

The following supplement accompanies the article

Environmental mediation of Atlantic cod on fish community composition: an application of multivariate regression tree analysis to exploited marine ecosystems

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Supplement. Comparisons relevant for the selection of appropriate sized multivariate regression trees

Table S1. The number of times out of 1000 runs that a given tree size demonstrated a consistent minimum prediction error by the one-standard deviation rule. The grey boxes correspond to the tree size selected in the finalized models.

Number of Leaves	Year											
	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2002	2003
5	-	546	23	535	-	2	4	-	-	-	22	505
6	8	-	8	230	1	-	2	147	5	-	13	28
7	163	40	88	-	-	2	40	159	20	710	25	59
8	372	65	183	30	5	181	82	198	6	2	25	9
9	36	26	485	6	51	130	-	191	6	-	18	7
10	28	23	50	1	87	80	58	124	12	4	8	6
11	47	22	18	-	119	94	59	103	84	6	14	14
12	66	8	21	-	155	80	74	28	412	13	-	10
13	-	2	21	-	120	-	134	8	192	68	30	22
14	-	2	14	-	102	66	163	9	80	-	28	29
15	67	3	17	-	67	73	100	2	37	-	20	16
16	-	-	20	-	106	124	48	3	-	87	25	5
17	66	-	17	-	49	49	38	3	41	12	36	16
18	34	-	-	-	35	21	28	7	26	-	46	22
19	33	-	7	-	28	30	25	6	15	7	44	36
20	15	-	-	-	14	24	15	11	-	9	-	23
21	9	1	-	-	12	-	32	1	4	22	41	29
22	-	-	2	-	10	11	30	-	-	11	53	-
23	14	-	3	-	14	7	25	-	-	9	-	15
24	8	-	1	-	1	10	11	-	4	15	61	17
25	-	-	-	-	7	2	12	-	4	8	60	30
26	5	-	-	-	2	4	7	-	-	5	58	33
27	-	-	-	-	1	-	2	-	7	-	54	25
28	6	-	-	-	-	2	5	-	3	4	86	10

Table S2. The constrained Multivariate Regression Tree (MRT) error (MRT Cluster) and unconstrained clustering error (Cluster) for the most parsimonious tree size of all years analyzed. A similar resubstitution error or the product of the relative tree error and root node error between constrained and unconstrained clustering indicates coherence between the analyses.

Year	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2002	2003
Sample Size (<i>n</i>)	365	293	341	261	231	286	352	377	390	323	314	231
MRT Cluster	0.13	0.2	0.13	0.23	0.09	0.15	0.08	0.15	0.08	0.15	0.05	0.18
Cluster	0.12	0.2	0.12	0.22	0.09	0.15	0.07	0.14	0.10	0.15	0.05	0.18

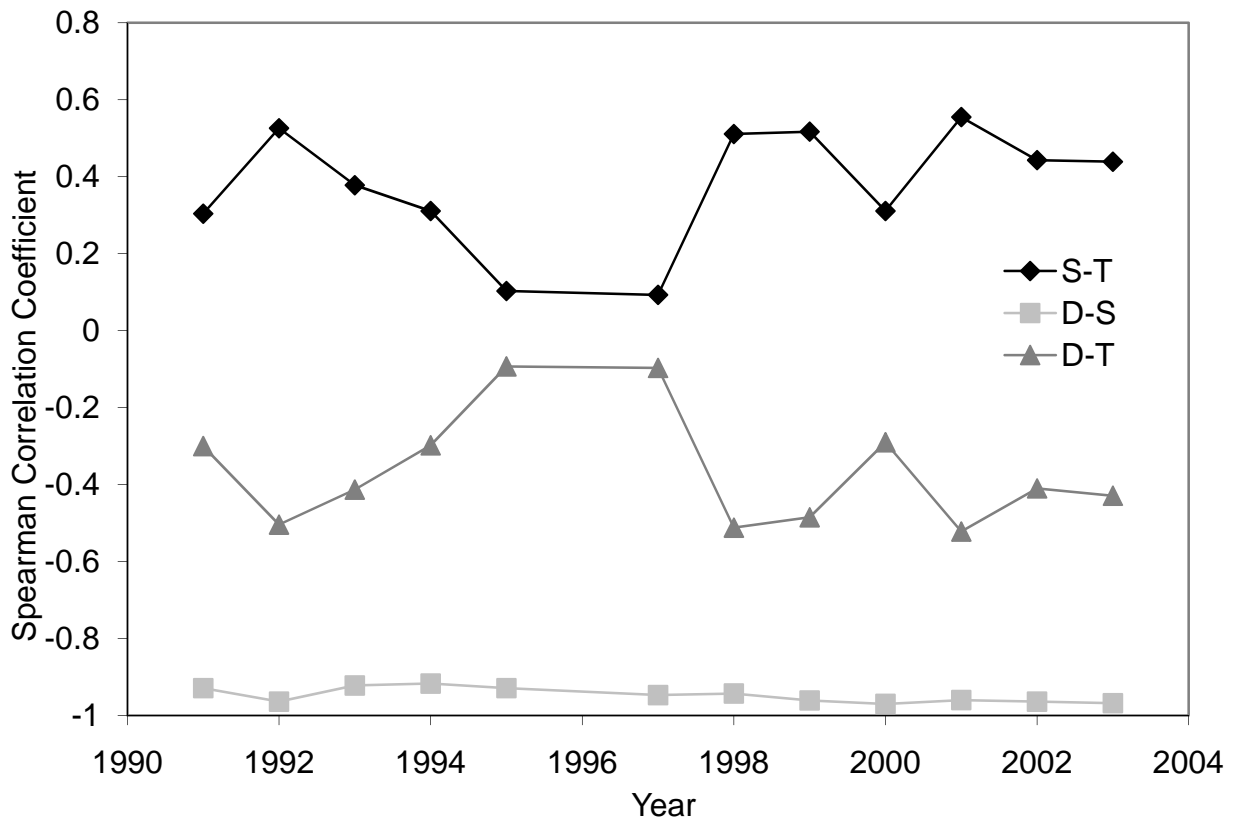


Figure S1. Spearman correlation coefficients between depth (D), temperature (T) and salinity (S) of the benthic environment in the Gulf of St. Lawrence. Only the coefficients between salinity and depth (D-S) are consistently significant ($p < 0.05$). Coefficients that have a magnitude greater than 0.8 are considered to be collinear.