

Extinction Risk and Overfishing: Reconciling Conservation and Fisheries Perspectives on the Status of Marine Fishes

Supplementary Information

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Table S1. Description of the 166 assessed marine fish populations. Population ordering by stock identification code (from the RAM Legacy Database), description includes common and scientific name, management country, estimated generation time, and fishery reference point type.

Stockid	Common name	Scientific name	Management country	Generation length	Reference type
ACADREDDGOMGB	Acadian redfish Gulf of Maine / Georges Bank	<i>Schistes fasciatus</i>	USA	16.7	BMSY
ALBASPAC	Albacore tuna South Pacific Ocean	<i>Thunnus alalunga</i>	Multinational	6.4	BMSY
ALPLAICBSAI	Alaska plaice Bering Sea and Aleutian Islands	<i>Pleuronectes quadrituberculatus</i>	USA	12.7	BMSY
AMPL5YZ	American Plaice NAFO-5YZ	<i>Hippoglossoides platessoides</i>	USA	13.8	BMSY
ARFLOUNDBSAI	Arrowtooth flounder Bering Sea and Aleutian Islands	<i>Reinhardtius stomias</i>	USA	8.4	BMSY
ARFLOUNDDGA	Arrowtooth flounder Gulf of Alaska	<i>Atheresthes stomias</i>	USA	8.4	BMSY
ARFLOUNDFCOAST	Arrowtooth flounder Pacific Coast	<i>Reinhardtius stomias</i>	USA	10.1	BMSY
ARGANCHONARG	Argentine anchoita Northern Argentina	<i>Engraulis anchoita</i>	Argentina	2.5	BMSY
ARGANCHOSARG	Argentine anchoita Southern Argentina	<i>Engraulis anchoita</i>	Argentina	2.5	BMSY
ARGHAKENARG	Argentine hake Northern Argentina	<i>Merluccius hubbsi</i>	Argentina	5.5	BMSY
ARGHAKESARG	Argentine hake Southern Argentina	<i>Merluccius hubbsi</i>	Argentina	5.5	BMSY
ATBTUNAWATL	Bluefin tuna Western Atlantic	<i>Thunnus thynnus</i>	Multinational	14.0	BMSY
ATKABSAI	Atka mackerel Bering Sea and Aleutian Islands	<i>Pleuragrammus monopterygius</i>	USA	6.2	BMSY
ATLCROAKMATLC	Australian croaker Mid-Atlantic Coast	<i>Microgobius undulatus</i>	USA	1.6	BMSY
AUSSALMONNZ	Australian salmon New Zealand	<i>Arripis trutta</i>	New Zealand	9.5	BMSY
BGROCKPCOAST	Blackgill rockfish Pacific Coast	<i>Schistes melanostomus</i>	USA	37.5	BMSY
BIGEYEIO	Bigeye tuna Indian Ocean	<i>Thunnus obesus</i>	Multinational	5.6	BMSY
BIGEYEWPO	Bigeye tuna Western Pacific Ocean	<i>Thunnus obesus</i>	Multinational	5.5	BMSY
BLACKOROWECCR	Black oreo West end of Chatham Rise	<i>Allocyttus niger</i>	Multinational	53.5	BMSY
BLACKROCKNPPCOAST	Black rockfish Northern Pacific Coast	<i>Schistes melanops</i>	USA	20.2	BMSY
BLACKROCKSPCOAST	Black rockfish Southern Pacific Coast	<i>Schistes melanops</i>	USA	17.8	BMSY
BLUBROCKCAL	Blue rockfish California	<i>Schistes myxistus</i>	USA	15.5	BMSY
BSBASSMATLC	Black sea bass Mid-Atlantic Coast	<i>Centropristis striata</i>	USA	5.3	BMSY
CABEZNCAL	Cabezon Northern California	<i>Scorpaenichthys marmoratus</i>	USA	5.5	BMSY
CABEZNCAL	Cabezon Southern California	<i>Scorpaenichthys marmoratus</i>	USA	5.5	BMSY
CHAKESA	Shallow-water cape hake South Africa	<i>Merluccius capensis</i>	South Africa	4.0	BMSY
CMACKPCOAST	Pacific chub mackerel Pacific Coast	<i>Scomber japonicus</i>	USA	6.7	BMSY
CODBA2224	Atlantic cod Baltic Areas 22 and 24	<i>Gadus morhua</i>	Multinational	8.4	Bpa
CODCOASTNOR	Atlantic cod coastal Norway	<i>Gadus morhua</i>	Multinational	10.0	Bpa
CODFAPL	Atlantic cod Faroe Plateau	<i>Gadus morhua</i>	Multinational	8.5	Bpa
CODGB	Atlantic cod Georges Bank	<i>Gadus morhua</i>	Multinational	7.8	BMSY
CODICE	Atlantic cod Iceland	<i>Gadus morhua</i>	Multinational	11.1	Bpa
CODIS	Atlantic cod Irish Sea	<i>Gadus morhua</i>	Multinational	7.7	Bpa
CODKAT	Atlantic cod Kattegat	<i>Gadus morhua</i>	Multinational	7.7	Bpa
CODNEAR	Atlantic cod Northeast Arctic	<i>Gadus morhua</i>	Multinational	11.1	Bpa
CODNS	Atlantic cod North Sea	<i>Gadus morhua</i>	Multinational	9.0	Bpa
CODVla	Atlantic cod West of Scotland	<i>Gadus morhua</i>	Multinational	7.7	Bpa
COWCODSCAL	Cowcod Southern California	<i>Schistes levis</i>	USA	22.0	BMSY
CROCKPCOAST	Canary rockfish Pacific Coast	<i>Schistes levis</i>	USA	30.7	BMSY
DEEPCOAST	Deep-water cape hake South Africa	<i>Merluccius paradoxus</i>	South Africa	3.5	BMSY
DEEPLATHADPSE	Deep-water flathead Southeast Australia	<i>Platycephalus conatus</i>	Australia	11.3	BMSY
DEEPLATHAKESA	Deep-water flathead Southeast Australia	<i>Platycephalus conatus</i>	Australia	16.3	BMSY
DSOLEPCOAST	Dover sole Pacific Coast	<i>Microstomus pacificus</i>	USA	27.5	BMSY
DUSROCKGA	Dusky rockfish Gulf of Alaska	<i>Schistes variabilis</i>	USA	12.5	BMSY
ESOLEPCOAST	English sole Pacific Coast	<i>Parophrys vetulus</i>	USA	10.0	BMSY
FLSOLEBSAI	Flathead sole Bering Sea and Aleutian Islands	<i>Hippoglossoides elassodon</i>	USA	11.8	BMSY
FLSOLEGA	Flathead sole Gulf of Alaska	<i>Hippoglossoides elassodon</i>	USA	11.8	BMSY
GAGGM	Gag Gulf of Mexico	<i>Myceteropercia microlepis</i>	USA	10.5	BMSY
GAGSATLC	Gag Southern Atlantic coast	<i>Myceteropercia microlepis</i>	USA	10.1	BMSY
GEMFISHNZ	common gemfish New Zealand	<i>Reaca solandri</i>	New Zealand	10.0	BMSY
GEMFISHSE	common gemfish Southeast Australia	<i>Reaca solandri</i>	Australia	6.3	BMSY
GHALEBSAI	Greenland turbot Bering Sea and Aleutian Islands	<i>Reinhardtius hippoglossoides</i>	USA	13.1	BMSY
GOPHERSPCOAST	Gopher rockfish Southern Pacific Coast	<i>Schistes carnatius</i>	USA	10.1	BMSY
GRAMBERSATLC	Greater amberjack Southern Atlantic coast	<i>Seriola dumerili</i>	USA	5.2	BMSY
HAD5Y	Haddock NAFO-5Y	<i>Melanogrammus aeglefinus</i>	USA	6.8	BMSY
HADFAPL	Haddock Faroe Plateau	<i>Melanogrammus aeglefinus</i>	USA	7.3	Bpa
HADGB	Haddock Georges Bank	<i>Melanogrammus aeglefinus</i>	Multinational	7.3	Bpa
HADICE	Haddock Iceland	<i>Melanogrammus aeglefinus</i>	USA	6.5	BMSY
HADNEAR	Haddock Northeast Arctic	<i>Melanogrammus aeglefinus</i>	Multinational	8.0	Bpa
HADNS-IIIa	Haddock ICES IIIa and North Sea	<i>Melanogrammus aeglefinus</i>	Multinational	9.5	Bpa
HADVla	Haddock West of Scotland	<i>Melanogrammus aeglefinus</i>	Multinational	6.9	Bpa
HERR30	Herring ICES 30	<i>Clupea harengus</i>	Multinational	6.5	Bpa
HERRISM	Herring Iceland (Summer spawners)	<i>Clupea harengus</i>	Multinational	7.2	Bpa
HERRNRS	Herring Northern Irish Sea	<i>Clupea harengus</i>	Multinational	8.0	Bpa
HERRNS	Herring North Sea	<i>Clupea harengus</i>	Multinational	6.7	Bpa
HERRNWATLC	Atlantic herring Northwestern Atlantic Coast	<i>Clupea harengus</i>	Multinational	7.0	Bpa
HERVla	Herring ICES Vla	<i>Clupea harengus</i>	USA	7.7	BMSY
HERVlaVIIb	Herring ICES Vla-VIIb-VIIc	<i>Clupea harengus</i>	Multinational	6.9	Bpa
KELPGRNINLINGORECOAST	Kelp gremling Oregon Coast	<i>Hexagrammos decagrammus</i>	Multinational	6.3	BMSY
KINGKLIPIA	Kingklip South Africa	<i>Gerygaster capensis</i>	South Africa	11.3	BMSY

Table S2. Threat status and alignment for the 166 assessed marine fish populations. Population ordering by stock identification code. Included are the estimated percent decline (numbers in parentheses indicate an increase in population biomass), estimated Red List threat status, biomass relative to reference point at end of decline, alignment between threat status and the upper and lower fisheries reference points, and final year of the population decline. IUCN threatened categories are Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and not threatened. Refer to Table S1 for further population descriptions.

Stockid	Percent decline	Estimated IUCN threat category	Biomass relative to upper reference point	Alignment relative to upper reference point	Alignment relative to lower reference point	Final Year
ACADREDDGOMGB	(59.9)	not threatened	0.7	miss	-ve hit	2007
ALBASPAC	42.6	not threatened	2.7	-ve hit	-ve hit	2006
ALPLAICBSAI	(38.5)	not threatened	2.2	-ve hit	-ve hit	2008
AMPL5YZ	59.1	VU	0.6	+ve hit	false	2007
ARFLOUNDBSAI	(274.4)	not threatened	2.5	-ve hit	-ve hit	2008
ARFLOUNDGA	(104.9)	not threatened	3.0	-ve hit	-ve hit	2010
ARFLOUNDPCOAST	(56.6)	not threatened	3.6	-ve hit	-ve hit	2007
ARGANCHONARG	24	not threatened	1.8	-ve hit	-ve hit	2007
ARGANCHOSARG	16.4	not threatened	2.6	-ve hit	-ve hit	2007
ARGHAKENARG	66.6	VU	0.2	+ve hit	+ve hit	2007
ARGHAKESARG	25.8	not threatened	0.4	miss	miss	2008
ATBTUNAWATL	81.3	EN	0.6	+ve hit	false	2007
ATKABSAI	8.2	not threatened	1.7	-ve hit	-ve hit	2009
ATLCHROAKMATLC	(5.7)	not threatened	1.5	-ve hit	-ve hit	2002
AUSSALMONNZ	50.3	VU	1.7	false	false	2006
BGROCKPCOAST	47.6	not threatened	1.3	-ve hit	-ve hit	2005
BIGEYEIO	54	VU	1.3	false	false	2004
BIGEYEWPO	35.9	not threatened	1.2	-ve hit	-ve hit	2006
BLACKOREOWEGR	69	VU	1.0	+ve hit	false	2007
BLACKROCKNPFCOAST	47.1	not threatened	1.7	-ve hit	-ve hit	2006
BLACKROCKSPFCOAST	26.5	not threatened	2.1	-ve hit	-ve hit	2007
BLUEROCKCAL	(65.2)	VU	0.7	+ve hit	false	2007
BSBASSMATLC	(32)	not threatened	0.9	miss	-ve hit	2007
CABEZNCAL	(35.5)	not threatened	1.1	-ve hit	-ve hit	2005
CHAKESA	30	not threatened	2.2	-ve hit	-ve hit	2008
CMACKPCOAST	75.9	EN	0.5	+ve hit	+ve hit	2008
CODBA2224	2.3	not threatened	1.2	-ve hit	hit-n	2011
CODCOASTNOR	46.3	not threatened	1.5	miss	miss	2010
CODFAPL	56.9	VU	0.8	+ve hit	+ve hit	2007
CODGB	76	EN	0.1	+ve hit	+ve hit	2011
CODICE	(4.7)	not threatened	1.7	-ve hit	hit-n	2011
CODIS	80	CR	0.1	+ve hit	hit-p	2010
CODKAT	90.5	EN	0.2	+ve hit	hit-p	2010
CODNEAR	(287.6)	not threatened	2.1	-ve hit	hit-n	2010
CODNS	58.3	VU	0.4	+ve hit	hit-p	2011
CODVla	94.4	CR	0.3	+ve hit	hit-p	2011
COWCODSCAL	77.2	EN	0.6	+ve hit	+ve hit	2007
CROCKPCOAST	23	not threatened	0.8	miss	-ve hit	2008
DEEPCHAKESA	48.2	not threatened	1.4	-ve hit	-ve hit	2007
DEEPLATHEADSE	20.9	not threatened	1.5	-ve hit	-ve hit	2005
DSOLEPCOAST	(200.1)	not threatened	1.5	-ve hit	-ve hit	2007
DUSROCKGA	(170.1)	not threatened	6.4	-ve hit	-ve hit	2007
ESOLEPCOAST	(1097.6)	not threatened	1.9	-ve hit	-ve hit	2008
FSOLEBSAI	(61.5)	not threatened	2.6	-ve hit	-ve hit	2010
FSOLEGA	(16.3)	not threatened	1.0	miss	-ve hit	2004
GAGGM	16.5	not threatened	0.9	miss	-ve hit	2005
GAGSATLC	70.9	EN	1.6	false	-ve hit	2006
GEMFISHNZ	69.7	VU	0.2	+ve hit	+ve hit	2007
GEMFISHSE	86.9	EN	1.5	false	false	2009
GHALBSAI	(69.8)	not threatened	2.5	-ve hit	-ve hit	2005
GOPHERSPCOAST	(0.6)	not threatened	1.3	-ve hit	-ve hit	2006
GRAMBERSATLC	(308.7)	not threatened	1.1	-ve hit	-ve hit	2007
HAD5Y	46.6	not threatened	0.7	miss	hit-n	2011
HADFAPL	(1085.4)	not threatened	1.5	-ve hit	-ve hit	2007
HADGB	(66.6)	not threatened	1.6	-ve hit	hit-n	2011
HADICE	(311.7)	not threatened	3.4	-ve hit	hit-n	2010
HADNEAR	(147.1)	not threatened	1.5	-ve hit	hit-n	2011
HADNS-IIIa	21.1	not threatened	0.8	miss	hit-n	2011
HADVla	(49.3)	not threatened	1.2	-ve hit	hit-n	2011
HERR30	3.9	not threatened	1.3	-ve hit	hit-n	2011
HERRISum	(11.2)	not threatened	1.1	-ve hit	hit-n	2010
HERRNIRS	(55.1)	not threatened	1.1	-ve hit	hit-n	2011
HERRNS	(782.9)	not threatened	1.6	-ve hit	-ve hit	2005
HERRNWTLC	45.9	not threatened	0.9	miss	hit-n	2010
HERRVla	87.7	EN	0.2	+ve hit	hit-p	2010
HERRVlaIbC						

KELP	22.8	not threatened	1.4	-ve hit	2005
GREENLING	27.7	not threatened	1.2	-ve hit	2007
INGORE	24.7	not threatened	1.8	-ve hit	2008
COAST	28.5	not threatened	2.7	-ve hit	2005
LSTHORNHP	(82.4)	not threatened	3.6	-ve hit	2004
COAST	86.1	EN	0.3	+ve hit	2007
MORWONGSE	(25)	not threatened	1.0	-ve hit	2006
MUTSNAPSATL	(56)	not threatened	1.3	hit-n	2011
LCGM	(108.8)	not threatened	1.4	-ve hit	2009
NPOUTNS	59.9	VU	1.6	false	2008
NROCKBSAI	(1154)	not threatened	3.1	-ve hit	2007
NRSOLEBSAI	67.8	VU	0.7	false	2007
NZLINGESE	38.1	not threatened	3.0	-ve hit	2007
NZLINGLIn3-4	25.6	not threatened	4.0	-ve hit	2007
NZLINGLIn5-6	43.6	not threatened	2.3	-ve hit	2006
NZLINGLIn6b	42.8	not threatened	2.6	-ve hit	2007
NZLINGLIn72	30.6	not threatened	2.0	-ve hit	2008
NZLINGLIn7WC	41.3	not threatened	1.2	-ve hit	2007
NZLINGWSE	82	EN	0.4	+ve hit	2005
NZSNAPNZ8	75.9	EN	1.1	false	2004
OROUGHYNZMEC	90.4	CR	0.5	+ve hit	2007
OROUGHYSE	10.5	not threatened	1.7	-ve hit	2006
PATRENADIERSARG	49.3	not threatened	1.1	-ve hit	2008
PCODBSAI	29.1	not threatened	0.9	miss	2008
PCODGA	(434.1)	not threatened	1.3	-ve hit	2009
PERCHEBSAI	67.4	VU	1.7	false	2008
PHAKEPCOAST	32.5	not threatened	0.8	hit-n	2010
PLAICECHW	(14.7)	not threatened	1.9	hit-n	2011
POLLFAPL	(113.9)	not threatened	1.8	hit-n	2011
POLLNEAR	(6.2)	not threatened	1.2	hit-n	2010
POLLNS-VI-IIIa	(332.7)	not threatened	1.4	-ve hit	2010
POPERCHGA	70.2	EN	0.6	false	2007
POPERCHPCOAST	29.4	not threatened	1.7	-ve hit	2005
PSOLENPCOAST	(19.5)	not threatened	0.8	miss	2005
PSOLESPCOAST	46.6	not threatened	2.3	-ve hit	2010
PTOOTHFISHMI	61.3	VU	1.9	false	2008
PTOOTHFISHPEI	(36.3)	not threatened	2.5	-ve hit	2007
REXSOLEGA	(8.4)	not threatened	1.1	-ve hit	2009
REYEROCKBSAI	18	not threatened	1.6	-ve hit	2007
REYEROCKGA	23.8	CR	0.5	-ve hit	2004
RPNAPYATLC	91.4	CR	0.2	+ve hit	2003
RSNAPATLC	97.5	VU	0.0	+ve hit	2006
RSNAPWGM	57.2	VU	0.3	+ve hit	2003
SABLEFBSAIGA	31.4	not threatened	1.0	-ve hit	2004
SABLEFFPCAN	44.3	not threatened	0.5	-ve hit	2004
SBT	94.2	CR	0.2	+ve hit	2009
SBWHITACR	(4.4)	not threatened	1.3	-ve hit	2006
SFLOUNMATLC	(58.2)	not threatened	0.7	miss	2007
SILVERFISHSE	46.3	not threatened	1.1	-ve hit	2006
SKJCWPAC	(9.7)	not threatened	4.0	-ve hit	2006
SMOOTHOREOCR	41.4	VU	2.3	-ve hit	2006
SMOOTHOREOWECR	68.2	not threatened	1.2	false	2004
SNOWGROUPTSATLC	90.5	CR	0.2	+ve hit	2002
SOLECS	(28.4)	not threatened	1.8	hit-n	2011
SOLEIS	81.9	EN	0.4	hit-p	2011
SOLEVIII	18.4	not threatened	0.9	hit-n	2011
SOUTHHAKECR	55.9	VU	2.1	miss	2006
SOUTHAKESA	34.7	not threatened	3.0	-ve hit	2007
SPANMACKSATLC	(20.2)	not threatened	0.3	miss	2007
STHORNHPCOAST	37.1	not threatened	1.6	-ve hit	2005
STFLOUNPCOAST	(118.9)	not threatened	1.3	-ve hit	2005
STFLOUNSFCOAST	(283.3)	not threatened	1.6	-ve hit	2005
STMARLINSWPO	25.8	not threatened	0.6	miss	2003
SWHITESE	41	not threatened	0.7	miss	2007
TIGERFLATSE	(132.5)	not threatened	2.1	-ve hit	2006
TILESATLC	66.2	VU	1.0	+ve hit	2002
TREVALTYTRE7	58.8	VU	1.5	false	2005
WAREHOUSE	93.5	CR	0.5	+ve hit	2006
WAREHOUSE	74.2	EN	0.5	+ve hit	2006
WEAKFISHATLC	75.9	EN	0.2	+ve hit	2008
WHAKEGBGOM	59.5	VU	0.3	+ve hit	2007
WHITNS-VIId-IIIa	35.9	not threatened	0.6	miss	2010
WHITVHeK	35.5	not threatened	1.5	hit-n	2010
WINFLOUN5Z	6.2	not threatened	0.3	miss	2006
WINFLOUNSNEMATL	33.8	not threatened	0.1	miss	2007

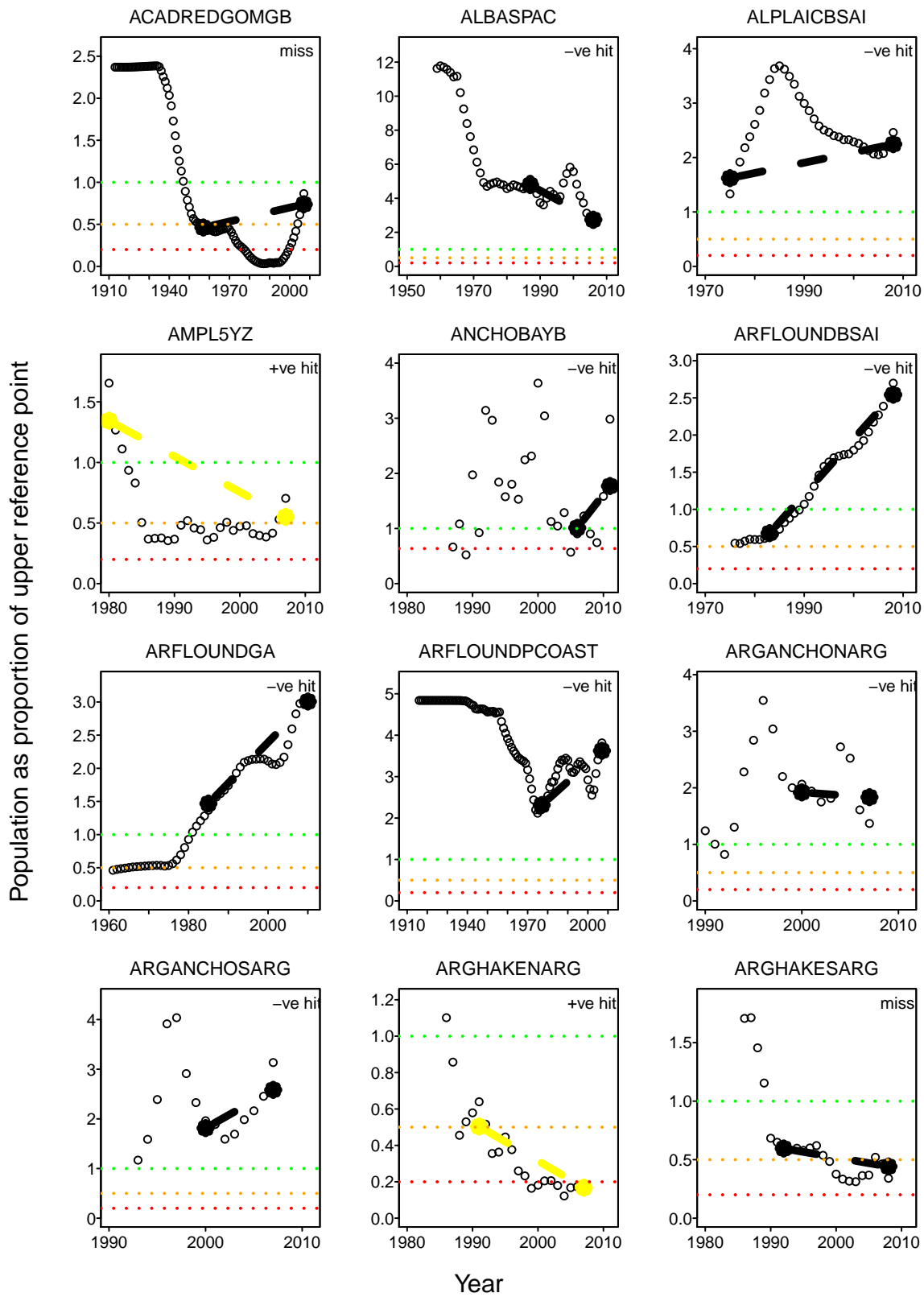
Table S3. The proportion (%) of populations meeting each of four possible alignment outcomes (positive hit, negative hit, miss or false alarm) under four different scenarios using IUCN Criterion A4. The A4 criterion a population as being threatened if a 30% decline is observed over the longer of 10 years or three generations. A) Current estimated Red List status or B) Estimated Red List status following the population’s greatest decline, each compared to upper (more conservative; B_{msy} or B_{pa}) or lower (riskier; $0.5B_{msy}$ or B_{lim}) reference points.

	Ref. point	Hit(+ve)	Hit (-ve)	Miss	False Alarm	# of populations
A) Current Status	Upper	28.3	39.2	12.0	20.5	166
	Lower	17.5	47.6	3.6	31.3	166
B) Greatest Decline	Upper	51.8	16.9	1.8	29.5	166
	Lower	33.7	18.1	0.6	47.6	166

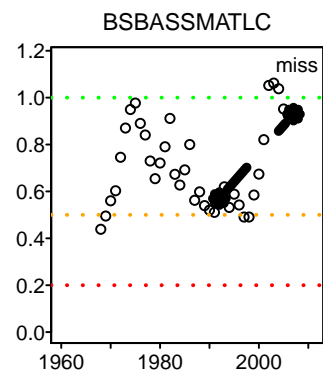
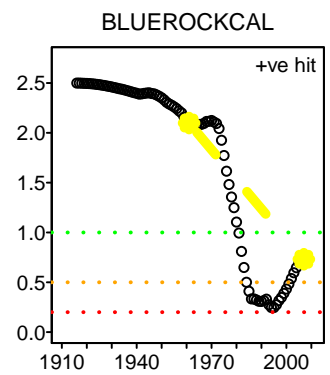
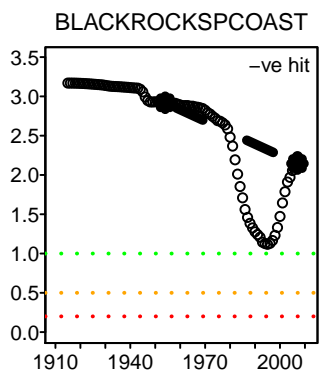
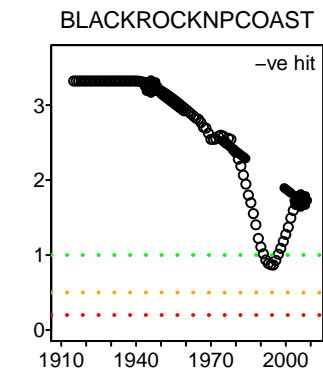
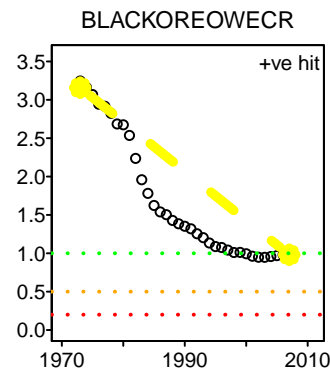
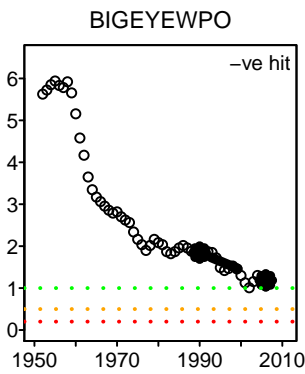
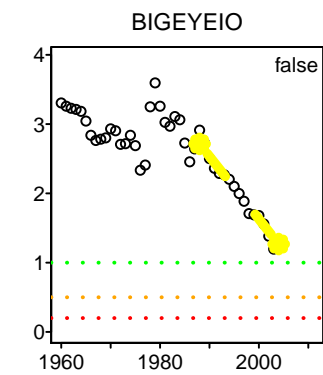
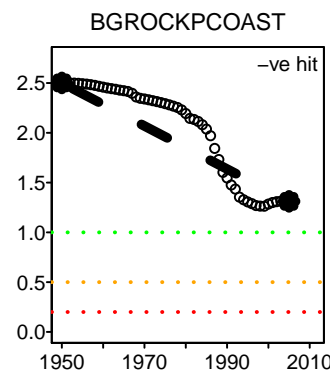
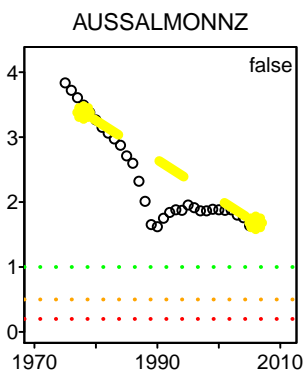
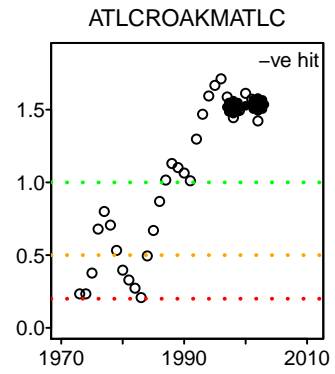
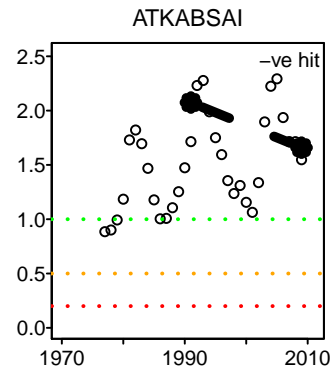
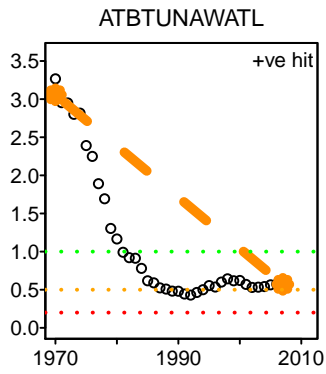
Table S4. Alignment of populations over a 15 year decline period. The proportion (%) of populations meeting each of four possible outcomes (positive hit, negative hit, miss or false alarm) over a decline period of 15 years for all populations when A) their current estimated Red List status or B) their estimated Red List status following their greatest decline is compared to either their upper (more conservative; B_{msy} or B_{pa}) or lower (riskier; $0.5B_{msy}$ or B_{lim}) reference points.

	Ref. point	Hit(+ve)	Hit (-ve)	Miss	False Alarm	# of populations
A) Current Status	Upper	10.8	54.8	29.5	4.8	166
	Lower	9.4	71.7	12.7	7.2	166
B) Greatest Decline	Upper	46.4	29.5	9.0	15.1	166
	Lower	30.1	35.5	3.0	31.3	166

Figure S1. Time series of adult biomass for the 166 assessed marine fish populations. Population codes and associated descriptions are listed in Tables S1 and S2. Colored dotted lines correspond to fisheries reference points: B_{msy} or B_{pa} (green), $0.5B_{\text{msy}}$ (yellow), $0.2B_{\text{msy}}$ or B_{lim} (red). Colored circles and thick dashed lines show the three-generation period considered for the Red List evaluation; colors correspond to the estimated Red List category: CR (red), EN (orange), VU (yellow), or not threatened (black), under Criterion A1. Thick dashed lines are illustrative only and do not indicate regression lines.

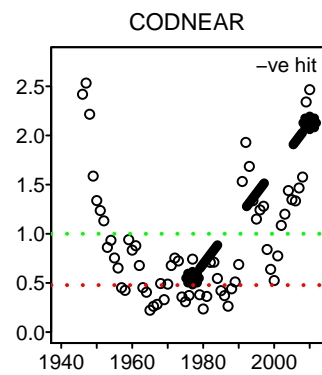
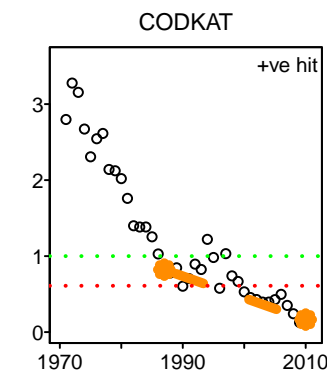
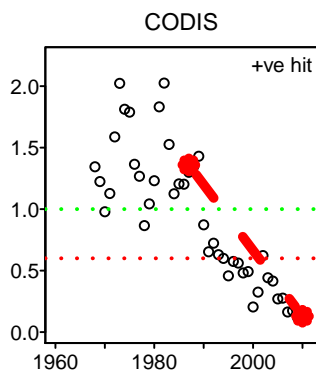
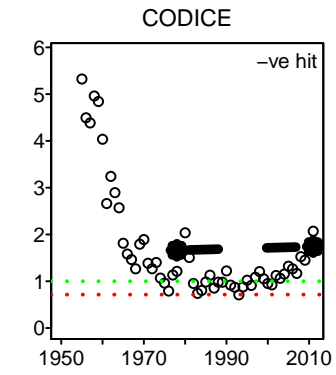
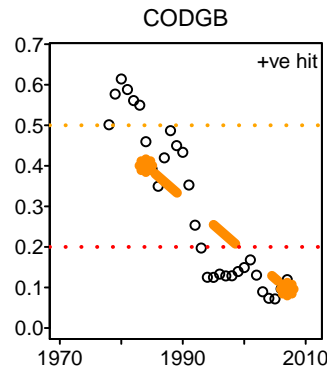
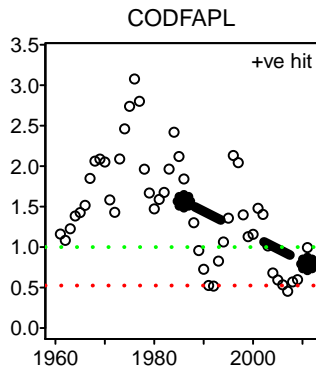
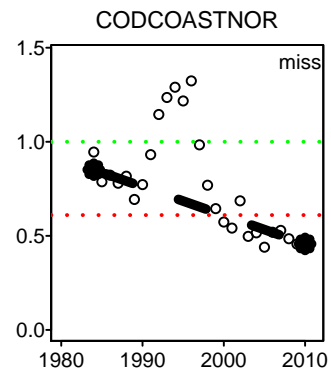
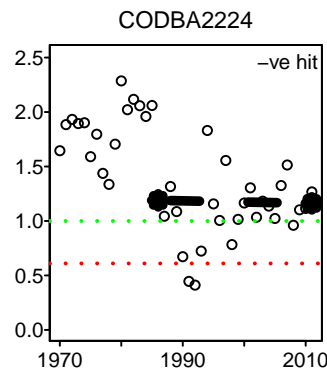
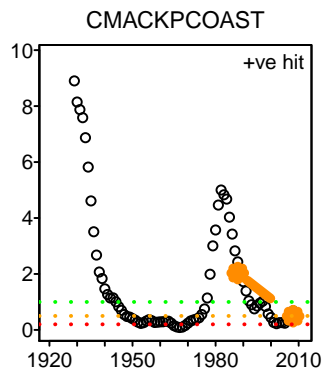
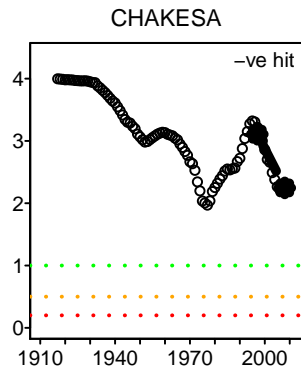
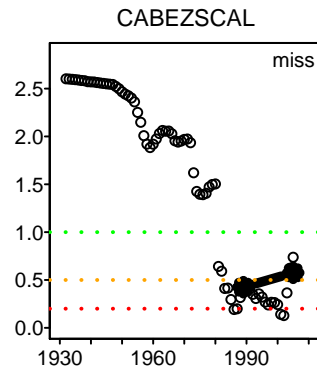
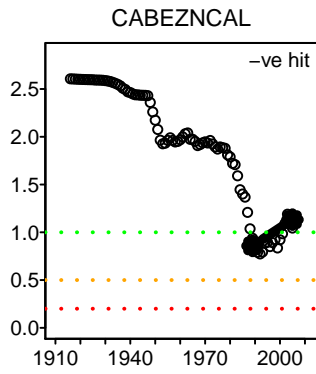


Population as proportion of upper reference point



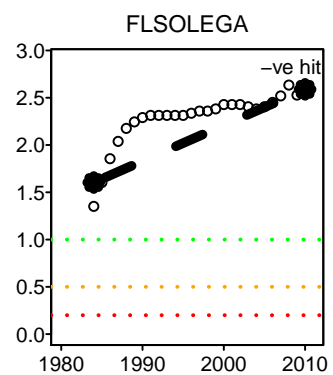
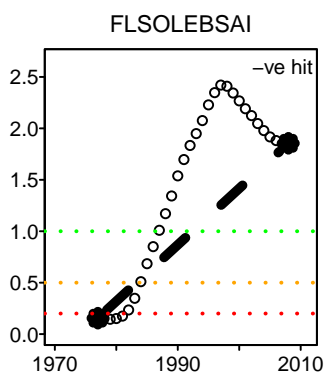
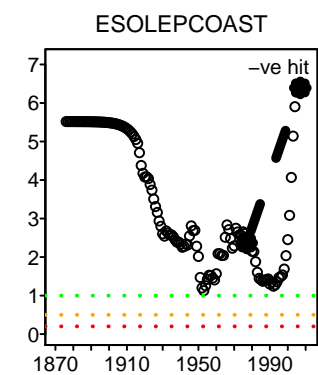
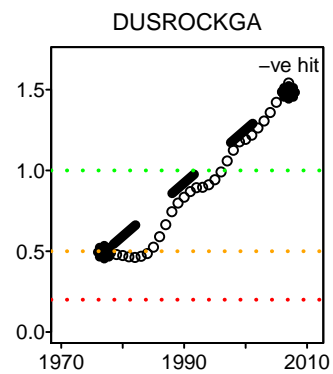
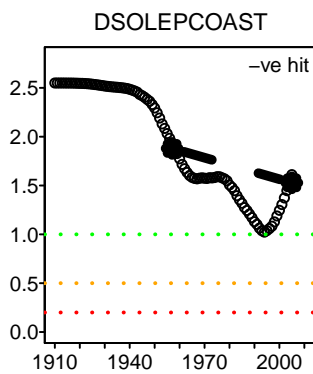
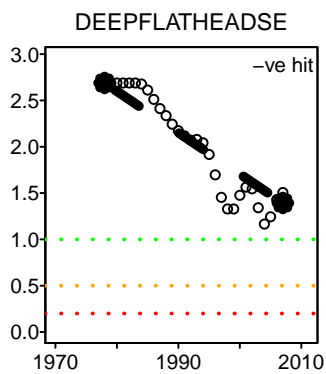
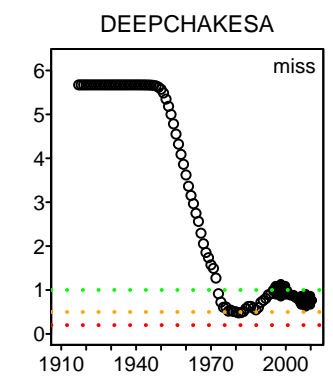
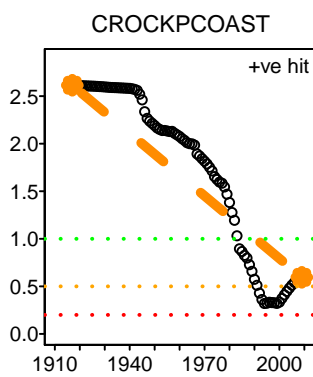
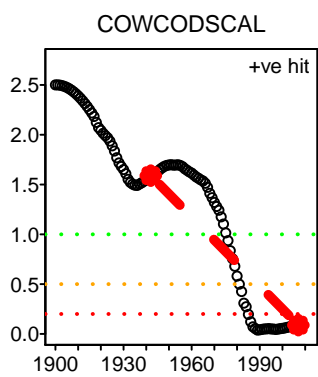
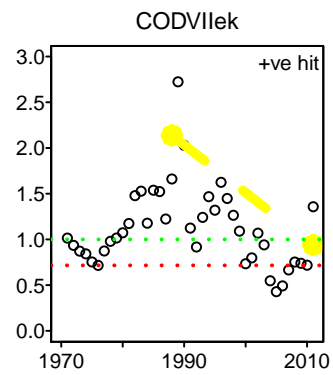
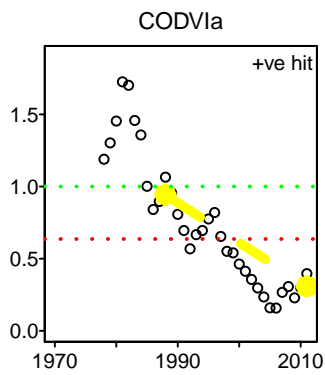
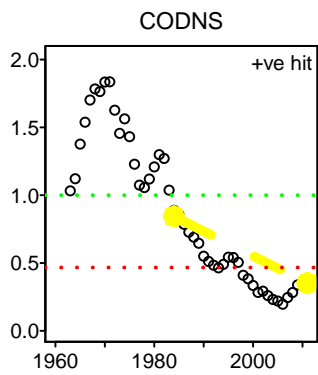
Year

Population as proportion of upper reference point



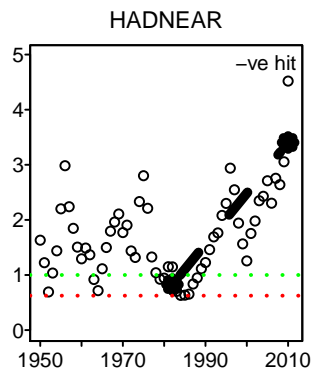
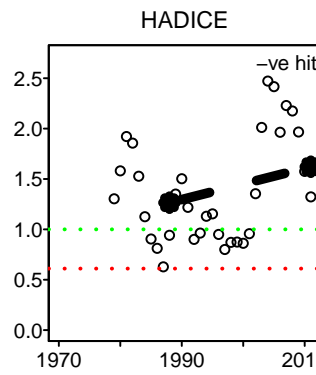
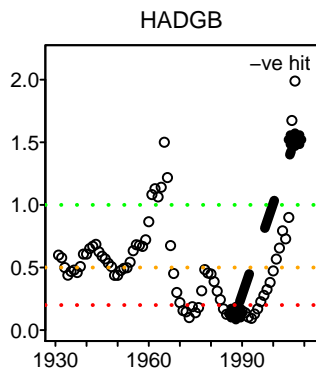
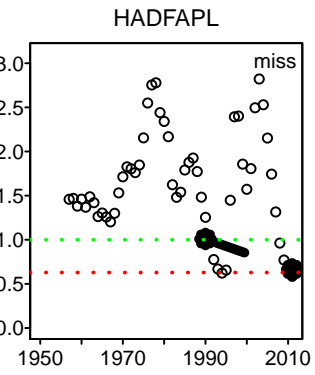
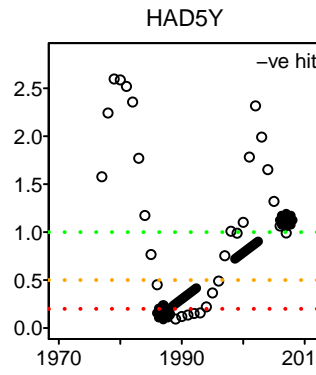
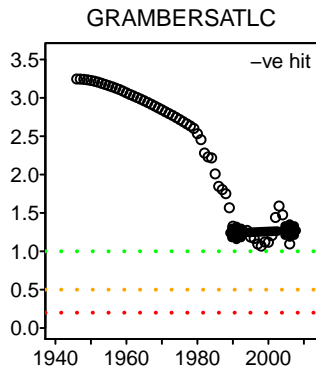
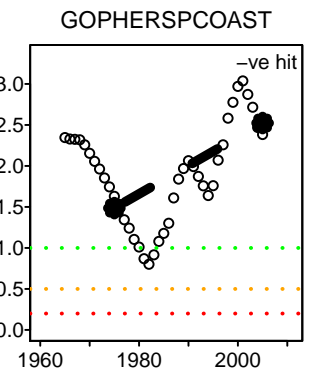
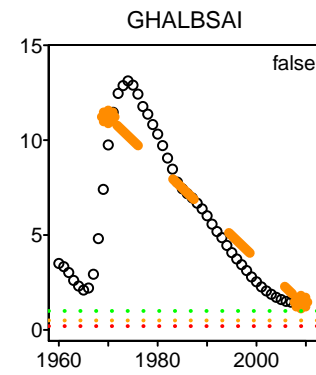
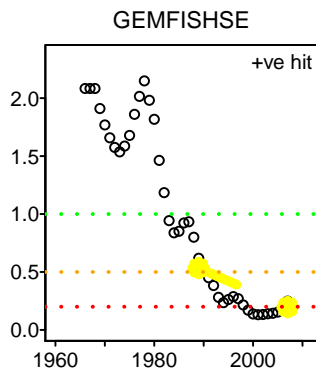
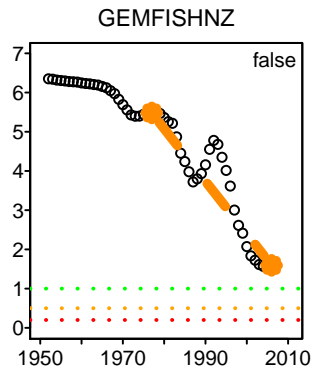
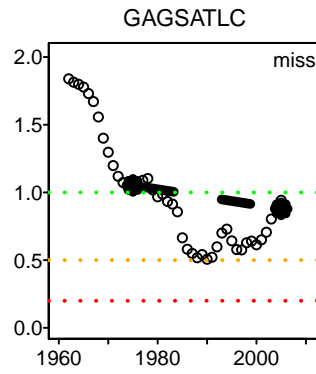
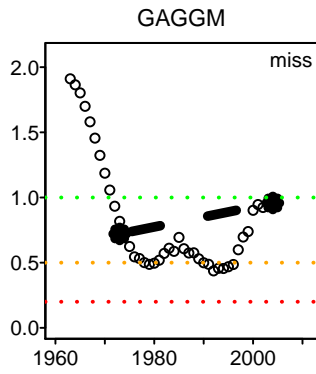
Year

Population as proportion of upper reference point

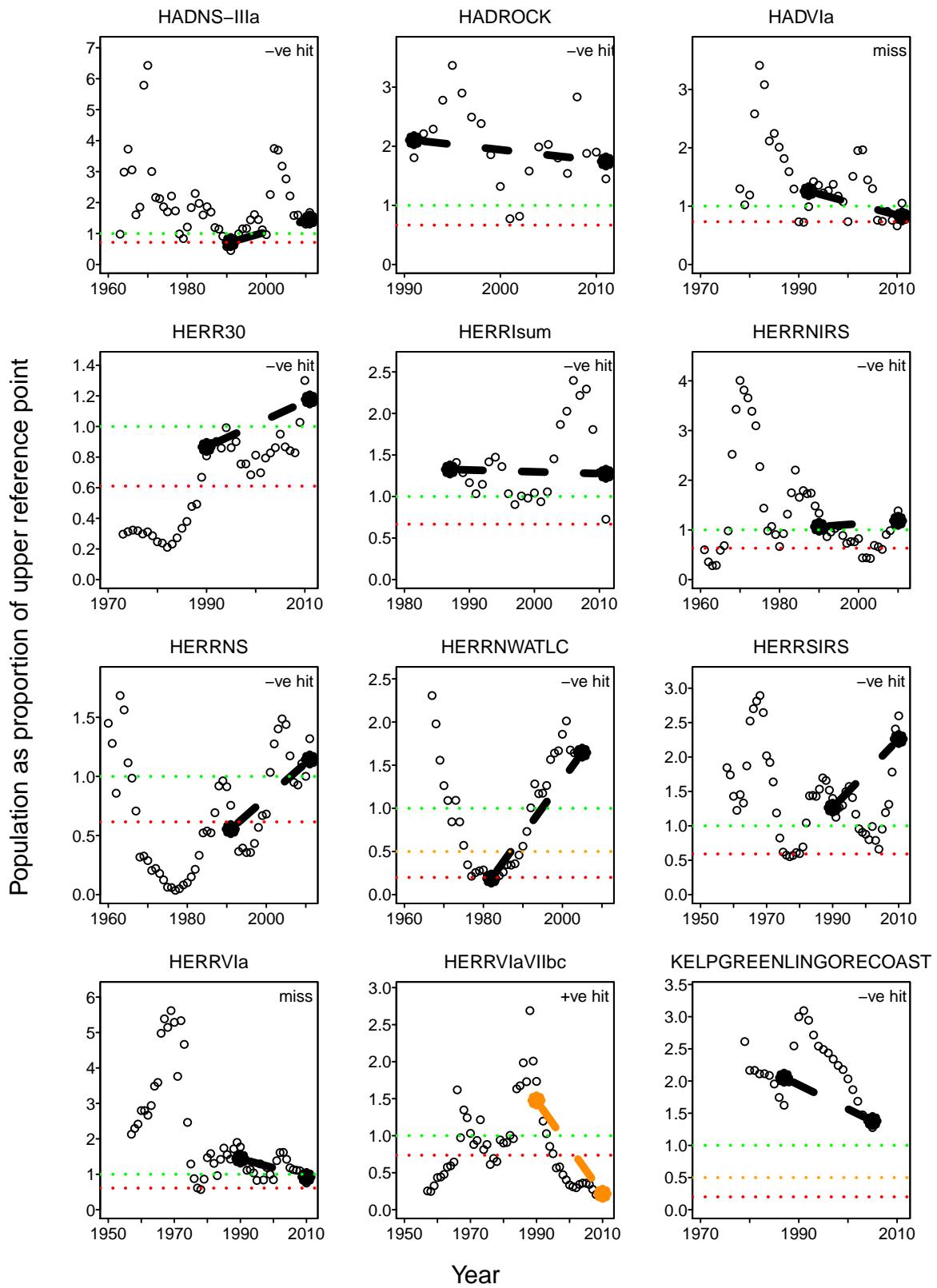


Year

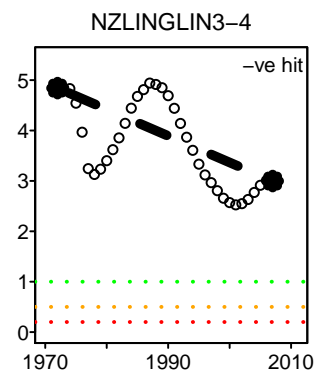
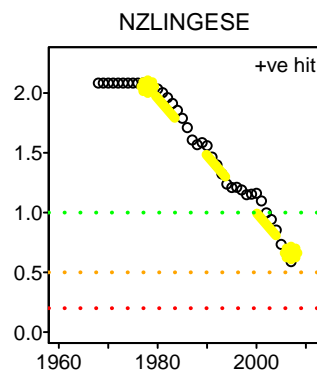
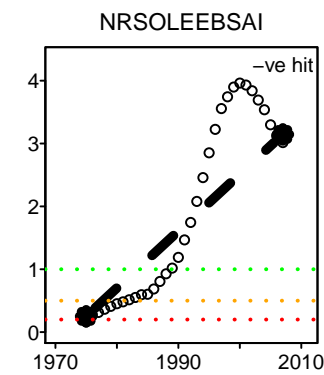
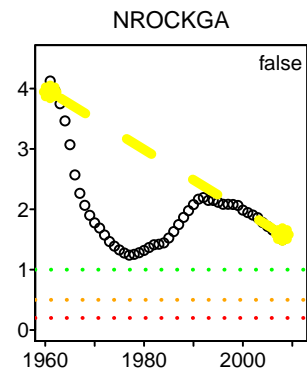
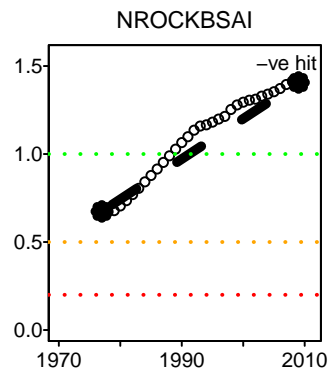
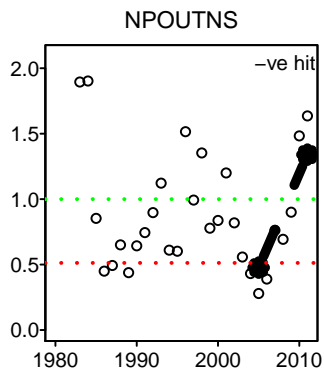
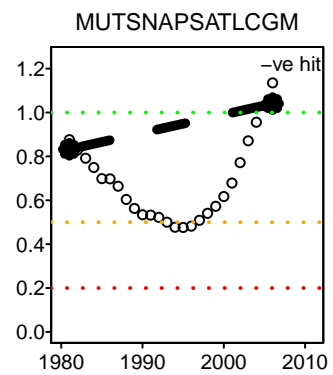
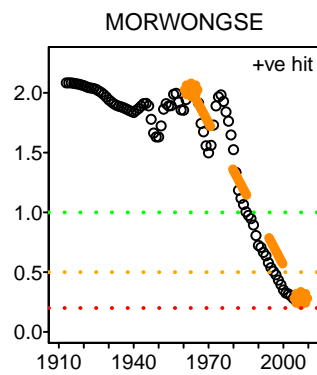
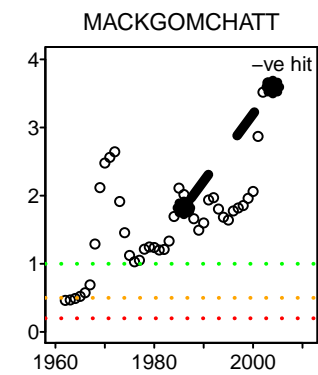
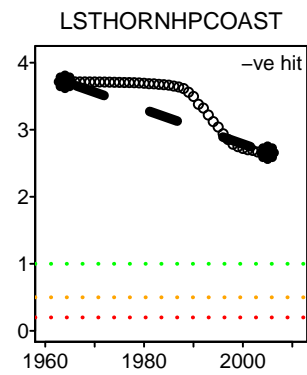
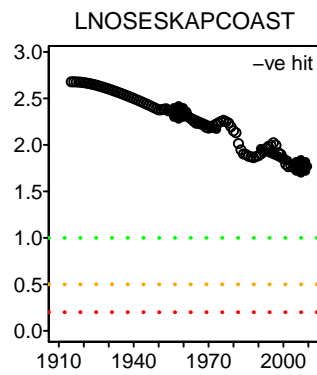
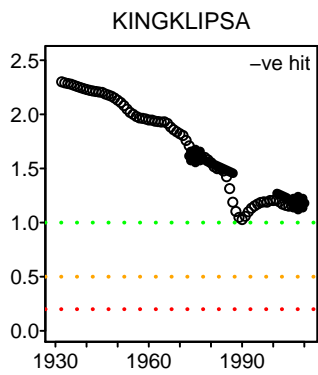
Population as proportion of upper reference point



Year

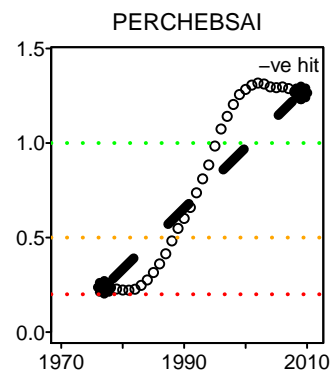
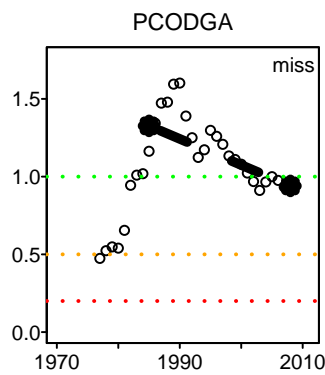
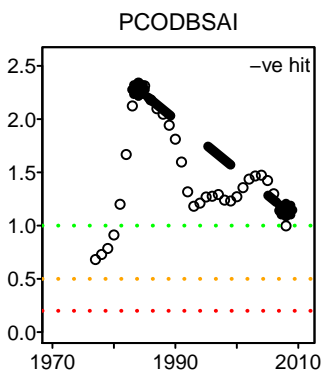
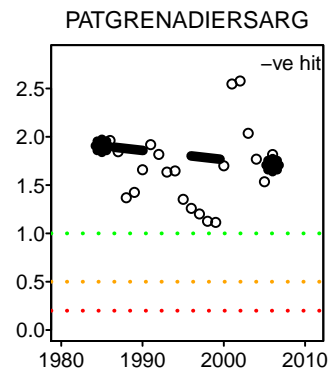
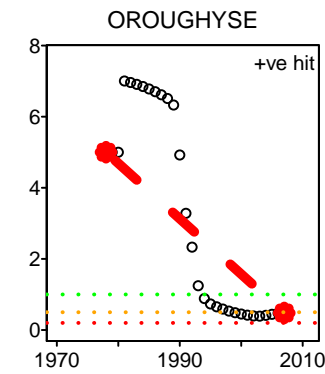
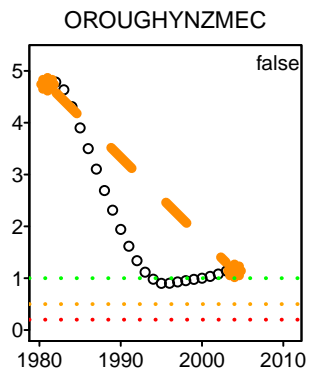
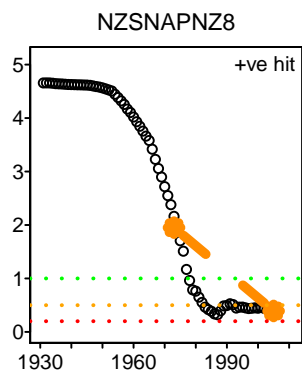
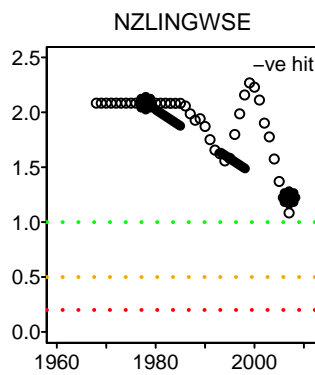
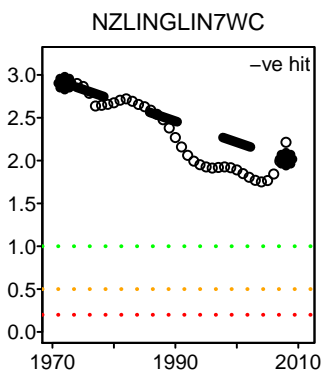
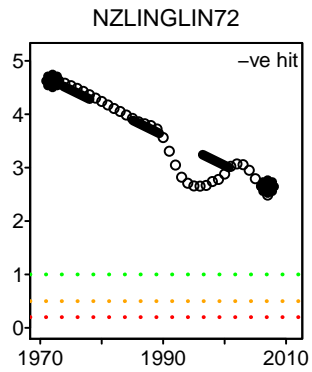
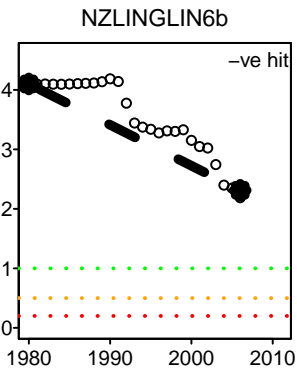
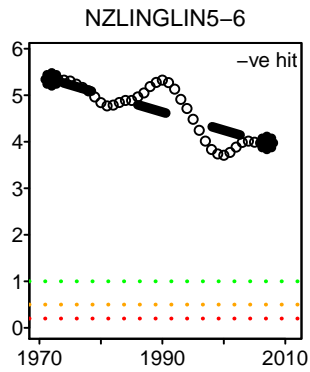


Population as proportion of upper reference point



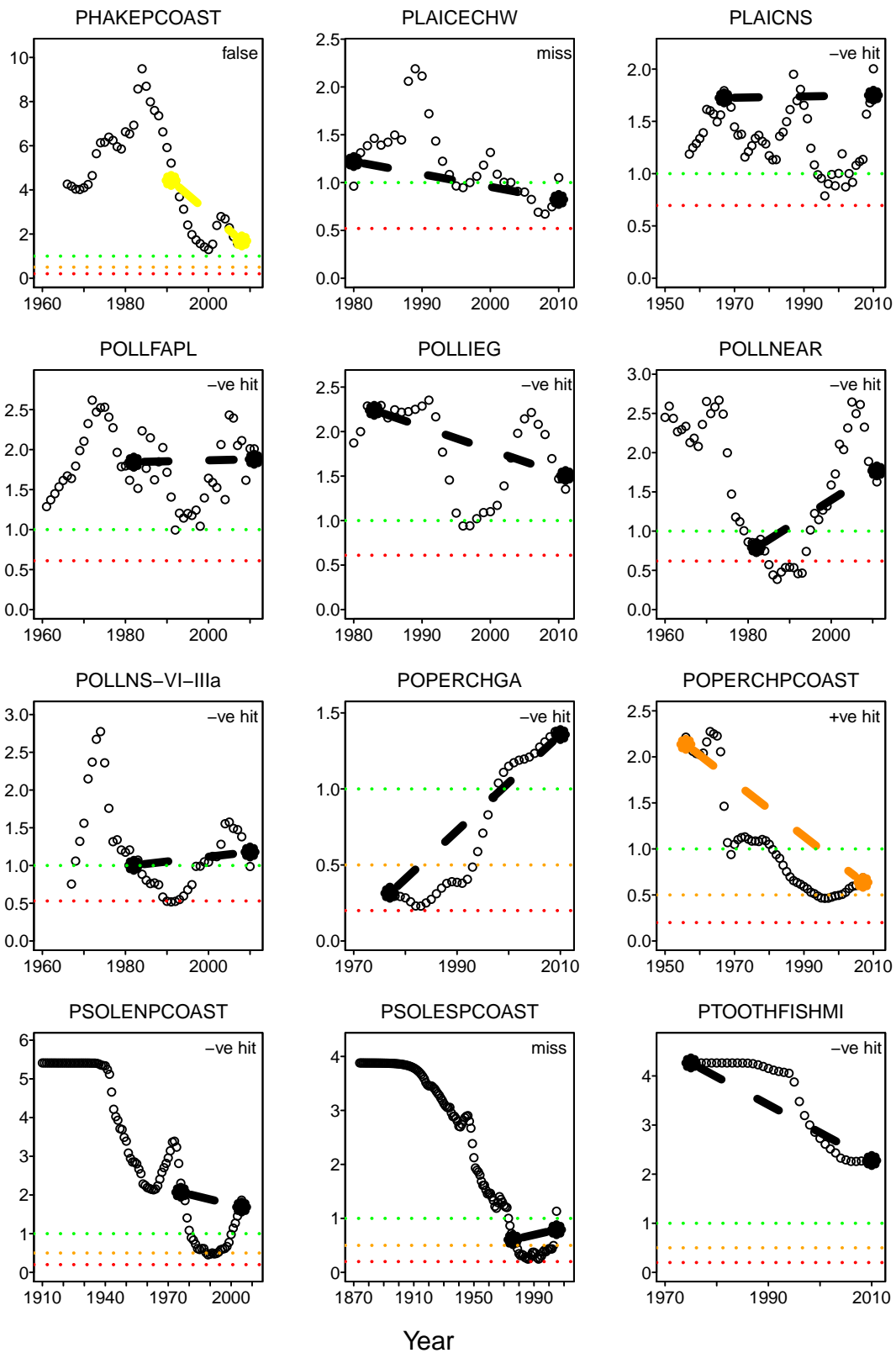
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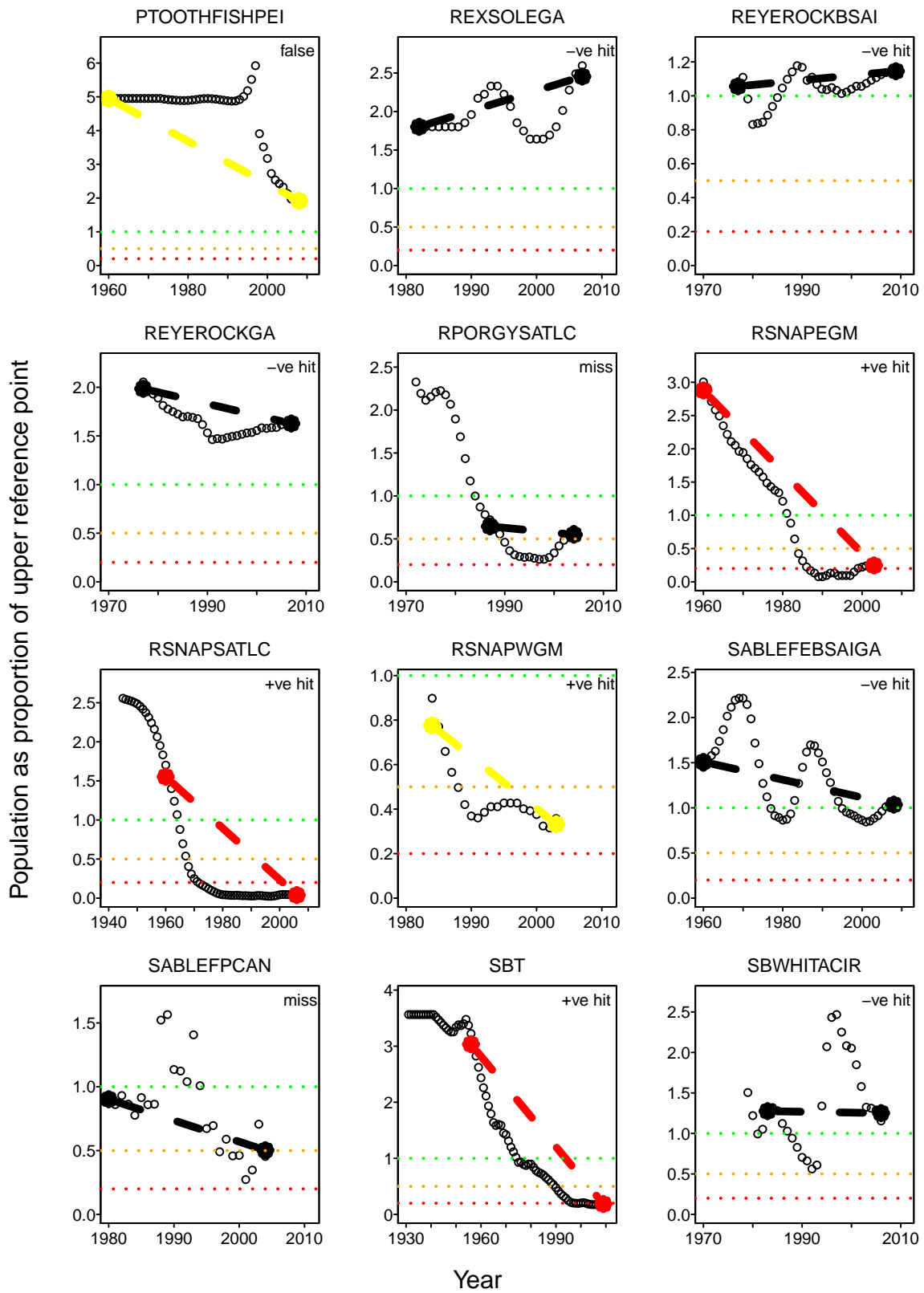
Population as proportion of upper reference point



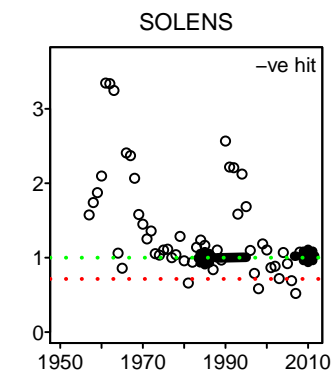
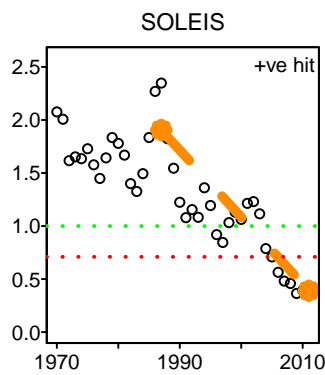
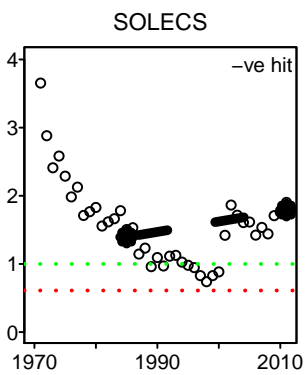
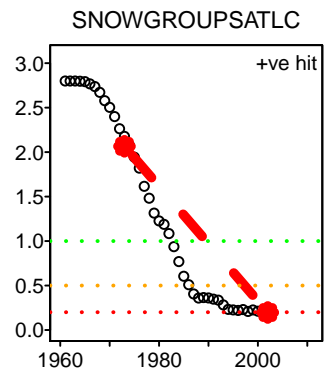
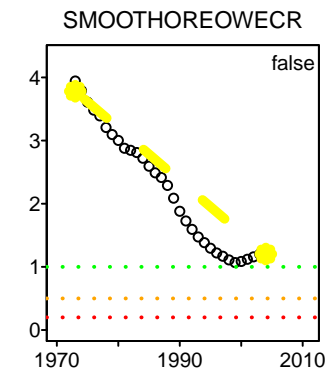
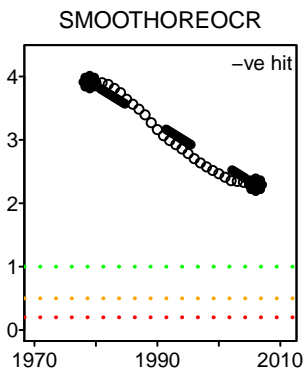
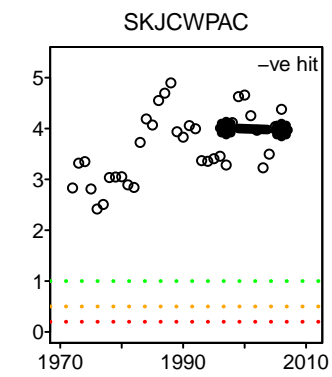
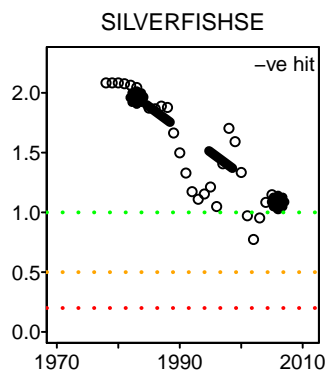
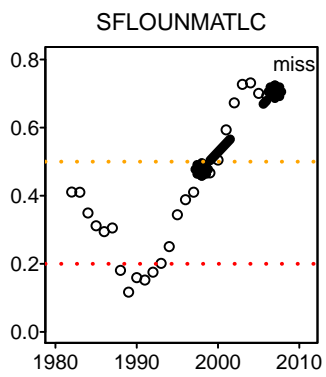
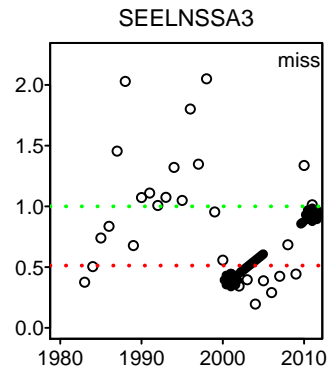
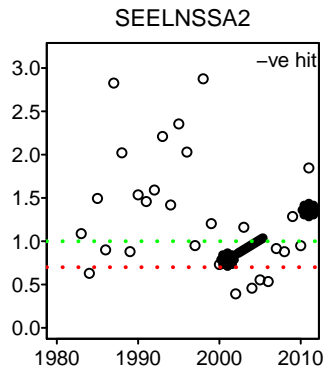
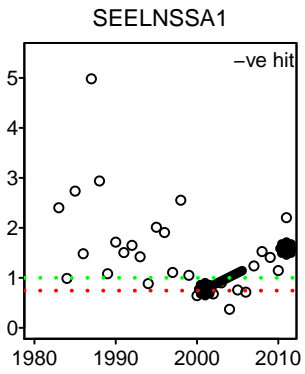
Year

Population as proportion of upper reference point



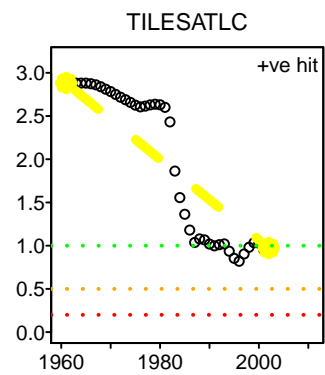
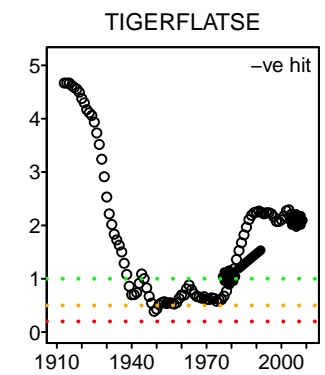
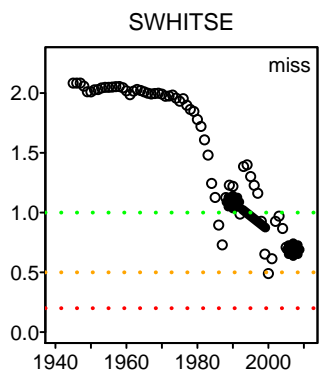
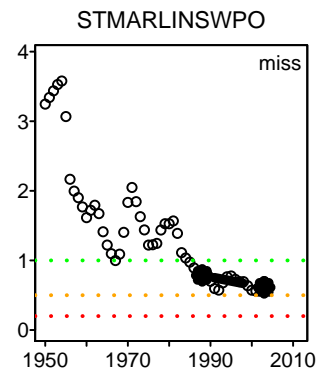
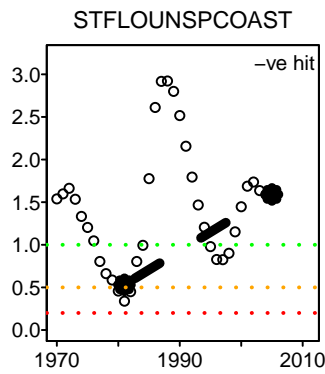
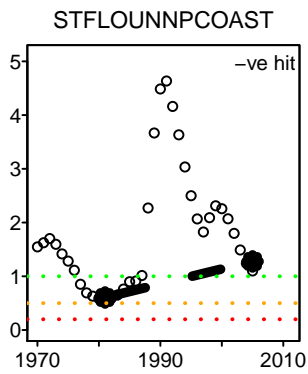
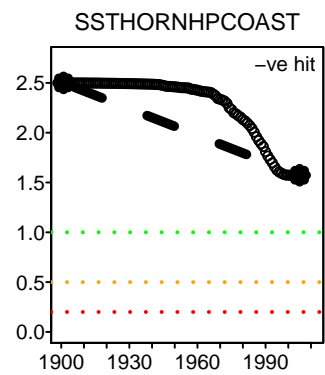
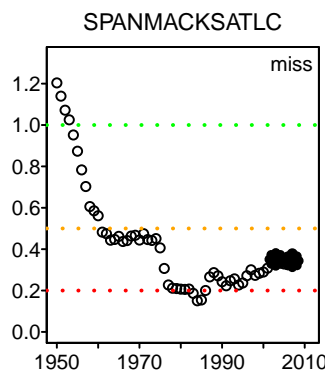
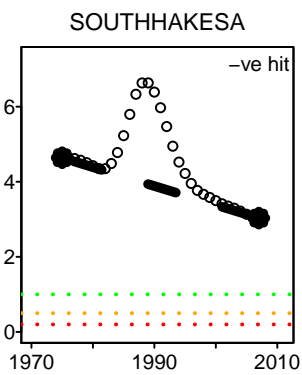
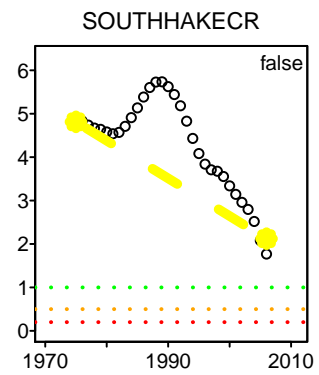
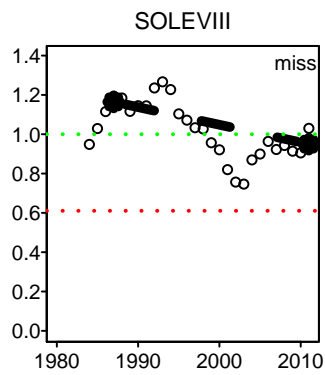
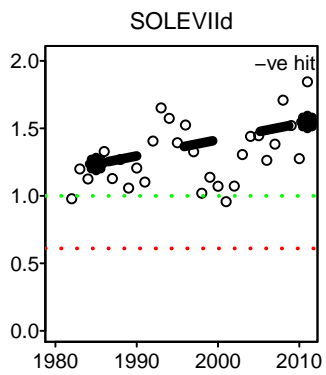


Population as proportion of upper reference point

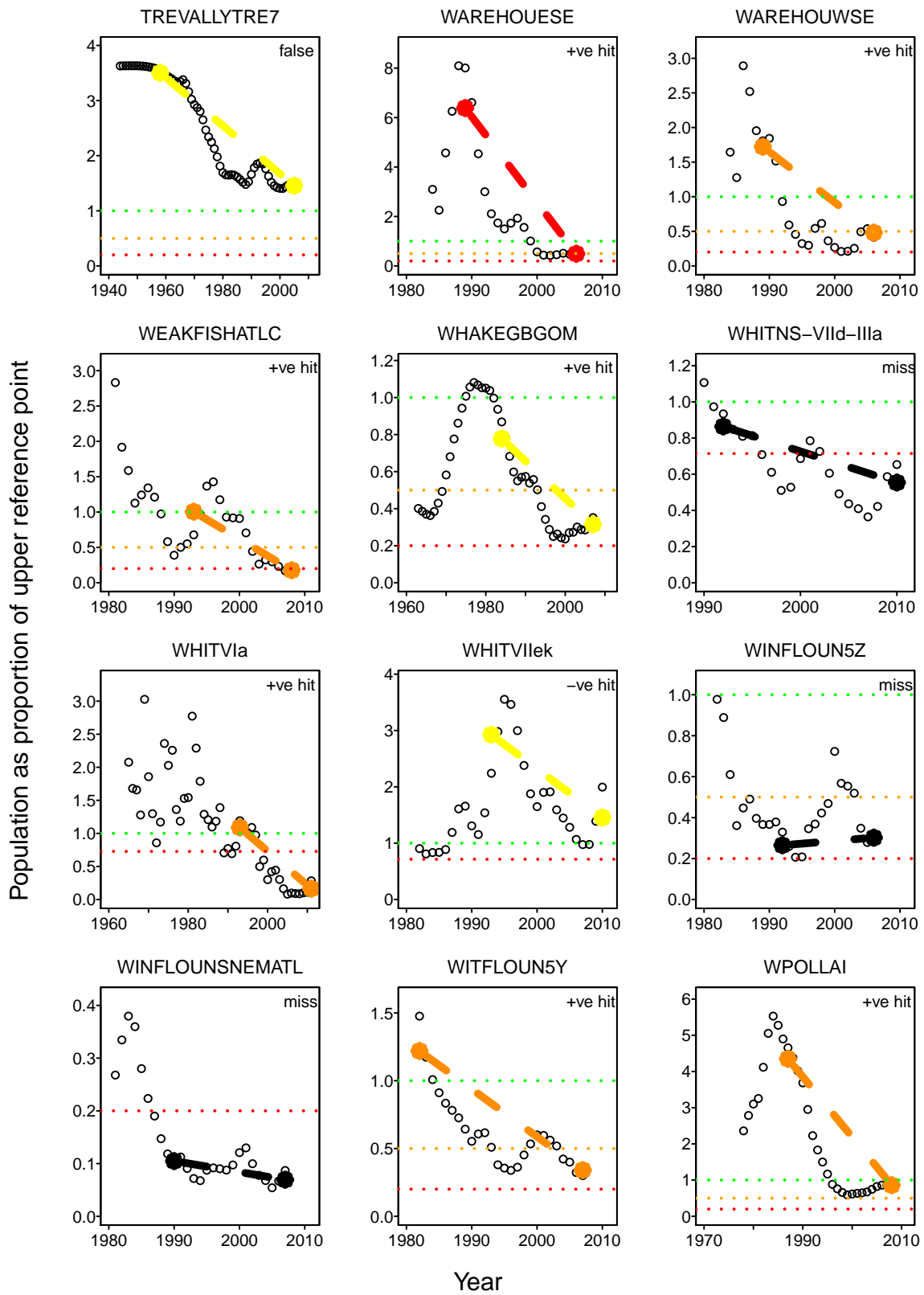


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Population as proportion of upper reference point



Year



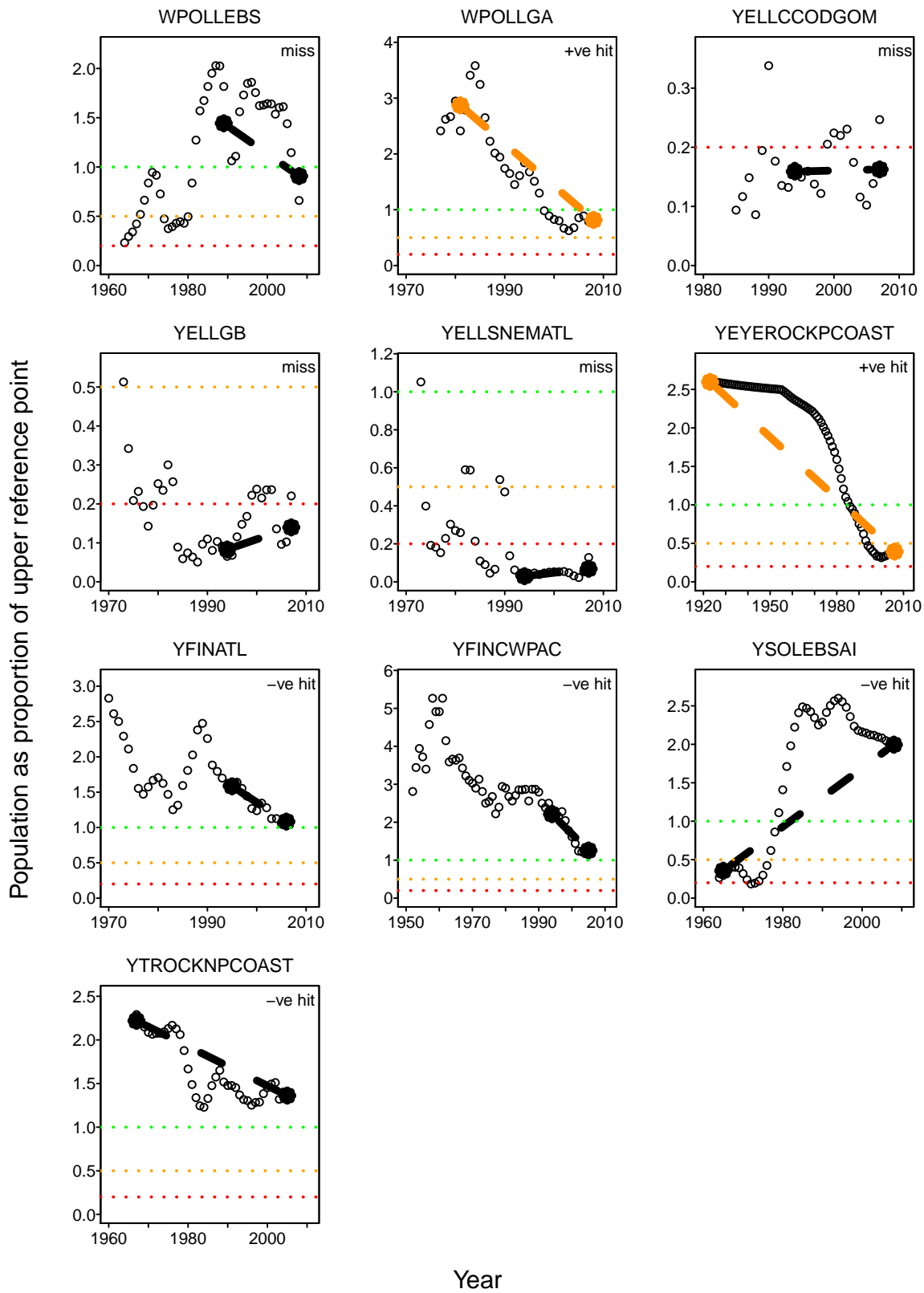


Figure S1.