Supplementary materials:

Research survey	Surveyed period	# of zooplankton samples	Ctenophores		Ichthyoplankton (eggs and larvae)		Other mesozooplankton taxa
			Mnemiopsis leidyi	*Pleurobrachia pileus*	*Merluccius hubbsi*	*Engraulis anchoita*	
2005	Jan.14-Jan.29	23	✓	✓	✓	✓	X
2006	Jan.14-Jan.31	25	✓	✓	✓	✓	X
2007	Jan.13-Feb.02	57	✓	✓	✓	✓	X
2009	Jan.10-Jan.27	47	✓	X	✓	✓	X
2010	Jan.10-Feb.04	46	✓	✓	✓	✓	X
2011	Jan.17-Feb.09	31	✓	✓	✓	✓	✓
2012	Jan.09-Jan.28	39	✓	✓	✓	X	✓
2013	Jan.15-Feb.05	35	✓	✓	✓	✓	✓
2014	Jan.19-Feb.06	30	✓	✓	✓	✓	✓
2017	Jan.24-Jan.31	19	✓	✓	✓	✓	X
2018	Jan.26-Feb.05	15	✓	✓	✓	✓	✓

Table S1: Summary of the data recorded on each research cruise

	2018	2017	2014	2013	2012	2011	2010	2009	2007	2006	2005
ALL	0.94	0.67	0.99	0.98	0.96	0.96	0.98	0.99	0.99	0.98	0.93
2005	0.99	0.84	0.94	0.86	0.83	0.98	0.86	0.89	0.92	0.85	1.00
2006	0.85	0.56	0.96	0.99	0.97	0.89	0.99	0.99	0.98	1.00	
2007	0.92	0.66	0.99	0.99	0.97	0.95	0.99	0.99	1.00		
2009	0.89	0.62	0.98	0.99	0.98	0.92	0.99	1.00			
2010	0.86	0.58	0.96	0.99	0.97	0.90	1.00				
2011	0.99	0.75	0.98	0.90	0.89	1.00					
2012	0.84	0.55	0.95	0.98	1.00						
2013	0.87	0.58	0.96	1.00							
2014	0.95	0.67	1.00								
2017	0.81	1.00									
2018	1.00										

> 0.8
0.6 - 0.8
0.4 - 0.6
< 0.4

Table S2: Measure of the variation in the distribution of samples within the North Littoral (NL) using the Global Index of Colocation (GIC) between pairs of years**.** Values close to 1 (white) indicate similar distributions between years. Values close to 0 (dark grey) indicate different distributions between years, as showed in the key

GROUP	TAXA	% Mesozoo	*M. leidyi*-dominated "1"	*P. pileus*-dominated "2"	SJG "3"	1 vs 2 AD: 74.3	1 vs 3 AD: 84.8	2 vs 3 AD: 82.0
			AA	AA	AA	C %	C %	C%
Ctenophora	*Mnemiopsis leidyi*		0.6	0.4	0.0	3.8	3.1	1.9
	Pleurobrachia pileus		0.2	0.7	0.2	3.7	1.8	4.1
Ichthyoplankton	*Merluccius hubbsi* (E)		0.8	0.5	0.1	3.8	4.0	2.9
	Merluccius hubbsi (L)		0.8	0.2	0.0	3.7	3.8	
	Engraulis anchoita (E)		0.8	0.6	0.2	NA	NA	
	Engraulis anchoita (L)		1.0	0.4	0.1	NA	NA	
Amphipoda	Gammarids	0.003	0.2		0.2		1.4	
	Themisto gaudichaudi (A)	0.017	0.1	0.2	0.6	1.6	2.9	3.6
	Themisto gaudichaudi (J)	0.18	0.4	0.9	0.1	4.5	2.2	4.7
Bryozoa	Bryozoans (L)	0.23	0.4	0.1	0.3	2.2	2.8	2.0
Chaetognatha	*Sagitta sp.*	0.31	0.4	0.4	0.3	2.4	2.0	2.3
Cirripedia	Cirripedians (N)	0.7	0.2		0.1		1.3	
Cladocera	*Evadne nordmanni*	0.45	0.5	0.0	0.0	2.0	2.0	
	Penilia avirostris	0.05	0.0	0.3	0.0	1.5		1.5
	Podon sp.	0.07	0.5	0.0	0.0	2.2	2.2	
Copepoda (Calanoids)	***Acartia tonsa***	**8.31**	0.6	0.4	0.5	3.5	3.5	3.0
	Calanoides carinatus	**21.23**	1.0	0.6	0.1	3.2	4.7	3.4
	Ctenocalanus vanus	**39.53**	0.8	0.8	0.6	2.6	2.6	2.9
	Calanus australis	0.34	0.2	0.5	0.0	3.2	1.4	2.5
	Clausocalanus brevipes	0.24	0.2	0.7	0.1	3.4	1.1	3.1
	Drepanopus forcipatus	**24.67**	0.7	0.7	0.3	3.8	3.5	3.8
	Paracalanus parvus	0.29	0.3	0.2	0.3	2.1	2.4	1.9
Copepoda (Harpacticoids)	*Euterpina acutifrons*	0.03	0.3	0.0	0.0	1.3	1.2	
Copepoda (Cyclopoids)	*Oithona atlantica*	0.39	0.3	0.6	0.1	3.8	2.2	3.1
	Oithona helgolandica	0.38	0.3	0.6	0.4	3.8	3.3	4.4
Decapoda (L)	Decapods (<2 mm)	0.06	0.4	0.1	0.1	2.2	2.2	
	Decapods (>2 mm)	0.12	0.4	0.1	0.1	2.2	2.2	
	Peisos petrunkevitchii	0.38	0.4	0.1	0.0	1.6	1.5	
Decapoda (A & J)	*Munida gregaria* (A)	0.007	0.0	0.0	0.7		3.6	4.0
	Munida gregaria (J)	0.02	0.1	0.0	0.7		4.0	4.3
Euphausia (L)	*Euphausia sp.* (L)	0.55	0.5	0.6	0.2	3.7	2.6	3.4
Euphausia (A & J)	*Euphausia lucens* (A)	0.07	0.1	0.3	1.0	1.4	5.1	5.7
	Euphausia vallentini (A)	0.001	0.0	0.0	0.5		1.8	2.0
	Nematoscelis megalops (A)	0.001	0.1	0.0	0.4		1.9	1.8
	Thyssanoessa gregaria (A)	0.001		0.2	0.3			1.8
	Euphausia sp. (J)	0.63	0.5	0.6	0.1	2.9	2.3	2.9

Mollusca	Bivalve (L)	0.008	0.1	0.3	0.0	1.7		1.5
	Squid (L)	0.001	0.1	0.6	0.0	3.1		3.1
Mysidacea	*Mysidopsis rionegrensis* (A)	0.004	0.3	0.1	0.2	1.7	2.1	
	Mysidopsis rionegrensis (J)	0.007	0.3	0.0	0.3	1.5	2.6	2.0
Stomatopoda	Stomatopods (L)	0.003	0.2	0.7	0.2	4.0	1.9	4.2
Tunichata	*Oikopleura dioica*	0.23	0.2	0.3	0.2	2.4	1.7	2.4
			ANOSIM R			**0.061**	**0.477**	**0.265**

Table S3: SIMPER analysis between the three zones of the study area: *Mnemiopsis leidyi*-dominated (1), *Pleurobrachia pileus*-dominated (2), and San Jorge Gulf (SJG) (3). "% Mesozoo"= Percentage abundance of each mesozooplankton taxon over total mesozooplankton abundance (2011-2014 and 2018 surveys.). Highest values are shown in bold. "AA"= average abundance of a taxon within a zone (values are standardized and square root transformed). "AD"= average dissimilarity of a taxon between zones. "C %"= percentage contribution of a taxon to dissimilarity between zones. "NA"= not apply, incomplete data. "L"= larvae. "J"= juvenile. "A"= adults. "N"= nauplii. ANOSIM R: the result of the ANOSIM test between zones. Note that *Pontella patagoniensis* and *Labidocera fluviatilis* (calanoid copepods), *Munida gregaria* (L) and *Pachycheles sp*. (zoea) (decapods), *Thyssanoessa gregaria* (J) (euphausiid), gastropods (L), stomatopods (J), cumaceans, ostracods, and polychaetes (L)] are not shown in the results table due to their low abundance and null contribution to dissimilarities between zones