economic Zone of Norway and RF, Spitsbergen area, inland sea waters and territorial waters of the Russian Federation		
Purpose:	Mapping and assessment of the zoobenthos status		
Reported to:	PINRO and 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:	Survival during high fishing intensity
Time period:	11.02 – 14.02	Vessel:	Hired vessel
Target species:	Cod	Secondary species:	Groundfish species
Area:	Northern Troms		
Purpose:	Survival during high fishing intensity		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Instrument and gear development for Danish seine
Time period:	02.05 – 18.05	Vessel:	Hired Vessel
Target species:	Demersal species	Secondary species:	
Area:	Vest coast of Finnmark		
Purpose:	Instrument and gear development for Danish seine		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Trawl methodology
Time period:	13.09 – 09.10	Vessel:	R/V “Johan Hjort”
Target species:		Secondary species:	
Area:	Barents Sea		
Purpose:	Development of scientific sampling trawl		
Reported to:	Internal IMR survey report		

Nation:	Norway	Survey title:	Technological changes in trawl fishing
Time period:	28.03 – 17.04	Vessel:	Hired vessel
Target species:		Secondary species:	
Area:	Barents Sea		
Purpose:	Study technological changes in trawl fishery		
Reported to:	Internal IMR survey report		

Russian investigations:

Nation:	Russia	Survey title:	Selectivity of trawl and long-liner
Time period:	May-September	Vessel:	1 long-liner 1 trawler
Target species:	Greenland halibut	Secondary species:	Other demersal fishes
Area:	The Barents Sea, Exclusive Economic Zone of Norway and Spitsbergen		
Purpose:	Comparative fishing "trawl - long-liner"		
Reported to:	Survey report for internal use, ICES AFWG in 2006		

Nation:	Russia	Survey title:	Selectivity of trawl
Time period:	March-June July-December	Vessel:	2 trawlers
Target species:	Cod, haddock, Greenland halibut	Secondary species:	Other demersal fishes
Area:	The Barents Sea, Spitsbergen		
Purpose:	Elaboration and grounds for the use of current and new regulatory measures in the trawl fishery for demersal fish species. Evaluation of the results of their application.		
Reported to:	Survey report for internal use.		

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 we might expect of the long-term yield from each stock 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 2005.

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

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 2005 according to the established routines. Meetings between age reading specialists of cod, haddock, Greenland halibut and capelin will meet in Bergen in spring - summer 2005. Exact timing of the meetings 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.

In 2005, the Russian Party will continue annual multispectral aerial surveys of harp seals of the White Sea population on their whelping and moulting grounds as well as during their feeding migrations, using the Russian flying laboratory AN-26 "Arktika". 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.

Norwegian activities in 2005 include abundance estimation, using ship, helicopter and aeroplane, of hooded seals in the Greenland Sea. Abundance estimation surveys of grey seals will also be conducted at the Norwegian coast. Furthermore, studies of biology and ecology of harp seals in open waters of the Barents Sea during summer. Monitoring of minke whale diet will be conducted in the REZ part of the Barents Sea if permitted by Russian authorities. Surveys to estimate abundance of minke whale will be carried out in the Iceland and Greenland Sea.

Telemetric investigations of harp seals will be carried out in the White Sea in a joint Norwegian-Russian project if funding is obtained. In another joint Norwegian-Russian project, various aspects of biology, ecology and behaviour of white whales will be studied in the White Sea and Barents Sea.

Norwegian investigations:

Nation:	Norway	Survey title:	Abundance estimation Hooded seals
Time period:	10.03 – 15.04	Vessel:	1 sealer
Target species:	Hooded seal	Secondary species:	
Area:	Iceland – Greenland area		
Purpose:	Abundance estimation Hooded seals		
Reported to:	ICES Harp- and Hooded seals WG, NAMMCO		

Nation:	Norway	Survey title:	Abundance estimation Grey seals
Time period:	25.09 – 25.10	Vessel:	1 coast guard vessel
Target species:	Grey seals	Secondary species:	
Area:	Norwegian coast		
Purpose:	Abundance estimation Grey seals		
Reported to:	ICES Harp- and Hooded seals WG, NAMMCO		

Nation:	Norway	Survey title:	Sighting survey Minke whale
Time period:	27.06 – 07.08	Vessel:	2 coast guard vessels
Target species:	Minke whale	Secondary species:	
Area:	Iceland – Greenland Sea		
Purpose:	Sighting survey Minke whale		
Reported to:	IWC, NAMMCO		

Nation:	Norway	Survey title:	Telemetric tagging of Minke whales
Time period:	23.05 – 19.06	Vessel:	1 coast guard vessel
Target species:	Minke whales	Secondary species:	
Area:	Barents Sea		
Purpose:	Telemetric tagging of Minke whales		
Reported to:	IWC, NAMMCO		

Joint investigations:

Nation:	Russia / Norway	Survey title:	Scientific whaling
Time period:	May-June	Vessel:	2 whalers
Target species:	Minke whale	Secondary species:	
Area:	Murman coast (REZ)		
Purpose:	Study of biology and ecology of Minke whales.		
Reported to:	Survey report for internal use at IMR, PINRO and SevPINRO; ICES, NAMMCO, IWC		

Nation:	Russia/Norway	Survey title:	Harp seal survey
Time period:	20.06 – 20.07	Vessel:	2 chartered vessels (one Russian and one Norwegian)
Target species:	Harp seal	Secondary species:	
Area:	The Barents Sea		
Purpose:	Ecological studies of harp seals		
Reported to:	Survey report for internal use at IMR; PINRO; SEVPINRO; ICES, NAMMCO		

Nation:	Russia/Norway	Survey title:	Complex aerial surveys for marine mammals
Time period:	01.08-30.10	Vessel:	2 research vessels from Norway, 2 research vessels from Russia, Flying 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:	Study 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; Joint Russian-Norwegian Fisheries Commission		

Nation:	Russia/Norway	Survey title:	Harp seal tagging in the White Sea
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		
Reported to:	Survey report for internal use at IMR, PINRO, SevPINRO; ICES		

Nation:	Russia/Norway	Survey title:	Capture of live white whale (for tagging)
Time period:	June-July	Vessel:	1 vessel
Target species:	White whale	Secondary species:	
Area:	The White Sea coast		
Purpose:	Study of the white whale biology and ecology		
Reported to:	Survey report for internal use at IMR, PINRO, SevPINRO; ICES, NAMMCO, IWC		

10. Investigations on hydro-acoustic methodology

In 2005, investigations in the field of survey methods and comparison of techniques and standard methods will continue.

Nation:	Norway	Survey title:	Installation and testing of multi-beam sonar
Time period:	19.12 - 23.12	Vessel:	R/V "G.O. Sars"
Target species:		Secondary species:	
Area:			
Purpose:	Installation and testing of multi-beam sonar		
Reported to:	Internal IMR report		

11. Norwegian-Russian Fisheries Science Symposia

The 11th Norwegian-Russian Fisheries Science Symposium will be held in Murmansk, Russia – in August 2005, under the following title: "Ecosystem Dynamics and Optimal Long Term Harvest in the Barents Sea Fisheries". One sub-topic should be a retrospective analysis of the scientific advice given on stock development in comparison with the real development observed in later years, with possible explanations of discrepancies between prognoses and later observations.

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

The agreed catch volumes shall satisfy the need for conducting all tasks described in "Joint Norwegian – Russian Scientific Research Program on Living Marine Resources in 2005", included surveillance activities for the recommendation of area closures (and reopening of areas) as well as other decisions on management of fishing activities on living marine resources in ICES area I and II.

For these tasks, the following annual catch quantities are decided for each party in 2005:

- 7 000 tonnes of Northeast arctic cod
- 3 000 tonnes of Greenland halibut
- 4 000 tonnes of other groundfish species, including by-catches
- 1 000 tonnes of capelin

For stocks harvested within a TAC, the catch quantities taken for these purposes are included in TAC (ref. Appendix 3 to the protocol from the 33rd session of the Joint Norwegian-Russian Fisheries Commission).

All catches for research- and management purposes shall be given separately in the catch statistics.

Ålesund, 29.10.04