TWENTY FIFTH MEETING OF THE COUNCIL

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RUSSIAN NATIONAL PROGRESS REPORT FOR THE 23d SC NAMMCO MEETING

MARINE MAMMAL RESEARCH IN THE NORTH ATLANTIC IN 2015-2016 (PREPARED ON BASE OF RESEARH BY THE N.M. KNIPOVICH POLAR RESEARCH INSTITUTE OF MARINE FISHERIES AND OCEANOGRAPHY (PINRO) WAS CARRIED OUT)

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I INTRODUCTION

This Report is presented results of the Russian marine mammal research (Cetacean and Pinniped) in the North Atlantic, the Irminger and Labrador Seas, areas of Eastern and Western Greenland, the Norwegian and the Barents Seas which was carried out in 2015 and partially where it was possible in 2016 by PINRO specialists. The main purpose this research is studying of Cetacean and Pinniped place and role in marine ecosystems and in the first their preying to fish species and other marine organisms in fisheries activities. During research carrying out traditionally collect data about marine mammal distribution, numbers and meetings as part of marine ecosystem complex research including acoustic sounding and making special trawling.

Besides, various marine mammal research carry out in the Russia some Scientific-Research Institute (SRI) and Institution by National Academy of Science, SRI Ministry of Environmental Resources, and also make monitoring research by difference companies which work and exploit shelf of hydrocarbon raw materials in the Barents and Kara Seas.

II RESEARH BY SPECIES IN 2015 AND 2016

1). Expedition research (surveys and sightings) in open sea and coastal zone – dedicated research

a). Vessels marine research

In ***March-April 2015*** marine mammal sightings and surveys as part of annual blue whiting International Trawl Acoustic survey (ITAS) in the British Islands westward in the area where would carry out PINRO research were made. It was onboard PINRO R/V "Fritjof Nansen". Research area and transect positions, including marine mammal recorded in Figure 1 are presented. Total surveyed of transect length was about 950 n. miles.

As addition for it marine mammal sightings in journey to ITAS place and come back were carried out also. In Figure 2 R/V route to ITAS area and come back marine mammal recorded there are showed. Total sightings space length in route was about 1 500 n. miles.

The same vessel marine research in 2016 by PINRO didn't carry out.

In ***May-June 2015 and 2016*** marine mammal sightings and surveys as part of the north seas annual International ecosystem survey (IES) in the area of PINRO research (southern part of the Barents Sea) were carried out. It was made onboard PINRO R/V "Fritjof Nansen". Research area and transect positions including marine mammal recorded in Figures 3 and 4 are presented. Total surveyed of transect length in 2015 and 2016 accordingly was about 2 160 and 2 700 n. miles.

In ***August-September 2015*** marine mammal sightings and surveys were continued and onboard PINRO R/V "Vilnius" were carried out. This research as part of annual Russian-Norwegian Ecosystem survey (RNES) was made in PINRO area for it (the Barents Sea eastern part). Research area and surveyed transect positions including marine mammal recorded in Figure 5 are presented. Total surveyed of transect length was about 2 500 n. miles.

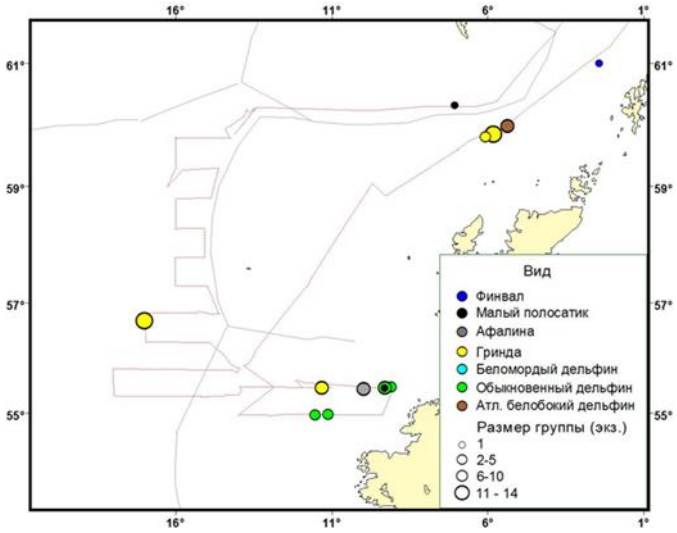

Figure 1 – Area of R/V "Fritjof Nansen" research with surveyed transects in March-April 2015 and position of places where marine mammal was recorded

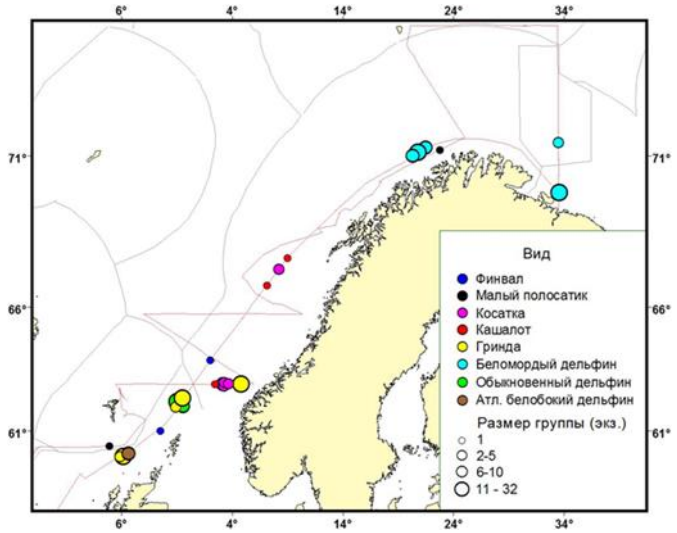

Figure 2 – Route of R/V "Fritjof Nansen" journey to blue whiting ITAS and come back in 2015 including position of places where marine mammal was recorded

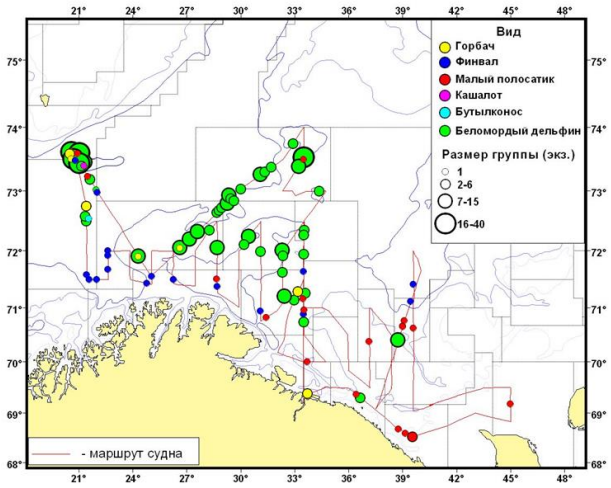

Figure 3 – Area of R/V "Fritjof Nansen" research in May-June 2015 with surveyed transects and position of places where marine mammal was recorded

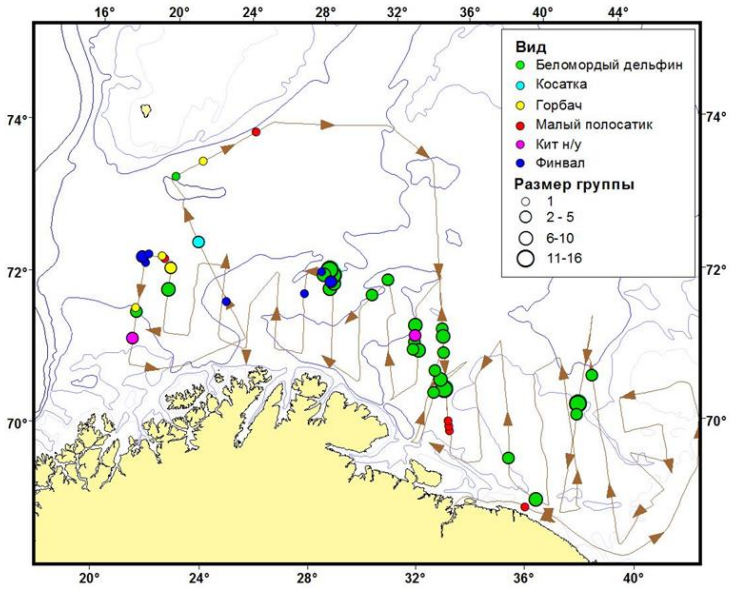

Figure 4 – Area of R/V "Fritjof Nansen" research in May-June 2016 with surveyed transects and position of places where marine mammal was recorded

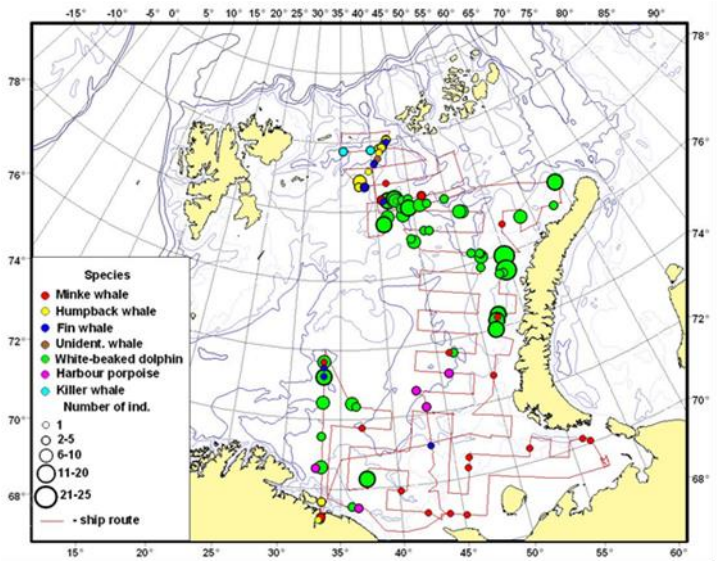

Figure 5 – Area of R/V "Vilnius" research in August-September 2015 in annual RNES with surveyed transects and position of places where marine mammal was recorded

The same research in ***August-September 2016*** was carried out also. At present initial rough data pass control, analyze, interpretation, and generalization and results this survey will be presented in next Russian National Progress Report during 24th SC NAMMCO meeting.

During all above expedition research methods and technologies identical of T-NASS-2007 were used and in carrying out of annual RNES in the Barents Sea they between all participants were agreed additionally.

b). Coastal sightings

This activity in ***June-July 2015 and 2016*** in the Barents Sea coastal zone along Kola Peninsula, so named Murmansk Coast was carried out. Sightings as well from high points on coast as well from small motor boat were made.

Main section of sightings in Figures 6 and 7 accordingly for 2015 and 2016 are presented. Total route length was about 162 n. miles for 2015 and few more than 100 n. miles in 2016.

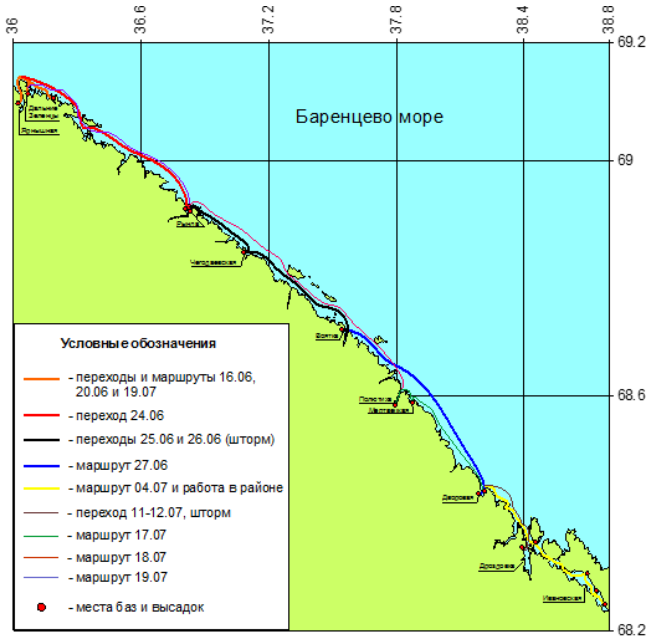

Figure 6 – Route which was passed in marine mammal coastal sightings in June-July 2015

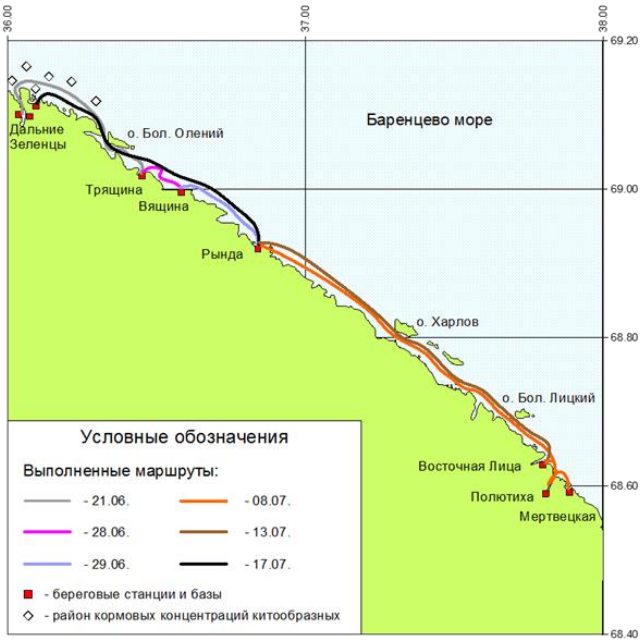

Figure 7 – Route which was passed in marine mammal coastal sightings in June-July 2016

Main results which were got in special research carrying out

a). Vessels marine research

In ***March-April 2015*** during PINRO research carried out in area of blue whiting ITAS and during journey to ITAS place and come back 9 marine mammal species were recorded, all of them were Cetacean. In 33^{d} meetings, total numbers was 207. Animals was as *Baleen (Mysticeti)* whales – Fin whale (*Balaenoptera physalus*) and Minke whale (*Balaenoptera acutorostrata*) as *Toothed*

(Odontoceti) whales – Pilot whale (*Globicephala melaena*), Common dolphin (*Delphinus delphis*), White-beaked dolphin (*Lagenorhynchus albirostris*), White-sided dolphin (*Lagenorhynchus acutus*), Bottle-nosed dolphin (*Tursiops truncates*), Sperm whale (*Physeter microcephalus*) and Killer whale (*Orcinus orca*). Their distribution, numbers, and recording places in ITAS area and in journey to this survey place and come back in Figures 1 and 2, accordingly, are presented.
Main results for each specie below will be considered.

Fin whale. During several years before 2014 this specie every year in ITAS was recorded. But in 2015 as in 2014 it was not. Fin whale in journey to ITAS area two times as single both in March were recorded only, it was between Faroe and Shetland Islands, and in the Norwegian Sea southern part.

Minke whale. This species in ITAS area one time was observed only. It was in southern transects closely Irish Economical Zone (IEZ) coastal line. Also Minke whale during journey to ITAS area and come back was recorded. It was between Faroe and Shetland Islands, and in the Norwegian Sea north-eastern part accordingly.

Common dolphin. This species in ITAS area is presented constantly. Here he feeds difference foods who can include small mesopelagic fishes and squids. In 2015 several small groups of Common dolphin from 3 to 6 animals in each were recorded. It was in IEZ. Some more in numbers groups (to 12 individuals) between Faroe and Shetland Islands were observed. During observations in ITAS Common dolphin was one of the most often meeting and numbers species. But nevertheless his total quantity meets in 2015 was less in comparison with 2014. It can be explained by not so comfortable weather conditions for quality marine mammal observations in 2015 during ITAS.

Pilot whale. This species in ITAS carrying out two times were recorded, first time it was in IEZ and second – in area of Rockoll bank. During journey to ITAS area and come back Pilot whale small groups was met, from 4 to 14 individuals in each. It was in the Norwegian Sea southern part and between Faroe and Shetland Islands. Pilot whale quantity meeting reduction was recorded. It can be explained by not so comfortable weather conditions for quality marine mammal observations in 2015 during ITAS.

Killer whale. Usually this species in ITAS area doesn't meet. Killer whale as in previous years in the Norwegian Sea during journey to ITAS area and come back was recorded. He met as small groups to 6 individuals in each. Killer whale distribution was the same as in previous years. Obviously here this time Killer whale feeds by herring aggregations who distributed closely sea surface.

Bottle-nosed dolphin. This species in ITAS area meets periodically only. In 2015 Bottle-nosed dolphin one group in IEZ was recorded, in total numbers of 7 individuals.

White-sided dolphin. This specie as the same as Bottle-nosed dolphin in ITAS area meets periodically only. In 2015 White-sided dolphin one group to northward of British Island was recorded, in total numbers of 8 animals.

White-beaked dolphin. This species as in previous years in the Barents Sea western area and Norwegian Sea north-eastern part during journey to ITAS area and come back was recorded only. But nevertheless White-beaked dolphin has 15% from all meetings and almost 30% from total marine mammal numbers who was recorded during ITAS and journey to ITAS area and come back. The most often White-beaked dolphin met in coastal zone closely Nordkap Cape as small local groups, from 7 to 18 individuals in each. Here animals fed by capelin. Also two White-beaked dolphin groups closely Kola Bay were observed, and they made to inside it.

Sperm whale. During all time of observations 3 single meets of Sperm whale were recorded, all of them was in the Norwegian Sea.

Finally, can remark that marine mammal distribution was the same as in previous years but their total numbers were some less in comparison with previous years. The main reason it is long time when weather conditions were not so comfortable for quality marine mammal observations in 2015.

In ***May-June 2015*** during PINRO research which was carried out in area presented in Figure 3 six marine mammal species were recorded, all of them were Cetacean, 3 - *Baleen (Mysticeti)* whales, it was Minke whale, Fin whale and Humpback whale (*Megaptera novaeangliae*) and 3 was *Toothed (Odontoceti*) whales as White-beaked dolphin, Northern bottlenose whale (*Hyperoodon ampullatus*) and Sperm whale. 98 marine mammal meetings in total were recorded and their total numbers was 463 individuals.
Main results for each species below will be presented.

Minke whale. During research carrying out numbers this species was 4.1% from all animals who were recorded. Minke whale had wide distribution in PINRO research area but maximum meetings in the Eastern Coastal region (south-eastern part of IES) and Northern Slope of Murmansk shoal (IES eastern part) were recorded. Minke whale in the eastern region of PINRO research in herring, sand eel, capelin, haddock and cod fry under acoustic and trawl data were observed. In the western part of PINRO research area Minke whale feeding diversity was reduced, here animals in herring and capelin aggregations were met.

Fin whale. This species in main at the western part of PINRO research area was met. But nevertheless in comparison with previous years animals had more wide distribution here. Fin whale had 17.3% from all marine mammal meetings and 3.7% from all recorded animals. In first time for last years the same observations Fin whale eastward 39^{o}E was recorded. The most numerous local Fin whale accumulations in the Kopytov region (IES area western part) and the Nordkin bank (IES area central part) were observed. Here these animals closely macroplankton and fish fry aggregations was recorded under acoustic and trawl data.

Humpback whale. In main this species in western and central parts of PINRO research area was met. Animals as single as in small numbers local groups (in 2-3 in each) were recorded. In total Humpback whale numbers was 2,6% from total quantity of marine mammal recorded. Met animals actively fed on herring and/or capelin aggregations under acoustic and trawl data. Some time it was with White-beaked dolphin together.

White-beaked dolphin. It was the most numerous specie among all marine mammal who was recorded in PINRO IES research area (51% - from all meetings and 88.3% - from total numbers of marine mammal recorded). This situation is traditional. White-beaked dolphin was met by groups only, from 2-5 to 10-40 individuals in each, and this specie in all PINRO research area was observed practically but the most often it was northward 72^{o}N. Animals distribution was wider in comparison with previous years. White-beaked dolphin created the most numerous local accumulations in capelin aggregations (under acoustic and trawl data).

Northern bottlenose whale. This species in PINRO IES research area was met in first time here. Northern bottlenose whale as one local group in Kopytov region (IES area western part) as 5 individuals was recorded. Here animals in macroplankton and fish fry were observed.

Sperm whale. Only one single animal was recorded in PINRO IES research area. It was in Kopytov region (IES area western part). Sperm whale actively migrated to southern direction.

Summarizing above is need to note to following circumstances:

- White-beaked dolphin and Fin whale in PINRO IES research area had wider distribution in comparison with traditional situation,
- for the first time in PINRO IES research area in western part of it Northern bottlenose whale as one small local group was recorded,

- Cetacean in eastern part of PINRO IES research area in herring, sand eel, haddock, capelin and cod fry accumulations were recorded, in western part it was in herring, macroplankton and fish fry accumulations, and in northern it was in capelin accumulation only.

In ***May-June 2016*** during PINRO research which was carried out in area presented in Figure 4 fife marine mammal species were recorded, all of them were Cetacean, 3 - *Baleen (Mysticeti)* whales, it was Minke whale, Fin whale and Humpback whale and 2 were *Toothed (Odontoceti*) whales as White-beaked dolphin and Killer whale, one specie was not defined. 47 marine mammal meetings in total were recorded and their total numbers was 202 individuals that for both these parameters are more than two times less in comparison with previous year when the same research was carried out.
Main results for each specie below will be presented.

Traditionally during IES in PINRO research are the most numerous and often met specie among all observed marine mammal was *White-beaked dolphin*. His meeting was 55% and numbers – 83% from all marine mammal recorded. Animals as single as groups from 2-8 to 15-20 individuals in each were recorded. White-beaked dolphin was distributed in PINRO IES research area evenly. Recorded animals under trawl and acoustic data in capelin and herring accumulations were concentrated. The most dense of them in central and western parts of PINRO IES research area were marked. But nevertheless to it White-beaked dolphin meetings and their total numbers were less in comparison previous year when this survey was carried out here.

Second specie among Toothed whales was *Killer whale*. During considered research one local group this specie in numbers of 5 individuals in western part of PINRO IES research area was recorded. In previous years Killer whale here in this research didn't meet. Main reason current situation is great herring aggregations above area (under trawl and acoustic data).
About situation with Baleen whales is need to indicate following.

Minke whale. Six single recording this species was made in PINRO IES research area. It is 13% from all meetings and 3% from total numbers of marine mammal recorded. Minke whale the most often in coastal zone (4 recordings from total 6) was observed. Here relatively dense capelin, herring and cod fry aggregations were recorded under acoustic and trawl data.

Fin whale. This species was the most often meetings and numerous among Baleen whales, accordingly 19% recordings of all marine mammal meetings and 7% from total numbers of marine mammal was observed. Fin whale as single as small numbers groups (to 4 individuals in each) was met in western and central parts of PINRO IES research area. Here under trawl and acoustic data macroplankton, capelin and herring were recorded. In 2016 few small reduction of Fin whale meetings was marked in comparison with previous years.

Humpback whale. This Cetacean as single as small numbers groups (to 4 individuals in each) was observed. It was in western part of PINRO research area. 11% Humpback whale recording of all marine mammal meetings and 4% from total numbers of marine mammal was observed. Correct correlation between Humpback whale and fish species distributions didn't determine. Some times animals closely herring and capelin aggregations were observed where White-beaked dolphin was recorded also.

Summarizing above is need to note to following circumstances:

- in western part of PINRO IES research area decreasing of White-beaked dolphin and Fin whale meetings and numbers was marked. Possibly it can be related as with not so comfortable weather conditions for quality marine mammal observations as with carrying out actively here special works by vessels on search of oil and gas deposits with using of high-frequency acoustic equipment including mounting acoustic buys;
- in western part of PINRO IES research area in first time for all period research in PINRO IES area group of Killer whale (5 individuals) was recorded that can be related with great herring aggregations distributed here;

- traditionally the most dense White-beaked dolphin accumulations in central and western part of PINRO IES research are were recorded.

In ***August-September 2015*** during RNES in PINRO research area which presented in Figure 5 six marine mammal species were recorded. All of them was Cetacean, 3 - *Baleen (Mysticeti)* whales, it was Minke whale, Fin whale and Humpback whale and 3 were *Toothed (Odontoceti*) whales as White-beaked dolphin, Killer whale and Harbour porpoise (*Phocoena phocoena*), also one species was not defined. Total numbers of recorded animals were 505 individuals that is few more for the same area in comparison with RNES in 2014 but species composition was less in 1. Also in first time for several last years of the White Sea/Barents Sea harp seal population was not observed. Also closely ice edge polar bear was not recorded. Distribution and quantity of marine mammal observed on species accordingly in Figure 5 and below Table are presented.

Table – Marine mammal quantity and meetings who in August-September 2015 in PINRO research area during joint RNES were recorded (*- whale species was not define)

Species	Numbers (individu-als)	Portion of total numbers (%)	Numbers of meetings	Portion of total numbers meetings (%)
Fin whale	9	1.8	8	7.5
Minke whale	24	4.8	21	19.8
Humpback whale	26	5.1	12	11.4
White-beaked dolphin	429	84.9	57	53.8
Harbour porpoise	11	2.2	5	4.7
Killer whale	5	1.0	2	1.9
*	1	0.2	1	0.9
Total numbers	505	100	106	100

Also as in previous years *White-beaked dolphin* was the most numerous and often meetings species. He has very wide area distribution in PINRO RNES research area. White-beaked dolphin didn't observe in south-eastern part of PINRO RNES research area only. This animal the most numbers meetings in 74^{o}N of the Barents Sea was recorded. Here on acoustic and trawl data capelin and cod species fry aggregation were recorded. White-beaked dolphin numbers and meetings in comparison with 2014 was increased.

Harbour porpoise. This animal in pairs in main was observed in southern part of PINRO research area, northern edge was 73^{o}N. Harbour porpoise in fry of capelin, cod and herring was recorded.

Killer whale was recorded two times in few groups on 2 and 3 individuals in each. It was closely Victory Island above than 79^{o}N. Usually here Pinniped was observed.
About Baleen whales below will be presented.

Minke whale. This species had the most numerous and meetings among Baleen whales. Animals met in northern, southern and south-eastern parts of PINRO research area in main. Minke whale few increasing meetings in comparison with previous years at Russian Economic Zone (REZ) was marked. Under acoustic and trawl data animals in norther, eastern and southern parts of research area accordingly in capelin; and fry of cod, polar cod sand eel, herring and capelin accumulations was recorded.

Humpback whale. This species in comparison with previous year in two times increasing marked in traditional PINRO research area. Animals in main in northern area (between 78^{o}N and 80^{o}N) were recorded. Here as single Humpback whale as groups of animals (to max. 6 individuals) were

observed. All of them fed of capelin actively. Also Humpback whale closely Murmansk coast was met. This fact by great herring aggregations here was caused.

Fin whale. In 2015 Fin whale numbers of meeting was increased in comparison with previous year. Animals in northern area of PINRO research were recorded. Here they fed by capelin together with Humpback whale.

Finally, is need to remark following. In 2015 dense of ice edge in north was far in comparison with previous years. This reason in first time in PINRO RNES research area the White Sea/Barents Sea harp seal population summer-autumn accumulations was not observed. Also the same reason polar bear was not observed too. This situation can be changed if use research aircraft in northern part of PINRO RNES research area. Last time it was made in period 2002-2005 when the such research participated special equipped Russian aircraft "Antonov-26". At that time harp seal among white ice cake with concentration 70% was observed.

b). Coastal sightings

In carrying out this work following tasks were solved:
- marine mammal registration in coastal zone;
- if it was possible carrying out of marine mammal taking with purpose of biological samples collection for studying of marine mammal biological peculiarities and diet;
- carrying out of fish catch in place where marine mammal was observed with purpose of collection data about marine mammal diet, so named indirect way.

During research carrying out in ***June-July 2015*** traditional patches of *Common seal* (*Phoca vitulina*) in Ivanovskaya Inlet and *Grey seal* (*Halichoerus grypus*) in Mertvetskaya Inlet were investigated. Also data about feed base here were collected.

It is need remark that during this activity storm weather observed in main, in this reason considerable fish accumulations closely coast was absented. In previous years when weather conditions were better closely coast many fish schools were marked.

Under above Cetacean in sighting area very rarely was met.
Minke whale as single individuals (in sum 2) were recorded before storm period beginning (25 June). It was closely Podpahta Inlet and Korabelinaya Pahta. Here animals by sand eel fed. After storm period (16 July) 2 Minke whale individuals was recorded closely Dalinie Zelentsy settlement.

Before beginning of coastal sightings information about *White whale* (*Delphinapterus leucas*) migration closely Rynda settlement was got from inhabitants. Animals in eastern direction migrated actively as local great accumulation. Their total quantity was about 800 individuals. During coastal sighting this Cetacean species as 2 individuals closely Dalinie Zelentsy was recorded after storm period (16 July).

Distribution *Grey seal* and *Bearded seal* (*Erignathus barbatus*) in sighting area was traditional. At Mertvetskaya Inlet in patches 50 individuals for both species were recorded.

Common seal at Ivanovskaya Inlet was recorded only, in total numbers 34 individuals including 5 young animals in age to 1 year. Colony total numbers this Pinniped at Inlet in 40 individuals was assessed. It is few more in comparison with previous years. Also here *Grey seal* and *Bearded seal* were observed in 1 individual for each. Before it these species didn't mark here.

In addition to above need note that in several last years this time storm weather was observed, and it has tendency to increase. This reason fish schools comes to coast rarer, and therefore Cetacean closely coast begun to meet also rarer. But for Pinnipeds this circumstance has less influence as here they can feed by bentos in not storm places of coast which is protected from it.

In ***June-July 2016*** coastal sightings research carrying out as Cetacean (Minke whale and White whale) as Pinniped (Grey seal and Bearded seal) were recorded.

Minke whale. This species as single individuals three times was observed in section between Bolishoy (Large) Oleniy Island and Dalinezelentskaya Inlet. Example of one of it in Figure 8 is presented.

Figure 8 – Minke whale closely of Kola Peninsula coast

White whale. This Cetacean as single individuals three times was recorded here also (look above).

As Minke whale as White whale came to coast after sand eel and haddock fry schools. In other places of sightings Cetacean was not observed that was caused by fish schools and other marine organisms absenting closely coast.

Grey seal and Bearded seal distribution and quantity in coastal sightings were closely to traditional. These Pinniped distributed evenly in main as single or small local groups (to 3 individuals in each) from Rynda Inlet to Mertvetskaya Inlet. Maximum quantity of Grey seal in patch in 6 individuals in Mertvetskaya Inlet (closely island) was recorded.

Summarizing above and analyzing previous years results in coastal sightings can remark in main following:

- in last years stable from year to year tendency to increase of storm duration and strength are marked;
- above circumstance negative influences to intensity of fish schools and other marine organisms come to coast that causes definable decrease of Cetacean meetings here along long distance of coastal line including full absenting, i.e. Cetacean far from coast are distributed;
- for Pinnipeds above circumstances have not so big influence in comparison with Cetacean as they inhabit inside bays, gulfs and inlets which have good protection from strong storms, and these places Pinniped can food by bentos in fish schools absenting.

2). Additional data collection onboard fisheries vessels – additional research

This kind of activity carried out by PINRO specialists who was onboard commercial fisheries vessels (CFV) as observers, i.e. their main task was make ichthyology works. This reason marine mammal observations carried out not some regular and not in transects.

Below in summarized kind results of it will be presented in 2015. Data got in 2016 now study control check, analyze, interpretation and generalization. Information about results this activity in 24th SC NAMMCO meeting will be presented.

2015.
Marine mammal observations onboard following CFV was carried out:

- "Forpost", period – April-August, area – Norwegian and Irminger Seas;
- "Oma", period – May-June, area – Faroe Islands fisheries zone (FIFZ);
- "Severnaya Zemlya" ("Northern Land" – in English), period – May-July, area – NAFO Regulatory Region (RR NAFO), Big Newfoundland Bank (BNB) and micro regions 3LMNO;
- "Kolomenskoe", period – July-August, area – Irminger and Labrador Seas;
- "Korund", period – July-August, area – Irminger Sea and RR NAFO (micro region F1);
- "Melikart", period – June-October, area – RR NAFO (micro regions 3LN).

2016.
Marine mammal observations onboard following CFV was carried out:

- "Oma", period – February-May, area – RR NAFO (micro regions 3MO) and FIFS;
- "Zvezda Murmana" ("Star of Murman" – in English), period – March-April, area – RR NAFO (micro regions 3LM);
- "Kolomenskoe", period – April-August, area – Irminger Sea;
- "Iosif Shmelikin", period – July-August, area - Irminger Sea;
- "Alexey Anichkin", period – May-June, area – Irminger Sea;
- "Osveyskoe", period – July-August, area – Irminger Sea;
- "Melikart-3", period – May-September, area – RR NAFO (micro regions 3LMNO) and Eastern Greenland.

Main results which were got in additional research in 2015

"Forpost"
Marine mammal observation in favourable weather conditions were carried out (visibility – more than 1 km, sea wave – no more than 4 on Beaufort Scale), in light time of day, and special ikhtiological works absenting. Observation total length duration was 1 325 n. miles. During carrying out this activity 7 marine mammal species were recorded, all was Cetacean, as *Baleen (Mysticeti)* whales as *Toothed (Odontoceti*) whales. It is traditional for research where CFV worked. In total 65 marine mammal individuals (23 - *Baleen (Mysticeti)* whales, and 42 - *Toothed (Odontoceti*) whales) in 16their meetings (12 - *Baleen (Mysticeti)* whales, and 4 - *Toothed (Odontoceti*) whales) was recorded. The most numerous was *Pilot whale*, about 62% of all recorded animals, and it was two times only, in Irminger Sea area. *Minke whale* and *Fin whale* were the most meeting species, accordingly, 31% and 25% from all marine mammal meetings. Observed animals were presented in main as single individual. For other 5 species (*Humpback whale, Bowhead whale* (*Balaena mysticetus*), *Pilot whale, Sperm whale, Killer whale*) fitted the rest 44% of meetings. The most rarely met and small number species were *Humpback whale, Sperm whale, and Killer whale*, who were observed one time as single individual only. First time in 2015 *Bowhead whale* was met times as single individual at Labrador Sea.

"Oma"
Onboard this CFV during marine mammal observations (under above conditions) one animal and one time (*Killer whale*) was recorded in position 66º12'N/00º18'W. It was essentially less in comparison with previous years when the same fisheries activity and the same area was made. It was caused by many days with strong fogs that essentially limited visibility for quality marine mammal observations.

"Severnaya Zemlya" ("Northern Land" – in English)
Marine mammal observation onboard this CFV under above conditions was carried out. Animals in fisheries activity at RR NAFO, BNB area in micro regions 3LMNO were met only. All of them were Cetacean, in total 5 species, as *Baleen (Mysticeti)* whales (*Minke whale and Fin whale*) as *Toothed (Odontoceti*) whales (*Sperm whale, White-sided dolphin and Pilot whale*), in total quantity 38 individuals.

Minke whale. This species two times was observed in total quantity 4 individuals, on two in each meeting.

Fin whale. This species two times was observed in total quantity 4 individuals, on two in each meeting.

Sperm whale. This species was the most numerous among all marine mammal observed. In total 12 individuals in 6 meetings was recorded.

Pilot whale. This species one time only was observed as local group in quantity 10 animals.

White-sided dolphin. This species as the same as *Pilot whale* one time only was observed as local group in quantity 8 individuals.

"Kolomenskoe"

Marine mammal observation onboard this CFV under above conditions was carried out. This period Cetacean were observed only as *Baleen (Mysticeti)* whales, one species (*Bowhead whale*) as *Toothed (Odontoceti*) whales, one species also (*Sperm whale*).

Bowhead whale. This species two times as 2 individuals in each in one time meeting at area of above seas was observed.

Sperm whale. This species one time only in quantity 2 individuals in area of the Labrador Sea was observed.

"Korund"

Marine mammal observation onboard this CFV under above conditions was carried out. This period Cetacean of two species all is *Toothed (Odontoceti*) whales were observed. It was *Killer whale* and *Pilot whale*. For both species total quantity was 22 individuals.

Killer whale. This species at the Irminger Sea one time as local grout in total quantity 7 animals was met.

Pilot whale. This species one time in area micro region F1 RR NAFO as local group in total quantity 15 individuals was observed.

"Melikart-3"

Marine mammal observation onboard this CFV under above conditions was carried out. In RR NAFO (micro region 3LN) during carrying out of search and fisheries activity in June at eastern and south-eastern of BNB slopes *Pilot whale* as representative of *Toothed (Odontoceti*) whales was met. Animals as single individuals as local groups (from 5 to 15-17 individuals in each) were observed. During fisheries at micro region 3N *Common dolphin* as representative of *Toothed (Odontoceti*) as local group in quantity 7 animals was met. Here also very often *Sperm whale* accompanied vessel but asses their quantity was very difficultly. Sometime *Sperm whale* with *Northern bottlenose whale* was observed. Also during vessel passages to ports for unloading in local sections of way many local groups of *Common dolphin* in quantity 15-17 individuals in each was met.

During fisheries at micro region 3L in July *Northern bottlenose whale* came to vessel periodically, and in August here *Pilot whale* as local groups in quantity 30-40 animals in each closely vessel was recorded almost every day.

In area of Western Greenland marine mammal observations in September-October was made. Here in first time during cruise *Harp seal* (*Phoca groenlandica*) was met. In fisheries of Greenland halibut in area limited by coordinates 63°51'-63°57'N/56°53'-57°48'W in trawl lifting *Northern bottlenose whale* came to vessel every time, here from 1 to 4 individuals was observed.

III ONGOING (CURRENT) RESEARCH

Here information which is presented this Report in pages 1, 3, 7, 9 and 11 can be presented. This reason to reply it not necessary.

IV ADVICE GIVEN AND MANAGEMENT MEASURES TAKEN

Studying and understanding situation with the White Sea/Barents Sea harp seal population stock for briefly – harp seal is paramount and principal direction the Russian and PINRO research in the North Atlantic area on marine mammal. This reason principal advices given and measures taken for this marine mammal species will be presented below.

As it is known that main advices and proposals on harp seal stock status assessment and management measures taken including TAC definition in WG ICES meetings on harp and hooded seal (WGHARP) is formed. Last WGHARP in Copenhagen (Denmark) during 26-30 September 2016 was held (WGHARP-2016). It was joint ICES/NAFO/NAMMCO meeting. Advices from WGHARP traditionally underlie for taking of final solution about measures regulatory by removal this Pinnipeds which establish in annual sessions of Joint Russian-Norwegian Fisheries Commission (JRNFC). This circumstance is caused that the White Sea/Barents Sea harp seal population stock exploits by Russia and Norway jointly.

In WGHARP-2016 taking into consideration results of PINRO research which were got in studying of pup production considerable Pinnipeds species, and also taking into account historical and modern data about biology these animals jointly with catch data, total stock abundance of the White Sea/Barents Sea harp seal population stock on modelling calculation was assessed in 1 408 200 individuals (95% C.I. 1 251 680-1 564 320).

This reason at present can make conclusion that considerable Pinnipeds stock has good status and stable level, it being known that his removal during about 40 years was lower TAC essentially, and beginning from 2009 this stock don't exploit on difference reasons practically.

Hence above circumstances and also that value of the White Sea/Barents Sea harp seal population stock numbers is in interval between N_{max} (maximum historical numbers of considerable Pinnipeds species) and N_{70} (70% of N_{max}) in accord with principles of marine biological resources management and regulatory taking ICES which is harp seal current harp seal stock status allows to make his exploitation on base of ecosystem and social-economic principles approach. This reason in TAC assessment and definition is necessary to use modified population model and employ catch strategy which is based on precautionary approach. Under that in WGHARP-2016 modelled calculations for equilibrium catch level (defines as fixed for each year allowing define numbers of adult animals) were made. As alternative for that was used other approach also which base in catch on level of Potential Biological Removals (PBR). This circumstance was linked that harp seal stock in 2016 by WGHARP participants under taking criterions was characterized as "poor data". This circumstance was caused that last harp seal reproductive rates available were based on data from 2006, i.e. more than 5 years. After carried out calculations and got data analyze was taken solution and prepared advice that the most acceptable is scenario which based on equilibrium catch level. It allows define TAC for the White Sea/Barents Sea harp seal population stock in numbers in 10 090 individuals of adult animals (age is more than 1 year, 1+). It ensures conservation of total stock numbers during the closest 15 years on level higher than N_{70}.

Following WGHARP-2016 advices PINRO specialists in last 46 JRNFC Session (October 2016) proposed for consideration and concordance following advices and management measures on taken (exploitation) for the White Sea/Barents Sea harp seal population stock:

1. Catch expediently to carry out on base of equilibrium removal level scenario which envisages total taken numbers in 10 090 individuals when adult animals only will be taken. It ensures conservation of total stock numbers during the closest 15 years on level higher than N_{70}. Norwegian quota for catch in the Barents Sea south-eastern part (so named "east ice") under historically established principle will be 7 000 animals difference age;
2. Time for harp seal catch expediently determine between 20 March – 15 May;
3. Catch activity is need to carry out by maximum humane methods and technologies only by specially trained people;
4. Taken adult female during breeding period remains as ban.

V PUBLICATIONS AND DOCUMENTS

As main part of PINRO materials and publications in 2015 and in 2016 partially are in Russian was prepared here is presented part of them which was in English.

1. Zabavnikov V.B. Russian National Progress Report on Results of Marine Mammals Research in the North Atlantic which was Carried Out in 2014 (Prepared on Base Results of PINRO Researches)//Working Documents (WD) for the 22nd SC NAMMCO meeting, Torshavn, Faroe Iceland, Denmark, 9-13 November 2015, 13p.

2. Zabavnikov V.B., Haug T. Russian and Norwegian Catches of Harp and Hooded Seals in the Northeast Atlantic in 2015-2016//WD WGHARP, Copenhagen, Denmark, 26-30 September 2016, 4 p.

3. Shafikov I.N. Estimation of Females Age Maturity and Barrenness Coefficient for the White Sea Harp Seal Population (Phoca groenlandica)//WD WGHARP, Copenhagen, Denmark, 26-30 September 2016, 4 p.

4. Korzhev V.A, Zabavnikov V.B. Estimation of the White Sea Harp Seal Population (Phoca groenlandica) Number by Cohort and a Stock-Production (ASPIC) Models in Present Stage//WD WGHARP, Copenhagen, Denmark, 26-30 September 2016, 11 p.

VI APPENDIX 1 – CATCH DATA

a. Short narrative

Pinniped

Russian commercial catch of the White Sea/Barents Sea harp seal population stock in 2015 and 2016 did not carry out.

In coastal zone of the White Sea and the Barents Sea catch of ringed seal and bearded seal by inhabitants for own necessity in 2015 and 2016 was carried out. Numbers of removal animals this case was very small. Correct information about numbers of catch these animals is absented.

Cetacean

Russia does not carry out Cetacean catch in North Atlantic as commercial as scientific purposes. Nevertheless at present catch of white whale is quoted every year. Removal this cetacean is very seldom, and it for scientific-research and cultural-enlightenment is made. Correct information about it for 2015 and 2016 is absented.

b. Fill in Excel spreadsheet

Under above circumstances filled in Excel spreadsheet to present here is not necessary.

VII APPENDIX 2 – BY-CATCH DATA

a. Short narrative

Pinniped

PINRO has not data about Pinnipeds by-catch in fisheries and other kind of marine activities in 2015 and 2016.

Cetacean

PINRO has not data about Cetaceans by-catch in fisheries and other kind of marine activities in 2015 and 2016.

b. Fill in Excel spreadsheet

Under above circumstances filled in Excel spreadsheet to present here is not necessary.

VIII APPENDIX 3 – STRANDINGS

a. Short narrative

Pinniped

In preparing this Report PINRO has following information about Pinniped who stranding which from local inhabitants was got:

1. ***2016***, the White Sea area, Tersky Coast, cape Vesh Navolok, region of Umba settlement (average position is 66º30'N/34º30'E). Here in ***20 May*** 9 carcasses of *the White Sea/Barents Sea harp seal population* and 2 of *Bearded seal* was discovered. Their total weight in discovery was 300 kg. All animals were young, age less than 1 year, traumas of mechanical occurring were presented. All carcasses by specialists of Veterinary Inspectors and Sanitary-Epidemiology Station were destroyed.
2. ***2015*** – not the same information.

Cetacean

In preparing this Report PINRO has following information about Cetacean who stranding which from local inhabitants was got:

1. ***2016***, the Barents Sea coast, Kola District, region of Teriberka settlement (average position is 67º10'N/35º05'E). Here in ***12 July*** 1 *White whale* carcass was discovered. Animal had numerous injuries and first signs of decomposition. Carcass by specialists of Veterinary Inspectors and Sanitary-Epidemiology Station were destroyed.
2. ***2015*** – not the same information.

b. Fill in Excel spreadsheet

Template for Catch reporting for PINNIPEDS

Species (latin name)	Year or Season	Stock Area	Catch (pups)			Catch (group 1+ or adults)			Catch Total incl. Struck & Loss	Quota if applicable
			Male	Female	Total incl. Unkn.	Male	Female	Total incl. Unkn.		
			Fill in details only if relevant			Fill in details only if relevant				Ignore if inapplicable

Template for By-catch reporting for PINNIPEDS

Species (latin name)	Year or Season	Stock Area	By-Catch			Comments on circumstances if applicable		
			Male	Female	Total incl. Unkn.	Fishery type	Live - release	Other details
								e.g. method of reporting

Template for Strandings reporting for PINNIPEDS

Species (latin name)	Year or Season	Stock Area	Strandings			Comments on circumstances if applicable			
			Male	Female	Total incl. Unkn.	Fishery-related	Live	Beach-cast	Other details
Phoca groenlandica	20.05.2016	66.5N/34.5E	Not Ident.	Not ident	9			Beach-cast	Fresh, calf, destroyed
Erignthus barbatus	20.05.2016	66.5N/34.5E	Not Ident.	Not ident	2			Beach-cast	Fresh, calf, destroyed

Template for Catch reporting for CETACEANS

Species (latin name)	Year or Season	Stock Area / Region or Management Area	Catch or Strikes incl. Losses			Quota if applicable		
			Male	Female	Total incl. Unkn.	Male	Female	Total
						Ignore if inapplicable		

Template for By-catch reporting for CETACEANS

Species (latin name)	Year or Season	Stock Area / Region or Management Area	By-Catch			Comments on circumstances if applicable		
			Male	Female	Total incl. Unkn.	Fishery type	Live - release	Other details
								e.g. method of reporting

Template for Strandings reporting for CETACEANS

Species (latin name)	Year or Date	Stock Area / Region	Strandings			Comments on circumstances if applicable			
			Male	Female	Total incl. Unkn.	Fishery-related	Live	Beach-cast	Other details
Delphinapterus leucas	12.07.2016	67.17N/34.08E, Barents Sea	Not ident.	Not ident	1			Beach-cast	Decayed
									Destroyed