4.3.3. Biomass indices of krill and jellyfish- non target

by Eriksen E., Dalpadado P. and Dolgov A.

Distribution and amount of larger krill

In 2012 krill (group without species identifications) were distributed in the western, eastern areas and around Svalbard/Spitsbergen (Figure 4.3.3.1). The highest catches were taken during the night, with average of 11 gram per m-2, however the catches on the night stations were 2 time lower than day stations during the survey (Table 4.3.3.1). During the night most of krill migrate to upper water layer, and therefore better available for the capturing.

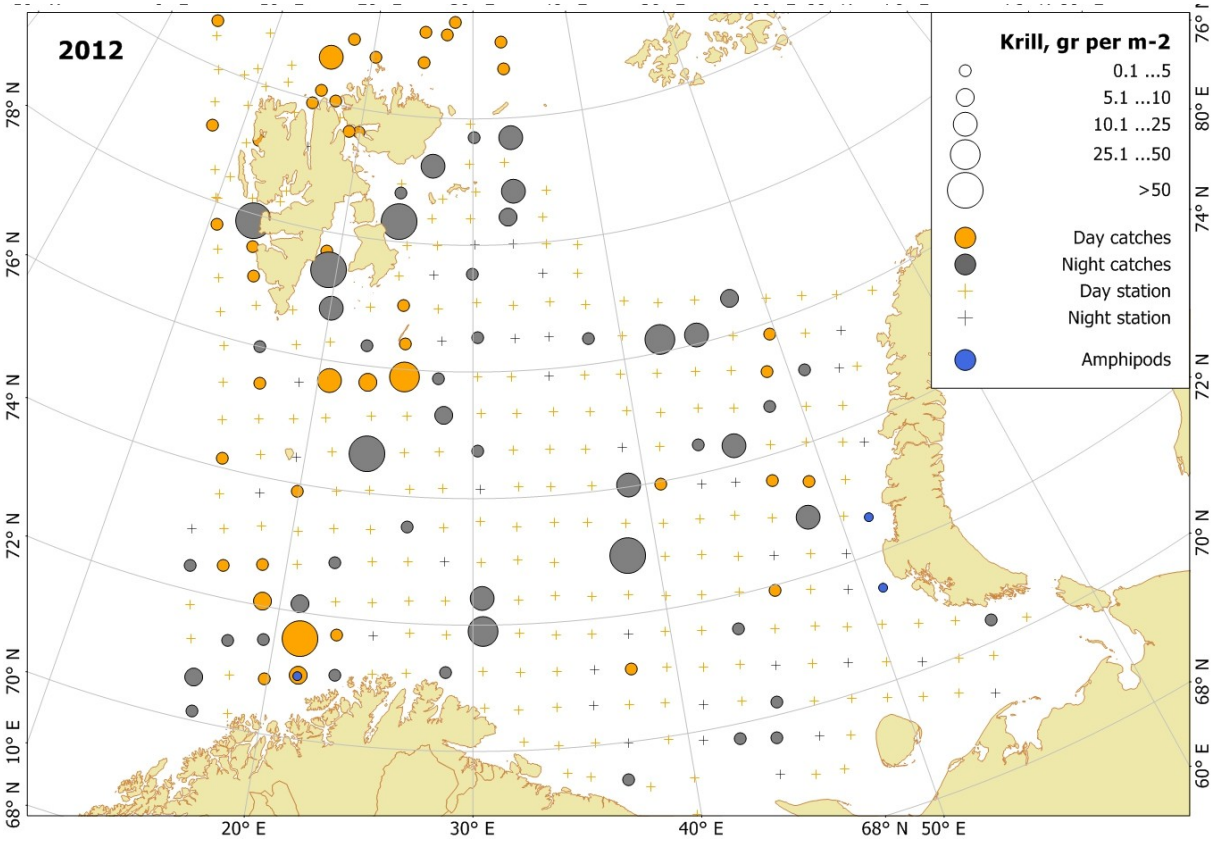


Figure 4.3.3.1. Krill distribution, based on trawl stations covering 0-60m, in the Barents Sea in August-September 2012.

In 2012 the biomass of krill was twice higher than long term mean (8.2 million tonnes) and was around 15.2 million tonnes after the heavy feeding summer season.

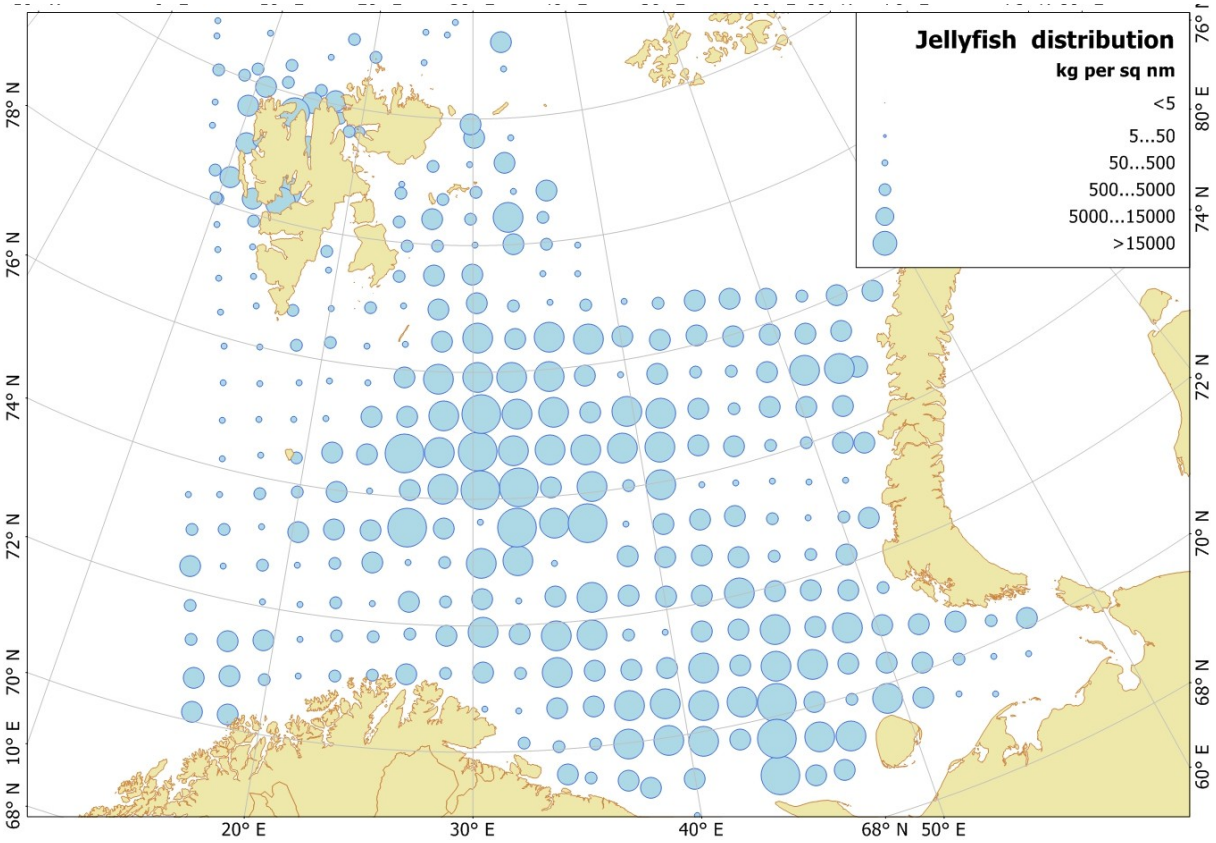
During the survey only three catches with amphipods were taken, two along the southwestern coast of Novaya Zemlya and one near the northern Norwegian coast.

In 2012 the biomass indices were recalculated for the period 1980-2009 due to mistakes in database and input data in to the calculation program. The recalculation of biomass indices changed the estimates in some few years in compared to Eriksen and Dalpadado, 2011.

Table 4.3.3.1. Day and night catches of krill taken by the pelagic trawl within 0-60 m.

Year	Day			Night		
	N	Mean gm-2	Std Dev	N	Mean gm-2	Std Dev
1980	237	1.49	11.38	90	4.86	23.96
1981	214	1.19	9.14	83	7.95	21.53
1982	192	0.18	1.19	69	6.29	22.57
1983	203	0.32	2.76	76	0.39	1.91
1984	217	0.15	1.64	66	1.72	9.17
1985	217	0.07	0.54	75	0.80	4.42
1986	229	3.03	11.70	76	11.90	37.82
1987	200	4.90	22.44	88	3.82	13.08
1988	207	2.69	30.16	81	11.84	55.84
1989	296	1.99	8.45	129	3.71	13.01
1990	283	0.11	0.76	115	1.18	6.32
1991	284	0.03	0.33	124	7.03	25.11
1992	229	0.11	1.18	77	0.92	2.92
1993	194	1.21	6.69	79	2.23	7.36
1994	175	3.01	10.23	72	7.27	18.78
1995	166	4.86	18.86	80	9.13	34.46
1996	282	4.34	26.62	118	9.32	21.53
1997	102	4.12	22.71	167	3.58	12.94
1998	176	2.24	16.00	185	5.68	23.95
1999	140	1.50	9.64	90	4.64	13.09
2000	202	1.52	9.53	67	3.54	11.49
2001	212	0.07	0.63	66	5.77	19.60
2003	203	1.26	9.54	74	2.84	11.23
2004	229	0.34	2.94	80	6.49	22.47
2005	314	3.50	30.53	86	9.02	24.78
2006	227	1.23	6.66	103	9.66	31.54
2007	192	1.79	10.93	112	9.04	39.29
2008	199	0.11	1.02	77	16.92	43.57
2009	241	0.42	2.56	131	10.29	25.02
2010	198	1.76	13.00	105	14.98	43.35
2011	212	0.13	0.69	95	19.46	77.70
2012	243	4.00	12.35	84	11.48	34.21
1980-2011	216	1.68	10	94	6.99	23.56

Distribution and amount of jellyfish, mostly *Cyanea capillata*



In the 2012 jellyfish (mostly *Cyanea capillata*) were found over the larger areas in the Barents Sea. The highest catches were taken in the southern and central areas, and some of catches were as high as 15 tonnes per nautical miles. Jellyfish were distributed not only in the Atlantic warm waters, but also in the mixed and colder arctic waters

The calculated biomass of the jellyfish taken by pelagic trawl in the 0-60 m was 1.3 million tonnes in the Barents Sea in August-September. It was at same level that in 2004-2008, which is higher than long term mean (945 thousand tonnes).

The jellyfish preys on zooplankton, fish eggs and fish larvae. They should utilize a huge amount of plankton during the summer to reached so high biomasses.

Table 4.3.3.2. Estimates of Barents Sea jellyfish biomass (1000 tonnes) with 95% confidence interval for the period 1980-2012. In addition, the surveyed area (nm^2), number of stations and annual mean biomass (tonnes/nm^2) are presented.

Year	Cov_area	Stations	Biomass	Conf_min	Conf_max
1980	356174	327	227	178	277
1981	334230	298	392	307	477
1982	292778	280	485	359	610
1983	322125	279	688	532	844
1984	326232	324	623	459	788
1985	343843	292	68	37	100
1986	317294	305	136	97	176
1987	313977	285	195	97	294
1988	324901	288	371	97	645
1989	406372	424	123	64	182
1990	353669	398	1279	1067	1492
1991	382531	403	973	784	1161
1992	314132	306	1096	804	1388
1993	312212	273	716	529	902
1994	277693	250	63	39	87
1995	260370	247	30	16	43
1996	319267	400	485	383	587
1997	276425	269	19	9	28
1998	320425	361	212	169	255
1999	303076	230	524	384	664
2000	338769	269	1260	1009	1511
2001	345169	278	4906	4191	5620
2002	329118	255	2870	2436	3303
2003	343000	277	2663	2202	3125
2004	333431	309	1510	1260	1759
2005	396600	318	1423	1040	1806
2006	314402	304	1157	715	1599
2007	378208	305	1221	725	1716
2008	363379	316	1174	864	1483
2009	371317	331	664	499	828
2010	370759	304	279	193	364
2011	367267	309	2056	1674	2437
2012	387212	329	1304	961	1648
Long term mean	336253	307	945	733	1158