4. Data

The current study is based on the long-term data series obtained at one point in Kadalaksha Bay, located in Chupa Inlet of the White Sea (66° 19.5' N, 33° 39.4' E), and which has a depth of 65 m (see Figure 3). Regular hydrological observations were performed every 10 days throughout 1961-2000. In 1963, in addition to hydrological observations, plankton sampling commenced. Depending on the weather conditions, the sampling dates varied. The present study covers analyses of 938 oceanographic profiles and 812 stations where plankton was sampled at three levels, for a total of 2,514 plankton samples (see Tables 1 and 2). A list of all zooplankton taxa as documented by the White Sea Biological Station is presented on Table 3.

Temperature and salinity were measured at depths of 0, 5, 10, 15, 25, and 50 m, and in the bottom layer at 65 m below the surface. The temperature was measured with a deep-water turning-over TG-type thermometer with a resolution of 0.1^{o} C or a bathythermograph with the same resolution. Water was sampled with a Nansen water sampler BH-48. Salinity was determined by titration or with an electric salt gauge GM-65M.

Plankton were caught with a standard large Judey net with locker. The diameter of the mouth opening was 0.1 m^2, mesh size – 0.168 mm. Samples were taken from three standard depth levels at 10-0, 25-10, and 65-25 meters. After the net was lifted, plankton was fixed with a 10% formaldehyde solution. A Bogorov counting dish (kamera Bogorova) was used to count the organisms. A sample was reduced by the concentration method to 200 ml. Of this amount, two aliquots of 1 ml each were taken. In each aliquot, the abundance of zooplankton was determined. Then the total abundance of rarer species was determined for the entire sample. All abundance data were presented by the number of animals in one cubic meter - # m^{-3}.

Table 1. Inventory of temperature and salinity measurements

Years	Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Sep			Oct			Nov			Dec			Total
1961	**1**	**1**		**1**	**1**						**1**				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			25
1962			**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1		1	1	1	1	**1**	31
1963	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		1	1	1		1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	**1**	34
1964	**1**	**1**	**1**	**1**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1			32
1965	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			**1**	**1**	34
1966	**1**	**1**		**1**	**1**	**1**	**1**			**1**	**1**	**1**	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			32
1967		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	**1**	33
1968			**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	2	1	1	1	**1**			36
1969			**1**	**1**	**1**		**1**	**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1		31
1970		**1**			**1**			**1**	**1**	**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1			1		1		27
1971		**1**		**1**					**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1		1										20
1972																				1	1	1	1	1	1	1	1	1	1								10
1973													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					19
1974		**1**			**1**					**1**				1		1	1	1	1	1	1	1	1	1	1	1	1	1	1		1			1		21
1975		**1**			**1**				**1**		**1**			1		1	1	1	1	1	2	1	1	1	1	1		1	1	1	1	1			1		23
1976		**1**			**1**			**1**			**1**			1		1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1				24
1977					**1**			**1**			**1**					1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			23
1978			**1**		**1**			**1**			**1**		1		1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	**1**			25
1979		**1**			**1**			**1**			**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**1**		26
1980				**1**	**1**		**1**	**1**		**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1		1		27
1981					**1**		**1**	**1**						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		24
1982	**1**		**1**		**1**			**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			30
1983					**1**			**1**	**1**		**1**	**1**		1	1	1	1	1	1	1	1	1	1		1	1	1	2	1	1	1	1					24
1984		**1**						**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1			1		26
1985					**1**			**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1						25
1986		**1**			**1**			**1**	**1**		**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1			1			26
1987		**1**			**1**			**1**	**1**	**1**	**1**	**1**		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							23
1988		**1**			**1**			**1**		**1**					1	2	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1					22
1989			**1**		**1**			**1**			**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							22
1990		**1**				**1**		**1**		**1**	**1**			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1						23
1991		**1**			**1**	**1**		**1**		**1**				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					**1**	24
1992					**1**					**1**						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							18
1993											**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1						20
1994							**1**	**1**			**1**					1	1	1	1	1	1	1	1	1	1	1	1	1		1	1						19
1995																1	1	1	1	1	1	1		1	1	1	1	1	1		1		1				16
1996	**1**					**1**			**1**			**1**				1	1	1	1	1	2	1	1	1	1	1	1	1									19
1997															1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							17
1998				**1**				**1**			**1**					1	1	1	1	1	1	1	1	1	1	1	1	1		1	1						19
1999			**1**	**1**				**1**		**1**					1	1	1	1																			8

Total number of profiles 938

1 = number of measurements carried out from the vessel
1 = number of measurements carried out on the ice
□ = unknown ice conditions

Table 2. Inventory of zooplankton stations

Years	Jan			Feb			Mar			Apr			May			Jun			Jul			Aug			Sep			Oct			Nov			Dec			Total
1963																									1		1	1	1		1		1	1			7
1964		**1**	**1**	**1**	**1**		**1**	**1**	**1**	**1**	**1**	**1**	1	1	1		1		1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	**1**		30
1965			**1**		**1**		**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1			**1**	28
1966					**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	1	1	1	1	1		1	1	1	1	1	1	1	1	1			1	1	1	1	1			28
1967		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	**1**	33
1968			**1**	**1**	**1**	**1**	**1**	**1**	**1**		**1**	**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1		**1**			28
1969			**1**				**1**	**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1			27
1970		**1**			**1**			**1**	**1**	**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1			1		1		27
1971		**1**		**1**					**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									21
1972																				1	1	1	1	1	1	1	1	1	1	1						10
1973													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					19
1974		**1**			**1**					**1**				1		1	1	1	1	1	1	1	1	1	1	1	1	1	1		1			1		21
1975		**1**			**1**				**1**		**1**			1		1	1	1	2	1	1	1	1	1	1	1		1	2	1		1			1		23
1976		**1**			**1**			**1**			**1**			1		1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				24
1977					**1**			**1**			**1**	**1**				1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1				25
1978			**1**		**1**			**1**			**1**		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	**1**		25
1979		**1**			**1**			**1**			**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**1**		26
1980				**1**	**1**		**1**	**1**		**1**	**1**	**1**		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1							24
1981					**1**		**1**							1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1		22
1982								**1**			**1**	**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1				22
1983					**1**		**1**				**1**	**1**		1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1						21
1984		**1**						**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1			1		26
1985				**1**	**1**			**1**	**1**	**1**	**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1					26
1986		**1**			**1**			**1**	**1**		**1**	**1**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1			1		26
1987		**1**			**1**			**1**	**1**	**1**	**1**	**1**		1		1	1	1	1	1	1	1	1	1	2	1	1	1	2	1		1					26
1988		**1**			**1**			**1**		**1**					1	1	2	1	1	1	1	1	1		1	1	1	1	1	1	1	1					22
1989			**1**		**1**			**1**			**1**		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					23
1990		**1**				**1**		**1**		**1**	**1**			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					23
1991		**1**			**1**	**1**		**1**		**1**				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1					23
1992					**1**					**1**						1	1	1	1	1	1	1	1	1	1		1	1	2	1							18
1993														1	1		1	1	2	1	1	1	1	1	1	1	1	1		1	1						18
1994																1	1	1	1	1	1	1	1	1	1	1	1	1		1							15
1995																1	1	1	1	1	1	1	1	1		1	1	1	1	1			1				17
1996						**1**			**1**			**1**				1	1	1	2	1	1	1	1	1	1	1	1	1		1					**1**		21
1997					**1**											1	2	1	1	1	1	1	1	1	1	1	1	1		1							18
1998				**1**				**1**			**1**					1	1	1	1	1	1	1	1	1	1	1	1	1		1	1						19

Total stations 812

1 = number of measurements carried out from the vessel

1 = number of measurements carried out on the ice

▢ = unknown ice conditions

Table 3. List of taxa.

Group	Species	Ontogenetic stages
Protista	*Parafavella denticulata*	Adult
Hydrozoa	*Aglantha digitale*	
Copepoda	*Calanus glacialis*	Female VI
Copepoda	*Calanus glacialis*	Male VI
Copepoda	*Calanus glacialis*	Cop V
Copepoda	*Calanus glacialis*	Cop IV
Copepoda	*Calanus glacialis*	Cop III
Copepoda	*Calanus glacialis*	Cop II
Copepoda	*Calanus glacialis*	Cop I
Copepoda	*Calanus glacialisi*	Nauplii
Copepoda	*Metridia longa*	Female VI
Copepoda	*Metridia longa*	Male VI
Copepoda	*Metridia longa*	Cop V
Copepoda	*Metridia longa*	Cop IV
Copepoda	*Metridia longa*	Cop III
Copepoda	*Metridia longa*	Cop II
Copepoda	*Metridia longa*	Cop I
Copepoda	*Metridia longa*	Nauplii
Copepoda	*Pseudocalanus minutus*	Female VI
Copepoda	*Pseudocalanus minutus*	Male VI
Copepoda	*Pseudocalanus minutus*	Cop V
Copepoda	*Pseudocalanus minutus*	Cop IV
Copepoda	*Pseudocalanus minutus*	Cop III
Copepoda	*Pseudocalanus minutus*	Cop II
Copepoda	*Pseudocalanus minutus*	Cop I
Copepoda	*Pseudocalanus minutus*	Nauplii
Copepoda	*Acartia longiremis*	Female VI
Copepoda	*Acartia longiremis*	Male VI
Copepoda	*Acartia longiremis*	Cop.
Copepoda	*Acartia longiremis*	Juv.
Copepoda	*Acartia longiremis*	Nauplii
Copepoda	*Centropages hamatus*	Female VI
Copepoda	*Centropages hamatus*	Male VI
Copepoda	*Centropages hamatus*	Cop.
Copepoda	*Centropages hamatus*	Juv.
Copepoda	*Centropages hamatus*	Nauplii
Copepoda	*Oithona similis*	Female VI
Copepoda	*Oithona similis*	Male VI
Copepoda	*Oithona similis*	Cop.
Copepoda	*Oithona similis*	Juv.
Copepoda	*Oithona similisi*	Nauplii
Copepoda	*Temora longicornis*	Female VI
Copepoda	*Temora longicornis*	Male VI
Copepoda	*Temora longicornis*	Cop.
Copepoda	*Temora longicornis*	Juv.
Copepoda	*Temora longicornis*	Nauplii
Copepoda	*Microsetella norvegica*	Adult
Copepoda	*Microsetella norvegica*	Cop.
Copepoda	*Microsetella norvegica*	Juv.
Copepoda	*Microsetella norvegica*	Nauplii
Copepoda	*Oncaea borealis*	Female VI
Copepoda	*Oncaea borealis*	Male VI
Copepoda	*Oncaea borealis*	Cop.
Cladocera	*Podon leuckarti*	Adult
Cladocera	*Evadne nordmanni*	Adult
Cirripedia	*Cirripedia*	Nauplii
Chaetognata	*Sagitta elegans*	Adult
Polychaeta	*Polychaeta*	Larvae
Bivalvia	*Bivalvia*	Larvae
Gastropoda	*Gastropoda*	Larvae
Echinodermata	*Echinodermata*	Larvae
Bryozoa	*Bryozoa*	Larvae
Appendicularia	*Fritillaria borealis*	Adult
Appendicularia	*Oicopleura vanhoffenis*	Adult
Ascidia	*Ascidia*	Larvae