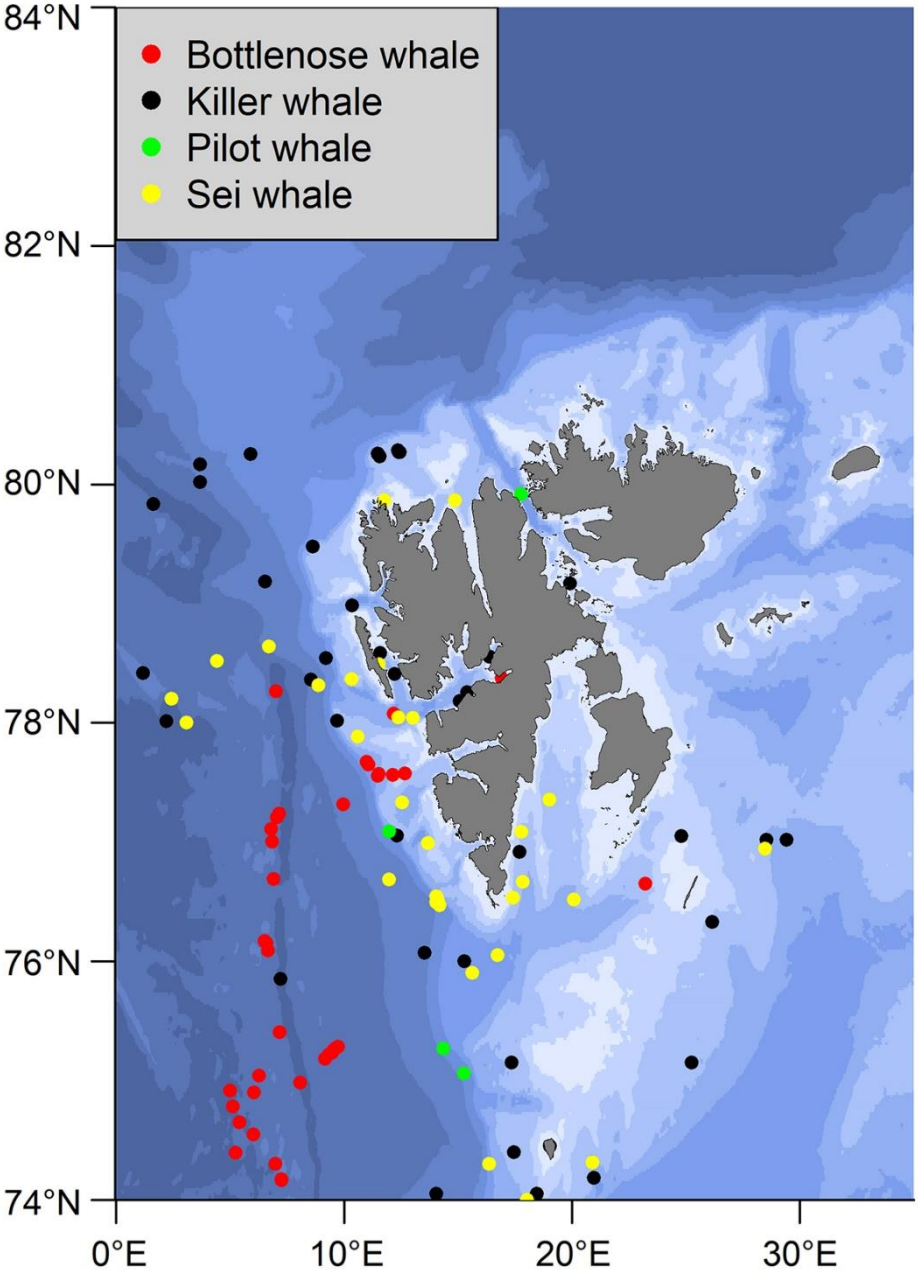
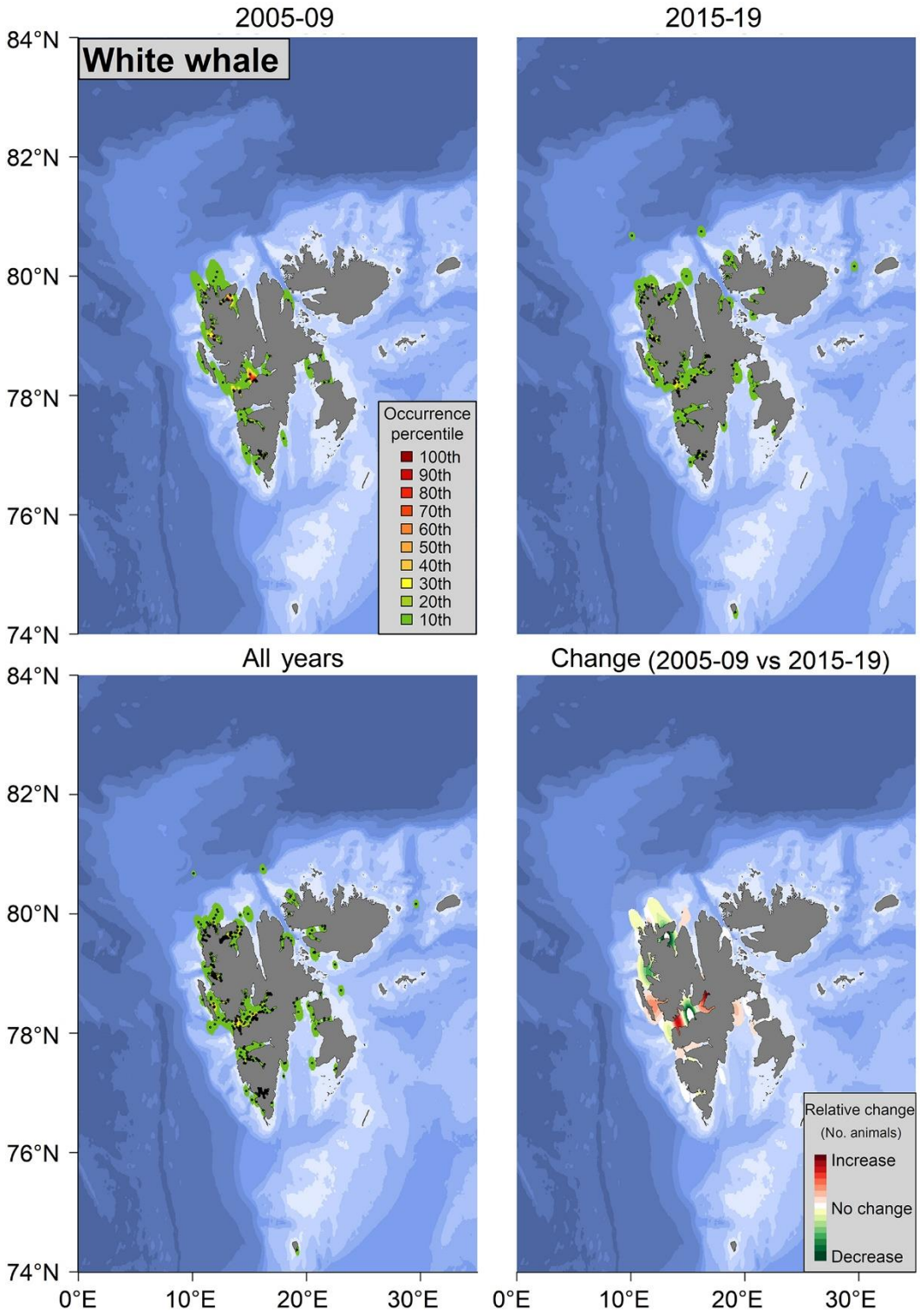
Supplementary material for: Bengtsson O., Lydersen C. & Kovacs K.M. 2022. Cetacean spatial trends from 2005 to 2019 in Svalbard, Norway. *Polar Research 41*. Correspondence: Kit M. Kovacs, Norwegian Polar Institute, Fram Centre, PO Box 6606 Stakkevollan, NO-9296 Tromsø, Norway. E-mail: kit.kovacs@npolar.no

Supplementary Table S1. Number of observations of cetaceans by species per year observed around Svalbard during the period 2005-2019.

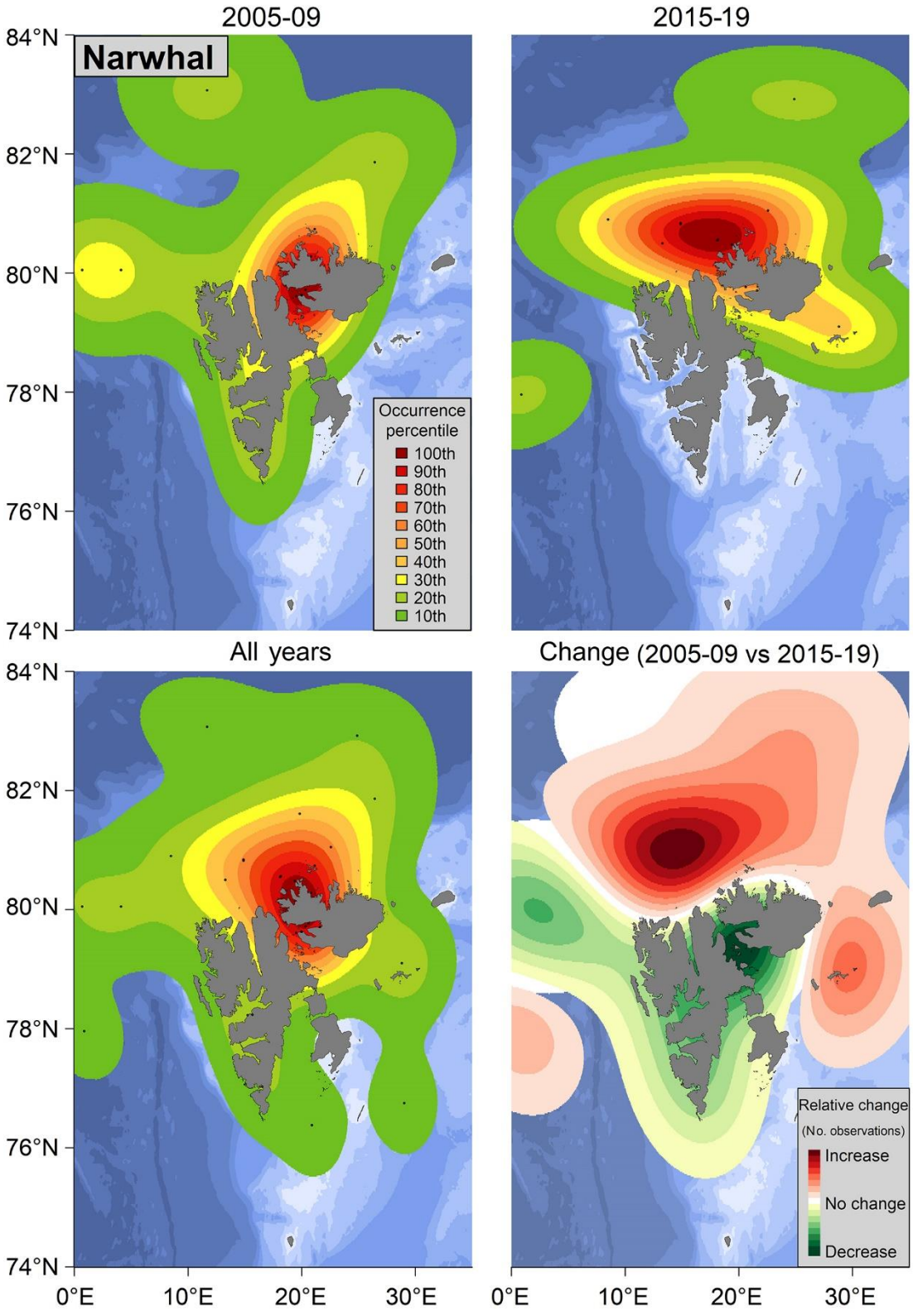
Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	All years
White whale	6	14	34	21	22	41	23	49	36	36	65	29	25	64	48	513
Narwhal	0	1	2	4	4	1	0	1	2	0	7	0	4	3	1	30
Bowhead whale	3	12	1	2	4	2	0	4	1	0	6	4	3	2	13	57
White-beaked dolphin	25	49	106	138	26	54	100	72	40	12	2	28	20	16	1	689
Sperm whale	5	11	32	6	7	16	11	7	6	2	0	3	5	0	6	117
Blue whale	1	14	8	5	12	30	30	63	18	41	56	45	101	34	47	505
Fin whale	49	215	224	182	43	219	93	254	59	53	48	28	52	14	50	1583
Humpback whale	15	77	116	73	30	71	69	156	45	60	25	28	26	13	29	833
Minke whale	93	81	325	217	167	213	271	219	97	77	46	83	77	59	56	2081
Sei whale	2	4	1	0	9	4	1	5	1	4	0	1	0	0	1	33
Long-finned pilot whale	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	4
Northern bottlenose whale	6	1	0	8	0	1	1	18	0	0	0	3	0	0	0	38
Killer whale	2	0	11	6	2	6	4	0	5	1	0	2	2	1	0	42
Unidentified	23	15	93	63	21	35	46	152	36	11	0	3	12	1	0	511
All species	230	494	955	726	347	694	649	1000	346	297	255	257	327	207	252	7036
No. reports	17	19	36	34	31	39	23	42	68	59	50	44	46	45	45	289



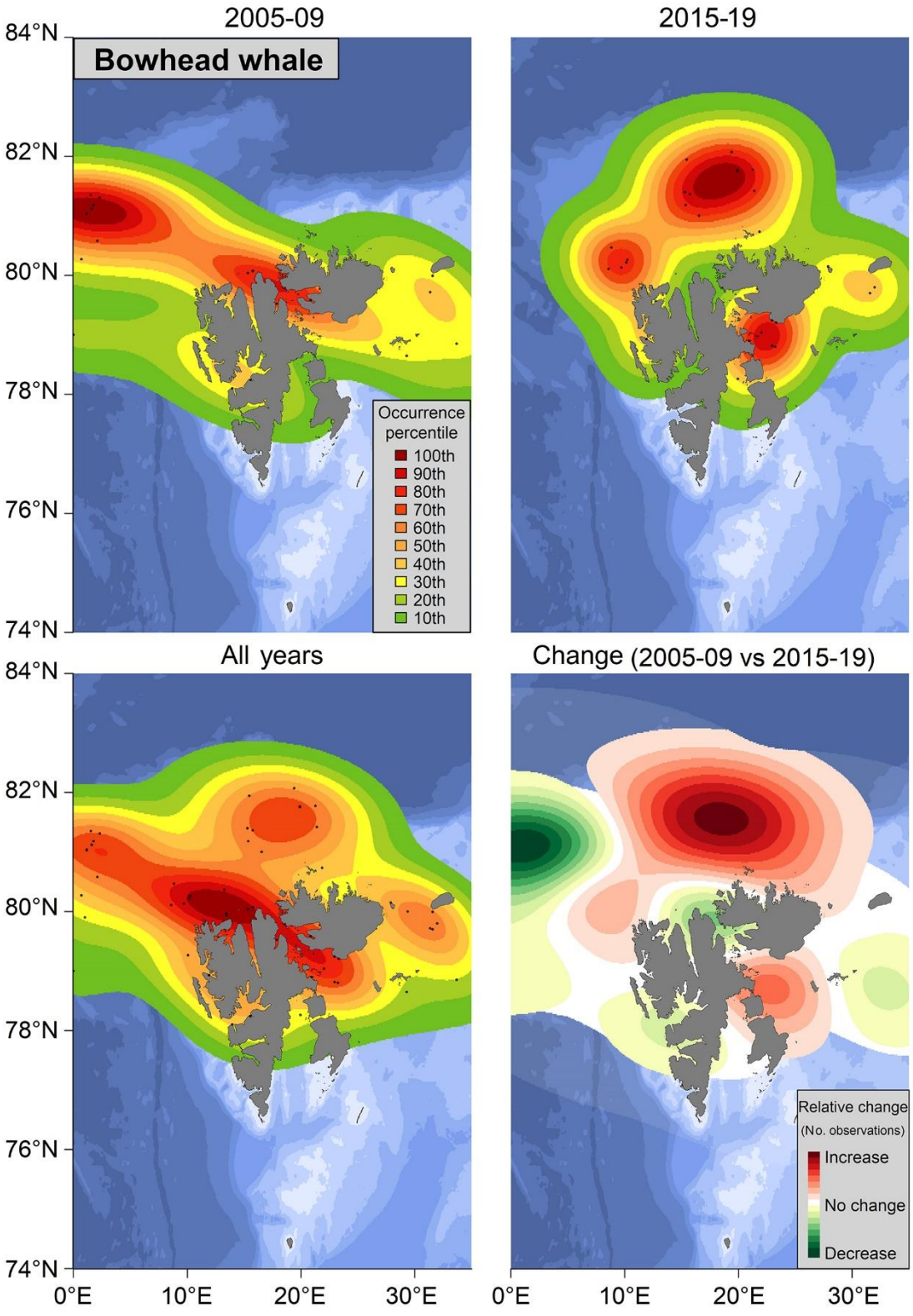
Supplementary Fig. S1. Map of Svalbard, showing locations of observations of northern bottlenose whales, killer whales, pilot whales and sei whales.



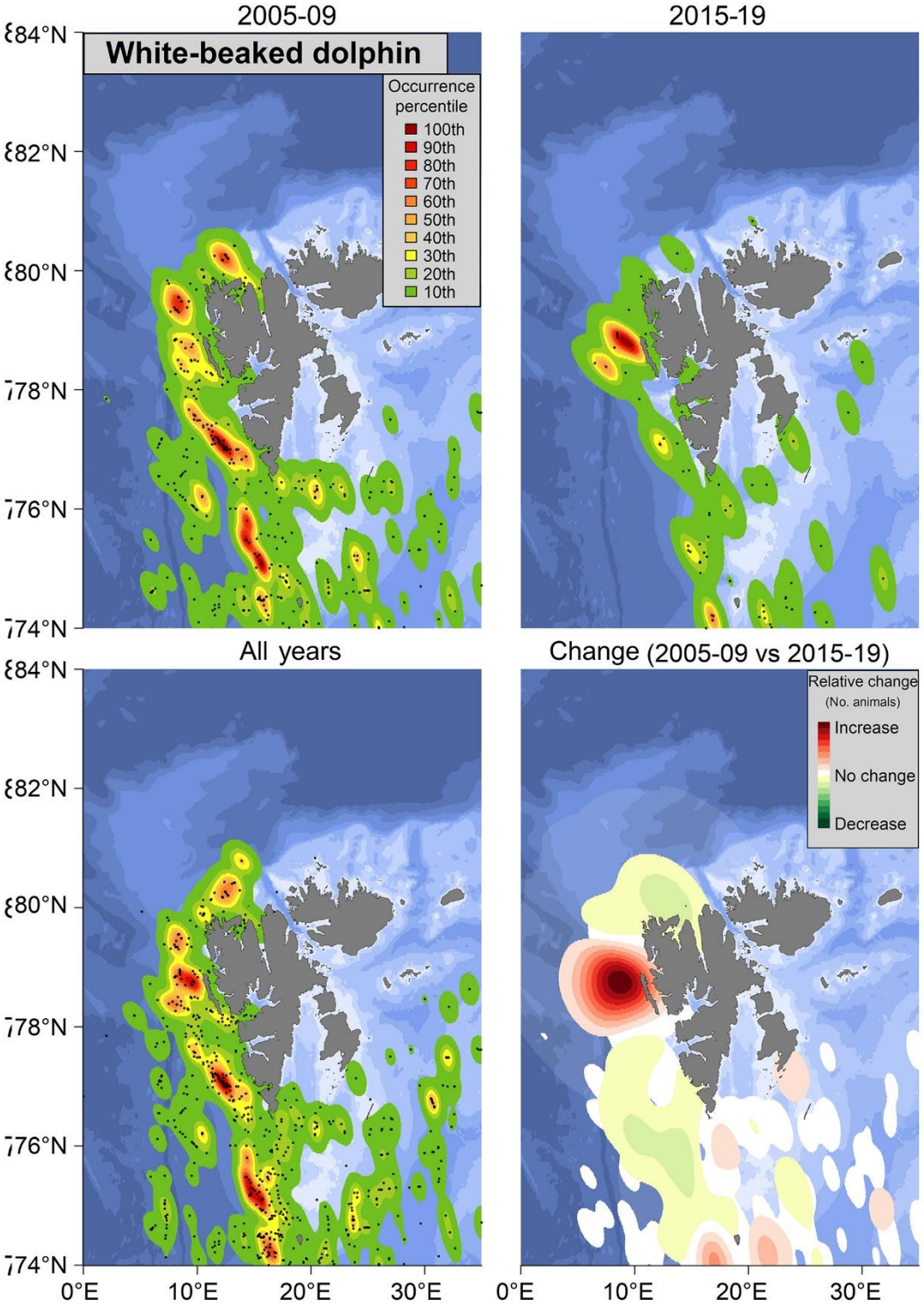
Supplementary Fig. S2. Kernel density estimate plots showing observation frequencies based on number of white whales around Svalbard during 2005-09, 2015-19 and 2005-2019 as well as the changes in observation frequency between 2005-09 and 2015-19. Black dots indicate observation locations.



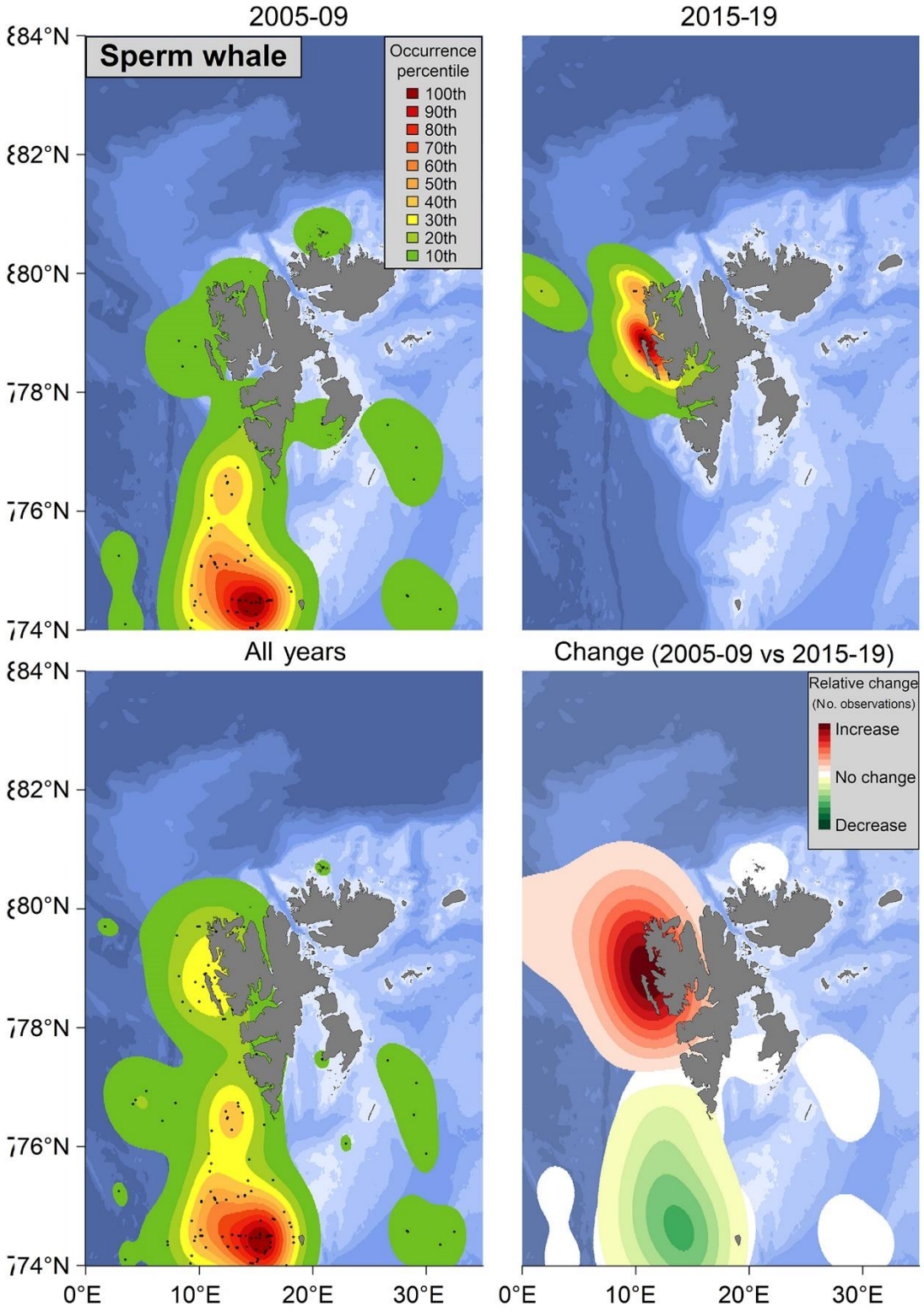
Supplementary Fig. S3. Kernel density estimate plots showing observation frequencies of narwhals around Svalbard during 2005-09, 2015-19 and 2005-2019 as well as the changes in observation frequency between 2005-09 and 2015-19. Black dots indicate observation locations.



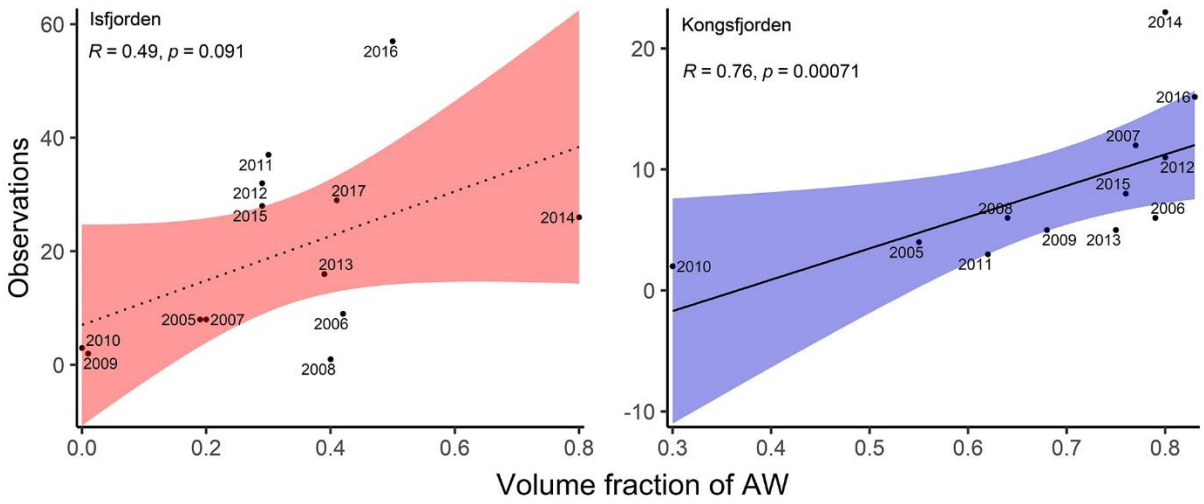
Supplementary Fig. S4. Kernel density estimate plots showing observation frequencies of bowhead whales around Svalbard during 2005-09, 2015-19 and 2005-2019 as well as the changes in observation frequency between 2005-09 and 2015-19. Black dots indicate observation locations.



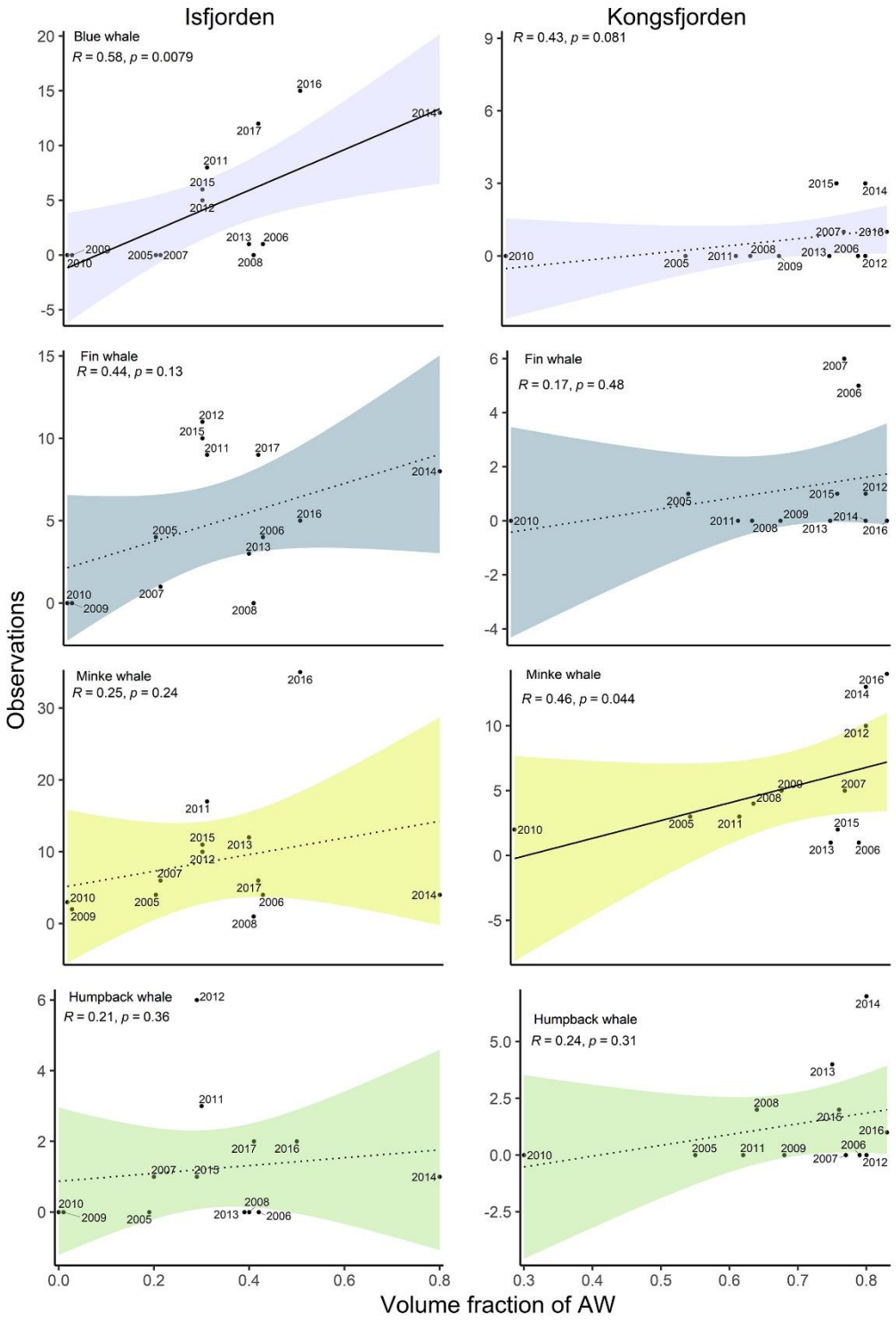
Supplementary Fig. S5. Kernel density estimate plots showing observation frequencies based on number of white-beaked dolphins around Svalbard during 2005-09, 2015-19 and 2005-2019 as well as the changes in observation frequency between 2005-09 and 2015-19. Black dots indicate observation locations.



Supplementary Fig S6. Kernel density estimate plots showing observation frequencies of sperm whales around Svalbard during 2005-09, 2015-19 and 2005-2019 as well as the changes in observation frequency between 2005-09 and 2015-19. Black dots indicate observation locations.



Supplementary Fig. S7. Scatter plots showing the correlation between annual volume fraction of Atlantic Water (AW) and the total number of observations of seasonally resident baleen whales in Isfjorden (2005-2017) and Kongsfjorden (2005-2016). Significant correlations are represented by a solid regression line and non-significant correlations are represented by a dotted line. Shaded areas show 95% confidence intervals.



Supplementary Fig. S8. Scatter plots showing the correlation between annual fraction of Atlantic Water (AW) and number of observations of seasonally resident baleen whales by species, in Isfjorden (2005-2017) and Kongsfjorden (2005-2016), Svalbard, Norway. Significant correlations are represented by a solid regression line and non-significant correlations are represented by a dotted line. Shaded areas show 95% confidence intervals.