The following supplement accompanies the article

Are negative intra-specific interactions important for recruitment dynamics? A case study of Atlantic fish stocks

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Marine Ecology Progress Series 547: 211–217 (2016)

Table S1. Ricker recruitment model results for the 112 available stocks. Stock details can be found in Table S2. Ricker parameter estimates are reported along with the negative likelihood value (Neg. LL), the autocorrelation function values at lags 1 to 5 years and the critical value of autocorrelation corresponding to p = 0.05 (lag signif.). Significant autocorrelation values are identified in bold.

Stockid	a_s (R/S)	β_s (S^{-1})	Neg. LL	lag1	lag2	lag3	lag4	lag5	lag signif.
HERR4RFA	9.499	3.138E-05	353.280	-0.107	0.051	-0.234	-0.106	0.013	0.364
HERR4RSP	6.049	1.674E-05	475.321	0.122	0.041	-0.171	-0.117	0.022	0.318
HERR4TFA	9.942	7.298E-06	348.773	0.151	-0.024	0.075	0.085	0.046	0.384
HERR4TSP	11.483	2.426E-05	328.781	0.259	0.097	0.114	-0.054	0.040	0.384
HERR4VWX	17.956	3.108E-06	620.931	0.086	-0.066	-0.038	0.210	-0.115	0.306
HERRIsum	6.236	3.163E-06	269.073	0.259	-0.101	0.054	-0.147	0.107	0.450
HERRVIaVIIbc	13.716	5.285E-06	423.749	-0.010	0.113	-0.022	0.306	-0.189	0.358
HERR2532	0.040	7.620E-04	116.012	0.090	0.025	0.001	-0.273	-0.050	0.318
HERR30	16.921	1.123E-04	361.980	**0.352**	0.176	0.062	0.002	0.050	0.314
HERR31	0.042	3.875E-02	-9.386	-0.063	-0.330	-0.087	-0.097	0.016	0.346
HERRNS	214.146	4.377E-04	312.629	0.244	-0.094	**-0.434**	-0.163	0.000	0.392
HERRRIGA	35.061	2.955E-10	297.725	-0.143	0.096	0.039	-0.222	0.172	0.331
SPRAT22-32	155.867	5.066E-04	461.972	-0.083	-0.117	-0.013	-0.179	0.063	0.318
ARGANCHONARG	228.256	4.119E-07	332.982	0.188	0.058	-0.310	-0.191	-0.230	0.475
PANCHPERUNC	123.174	3.000E-09	894.825	0.114	-0.094	-0.048	-0.091	-0.179	0.302
COD2J3KLIS	3.456	1.229E-04	109.060	0.135	0.010	0.090	-0.093	-0.243	0.566
COD3M	1.469	7.283E-13	181.345	0.193	-0.188	-0.046	-0.301	-0.062	0.450
COD3NO	0.833	1.900E-13	507.045	**0.809**	**0.612**	**0.470**	**0.391**	0.267	0.289
COD3Pn4RS	0.592	8.729E-08	381.979	0.185	0.232	0.082	**-0.372**	0.088	0.336
COD3Ps	2.986	2.992E-05	309.582	**0.552**	0.301	0.302	**0.407**	0.210	0.370
COD4TVn	1.394	2.311E-06	434.807	**0.740**	**0.511**	**0.423**	0.316	0.177	0.331
COD5Zjm	0.234	1.918E-13	243.047	-0.070	0.252	-0.075	-0.245	0.218	0.384
CODCOASTNOR	0.241	2.193E-13	224.124	**0.707**	0.341	0.116	0.065	-0.062	0.428
CODFAPL	0.800	1.659E-05	460.452	**0.386**	-0.066	-0.235	-0.192	-0.086	0.295
CODGB	0.363	2.044E-06	301.382	-0.216	0.141	-0.181	-0.404	0.275	0.358
CODGOM	1.042	4.654E-05	243.442	0.027	0.106	-0.183	0.008	-0.001	0.392
CODIS	1.079	4.729E-05	366.880	-0.005	-0.044	-0.383	-0.054	-0.050	0.314
CODBA2224	0.003	5.020E-03	-77.134	**0.469**	**0.342**	**0.375**	0.168	0.247	0.299
CODBA2532	0.002	1.661E-03	-42.363	**0.794**	**0.516**	**0.429**	**0.416**	**0.329**	0.292
CODCS	0.001	5.501E-05	112.516	0.125	-0.284	0.001	0.188	0.033	0.306
CODKAT	0.903	6.582E-03	110.190	-0.136	0.019	-0.090	0.081	-0.012	0.306
CODNEAR	3.151	1.378E-03	454.626	**0.383**	-0.162	**-0.310**	-0.176	0.153	0.245
CODNS	7.098	8.678E-04	343.126	-0.044	-0.000	-0.026	0.013	-0.064	0.280
CODVIa	985.382	8.482E-06	426.293	-0.249	-0.079	-0.021	**-0.434**	0.306	0.392
CODVIIa	0.572	1.804E-02	79.188	**0.327**	-0.235	**-0.445**	-0.257	-0.181	0.295
HAD4X5Y	1.732	1.818E-05	367.774	**0.411**	0.076	-0.016	0.003	0.143	0.341
HAD5Y	1.273	1.313E-04	267.671	0.205	-0.007	-0.069	-0.052	0.104	0.352
HAD5Zejm	1.909	5.432E-05	348.092	-0.058	0.027	0.163	-0.060	-0.084	0.336
HADFAPL	2.888	2.675E-05	542.823	**0.388**	0.055	-0.180	-0.171	-0.028	0.283
HADGB	1.353	5.152E-06	905.394	-0.011	-0.159	-0.058	-0.060	0.019	0.223
HADICE	2.239	8.942E-06	330.502	0.206	-0.068	0.184	0.121	0.148	0.377
HADNS-IIIa	0.342	2.358E-06	506.346	0.022	-0.155	0.021	0.039	-0.034	0.295
HADROCK	13.737	6.637E-05	187.889	0.336	-0.407	-0.247	0.198	0.262	0.490
HADVIIb-k	8.413	5.982E-05	162.890	0.213	-0.003	0.161	-0.237	-0.259	0.524
HADIV	0.373	2.849E-03	226.935	0.057	-0.091	0.082	0.088	0.008	0.277

HADNEAR	2.183	3.593E-10	390.698	**0.309**	-0.049	-0.118	-0.117	-0.068	0.253
HADVIa	6.514	1.674E-02	194.508	-0.016	-0.105	0.029	0.036	-0.020	0.336
HADVIb	9.931	1.765E-09	105.411	**0.532**	0.083	-0.251	-0.152	-0.248	0.428
HADVIIa	18.271	9.522E-01	44.680	-0.093	-0.072	-0.179	-0.255	0.296	0.428
HADVIIbcek	72.071	5.962E-02	134.331	-0.106	0.144	-0.211	-0.145	0.028	0.438
WHITNS-VIId-IIIa	6.946	1.809E-08	388.076	**0.452**	0.221	0.060	-0.249	-0.274	0.384
WHITIV	12985.128	1.058E-10	355.951	**0.413**	-0.046	-0.407	**-0.506**	-0.148	0.409
WHITVIa	7.867	8.973E-03	162.949	0.110	0.041	-0.041	-0.321	0.063	0.352
WHITVIIek	6.270	2.817E-02	149.465	**0.603**	0.223	0.045	0.088	0.148	0.358
SBWHITARGS	0.399	2.291E-13	257.323	**0.658**	0.337	0.115	-0.120	-0.195	0.450
BWHIT	12.288	1.888E-04	332.915	**0.701**	0.316	0.091	-0.024	-0.110	0.352
POLL4X5YZ	0.732	2.737E-05	229.918	**0.421**	0.243	-0.134	-0.358	-0.374	0.400
POLLFAPL	2.416	2.059E-05	469.774	**0.401**	**0.323**	0.092	-0.010	-0.126	0.299
POLLNS-VI-IIIa	1.686	3.357E-06	462.698	0.253	-0.048	-0.321	-0.141	0.048	0.322
POLLNEAR	1.912	3.155E-03	291.080	0.058	0.117	0.117	0.001	-0.022	0.277
POLLNS	1.720	3.842E-03	243.603	**0.353**	0.107	-0.086	-0.026	0.124	0.299
NPOUTNS	1476.405	3.447E-06	484.911	-0.155	-0.005	0.193	-0.200	0.383	0.392
PATGRENADIERSARG	3.952	1.780E-06	288.818	0.074	0.070	-0.068	-0.226	0.084	0.438
ARGHAKENARG	5.119	2.675E-06	278.319	0.291	-0.224	-0.161	-0.300	-0.347	0.428
ARGHAKESARG	7.497	1.608E-06	319.740	**0.604**	-0.031	**-0.469**	**-0.641**	**-0.536**	0.418
HAKENRTN	2.924	4.921E-06	308.597	0.259	0.230	0.056	-0.109	-0.179	0.377
HAKESOTH	5.393	2.158E-05	287.562	**0.733**	**0.393**	0.104	-0.157	-0.248	0.384
SEELNS	1.844	9.724E-07	335.848	-0.394	-0.034	0.020	-0.282	**0.434**	0.400
WESTHORSEMACK	6.416	4.668E-04	279.232	0.103	-0.004	-0.108	-0.151	-0.148	0.358
MACKGOMCHATT	1.874	4.155E-07	624.205	0.222	0.039	-0.065	-0.006	-0.042	0.302
MACK	0.006	4.874E-04	78.036	0.146	-0.145	0.122	-0.034	0.222	0.310
KMACKGM	0.000	3.446E-10	83.717	-0.509	0.163	-0.301	0.182	-0.121	0.620
KMACKSATLC	0.000	1.606E-09	70.882	-0.017	0.134	-0.007	-0.287	-0.188	0.653
ALBANATL	0.630	2.167E-05	718.989	0.113	**0.461**	0.010	**0.277**	-0.006	0.226
YFINATL	0.747	3.774E-06	396.881	**0.470**	**0.396**	0.208	0.204	0.089	0.322
ATBTUNAEATL	0.070	7.679E-06	318.443	**0.477**	**0.388**	**0.318**	0.203	0.257	0.318
ATBTUNAWATL	0.009	1.649E-05	188.426	0.049	0.182	0.121	-0.114	-0.075	0.322
WITFLOUN5Y	3.818	1.069E-04	262.214	**0.416**	0.093	-0.122	-0.084	-0.117	0.384
AMPL3LNO	2.344	3.322E-06	526.759	**0.859**	**0.663**	**0.439**	0.267	0.131	0.299
AMPL3M	0.996	6.428E-05	165.485	0.038	0.015	0.012	0.008	0.010	0.450
AMPL5YZ	5.759	6.740E-05	297.530	0.325	0.048	-0.187	-0.266	-0.147	0.370
YELLCCODGOM	17.293	7.876E-04	206.294	0.169	-0.024	0.180	-0.044	-0.131	0.418
YELLGB	5.916	7.265E-05	372.513	0.199	-0.212	0.192	0.045	-0.137	0.331
YELLSNEMATL	9.562	9.336E-05	362.427	0.211	-0.189	-0.117	-0.084	-0.179	0.336
PLAIC7d	6.233	9.334E-05	267.254	0.281	0.012	-0.273	-0.081	-0.051	0.384
PLAICCELT	4.519	2.986E-04	262.228	**0.588**	0.114	0.165	0.309	0.076	0.364
PLAICECHW	4.818	3.171E-04	272.733	**0.491**	0.113	-0.105	-0.064	-0.129	0.358
PLAICIIIa	6.919	5.194E-05	297.693	0.183	0.010	-0.255	-0.115	0.035	0.377
PLAICNS	0.009	3.123E-06	371.162	**0.353**	0.229	0.098	0.127	0.051	0.280
PLAICEIV	9.209	3.076E-03	416.143	**0.331**	0.222	0.088	0.118	0.025	0.264
PLAICEVIIa	6.294	4.809E-02	62.362	-0.097	-0.264	-0.166	0.011	0.098	0.450
PLAICEVIId	8.260	1.634E-01	116.753	0.301	-0.008	-0.166	0.029	0.045	0.346
PLAICEVIIe	5.893	3.049E-01	77.802	**0.536**	0.192	-0.069	-0.083	-0.107	0.346
WINFLOUN5Z	3.616	1.335E-04	244.598	**0.491**	0.287	0.069	-0.093	-0.366	0.392
WINFLOUNSNEMATL	3.346	2.250E-11	274.366	**0.459**	-0.173	-0.224	-0.164	-0.078	0.377
GHAL23KLMNO	32.031	8.607E-05	355.573	**0.611**	0.262	-0.079	-0.241	-0.332	0.352
GHALNEAR	1.382	1.463E-02	168.338	**0.819**	**0.596**	**0.455**	**0.407**	**0.358**	0.295
FMEG8c9a	10.110	9.756E-02	102.917	-0.011	-0.173	0.111	0.091	0.020	0.377
MEG8c9a	3.989	2.992E-11	185.000	0.002	-0.048	0.014	-0.206	0.022	0.438
MEGRIMVIIIc	3.979	3.060E-08	59.095	0.031	-0.159	0.009	-0.134	0.024	0.384
SOLEIIIa	5.710	5.200E-01	51.298	**0.635**	**0.426**	0.357	0.078	-0.042	0.377
SOLEIV	7.493	2.070E-02	309.198	-0.133	-0.048	-0.103	0.028	0.264	0.264
SOLEVIIa	1.614	2.418E-02	100.123	0.302	-0.026	**-0.464**	**-0.376**	-0.121	0.306
SOLEVIId	7.978	1.131E-01	109.522	0.029	-0.142	-0.100	0.254	-0.128	0.358
SOLEVIIe	1.962	9.860E-02	72.106	-0.047	-0.122	0.027	0.134	-0.226	0.299
SOLEVIIfg	5.326	3.469E-01	85.673	0.162	-0.162	-0.012	-0.058	-0.066	0.306
SOLEVIIhk	2.293	1.358E+00	-1.709	0.162	-0.223	-0.168	0.008	-0.344	0.462
SOLECS	5.128	3.433E-04	307.081	0.189	-0.008	-0.055	-0.220	-0.084	0.331
SOLEIS	3.518	1.837E-04	332.473	0.278	0.064	-0.329	-0.237	-0.038	0.331
SOLENS	7.694	2.063E-05	616.750	-0.122	-0.043	-0.107	0.007	**0.283**	0.280
SOLEVIII	3.594	4.525E-05	207.314	**0.481**	0.273	0.223	0.213	-0.013	0.428
REDFISHSPP3M	25.283	4.915E-05	175.839	0.347	0.153	0.093	0.023	-0.059	0.524
REDFISH	0.667	2.896E-04	122.694	**0.724**	0.367	0.196	0.116	-0.114	0.450

Table S2. Details of the stock assessments used in the analyses.

Stock identifier	Species common name	Species scientific name	Stock area	Recruitment age	Year range	Reference
1 - HERR4RFA	Herring	*Clupea harengus*	Herring NAFO 4R fall spawners	2	1971-2003	(Grégoire et al. 2004)
2 - HERR4RSP			Herring NAFO 4R spring spawners	2	1963-2004	(Grégoire et al. 2004)
3 - HERR4TFA			Herring NAFO 4T fall spawners	4	1974-2007	(LeBlanc et al. 2007)
4 - HERR4TSP			Herring NAFO 4T spring spawners	4	1974-2007	(LeBlanc et al. 2007)
5 - HERR4VWX			Herring Scotian Shelf and Bay of Fundy	1	1964-2006	(Power et al. 2006)
6 – HERRIsum			Herring Iceland (Summer spawners)	3	1983-2007	(ICES 2007a)
7 – HERRVIaVIIbc			Herring ICES VIa-VIIb-VIIc	1	1969-2000	(ICES 2007a)
8 - HERR2532			Herring in Subdivisions 25-29 32	1	1974-2012	(ICES 2014)
9 - HERR30			Herring in Subdivision 30	1	1973-2012	(ICES 2014)
10 - HERR31			Herring in Subdivision 31	1	1980-2012	(ICES 2014)
11 – HERRNS			Norwegian Spring Spawning Herring	0	1988-2013	(ICES 2013a)
12 – HERRRIGA			Gulf of Riga herring (Subdivision 28.1)	1	1977-2012	(ICES 2014)
13 - SPRAT22-32	Sprat	*Sprattus sprattus*	Sprat in Subdivision 22-32	1	1974-2012	(ICES 2014)
14 – ARGANCHONARG	Argentine anchoita	*Engraulis anchoita*	Argentine anchoita Northern Argentina	1	1989-2007	(Hansen et al. 2008)
15 - COD2J3KLIS	Atlantic cod	*Gadus morhua*	Atlantic cod NAFO 2J3KL inshore	3	1959-2006	(Lilly et al. 2006)
16 - COD3M			Atlantic cod NAFO 3M	1	1959-2008	(Fernandez et al. 2008)
17 - COD3NO			Atlantic cod NAFO 3NO	3	1953-2007	(Morgan et al. 2007)
18 - COD3Pn4RS			Atlantic cod NAFO 3Pn4RS	3	1964-2007	(Fréchet et al. 2007)
19 - COD3Ps			Atlantic cod NAFO 3Ps	3	1959-2004	(Brattey et al. 2004)
20 - COD4TVn			Atlantic cod NAFO 4TVn	3	1965-2009	(Swain et al. 2007)
21 - COD5Zjm			Atlantic cod NAFO 5Zjm	1	1978-2003	(Hunt et al. 2003)
22 – CODCOASTNOR			Atlantic cod coastal Norway	2	1982-2006	(ICES 2007d)
23 – CODFAPL			Atlantic cod Faroe Plateau	2	1959-2006	(ICES 2007g)
24 – CODGB			Atlantic cod Georges Bank	1	1960-2008	(Northeast Fisheries Science Center 2008)

25 – CODGOM			Atlantic cod Gulf of Maine	1	1893-2008	(Northeast Fisheries Science Center 2008)
26 – CODIS			Atlantic cod Irish Sea	0	1968-2006	(ICES 2007e)
27 - CODBA2224			Cod in Subdivisions 22-24	1	1970-2013	(ICES 2014)
28 - CODBA2532			Cod in Subdivisions 25-32	2	1966-2012	(ICES 2014)
29 – CODCS			Cod in Division VIIe-k (Celtic Sea)	1	1971-2012	(ICES 2013b)
30 – CODKAT			Cod in the Kattegat	1	1971-2012	(ICES 2014)
31 - CODNEAR			North-East Arctic Cod (Subareas I and II)	3	1946-2012	(ICES 2013c)
32 - CODNS			Cod in the North Sea (Sub-area IV) the Skagerrak (the northern section of Division IIIa) and the eastern Channel (Division VIId)	1	1963-2012	(ICES 2013d)
33 - CODVIa			Cod in Division VIa	1	1981-2006	(ICES 2013b)
34 - CODVIIa			Cod in Division VIIa	1	1968-2012	(ICES 2013b)
35 - HAD4X5Y	Haddock	*Melanogrammus aeglefinus*	Haddock NAFO-4X5Y	1	1960-2003	(Hurley et al. 2003)
36 - HAD5Y			Haddock NAFO-5Y	1	1956-2008	(Northeast Fisheries Science Center 2008)
37 - HAD5Zejm			Haddock NAFO-5Zejm	1	1968-2003	(Van Eeckhaute et al. 2003)
38 - HADFAPL			Haddock Faroe Plateau	2	1955-2006	(ICES 2007g)
39 - HADGB			Haddock Georges Bank	1	1930-2008	(Northeast Fisheries Science 2Center 2008)
40 - HADICE			Haddock Iceland	2	1977-2007	(ICES 2007g)
41 - HADNS-IIIa			Haddock ICES IIIa and North Sea	0	1963-2006	(ICES 2007b)
42 – HADROCK			Haddock Rockall Bank	1	1990-2007	(ICES 2007e)
43 - HADVIIb-k			Haddock ICES VIIb-k	0	1993-2006	(ICES 2007c)
44 - HADIV			Haddock in Subarea IV and Division IIIa (N)	0	1963-2012	(ICES 2013d)
45 - HADNEAR			Northeast Arctic Haddock (Subareas I and II)	3	1950-2012	(ICES 2013c)
46 - HADVIa			Haddock in Division Via	1	1978-2012	(ICES 2013b)
47 - HADVIb			Haddock in VIb	1	1991-2012	(ICES 2013b)
48 - HADVIIa			Haddock in Division VIIa	1	1992-2013	(ICES 2013b)

49 - HADVIIbcek			Haddock in Divisions VIIb c e-k	0	1993-2012	(ICES 2013b)
50 - WHITNS-VIId-IIIa	Whiting	*Merlangius merlangus*	Whiting ICES IIIa VIId and North Sea	1	1979-2006	(ICES 2007b)
51 - WHITIV			Whiting in Subarea IV and Divisions VIId	0	1990-2012	(ICES 2013d)
52 - WHITVIa			Whiting in Division Via	1	1981-2012	(ICES 2013b)
53 - WHITVIIek			Whiting in Division VIIe-k	1	1982-2012	(ICES 2013b)
54 - SBWHITARGS	Southern blue whiting	*Micromesistius australis*	Southern blue whiting Southern Argentina	1	1985-2007	(Wöhler & Giussi 2008)
55 - BWHIT	Blue whiting	*Micromesistius poutassou*	Blue Whiting - Subareas I-IX XII and XIV	1	1981-2012	(ICES 2013a)
56 - POLL4X5YZ	Pollock, saithe	*Pollachius virens*	Pollock NAFO-4X5YZ	2	1980-2006	(Stone et al. 2006)
57 - POLLFAPL			Pollock Faroe Plateau	3	1958-2006	(ICES 2007g)
58 - POLLNS-VI-IIIa			Pollock ICES IIIa VI and North Sea	3	1964-2006	(ICES 2007b)
59 - POLLNEAR			Saithe in Subareas I and II (Northeast Arctic)	3	1960-2012	(ICES 2013c)
60 - POLLNS			Saithe in Subareas IV VI and Division IIIa	3	1967-2012	(ICES 2013d)
61 - NPOUTNS	Norway pout	*Trisopterus esmarkii*	Norway pout North Sea	0	1983-2007	(ICES 2007b)
62 - PATGRENADIERSARG	Patagonian grenadier	*Macruronus magellanicus*	Patagonian grenadier Southern Argentina	1	1983-2006	(Giussi & Wöhler 2007)
63 - ARGHAKENARG	Argentine hake	*Merluccius hubbsi*	Argentine hake Northern Argentina	1	1985-2007	(Irusta & Renzi 2007)
64 - ARGHAKESARG			Argentine hake Southern Argentina	1	1985-2008	(Renzi & Irusta 2009)
65 - HAKENRTN	Hake	*Merluccius merluccius*	Hake Northeast Atlantic North	0	1977-2007	(ICES 2007f)
66 - HAKESOTH			Hake Northeast Atlantic South	0	1982-2007	(ICES 2007f)
67 - SEELNS	Lesser sand-eel	*Ammodytes marinus*	Sandeel North Sea	0	1983-2007	(ICES 2007b)
68 - WESTHORSEMACK	Horse mackerel	*Trachurus trachurus*	Western Horse Mackerel - Divisions IIa IIIa (Western Part) IVa Vb VIa VIIa-c VIIe-k and VIIIa-e	0	1982-2012	(ICES 2013a)
69 - MACKGOMCHATT	Mackerel	*Scomber scombrus*	Atlantic mackerel Gulf of Maine / Cape Hatteras	1	1960-2005	(Northeast Fisheries Science Center 2006)
70 - MACK			Northeast Atlantic mackerel	0	1972-2011	(ICES 2013a)
71 - KMACKGM	King mackerel	*Scomberomorus cavalla*	King mackerel Gulf of Mexico	0	1992-2001	(SEDAR 5 Stock Assessment Panel 2004)
72 - KMACKSATLC			King mackerel Southern Atlantic Coast	0	1981-2001	(SEDAR 5 Stock Assessment Panel 2004)

73 - ALBANATL	Albacore tuna	*Thunnus alalunga*	Albacore tuna North Atlantic	5	1929-2005	(ICCAT 2008a)
74 - YFINATL	Yellowfin tuna	*Thunnus albacares*	Yellowfin tuna Atlantic	0	1970-2006	(ICCAT 2008b)
75 - ATBTUNAEATL	Atlantic bluefin tuna	*Thunnus thynnus*	Bluefin tuna Eastern Atlantic	1	1969-2007	(ICCAT 2008c)
76 - ATBTUNAWATL			Bluefin tuna Western Atlantic	1	1969-2007	(ICCAT 2008c)
77 - WITFLOUN5Y	Witch flounder	*Glyptocephalus cynoglossus*	Witch flounder NAFO-5Y	3	1982-2008	(Northeast Fisheries Science Center 2008)
78 - AMPL3LNO	American plaice	*Hippoglossoides platessoides*	American plaice NAFO-3LNO	5	1955-2007	(Dwyer et al. 2007)
79 - AMPL3M			American plaice NAFO-3M	1	1960-2007	(Alpoim & Ávila de Melo 2000)
80 - AMPL5YZ			American plaice NAFO-5YZ	1	1960-2008	(Northeast Fisheries Science Center 2008)
81 - YELLCCODGOM	Yellowtail flounder	*Limanda ferruginea*	Yellowtail flounder Cape Cod / Gulf of Maine	1	1935-2008	(Northeast Fisheries Science Center 2008)
82 - YELLGB			Yellowtail flounder Georges Bank	1	1935-2008	(Northeast Fisheries Science Center 2008)
83 - YELLSNEMATL			Yellowtail flounder Southern New England-Mid Atlantic	1	1935-2008	(Northeast Fisheries Science Center 2008)
84 - PLAIC7d	European plaice	*Pleuronectes platessa*	European plaice ICES VIId	1	1979-2006	(ICES 2007b)
85 - PLAICCELT			European plaice ICES VIIf-g	1	1976-2006	(ICES 2007c)
86 - PLAICECHW			European plaice ICES VIIe	1	1975-2006	(ICES 2007c)
87 - PLAICIIIa			European plaice ICES IIIa	2	1976-2006	(ICES 2007b)
88 - PLAICNS			European plaice North Sea	1	1956-2006	(ICES 2007b)
89 - PLAICEIV			Plaice in IV (North Sea)	1	1957-2012	(ICES 2013d)
90 - PLAICEVIIa			Plaice in VIIa	1	1993-2012	(ICES 2013b)
91 - PLAICEVIId			Plaice in VIId	1	1980-2012	(ICES 2013d)
92 - PLAICEVIIe			Plaice in the Western Channel (ICES Divisions VIIe)	1	1980-2012	(ICES 2013b)
93 - WINFLOUN5Z	Winter flounder	*Pseudopleuronectes americanus*	Winter flounder NAFO-5Z	1	1982-2007	(Northeast Fisheries Science Center 2008)
94 -			Winter flounder Southern New England-Mid Atlantic	1	1940-2007	(Northeast Fisheries

WINFLOUNSNEMATL						Science Center 2008)
95 - GHAL23KLMNO	Greenland halibut	*Reinhardtius hippoglossoides*	Greenland halibut NAFO 23KLMNO	1	1960-2006	(Healey & Mahé 2008)
96 – GHALNEAR			Greenland halibut in subareas I and II	5	1964-2012	(ICES 2013c)
97 - FMEG8c9a	Fourspotted megrim	*Lepidorhombus boscii*	Fourspotted megrim ICES VIIIc-IXa	0	1986-2012	(ICES 2013e)
98 - MEG8c9a	Megrim	*Lepidorhombus whiffiagonis*	Megrim ICES VIIIc-IXa	1	1985-2007	(ICES 2007f)
99 - MEGRIMVIIIc			Megrim (*L. whiffiagonis*.) in Divisions VIIIc and Ixa	1	1986-2012	(ICES 2013e)
100 – SOLEIIIa	Sole	*Solea solea*	Sole in Division IIIa and Subdivisions 22-24 (Skagerrak Kattegat the Belts and western Baltic)	2	1984-2012	(ICES 2014)
101 – SOLEIV			Sole in Subarea IV	1	1957-2012	(ICES 2013d)
102 – SOLEVIIa			Sole in VIIa	2	1970-2012	(ICES 2013b)
103 – SOLEVIId			Sole in Subarea VIId	1	1982-2012	(ICES 2013d)
104 – SOLEVIIe			Sole in Division VIIe	1	1969-2012	(ICES 2013b)
105 – SOLEVIIfg			Sole in Divisions VIIfg	1	1971-2012	(ICES 2013b)
106 – SOLEVIIhk			Sole in the Southwest of Ireland (Divisions VIIh-k)	2	1993-2012	(ICES 2013b)
107 – SOLECS	Common European sole	*Solea vulgaris*	Common European sole Celtic Sea	1	1970-2006	(ICES 2007c)
108 - SOLEIS			Common European sole Irish Sea	2	1968-2006	(ICES 2007e)
109 - SOLENS			Common European sole North Sea	1	1956-2006	(ICES 2007b)
110 - SOLEVIII			Common European sole Bay of Biscay	2	1982-2006	(ICES 2007f)
111 - REDFISHSPP3M	*Sebastes* species	*Sebastes* spp	Redfish species NAFO 3M	4	1985-2006	(Ávila de Melo et al. 2007)
112 – REDFISH	Beaked redfish	*Sebastes mentella*	Beaked redfish (*Sebastes mentella*) in Subareas I and II	2	1992-2012	(ICES 2013c)

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