4.3.3. Biomass indices of macro plankton (krill and jellyfish)

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

4.3.3.1. Distribution and amount of larger krill

In 2013 krill (group without species identifications) were widely distributed in the Barents Sea, but the main concentrations were occurred in the western, eastern areas and north for Svalbard/Spitsbergen (Figure 4.3.3.1.1). It seems that higher krill catches occurred in areas with low catches of jellyfish (Figure 4.3.3.2.1.).

The highest catches were taken during the night, with average of 11.59 gram per m^2. The number of the night stations was half of the day stations during the survey (Table 4.3.3.1.1). During the night most of krill migrate to upper water layer, and therefore better available for the capturing.

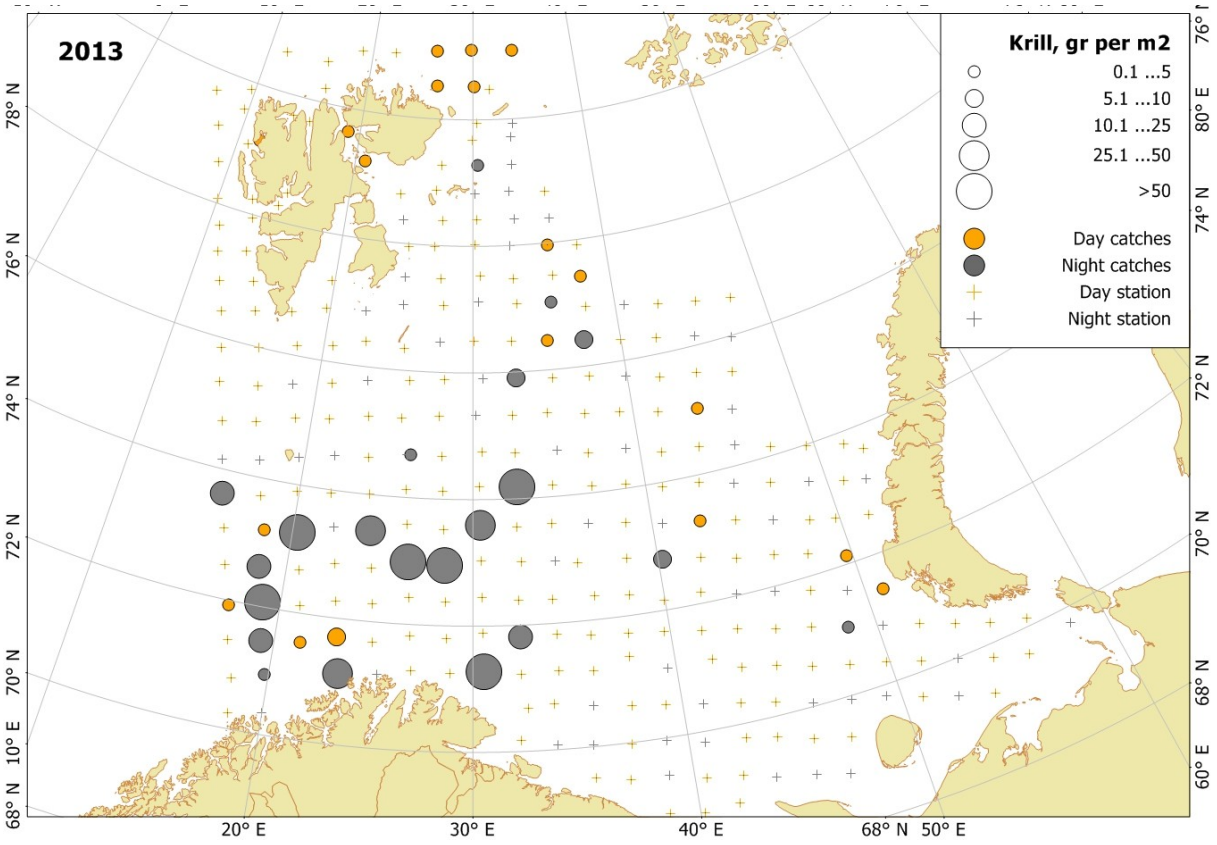

Figure 4.3.3.1.1. Krill distribution, based on trawl stations in the layer 0-60 m, in the Barents Sea in August-September 2013.

In 2013 the biomass of krill was almost twice higher than long term mean (8.7 million tonnes) and was around 15 million tonnes after the heavy feeding summer season. In 2013 the biomass of krill continued to decrease, and was a lowest biomass since 2008.

During the survey no catches with amphipods were taken. In 2012 only three catches were taken, which is lower than in previously years.

Table 4.3.3.1.1. Day and night catches (gram per m^2) of krill taken by the pelagic trawl in the layer 0-60 m.

Year	Day			Night		
	N	Mean g/m^2	Std Dev	N	Mean g/m^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	0.8	4.42
1986	229	3.03	11.7	76	11.9	37.82
1987	200	4.9	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	185	5.68	23.95
1999	140	1.5	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	19.6
2003	203	1.26	9.54	74	2.84	11.23
2004	229	0.34	2.94	80	6.49	22.47
2005	314	3.5	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	105	14.98	43.35
2011	212	0.13	0.69	95	19.46	77.7
2012	243	4	12.35	84	11.48	34.21
2013	222	0.1	0.87	83	11.59	41.96
1980-2013	216	1.63		94	7.13	

4.3.3.2. Distribution and biomass of jellyfish, mostly *Cyanea capillata*

by Eriksen E., Prokhorova T., Dolgov A. and Fosså J.H.

In the 2013 jellyfish (mostly *Cyanea capillata*) were found entire the Barents Sea. Jellyfish biomass increased from the south west to the north east and south east, reflecting the direction of the main currents in the Barents Sea (Figure 4.3.3.2.1). It seems that higher surface temperature and wider area of Atlantic waters most likely influenced positively jellyfish biomass and distribution in 2013. The highest catches were taken in the eastern and central areas, and some of catches were more than 15 tonnes per nautical mile. *Cyanea capillata* as boreal species distributes not only in the Atlantic warm waters, but also in the mixed waters.

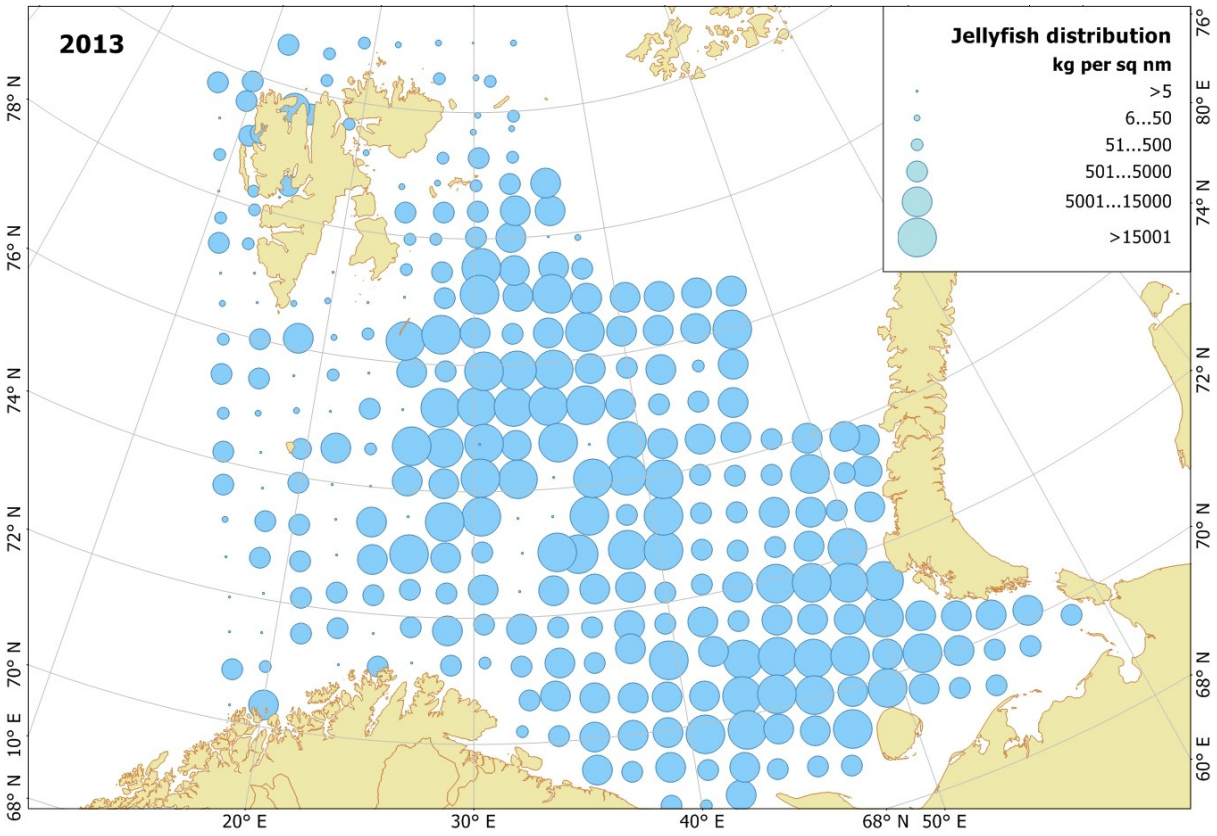

Figure 4.3.3.2.1. Distribution of jellyfish, August-September 2013.

The calculated biomass of the jellyfish taken by pelagic trawl in the 0-60 m was 3.1 million tonnes in the Barents Sea in August-September (Figure 4.3.3.2.2). It is 3 times higher than in 2012 and 3.5 times higher long term mean (1980-2013). In 2013 jellyfish biomass was at the level of the early 2000s.

The jellyfish preys on zooplankton, fish eggs and fish larvae. *Cyanea capillata* lives approximately 1 year. They utilize an unknown (but probably sufficient) amount of plankton during the summer period to reached so high biomasses in a few months. Therefore, jellyfish role in trophic webs of the Barents Sea should be closely studied.

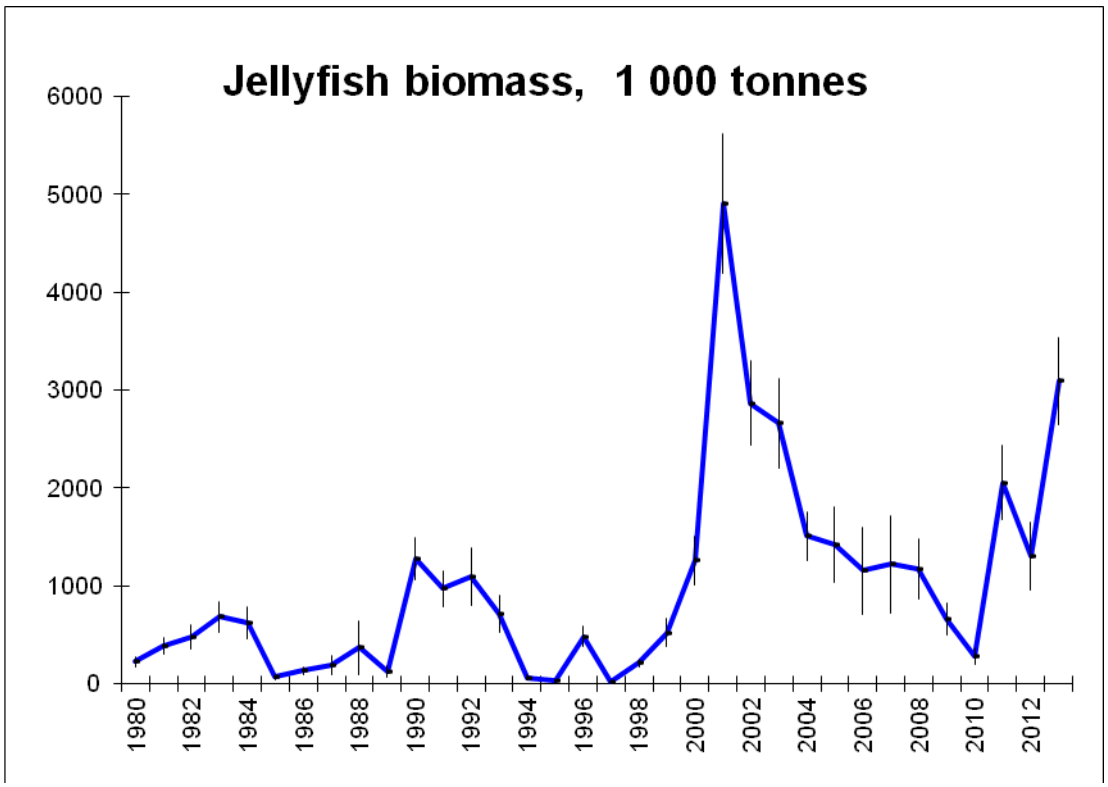

Figure 4.3.3.2.2. Jellyfish biomass in 1000 tonnes with 95% confidence interval for the period 1980-2013, August-September 2013.