



*Federal Scientific Center of Marine Fisheries
and Oceanography (VNIRO),
Pionerskaya Street, Murmansk, Russia
Phone: (+7) 8152 220000, Fax: (+7) 8152 220000,
E-mail: ltei@vniro.ru
Web: www.vniro.ru*

MARINE MAMMALS DISTRIBUTION AND NUMBERS IN THE BARENTS SEA IN MODERN STAGE WITH CONNECTION OF CLIMATIC CHANGES

S. EGOROV, V. ZABAVNIKOV, S. ZYRYANOV



Humpback whale



Lat: 78° 17' 00", Long: 34° 34' 10"

White-beaked dolphin



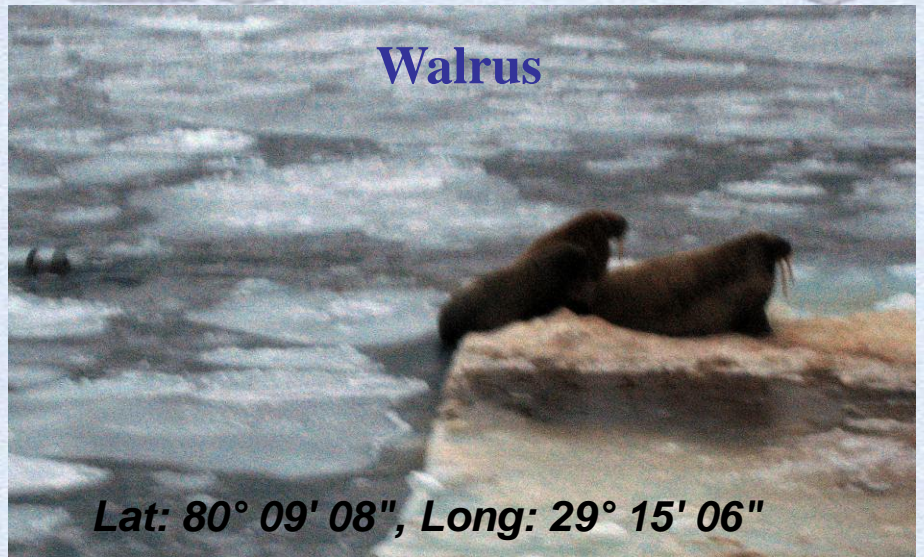
Lat: 77° 05' 27", Long: 33° 16' 13"

Polar bears



Lat: 80° 32' 21", Long: 31° 23' 06"

Walrus



Lat: 80° 09' 08", Long: 29° 15' 06"

WHAT DO WE STUDY DURING RESEARCH OF MARINE MAMMALS IN THE FIRST?

- 1. DISTRIBUTION AND NUMBERS OF MARINE MAMMALS.**
- 2. MARINE MAMMALS BIOLOGY.**
- 3. CURRENT OCEANOGRAPHIC CONDITIONS.**
- 4. MARINE MAMMALS INFLUENCE ON FISHERIES RESOURCES.**
- 5. COMERCIAL FICHERIES AND OTHER HUMAN MARINE ACTIVITIES
INFLUENCE ON MARINE MAMMALS**

WHAT KIND OF RESEARCH AND OBSERVATIONS USE FOR COLLECT RAW DATA?

- 1. DATA COLLECTED ONBOARD RESEARCH VESSELS DURING ECOSYSTEM
SURVEYS.**
- 2. COMPLEX AIR SURVEYS DATA FROM RESEARCH AIRCRAFT ANTONOV-26
(AN-26) “ARKTIKA” (INFRARED, VHF, FOTO, VIDEO- SURVEYS AND VISUAL
OBSERVATIONS) AS PART OF ECOSYSTEM SURVEYS AS IDEPENDANTLY.**
- 3. FIELD WORKS IN THE BARENTS SEA SHORE LINE.**

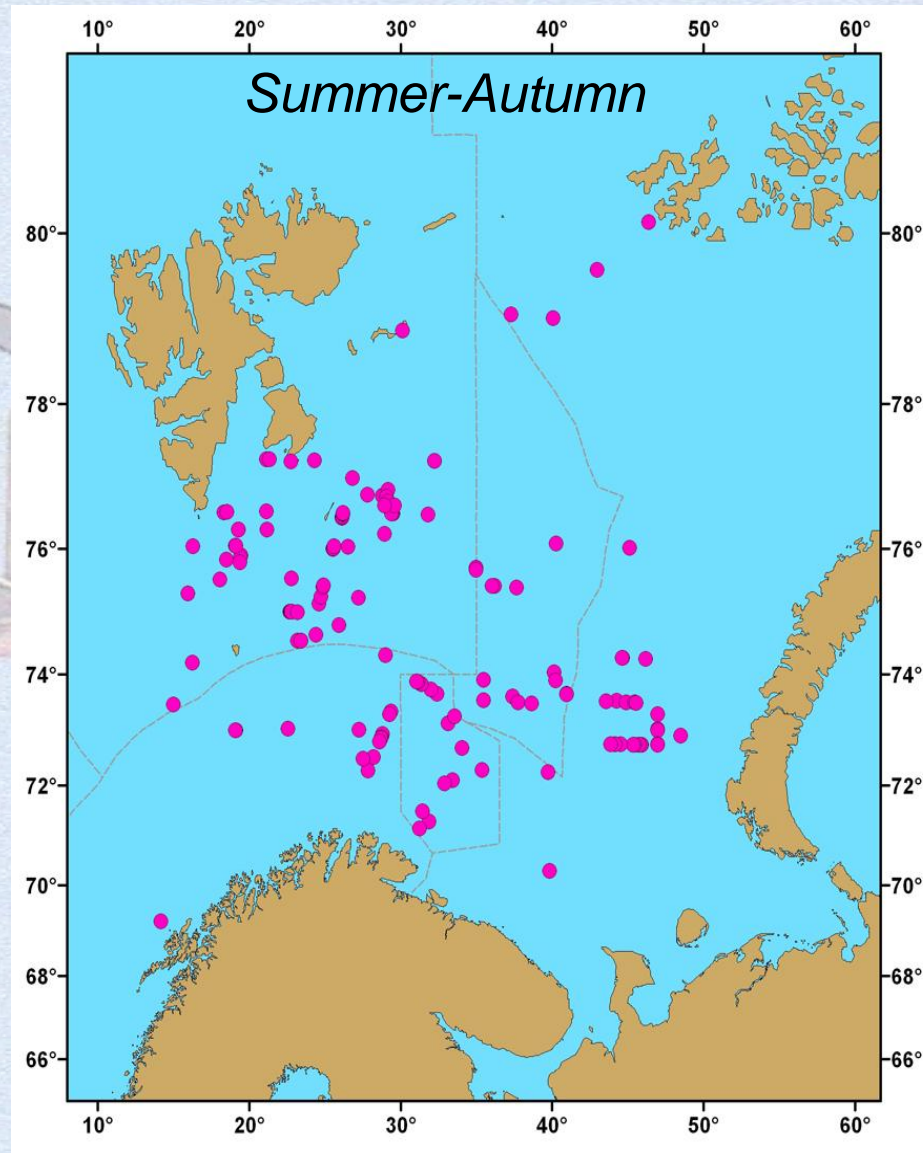
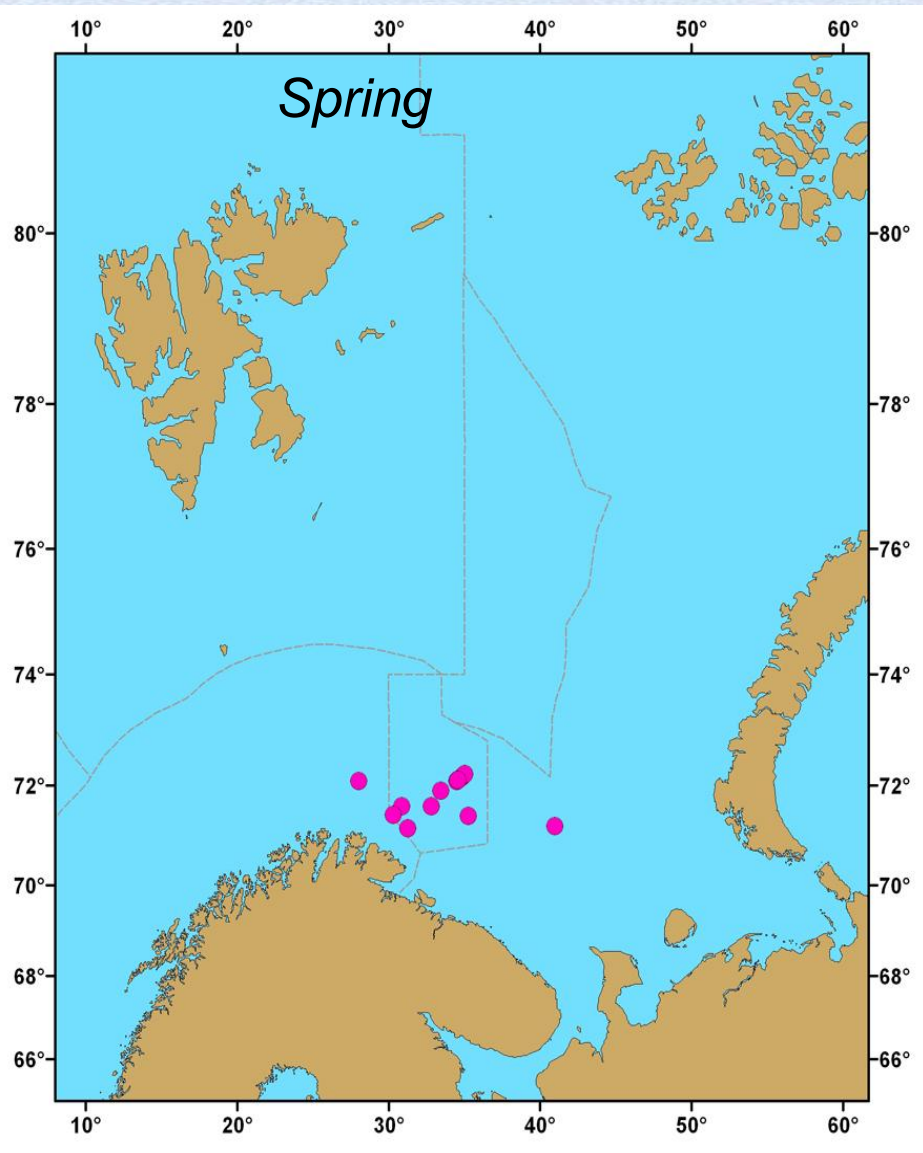
RESEARCH VESSEL "SMOLENSK"



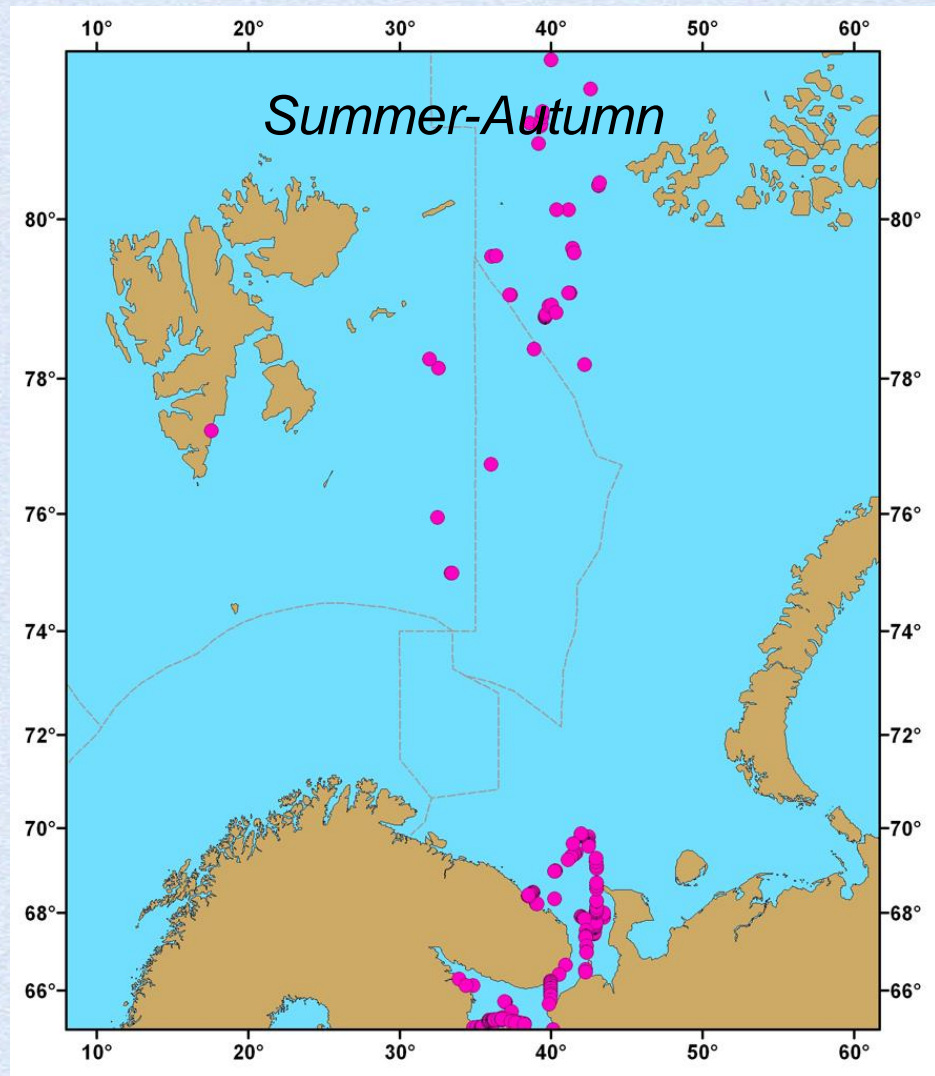
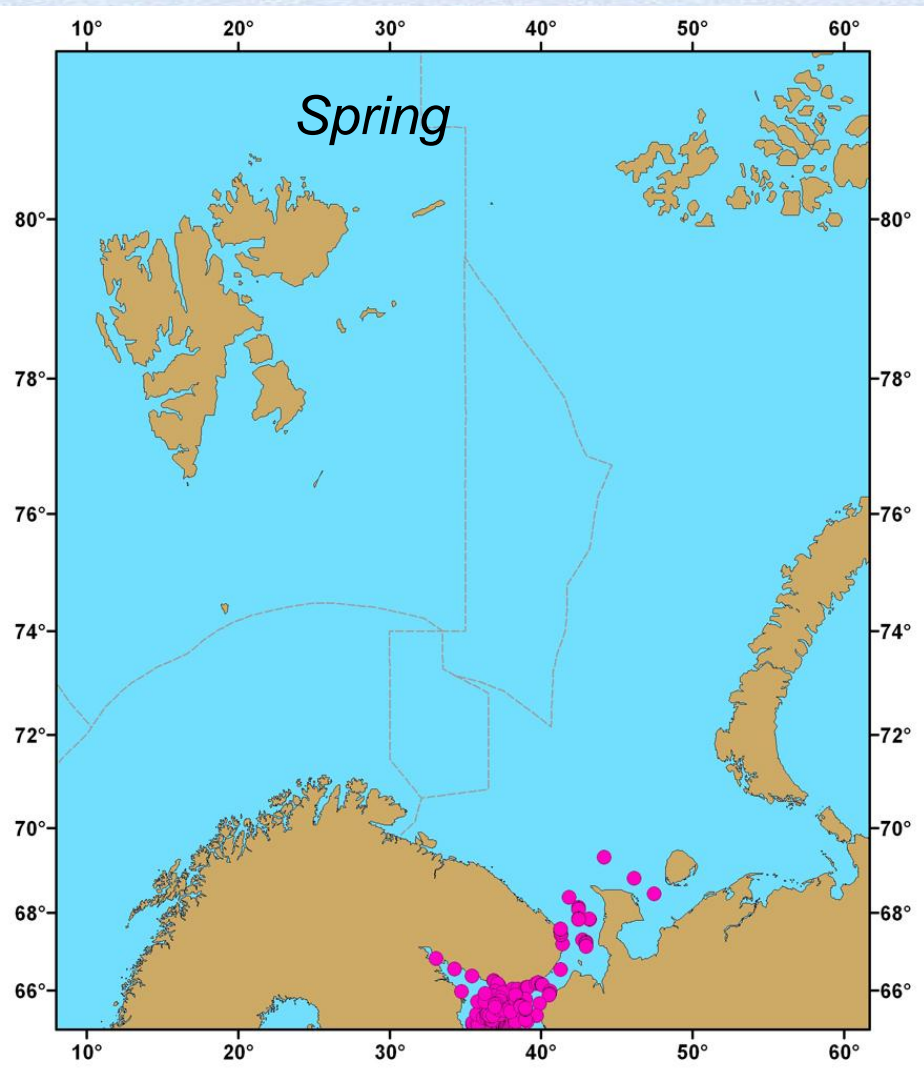


Appearance of AN-26 «Arktika» and its main technical specifications

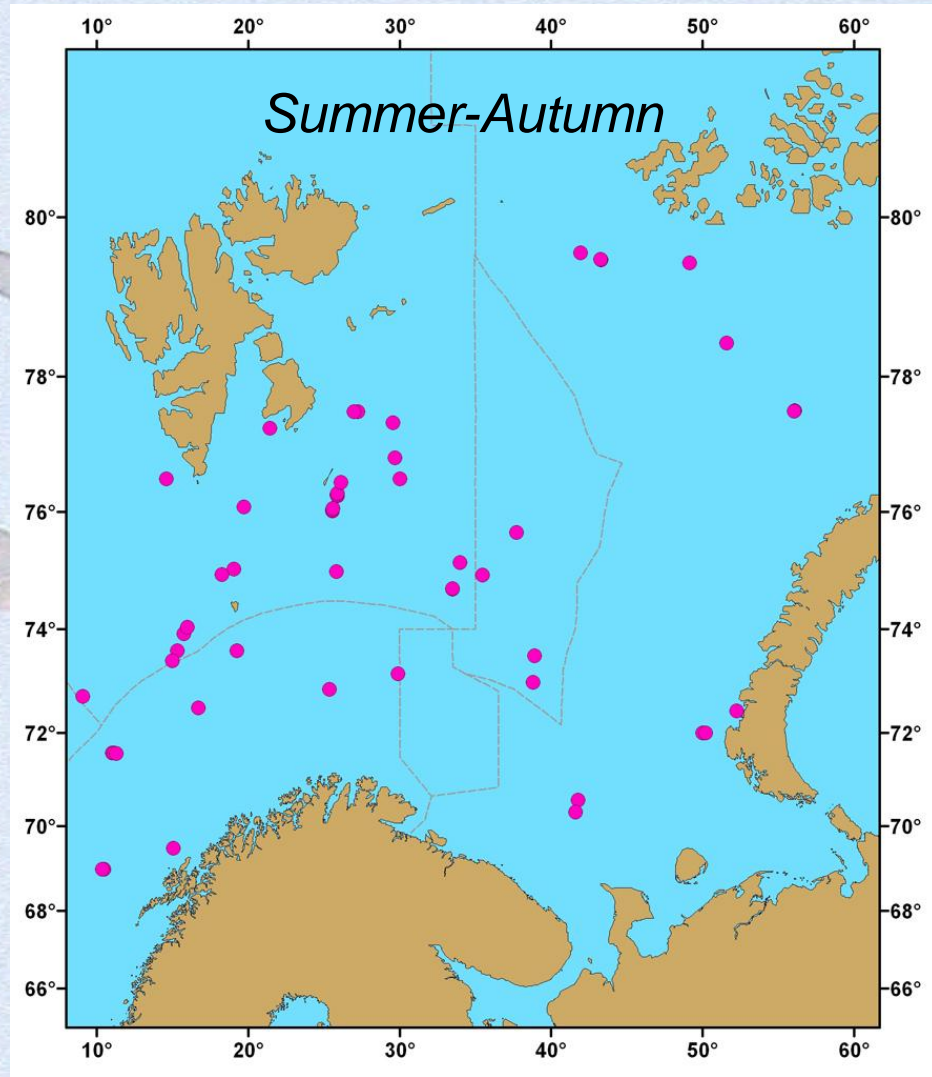
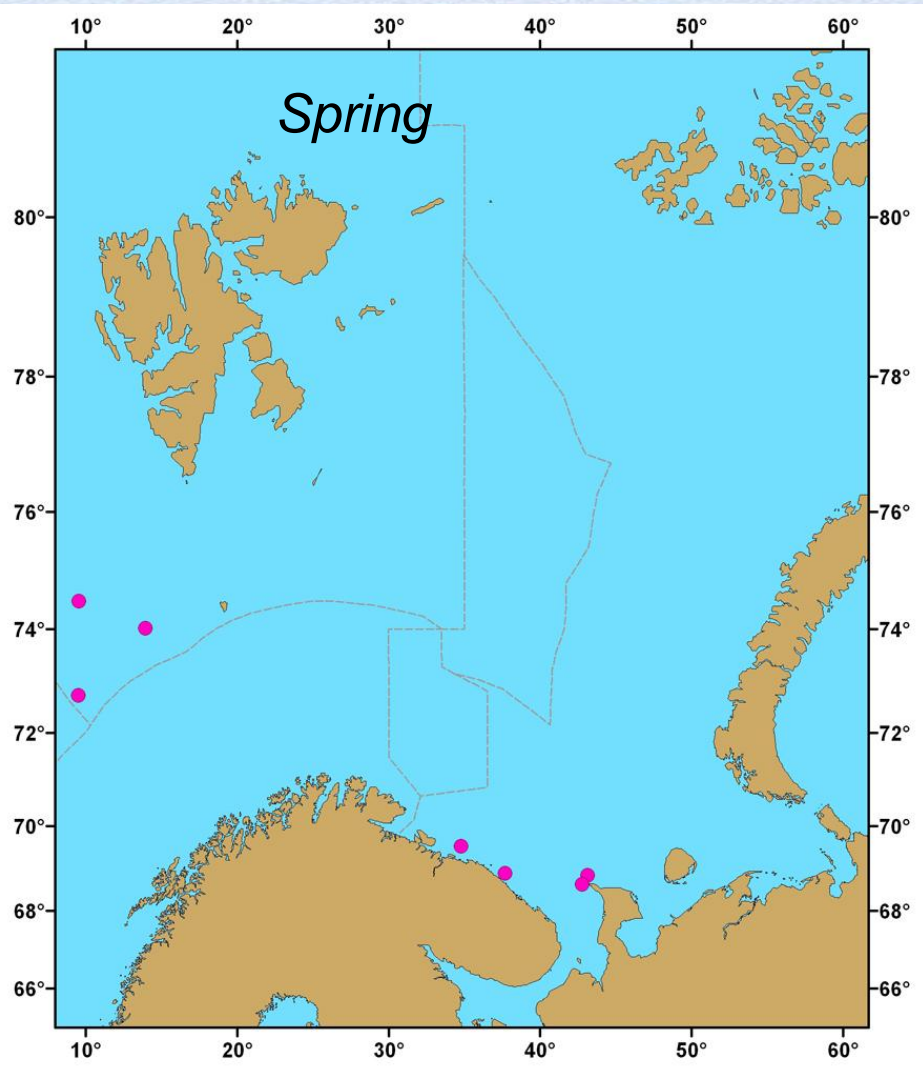
Maximum range of flight, km	3200
Maximum duration of flight, hr	8-9
Number of board measuring complex	max. 14 (harp seal-8)
Number of places for board operators	8
Height of flight, m	100-6000
Speed range, km/hr	250-400



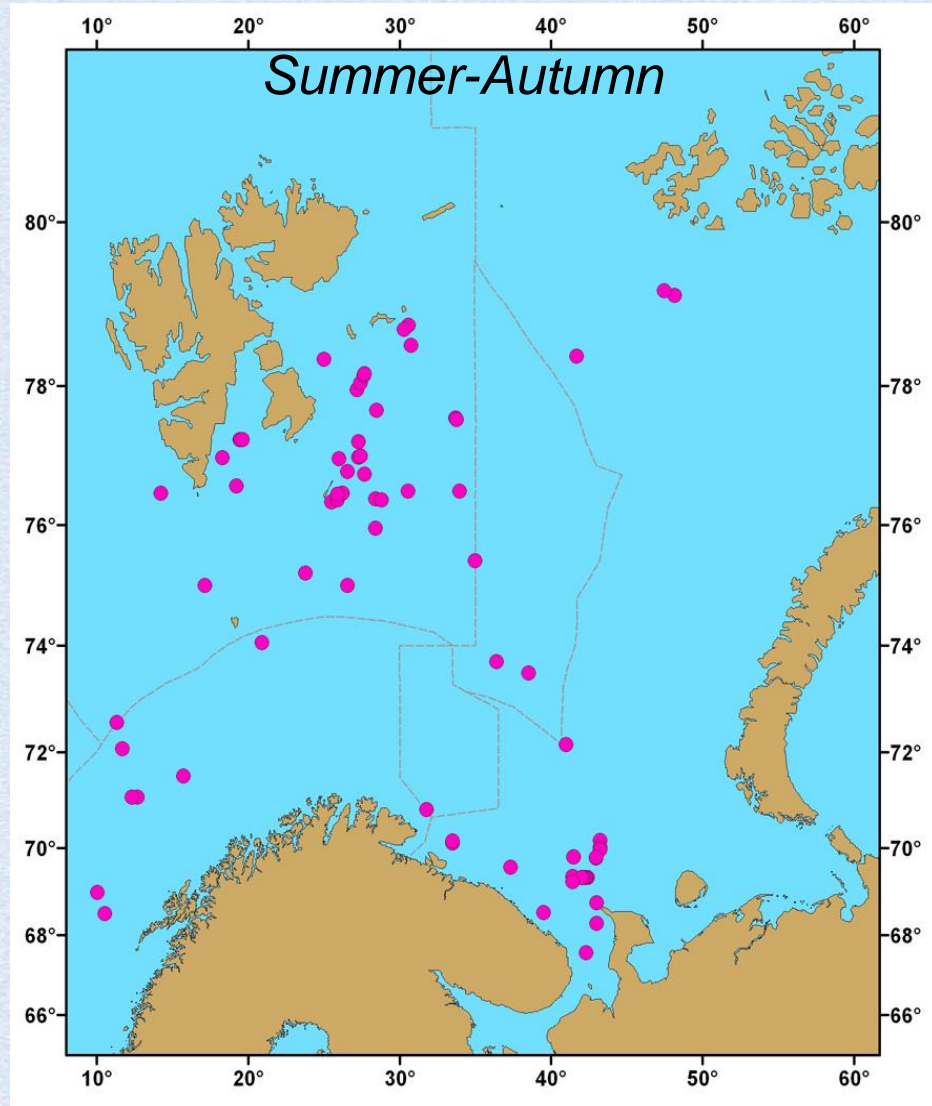
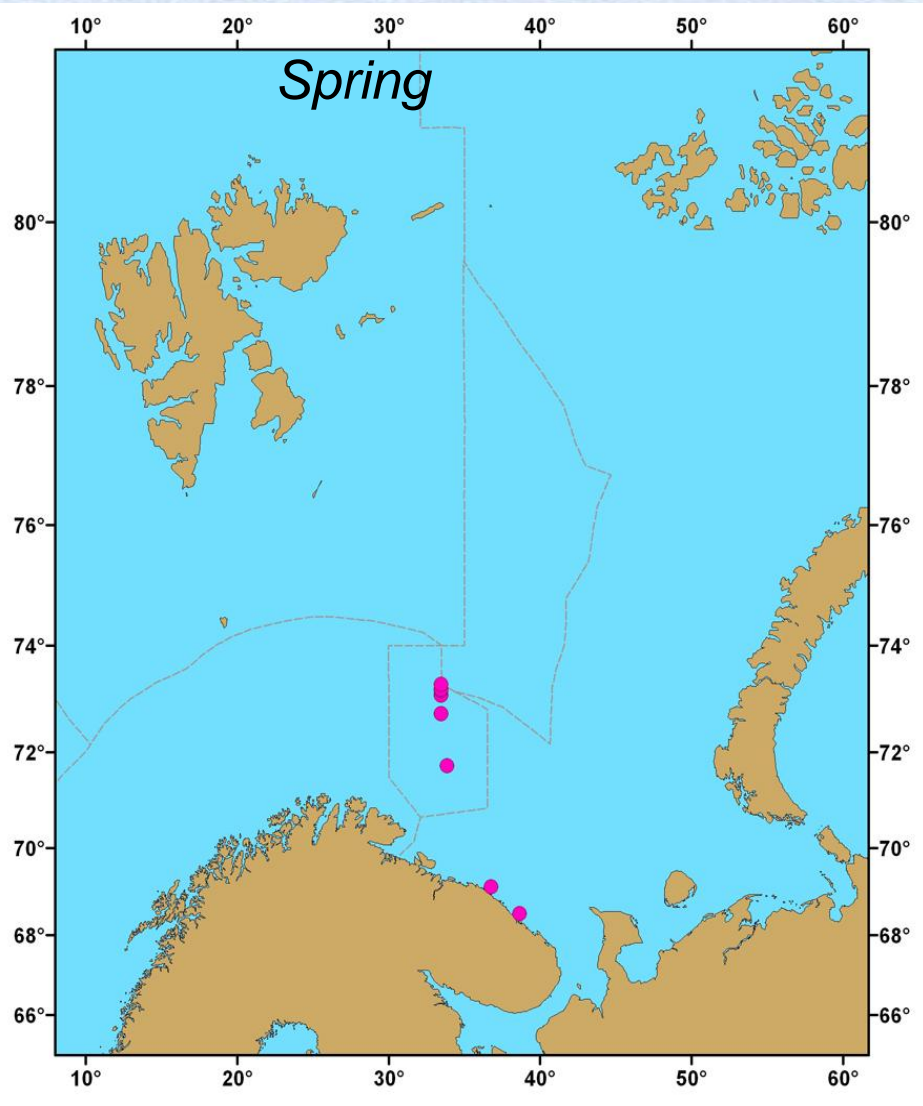
Local aggregation of white-beaked dolphin (*Lagenorhynchus albirostris*) on data 2001-2004



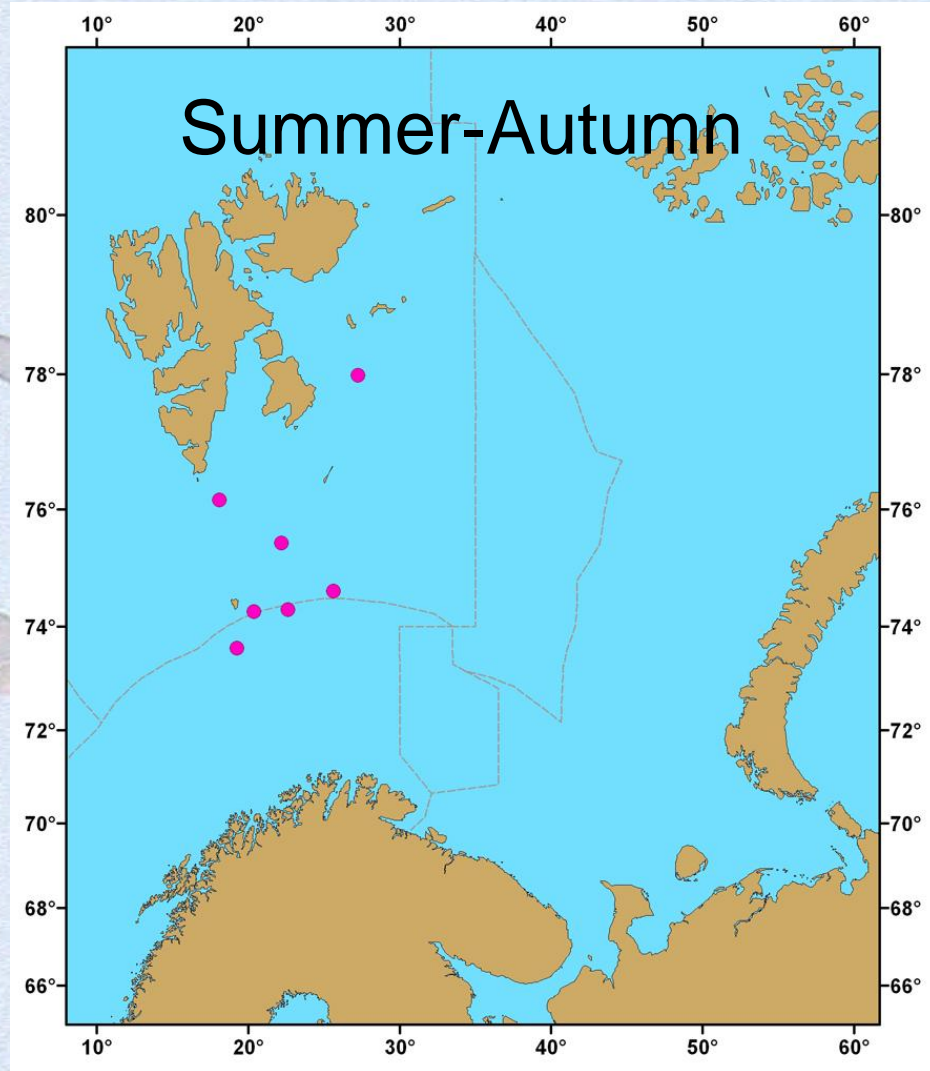
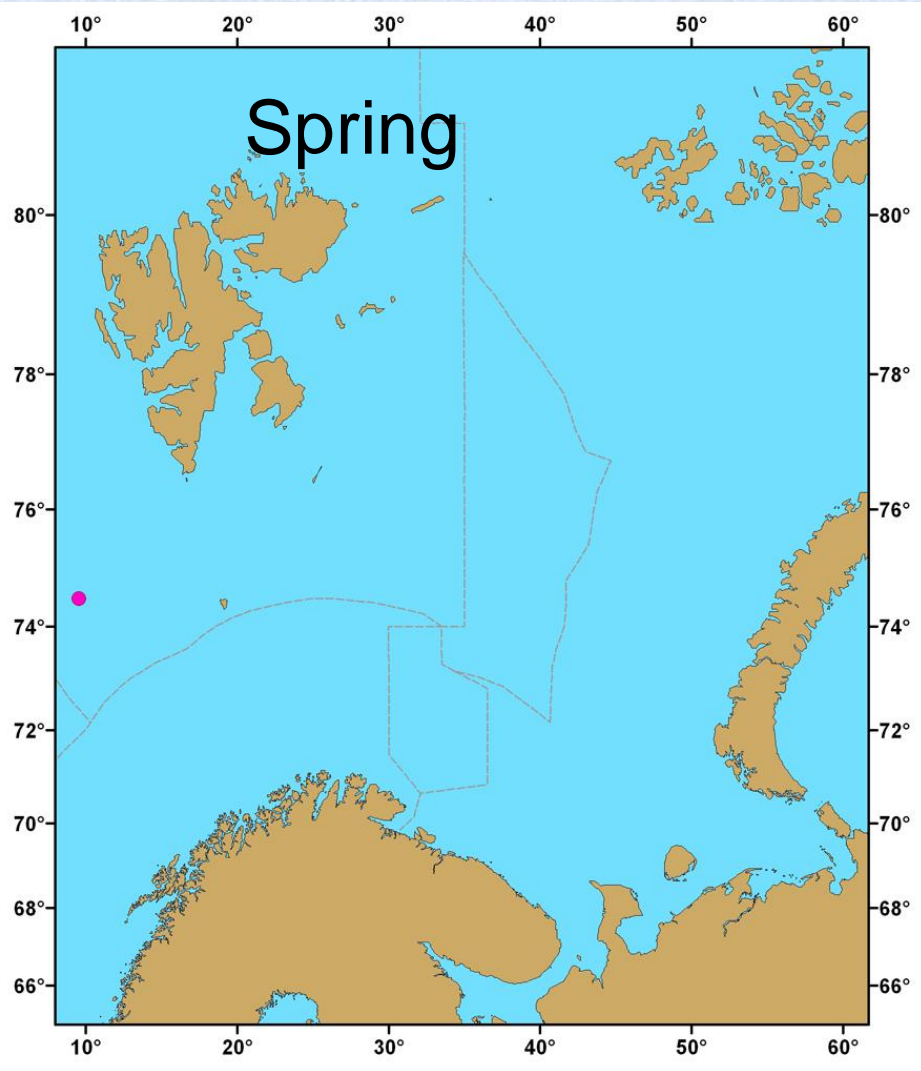
Local aggregation of white whale
(*Delphinapterus leucas*) on data 2001-2004



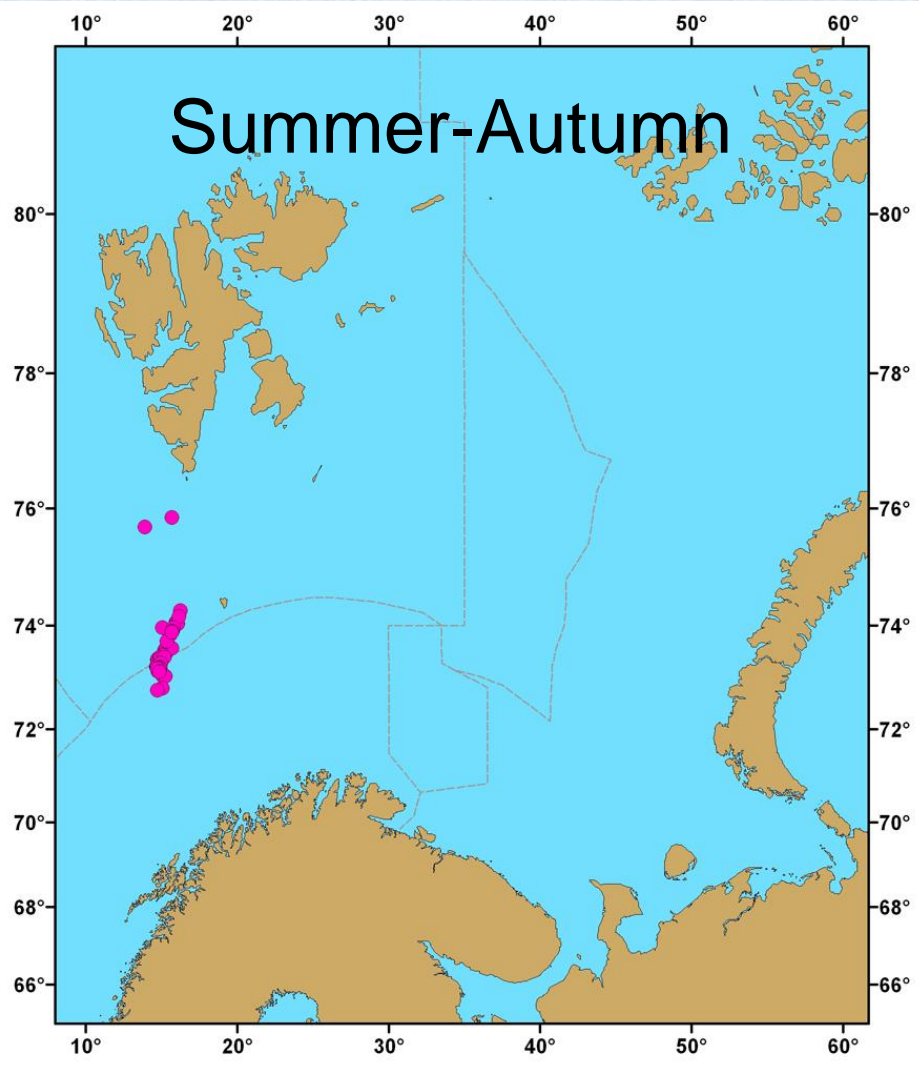
Local aggregation of killer whale (*Orcinus orca*) on data for 2001-2004



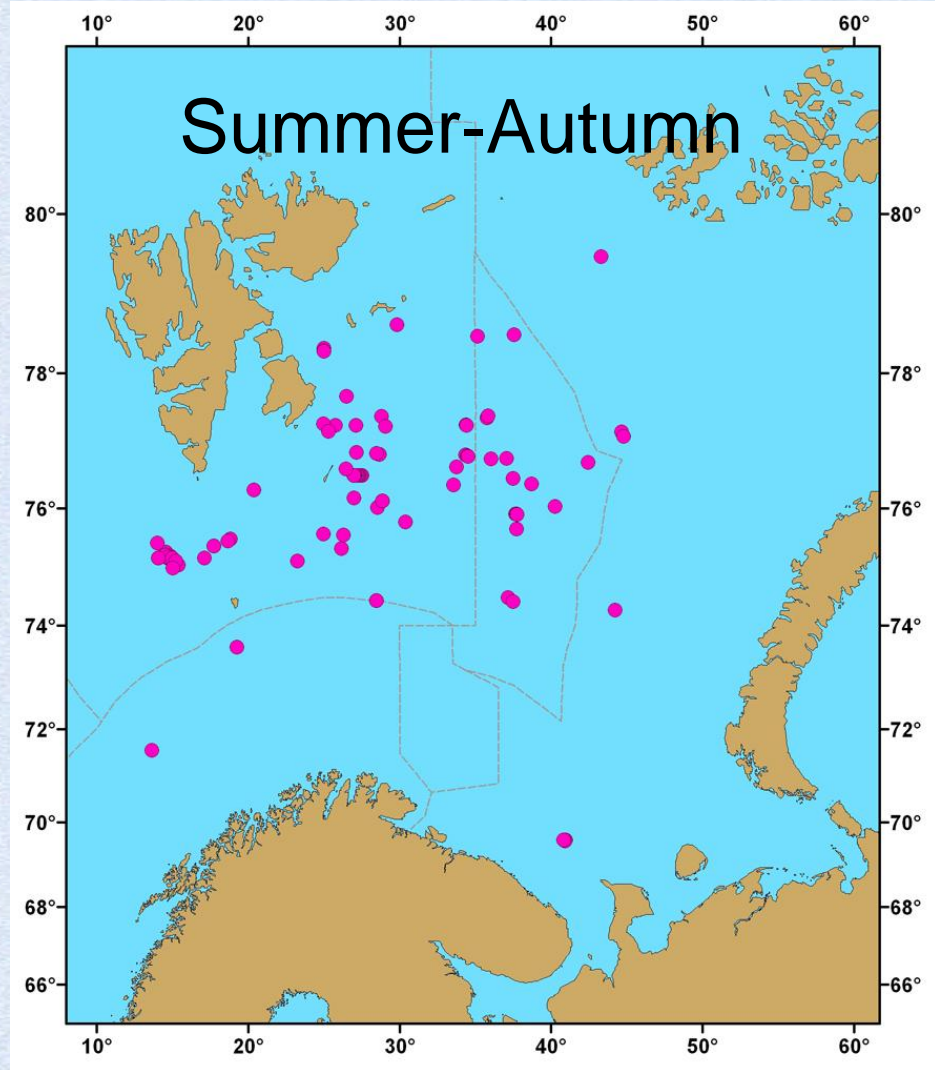
Local aggregation of minke whale
(*Balaenoptera acutorostrata*) on data 2001-2004



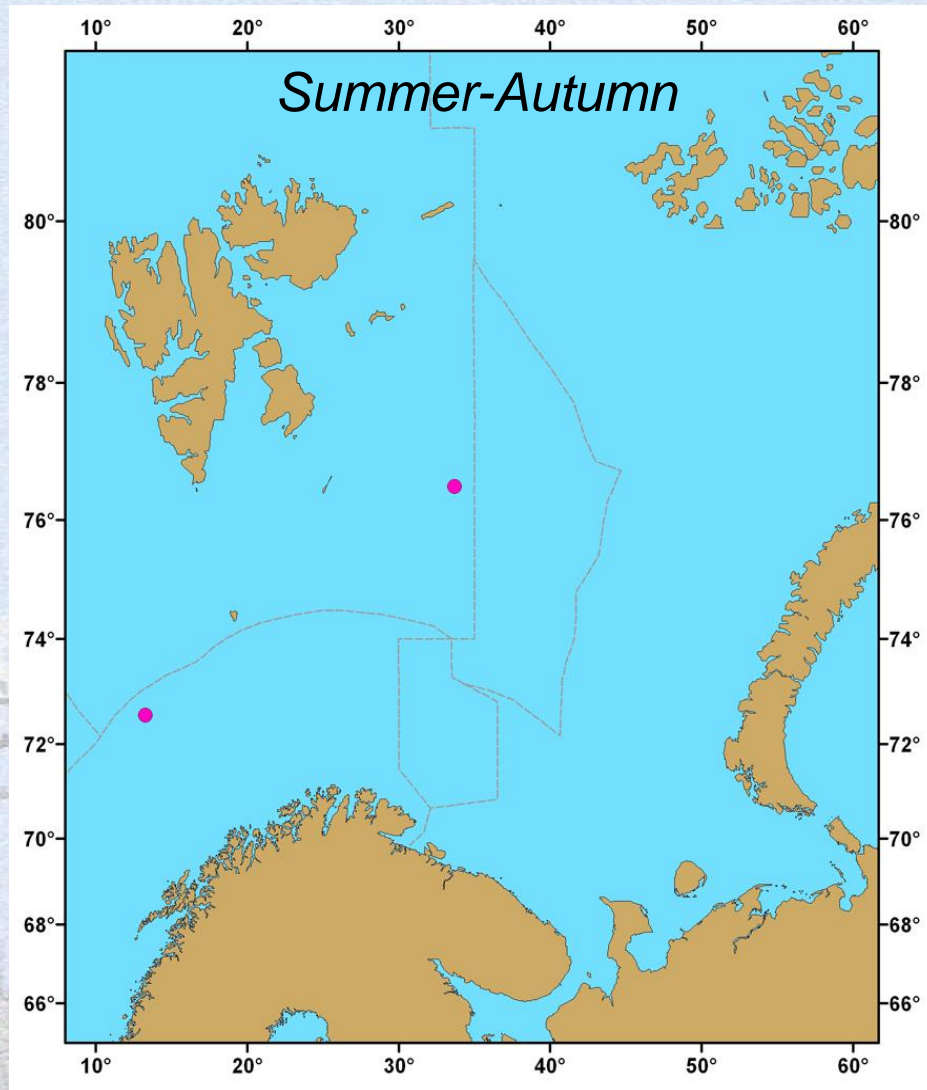
Local aggregation of fin whale
(*Balaenoptera physalus*) on data for 2001-2004



Local aggregation of northern
bottle-nosed whale
(*Hyperoodon ampullatus*) on data for
2001-2004



Local aggregation of humpback whale
(*Megaptera novaeangliae*) on data for
2001-2004



Local aggregation of sperm whales
(*Physeter catodon*) on data 2001-2004

Number of marine mammals individuals observed from R/V
 “Johan Hjort”, “G.O. Sars”, “Smolensk”, “F. Nansen”, and research
 aircraft An-26 “Arktika” during ecosystem survey in 2005 (part 1)

Class/sub-order	Species name (in english)	“Johan Hjort”	“G.O. Sars”	“Smolensk”	“F. Nansen”	An-26 “Arktika”	Total	%%
Cetacea/baleen whales	Minke whale	37	73	7	9	22	148	2.66
	Sei whale	0	0	0	14	0	14	0.25
	Fin whale	46	60	0	9	0	115	2.07
	Humpback whale	15	22	16	135	11	199	3.58
	Bowhead whale	0	0	2	0	0	2	0.04
	Unidentified whales	2	0	5	33	20	60	1.08
	Unidentified large whale	16	16	0	0	0	32	0.58
Subtotal sum	5	116	171	30	200	53	570	10.26
Cetacea/toothed whales	Sperm whale	35	22	0	0	0	57	1.02
	Killer whale	28	0	0	3	2	33	0.59
	White-beaked dolphin	0	526	42	987	45	1600	28.76
	Harbour porpoise	0	2	0	0	0	2	0.04
	Common dolphin	0	0	1	0	0	1	0.02
	Unidentified dolphins	252	30	0	37	0	319	5.73
Subtotal sum	5	315	580	43	1027	47	2012	35.16

Number of marine mammals individuals observed from R/V
 “Johan Hjort”, “G.O. Sars”, “Smolensk”, “F. Nansen”, and research
 aircraft An-26 “Arktika” during ecosystem survey in 2005 (part 2)

Class/sub-order	Species name (in english)	“Johan Hjort”	“G.O. Sars”	“Smolensk”	“F. Nansen”	An-26 “Arktika”	Total	%%
Pinnipedia	Harp seal	0	0	0	2504	234	2738	49.21
	Ringed seal	0	0	0	0	9	9	0.16
	Bearded seal	0	0	0	0	2	2	0.04
	Walrus	0	0	0	109	112	221	3.97
	Grey seal	0	0	1	0	0	1	0.02
	Unidentified seals	0	0	0	0	5	5	0.09
Subtotal sum	5	0	0	1	2613	362	2976	53.49
Other	Polar bear	0	0	0	2	3	5	0.09
	Unidentified mammals	0	0	0	0	1	1	0.02
Subtotal sum		0	0	0	2	4	6	0.11
Total sum	15	431	751	74	3842	466	5564	100.00

Number of marine mammal individuals observed from R/V
 “Johan Hjort”, “G.O. Sars”, “Jan Mayen”, “Smolensk” and “F. Nansen”
 during the ecosystem survey in 2006 (part 1)

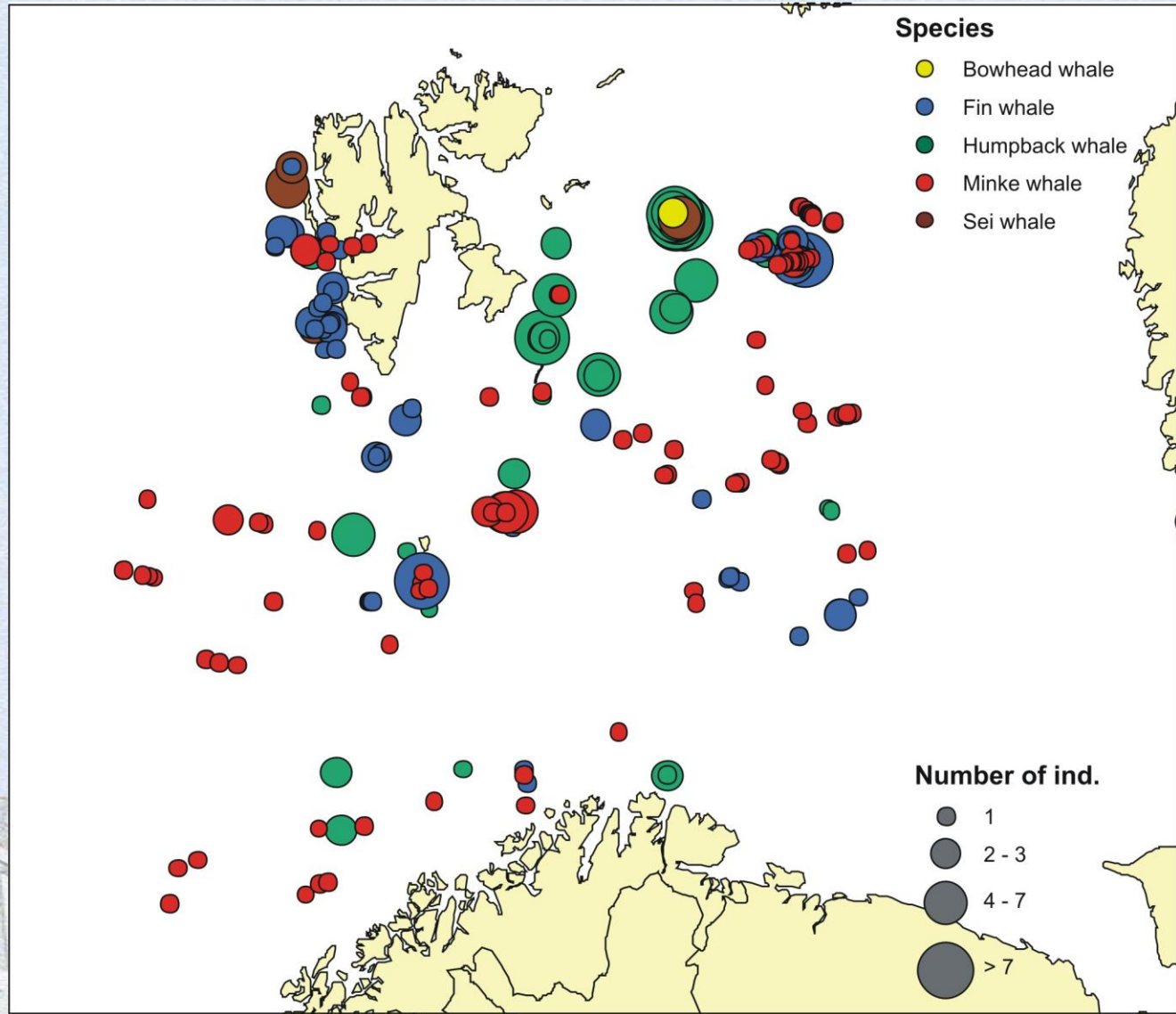
Class/ suborder	Species name (in english)	“Johan Hjort”	“G.O. Sars”	“Jan Mayem”	“Smolensk”	“F. Nansen”	Total	%%
Cetacea/baleen whales	Minke whale	37	16	3	11	19	86	4.86
	Sei whale	0	0	0	0	1	1	0.06
	Fin whale	14	36	106	3	5	164	9.26
	+Blue whale	0	0	4	0	0	4	0.22
	Humpback whale	24	50	21	1	37	133	7.51
	Bowhead whale	0	0	0	1	0	1	0.06
	Unidentified whales	0	0	0	3	19	22	1.24
	Unidentified large whales	7	1	4	0	0	12	0.68
Subtotal sum	6	82	103	138	19	81	423	23.89

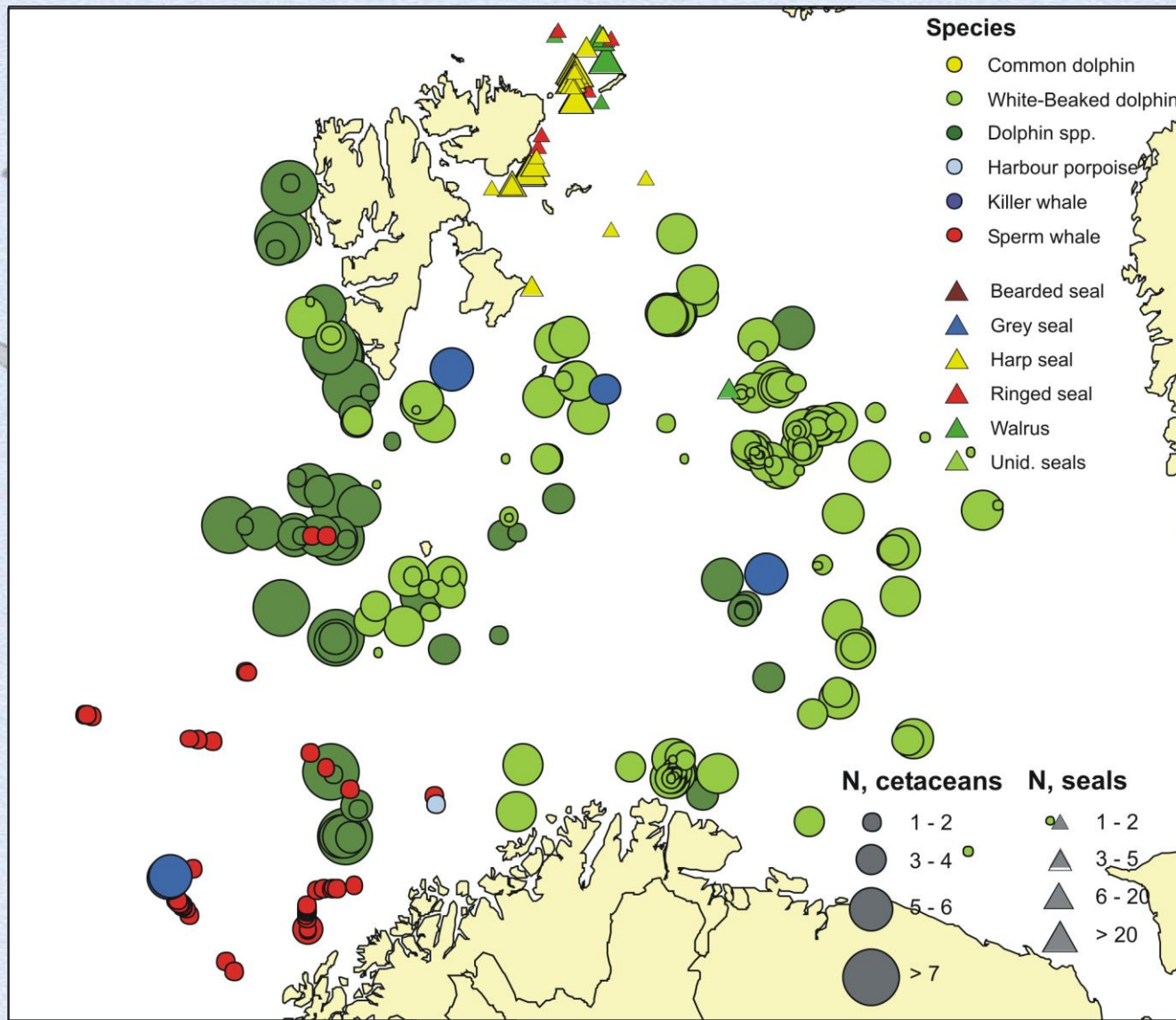


Number of marine mammal individuals observed from R/V
 “Johan Hjort”, “G.O. Sars”, “Jan Mayen”, “Smolensk” and “F. Nansen”
 during the ecosystem survey in 2006 (part 2)

Class/ suborder	Species name (in english)	“Johan Hjort”	“G.O. Sars”	“Jan Mayem”	“Smolensk”	“F. Nansen”	Total	%%
Cetacea/toothed whales	Sperm whale	6	0	0	0	0	6	0.34
	Killer whale	0	0	0	0	4	4	0.22
	White-beaked dolphin	401	218	79	91	148	937	52.94
	+White-side dolphin	0	0	0	16	8	24	1.36
	Common dolphin	0	0	0	3	0	3	0.17
	+Striped dolphin	0	0	0	6	0	6	0.34
	+White whale	0	0	0	38	0	38	2.15
	Harbour porpoise	0	0	0	14	20	34	1.92
	Unidentified dolphins	11	0	13	3	13	40	2.26
Subtotal sum	8	418	218	92	171	193	1092	61.70
Pinnipedia	Harp seal	0	0	178	3	0	181	10.22
	Bearded seal	0	0	3	0	1	4	0.22
	Grey seal	0	0	0	2	0	2	0.11
	Walrus	0	0	60	0	0	60	3.39
	Unidentified seals	2	0	2	0	0	4	0.22
Subtotal sum	4	2	0	243	5	1	251	14.16
Other	Polar bear	0	0	0	3	0	3	0.17
	<u>Basking shark</u>	1	0	0	0	0	1	0.06
Subtotal sum		1	0	0	3	0	4	0.23
Total sum	18	503	321	473	198	275	1770	100.00

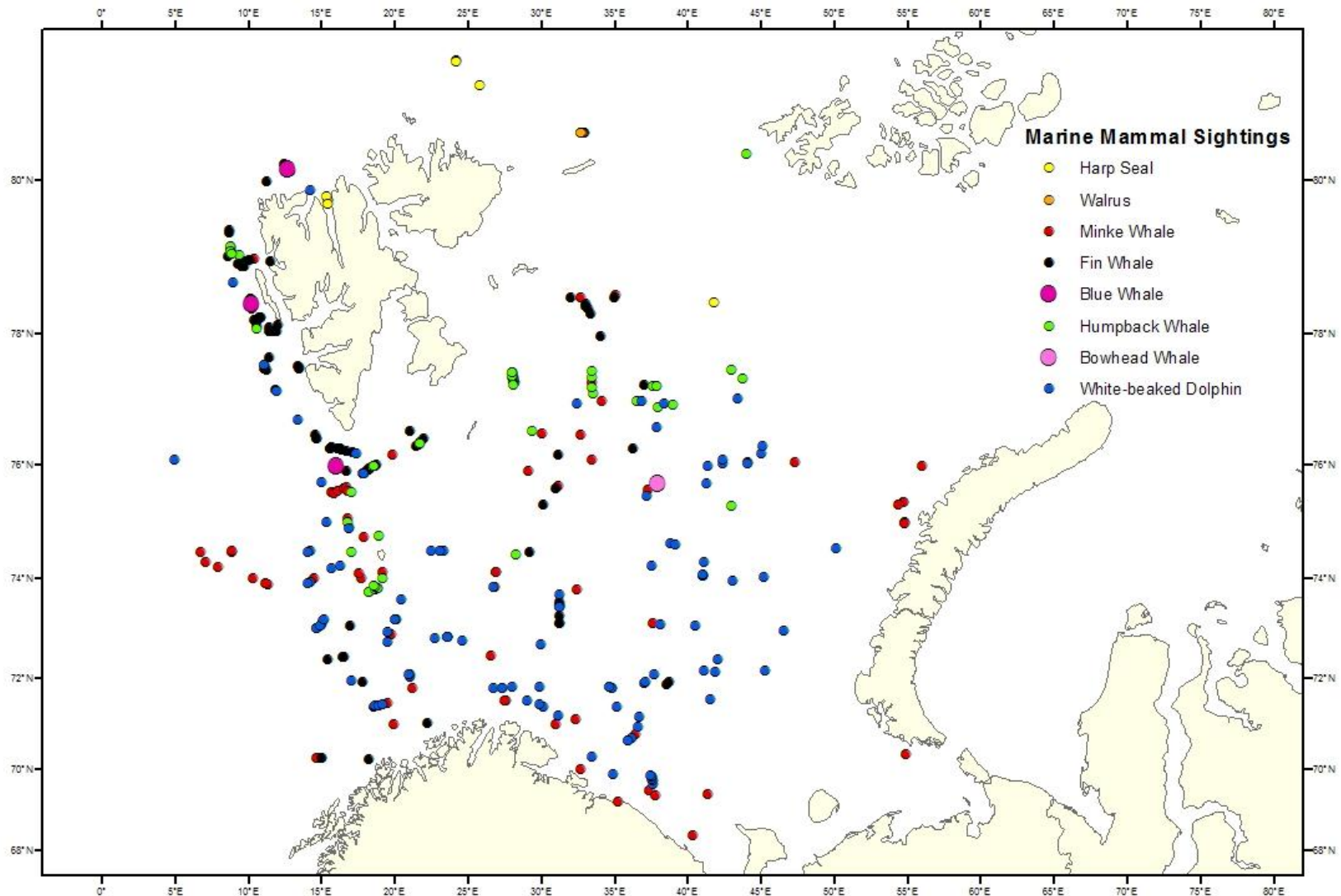
Distribution of baleen whales observations from the R/V "Johan Hjort", "G.O. Sars", "Smolensk", "F.Nansen", and the research-aircraft "Arktika" during the ecosystem survey in 2005





Distribution of seals and toothed whales observations from the R/V "Johan Hjort", "G.O. Sars", "Smolensk", "F.Nansen", and the research-aircraft "Arktika" during the ecosystem survey in 2005

Distribution of marine mammals (the most frequently meeting species) observed during the 2006 Norwegian-Russian joint ecosystem survey (R/V "Johan Hjort", "G.O. Sars", "Smolensk", "F. Nansen")







Marine mammals
bycatch in the open
Barents Sea

Harp seals bycatch is
estimated as 100-150
specimens annually
(only for Russian
trawlers)



In connection since modern climatic changes (warming) in the Barents Sea and previous years surveys experience can make following main **CONCLUSIONS:**

- some non traditional marine mammals species were observed here, therefore their species numbers was increased;*
- some a relative increase in the numbers and area size of marine mammals, in the first for humpback whale, minke whale, and white-beaked dolphin;*
- the trophic role of marine mammals in the ecosystem at present may be estimated as very significant and in the first as predators for fish stocks under above from one side, and other side human industrial and other activities in the sea have considerable influence on marine mammals;*
- all indicated above demand of marine mammals research expansion which would include all research directions, where study of marine mammals distribution and numbers would base on aerial surveys which can be added by data of vessel surveys and coastal observations including boat account that was demonstrated as success in several last ecosystem surveys.*



Federal Scientific Center of Aquaculture and Fisheries (VNIRO),
Pribludnaya Street, Murmansk, Russia
Phone: (+7) 8152 220000, Fax: (+7) 8152 220000,
E-mail: ltei@vniro.ru
Web: www.vniro.ru

**Thank You for Your
Attention!**

