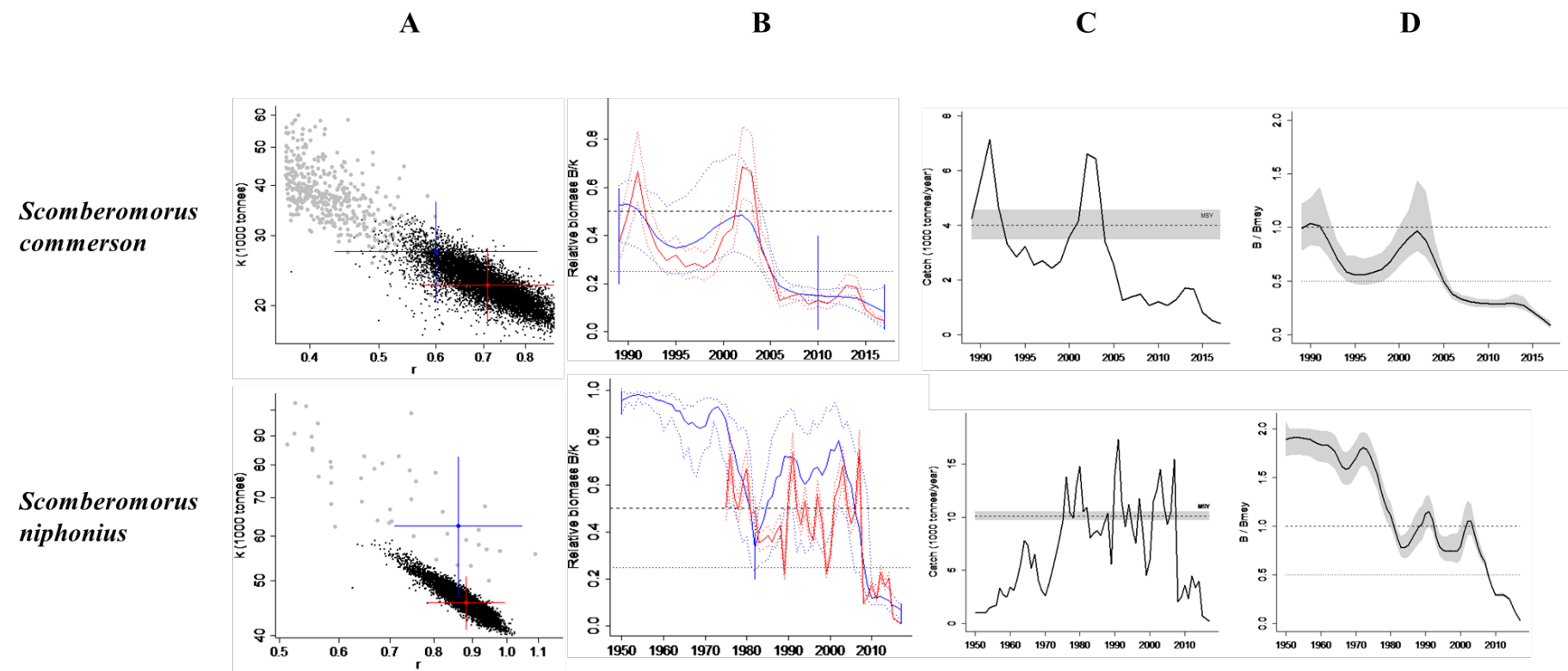
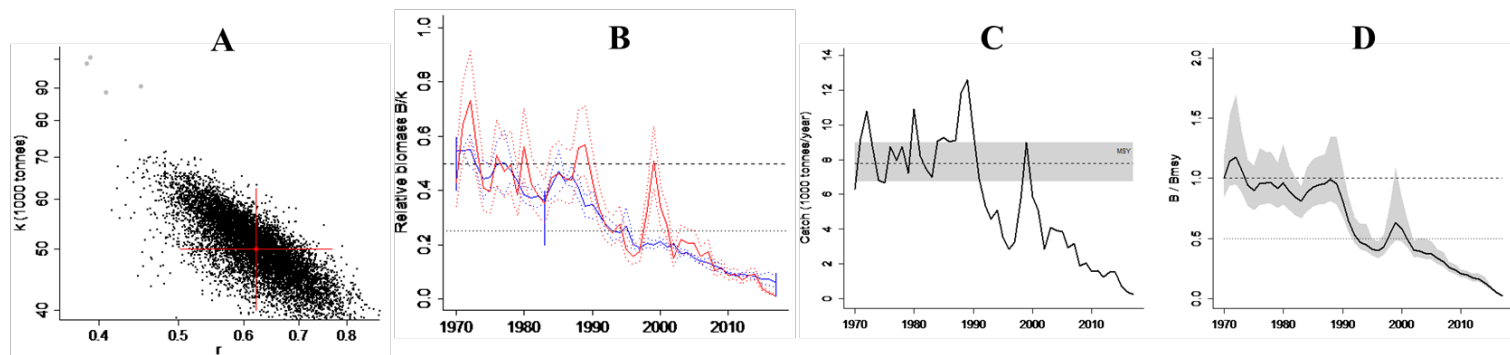


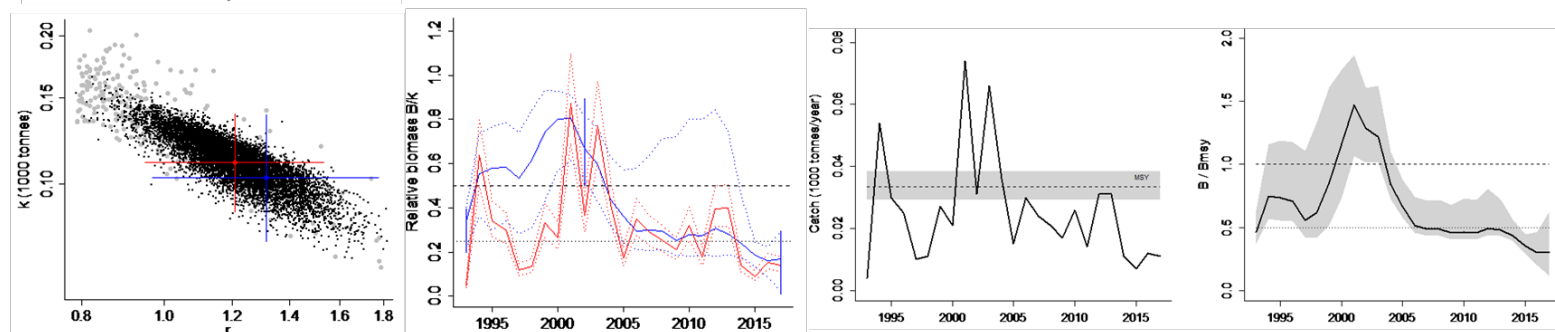
Supplementary Figures



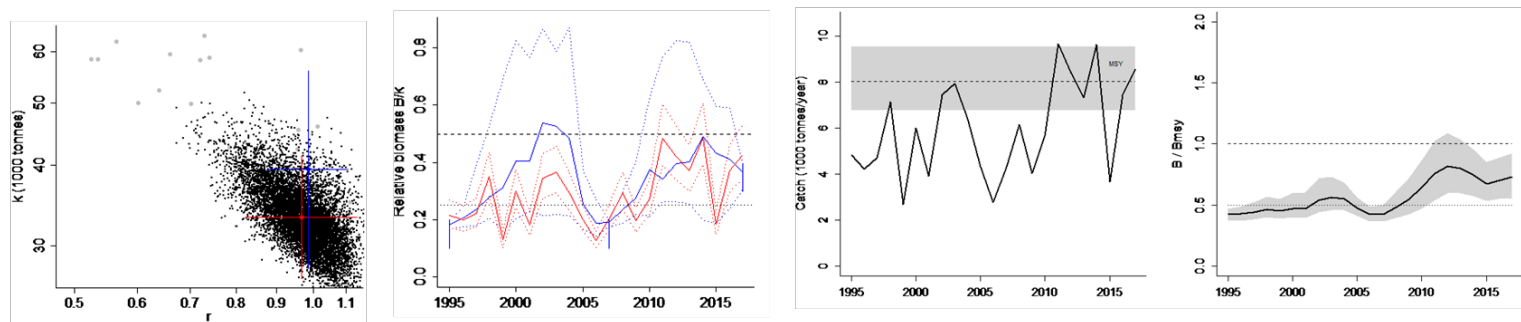
Muraenesox cinereus



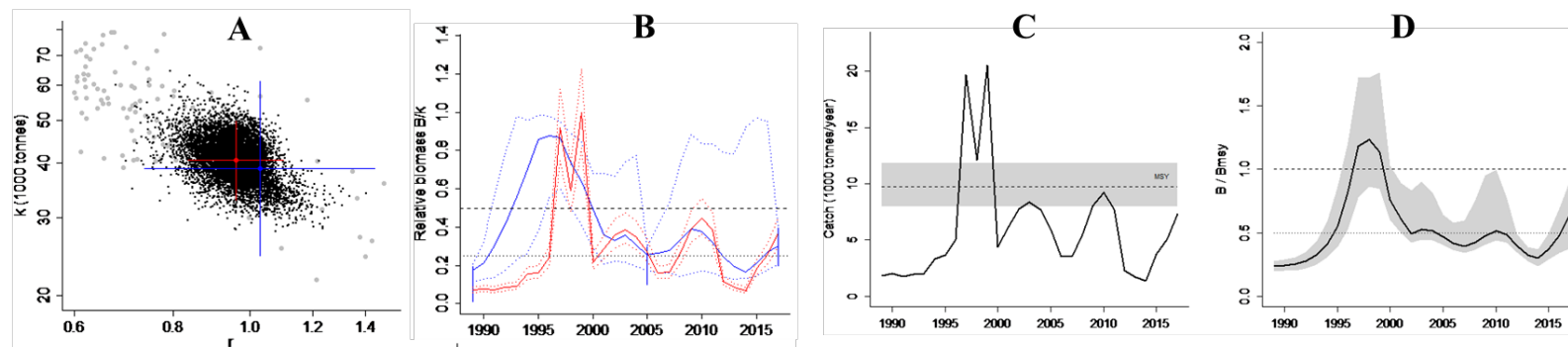
Clupanodon thrissa



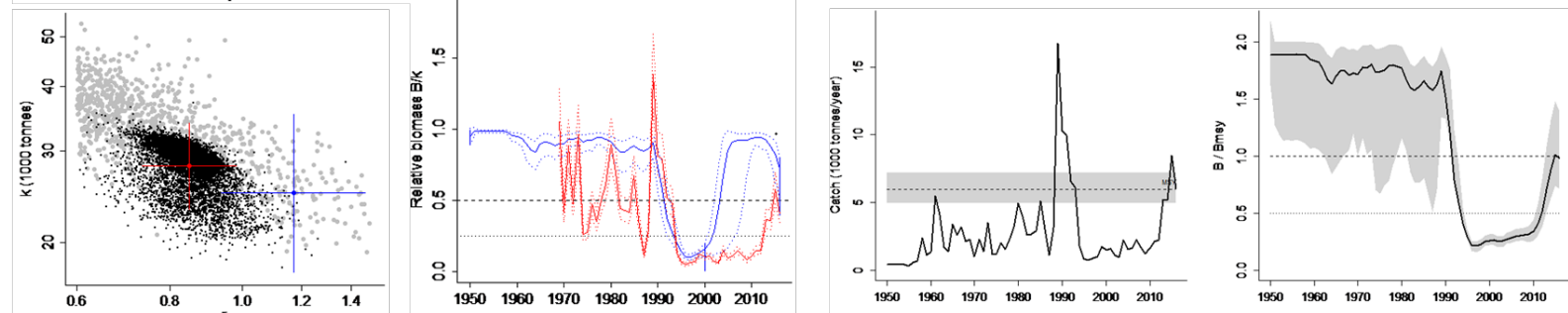
Trachurus japonicus



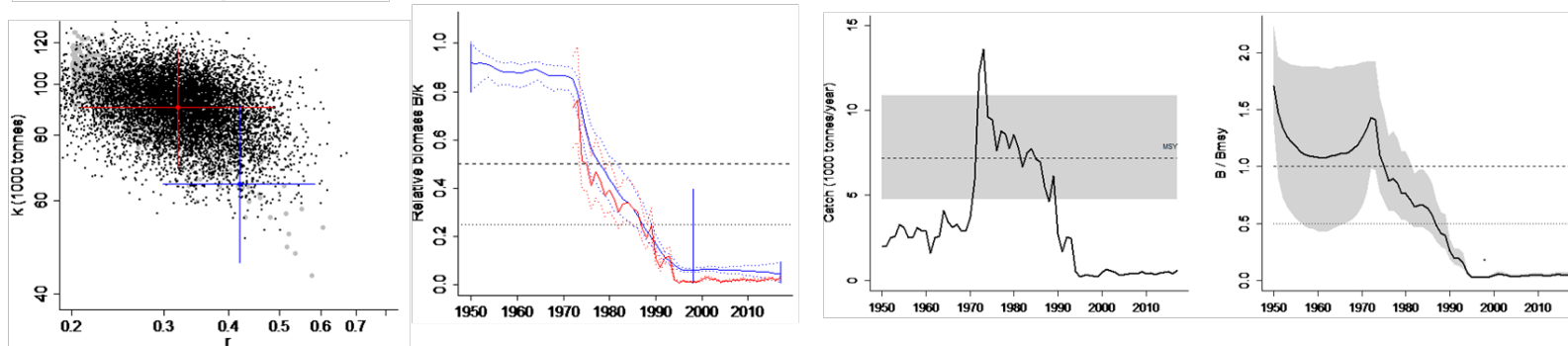
Decapterus maruadsi



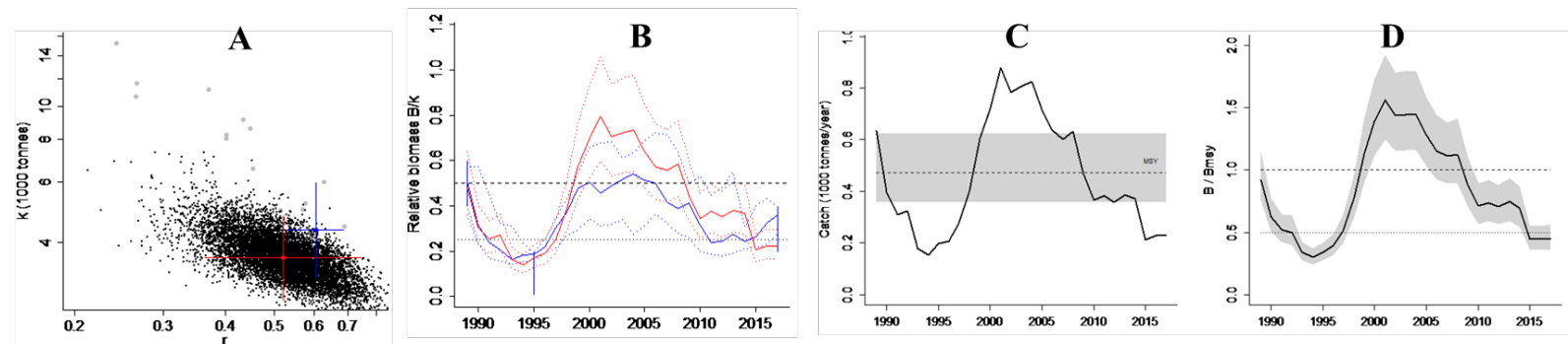
Mene maculata



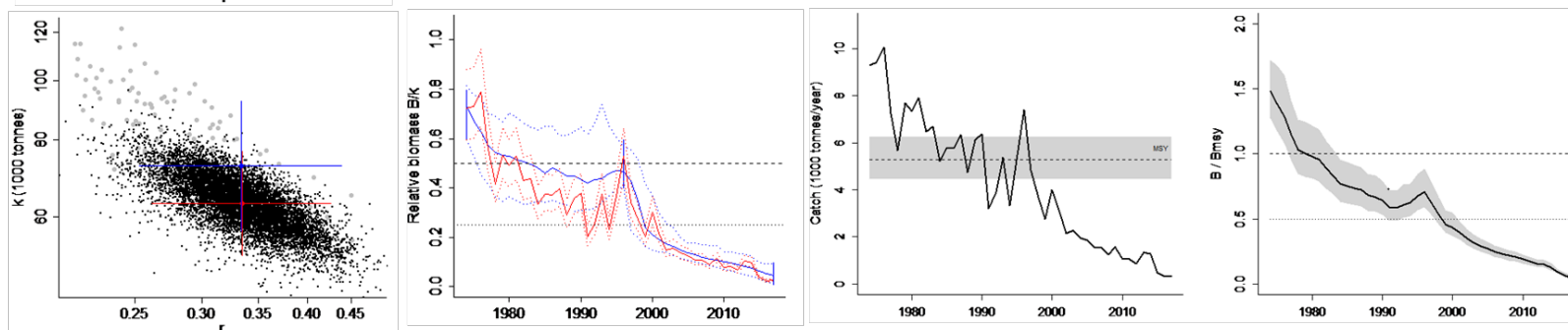
Atrobuca nibe



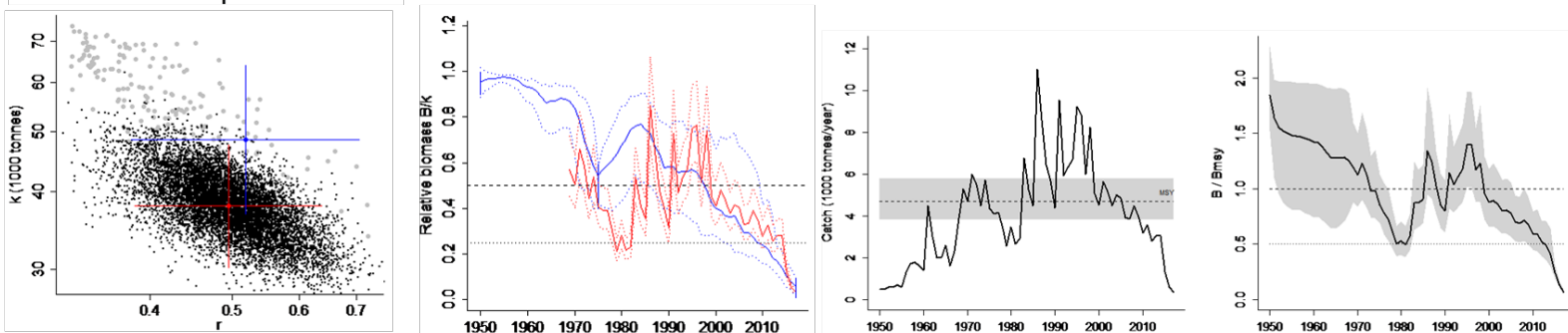
*Acanthopagrus
schlegelii*



*Priacanthus
macracanthus*



*Psenopsis
anomala*



*Pampus
argenteus*

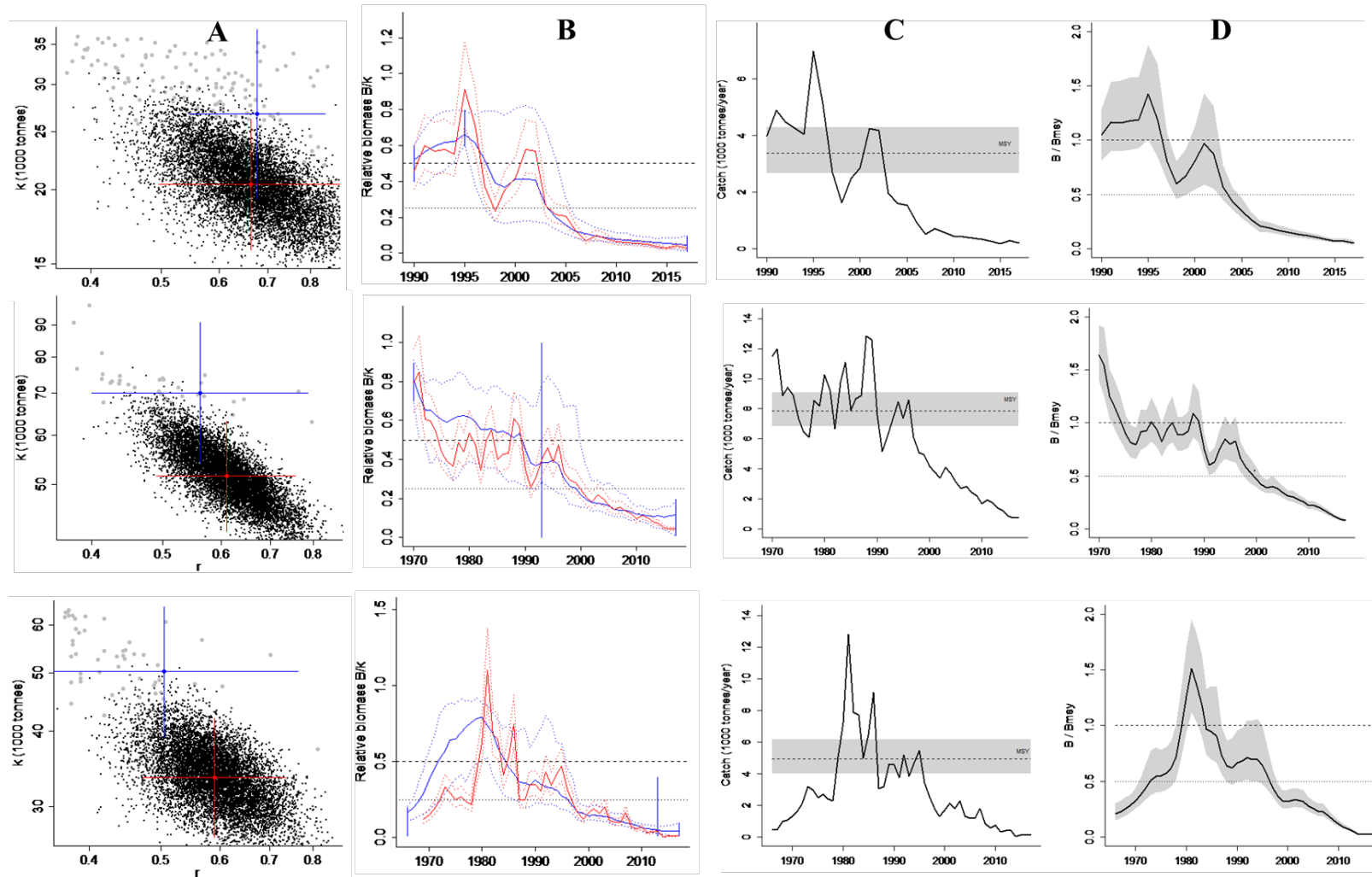


FIGURE S1 Results of BSM outputs for the other 14 stocks. A shows the viable r-k pairs found by CMSY method (grey dots) and BSM method (black dots), and the blue cross is the most probable r-k pair with its 95% confidence interval (CI) found by CMSY while red cross indicates the most probable r-k pair and its 95% CI found by BSM. B shows the biomass trajectories (lines) with the 2.5th and 97.5th percentiles (dotted lines) estimated by CMSY (blue) and BSM (red). C shows catch relative to the BSM estimate of MSY, with indication of 95% CI in grey. D shows the development of relative total biomass (B/B_{MSY}), with CI (grey area) indicating uncertainty.

Supplementary Tables

Table S1 Time series of catch data (t) of 16 assessed species in the coastal and offshore of Taiwan waters. IKM: *Scomberomorus guttatus*; NSM: *Scomberomorus commerson*; JSM: *Scomberomorus niphonius*; DPC: *Muraenesox cinereus*; CGS: *Clupanodon thrissa*; CM: *Scomber japonicus*; JJM: *Trachurus japonicus*; JS: *Decapterus maruadsi*; M: *Mene maculate*; BC: *Atrobucca nibe*; BS: *Acanthopagrus schlegelii*; RB: *Priacanthus macracanthus*; PR: *Psenopsis anomala*; SP: *Pampus argenteus*; SC: *Pennahia argentata*; BP: *Parastromateus niger*

Year	IKM	NSM	JSM	DPC	CGS	CM	JJM	JS	M	BC	BS	RB	PR	SP	SC	BP
1950	-	-	1950	500	-	3000	-	-	400	2000	-	-	500	-	2000	-
1951	-	-	1951	500	-	4000	-	-	400	2000	-	-	500	-	2000	-
1952	-	-	1952	800	-	5000	-	-	400	2500	-	-	600	-	2500	-
1953	-	-	1953	800	-	5000	-	-	400	2600	-	-	600	-	2700	-
1954	-	-	1954	1400	-	4700	-	-	400	3300	-	-	700	-	3400	-
1955	-	-	1955	1500	-	7400	-	-	300	3100	-	-	600	-	4800	-
1956	-	-	1956	1400	-	9600	-	-	600	2500	-	-	1300	-	6500	-
1957	-	-	1957	1100	-	7600	-	-	700	2500	-	-	1700	-	9500	-
1958	-	-	1958	2200	-	7800	-	-	2400	3100	-	3200	1800	-	8700	-
1959	-	-	1959	2400	-	8800	-	-	1100	2900	-	2700	1600	-	5900	-

1960	-	-	1960	4200	-	8400	-	-	1400	2900	-	1800	1400	-	7700	-
1961	-	-	1961	3900	-	7700	-	-	5500	1600	-	8000	4500	-	11400	-
1962	-	-	1962	4800	-	7200	-	-	4100	2500	-	4400	3000	-	12700	-
1963	-	-	1963	3300	-	10900	-	-	1700	2600	-	2800	2000	-	14000	-
1964	-	-	1964	4500	-	16100	-	-	1400	4100	-	3900	2000	-	15000	-
1965	-	-	1965	4700	-	15900	-	-	3400	3400	-	4200	2600	-	13900	-
1966	-	-	1966	4200	-	13500	-	-	2600	3100	-	12300	1600	-	13200	424
1967	-	-	1967	4500	-	8600	-	-	3200	3300	-	13800	2300	-	11500	499
1968	-	-	1968	4700	-	19000	-	-	2100	2900	-	11900	3900	-	11100	974
1969	-	-	1969	4200	-	22200	-	-	2300	2900	-	13200	5300	-	8300	1057
1970	-	-	1970	6300	-	28300	-	-	1000	3700	-	13600	4700	-	11500	1285
1971	-	-	1971	9200	-	22600	-	-	2300	5900	-	14700	6000	-	12000	1608
1972	-	-	1972	10800	-	18600	-	-	1400	12200	-	19100	5500	-	8900	2171
1973	-	-	1973	8800	-	8000	-	-	3500	13600	-	25000	4500	-	9400	3170
1974	-	-	1974	6798	-	3137	-	-	1167	9597	-	9297	5703	-	8935	2987

1975	-	-	1975	6667	-	3863	-	-	1218	9452	-	9431	4359	-	7328	2490
1976	-	-	1976	8762	-	4369	-	-	2001	7639	-	10058	4100	-	6461	2669
1977	-	-	1977	7930	-	8099	-	-	1540	8786	-	7233	4168	-	6077	2385
1978	-	-	1978	8759	-	5144	-	-	2308	8595	-	5668	3411	-	8548	2296
1979	-	-	1979	7219	-	5703	-	-	3166	7762	-	7690	2556	-	8196	5053
1980	-	-	1980	10914	-	6435	-	-	4943	8574	-	7334	3470	-	10254	7215
1981	-	-	1981	8232	-	19686	-	-	3991	7822	-	7912	2663	-	9255	12808
1982	-	-	1982	7518	-	16290	-	-	2611	6677	-	6480	2922	-	6667	7887
1983	-	-	1983	6987	-	19552	-	-	2667	7493	-	6681	6775	-	9743	7714
1984	-	-	1984	9068	-	27015	-	-	2931	7751	-	5211	5271	-	11086	4983
1985	-	-	1985	9274	-	29611	-	-	5124	7155	-	5774	4494	-	7903	6462
1986	-	-	1986	9038	-	32371	-	-	3050	6957	-	5810	11009	-	8668	9144
1987	-	-	1987	9125	-	30242	-	-	1090	5500	-	6328	8599	-	8896	3071
1988	-	-	1988	11851	-	32810	-	-	3153	4613	-	4736	6448	-	12848	3169
1989	434	4245	1989	12594	-	33016	605	1800	16745	6143	634	6109	5681	10953	12601	4618

1990	1308	5602	1990	9465	-	35978	257	2001	10286	2719	396	6388	4364	3984	7584	4562
1991	627	7125	1991	6891	-	29368	198	1746	9946	1698	311	3199	9544	4881	5160	3760
1992	674	4665	1992	5349	-	42728	90	1937	6581	2559	323	3909	5940	4476	6227	5174
1993	586	3316	1993	4567	4	41908	193	1987	6147	2481	178	5373	6338	4258	7289	3832
1994	795	2845	1994	5095	54	54914	358	3356	1823	495	153	3314	6711	4049	8467	4668
1995	1814	3211	1995	3548	30	54155	4841	3626	859	197	197	5486	9212	6978	7369	5444
1996	1611	2541	1996	2846	25	53906	4218	5059	725	297	207	7386	8834	5113	8599	3427
1997	1607	2701	1997	3246	10	47279	4711	19667	902	288	277	4824	6001	2703	6085	2534
1998	1128	2417	1998	5733	11	35527	7121	12090	1010	237	404	3670	8258	1621	5089	1744
1999	1298	2674	1999	9001	27	45339	2661	20532	1747	223	604	2756	5075	2477	4940	1307
2000	1249	3551	2000	5874	21	28635	6003	4387	1496	450	717	3986	4506	2852	4180	1671
2001	1395	4153	2001	5084	74	24298	3903	6224	1582	644	878	3079	5646	4245	3796	2129
2002	992	6613	2002	2827	31	34950	7458	7755	1110	535	784	2142	5154	4182	3394	1779
2003	1003	6421	2003	4091	66	53834	7942	8378	956	465	806	2256	4488	1948	4068	2269
2004	1171	3382	2004	3911	36	60618	6407	7682	2223	287	826	1965	5000	1600	3713	1288

2005	1054	2533	2005	3852	15	77789	4340	5974	1512	335	717	1841	4821	1531	3095	1161
2006	509	1255	2006	2937	30	54768	2779	3535	1665	370	637	1569	3933	919	2688	1159
2007	433	1385	2007	3154	24	49919	4289	3510	2225	403	602	1523	3861	498	2816	1808
2008	355	1471	2008	1879	21	56015	6163	5506	1681	386	632	1256	4484	716	2443	834
2009	257	1059	2009	2042	17	70174	4022	8056	1194	501	469	1580	3947	565	2188	548
2010	336	1196	2010	1545	26	62109	5654	9244	1622	364	365	1066	3170	436	1682	744
2011	349	1056	2011	1590	14	98604	9656	7679	2111	418	383	1058	3564	412	1923	319
2012	327	1278	2012	1228	31	70093	8386	2280	2217	344	357	872	2800	375	1734	388
2013	295	1692	2013	1508	31	53727	7330	1689	5237	412	386	1332	3047	328	1373	418
2014	280	1646	2014	1530	11	64481	9631	1348	5167	465	372	1277	3039	257	1215	52
2015	63	820	2015	698	7	68063	3672	3709	8485	514	211	484	1341	179	852	99
2016	145	524	2016	377	12	64473	7433	5080	6019	380	228	329	592	284	749	117
2017	81	406	2017	221	11	71865	8555	7328	1603	585	228	357	357	187	734	133

Table S2 Major management regulations for Taiwan coastal and offshore fisheries. Source from Fisheries Agency (2016) and Liao et al., (2019)

Type	Fishery	Year	Restricted areas	Species/size limit	Seasonal closure	TAC	IQ	Data	Detail
Net	Trawler	1999	v	-	-	-	-	-	Banned within 3 nm from coast for all trawlers
									Banned within 12 nm for large trawlers (> 50 GRT)
	Gillnet	2001	v	-	-	-	-	-	Banned with 3 nm in five counties (Taitung since 2001, Pintung for Liuchiu, Island since 2013, Tainun since 2012, New Taipei 2012 and Keelung since 2005, but mostly are parts region but not all)
									For vessel less than 100 GRT, the length of nets shall less than 2.5 km
	Torch-light	2003	v	-	-	-	-	-	Banned within 12 nm in Pintung
									6 nm in four counties (Taitung, Penhu, Huilan, Tainan)
									3 nm in Ilan
									6 nm, excluded May 1 to Aug 31
									2000 W for 3 nm for Muaili
Specific species	Shark fishery	2005	-	10 species	-	-	-	-	Prohibited species: whale shark, oceanic whitetip shark and silky shark in the Pacific Ocean
									Mandatory report for white shark, basking-shark and megamouth shark
									Shark's fins naturally attached for coastal fisheries
	Precious corals fishery	2008	only in Five specific areas	-	-	6 mt in 2016	200kg/v	logbook	Mandatory VMS
									Exit and entry at designated ports prior application
									Inspection at time of port entry, monitoring of offloading and auction of catch
									Receiving of at-sea observers
									Boarding and inspection at sea
	Taiwanese mackerel pure seiner	2013	v	-	June 1-30	-	-	-	Banned 6 nm for all and 12 nm for vessel larger than 100GRT
									Mandatory VMS and Daily catch logbooks
									Landing at designated fishing ports, with the entire catch weighed
Spawning	Larval anchovy	2009	Ban within	-	three months	1826	-	logbook	Cross-county/city fishing is prohibited

and juvenile	fishery		500 m from coast			mt in 2016			Review annually
									Three consecutive months closure during May 1 to September 15
	Flying fish roe fishery	2011	-	-	-	300 mt in 2016	-	logbook	Exit and entry at designated ports prior application and inspection at time of port entry, monitoring of offloading and auction of catch
									Receiving of at-sea observers and acceptance of boarding and inspection at sea
	Eel fry fishery	2013	-	-	March 1 to October 31	-	-	-	Operating in areas of intertidal terrains and estuaries, no licenses necessary
	Grab fishery	2014	-	Size limit for five species	-	-	-	-	Ban on <i>Portunus sanguinolentus</i> , <i>Charybdis feriatus</i> , and <i>Portunus pelagicus</i> with carapace width under 8 cm
									Ban on <i>Charybdis natator</i> and <i>Ranina</i> with carapace width less than 6 cm
									Banned of egg carrying female between August 16 to November 15

Reference

Fisheries Agency, 2016. Coastal Water Fisheries Management and Practice of Responsible Fisheries. Fishery Agency.

Liao, C. P., Huang, H. W., and Lu, H. J. (2019). Fishermen's perceptions of coastal fisheries management regulations: Key factors to rebuilding coastal fishery resources in Taiwan. *Ocean Coast. Manage.* 172, 1-13. doi.org/10.1016/j.ocecoaman.2019.01.015