

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

## Supplementary Information

Trevor D. Davies<sup>1,\*</sup>,

Julia K. Baum<sup>2</sup>,

1 Department of Biology, Dalhousie University, Halifax, NS, Canada

2 Department of Biology, University of Victoria, Victoria, BC, Canada

\* E-mail: [tdavies@mathstat.dal.ca](mailto:tdavies@mathstat.dal.ca)

**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
ACADEREDGOMGB	Acadian redfish Gulf of Maine / Georges Bank	<i>Sebastodes fasciatus</i>	USA	16.7	BMSY
ALBASPARC	Albacore tuna South Pacific Ocean	<i>Thunnus alalunga</i>	Multinational	6.4	BMSY
ALPLAICBSAI	Alaska plaice Bering Sea and Aleutian Islands	<i>Pleuronectes quadrifasciatus</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>Renardius stomaus</i>	USA	8.4	BMSY
ARFLOUNDGA	Arrowtooth flounder Gulf of Alaska	<i>Atherinethes stomaus</i>	USA	8.4	BMSY
ARFLOUNDPCOAST	Arrowtooth flounder Gulf of Alaska	<i>Renardius stomaus</i>	USA	10.1	BMSY
ARGANCHONARG	Argentine anchoveta Northern Argentina	<i>Engraulis anchoita</i>	Argentina	2.5	BMSY
ARGANCHONSAI	Argentine anchoveta 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
ATKAESA1	Atka mackerel Bering Sea and Aleutian Islands	<i>Pleurogrammus monopterygius</i>	USA	6.2	BMSY
ATLGROAKMATICL	Atlantic croaker Mid-Atlantic Coast	<i>Micropterus undulatus</i>	USA	1.6	BMSY
AUSSALMONNZ	Australian salmon New Zealand	<i>Arripis trutta</i>	New Zealand	9.5	BMSY
BGRICKPCOAST	Blackgill rockfish Pacific Coast	<i>Sebastodes melanostomus</i>	USA	37.5	BMSY
BIGEYELO	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
BLACKKOREOWECR	Black oore West end of Chatham Rise	<i>Alloxytus niger</i>	New Zealand	53.5	BMSY
BLACKROCKNPCOAST	Black rockfish Northern Pacific Coast	<i>Sebastodes melanops</i>	USA	20.2	BMSY
BLACKROCKSPCOAST	Black rockfish Southern Pacific Coast	<i>Sebastodes melanops</i>	USA	17.8	BMSY
BLUBEROCKCAL	Blue rockfish California	<i>Sebastodes mystinus</i>	USA	15.5	BMSY
BSEASSMATLC	Black sea bass Mid-Atlantic Coast	<i>Centropristes striata</i>	USA	5.3	BMSY
CABEZNCAL	Cabezon Northern California	<i>Scorpaenichthys marmoratus</i>	USA	5.5	BMSY
CABEZSCAL	Cabezon Southern California	<i>Scorpaenichthys marmoratus</i>	USA	5.5	BMSY
CHAKPSA	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	8.4	Bpa
CODBA2224	Pacific chub mackerel Pacific Coast	<i>Gadus morhua</i>	Multinational	10.0	Bpa
CODCOASTNOR	Atlantic cod Baltic Areas 22 and 24	<i>Gadus morhua</i>	Multinational	8.5	Bpa
CODFAPL	Atlantic cod Faroe Plateau	<i>Gadus morhua</i>	USA	7.8	BMSY
CODGB	Atlantic cod Georges Bank	<i>Gadus morhua</i>	Multinational	11.1	Bpa
CODICE	Atlantic cod Iceland	<i>Gadus morhua</i>	Multinational	7.7	Bpa
CODIS	Atlantic cod Irish Sea	<i>Gadus morhua</i>	Multinational	7.7	Bpa
CODKAT	Atlantic cod Kattegat	<i>Gadus morhua</i>	Multinational	11.1	Bpa
CODNEAR	Atlantic cod Northeast Arctic	<i>Gadus morhua</i>	Multinational	10.0	Bpa
CODNS	Atlantic cod North Sea	<i>Gadus morhua</i>	Multinational	7.7	Bpa
CODVIA	Atlantic cod West of Scotland	<i>Gadus morhua</i>	Multinational	9.0	Bpa
COWCOSCAL	Cowcod Southern California	<i>Sebastodes levis</i>	USA	22.0	BMSY
CROWCPCOAST	Canary rockfish Pacific Coast	<i>Sebastodes paucisquamis</i>	USA	30.7	BMSY
DEEFCHAKESEA	Deepwater cape hake South Africa	<i>Merluccius paradoxus</i>	South Africa	3.5	BMSY
DEEFLATHADSE	Deepwater flathead Southeast Australia	<i>Platycephalus corona</i>	Australia	11.3	BMSY
DSOLEPCOAST	Dover sole Pacific Coast	<i>Microstomus pacificus</i>	USA	16.3	BMSY
DUSROCKGSA	Dusky rockfish Gulf of Alaska	<i>Parophrys vetulus</i>	USA	27.5	BMSY
ESOLEPCOAST	English sole Pacific Coast	<i>Hippoglossoides elassodon</i>	USA	10.0	BMSY
FUSOLEBSSAI	Flathead sole Bering Sea and Aleutian Islands	<i>Hippoglossoides elassodon</i>	USA	12.5	BMSY
FUSOLEGSA	Greater amberjack Southern Pacific Coast	<i>Machetrourus microdon</i>	USA	11.8	BMSY
GAGGM	Gag Gulf of Mexico	<i>Mycopercula microlepis</i>	USA	10.5	BMSY
GAGSATLC	Gag Southern Atlantic coast	<i>Recula solandri</i>	New Zealand	10.0	BMSY
GEMFISHNZ	common gemfish New Zealand	<i>Reaumuridae</i>	Australia	6.3	BMSY
GHAIBSAI	Greenland turbot Southeast Australia	<i>Renardius hippoglossoides</i>	USA	13.1	BMSY
GOPHERSPOCOAST	Flathead sole Bering Sea and Aleutian Islands	<i>Sebastodes carnarius</i>	USA	10.1	BMSY
GRAMBERSATLC	Greater amberjack Southern Pacific Coast	<i>Serrivomer dumerilii</i>	USA	5.2	BMSY
HADAY	Haddock NAFO-5Y	<i>Melanogrammus aeglefinus</i>	Multinational	6.8	BMSY
HADFAPL	Haddock Faroe Plateau	<i>Melanogrammus aeglefinus</i>	Multinational	7.3	Bpa
HADGB	Haddock Georges Bank	<i>Melanogrammus aeglefinus</i>	USA	6.5	BMSY
HADICE	Haddock Iceland	<i>Melanogrammus aeglefinus</i>	Multinational	8.0	Bpa
HADNEAR	Haddock Northeast Arctic	<i>Melanogrammus aeglefinus</i>	Multinational	9.5	Bpa
HADNS-IIIa	Haddock ICES IIIa and North Sea	<i>Melanogrammus aeglefinus</i>	Multinational	6.9	Bpa
HADVIA	Haddock West of Scotland	<i>Melanogrammus aeglefinus</i>	Multinational	6.5	Bpa
HER130	Herring ICES 30	<i>Chapra harengus</i>	Multinational	7.2	Bpa
HERRIUMRS	Herring Iceland (Summer spawners)	<i>Chapra harengus</i>	Multinational	8.0	Bpa
HERINRS	Herring Northern Irish Sea	<i>Chapra harengus</i>	Multinational	6.7	Bpa
HERINRS	Herring North Sea	<i>Chapra harengus</i>	Multinational	7.0	BMSY
HERINWATL	Atlantic herring Northwestern Atlantic Coast	<i>Chapra harengus</i>	USA	7.7	BMSY
HERIVIA	Herring ICES Vla-VIIb-VIc	<i>Chapra harengus</i>	Multinational	6.9	Bpa
KELPGREENLINGORECOAST	Kelp greenling Oregon Coast	<i>Hexagrammos decagrammus</i>	USA	6.3	BMSY
KINGKLIPSA	Kingklip South Africa	<i>Gymnophorus capensis</i>	South Africa	11.3	BMSY

LNOSESKAPCOAST	Raja chima	USA	16.6	BMSY
LSTHORNHPCOAST	<i>Seriola lalandi</i>	USA	21.4	BMSY
MACKGOMCHATT	<i>Scomber scombrus</i>	USA	6.2	BMSY
MORWONGSE	<i>Nemadactylus macropterus</i>	Australia	14.7	BMSY
MUTSNAPSATLCGM	<i>Lutjanus analis</i>	USA	12.8	BMSY
NPOUTNS	<i>Trisopterus esmarkii</i>	Multinational	2.2	Bpa
NRROCKBSAI	<i>Schobatoides polylepis</i>	USA	18.4	BMSY
NRROCKG	<i>Schobatoides polylepis</i>	USA	26.5	BMSY
NSOLEEBSAI	<i>Lepidotrigla polyactis</i>	USA	11.6	BMSY
NSLINGHESSE	<i>Gymnophorus blacodes</i>	Australia	9.7	BMSY
NZLINGLIN3-4	<i>Gymnophorus blacodes</i>	New Zealand	14.3	BMSY
NZLINGLIN5-6	<i>Gymnophorus blacodes</i>	New Zealand	13.5	BMSY
NZLINGLIN6b	<i>Gymnophorus blacodes</i>	New Zealand	14.3	BMSY
NZLINGLIN72	<i>Gymnophorus blacodes</i>	New Zealand	14.1	BMSY
NZLINGLIN7WC	<i>Gymnophorus blacodes</i>	New Zealand	13.7	BMSY
NZLINGWSE	<i>Gymnophorus blacodes</i>	Australia	9.7	BMSY
NEZNAAPNZS	<i>Chrysophrys auratus</i>	New Zealand	11.0	BMSY
OROUGHYZMEC	<i>Hoplostethus atlanticus</i>	New Zealand	60.7	BMSY
OROUGHYSE	<i>Hoplostethus atlanticus</i>	Australia	69.0	BMSY
PATGRENADIERBSARG	<i>Macrouronus magellanicus</i>	Argentina	8.9	BMSY
PCODBSAI	<i>Gradus macrocephalus</i>	USA	8.2	BMSY
PCODGA	<i>Gradus macrocephalus</i>	USA	7.7	BMSY
PERCHEBSAI	<i>Schobates alatus</i>	USA	32.9	BMSY
PHAKEPCOAST	<i>Merluccius productus</i>	USA	6.0	BMSY
PLAICECHW	<i>Pleuronectes platessa</i>	Multinational	14.7	Bpa
POLLFAPL	<i>Pollachius virens</i>	Multinational	10.0	Bpa
POLLOCK	<i>Pollachius virens</i>	Multinational	10.0	Bpa
POLLINS-VI-IIIa	<i>Pollachius virens</i>	Multinational	9.6	Bpa
POPERCHG	<i>Schobates aleutianus</i>	USA	32.9	BMSY
POPERCHPCOAST	<i>Schobates aleutianus</i>	USA	31.0	BMSY
PSOLENPCOAST	<i>Pagrus pagrus</i>	USA	10.0	BMSY
PSOLESPCOAST	<i>Lutjanus carpechurus</i>	USA	10.0	BMSY
PTTOOTFISHMI	<i>Eopsetta jordani</i>	Australia	23.0	BMSY
PTOOTFISHPEI	<i>Dissostichus eleginoides</i>	South Africa	23.0	BMSY
REXSOLEGLA	<i>Glyptocephalus zachirus</i>	USA	10.9	BMSY
REVEROCKBSAI	<i>Schobates aleutianus</i>	USA	49.3	BMSY
RIPEROCKG	<i>Pagrus pagrus</i>	USA	6.0	BMSY
RPOIGYSATLIC	<i>Lutjanus campechanus</i>	USA	15.7	BMSY
RSSNAPEGM	<i>Lutjanus campechanus</i>	USA	15.5	BMSY
RSSNAPSATIC	<i>Lutjanus campechanus</i>	USA	15.7	BMSY
RSSNAPWGM	<i>Anoplomoma fimbria</i>	Canada	33.4	BMSY
SABLEFPBAGA	<i>Thamnaconus maccoyii</i>	Multinational	18.0	BMSY
SEBT	<i>Merimnetes australis</i>	New Zealand	8.0	BMSY
SEWHITACR	<i>Paralichthys dentatus</i>	USA	3.2	BMSY
SFLQUNNMATLC	<i>Seriolella punctata</i>	Australia	8.0	BMSY
SILVERFISHSE	<i>Katsuwonus pelamis</i>	Multinational	3.2	BMSY
SKJCWPAC	<i>Pseudocarpus maculatus</i>	New Zealand	47.9	BMSY
SMOOTHOREOCR	<i>Pseudocarpus maculatus</i>	New Zealand	44.1	BMSY
SNOWGROUPSATLCLC	<i>Epinephelus niveatus</i>	USA	9.7	BMSY
SOLECS	<i>Solea vulgaris</i>	Multinational	8.8	Bpa
SOLEIS	<i>Solea vulgaris</i>	Multinational	8.3	Bpa
SOLEVII	<i>Menticirrhus undulatus</i>	New Zealand	12.7	BMSY
SOUTHHAKECR	<i>Sillago fimbriata</i>	Australia	6.0	BMSY
SPANMACKSATLC	<i>Scomberomorus maculatus</i>	USA	12.9	BMSY
SSTHORNHPCOAST	<i>Sebastodes alascanus</i>	New Zealand	1.7	BMSY
STFLQUNNPCOAST	<i>Platichthys stellatus</i>	USA	35.5	BMSY
STFLQUNSWPO	<i>Platichthys stellatus</i>	USA	8.3	BMSY
SWHITSE	<i>Kyphosus niger</i>	USA	5.3	BMSY
TIGERLATSE	<i>Sillago fimbriata</i>	Multinational	8.3	BMSY
TILESATLC	<i>Neopercyceplatus richardsoni</i>	Australia	6.0	BMSY
TRIVALLYTRET	<i>Lophioblennius chamaeleonticeps</i>	USA	9.3	BMSY
WAREHOUSE	<i>Pseudocarcinus dentex</i>	New Zealand	14.6	BMSY
WAREHOUWSE	<i>Seriola brama</i>	Australia	16.0	BMSY
WEAKFISHATC	<i>Seriola brama</i>	Australia	6.0	BMSY
WHAKEGBCOM	<i>Cynoscion regalis</i>	USA	5.3	BMSY
WHIN-VIRD-HIA	<i>Urophycis tenuis</i>	USA	7.7	BMSY
WHITVIIEK	<i>Merluccius merlangus</i>	USA	6.1	Bpa
WINFLQOUN5Z	<i>Pseudopercarctes americanus</i>	USA	5.9	BMSY
WINFLQUNSNEMATL	<i>Pseudopercarctes americanus</i>	USA	4.9	BMSY
WITFLQOUN5Y	<i>Glyptocephalus cynoglossus</i>	USA	5.7	BMSY
WPOLLAI	<i>Theragra chalcogramma</i>	USA	10.7	BMSY
		USA	7.1	BMSY

WPOLLEBS	Walleye pollock Eastern Bering Sea	<i>Theragra chalcogramma</i>	USA	6.4	BMSY
WPOLLGCA	Walleye pollock Gulf of Alaska	<i>Theragra chalcogramma</i>	USA	9.2	BMSY
WPOLLCODGOM	Yellowtail flounder Cape Cod / Gulf of Maine	<i>Limanda ferruginea</i>	USA	4.5	BMSY
YELLGB	Yellowtail flounder Georges Bank	<i>Limanda ferruginea</i>	USA	4.5	BMSY
YELLSNEMATL	Yellowtail Flounder Southern New England-Mid Atlantic	<i>Limanda ferruginea</i>	USA	4.5	BMSY
YEYEROCKPCOAST	Yellowtail rockfish Pacific Coast	<i>Sebastodes ruberrimus</i>	USA	42.1	BMSY
YFINATL	Yellowfin tuna Central Western Pacific	<i>Thunnus albacares</i>	Multinational	3.7	BMSY
YFINCWpac	Yellowfin tuna Central Western Pacific	<i>Thunnus albacares</i>	Multinational	3.7	BMSY
YSOLEBSAL	Yellowfin sole Bering Sea and Aleutian Islands	<i>Limanda aspera</i>	USA	14.4	BMSY
YTROCKKNPCOAST	Yellowtail rockfish Northern Pacific Coast	<i>Sebastodes flavidus</i>	USA	21.3	BMSY
ANCHOBAYB	Anchovy ICES VIII	<i>Engraulis encrasicolus</i>	Multinational	2.0	Bpa
CODYVIEK	Celtic Sea cod	<i>Gratus morhua</i>	Multinational	7.7	Bpa
HADROCK	Haddock Rockall Banks	<i>Melanogrammus aeglefinus</i>	Multinational	6.9	Bpa
HERRSIRS	Celtic Sea and South of Ireland Herring	<i>Anarhichas marmoratus</i>	Multinational	6.7	Bpa
PLAICNS	European Plaice North Sea	<i>Pleuronectes platessa</i>	Multinational	14.4	Bpa
POLLIG	Iceland and East Greenland pollock in Division Va (Icelandic saithe)	<i>Anarhichas marmoratus</i>	Multinational	9.6	Bpa
SBEINNSA1	North Sea Sandeel in the Dogger Bank area (SA 1)	<i>Anarhichas marmoratus</i>	Multinational	3.6	Bpa
SBEINNSA2	North Sea Sandeel in the South Eastern North Sea (SA 2)	<i>Clupea harengus</i>	Multinational	3.6	Bpa
SBEINNSA3	North Sea Sandeel in the Central Eastern North Sea (SA 3)	<i>Pollachius virens</i>	Multinational	3.6	Bpa
SOLENS	common European sole North Sea	<i>Solea vulgaris</i>	Multinational	8.4	Bpa
SOLEVILD	common European sole ICES VIIId	<i>Solea vulgaris</i>	Multinational	8.7	Bpa
WHITIVia	Whiting ICES VIIa	<i>Merlangius merlangus</i>	Multinational	6.1	Bpa

**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 references 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
ACADEREDGOMGB	(59.9)	not threatened	0.7	miss	-ve hit	2007
AUDASAPC	42.6	not threatened	2.7	-ve hit	-ve hit	2006
AULPLAICBSAI	(38.5)	not threatened	2.2	+ve hit	-ve hit	2007
AMPFL5YZ	59.1	not threatened	0.6	+ve hit	false	2008
ARFLOUNDBSAI	(274.4)	not threatened	2.5	-ve hit	-ve hit	2010
ARFLOUNDGA	(104.9)	not threatened	3.0	-ve hit	-ve hit	2007
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	2008
ARGHAKESARG	25.8	not threatened	0.4	miss	miss	2007
ATBTUNAWATL	81.3	EN	0.6	+ve hit	-ve hit	2007
ATKABSAI	8.2	not threatened	1.7	-ve hit	-ve hit	2009
ATLCOAKMATLC	(5.7)	not threatened	1.5	-ve hit	-ve hit	2002
AUSSALMONNZ	50.3	VU	1.5	false	false	2006
BGRCKPCOAST	47.6	not threatened	1.7	-ve hit	-ve hit	2005
BIGEYELO	54	VU	1.3	false	false	2004
BIGEYEWPO	35.9	not threatened	1.3	-ve hit	-ve hit	2006
BLACKOREOWECR	69	VU	1.0	-ve hit	false	2007
BLACKROCKNPCOAST	47.1	not threatened	1.7	-ve hit	-ve hit	2006
BLACKROCKSPCOAST	26.5	not threatened	2.1	-ve hit	-ve hit	2007
BLUEROCKCAL	65.2	VU	0.7	+ve hit	+ve hit	2007
BSEASSMATIC	(65.2)	not threatened	0.9	miss	-ve hit	2007
CABEZNCAL	(32)	not threatened	1.1	-ve hit	-ve hit	2005
CABIZSCAL	(35.5)	not threatened	0.6	miss	-ve hit	2008
CHAKESA	30	not threatened	2.2	-ve hit	-ve hit	2007
CMACKPCOAST	75.9	EN	0.5	+ve hit	+ve hit	2008
CODBA2224	2.3	not threatened	1.2	-ve hit	-ve hit	2007
CODCOASTNOR	46.3	not threatened	0.5	miss	miss	2011
CODFAPL	56.9	VU	0.8	+ve hit	false	2011
CODGB	76	EN	0.1	+ve hit	+ve hit	2007
CODICE	(4.7)	not threatened	1.7	-ve hit	+ve hit	2011
CODIS	90.5	CR	0.1	-ve hit	hit.p	2010
CODKAT	80	EN	0.2	+ve hit	+ve hit	2010
CODNBAR	(287.6)	not threatened	2.1	-ve hit	hit.n	2010
CODNS	58.3	VU	0.4	miss	miss	2010
CODVIA	67.3	VU	0.3	+ve hit	hit.p	2011
COWCODSICAL	94.4	CR	0.1	+ve hit	+ve hit	2007
CROCKPCOAST	77.2	EN	0.6	+ve hit	+ve hit	2009
DEEFCHEAKESA	23	not threatened	0.8	miss	-ve hit	2008
DEEFLATHEADSE	48.2	not threatened	1.4	-ve hit	-ve hit	2007
DSOLEPCOAST	20.9	not threatened	1.5	-ve hit	-ve hit	2005
DUSROCKGA	(200.1)	not threatened	1.5	-ve hit	-ve hit	2007
ESOLEPCOAST	(170.1)	not threatened	6.4	-ve hit	-ve hit	2007
FUSOLEBSEAI	(1097.6)	not threatened	1.9	-ve hit	-ve hit	2008
FUSOLEGAA	(61.5)	not threatened	2.6	-ve hit	-ve hit	2010
GAGGM	(16.3)	not threatened	1.0	miss	-ve hit	2004
GAGATLC	70.9	EN	0.9	miss	miss	2005
GEMFISHNZ	69.7	VU	0.2	false	false	2006
GHAIBSAI	86.9	EN	1.5	+ve hit	+ve hit	2007
GOPHERSPCOAST	(69.8)	not threatened	2.5	-ve hit	-ve hit	2005
GRAMBERSATLC	(0.6)	not threatened	1.3	-ve hit	-ve hit	2006
HADDY	(308.7)	not threatened	1.1	-ve hit	-ve hit	2007
HADFAPL	16.5	not threatened	0.9	-ve hit	-ve hit	2011
HADGB	(1085.4)	not threatened	0.7	miss	miss	2005
HADICE	(66.6)	not threatened	1.5	-ve hit	-ve hit	2007
HADNBAR	(311.7)	not threatened	1.6	hit.n	hit.n	2011
HADNS-IIIa	(147.1)	not threatened	3.4	-ve hit	hit.n	2010
HADNvia	(21.1)	not threatened	1.5	-ve hit	hit.n	2011
HEBF30	(49.3)	not threatened	0.8	miss	miss	2011
HEBNium	3.9	not threatened	1.2	-ve hit	-ve hit	2011
HERINIRS	(11.2)	not threatened	1.2	-ve hit	hit.n	2010
HERINS	(55.1)	not threatened	1.1	-ve hit	hit.n	2011
HERINWATLC	(782.9)	not threatened	1.6	-ve hit	-ve hit	2005
HERRVlaVibc	45.9	EN	0.9	miss	miss	2010
HERRVlaVibc	87.7	EN	0.2	+ve hit	+ve hit	2010

KELPGREENLINGORECOAST	22.8	not threatened	1.4	-ve hit	2005
KINGKLIPSA	27.7	not threatened	1.2	-ve hit	2008
LNOSESKAPCOAST	24.7	not threatened	1.8	-ve hit	2007
LSTHORINHPCOAST	28.5	not threatened	2.7	-ve hit	2005
MACKGOMCHATT	(82.4)	not threatened	3.6	-ve hit	2004
MORWONGSE	86.1	EN	0.3	+ve hit	2007
MUTSNAPSATLCCGM	(25)	not threatened	1.0	-ve hit	2006
NPOUTINS	(56)	not threatened	1.3	-ve hit	2011
NROCKBSAI	(108.8)	not threatened	1.4	-ve hit	2009
NROCKGGA	59.9	VU	1.6	false	2008
NRSCLLEBBSAI	(1154)	not threatened	3.1	-ve hit	2007
NZLINGESE	67.8	VU	0.7	+ve hit	2007
NZLINGLIN3-4	38.1	not threatened	3.0	-ve hit	2007
NZLINGLIN5-6	25.6	not threatened	4.0	-ve hit	2007
NZLINGLIN6b	43.6	not threatened	2.3	-ve hit	2006
NZLINGLIN72	42.8	not threatened	2.6	-ve hit	2007
NZLINGLIN7WC	30.6	not threatened	2.0	-ve hit	2008
NZLINGWSE	41.3	not threatened	1.2	-ve hit	2007
NZSNAPNZS	82	VU	0.4	+ve hit	2005
OROUGHYZMEC	75.9	EN	1.1	false	2004
OROUGHYSE	90.4	CR	0.5	+ve hit	2007
PATGRNADIERSARG	10.5	not threatened	0.7	-ve hit	2006
PCOBBSAI	49.3	not threatened	1.1	-ve hit	2008
PCOGCA	29.1	not threatened	0.9	-ve hit	2008
PERCHEBBSAI	(434.1)	not threatened	1.3	-ve hit	2009
PHAKEPCOAST	67.4	VU	1.7	false	2008
PLAICECHW	32.5	not threatened	0.8	miss	2010
POLLAPL	(14.7)	not threatened	1.9	-ve hit	2011
POLLNEAR	(113.9)	not threatened	1.8	-ve hit	2011
POLLNS-VIIla	(6.2)	not threatened	1.2	-ve hit	2010
POPERCHGGA	(332.7)	not threatened	1.4	-ve hit	2010
POPERCHPCOAST	70.2	EN	0.6	false	2007
PSOLENPCOAST	29.4	not threatened	1.7	-ve hit	2005
PSOLENPCOAST	(19.5)	not threatened	0.8	miss	2005
PTOOPTHFISHMI	46.6	not threatened	2.3	-ve hit	2010
PTOOPTHFISHPEI	61.3	VU	1.9	false	2008
REXSOLEGA	(36.3)	not threatened	2.5	-ve hit	2007
REYERROCKBSAI	(8.4)	not threatened	1.1	-ve hit	2009
REYERROCKGGA	18	not threatened	1.6	-ve hit	2007
RPORTSYSATLC	23.8	not threatened	0.5	miss	2003
RSNAPEGM	91.4	CR	0.2	+ve hit	2003
RSNAPSATLC	97.5	VU	0.0	+ve hit	2006
RSNAPWGM	57.2	VU	0.3	+ve hit	2003
SABLEFEISAIGA	31.4	not threatened	1.0	-ve hit	2008
SABLEFPCAN	44.3	not threatened	0.5	miss	2004
SBT	94.2	CR	0.2	+ve hit	2009
SBWHITACR	(4.4)	not threatened	1.3	-ve hit	2006
SFLOUNNMATLC	(58.2)	not threatened	0.7	miss	2006
SILVERFISHSE	46.3	not threatened	1.1	-ve hit	2007
SKJCPAC	(9.7)	not threatened	4.0	-ve hit	2006
SMOOTHOREOCR	41.4	not threatened	2.3	-ve hit	2004
SMOOTHOREOWCR	68.2	VU	1.2	false	2004
SNOWGROUPSATLC	90.5	CR	0.2	+ve hit	2002
SOLECS	(28.4)	not threatened	1.8	-ve hit	2005
SOLEIS	81.9	EN	0.4	+ve hit	2011
SOLEVIII	18.4	not threatened	0.9	miss	2011
SOUTHHAKECR	55.9	VU	2.1	false	2006
SOUTHHAKESA	34.7	not threatened	3.0	-ve hit	2007
SPANMACKSATLC	(20.2)	not threatened	0.3	miss	2005
SSTHORINHPCOAST	68.2	not threatened	1.6	-ve hit	2005
STFLOUNNPCOAST	(118.9)	not threatened	1.3	-ve hit	2005
STFLOUNSPCOAST	(283.3)	not threatened	1.6	-ve hit	2005
STMARLINSWPO	25.8	not threatened	0.6	miss	2003
SWHTSE	41	VU	0.7	-ve hit	2007
TIGERFLATSE	(132.5)	not threatened	2.1	false	2006
TILESATLC	66.2	VU	1.0	+ve hit	2005
TREALLYTRE7	58.8	CR	0.5	false	2005
WAREHOUSE	93.5	EN	0.5	+ve hit	2006
WAREHOUSE	74.2	EN	0.2	+ve hit	2008
WEAKFISHATLC	75.9	VU	0.3	+ve hit	2007
WHAKEGBGBOM	59.5	VU	0.3	miss	2010
WHITNS-VThd-IIa	35.9	not threatened	0.6	-ve hit	2010
WHITVilek	35.5	not threatened	1.5	miss	2006
WINFLOUN5Z	6.2	not threatened	0.3	miss	2007
WINFLOUNSNEMATL	33.8	not threatened	0.1	miss	2007

WITFLOUN5Y	72.1	EN	0.3	+ve hit	2007
WPOLLAI	80.3	EN	0.9	false	2008
WPOLLEBS	37.1	not threatened	0.9	+ve hit	2008
WPOLLGA	69.9	VU	0.8	miss	2008
YELLCCODGOM	(8.5)	not threatened	0.2	+ve hit	2008
YELLGGB	(86.1)	not threatened	0.1	miss	2007
YELLSNEMATL	(159.3)	not threatened	0.1	miss	2007
YEYEROCKPCOAST	84.9	EN	0.4	+ve hit	2006
YFINATL	31.6	not threatened	1.1	-ve hit	2006
YFINCWpac	43.3	not threatened	1.3	-ve hit	2005
YSOLEBSAI	(460)	not threatened	2.0	-ve hit	2008
YTROCKKNPCOAST	38.6	not threatened	1.4	-ve hit	2005
ANCHOBAYB	(1.9)	not threatened	1.8	-ve hit	hit.n
CODYTiek	56.1	VU	0.9	miss	2011
HADROCK	17.1	not threatened	1.7	+ve hit	2011
HEFRSIRS	(79.1)	not threatened	2.3	-ve hit	hit.n
PLAICNS	(1.5)	not threatened	1.7	-ve hit	2010
POLLIEG	34	not threatened	1.5	-ve hit	hit.n
SEBLINSSA1	(130.5)	not threatened	1.6	-ve hit	2011
SEBLINSSA2	(111.2)	not threatened	1.4	-ve hit	hit.n
SEBLINSSA3	(108.2)	not threatened	0.9	miss	2011
SOLENS	(3.2)	not threatened	1.0	-ve hit	hit.n
SOLEVId	(25.2)	not threatened	1.5	-ve hit	2010
WHTTVIa	84.9	EN	0.2	+ve hit	2011
				hit.p	

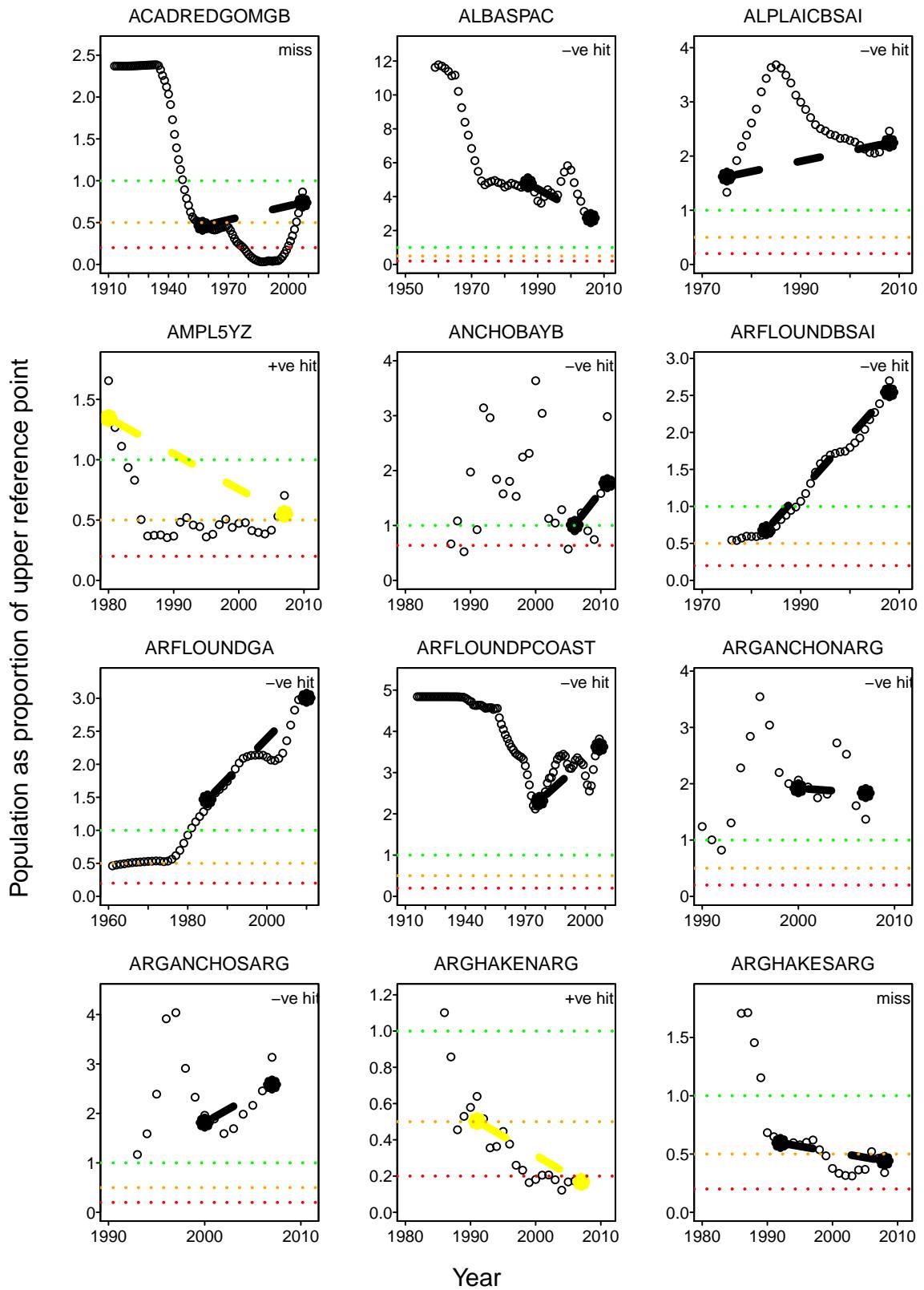
**Table S3.** The proportion (%) of populations meeting each of four possible alignment outcomes (positive hit, negative hit, miss or false alarm) under four different scenarios using IUCN Criterion A4. The A4 criterion a population as being threatened if a 30% decline is observed over the longer of 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;  $B_{\text{msy}}$  or  $B_{\text{pa}}$ ) or lower (riskier;  $0.5B_{\text{msy}}$  or  $B_{\text{lim}}$ ) reference points.

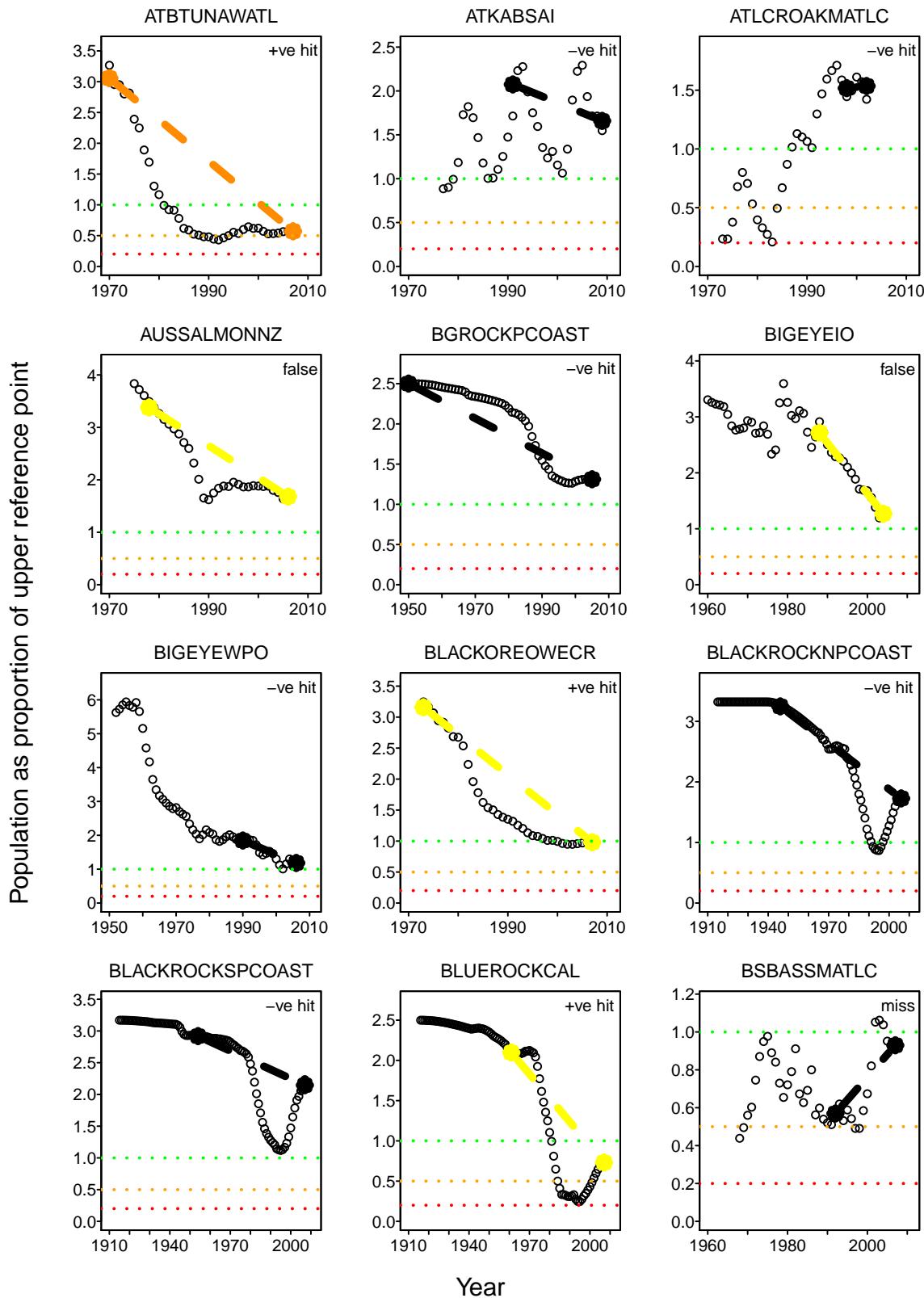
	Ref. point	Hit(+ve)	Hit (-ve)	Miss	False Alarm	# of populations
A) Current Status	Upper	28.3	39.2	12.0	20.5	166
	Lower	17.5	47.6	3.6	31.3	166
B) Greatest Decline	Upper	51.8	16.9	1.8	29.5	166
	Lower	33.7	18.1	0.6	47.6	166

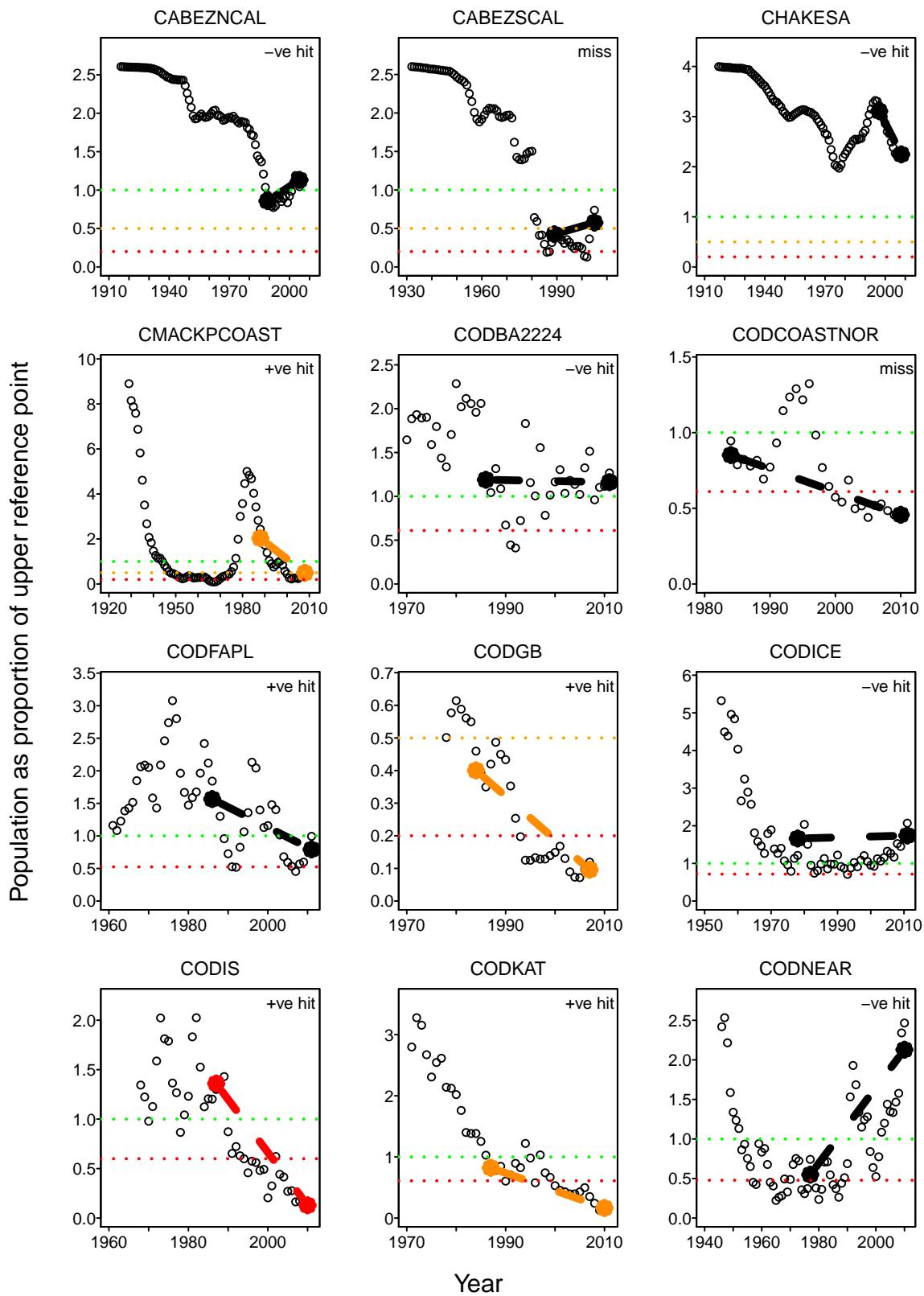
**Table S4. Alignment of populations over a 15 year decline period.** The proportion (%) of populations meeting each of four possible outcomes (positive hit, negative hit, miss or false alarm) over a decline period of 15 years for all populations when A) their current estimated Red List status or B)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

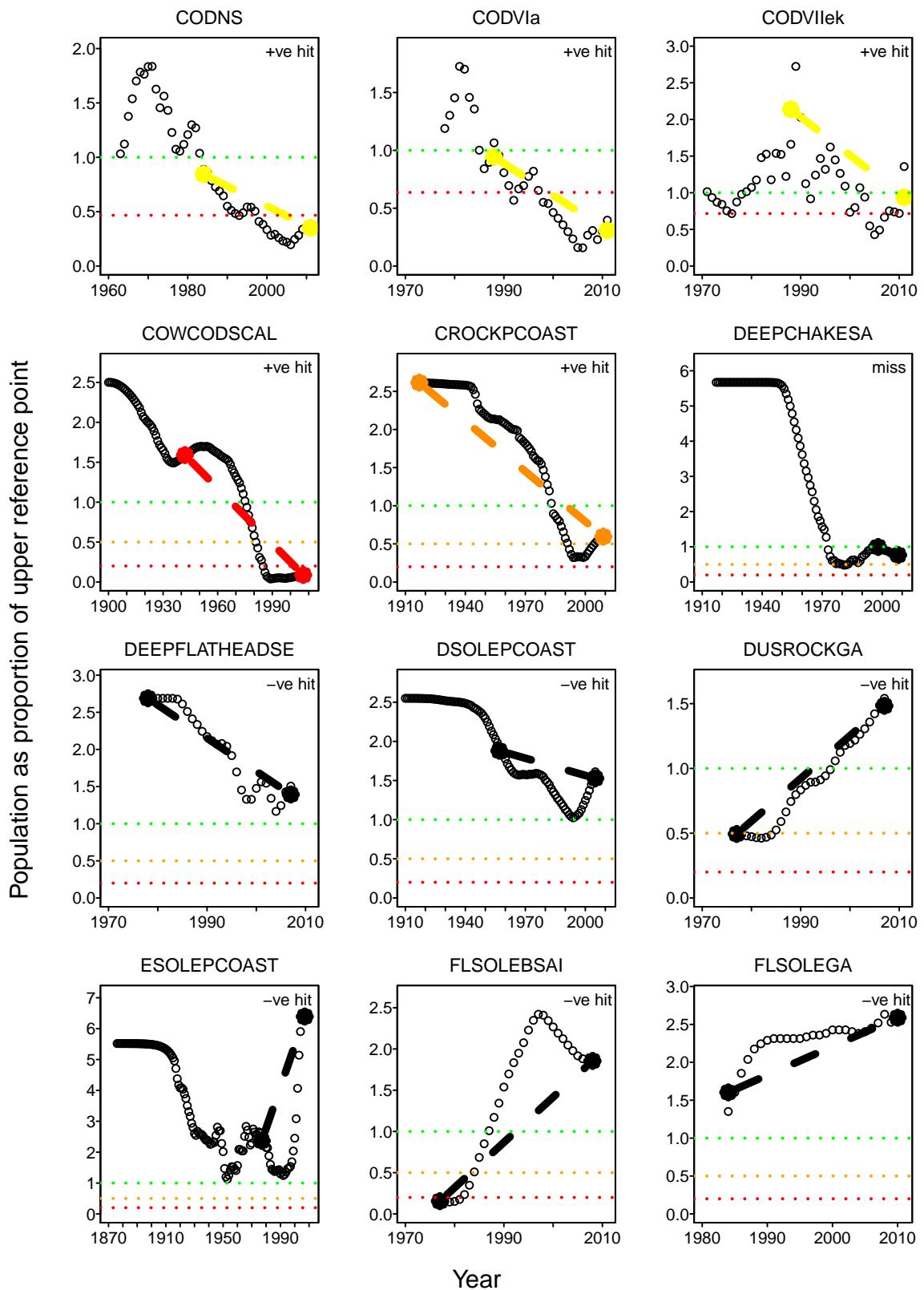
	Ref. point	Hit(+ve)	Hit (-ve)	Miss	False Alarm	# of populations
A) Current Status	Upper	10.8	54.8	29.5	4.8	166
	Lower	9.4	71.7	12.7	7.2	166
B) Greatest Decline	Upper	46.4	29.5	9.0	15.1	166
	Lower	30.1	35.5	3.0	31.3	166

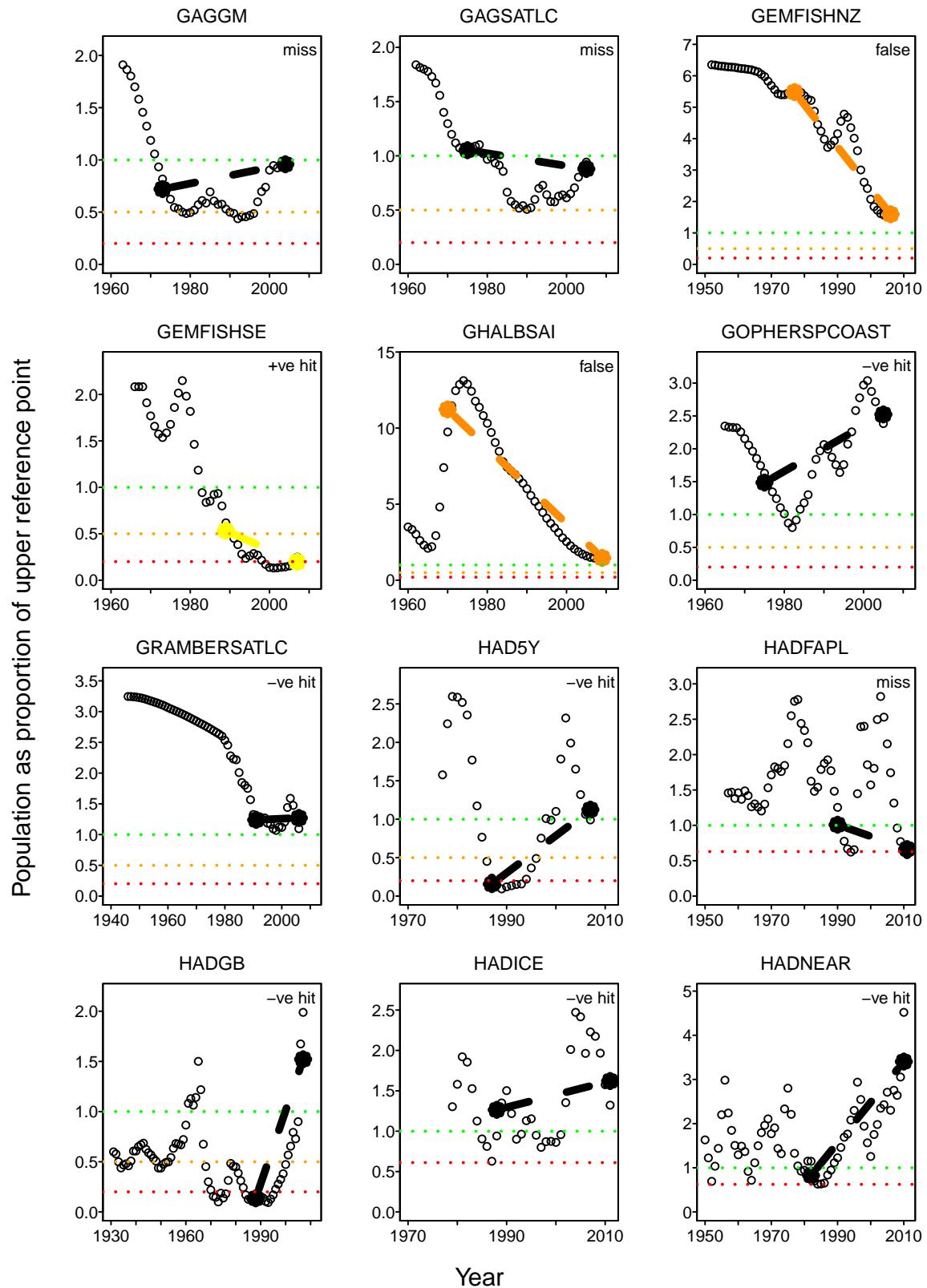
**Figure S1. Time series of adult biomass for the 166 assessed marine fish populations.** Population codes and associated descriptions are listed in Tables S1 and S2. Colored dotted lines correspond to fisheries reference points:  $B_{\text{msy}}$  or  $B_{\text{pa}}$  (green),  $0.5B_{\text{msy}}$  (yellow),  $0.2B_{\text{msy}}$  or  $B_{\text{lim}}$  (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.

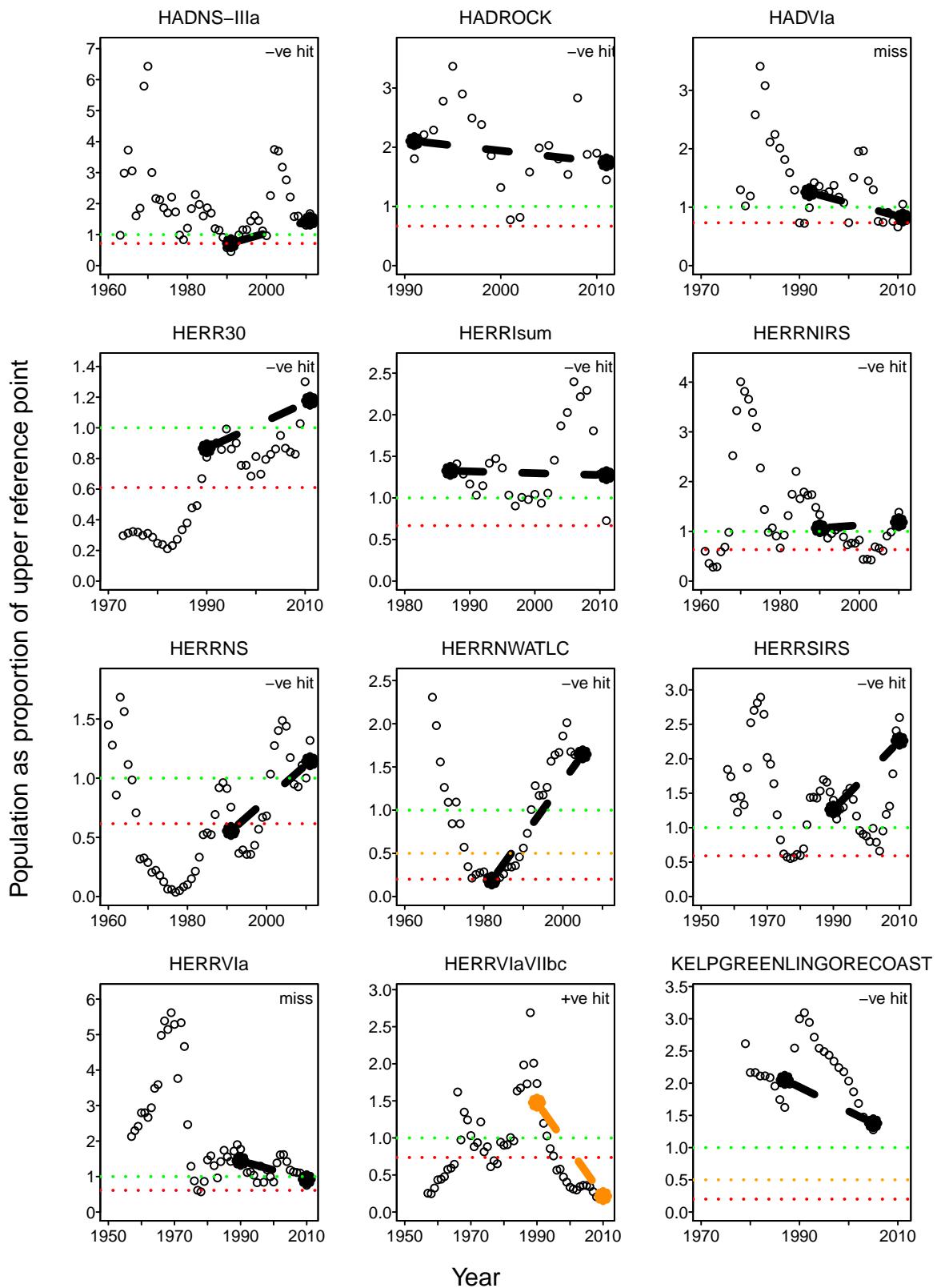


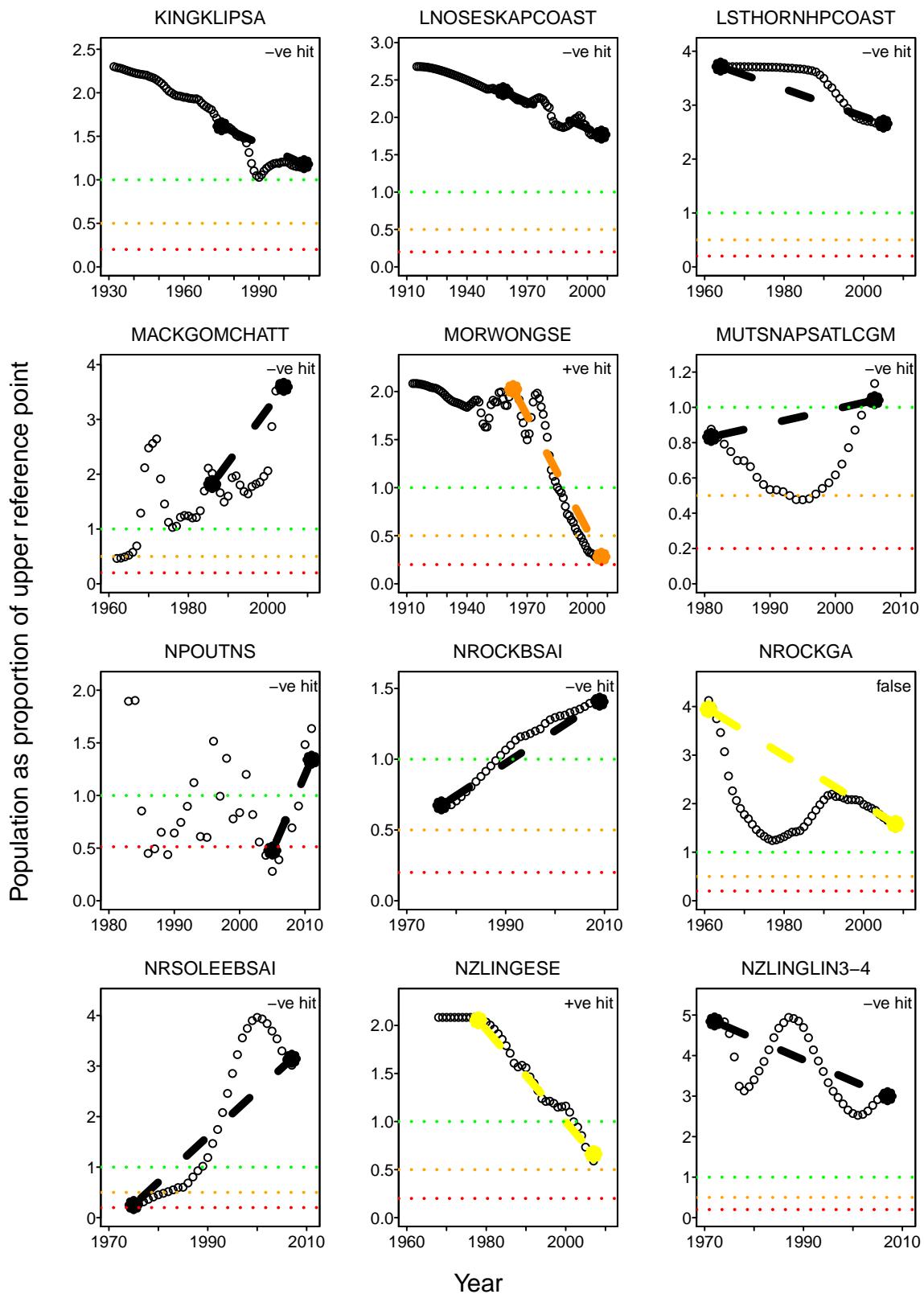


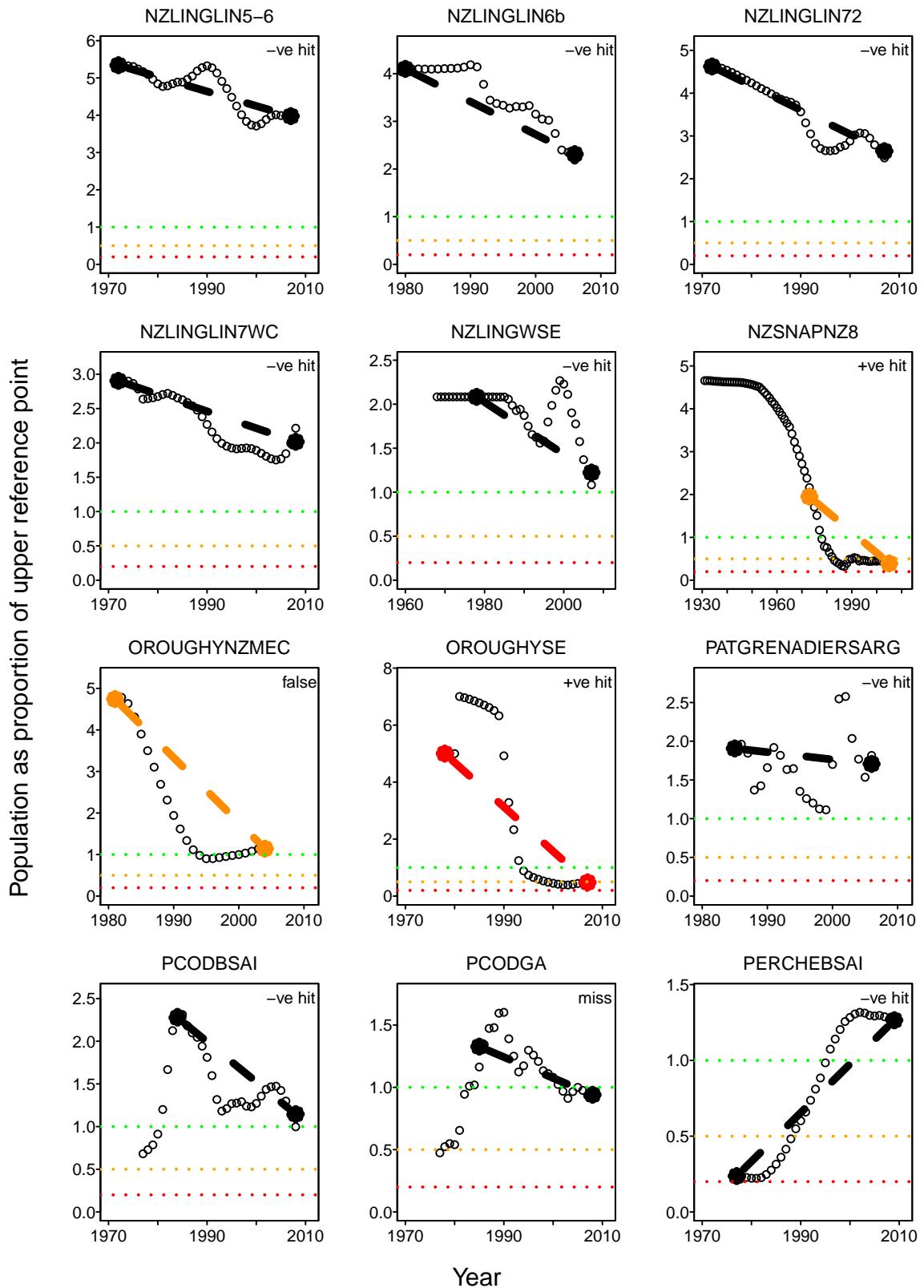


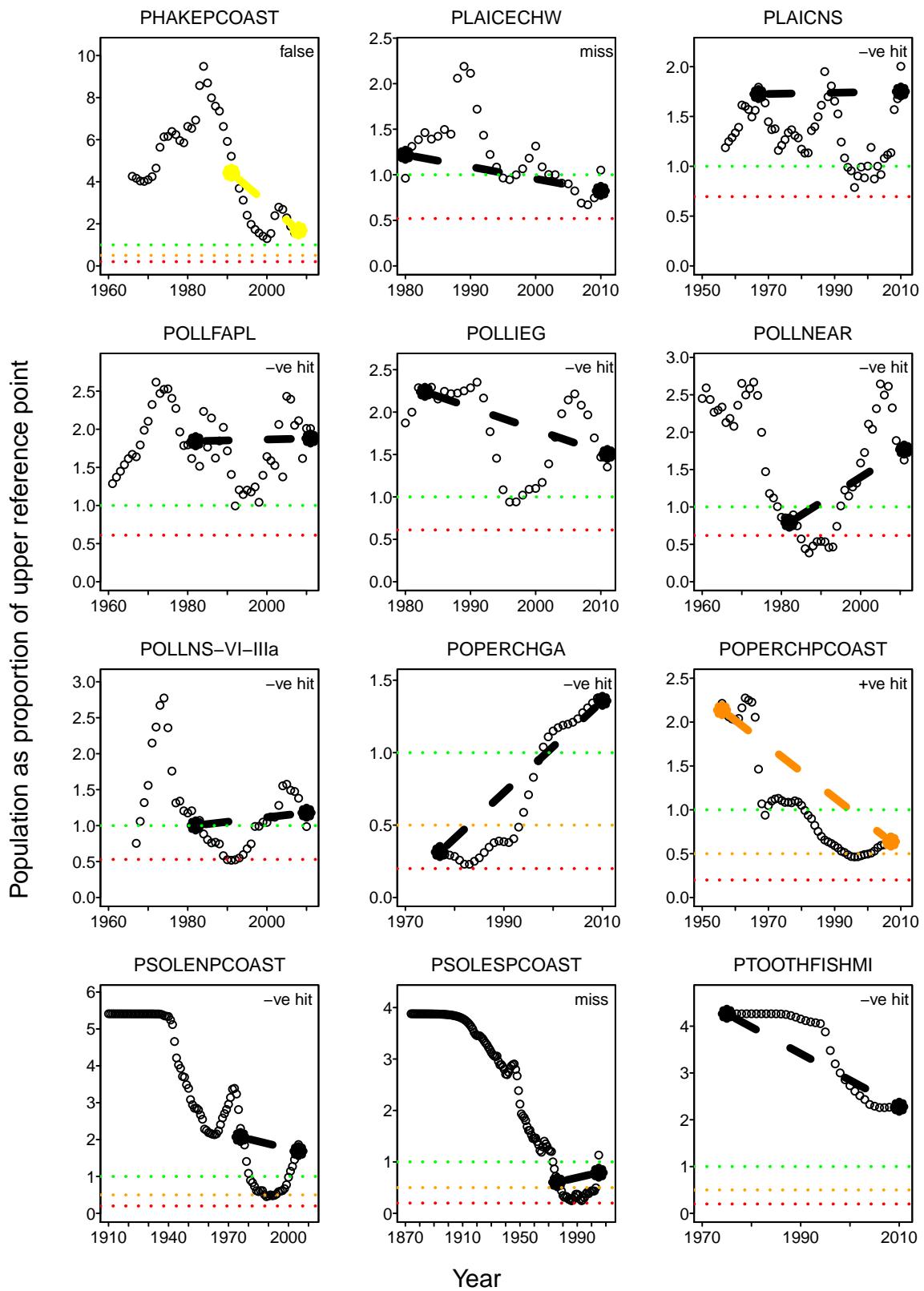


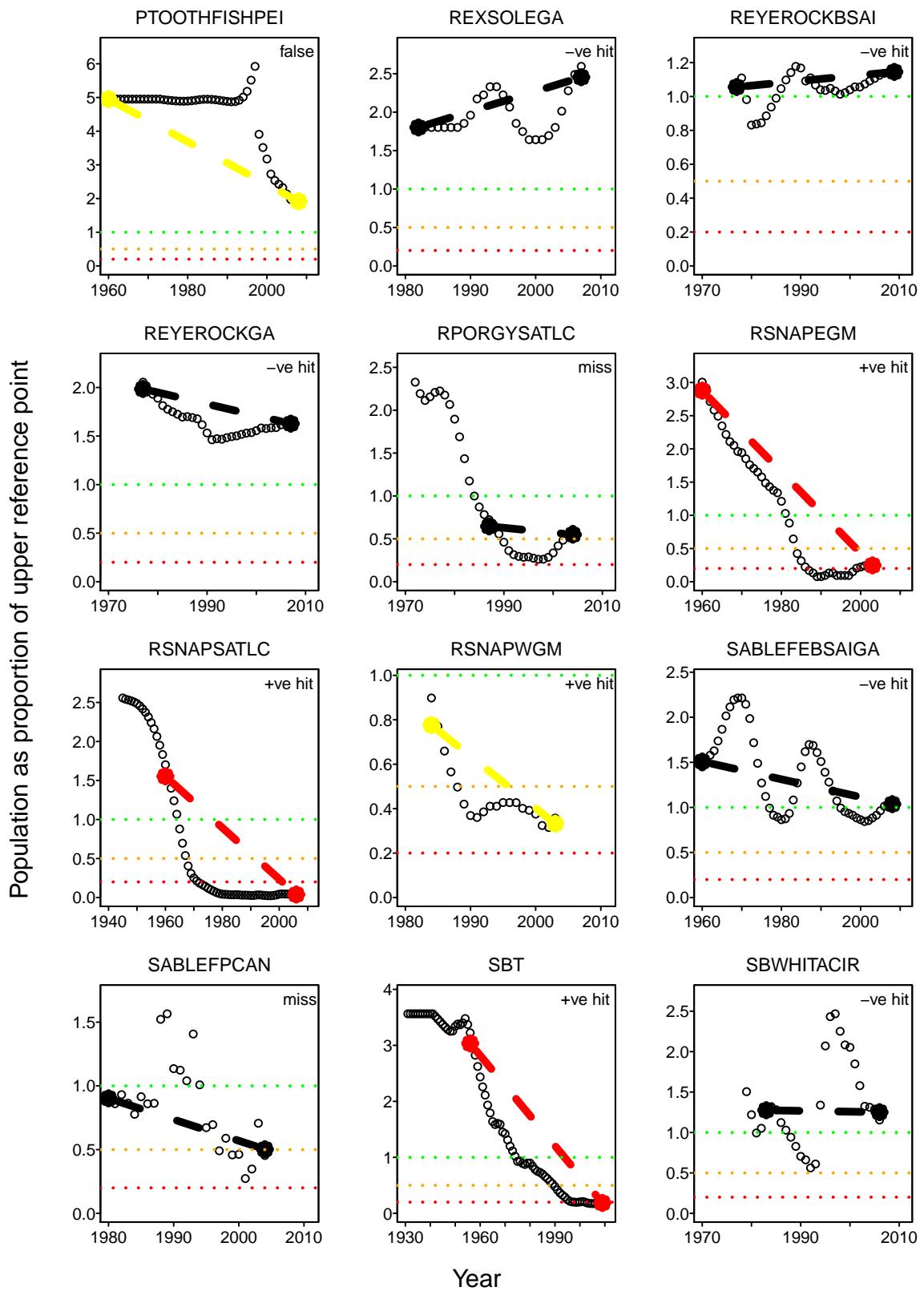


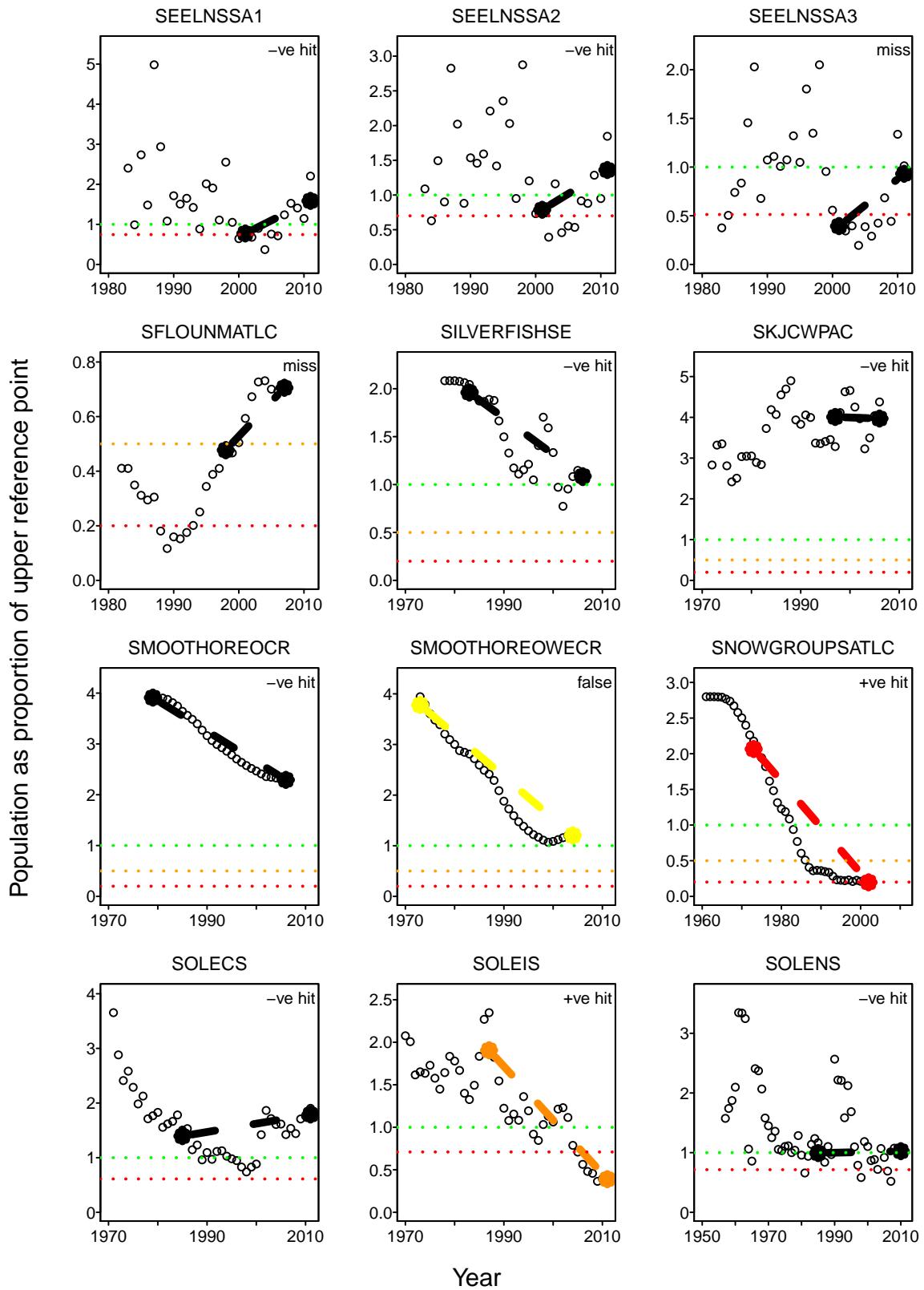


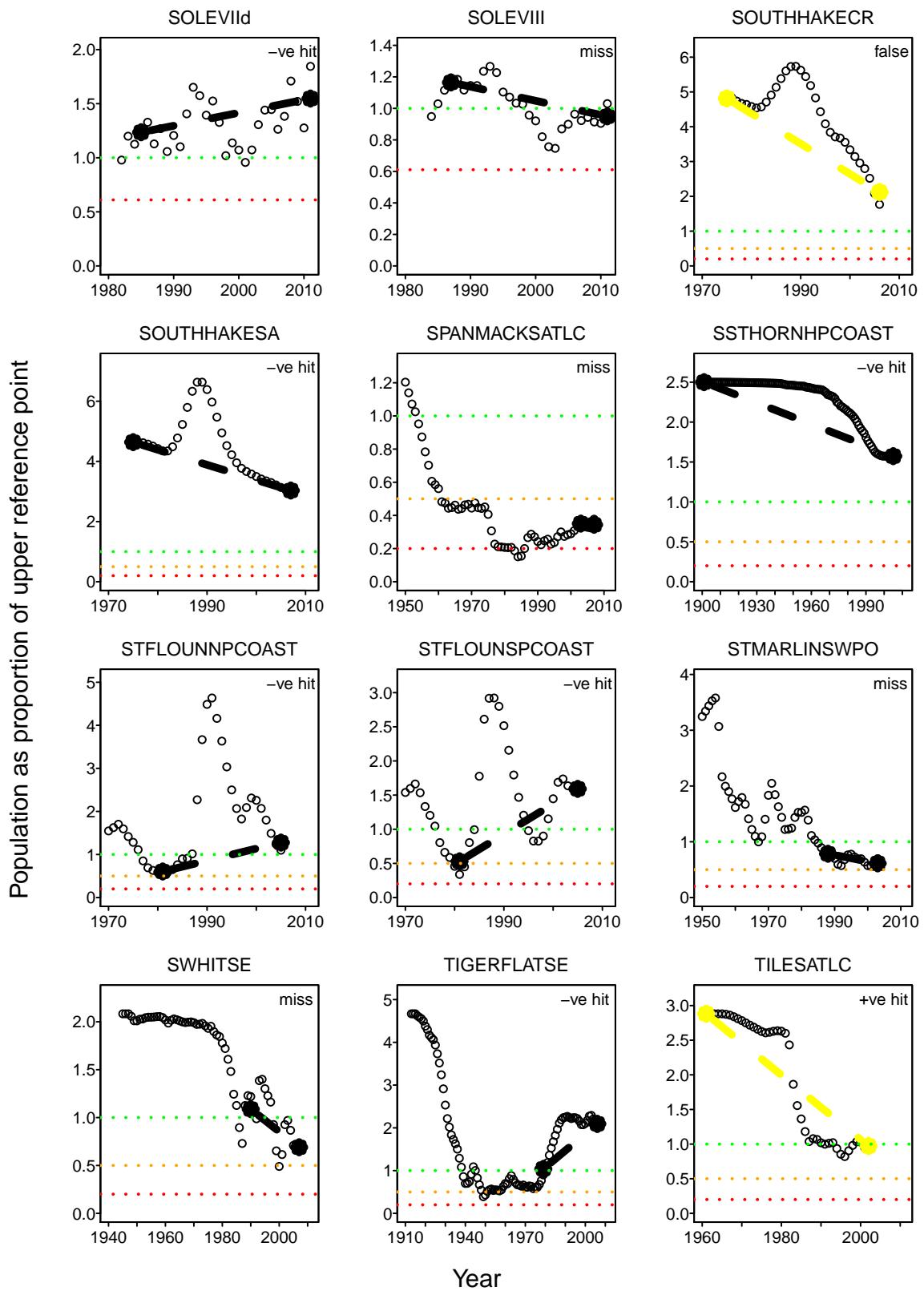


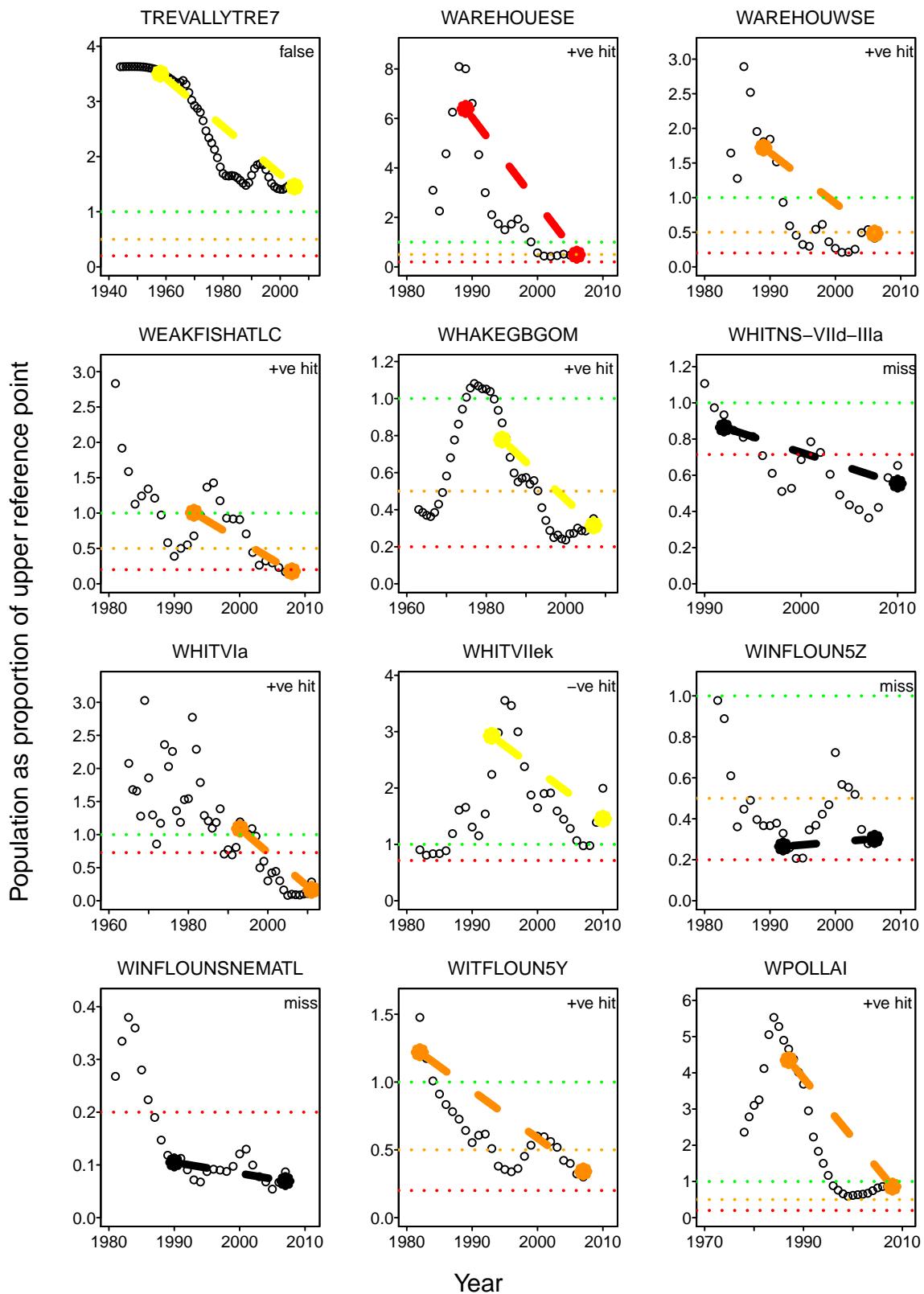


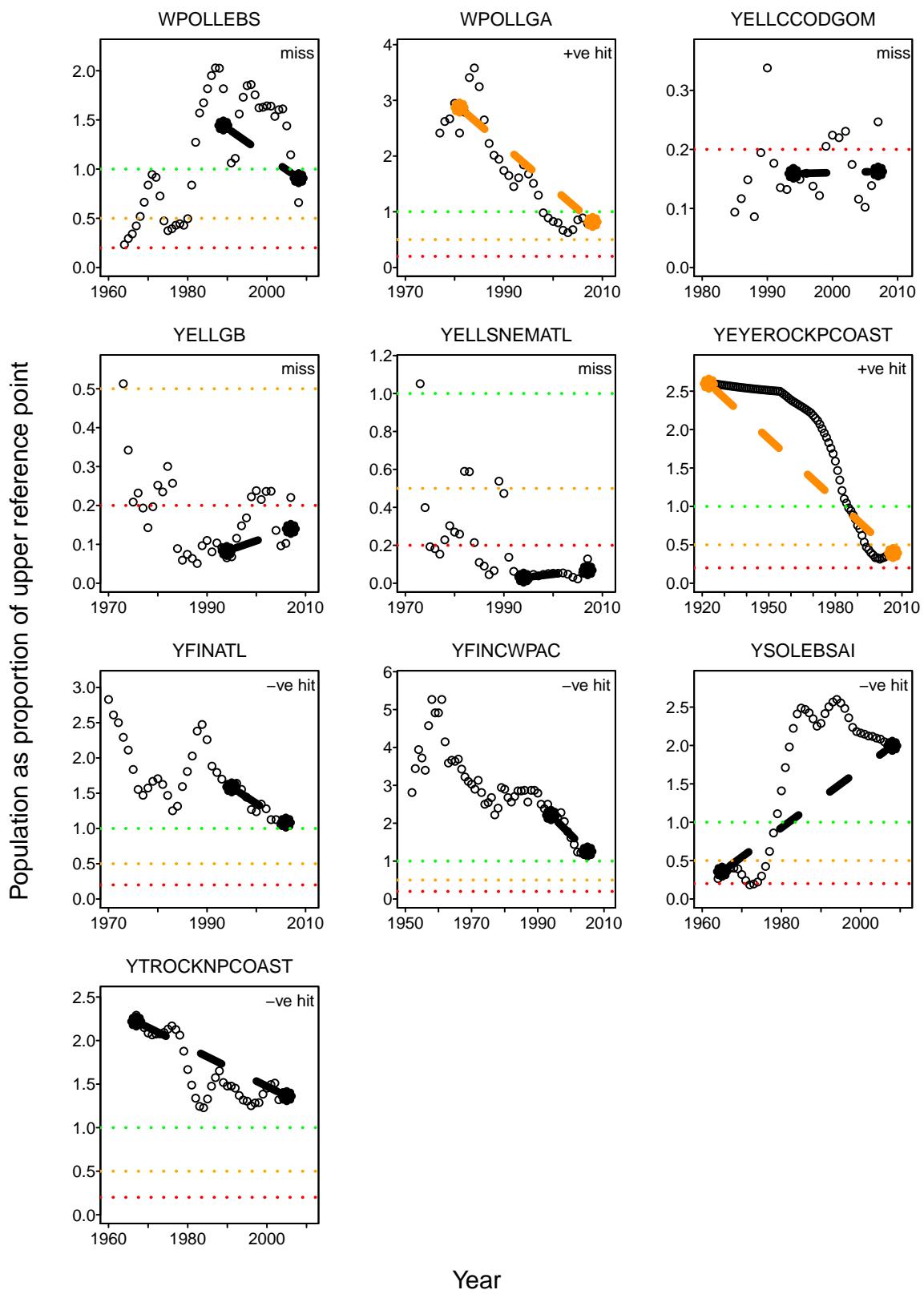












**Figure S1.**