The following supplement accompanies the article

Impacts of salmon lice on mortality, marine migration distance and premature return in sea trout

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Marine Ecology Progress Series 635: 151–168 (2020)

Fig. S1. Example plot showing the vertical profile of a fish classified as dead and suspected to be eaten by a predator. Detections before the red dotted line are regarded as normal sea trout swimming activity. Detections between the red and blue dotted lines are suspected to correspond to a predator. Detections after the blue dotted line indicate the tag becoming stationary.

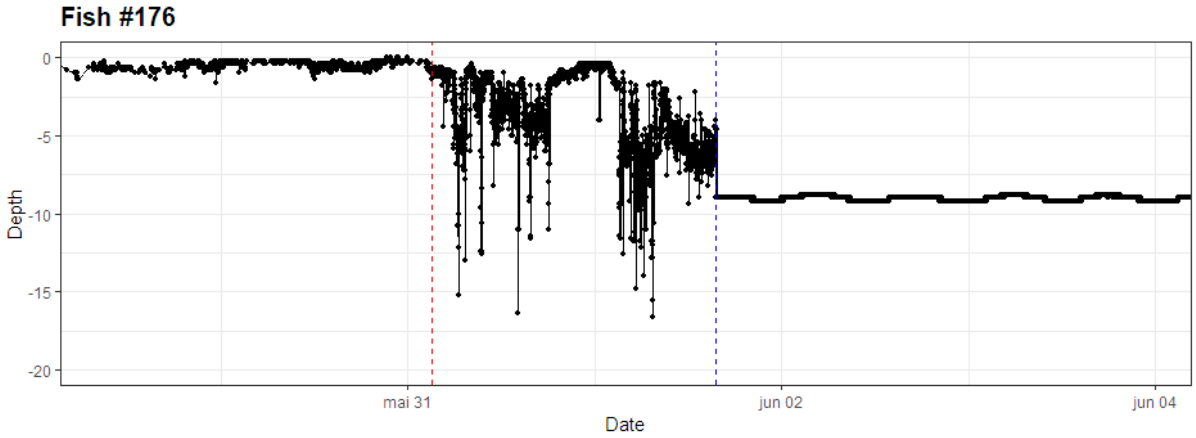

Table S1: Individual information on tagged sea trout post-smolts. Fate codes are as follows: M = migrated; D = dead; D_f = dead by fishing; R = returned to freshwater; R_P= prematurely returned to freshwater (before August 1st); AS = alive at sea (by October 1st).

ID	Group	Weight (g)	Fork length (mm)	Fate	Fate date	Last trout detection
25	Infested	64	191	M	29.05.2017	
26	Control	46	165	D	20.06.2017	
27	Infested	66	194	M	25.05.2017	
28	Control	76	201	R_P	27.05.2017	29.05.2017
29	Infested	51	173	Unknown	27.05.2017	
30	Control	65	195	M	25.05.2017	
31	Infested	52	171	M	28.05.2017	01.06.2017
32	Control	51	178	M	26.05.2017	
33	Infested	47	174	M	02.06.2017	
34	Control	60	188	M	10.06.2017	
35	Infested	57	184	D	19.06.2017	
36	Control	54	179	M	30.05.2017	
37	Infested	45	171	R_P, D	06.06.2017	19.06.2017
104	Control	91	205	M, D_f	30.05.2017, 27.07.2017	
105	Infested	54	170	M	26.05.2017	05.06.2017
106	Control	59	180	M	26.05.2017	
107	Infested	46	169	R_P	02.06.2017	05.09.2017
109	Infested	55	182	D	30.05.2017	
110	Control	50	171	M	04.06.2017	
111	Infested	59	186	M	04.06.2017	
112	Control	51	176	M	26.05.2017	07.06.2017
113	Infested	46	183	R_P, D	28.05.2017, 24.06.2017	
114	Control	75	200	M	25.05.2017	05.06.2017
115	Infested	57	178	M	04.06.2017	
116	Control	57	179	M	27.05.2017	
117	Infested	45	168	R_P	08.06.2017	02.08.2017
118	Control	59	185	M	26.05.2017	
119	Infested	43	167	Unknown	16.08.2017	
120	Control	51	174	M	31.05.2017	
121	Infested	70	186	M	01.06.2017	06.06.2017
122	Control	67	185	M	19.06.2017	
123	Infested	44	161	AS	13.10.2017	
124	Control	40	162	Unknown	04.06.2017	
125	Infested	70	198	M	21.08.2017	
126	Control	50	170	AS	08.10.2017	
129	Control	40	161	M	30.05.2017	
130	Infested	50	175	M	27.05.2017	31.05.2017
132	Control	64	186	M	26.05.2017	
133	Infested	52	181	M	03.06.2017	
134	Control	54	179	M	28.05.2017	
140	Control	55	180	M	26.05.2017	
141	Infested	64	190	R	31.08.2017	01.09.2017
142	Control	55	178	Unknown	03.07.2017	
143	Infested	72	198	M	27.05.2017	
144	Control	44	165	D	04.06.2017	
145	Infested	44	172	M	08.06.2017	
147	Infested	47	167	M	08.06.2017	
148	Control	46	168	M	26.05.2017	
149	Infested	61	187	M	09.06.2017	23.06.2017
150	Control	40	165	Unknown	08.07.2017	
151	Infested	52	172	M	06.06.2017	
152	Control	48	170	M	26.05.2017	
153	Infested	76	200	M	25.05.2017	
154	Control	56	176	R	23.08.2017	24.08.2017
155	Infested	65	190	M	26.05.2017	

156	Control	50	166	M	27.05.2017	
157	Infested	67	187	R_P	06.06.2017	11.10.2017
158	Control	41	162	R	06.10.2017	
159	Infested	50	175	M	26.05.2017	
160	Control	45	163	AS	03.10.2017	
161	Infested	75	202	M	26.05.2017	
162	Control	71	186	Unknown	28.05.2017	
163	Infested	93	212	M	02.06.2017	
164	Control	46	166	AS	23.10.2017	
165	Infested	48	166	M	12.06.2017	
166	Control	55	175	M	25.05.2017	
167	Infested	45	169	M	02.06.2017	
168	Control	70	197	M	30.05.2017	
169	Infested	92	217	M	30.05.2017	
170	Control	46	168	R	12.09.2017	02.10.2017
171	Infested	52	179	R_P	03.06.2017	31.10.2017
172	Control	89	210	M	09.06.2017	
173	Infested	40	162	Unknown	11.06.2017	
174	Control	60	185	M	27.05.2017	
175	Infested	65	188	M	26.05.2017	
176	Control	59	195	D	31.05.2017	
177	Infested	55	180	R_P, D	30.05.2017, 05.06.2017	
178	Control	71	198	M	27.05.2017	
179	Infested	68	194	M	28.05.2017	
180	Control	46	168	Unknown	24.08.2017	
181	Infested	93	220	R_P, D	29.06.2017, 22.07.2017	
182	Control	66	188	M	26.05.2017	
183	Infested	66	186	M	26.05.2017	
184	Control	78	194	M	27.05.2017	
185	Infested	43	165	M	27.05.2017	
186	Control	50	176	M	08.06.2017	22.06.2017
187	Infested	47	172	M, D	05.06.2017, 24.08.2017	
188	Control	58	183	AS	19.10.2017	
189	Infested	43	160	Unknown	07.06.2017	
190	Control	42	170	AS	21.10.2017	
191	Infested	42	161	D	28.05.2017	
192	Control	65	191	M	25.05.2017	
193	Infested	61	185	M	26.05.2017	
194	Control	60	187	M	26.05.2017	
195	Infested	49	167	D_f	13.09.2017	
196	Control	60	184	M	02.06.2017	
197	Infested	85	205	R_P	07.06.2017	18.08.2017
198	Control	47	176	M	26.05.2017	
200	Control	43	158	M	28.05.2017	
201	Infested	49	166	M	28.05.2017	
203	Infested	52	175	D	30.05.2017	
204	Control	62	188	M	26.05.2017	
205	Infested	54	183	M	26.05.2017	
207	Control	60	180	R	07.10.2017	
208	Infested	62	187	D	28.05.2017	
209	Control	58	180	M	31.05.2017	11.06.2017
210	Infested	57	176	Unknown	20.06.2017	
211	Control	70	195	D	28.06.2017	
212	Infested	56	175	M	30.05.2017	01.06.2017
214	Infested	69	190	R_P	07.06.2017	22.08.2017
215	Control	57	180	D	01.07.2017	
216	Infested	70	192	M	25.05.2017	03.06.2017
217	Control	45	163	M	30.05.2017	16.09.2017
218	Infested	66	192	M	26.05.2017	28.05.2017
219	Control	56	185	M	26.05.2017	
220	Infested	56	180	M	28.05.2017	
221	Control	42	155	M	30.05.2017	
223	Control	42	162	AS	29.10.2017	

224	Infested	75	203	AS	24.10.2017	
225	Control	77	201	M, D	29.05.2017, 14.06.2017	
226	Infested	46	165	M	30.05.2017	
227	Control	75	195	M	30.05.2017	
228	Infested	42	158	M	04.06.2017	06.06.2017
229	Control	74	195	R	22.08.2017	24.08.2017
230	Infested	50	167	M	29.05.2017	
231	Control	74	198	Unknown	11.08.2017	
232	Infested	72	200	M	30.05.2017	
233	Control	76	199	M	26.05.2017	
234	Infested	53	171	M	06.06.2017	
236	Infested	50	178	D	28.05.2017	
238	Infested	64	187	R_P	27.05.2017	01.06.2017
239	Control	41	163	M	25.05.2017	
240	Infested	53	178	M	31.05.2017	
242	Infested	63	190	Unknown	27.05.2017	
243	Control	50	171	AS	23.10.2017	
244	Infested	66	190	*Did not provide data*	-	
245	Control	100	226	M	29.05.2017	
246	Infested	48	168	M	26.05.2017	
247	Control	62	185	Unknown	26.05.2017	
248	Infested	59	180	M	16.06.2017	30.06.2017
249	Control	46	173	Unknown	28.05.2017	
250	Infested	72	196	M	27.05.2017	
253	Control	46	167	Unknown	24.06.2017	
255	Control	46	169	*Did not provide data*	-	
256	Infested	42	156	M	27.05.2017	

Table S2. Candidate models evaluated for survival analysis using Coxph models including (a) only 2017 data and (b) including data from the pilot study (2016). *Int*: intercept; *F*L: fork length; *Gr*: group; *Y*: year. Models are sorted by corrected Akaike information criteria (AICc) value, with logLik, AICc, difference in AICc from the best model (delta) and weight values of models also indicated.

a)

Candidate models					**df**	**logLik**	**AICc**	**delta**	**weight**
	Int	*FL*	*Gr*	*FL:Gr*					
1	+				0	-66.998	134.0	0.00	0.344
2	+		+		1	-65.975	134.2	0.22	0.308
3	+	+			1	-66.470	135.2	1.21	0.187
4	+	+	+		2	-65.651	136.2	2.16	0.116
5	+	+	+	+	3	-65.107	138.1	4.07	0.045

b)

Candidate models						df	logLik	AICc	delta	weight
	Int	*FL*	*Gr*	*Y*	*Gr:Y*					
1	+		+			1	-81.271	164.8	0.00	0.326
2	+		+	+		2	-80.866	166.4	1.67	0.141
3	+		+	+	+	3	-79.542	166.6	1.82	0.131
4	+	+	+			2	-81.092	166.9	2.13	0.113
5	+					0	-83.629	167.3	2.49	0.094
6	+			+		1	-83.163	168.5	3.78	0.049
7	+	+				1	-83.212	168.6	3.88	0.047
8	+	+	+	+		3	-80.671	168.8	4.08	0.042
9	+	+	+	+	+	4	-79.320	169.3	4.54	0.034
10	+	+		+		2	-82.705	170.1	5.35	0.022

Table S3. Candidate models evaluated for the analysis of return to freshwater using Coxph. *Int*: intercept; *FL*: fork length; *Gr*: group. Models are sorted by corrected Akaike information criteria (AICc) value, with logLik, AICc, difference in AICc from the best model (delta) and weight values of models also indicated.

Candidate models					df	logLik	AICc	delta	weight
	Int	*FL*	*Gr*	*Gr:strata*					
1	+	+	+	+	3	-59.288	126.2	0.00	0.659
2	+		+	+	2	-61.795	128.3	2.16	0.223
3	+	+	+		2	-63.398	131.5	5.37	0.045
4	+		+		1	-64.936	132.1	5.93	0.034
5	+	+			1	-65.023	132.3	6.11	0.031
6	+				0	-67.560	135.1	8.94	0.008

Table S4. Candidate models evaluated for the analysis of distance to freshwater using Generalized Additive Mixed Models (GAMM's). *Int*: intercept; *FL*: fork length; *Gr*: group. Models are sorted by corrected Akaike information criteria (AICc) value, with logLik, AICc, difference in AICc from the best model (delta) and weight values of models also indicated.

Candidate models						df	logLik	AICc	delta	weight
	Int	*FL*	*Gr*	*FL:Gr*	*s(Week,by = Group)*					
1	+	+	+	+	+	10	-24221.02	48462.1	0.00	0.967
2	+	+	+		+	9	-24225.59	48469.2	7.12	0.027
3	+		+		+	8	-24228.26	48472.6	10.46	0.005
4	+	+			+	8	-24258.23	48532.5	70.40	0.000
5	+				+	7	-24260.87	48535.8	73.65	0.000
6	+	+	+	+		6	-24531.20	49074.4	612.31	0.000
7	+	+	+			5	-24535.24	49080.5	618.38	0.000
8	+		+			4	-24536.99	49082.0	619.88	0.000
9	+	+				4	-24539.87	49087.7	625.63	0.000
10	+					3	-24541.91	49089.8	627.70	0.000

Table S5. Candidate models evaluated for the analysis of swimming depth using Generalized Additive Mixed Models (GAMM's). *Int*: intercept; *FL*: fork length; *Gr*: group; DyN: time of day (day/night). Models are sorted by corrected Akaike information criteria (AICc) value, with logLik, AICc, difference in AICc from the best model (delta) and weight values of models also indicated.

	Candidate models							df	logLik	AICc	delta	weight
	Int	*FL*	*Gr*	*DyN*	*DyN:Grp*	*FL:Grp*	*s(week, by=DyN)*					
1	+	+	+	+	+		+	11	-2070.682	4163.4	0.00	0.708
2	+	+	+	+	+	+	+	12	-2070.644	4165.3	1.93	0.269
3	+		+	+	+		+	10	-2075.102	4170.2	6.83	0.023
4	+	+	+	+			+	10	-2091.805	4203.6	40.24	0.000
5	+	+		+			+	9	-2092.922	4203.9	40.47	0.000
6	+	+	+	+		+	+	11	-2091.764	4205.6	42.16	0.000
7	+			+			+	8	-2097.200	4210.4	47.02	0.000
8	+		+	+			+	9	-2096.231	4210.5	47.08	0.000
9	+	+	+	+	+			7	-2459.740	4933.5	770.09	0.000
10	+	+	+	+	+	+		8	-2459.608	4935.2	771.83	0.000
11	+		+	+	+			6	-2464.526	4941.1	777.66	0.000
12	+	+	+	+				6	-2494.446	5000.9	837.50	0.000
13	+	+		+				5	-2495.904	5001.8	838.41	0.000
14	+	+	+	+		+		7	-2494.308	5002.6	839.23	0.000
15	+		+	+				5	-2499.256	5008.5	845.11	0.000
16	+			+				4	-2500.518	5009.0	845.63	0.000
17	+	+					+	8	-3872.034	7760.1	3596.68	0.000
18	+	+	+				+	9	-3871.270	7760.6	3597.16	0.000
19	+	+	+			+	+	10	-3871.248	7762.5	3599.13	0.000
20	+						+	7	-3875.793	7765.6	3602.20	0.000
21	+		+				+	8	-3875.159	7766.3	3602.93	0.000
22	+	+	+					5	-4077.487	8165.0	4001.57	0.000
23	+	+						4	-4078.570	8165.1	4001.74	0.000
24	+	+	+			+		6	-4077.377	8166.8	4003.36	0.000
25	+							3	-4082.583	8171.2	4007.76	0.000
26	+		+					4	-4081.677	8171.4	4007.95	0.000