

Figures and Tables for CJFAS Short Communication

June 1, 2010

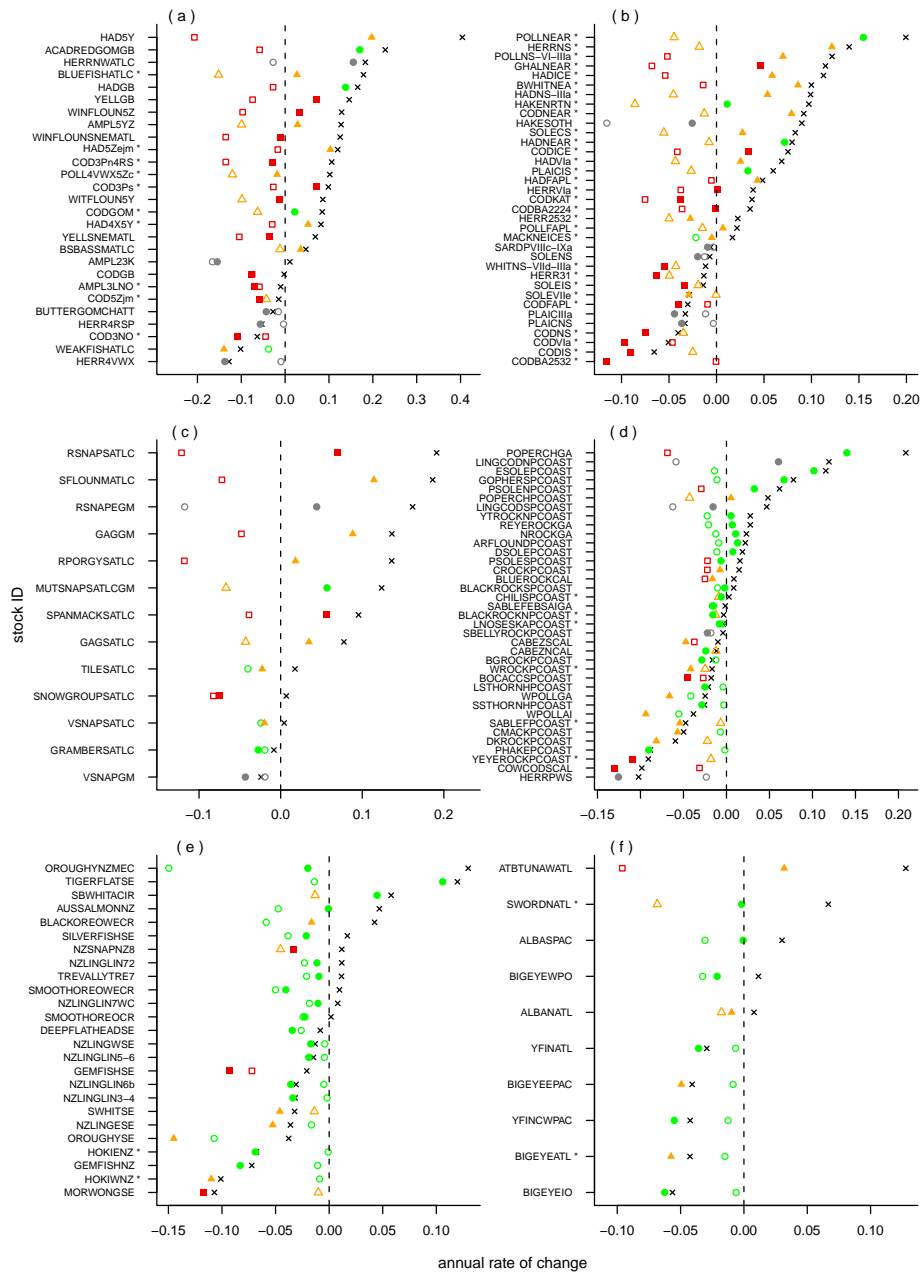


Figure 1

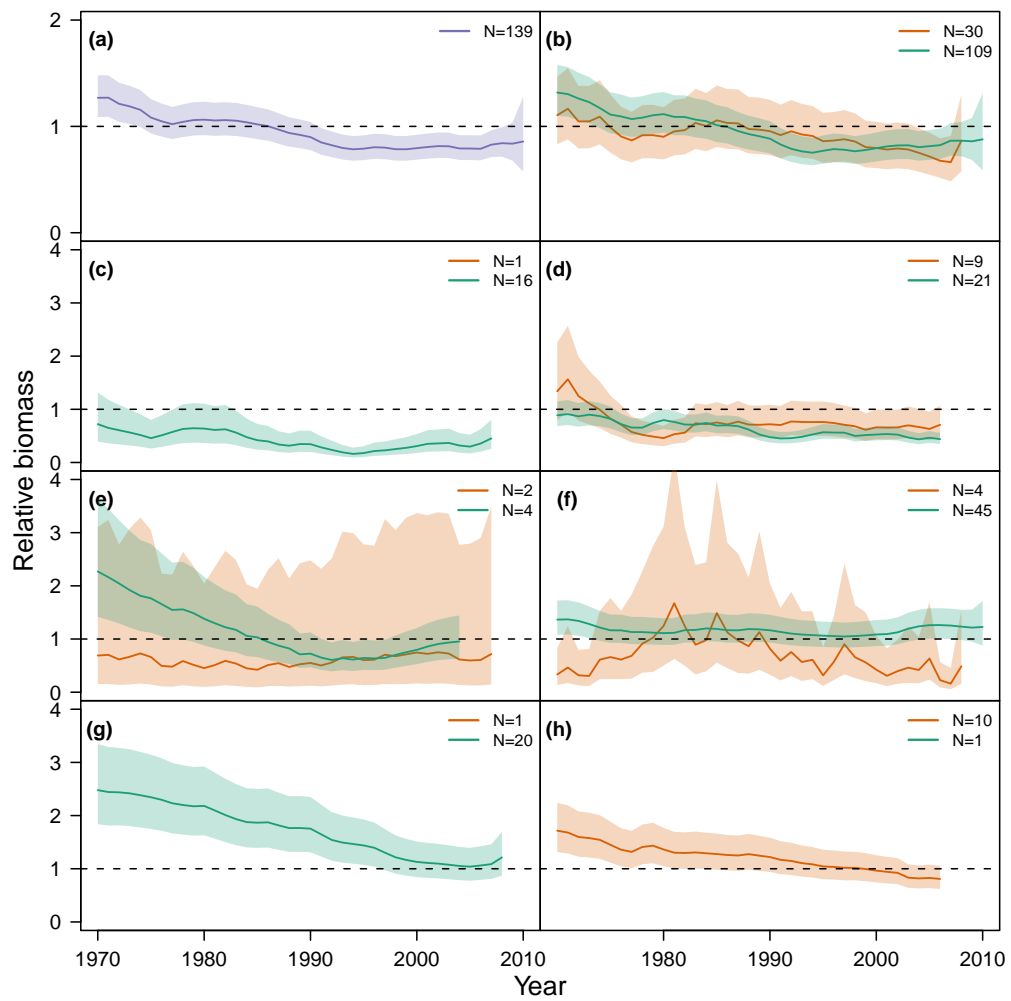


Figure 2

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post- 1992	pre-1992	post- 1992	pre-1992	post1992		
ACADREDGOMGB	Gulf of Maine / Georges Bank	Acadian red- fish	<i>Sebastes fascia- tus</i>	Demersal		0.3700	8.6600	-0.0582	0.1702	-0.0556	0.2303	-0.0535	0.2109
ALBANATL	Northern Atlantic	Albacore tuna	<i>Thunnus alalunga</i>	Pelagic		0.9300	0.8100	-0.0177	-0.0097	-0.0185	-0.0244	-0.0156	-0.0144
ALBASPAC	South Pacific Ocean	Albacore tuna	<i>Thunnus alalunga</i>	Pelagic		4.0100	2.4600	-0.0307	-0.0007	-0.0373	-0.0295	-0.0337	-0.0349
ALPLAICBSAI	Bering Sea and Aleutian Islands	Alaska plaice	<i>Pleuronectes quadritubercu- latus</i>	Demersal		2.7100	2.4600	0.0233	-0.0322	0.0458	-0.0123	0.0324	-0.0060
AMPL23K	Labrador - NE Newfoundland	American plaice	<i>Hippoglossoides platessoides</i>	Demersal				-0.1657	-0.1548	-0.0588	-0.0479	-0.1073	-0.1470
AMPL3LNO	Grand Banks	American plaice	<i>Hippoglossoides platessoides</i>	Demersal	*	0.1400	0.0800	-0.0587	-0.0688	-0.0222	0.0640	-0.0524	0.0187
AMPL5YZ	Gulf of Maine / Georges Bank	American plaice	<i>Hippoglossoides platessoides</i>	Demersal		0.5200	0.7000	-0.0993	0.0283	-0.1398	0.0087	-0.0809	0.0202
ARFLOUNDBSAI	Bering Sea and Aleutian Islands	Arrowtooth flounder	<i>Reinhardtius stomias</i>	Demersal		1.3100	2.7000	0.0628	0.0463	0.0524	0.0381	0.0592	0.0451
ARFLOUNDGA	Gulf of Alaska	Arrowtooth flounder	<i>Reinhardtius stomias</i>	Demersal		1.9300	3.0200	0.0521	0.0257	0.0508	0.0225	0.0467	0.0249
ARFLOUNDPCOAST	Pacific Coast	Arrowtooth flounder	<i>Reinhardtius stomias</i>	Demersal		3.1100	3.8100	-0.0090	0.0129	-0.0095	0.0027	-0.0059	0.0136
ATBTUNAEATL	Eastern Atlantic	Atlantic bluefin tuna	<i>Thunnus thyn- nus</i>	Pelagic		0.6200	0.3400	-0.0135	-0.0403	-0.0221	-0.0550	-0.0173	-0.0621
ATBTUNAWATL	Western Atlantic	Atlantic bluefin tuna	<i>Thunnus thyn- nus</i>	Pelagic		0.4300	0.5700	-0.0961	0.0318	-0.1085	0.0106	-0.0918	0.0193
ATKABSAI	Bering Sea and Aleutian Islands	Atka mackerel	<i>Pleurogrammus monopterygius</i>	Demersal		2.2300	1.5500	0.0272	0.0026	0.0189	-0.0025	0.0648	-0.0215
ATLCROAKMATLC	Mid-Atlantic Coast	Atlantic croaker	<i>Micropogonias undulatus</i>	Demersal		1.3000	1.4200	0.0782	0.0306	0.0677	0.0034	0.0952	0.0092
AUSSALMONNZ	New Zealand	Australian salmon	<i>Arripis trutta</i>	Pelagic		1.8400	1.6400	-0.0475	-0.0007	-0.0541	-0.0082	-0.0440	-0.0080
BGROCKPCOAST	Pacific Coast	Blackgill rock- fish	<i>Sebastes melanosto- mus</i>	Demersal		1.4300	1.3100	-0.0124	-0.0287	-0.0093	-0.0034	-0.0136	-0.0070
BIGEYEATL	Atlantic	Bigeye tuna	<i>Thunnus obe- sus</i>	Pelagic	*	1.4100	0.9000	-0.0150	-0.0576	0.0018	-0.0358	-0.0049	-0.0274
BIGEYEEPAC	Eastern Pacific	Bigeye tuna	<i>Thunnus obe- sus</i>	Pelagic		1.7400	0.9000	-0.0086	-0.0494	-0.0010	-0.0419	-0.0074	-0.0439
BIGEYEIO	Indian Ocean	Bigeye tuna	<i>Thunnus obe- sus</i>	Pelagic		2.2900	1.2300	-0.0062	-0.0626	-0.0049	-0.0558	-0.0114	-0.0518
BIGEYEWPO	Western Pacific Ocean	Bigeye tuna	<i>Thunnus obe- sus</i>	Pelagic		1.8700	1.0600	-0.0326	-0.0212	-0.0352	-0.0384	-0.0287	-0.0407
BIGHTREDSE	Southeast Aus- tralia	Bight redfish	<i>Centroberyx gerrardi</i>	Demersal		1.3400	0.9500	0.0056	-0.0170	0.0038	-0.0242	0.0047	-0.0234
BLACKKOREOWECR	West end of Chatham Rise	Black oreo	<i>Allocyttus niger</i>	Demersal		1.2500	0.9900	-0.0588	-0.0164	-0.0581	-0.0156	-0.0513	-0.0158
BLACKROCKNP COAST	Northern Pacific Coast	Black rockfish	<i>Sebastes melanops</i>	Demersal	*	0.9800	1.3700	-0.0126	-0.0158	-0.0095	0.0586	-0.0167	0.0458

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
BLACKROCKSPCOAST	Southern Pacific Coast	Black rockfish	<i>Sebastes melanops</i>	Demersal		1.2100	2.2300	-0.0103	-0.0019	-0.0078	0.0528		
BLUEFISHATLC	Atlantic Coast	Bluefish	<i>Pomatomus saltatrix</i>	Demersal	*	0.5600	0.8100	-0.1517	0.0269	-0.1415	0.0303	-0.1314	0.0212
BLUEROCKCAL	California	Blue rockfish	<i>Sebastes mystinus</i>	Demersal		0.3300	0.7500	-0.0250	-0.0164	-0.0204	0.0802	-0.0270	0.0544
BOCACCSPCOAST	Southern Pacific Coast	Bocaccio	<i>Sebastes paucispinis</i>	Demersal		0.1800	0.3200	-0.0270	-0.0448	-0.0143	0.0425	-0.0328	0.0421
BSBASSMATLC	Mid-Atlantic Coast	Black sea bass	<i>Centropristis striata</i>	Demersal		0.5600	0.9200	-0.0119	0.0354	-0.0045	0.0505	0.0051	0.0331
BUTTERGOMCHATT	Gulf of Maine / Cape Hatteras	Atlantic but-terfish	<i>Peprilus triacanthus</i>	Demersal				-0.0154	-0.0430	-0.0087	-0.0149	-0.0578	-0.0034
BWHITNEA	Northeast Atlantic	Blue whiting	<i>Micromesistius poutassou</i>	Demersal	*	0.3400	0.6700	-0.0141	0.0858	-0.0363	0.0768	0.0073	0.0351
CABEZNCAL	Northern California	Cabazon	<i>Scorpaenichthys marmoratus</i>	Demersal		0.7700	1.0400	-0.0122	-0.0240	-0.0103	0.0283	-0.0162	0.0231
CABEZSCAL	Southern California	Cabazon	<i>Scorpaenichthys marmoratus</i>	Demersal		0.3500	0.7400	-0.0374	-0.0473	-0.0335	0.0178	-0.0340	0.0573
CAPEICE	Iceland Grounds	Capelin	<i>Mallotus villosus</i>	Pelagic	*	0.8500	0.4900	0.0341	0.0094	0.0099	-0.0089	0.0367	0.0081
CAPENOR	Barents Sea	Capelin	<i>Mallotus villosus</i>	Pelagic	*	1.0300	0.1700	0.0585	0.0301	0.0571	0.0089		
CHAKESA	South Africa	Shallow-water cape hake	<i>Merluccius capensis</i>	Demersal		3.0400	2.3000	-0.0068	0.0034	-0.0085	-0.0280		
CHILISPCOAST	Southern Pacific Coast	Chilepepper rockfish	<i>Sebastes goodei</i>	Demersal	*	0.8900	1.4300	-0.0090	-0.0062	-0.0072	0.0624	-0.0109	0.0500
CHTRACCH	Chilean EEZ and offshore	Chilean jack mackerel	<i>Trachurus murphyi</i>	Pelagic	*	1.1200	0.5200	0.1135	-0.0963	0.1703	-0.0395	0.1276	-0.0674
CMACKPCOAST	Pacific Coast	Chub mackerel	<i>Scomber japonicus</i>	Pelagic		1.0400	0.6800	-0.0071	-0.0568	-0.0088	-0.0786	-0.0332	-0.0265
COD3NO	Southern Grand Banks	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.0500	0.0200	-0.0446	-0.1081	-0.0161	0.0024	-0.0495	-0.0386
COD3Pn4RS	Northern Gulf of St. Lawrence	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.1200	0.0900	-0.1353	-0.0290	-0.0611	0.0545	-0.1010	0.0176
COD3Ps	St. Pierre Bank	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.2900	0.4900	-0.0269	0.0717	0.0145	0.1195	0.0037	0.0853
COD4TVn	Southern Gulf of St. Lawrence	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.3100	0.1700	0.0022	-0.0857	0.0392	-0.0286	-0.0253	-0.0335
COD4VsW	Eastern Scotian Shelf	Atlantic cod	<i>Gadus morhua</i>	Demersal				0.0050	-0.2548	0.0379	-0.1399	-0.0148	-0.1734
COD5Zjm	Georges Bank	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.6100	0.3400	-0.0428	-0.0574	0.0036	-0.0032	-0.0202	-0.0521
CODBA2224	Western Baltic	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.3700	0.3600	-0.0362	-0.0009	-0.0365	-0.0014	-0.0706	0.0535
CODBA2532	Eastern Baltic	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.1300	0.1600	-0.0005	-0.1159	0.0221	-0.0546	-0.0362	-0.0093
CODFAPL	Faroe Plateau	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.3600	0.2600	-0.0094	-0.0397	-0.0076	-0.0325	-0.0248	-0.0101
CODGB	Georges Bank	Atlantic cod	<i>Gadus morhua</i>	Demersal		0.2500	0.1200	-0.0753	-0.0776	-0.0326	-0.0490	-0.0632	-0.0503
CODGOM	Gulf of Maine	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.6500	1.4600	-0.0628	0.0218	0.0095	0.0458	-0.0540	0.0693
CODICE	Iceland Grounds	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.3700	0.4600	-0.0412	0.0340	-0.0432	0.0231	-0.0406	0.0144
CODIS	Irish Sea	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.5200	0.1500	-0.0249	-0.0905	-0.0114	-0.0595	-0.0231	-0.0737
CODKAT	Kattegat and Skagerrak	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.2600	0.1900	-0.0752	-0.0378	-0.0973	-0.0765	-0.0781	-0.0329

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
CODNEAR	North-East Arctic	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.7300	0.5600	-0.0129	0.0790	-0.0244	-0.0203	-0.0060	-0.0291
CODNS	North Sea	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.5100	0.1900	-0.0348	-0.0752	-0.0352	-0.0762	-0.0281	-0.0442
CODVIa	West of Scotland	Atlantic cod	<i>Gadus morhua</i>	Demersal	*	0.3500	0.1200	-0.0464	-0.0970	-0.0541	-0.1028	-0.0632	-0.0910
COWCODSCAL	Southern California	Cowcod	<i>Sebastes levis</i>	Demersal		0.0500	0.0900	-0.0313	-0.1297	-0.0257	0.0448	-0.0430	0.0420
CROCKPCOAST	Pacific Coast	Canary rockfish	<i>Sebastes piniger</i>	Demersal		0.4000	0.8500	-0.0222	-0.0076	-0.0187	0.0663	-0.0251	0.0506
CTRACSA	South Africa	Cape horse mackerel	<i>Trachurus capensis</i>	Pelagic	*	1.3000	1.4700	-0.0003	0.0127	-0.0016	0.0047	-0.0127	0.0091
DEEPCHAKESA	South Africa	Deep-water cape hake	<i>Merluccius paradoxus</i>	Demersal		0.8100	0.8300	-0.0369	0.0222	-0.0388	-0.0135	-0.0263	0.0013
DEEPFLATHEADSE	Southeast Australia	Deepwater flathead	<i>Platycephalus conatus</i>	Demersal		2.0700	1.5100	-0.0261	-0.0344	-0.0194	-0.0299	-0.0201	-0.0212
DKROCKPCOAST	Pacific Coast	Darkblotched rockfish	<i>Sebastes crameri</i>	Demersal		0.7100	0.7300	-0.0222	-0.0815	-0.0171	-0.0062	-0.0243	0.0021
DSOLEPCOAST	Pacific Coast	Dover sole	<i>Microstomus pacificus</i>	Demersal		1.0600	1.6100	-0.0112	0.0074	-0.0103	0.0357	-0.0108	0.0320
DUSROCKGA	Gulf of Alaska	Dusky rockfish	<i>Sebastes varianus</i>	Demersal		0.8900	1.5400	0.0484	0.0400	0.0461	0.0383	0.0429	0.0364
ESOLEPCOAST	Pacific Coast	English sole	<i>Parophrys vetulus</i>	Demersal		1.2400	6.4200	-0.0139	0.1017	-0.0132	0.1333	-0.0130	0.1095
FLSOLEBSAI	Bering Sea and Aleutian Islands	Flathead sole	<i>Hippoglossoides elassodon</i>	Demersal		1.8300	1.8300	0.2020	-0.0112	0.2068	-0.0079	0.1779	-0.0000
GAGGM	Gulf of Mexico	Gag	<i>Mycteroperca microlepis</i>	Demersal		0.4400	1.0000	-0.0481	0.0883	-0.0494	0.0825	-0.0518	0.0687
GAGSATLC	Southern Atlantic coast	Gag	<i>Mycteroperca microlepis</i>	Demersal		0.6000	0.9400	-0.0429	0.0347	-0.0455	0.0239	-0.0382	0.0349
GEMFISHNZ	New Zealand	common gemfish	<i>Rexea solandri</i>	Demersal		4.7800	1.6400	-0.0108	-0.0830	-0.0124	-0.0936	-0.0072	-0.0766
GEMFISHSE	Southeast Australia	common gemfish	<i>Rexea solandri</i>	Demersal		0.3800	0.2500	-0.0721	-0.0929	-0.0529	-0.0471	-0.0678	-0.0288
GHAL23KLMNO	Labrador Shelf - Grand Banks	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Demersal	*	0.9900	0.3900	0.0512	-0.1551	0.0582	-0.1472	0.0707	-0.1674
GHALBSAI	Bering Sea and Aleutian Islands	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Demersal		5.1800	1.4800	0.0177	-0.1247	0.0319	-0.0835	0.0142	-0.0739
GHALNEAR	North-East Arctic	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Demersal	*	0.1400	0.3600	-0.0681	0.0467	-0.0558	0.0854	-0.0537	0.0564
GOPHERSPCOAST	Southern Pacific Coast	Gopher rockfish	<i>Sebastes carnatus</i>	Demersal		1.8700	2.3800	-0.0110	0.0669	-0.0194	0.0388	-0.0084	0.0186
GRAMBERSATLC	Southern Atlantic coast	Greater amberjack	<i>Seriola dumerili</i>	Demersal		1.2400	1.1000	-0.0193	-0.0275	-0.0153	0.0067	-0.0214	-0.0086
GTRIGGM	Gulf of Mexico	Gray triggerfish	<i>Balistes capricus</i>	Demersal		2.1300	1.1200	0.0033	-0.0501	0.0184	-0.0411	0.0141	-0.0540
HAD4X5Y	Western Scotian Shelf, Bay of Fundy and Gulf of Maine	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.4100	0.8500	-0.0294	0.0524	-0.0223	0.0733	-0.0164	0.0684

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
HAD5Y	Gulf of Maine	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal		0.1500	0.9900	-0.2069	0.1973	-0.2653	0.1522	-0.1924	0.1251
HAD5Zejm	Georges Bank	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.2500	1.0000	-0.0168	0.1031	0.0029	0.1670	-0.0293	0.1599
HADFAPL	Faroe Plateau	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.3100	0.8500	-0.0054	0.0431	0.0068	0.1035	-0.0184	0.0685
HADGB	Georges Bank	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal		0.1000	1.9900	-0.0275	0.1379	-0.0234	0.1929	-0.0286	0.1966
HADICE	Iceland Grounds	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.3500	0.9800	-0.0540	0.0587	-0.0387	0.0674	-0.0467	0.0589
HADNEAR	North-East Arctic	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.6100	1.1000	-0.0078	0.0717	-0.0135	0.0311	0.0061	0.0421
HADNS-IIIa	IIIa and North Sea	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.8000	0.6200	-0.0453	0.0537	-0.0461	0.0513	-0.0510	0.0368
HADVia	West of Scotland	Haddock	<i>Melanogrammus aeglefinus</i>	Demersal	*	0.8200	0.5800	-0.0433	0.0253	-0.0453	0.0239	-0.0452	0.0262
HAKENRTN	IIIa-IV-VI-VII-VIIIabd	Hake	<i>Merluccius merluccius</i>	Demersal	*	0.7100	1.0400	-0.0860	0.0113	-0.0589	0.0268	-0.0679	0.0292
HAKESOTH	VIIIc-IXa	Hake	<i>Merluccius merluccius</i>	Demersal				-0.1155	-0.0256	-0.1067	-0.0227	-0.0949	-0.0250
HERR2532	Eastern Baltic	Herring	<i>Clupea harengus</i>	Pelagic	*	0.6900	0.6900	-0.0499	-0.0275	-0.0393	-0.0140	-0.0372	0.0032
HERR30	Bothnian Sea	Herring	<i>Clupea harengus</i>	Pelagic	*	1.4700	1.1900	0.0589	0.0028	0.0469	-0.0144	0.0540	-0.0142
HERR31	Bothnian Bay	Herring	<i>Clupea harengus</i>	Pelagic	*	0.6500	0.2900	-0.0497	-0.0629	-0.0010	-0.0362	-0.0097	-0.0615
HERR4RFA	NAFO 4R	Herring	<i>Clupea harengus</i>	Pelagic				0.0080	-0.0273	0.0064	-0.0308	-0.0107	-0.0263
HERR4RSP	NAFO 4R	Herring	<i>Clupea harengus</i>	Pelagic				-0.0036	-0.0566	0.0153	0.0162	0.0039	-0.0101
HERR4VWX	Scotian Shelf and Bay of Fundy	Herring	<i>Clupea harengus</i>	Pelagic				-0.0095	-0.1375	0.0045	-0.0965	-0.0139	-0.1290
HERRCC	Central Coast	Pacific herring	<i>Clupea pallasii</i>	Pelagic	*	1.2500	0.3000	0.0220	-0.0456	0.0197	-0.0598	0.0125	-0.0590
HERRNIRS	Irish Sea	Herring	<i>Clupea harengus</i>	Pelagic	*	0.2400	0.7200	0.0102	-0.0734	0.0229	-0.0242	0.0292	0.0252
HERRNS	North Sea	Herring	<i>Clupea harengus</i>	Pelagic	*	0.6900	0.6500	-0.0182	0.1215	-0.0234	0.0999	-0.0275	0.0384
HERRNWATLC	Northwestern Atlantic Coast	Herring	<i>Clupea harengus</i>	Pelagic				-0.0274	0.1555	-0.0683	0.0386	-0.0282	0.0387
HERRPRD	Prince Rupert District	Pacific herring	<i>Clupea pallasii</i>	Pelagic	*	0.3900	0.1600	0.0037	-0.0118	0.0025	-0.0195	0.0077	-0.0349
HERRPWS	Prince William Sound	Pacific herring	<i>Clupea pallasii</i>	Pelagic				-0.0234	-0.1256	0.0597	-0.0799	0.0410	-0.1524
HERRQCI	Queen Charlotte Islands	Pacific herring	<i>Clupea pallasii</i>	Pelagic	*	0.3600	0.2000	0.0358	-0.1062	0.0457	-0.0468	0.0183	-0.0361
HERRRIGA	Gulf of Riga East of Gotland	Herring	<i>Clupea harengus</i>	Pelagic	*	1.3700	1.2100	0.0587	-0.0060	0.0390	-0.0212	0.0536	-0.0108
HERRSITKA	Sitka	Pacific herring	<i>Clupea pallasii</i>	Pelagic				0.0401	0.0495	0.0672	0.0677	0.0712	0.0273

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
HERRSOG	Straight of Georgia	Pacific herring	<i>Clupea pallasii</i>	Pelagic	*	1.1700	0.9100	0.0258	0.0165	0.0230	-0.0008	0.0162	-0.0154
HERRVIa	West of Scotland	Herring	<i>Clupea harengus</i>	Pelagic	*	0.3700	0.1800	-0.0376	0.0009	-0.0377	0.0003	-0.0222	-0.0251
HERRWCVANI	West Coast of Vancouver Island	Pacific herring	<i>Clupea pallasii</i>	Pelagic	*	0.6900	0.0300	0.0266	-0.1686	0.0287	-0.1562	0.0140	-0.1783
HOKIENZ	Eastern New Zealand	Hoki	<i>Macruronus novaezelandiae</i>	Demersal	*	1.6400	1.1100	-0.0009	-0.0689	-0.0003	-0.0680	-0.0002	-0.0529
HOKIWNZ	Western New Zealand	Hoki	<i>Macruronus novaezelandiae</i>	Demersal	*	1.0600	0.5100	-0.0089	-0.1100	-0.0102	-0.1117	-0.0310	-0.0812
KELPGREENLINGORECON	Oregon Coast	Kelp greenling	<i>Hexagrammos decagrammus</i>	Demersal		2.9400	1.2800	0.0279	-0.0500	0.0132	-0.0609	0.0256	-0.0643
KINGKLIPSA	South Africa	Anchovy	<i>Engraulis encrasicolus</i>	Pelagic		1.1000	1.2000	-0.0120	-0.0060	-0.0113	0.0019	-0.0124	0.0057
LINGCODNPCOAST	Northern Pacific Coast	Lingcod	<i>Ophiodon elongatus</i>	Demersal				-0.0587	0.0605	-0.0425	0.1575	-0.0589	0.1395
LINGCODSPCOAST	Southern Pacific Coast	Lingcod	<i>Ophiodon elongatus</i>	Demersal				-0.0624	-0.0156	-0.0511	0.0525	-0.0591	0.0404
LNOSKAPCOAST	Pacific Coast	Longnose skate	<i>Raja rhina</i>	Demersal	*	1.6400	1.5600	-0.0044	-0.0083	-0.0045	-0.0100	-0.0043	-0.0059
LSTHORNHPCOAST	Pacific Coast	Longspine thornyhead	<i>Sebastolobus altivelis</i>	Demersal		3.3200	2.6500	-0.0040	-0.0251	-0.0019	-0.0174	-0.0041	-0.0174
MACKGOMCHATT	Gulf of Maine / Cape Hatteras	Mackerel	<i>Scomber scombrus</i>	Pelagic		1.9700	3.6100	0.0276	0.0380	0.0336	0.0668	0.0495	0.0504
MACKNEICES	Ila-IIIabd-IV-Vb-VI-VII-VIIIabcde-XII-XIV-Ixa	Mackerel	<i>Scomber scombrus</i>	Pelagic	*	1.1600	0.9800	-0.0217	-0.0049	-0.0286	-0.0158	-0.0241	-0.0088
MENATGM	Gulf of Mexico	Gulf menhaden	<i>Brevoortia patronus</i>	Pelagic	*	1.2600	1.0800	0.0445	0.0224	0.0430	0.0160	0.0449	-0.0081
MORWONGSE	Southeast Australia	Hawaiian morwong	<i>Nemadactylus macropterus</i>	Demersal		0.6700	0.3100	-0.0102	-0.1173	-0.0078	-0.0644	-0.0146	-0.0503
MUTSNAPSATLCGM	Southern Atlantic coast and Gulf of Mexico	Mutton snapper	<i>Lutjanus analis</i>	Demersal		0.5200	1.1300	-0.0669	0.0568	-0.0523	0.0635	-0.0462	0.0555
NROCKBSAI	Bering Sea and Aleutian Islands	Northern rockfish	<i>Sebastes polyspinis</i>	Demersal		1.1400	1.4100	0.0386	0.0131	0.0388	0.0132	0.0375	0.0127
NROCKGA	Gulf of Alaska	Northern rockfish	<i>Sebastes polyspinis</i>	Demersal		2.1900	1.5000	-0.0124	0.0107	-0.0232	-0.0220	-0.0197	-0.0239
NRSOLEEBSAI	Eastern Bering Sea and Aleutian Islands	Northern rock sole	<i>Lepidopsetta polyzystra</i>	Demersal		1.7400	3.0200	0.1331	0.0546	0.1081	0.0296	0.1151	0.0365
NZLINGESE	Southeast Australia	New Zealand ling	<i>Genypterus blacodes</i>	Demersal		1.4000	0.5900	-0.0165	-0.0526	-0.0150	-0.0494	-0.0173	-0.0576
NZLINGLIN3-4	New Zealand Areas LIN 3 and 4	New Zealand ling	<i>Genypterus blacodes</i>	Demersal		4.1400	3.0700	-0.0020	-0.0338	0.0074	-0.0207	-0.0082	-0.0200
NZLINGLIN5-6	New Zealand Areas LIN 5 and 6	New Zealand ling	<i>Genypterus blacodes</i>	Demersal		5.1300	3.9600	-0.0044	-0.0190	-0.0014	-0.0149	-0.0021	-0.0173
NZLINGLIN6b	New Zealand Areas LIN 6b	New Zealand ling	<i>Genypterus blacodes</i>	Demersal		3.7800	2.1900	-0.0050	-0.0358	0.0014	-0.0324	-0.0074	-0.0390

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
NZLINGLIN72	New Zealand Areas LIN 72	New ling	Zealand	<i>Genypterus blacodes</i>	Demersal	3.0500	2.4900	-0.0231	-0.0113	-0.0156	-0.0008	-0.0220	-0.0136
NZLINGLIN7WC	New Zealand Areas LIN 7WC-WCSI	New ling	Zealand	<i>Genypterus blacodes</i>	Demersal	2.0600	2.2100	-0.0184	-0.0104	-0.0120	-0.0024	-0.0180	0.0045
NZLINGWSE	Western half of Southeast Australia	New ling	Zealand	<i>Genypterus blacodes</i>	Demersal	1.6600	1.0800	-0.0041	-0.0172	-0.0043	-0.0176	-0.0100	-0.0283
NZSNAPNZ8	New Zealand Area 8 (Auckland and Central West)	New Zealand snapper		<i>Chrysophrys auratus</i>	Demersal	0.5100	0.3500	-0.0454	-0.0335	-0.0443	-0.0154	-0.0368	-0.0285
OROUGHYNZMEC	New Zealand Mid East Coast	Orange roughy		<i>Hoplostethus atlanticus</i>	Demersal	1.3400	1.2000	-0.1496	-0.0199	-0.1119	0.0029	-0.1274	-0.0088
OROUGHYSE	Southeast Australia	Orange roughy		<i>Hoplostethus atlanticus</i>	Demersal	2.3300	0.5200	-0.1073	-0.1450	-0.0096	-0.0797	-0.0587	-0.1002
PCODBSAI	Bering Sea and Aleutian Islands	Pacific cod		<i>Gadus macrocephalus</i>	Demersal	1.3200	1.0000	0.0338	-0.0298	0.0767	-0.0003	0.0422	-0.0174
PCODGA	Gulf of Alaska	Pacific cod		<i>Gadus macrocephalus</i>	Demersal	1.2500	0.9100	0.0684	-0.0399	0.0960	-0.0209	0.0622	-0.0198
PERCHEBSAI	Eastern Bering Sea and Aleutian Islands	Pacific ocean perch		<i>Sebastes alutus</i>	Demersal	0.7400	1.2300	0.1033	0.0404	0.0822	0.0275	0.0816	0.0304
PHAKEPCOAST	Pacific Coast	Pacific hake		<i>Merluccius productus</i>	Demersal	4.3800	1.6100	-0.0018	-0.0904	0.0249	-0.0336	0.0020	-0.0624
PLAIC7d	Eastern English Channel	European Plaice		<i>Pleuronectes platessa</i>	Demersal			0.0415	-0.0674	0.0809	-0.0457	0.0276	-0.0376
PLAICCELT	Celtic Sea	European Plaice		<i>Pleuronectes platessa</i>	Demersal	* 0.9800	0.6500	0.0517	-0.0960	0.0843	-0.0674	0.0660	-0.0592
PLAICECHW	Western English Channel	European Plaice		<i>Pleuronectes platessa</i>	Demersal	* 0.7200	0.5100	0.0403	-0.0536	0.0785	-0.0153	0.0505	-0.0392
PLAICIIa	Kattegat and Skagerrak	European Plaice		<i>Pleuronectes platessa</i>	Demersal			-0.0115	-0.0443	-0.0265	-0.0557	-0.0137	-0.0320
PLAICIS	Irish Sea	European Plaice		<i>Pleuronectes platessa</i>	Demersal	* 0.5700	1.0700	-0.0266	0.0331	-0.0198	0.0545	-0.0256	0.0482
PLAICNS	North Sea	European Plaice		<i>Pleuronectes platessa</i>	Demersal			-0.0033	-0.0366	0.0021	-0.0096	-0.0009	-0.0250
POLL4VWX5Zc	Scotian Shelf, Bay of Fundy and Georges Bank	Pollock		<i>Pollachius virens</i>	Demersal	* 0.6200	0.5600	-0.1202	-0.0183	-0.0543	0.0064	-0.0561	0.0004
POLLFAPL	Faroe Plateau	Pollock		<i>Pollachius virens</i>	Demersal	* 0.5200	0.9900	-0.0148	0.0068	-0.0056	0.0423	-0.0119	0.0355
POLLNEAR	North-East Arctic	Pollock		<i>Pollachius virens</i>	Demersal	* 0.7200	1.7000	-0.0447	0.1547	-0.0546	0.1137	-0.0275	0.1339
POLLNS-VI-IIIa	IIIa, VI and North Sea	Pollock		<i>Pollachius virens</i>	Demersal	* 0.2700	0.5700	-0.0517	0.0700	-0.0483	0.0784	-0.0313	0.0781
POPERCHGA	Gulf of Alaska	Pacific ocean perch		<i>Sebastes alutus</i>	Demersal	0.3000	1.1600	-0.0686	0.1400	-0.0901	0.0747	-0.0698	0.0853

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
POPERCHPCOAST	Pacific Coast	Pacific ocean perch	<i>Sebastes alutus</i>	Demersal		0.5300	0.6900	-0.0429	0.0053	-0.0399	0.0194	-0.0398	0.0174
PSOLENPCOAST	Northern Pacific Coast	Petrale sole	<i>Eopsetta jordani</i>	Demersal		0.4800	1.8700	-0.0293	0.0324	-0.0268	0.1124	-0.0300	0.1050
PSOLESPCOAST	Southern Pacific Coast	Petrale sole	<i>Eopsetta jordani</i>	Demersal		0.2700	1.1300	-0.0220	-0.0063	-0.0206	0.0872	-0.0226	0.1089
PTOOTHFISHPEI	South Africa Subantarctic Prince Edward Islands	Patagonian toothfish	<i>Dissostichus eleginoides</i>	Demersal		4.8800	1.8100	0.0033	-0.0656	-0.0004	-0.0775	-0.0005	-0.0619
REXSOLEGA	Gulf of Alaska	Rex sole	<i>Glyptocephalus zachirus</i>	Demersal		2.2200	2.6000	0.0142	0.0005	0.0147	0.0006	0.0235	0.0103
REYEROCKBSAI	Bering Sea and Aleutian Islands	Rougheye rockfish	<i>Sebastes aleutianus</i>	Demersal		1.1100	1.1500	0.0088	0.0020	0.0140	0.0052	0.0000	0.0021
REYEROCKGA	Gulf of Alaska	Rougheye rockfish	<i>Sebastes aleutianus</i>	Demersal		1.4700	1.6400	-0.0209	0.0068	-0.0199	0.0075	-0.0207	0.0071
RPORGYSATLC	Southern Atlantic coast	Common seabream	<i>Pagrus pagrus</i>	Demersal		0.3200	0.6100	-0.1179	0.0182	-0.0982	0.0594	-0.1020	0.0550
RSNAPEGM	Eastern Mexico Gulf of	Red snapper	<i>Lutjanus campechanus</i>	Demersal				-0.1176	0.0441	-0.1101	0.0922	-0.0999	0.0612
RSNAPSATLC	Southern Atlantic coast	Red snapper	<i>Lutjanus campechanus</i>	Demersal		0.0200	0.0200	-0.1215	0.0697	-0.1256	0.0321	-0.0947	0.0098
SABLEFEBSAIGA	Eastern Bering Sea / Aleutian Islands / Gulf of Alaska	Sablefish	<i>Anoplopoma fimbria</i>	Demersal		1.2800	1.0500	-0.0150	-0.0163	-0.0126	-0.0085	-0.0051	-0.0123
SABLEFPCOAST	Pacific Coast	Sablefish	<i>Anoplopoma fimbria</i>	Demersal	*	0.9300	0.8400	-0.0068	-0.0542	-0.0055	-0.0150	-0.0089	-0.0099
SARDNPAC	North Pacific	Sardine	<i>Sardinops sagax</i>	Pelagic	*	0.3100	1.7300	0.4959	0.0867	0.4736	0.0787	0.4155	0.0870
SARDPCOAST	Pacific Coast	Sardine	<i>Sardinops sagax</i>	Pelagic	*		1.3600	0.5457	0.0878	0.5053	0.0715	0.4600	0.0714
SARDPVIIIc-IXa	VIIIc-IXa	European pilchard	<i>Sardina pilchardus</i>	Pelagic				-0.0033	-0.0094	0.0041	-0.0044	0.0233	0.0071
SBELLYROCKPCOAST	Pacific Coast	Shortbelly rockfish	<i>Sebastes jordani</i>	Demersal				-0.0181	-0.0222	-0.0249	-0.0774	-0.0245	-0.0589
SBWHITACIR	New Zealand - Campbell Island Rise	Southern blue whiting	<i>Micromesistius australis</i>	Demersal		0.5600	1.1500	-0.0131	0.0447	-0.0508	0.0202	-0.0646	0.0514
SFLOUNMATLC	Mid-Atlantic Coast	Summer flounder	<i>Paralichthys dentatus</i>	Demersal		0.1800	0.7200	-0.0720	0.1143	-0.1371	0.0928	-0.0944	0.0943
SILVERFISHSE	Southeast Australia	Silverfish	<i>Seriola punctata</i>	Demersal		1.1700	1.0300	-0.0384	-0.0214	-0.0285	-0.0139	-0.0442	-0.0093
SKJCWPAC	Central Pacific	Skipjack tuna	<i>Katsuwonus pelamis</i>	Pelagic		4.0000	4.3800	0.0184	-0.0036	0.0269	0.0099	0.0098	0.0065
SMOOTHOREOCR	Chatham Rise	Smooth oreo	<i>Pseudocyttus maculatus</i>	Demersal		2.9900	2.2500	-0.0243	-0.0226	-0.0213	-0.0206	-0.0222	-0.0203
SMOOTHOREOWECR	West end of Chatham Rise	Smooth oreo	<i>Pseudocyttus maculatus</i>	Demersal		1.5900	1.2500	-0.0500	-0.0404	-0.0401	-0.0217	-0.0481	-0.0203

Continued on next page

Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post-1992	pre-1992	post-1992	pre-1992	post1992		
SNOWGROUPSATLC	Southern Atlantic coast	Snowy grouper	<i>Epinephelus niveatus</i>	Demersal		0.4100	0.1900	-0.0824	-0.0755	-0.0779	-0.0437	-0.0707	-0.0589
SOLECS	Celtic Sea	common European sole	<i>Solea vulgaris</i>	Demersal	*	0.8600	0.9000	-0.0555	0.0275	-0.0538	0.0304	-0.0480	0.0052
SOLEIS	Irish Sea	common European sole	<i>Solea vulgaris</i>	Demersal	*	0.6700	0.3600	-0.0193	-0.0333	-0.0125	-0.0201	-0.0313	-0.0399
SOLENS	North Sea	common European sole	<i>Solea vulgaris</i>	Demersal				-0.0126	-0.0198	-0.0199	-0.0558	0.0058	-0.0674
SOLEVIId	Eastern English Channel	common European sole	<i>Solea vulgaris</i>	Demersal				0.0207	-0.0034	0.0057	-0.0090	0.0223	0.0025
SOLEVIIe	Western English Channel	common European sole	<i>Solea vulgaris</i>	Demersal	*	0.6100	0.5100	-0.0005	-0.0292	0.0082	-0.0108	-0.0034	-0.0149
SOUTHHAKECR	Chatham Rise	Southern hake	<i>Merluccius australis</i>	Demersal		5.1800	1.7700	0.0102	-0.0690	0.0139	-0.0648	0.0044	-0.0768
SOUTHHAKESA	Sub-Antarctic	Southern hake	<i>Merluccius australis</i>	Demersal		5.4700	2.9100	0.0130	-0.0495	0.0267	-0.0358	0.0103	-0.0421
SPANMACKSATLC	Southern Atlantic coast	Spanish mackerel	<i>Scomberomorus maculatus</i>	Pelagic		0.2500	0.3800	-0.0388	0.0566	-0.0430	0.0300	-0.0373	0.0282
SPRAT22-32	Baltic Areas 22-32	Sprat	<i>Sprattus sprattus</i>	Pelagic	*	1.1500	1.1300	0.0290	0.0440	-0.0229	-0.0144	0.0140	0.0097
SSTHORNHPCOAST	Pacific Coast	Shortspine thornyhead	<i>Sebastolobus alascanus</i>	Demersal		1.7300	1.5700	-0.0030	-0.0286	-0.0025	-0.0064	-0.0041	-0.0074
STFLOUNNPCOAST	Northern Pacific Coast	Starry flounder	<i>Platichthys stellatus</i>	Demersal		4.1600	1.1000	0.0498	-0.0333	0.0279	-0.0815	0.0448	-0.1024
STFLOUNSPCOAST	Southern Pacific Coast	Starry flounder	<i>Platichthys stellatus</i>	Demersal		1.7900	1.5500	0.0190	-0.0069	0.0334	0.0246	0.0055	-0.0114
STRIPEDBASSGOMCHAT	Gulf of Maine / Cape Hatteras	Striped bass	<i>Morone saxatilis</i>	Demersal				0.2426	0.0892	0.1807	0.0660	0.2060	0.0651
SWHITSE	Southeast Australia	School whiting	<i>Sillago flindersi</i>	Demersal		0.9900	0.6600	-0.0138	-0.0461	-0.0136	-0.0446	-0.0162	-0.0265
SWORDNATL	Northern Atlantic	Swordfish	<i>Xiphias gladius</i>	Pelagic	*	0.9100	1.0300	-0.0685	-0.0018	-0.0622	0.0036	-0.0479	0.0115
TIGERFLATSE	Southeast Australia	Tiger flathead	<i>Neoplatycephalus richardsoni</i>	Demersal		2.2400	1.9900	-0.0138	0.1060	-0.0180	-0.0038	-0.0094	-0.0086
TILESATLC	Southern Atlantic coast	Tilefish	<i>Lopholatilus chamaeleonticeps</i>	Demersal		1.0800	0.9000	-0.0401	-0.0226	-0.0367	0.0017	-0.0349	-0.0075
TREVALLYTRE7	New Zealand Areas TRE 7	Trevally	<i>Pseudocaranx dentex</i>	Demersal		1.8500	1.4400	-0.0211	-0.0096	-0.0223	-0.0230	-0.0144	-0.0193
VSNAPGM	Gulf of Mexico	Vermilion snapper	<i>Rhomboplites aurorubens</i>	Demersal				-0.0192	-0.0432	0.0152	-0.0224	-0.0077	-0.0363
VSNAPSATLC	Southern Atlantic coast	Vermilion snapper	<i>Rhomboplites aurorubens</i>	Demersal		1.1200	0.8600	-0.0242	-0.0199	-0.0243	-0.0209	-0.0239	-0.0197
WEAKFISHATLC	Atlantic Coast	Weakfish	<i>Cynoscion regalis</i>	Demersal		7.0700	0.7900	-0.0379	-0.1393	-0.0597	-0.1488	-0.0611	-0.1373
WHAKEGBGOM	Gulf of Maine / Georges Bank	White hake	<i>Urophycis tenuis</i>	Demersal		0.5600	0.3500	0.0018	-0.0776	0.0189	-0.0266	0.0131	-0.0306
WHITNS-VIIId-IIIa	IIIa, VIIId and North Sea	Whiting	<i>Merlangius merlangus</i>	Demersal	*	0.8900	0.3300	-0.0428	-0.0543	-0.0464	-0.0563	-0.0557	-0.0718

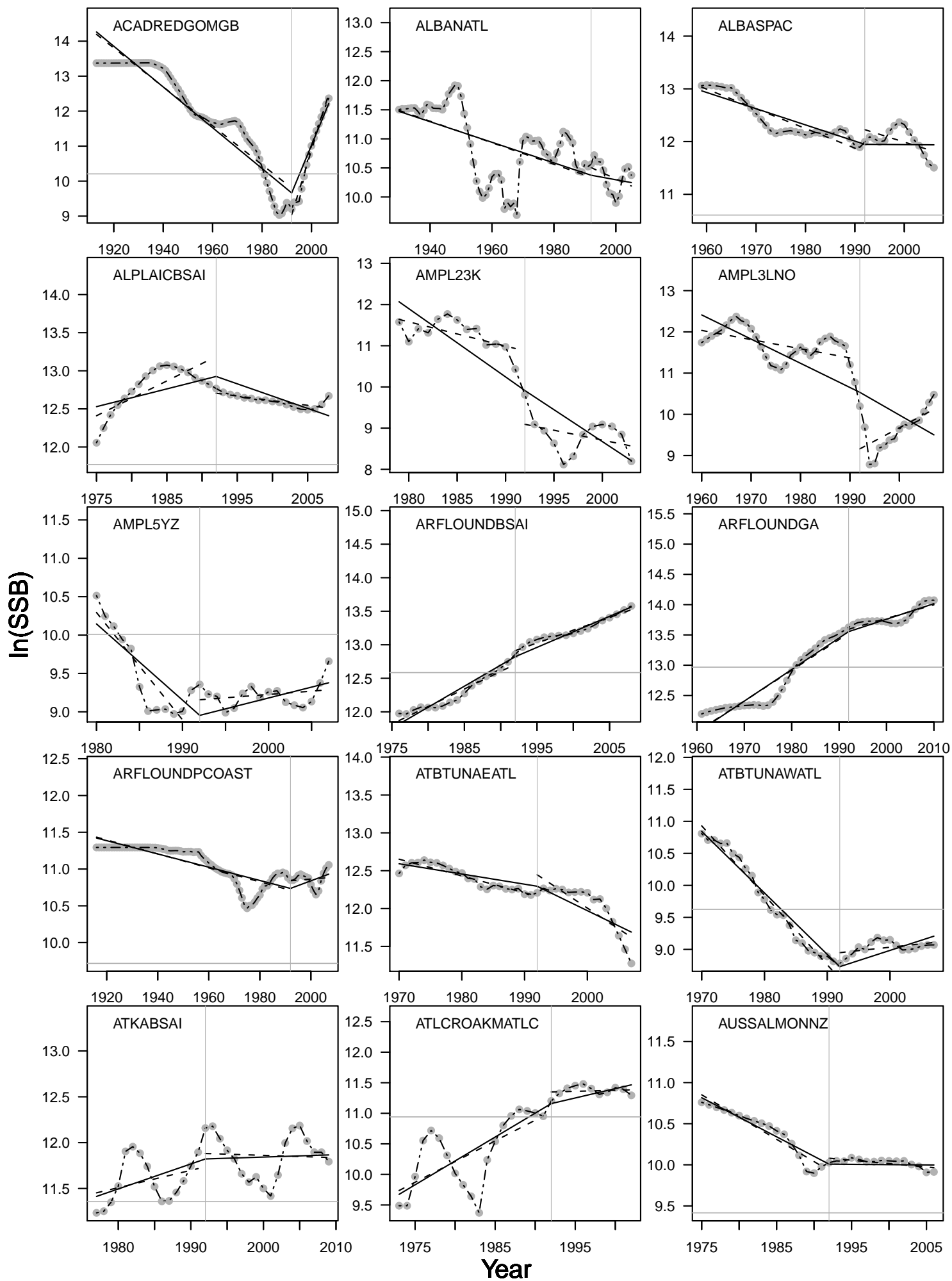
Continued on next page

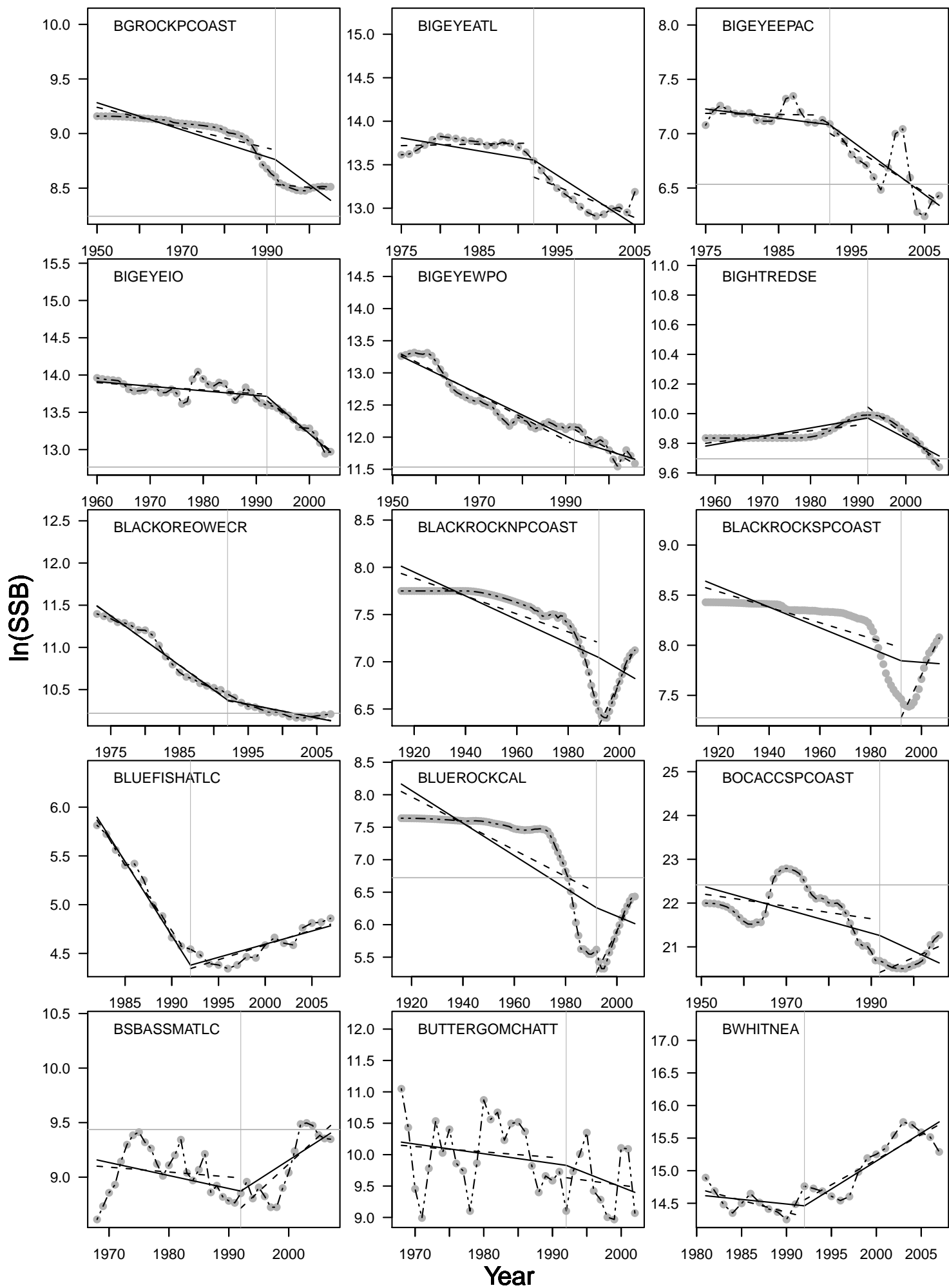
Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post- 1992	pre-1992	post- 1992	pre-1992	post1992		
WHITVIIek	Celtic Sea	Whiting	<i>Merlangius merlangus</i>	Demersal	*	0.7900	0.4400	0.1253	-0.0294	0.0679	-0.0509	0.0713	-0.0221
WINFLOUN5Z	Georges Bank	Winter flounder	<i>Pseudopleuronectes americanus</i>	Demersal		0.3300	0.2800	-0.0969	0.0320	-0.1025	0.0299	-0.1103	-0.0116
WINFLOUNSNEMATL	Southern England /Mid Atlantic	Winter flounder	<i>Pseudopleuronectes americanus</i>	Demersal		0.0900	0.0900	-0.1354	-0.0099	-0.1311	-0.0081	-0.1305	-0.0029
WITFLOUN5Y	Gulf of Maine	Witch flounder	<i>Glyptocephalus cynoglossus</i>	Demersal		0.6200	0.3000	-0.0984	-0.0125	-0.0985	-0.0125	-0.0716	-0.0480
WPOLLAI	Aleutian Islands	Walleye pollock	<i>Theragra chalcogramma</i>	Demersal		2.2300	0.8600	-0.0554	-0.0938	0.0239	-0.0466	-0.0171	-0.0596
WPOLLEBS	Eastern Bering Sea	Walleye pollock	<i>Theragra chalcogramma</i>	Demersal		1.1100	0.6600	0.0627	-0.0330	0.0636	-0.0307	0.0491	-0.0324
WPOLLGA	Gulf of Alaska	Walleye pollock	<i>Theragra chalcogramma</i>	Demersal		1.4500	0.7700	-0.0414	-0.0662	-0.0308	-0.0589	-0.0422	-0.0393
WROCKPCOAST	Pacific Coast	Widow rockfish	<i>Sebastes tomelas</i>	Demersal	*	0.9600	0.9100	-0.0248	-0.0416	-0.0202	-0.0198	-0.0217	-0.0144
YELLGB	Georges Bank	Yellowtail flounder	<i>Limanda ruginea</i>	Demersal		0.1000	0.2200	-0.0742	0.0720	-0.0947	0.0462	-0.0664	0.0504
YELLSNEMATL	Southern England /Mid Atlantic	Yellowtail flounder	<i>Limanda ruginea</i>	Demersal		0.0600	0.1300	-0.1046	-0.0357	-0.0497	0.0334	-0.1027	0.0476
YEYEROCKPCOAST	Pacific Coast	Yelloweye rockfish	<i>Sebastes rober-rimus</i>	Demersal	*	0.6600	0.3800	-0.0180	-0.1088	-0.0138	-0.0268	-0.0210	-0.0297
YFINATL	Atlantic	Yellowfin tuna	<i>Thunnus albacares</i>	Pelagic		1.7900	1.0700	-0.0065	-0.0358	-0.0077	-0.0382	-0.0178	-0.0370
YFINCWPAC	Central Pacific	Yellowfin tuna	<i>Thunnus albacares</i>	Pelagic		2.3800	1.2200	-0.0125	-0.0549	-0.0136	-0.0628	-0.0094	-0.0513
YFINEPAC	Northeast Pacific	Yellowfin tuna	<i>Thunnus albacares</i>	Pelagic				0.0389	-0.0084	0.0307	-0.0166	-0.0067	-0.0204
YSOLEBSAI	Bering Sea and Aleutian Islands	Yellowfin sole	<i>Limanda persa</i>	Demersal		2.5000	1.9400	0.0990	-0.0365	0.1065	-0.0180	0.0789	-0.0160
YTROCKNPACOAST	Northern Pacific Coast	Yellowtail rockfish	<i>Sebastes flavidus</i>	Demersal		1.4500	1.3600	-0.0224	0.0053	-0.0229	0.0040	-0.0176	-0.0049

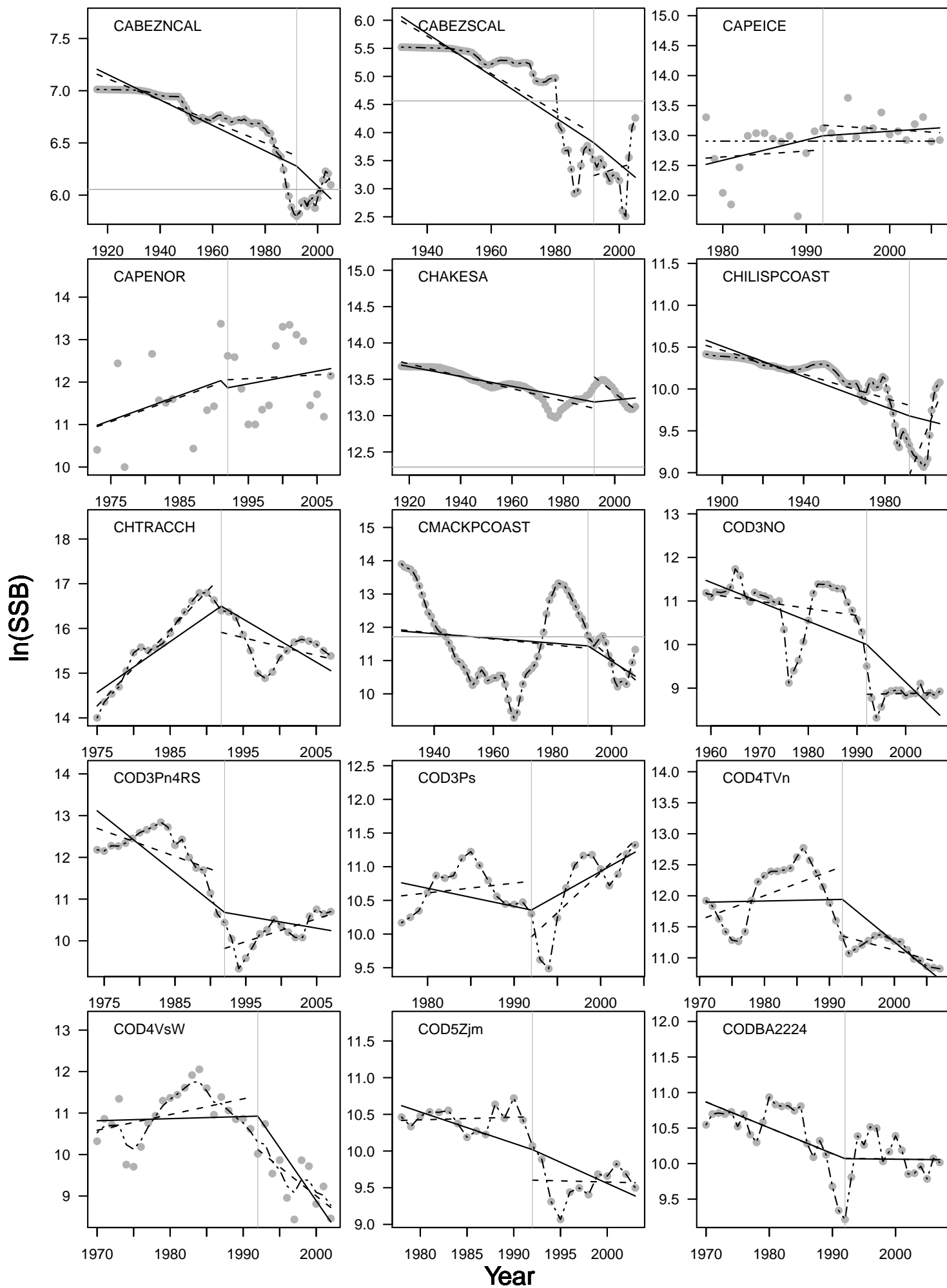
Continued on next page

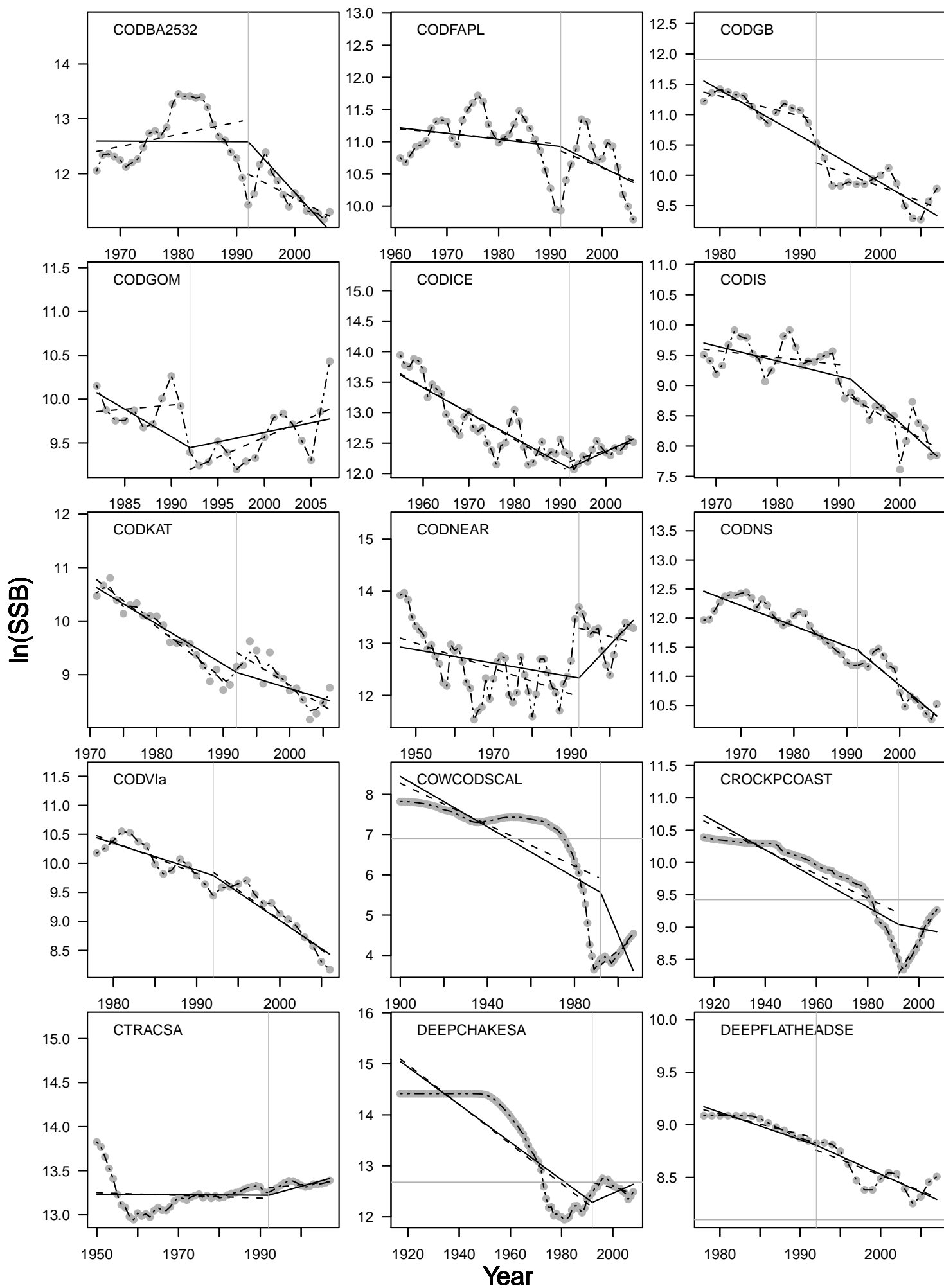
Stock ID	Area	Common name	Scientific name	Category	type	Continuous		Discontinuous		Drift		ratio 1992	ratio current
						pre-1992	post- 1992	pre-1992	post- 1992	pre-1992	post1992		

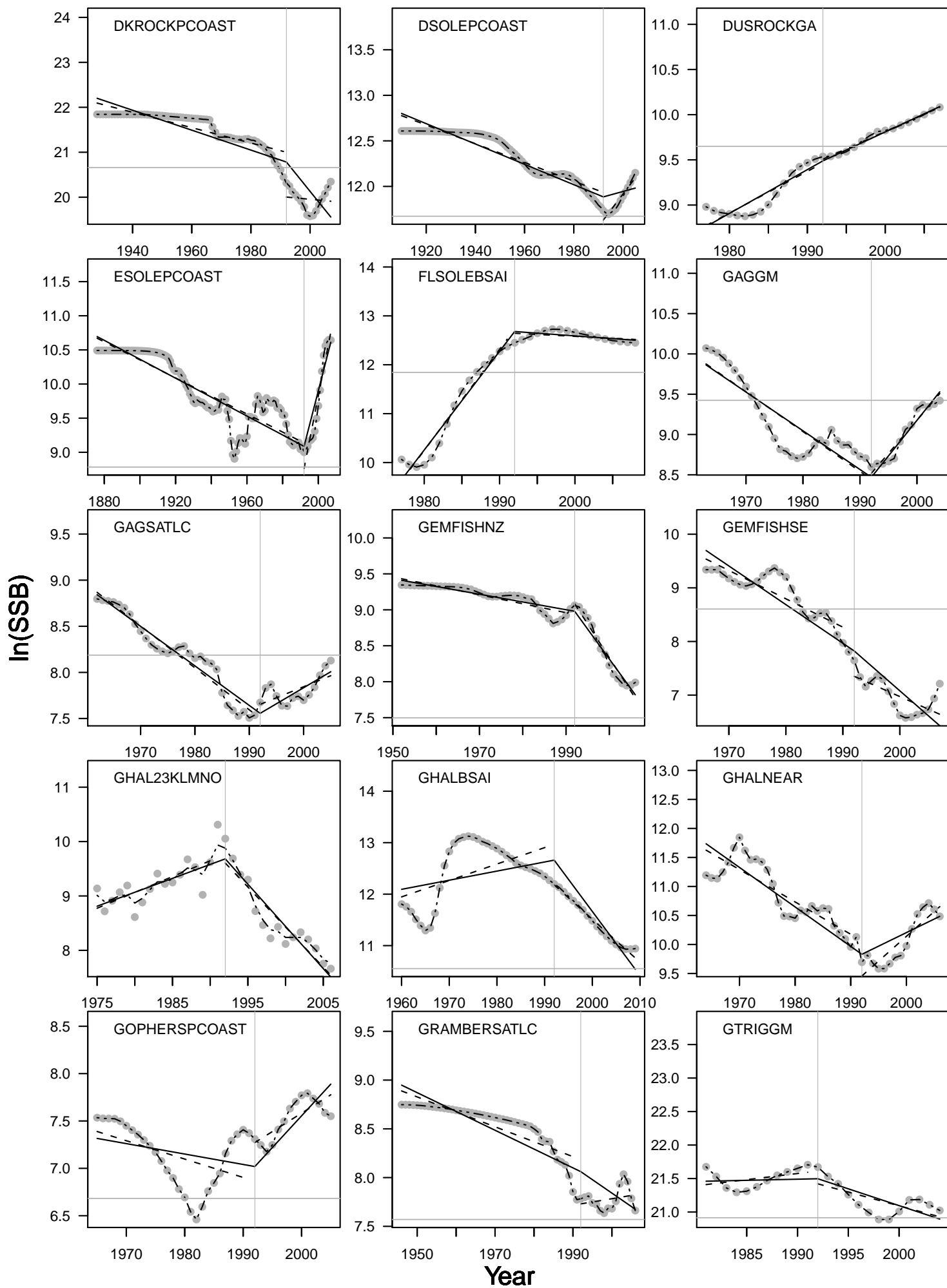
Table 1: Temporal trends in spawning stock biomass, $\ln(\text{SSB})$, for the marine fish populations analysed here. The gray circles represent the estimates obtained from stock assessment reports, the solid black line shows the model predictions for the continuous piece-wise model (reported in the manuscript), the dashed line shows the model predictions for the discontinuous piece-wise model (no continuity constraint), and the dotted-dashed line shows the predictions from a random-walk model with a drift term. The vertical dashed line is drawn at year 1992. The SSB that will yield the maximum sustainable yield is indicated by a horizontal line for those populations for which an estimate of SSBMSY was available from the assessment (Schaefer-model derived estimates of BMSY are not shown because they are based on total, rather than spawning, biomass). A description of each population’s alphanumeric identification code, and values for the different slopes, are presented in Supplementary Table S1.

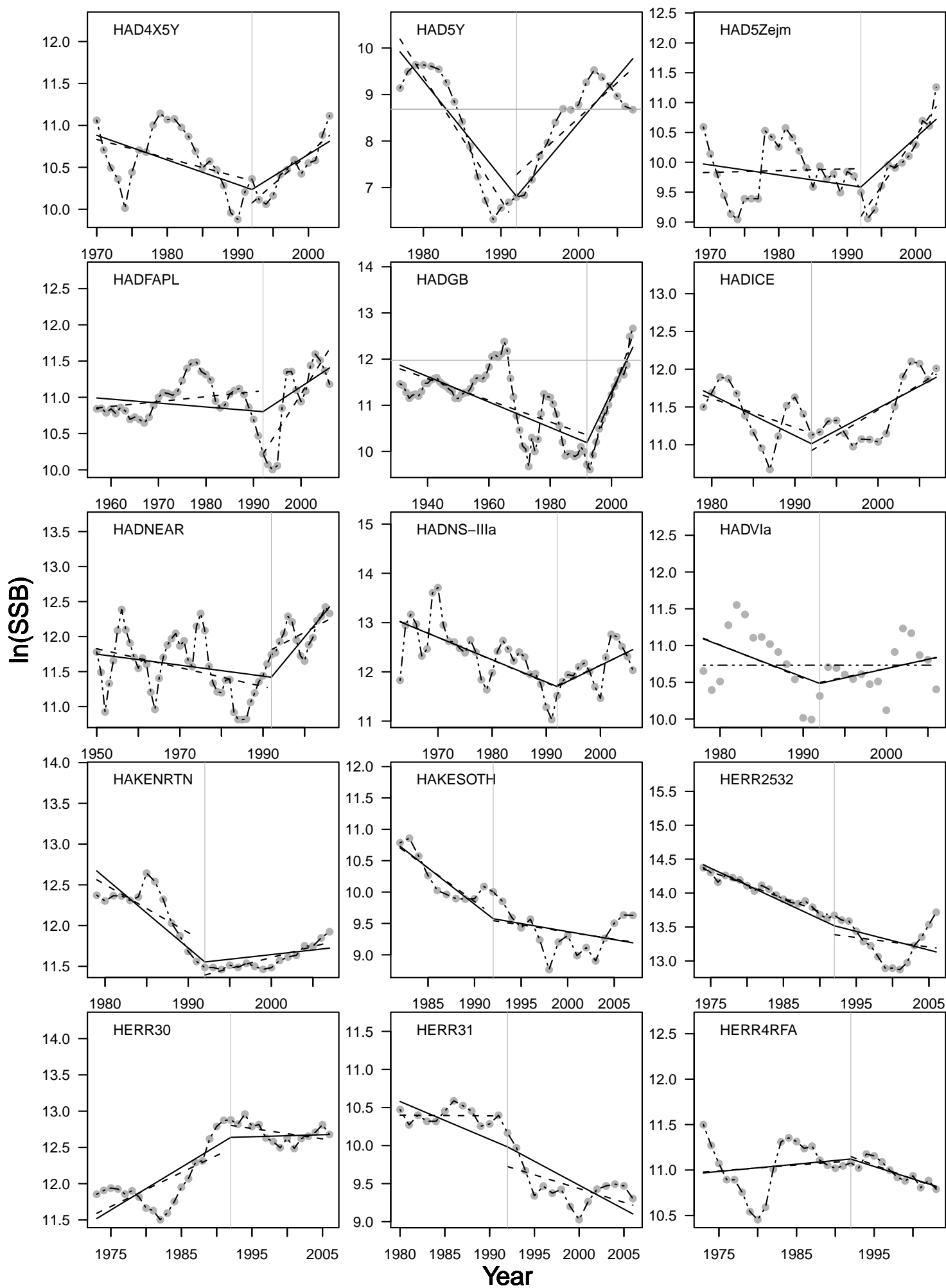


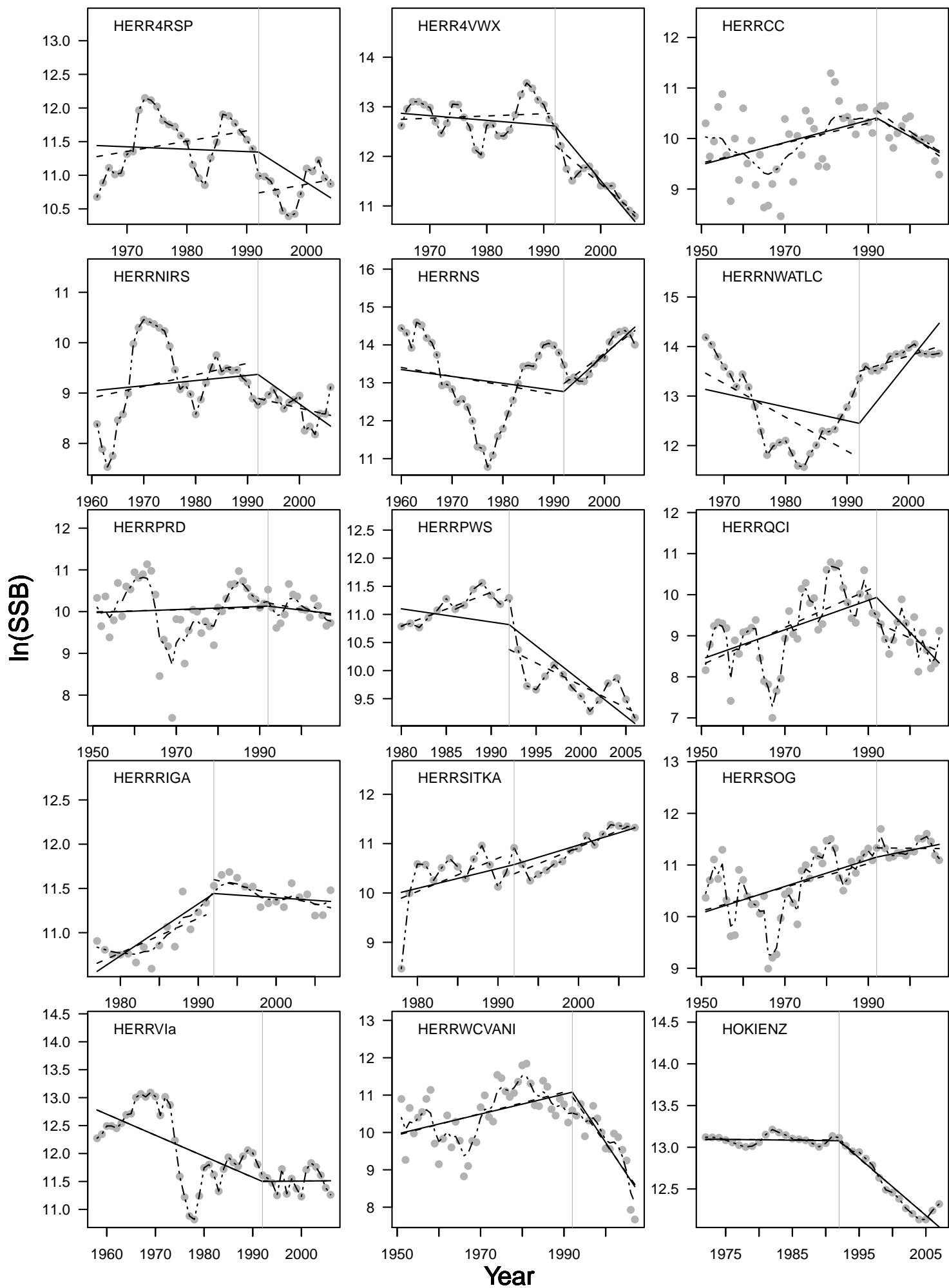


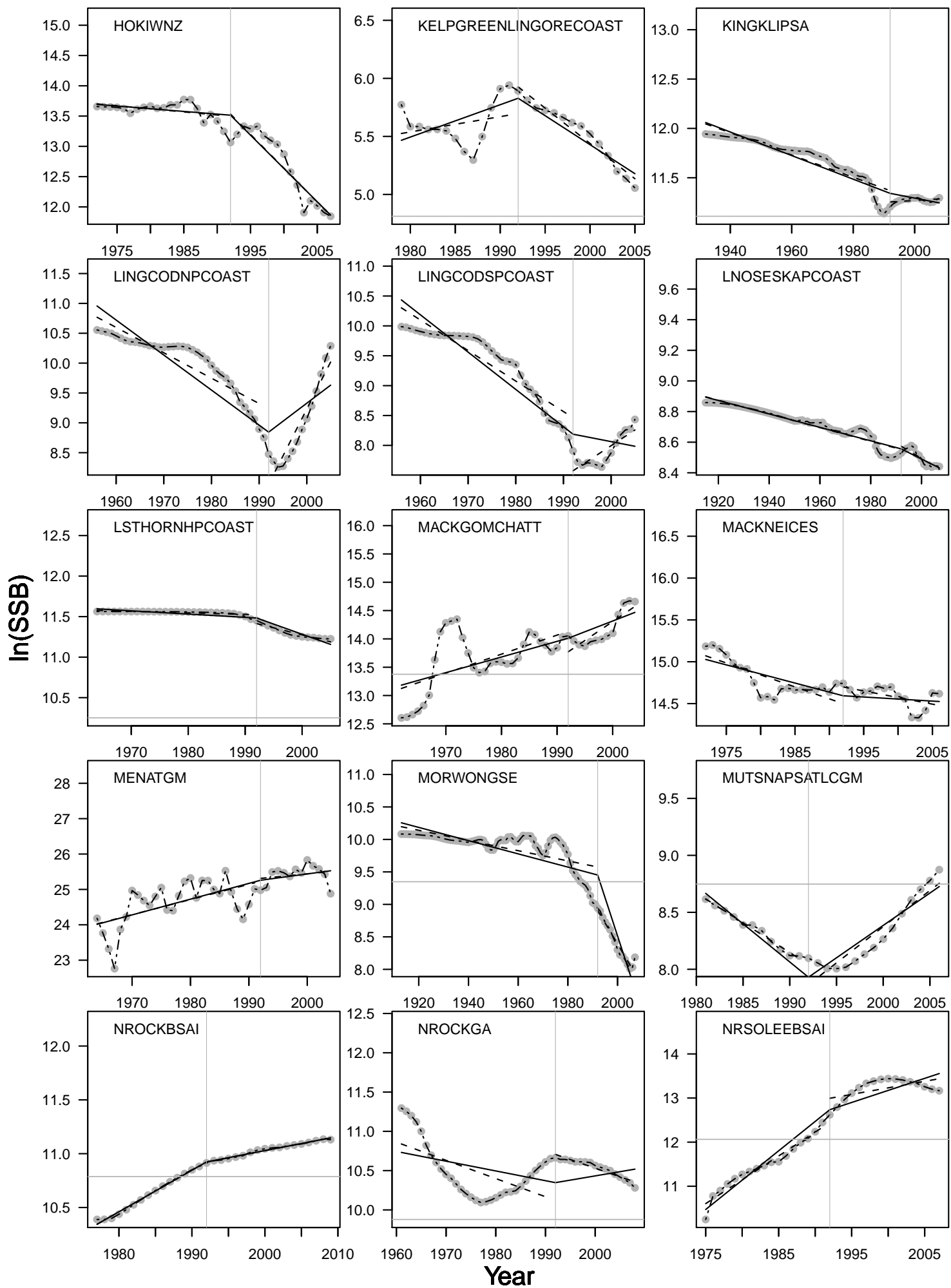


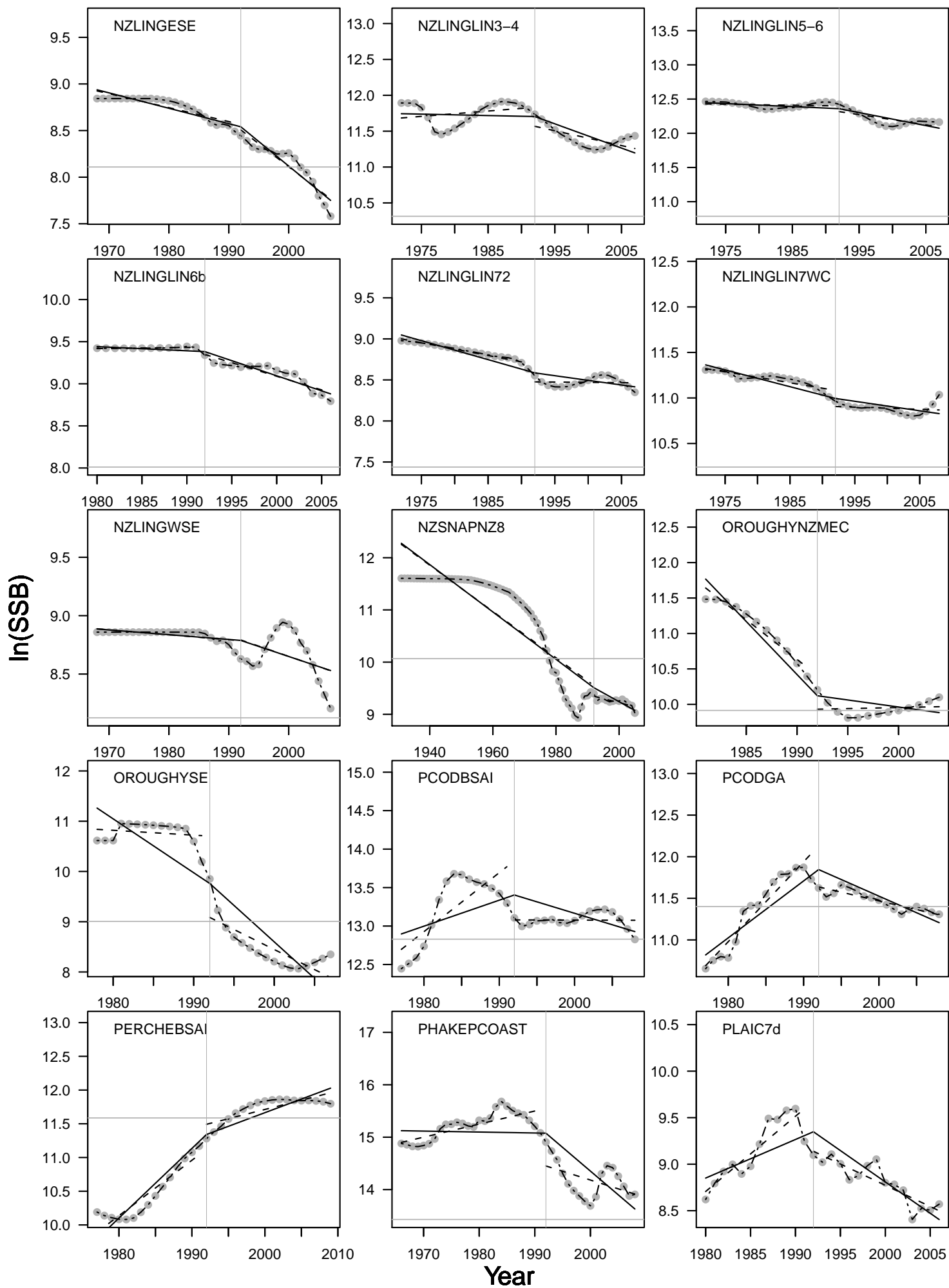


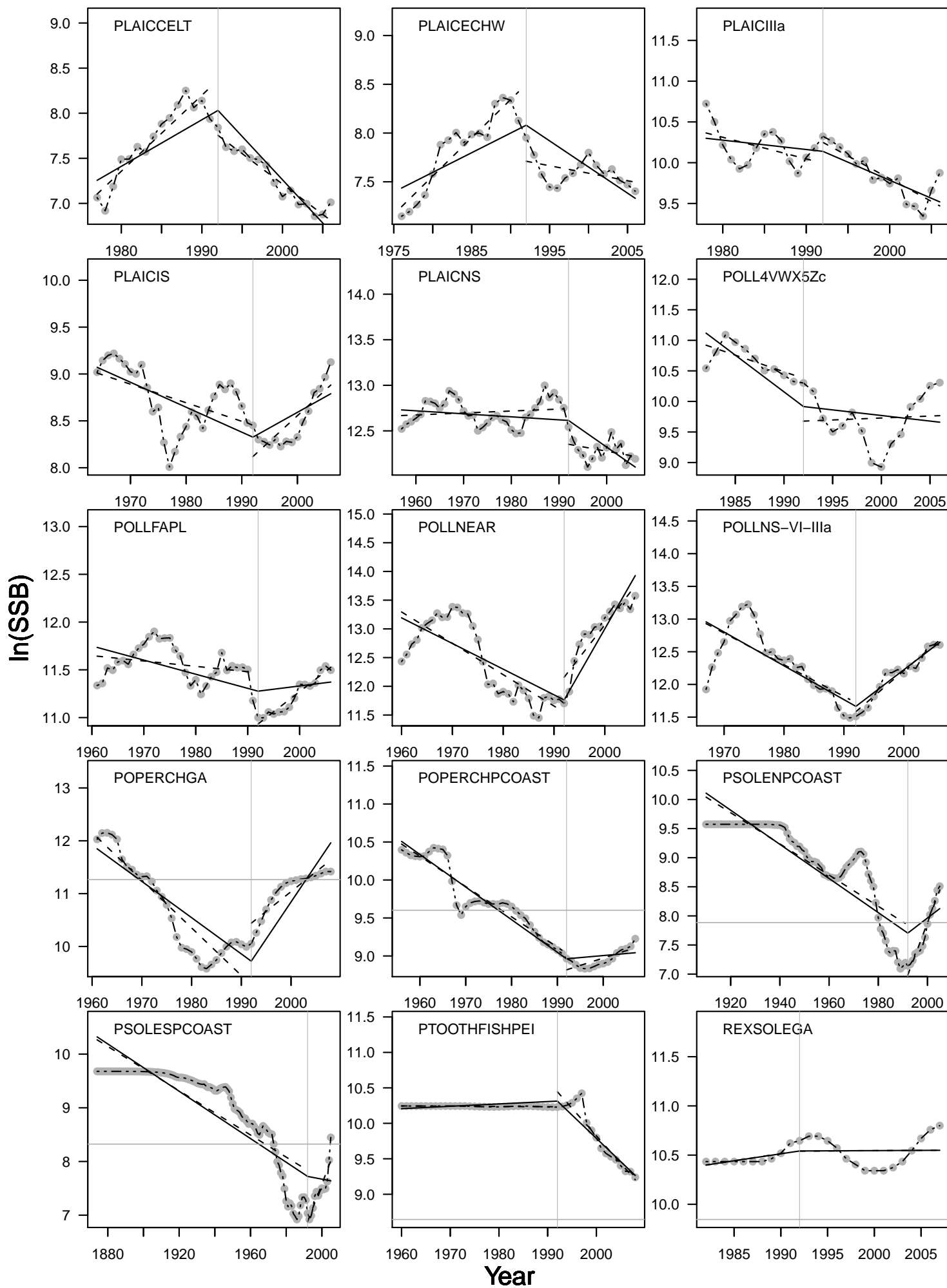


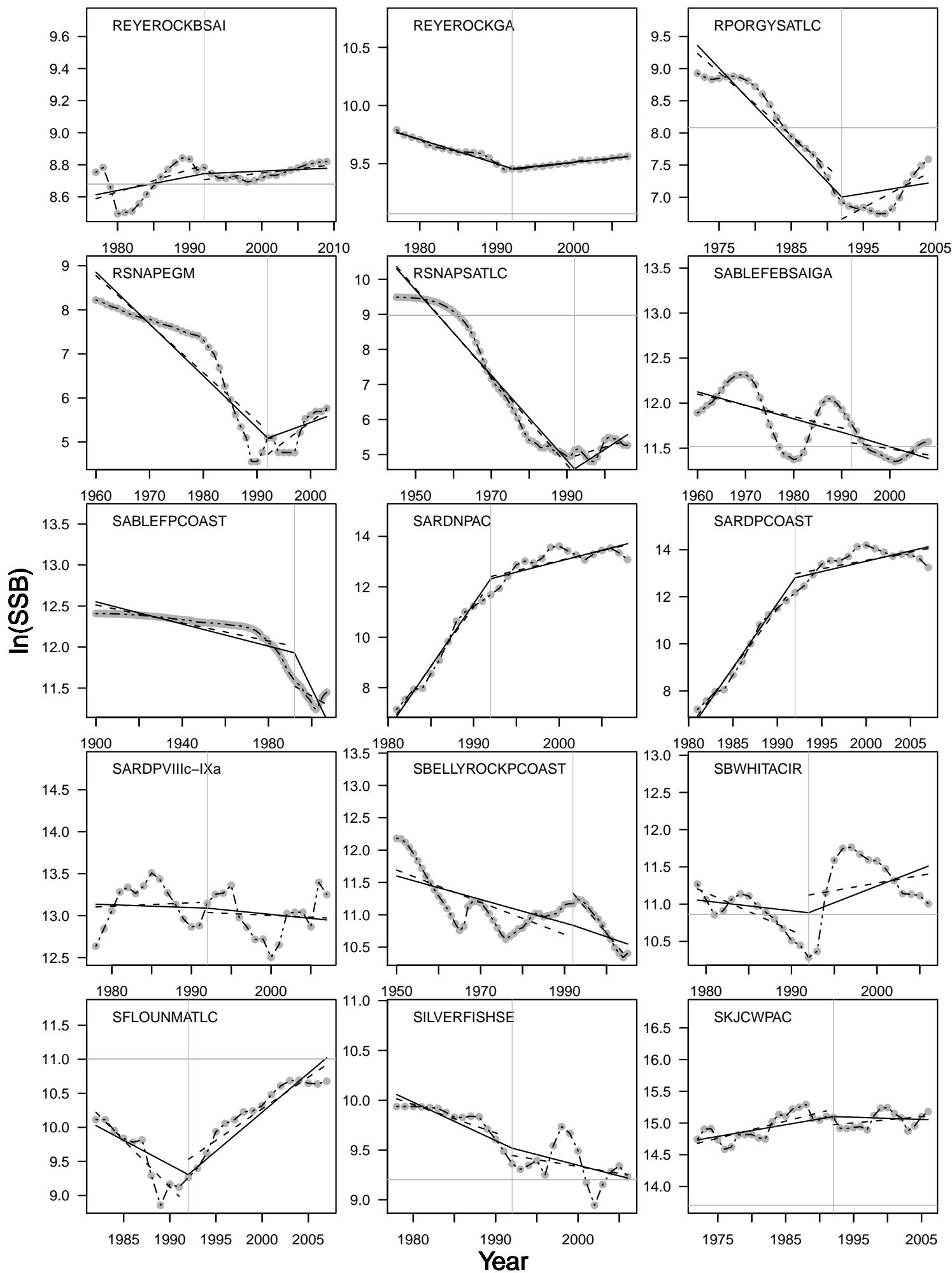


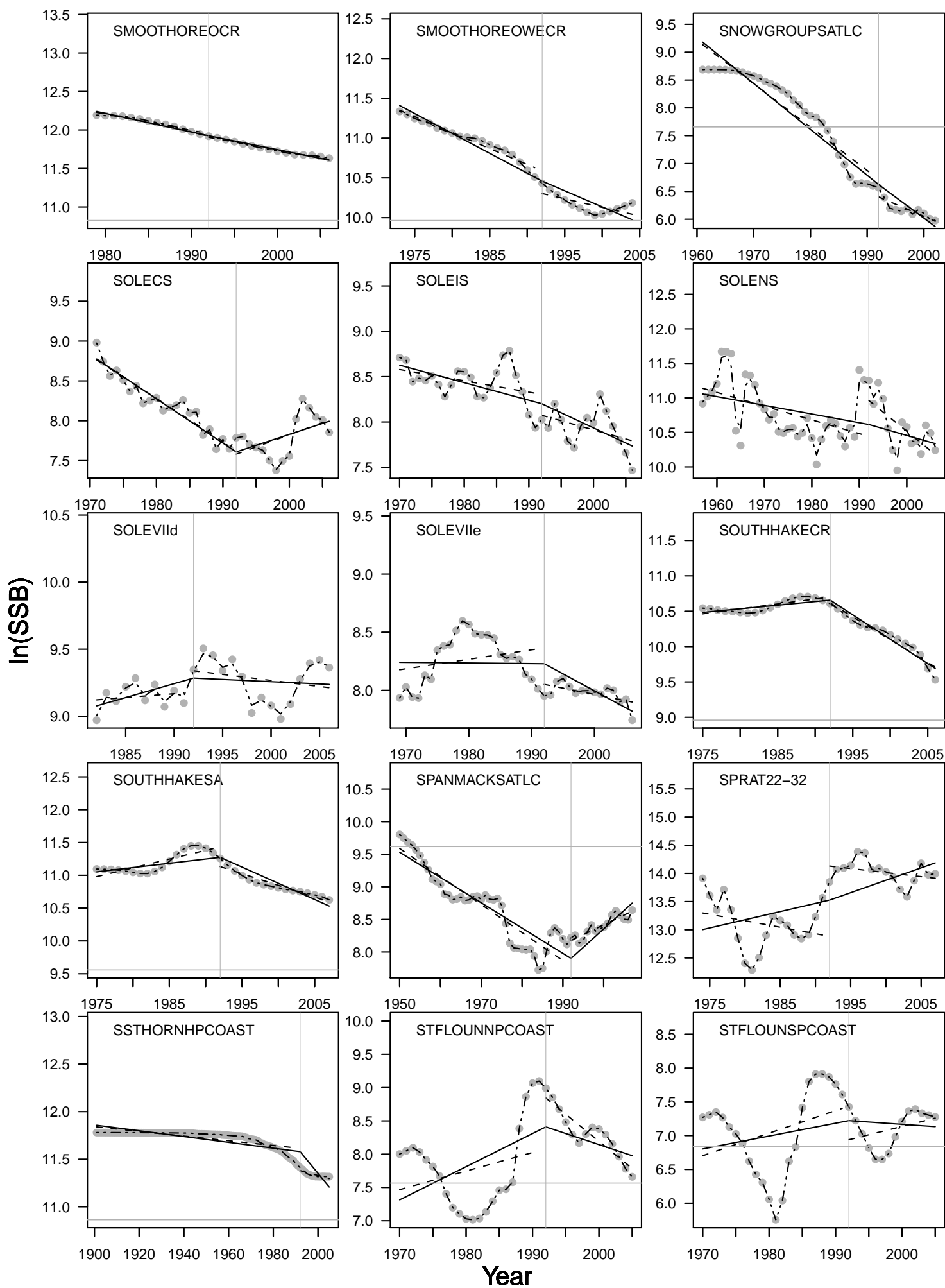


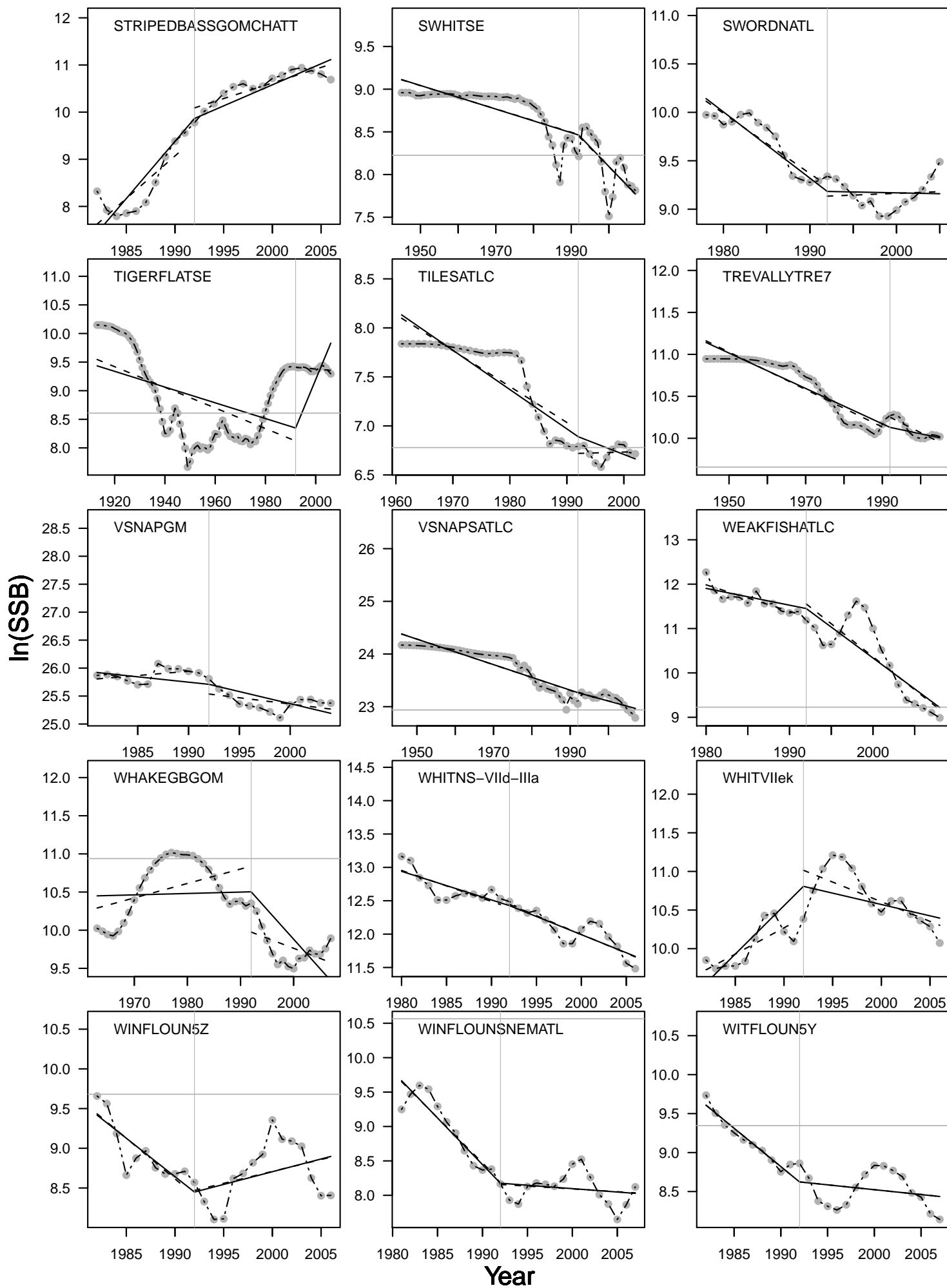


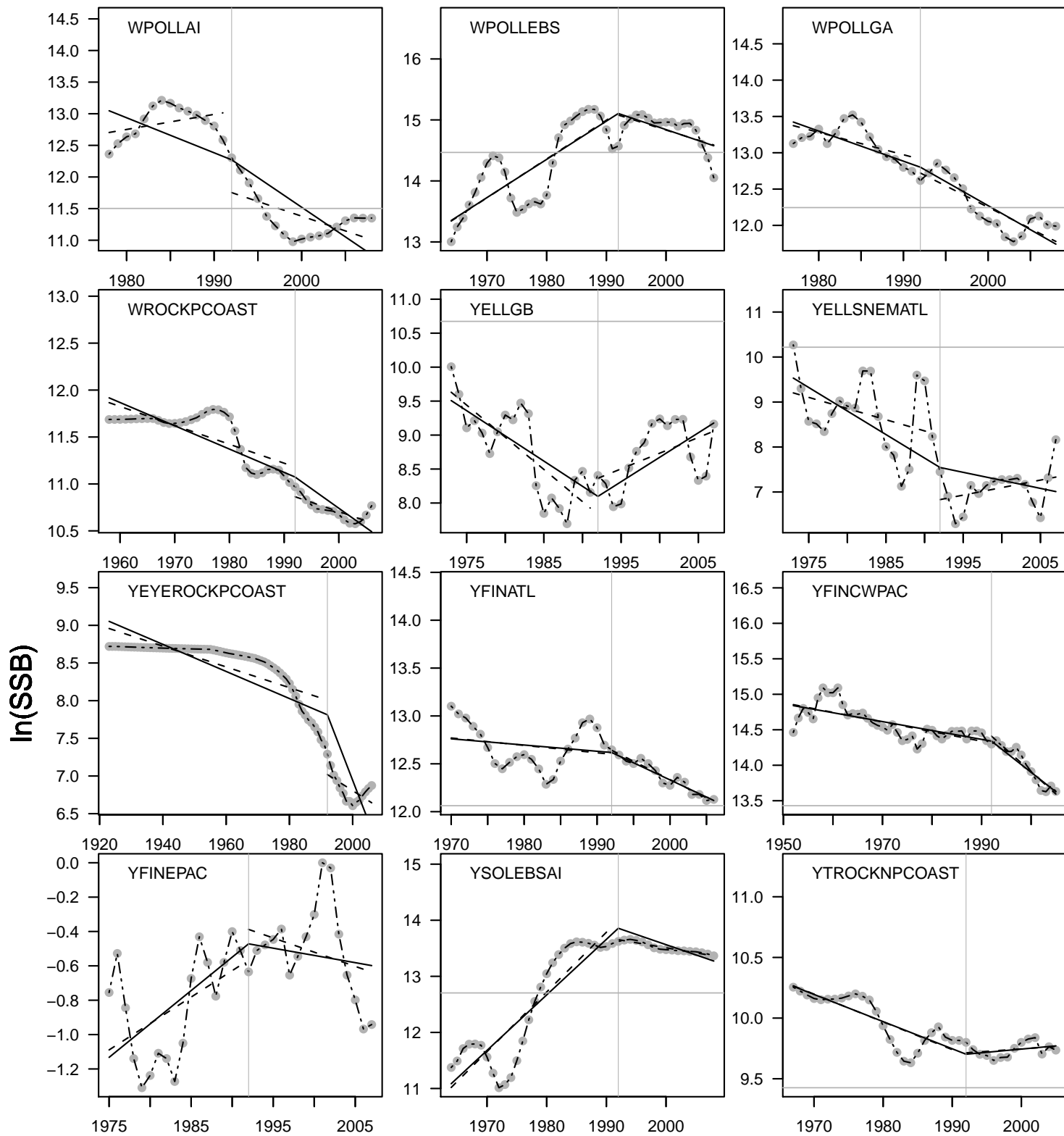












Year

Figure S1

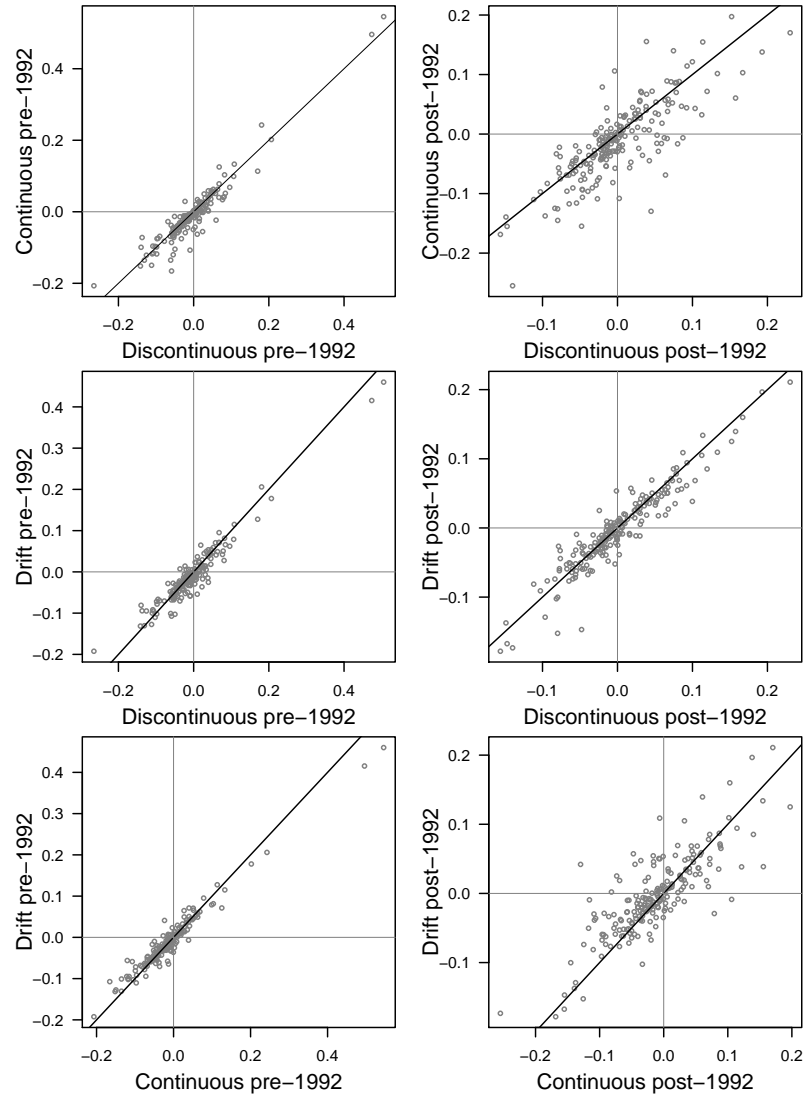


Figure S2