APPENDIX H

Model Output

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TABLE OF CONTENTS

TABLES

Bering Sea and Aleutian Islands Alternatives 1 through 4 Tables

TABLES (cont.)

TABLES (cont.)

TABLES (cont.)

Gulf of Alaska Alternatives 1 through 4 Tables

TABLES (cont.)

TABLES (cont.)

Bering Sea and Aleutian Islands Preferred Alternative Tables

TABLES (cont.)

TABLES (cont.)

TABLES (cont.)

Gulf of Alaska Preferred Alternative Tables

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TABLES (cont.)

TABLES (cont.)

TABLES (cont.)

TABLES (cont.)

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FIGURES

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Appendix H Model Output

1.0 Introduction

The following is intended to provide a brief introduction of why this multi-species model approach was taken. Some general concepts and limitations are provided in a brief presentation (Section 3). Abbreviations and acronyms used to describe the model output are defined in Tables 1-1 through 1-3. Documentation of some of the assumptions for each FMP follows below.

1.1 Assumptions

FMP 1

Baseline runs. The multi-species catch-by-fishery data are based on the 1997-2001 average for all fisheries except for the EBS pollock and the AI Atka mackerel fisheries. The latter use averages from 2000 & 2001 only. The values for retention rates are shown in the Table 1-5 and the average ex-vessel price is presented in Table 1-7. The catch by species is presented in tables 4-1 through 4-82.

NOTE: Salmon and crabs are in thousands of individuals. All other species are in thousands of tons.

FMP 2.1

Same as FMP 1 but with pre-IFQ bycatch rates for sablefish fisheries and earlier estimates of halibut mortality, the OY set to sum of ABC's and the PSC limits are removed. F_{ABC} set to F_{OFL} ($F_{35\%}$) and the F_{ABC} is kept constant over all values of biomass. All gear allocation constraints are removed. Figures 4-1 through 4-16 depict the projected spawning biomass and catch data for selected species under FMP 2.1.

FMP 2.2

This FMP is identical to FMP 1 except that the OY is set to sum of ABCs.

FMP 3.1

The same as FMP 1 except that halibut mortality PSC reduced by 10%.

FMP 3.2

Same as FMP 1 but with two changes: (1) decreased bycatch of discarded species—i.e., C = R + D * 0.8, where C is the catch of a particular species in a particular fishery and R and D are estimated retained and discarded species respectively; and (2) increased retention of the catch that does occur—i.e., the discard rate is decreased by 20%.

The OY set to sum of ABC's and halibut mortality limit reduced by 30%.

A risk-averse adjustment was applied for all stocks:

$F_{Har} = F_{msy}$ * Adjustment

$F_{ABC} = \min(F_{Har}, F_{40\%}, F_{OFL\_FMP1})$

While for rockfish species an added measure of precaution was applied where:

$F_{ABC\_RF} = \min(F_{60\%}, F_{Har})$

The actual values for the adjustment are shown in Table 1-4 and a presentation of two scenarios where the risk-averse adjustment appears to be due to different sources is shown in Figure 1-1.

Retention rate matrix for this FMP for the BSAI and GOA is shown in Table 1-6.

FMP 4.1

The OY set to sum of ABC's. Fisheries with more than 33% bycatch (not counting Pacific cod, pollock and arrowtooth) were eliminated. Uncertainty corrections based on survey CVs. F_{ABC} = F75% for all prey species and rockfish. Note that uncertainty corrections applied to the F75% values too.

FMP 4.2

No fishing.

A summary of the model differences is given in Table 1-8.

Table 1-1. List of species (or species group) abbreviations detailed for the simulation-projection model, the category, and the type of information available.

GOA

Abbreviation	Species or species group	Assessment type	Species category
PLCK	pollock	Age-structured	FMP
PCOD	Pacific cod	Age-structured	FMP
DEEP	deepwater flatfish	Survey abundance	FMP
REXS	rex sole	Survey abundance	FMP
SHAL	shallow flatfish	Survey abundance	FMP
FSOL	flathead sole	Age-structured	FMP
ARTH	arrowtooth	Age-structured	FMP
SABL	sablefish	Age-structured	FMP
ORCK	other rockfish	Survey abundance	FMP
NRCK	northern rockfish	Age-structured	FMP
POP	Pacific ocean perch	Age-structured	FMP
PRCK	pelagic shelf rockfish	Survey abundance	FMP
DRCK	demersal shelf rockfish	Survey abundance	FMP
SRKR	shortraker/rougheye	Survey abundance	FMP
THDS	thornyheads	Age-structured	FMP
ATKA	atka mackerel	Survey abundance	FMP
HALM	halibut mortality	na	PSC
BAIR	bairdi	na	PSC
RKNG	red king crab	na	PSC
CHIN	chinook	na	PSC
OSAL	other salmon	na	PSC
HERR	herring	na	PSC
OTAN	other tanner crab	na	PSC
OKNG	other king crab	na	PSC
OTHR	other spp	Na	Other non-specified
sculpin	sculpins	na	Other non-specified
gunnel	gunnels	na	Other non-specified
sticheidae	sticheidae	na	Other non-specified
sandfish	sandfish	na	Other non-specified

Table 1-1 (Cont.). List of species (or species group) abbreviations detailed for the simulation-projection model, the category, and the type of information available.

Abbreviation	Species or species group	Assessment type	Species category
grenadier	grenadiers	na	Other non-specified
crabs	crabs	na	Other non-specified
starfish	starfish	na	Other non-specified
jellyfish	jellyfish	na	Other non-specified
invertunid	unidentified invertebrates	na	Other non-specified
seapen/whip	seapen/whip	na	Other non-specified
sponge	sponges	na	Other non-specified
anemone	anemones	na	Other non-specified
tunicate	tunicates	na	Other non-specified
benthinv	benthic invertebrates	na	Other non-specified
echinoderm	echinoderms	na	Other non-specified
otherfish	otherfish	na	Other non-specified
birds	birds	na	Other non-specified
smelts	smelts	na	Other non-specified
shark	shark	na	Other non-specified
salmonshk	salmon shark	na	Other non-specified
dogfish	dogfish	na	Other non-specified
sleepershk	sleeper shark	na	Other non-specified
skates	skates	na	Other non-specified
lanternfish	lanternfish	na	Other non-specified
sandlance	sandlance	na	Other non-specified
octopus	octopus	na	Other non-specified
SQUD	squid	na	Other non-specified
coral	coral	na	Other non-specified
shrimp	shrimp	na	Other non-specified

BSAI

Abbreviation	Species or species group	Assessment type	Species category
PLCK	EBS pollock	Age-structured	FMP
AIPLCK	Aleutian Islands pollock	Survey abundance	FMP
PCOD	Pacific cod	Age-structured	FMP
YSOL	yellowfin sole	Age-structured	FMP
GTRB	Greenland turbot	Age-structured	FMP
ARTH	arrowtooth	Age-structured	FMP
RSOL	Rock sole	Age-structured	FMP
FSOL	flathead sole	Age-structured	FMP
AKPLC	Alaska plaice	Age-structured	FMP
OFLT	other flatfish	Survey abundance	FMP
SABL	sablefish	Age-structured	FMP
BSAIPOP	Pacific ocean perch	Age-structured	FMP
AIORCK	Aleutian Islands Other rockfish	Survey abundance	FMP
BSORCK	Bering Sea Other rockfish	Survey abundance	FMP

Table 1-1. (Cont.) **List of species (or species group) abbreviations detailed for the simulation-projection model, the category, and the type of information available.**

Abbreviation	Species or species group	Assessment type	Species category
BSAINrthrn	northern rockfish	Survey abundance	FMP
BSAISRKR	shortraker/rougheye	Survey abundance	FMP
ATKA	Atka mackerel	Age-structured	FMP
SQUD	squid	Survey abundance	FMP
BSAIOTHSPP	other species	Survey abundance	FMP
HALM	halibut mortality	na	PSC
BAIR	bairdi crab	na	PSC
RKNG	Red king crab	na	PSC
CHIN	chinook	na	PSC
OSAL	other salmon	na	PSC
HERR	herring	Na	PSC
OTAN	other tanner crab	Na	PSC
OKNG	other king crab	Na	PSC
Sculpin	sculpin	Na	Other non-specified
Gunnel	gunnel	Na	Other non-specified
Sticheidae	sticheidae	Na	Other non-specified
Sandfish	sandfish	Na	Other non-specified
Grenadier	grenadier	Na	Other non-specified
Crabs	crabs	Na	Other non-specified
Starfish	starfish	Na	Other non-specified
Jellyfish	jellyfish	Na	Other non-specified
Invertunid	invertunid	Na	Other non-specified
seapen/whip	seapen/whip	Na	Other non-specified
Sponge	sponge	Na	Other non-specified
Anemone	anemone	Na	Other non-specified
Tunicate	tunicate	Na	Other non-specified
Benthinv	benthinv	Na	Other non-specified
Echinoderm	echinoderm	Na	Other non-specified
Otherfish	otherfish	Na	Other non-specified
Birds	birds	Na	Other non-specified
Smelts	smelts	Na	Other non-specified
Shark	shark	Na	Other non-specified
Salmonshk	salmonshk	Na	Other non-specified
Dogfish	dogfish	Na	Other non-specified
Sleepershk	sleepershk	Na	Other non-specified
Skates	skates	Na	Other non-specified
Lanternfish	lanternfish	na	Other non-specified
Sandlance	sandlance	na	Other non-specified
Octopus	octopus	na	Other non-specified
Squid	squid	na	Other non-specified
Coral	coral	na	Other non-specified
Shrimp	shrimp	na	Other non-specified

Table 1-2. List of fishery abbreviations used in the model and their relationship to target species, gear, and area of operation for the GOA.

Fishery Abbreviation	Area	Gear	Target species
C_BTR_ARCK	Central Gulf of Alaska	Bottom trawl	Aggregate rockfish
C_BTR_DEEP	Central Gulf of Alaska	Bottom trawl	Deepwater flatfish
C_BTR_FSOL	Central Gulf of Alaska	Bottom trawl	Flathead sole
C_BTR_PCOD	Central Gulf of Alaska	Bottom trawl	Pacific cod
C_BTR_PLCK	Central Gulf of Alaska	Bottom trawl	Pollock
C_BTR_POP	Central Gulf of Alaska	Bottom trawl	Pacific ocean perch
C_BTR_REXS	Central Gulf of Alaska	Bottom trawl	Rex sole
C_BTR_SHAL	Central Gulf of Alaska	Bottom trawl	Shallow flatfish
C_BTR_SRKR	Central Gulf of Alaska	Bottom trawl	Shortraker/rougheye
C_HAL_PCOD	Central Gulf of Alaska	Longline	Pacific cod
C_HAL_SABL	Central Gulf of Alaska	Longline	Sablefish
C_POT_PCOD	Central Gulf of Alaska	Pot	Pacific cod
C_PTR_PLCK	Central Gulf of Alaska	Pelagic trawl	Pollock
C_PTR_POP	Central Gulf of Alaska	Pelagic trawl	Pacific ocean perch
E_BTR_DEEP	Eastern Gulf of Alaska	Bottom trawl	Deepwater flatfish
E_BTR_POP	Eastern Gulf of Alaska	Bottom trawl	Pacific ocean perch
E_HAL_PCOD	Eastern Gulf of Alaska	Longline	Pacific cod
E_HAL_SABL	Eastern Gulf of Alaska	Longline	Sablefish
E_POT_PCOD	Eastern Gulf of Alaska	Pot	Pacific cod
E_PTR_PLCK	Eastern Gulf of Alaska	Pelagic trawl	Pollock
E_PTR_POP	Eastern Gulf of Alaska	Pelagic trawl	Pacific ocean perch
W_BTR_ARCK	Western Gulf of Alaska	Bottom trawl	Aggregate rockfish
W_BTR_ARTH	Western Gulf of Alaska	Bottom trawl	Arrowtooth flounder
W_BTR_FSOL	Western Gulf of Alaska	Bottom trawl	Flathead sole
W_BTR_PCOD	Western Gulf of Alaska	Bottom trawl	Pacific cod
W_BTR_POP	Western Gulf of Alaska	Bottom trawl	Pacific ocean perch
W_BTR_REXS	Western Gulf of Alaska	Bottom trawl	Rex sole
W_BTR_SHAL	Western Gulf of Alaska	Bottom trawl	Shallow flatfish
W_HAL_PCOD	Western Gulf of Alaska	Longline	Pacific cod
W_HAL_SABL	Western Gulf of Alaska	Longline	Sablefish
W_POT_PCOD	Western Gulf of Alaska	Pot	Pacific cod
W_PTR_PLCK	Western Gulf of Alaska	Pelagic trawl	Pollock

Table 1-3. List of fishery abbreviations used in the model and their relationship to target species, gear, and area of operation for the BSAI.

Fishery Abbreviation	Area	Gear	Target species
B_BTR_FSOL	Eastern Bering Sea	Bottom trawl	Flathead sole
B_BTR_GTRB	Eastern Bering Sea	Bottom trawl	Greenland turbot
B_BTR_OFLT	Eastern Bering Sea	Bottom trawl	Other Flatfish
B_BTR_PCOD	Eastern Bering Sea	Bottom trawl	Pacific cod
B_BTR_RSOL	Eastern Bering Sea	Bottom trawl	Rock sole
B_BTR_SABL	Eastern Bering Sea	Bottom trawl	Sablefish
B_BTR_YSOL	Eastern Bering Sea	Bottom trawl	Yellowfin sole
B_HAL_GTRB	Eastern Bering Sea	Longline	Greenland turbot
B_HAL_PCOD	Eastern Bering Sea	Longline	Pacific cod
B_HAL_SABL	Eastern Bering Sea	Longline	Sablefish
B_POT_PCOD	Eastern Bering Sea	Pot	Pacific cod
B_PTR_PLCK	Eastern Bering Sea	Pelagic trawl	Pollock
C_BTR_ATKA	Central Aleutian Islands	Bottom trawl	Atka mackerel
C_BTR_PCOD	Central Aleutian Islands	Bottom trawl	Pacific cod
C_BTR_POP	Central Aleutian Islands	Bottom trawl	Pacific ocean perch
C_HAL_GTRB	Central Aleutian Islands	Longline	Greenland turbot
C_HAL_PCOD	Central Aleutian Islands	Longline	Pacific cod
C_HAL_SABL	Central Aleutian Islands	Longline	Sablefish
C_POT_PCOD	Central Aleutian Islands	Pot	Pacific cod
C_PTR_PLCK	Central Aleutian Islands	Pelagic trawl	Pollock
E_BTR_ATKA	Eastern Aleutian Islands	Bottom trawl	Atka mackerel
E_BTR_PCOD	Eastern Aleutian Islands	Bottom trawl	Pacific cod
E_BTR_POP	Eastern Aleutian Islands	Bottom trawl	Pacific ocean perch
E_HAL_GTRB	Eastern Aleutian Islands	Longline	Greenland turbot
E_HAL_PCOD	Eastern Aleutian Islands	Longline	Pacific cod
E_HAL_SABL	Eastern Aleutian Islands	Longline	Sablefish
E_POT_PCOD	Eastern Aleutian Islands	Pot	Pacific cod
E_PTR_PLCK	Eastern Aleutian Islands	Pelagic trawl	Pollock
W_BTR_ATKA	Western Aleutian Islands	Bottom trawl	Atka mackerel
W_BTR_PCOD	Western Aleutian Islands	Bottom trawl	Pacific cod
W_BTR_POP	Western Aleutian Islands	Bottom trawl	Pacific ocean perch
W_HAL_PCOD	Western Aleutian Islands	Longline	Pacific cod
W_HAL_SABL	Western Aleutian Islands	Longline	Sablefish
W_POT_PCOD	Western Aleutian Islands	Pot	Pacific cod
W_PTR_PLCK	Western Aleutian Islands	Pelagic trawl	Pollock

Table 1-4. The final values used for FMP 3.2.

Datafile_name	Geometric	Harmonic Mean	Adjustment factor (applied to $F_{35\%}$ as a proxy for F_{msy})
BSAI ATKA	0.455	0.269	0.592
BSAI POP	0.054	0.052	0.961
BS ATF	0.300	0.279	0.930
BS FHS	0.350	0.279	0.798
BSAI PCOD	0.321	0.241	0.751
BS ROCKSOLE	0.177	0.145	0.821
BS Pollock	0.532	0.331	0.622
BS YFS	0.125	0.114	0.916
GOA ATF	0.211	0.193	0.913
GOA FHS	0.372	0.242	0.651
GOA NRF	0.061	0.054	0.885
GOA POP	0.057	0.037	0.648
Sablefish	0.141	0.069	0.491
BSAI Greenland turbot	0.484	0.313	0.646
GOA PCOD	0.401	0.287	0.718*
GOA SST			0.831**
GOA Pollock			0.671***

Notes: *BSAI Pcod maturity-at-age
**Average of all rockfish stocks
***Average Pcod, pollock and Atka mackerel

Table 1-5. Retention rates in the Bering Sea and Aleutian Islands and Gulf of Alaska.

Fishery	PLCK	AIPLCK	PCOD	YSOL	GTURB	ARTH	RSOL	FSOL	AKPLC	OFLT	SABL	POP	AIORCK	BSORCK	NRCK	SRKR	ATKA
BSAI Retention Rates by fishery and stock for all FMPs (except FMP 3.2)																	
B_BTR_FSOL	0.426		0.952	0.599	0.849	0.188	0.318	0.868	0.098	0.271	0.837	0.709		0.841	0.025	0.871	0.983
B_BTR_GTRB	0.440		0.939	0.527	0.930	0.443	0.336	0.970	0.482	0.958	0.972	0.859		0.993		1.000	0.923
B_BTR_OFLT	0.509		0.976	0.650	0.477	0.176	0.407	0.808	0.545	0.839	0.659	0.576		0.571		0.912	0.628
B_BTR_PCOD	0.355		0.994	0.254	0.388	0.173	0.244	0.441	0.016	0.205	0.635	0.160		0.114	0.058	0.329	0.552
B_BTR_RSOL	0.500		0.965	0.722	0.803	0.304	0.589	0.643	0.103	0.078	0.564	0.727		0.625		0.920	0.428
B_BTR_SABL	0.717				0.141	0.297		0.984		0.971	1.000			0.776		1.000	
B_BTR_YSOL	0.619		0.938	0.861	0.728	0.484	0.377	0.775	0.183	0.051	0.929	0.352		0.556			0.988
B_HAL_GTRB	0.717		0.933		0.966	0.042		0.288			0.771	0.018		0.951		0.777	
B_HAL_PCOD	0.819		0.978	0.035	0.762	0.076	0.017	0.056	0.595	0.010	0.320	0.169		0.228		0.449	0.027
B_HAL_SABL			0.147		0.297	0.005		0.150			0.981			0.697		0.121	
B_POT_PCOD	0.594		0.997	0.025	0.200	0.042	0.042	0.605		0.649	0.857	0.467		0.024		0.070	0.029
B_PTR_PLCK	0.997		0.957	0.349	0.430	0.444	0.359	0.449	0.135	0.840	0.809	0.591		0.241	0.110	0.616	0.329
C_BTR_ATKA		0.891	0.988		0.769	0.575	0.278			0.181	0.142	0.449	0.100		0.050	0.585	0.896
C_BTR_PCOD		0.759	0.996		0.232	0.066	0.233	0.194		0.306	1.000	0.213	0.063		0.005	0.455	0.657
C_BTR_POP		0.685	0.982		0.998	0.427	0.650	0.039		0.992	0.979	0.972	0.599		0.112	0.926	0.814
C_HAL_GTRB			0.246		0.973	0.001					0.880	0.636	0.624			0.362	
C_HAL_PCOD		0.617	0.961		0.445	0.052					0.846	0.004	0.044			0.167	0.163
C_HAL_SABL		0.636	0.747		0.661	0.175	0.035				0.992		0.964		1.000	0.501	0.500
C_POT_PCOD			0.995			0.041	0.025				1.000		0.089			0.317	0.130
C_PTR_PLCK		1.000	0.885		0.796		1.000					0.483				0.584	1.000
E_BTR_ATKA		0.843	0.991	0.028	0.913	0.425	0.336	0.562		0.668	0.943	0.581	0.208		0.071	0.810	0.962
E_BTR_PCOD		0.147	0.987		0.081	0.050	0.106	0.030		0.047	0.358	0.118	0.044		0.003	0.226	0.264
E_BTR_POP		0.547	0.998		0.934	0.623	0.077	0.266		0.639	0.997	0.968	0.798		0.276	0.794	0.763
E_HAL_GTRB		0.384	0.784		0.938	0.013					0.880	0.182	0.816			0.591	
E_HAL_PCOD		0.823	0.977		0.778	0.005	0.032	0.013			0.819	0.198	0.183		0.012	0.232	0.001
E_HAL_SABL		0.192	0.680		0.518	0.070		0.648		0.898	0.971	0.967	0.871			0.471	
E_POT_PCOD		0.061	0.995	0.243	0.570	0.001				0.875	0.931		0.021				0.126
E_PTR_PLCK		1.000										0.974					
W_BTR_ATKA		0.817	0.990		0.576	0.535	0.083	0.303		0.402	1.000	0.474	0.094		0.024	0.623	0.953
W_BTR_PCOD		0.235	0.996		1.000	0.008	0.041	0.071				0.008	0.002				0.583
W_BTR_POP		0.935	1.000		0.908	0.529	0.480	0.721		0.787	1.000	0.966	0.522		0.568	0.988	0.795
W_HAL_PCOD		0.670	0.986		0.703	0.002		0.007			0.387	0.005	0.153			0.355	0.446
W_HAL_SABL			0.968		0.831						0.995		0.913			0.082	
W_POT_PCOD			0.998										0.123				0.066
W_PTR_PLCK		1.000	1.000				1.000	1.000				0.178				0.146	

Table 1-5 (cont.). Retention rates in the Bering Sea and Aleutian Islands and Gulf of Alaska.

Fishery	PLCK	PCOD	DEEP	REXS	SHAL	FSOL	ATF	SABL	ORCK	NRCK	POP	PRCK	DRCK	SRKR	THDS	ATKA	OTHR
GOA Retention rates by fishery and stock for all FMPs (except for FMP 3.2)																	
C_BTR_NRCK	0.452	0.813	0.697	0.657	0.951	0.525	0.206	0.739	0.476	0.982	0.768	0.988		0.761	0.900	0.979	0.005
C_BTR_DEEP	0.354	0.703	0.997	0.980	0.858	0.906	0.285	0.616	0.716	0.194	0.070	0.520		0.388	0.786		0.062
C_BTR_FSOL	0.929	0.813	0.978	0.979	0.951	0.997	0.174	0.901		0.814	0.935	0.805		1.000	1.000		0.154
C_BTR_PCOD	0.780	0.990	0.598	0.905	0.889	0.817	0.159	0.263	0.025	0.286	0.057	0.453		0.595	0.406	0.001	0.054
C_BTR_PLCK	0.977	0.997	0.844	0.978	0.929	0.917	0.148	0.192		0.072	0.022	0.412		0.993	1.000		0.345
C_BTR_POP	0.335	0.863	0.584	0.610	0.770	0.745	0.255	0.828	0.232	0.886	0.948	0.901		0.920	0.900		0.085
C_BTR_REXS	0.723	0.875	0.084	0.990	0.384	0.737	0.042	0.448	0.003	0.017	0.090	0.062		0.744	0.886		0.000
C_BTR_SHAL	0.618	0.619	0.987	0.967	0.958	0.989	0.291	0.297	0.291	0.965	0.264	0.930		0.599	0.883		0.374
C_BTR_SRKR	0.618	0.619	0.987	0.967	0.958	0.989	0.291	0.297	0.291	0.965	0.264	0.930		0.599	0.883		0.374
C_HAL_PCOD	0.361	0.992	0.095		0.034	0.010	0.000	0.528	0.891	0.155	1.000	0.569		0.117	0.530		0.025
C_HAL_SABL	0.011	0.734	0.027		0.024		0.014	0.975	0.783		0.493	0.775		0.481	0.921		0.033
C_POT_PCOD	0.434	0.992	0.611	1.000	0.584	1.000	0.002	0.017	0.917		0.639	0.008					0.388
C_PTR_PLCK	0.995	0.989	0.919	0.693	0.589	0.809	0.823	0.612	1.000	0.370	0.753	1.000		0.238	1.000	1.000	0.450
C_PTR_POP	0.227	0.891	0.973	0.947	1.000	1.000	0.105	0.990	0.606	0.893	0.996	0.953		0.978	0.983		
E_BTR_DEEP	0.753	0.318	0.999	0.967	0.029	0.200	0.095	0.500	0.569		0.685	0.081		0.545	0.846		0.173
E_BTR_POP	0.201	0.918	0.051	0.606		0.078	0.100	0.964	0.844	0.991	0.995	0.990		0.995	0.966		0.012
E_HAL_PCOD	0.517	0.985	0.438		0.189		0.011	0.737	0.995		1.000	0.865	0.981	0.913	0.983		0.129
E_HAL_SABL	0.023	0.453	0.075		0.081		0.002	0.983	0.645		0.661	0.685	0.974	0.709	0.958	1.000	0.023
E_POT_PCOD	0.348	0.993							1.000			0.028					0.315
E_PTR_PLCK	0.998	0.821					0.530	1.000	1.000		1.000	1.000		0.965			0.306
E_PTR_POP	0.157							1.000	0.461		0.990	0.904		0.789			
W_BTR_ARCK					1.000												
W_BTR_ARTH	0.336	0.898	0.072	0.971	0.788	0.754	0.698	0.343		0.170	0.026	0.441		0.402	0.795	0.628	0.003
W_BTR_FSOL	0.694	0.673	0.465	0.916	0.778	0.841	0.054	0.874			0.029			0.817	0.948	0.888	0.000
W_BTR_PCOD	0.436	0.994	0.103	0.892	0.240	0.556	0.006	0.124		0.005	0.079	0.000		0.078	0.402	0.267	0.000
W_BTR_POP	0.639	0.995	0.688	0.849	0.711	0.603	0.849	0.987	0.746	0.860	0.984	0.956		0.708	0.872	0.921	0.014
W_BTR_REXS	0.587	0.724	0.335	0.978	0.541	0.494	0.079	0.525		0.008	0.280	0.228		0.365	0.774	0.613	0.003
W_BTR_SHAL	0.714	0.824		0.941	0.794	0.880	0.003										0.314
W_HAL_PCOD	0.805	0.990	0.642		0.043	0.005	0.017	0.814	0.496	0.029	0.364	0.524		0.271	0.938		0.008
W_HAL_SABL	0.120	0.703	0.470		0.030		0.063	0.977	0.543		0.614	0.333		0.435	0.836		0.012
W_POT_PCOD	0.435	0.995			0.012	1.000	0.002		0.282	0.002						0.047	0.048
W_PTR_PLCK	0.995	0.986	1.000	0.617	0.176	0.872	0.652	0.025	1.000	0.224	0.812	1.000		0.035		1.000	0.031

Notes: Retention rates used for each stock (by target and gear type). Source: Terry Hiatt, NMFS REFM Division, AFSC.

Table 1-6. FMP 3.2 retention rates in the Bering Sea and Aleutian Islands and Gulf of Alaska.

Fishery	PLCK	AIPLCK	PCOD	YSOL	GTURB	ARTH	RSOL	FSOL	AKPLC	OFLT	SABL	POP	AIORCK	BSORCK	NRCK	SRKR	ATKA
BSAI Retention Rates by fishery and stock for FMP 3.2																	
B_BTR_FSOL	0.541		0.961	0.679	0.880	0.351	0.454	0.894	0.278	0.416	0.870	0.767		0.873	0.220	0.897	0.986
B_BTR_GTRB	0.552		0.951	0.622	0.944	0.555	0.468	0.976	0.585	0.966	0.978	0.887		0.994		1.000	0.938
B_BTR_OFLT	0.607		0.981	0.720	0.581	0.340	0.526	0.847	0.636	0.871	0.727	0.661		0.657		0.929	0.702
B_BTR_PCOD	0.484		0.996	0.403	0.511	0.338	0.395	0.553	0.213	0.364	0.708	0.328		0.292	0.247	0.463	0.641
B_BTR_RSOL	0.600		0.972	0.778	0.842	0.443	0.671	0.715	0.283	0.262	0.651	0.782		0.700	0.200	0.936	0.542
B_BTR_SABL	0.773				0.313	0.438		0.987		0.977	1.000	0.200		0.821		1.000	
B_BTR_YSOL	0.695		0.951	0.889	0.783	0.587	0.501	0.820	0.346	0.240	0.944	0.481		0.645			0.990
B_HAL_GTRB	0.774		0.946		0.973	0.233		0.431			0.817	0.215		0.961		0.822	
B_HAL_PCOD	0.855		0.982	0.228	0.810	0.261	0.213	0.245	0.676	0.208	0.456	0.335		0.382		0.559	0.222
B_HAL_SABL	0.200		0.318	0.200	0.438	0.204	0.200	0.320			0.985			0.758		0.297	
B_POT_PCOD	0.675		0.998	0.220	0.360	0.233	0.234	0.684		0.719	0.886	0.574		0.219		0.256	0.223
B_PTR_PLCK	0.998		0.966	0.479	0.544	0.555	0.487	0.559	0.308	0.872	0.847	0.673		0.393	0.288	0.693	0.463
C_BTR_ATKA		0.913	0.990		0.815	0.660	0.422			0.345	0.314	0.559	0.280		0.240	0.668	0.917
C_BTR_PCOD		0.807	0.997		0.386	0.253	0.386	0.355		0.445	1.000	0.370	0.250		0.204	0.564	0.726
C_BTR_POP		0.748	0.985		0.998	0.541	0.720	0.231		0.993	0.983	0.977	0.679		0.289	0.941	0.851
C_HAL_GTRB			0.397		0.979	0.201					0.904	0.709	0.699		0.200	0.490	
C_HAL_PCOD		0.694	0.969		0.556	0.241					0.877	0.203	0.235		0.200	0.334	0.330
C_HAL_SABL		0.709	0.798		0.729	0.340	0.228				0.994		0.971		1.000	0.601	0.600
C_POT_PCOD			0.996		0.200	0.232	0.220				1.000		0.271			0.454	0.304
C_PTR_PLCK		1.000	0.908		0.837	0.200	1.000					0.587				0.667	1.000
E_BTR_ATKA		0.874	0.992	0.223	0.930	0.540	0.469	0.650		0.735	0.955	0.664	0.366		0.257	0.848	0.969
E_BTR_PCOD		0.318	0.989		0.265	0.240	0.285	0.224		0.238	0.486	0.294	0.235		0.202	0.381	0.411
E_BTR_POP		0.638	0.998		0.948	0.698	0.261	0.413		0.711	0.997	0.975	0.838		0.421	0.835	0.810
E_HAL_GTRB		0.507	0.828		0.950	0.210	0.200				0.904	0.345	0.852			0.673	
E_HAL_PCOD		0.858	0.981		0.822	0.204	0.226	0.211			0.855	0.359	0.346		0.209	0.386	0.201
E_HAL_SABL		0.354	0.744		0.614	0.256		0.718		0.919	0.977	0.974	0.897			0.577	
E_POT_PCOD		0.249	0.996	0.394	0.656	0.201				0.900	0.945		0.217				0.301
E_PTR_PLCK		1.000	0.200		0.200	0.200						0.979	0.200				
W_BTR_ATKA		0.854	0.992		0.661	0.628	0.266	0.442		0.522	1.000	0.580	0.275		0.219	0.699	0.962
W_BTR_PCOD		0.388	0.997		1.000	0.207	0.233	0.257				0.206	0.202				0.667
W_BTR_POP		0.948	1.000		0.926	0.623	0.584	0.777		0.829	1.000	0.973	0.617		0.654	0.990	0.836
W_HAL_PCOD		0.736	0.989		0.762	0.202		0.206		0.200	0.510	0.204	0.322			0.484	0.557
W_HAL_SABL			0.975		0.865						0.996		0.930			0.265	
W_POT_PCOD			0.998										0.298				0.253
W_PTR_PLCK		1.000	1.000				1.000	1.000				0.343				0.317	

Table 1-6 (cont). FMP 3.2 retention rates in the Bering Sea and Aleutian Islands and Gulf of Alaska.

Fishery	PLCK	PCOD	DEEP	FHS	REXS	SHAL	ATF	SABL	ORCK	NRCK	POP	PRCK	DRCK	SRKR	THDS	ATKA	OTHR
GOA Retention rates by fishery and stock for FMP 3.2.																	
C_BTR_ARCK	0.561	0.851	0.758	0.726	0.961	0.620	0.365	0.792	0.581	0.985	0.814	0.990		0.809	0.920	0.984	0.204
C_BTR_DEEP	0.483	0.762	0.998	0.984	0.887	0.925	0.428	0.692	0.773	0.356	0.256	0.616		0.510	0.829		0.249
C_BTR_FSOL	0.943	0.851	0.982	0.983	0.960	0.997	0.340	0.921		0.851	0.948	0.844		1.000	1.000		0.323
C_BTR_PCOD	0.824	0.992	0.679	0.924	0.911	0.853	0.327	0.410	0.220	0.429	0.245	0.562		0.676	0.525	0.201	0.243
C_BTR_PLCK	0.982	0.998	0.875	0.983	0.943	0.934	0.319	0.353		0.258	0.218	0.529		0.995	1.000		0.476
C_BTR_POP	0.468	0.890	0.667	0.688	0.816	0.796	0.404	0.862	0.385	0.909	0.958	0.921		0.936	0.920		0.268
C_BTR_REXS	0.778	0.900	0.267	0.992	0.507	0.790	0.234	0.558	0.202	0.214	0.272	0.250		0.795	0.909		0.200
C_BTR_SHAL	0.695	0.695	0.990	0.973	0.966	0.991	0.433	0.438	0.433	0.972	0.411	0.944		0.679	0.906		0.499
C_BTR_SRKR	0.695	0.695	0.990	0.973	0.966	0.991	0.433	0.438	0.433	0.972	0.411	0.944		0.679	0.906		0.499
C_HAL_PCOD	0.489	0.994	0.276		0.227	0.208	0.200	0.622	0.913	0.324	1.000	0.655		0.294	0.624		0.220
C_HAL_SABL	0.208	0.787	0.222		0.219		0.211	0.980	0.826		0.594	0.820		0.584	0.937		0.226
C_POT_PCOD	0.547	0.993	0.689	1.000	0.667	1.000	0.202	0.214	0.933		0.711	0.206					0.511
C_BTR_PLCK	0.996	0.991	0.935	0.755	0.671	0.847	0.858	0.690	1.000	0.496	0.803	1.000		0.390	1.000	1.000	0.560
C_BTR_POP	0.381	0.913	0.978	0.958	1.000	1.000	0.284	0.992	0.685	0.914	0.996	0.963		0.982	0.986		
E_BTR_DEEP	0.802	0.454	0.999	0.974	0.224	0.360	0.276	0.600	0.655		0.748	0.265		0.636	0.877		0.338
E_BTR_POP	0.361	0.934	0.241	0.685		0.263	0.280	0.971	0.875	0.993	0.996	0.992		0.996	0.973		0.210
E_HAL_PCOD	0.614	0.988	0.551		0.351		0.209	0.790	0.996		1.000	0.892	0.985	0.931	0.987		0.303
E_HAL_SABL	0.218	0.563	0.260		0.265		0.201	0.986	0.716		0.729	0.748	0.979	0.767	0.966	1.000	0.219
E_POT_PCOD	0.478	0.994							1.000			0.222					0.452
E_BTR_PLCK	0.998	0.857					0.624	1.000	1.000		1.000	1.000		0.972			0.445
E_BTR_POP	0.325							1.000	0.569		0.992	0.923		0.831			
W_BTR_ARCK					1.000												
W_BTR_ARTH	0.469	0.918	0.258	0.977	0.830	0.803	0.759	0.474		0.336	0.221	0.553		0.522	0.836	0.702	0.202
W_BTR_FSOL	0.756	0.738	0.572	0.932	0.822	0.873	0.243	0.899			0.223			0.854	0.958	0.910	0.200
W_BTR_PCOD	0.549	0.995	0.282	0.913	0.392	0.645	0.205	0.299		0.204	0.263	0.200		0.262	0.521	0.413	0.200
W_BTR_POP	0.711	0.996	0.750	0.879	0.769	0.683	0.879	0.990	0.797	0.888	0.987	0.965		0.766	0.897	0.937	0.212
W_BTR_REXS	0.669	0.780	0.468	0.982	0.633	0.595	0.263	0.620		0.206	0.424	0.382		0.492	0.819	0.691	0.202
W_BTR_SHAL	0.771	0.859		0.953	0.835	0.904	0.203										0.452
W_HAL_PCOD	0.844	0.992	0.713		0.234	0.204	0.214	0.851	0.597	0.223	0.491	0.619		0.417	0.951		0.206
W_HAL_SABL	0.296	0.762	0.576		0.224		0.251	0.982	0.634		0.691	0.466		0.548	0.868		0.210
W_POT_PCOD	0.548	0.996			0.209	1.000	0.202		0.426	0.202						0.238	0.239
W_BTR_PLCK	0.996	0.988	1.000	0.694	0.341	0.898	0.722	0.220	1.000	0.379	0.850	1.000		0.228		1.000	0.225

Table 1-7. Average ex-vessel price ($/ton) for groundfish species by gear type for the Gulf of Alaska and the Bering Sea and Aleutian Islands.

Gulf of Alaska			Bering Sea and Aleutian Islands				
SPECGRP	**BTR**	**HAL**	**POT**	**SPECGRP**	**BTR**	**HAL**	**POT**
AKPL	$264			AKPL	$201		
ATKA	**$355**		$381	AMCK	$398	$403	$349
ARTH	$68	**$202**	$68	ARTH	$202	$202	$33
DEEP	$264	$264		FSOL	$365	$374	$36
DRCK		$2,431		GTRB	$366	$440	$240
FSOL	$263	$266		NRCK	$162		
NRCK	$111	$111	$111	OFLT	$216	$201	$27
ORCK	$187	$896	$1,063	ORCK	$197	$194	$42
OTHR	$601	$888	$807	OTHR	$194	$162	$33
PCOD	$568	$726	$625	PCOD	$480	$449	$536
PRCK	$152	$258	$916	PLCK	$237	$237	$147
PLCK	$279	$172	$207	RSOL	$475	$475	$31
REXS	**$952**	$877		SABL	$3,900	$4,093	$3,918
SABL	$3,900	$4,957	$4,957	SKAT	$118	$118	$118
SHAL	$398	$475	$485	SQUD	$89		
SKAT	$136	$184		SRRE	$659	$894	$26
SQUD	$89			THDS	$1,213	$1,434	$1,168
SRRE	**$779**	$621	$539	TPOP	$197	$194	$194
THDS	$1,307	$1,818	$1,818	YSOL	$216	$216	$27
POP	$110	$659	--	--	--	--	--

Table 1-8. Summary description of main model differences among FMPs.

FMP	Bycatch data modifications	Constraint modification	ABC/TAC/Biology	Retention rate	Ex-vessel value
1	1997-2001 average except for all fisheries except the EBS pollock and the AI Atka mackerel fisheries use values from 2000 & 2001 only.	Baseline assumptions	Amendment 56 with added Steller sea lion protection measures	As estimated in 2001	As estimated in 2001
2.1	Same as FMP 1 but with pre-IFQ bycatch rates for sablefish fisheries and earlier estimates of halibut mortality	OY set to sum of ABC's No PSC limits	F_{ABC} set to F_{OFL} ($F_{35\%}$) No reduction in F as stock drops below $B_{40\%}$		Same as FMP 1
2.2	Same as FMP 1	OY set to sum of ABC's	Same as FMP 1	Same as FMP 1	Same as FMP 1
3.1	Same as FMP 1	Halibut mortality PSC reduced by 10%	Same as FMP 1	Same as FMP 1	Same as FMP 1
3.2	Same as FMP 1 but with improved bycatch of discarded species—i.e., C = R + D * 0.8 where C is the catch of a particular species in a particular fishery and R and D are estimated retained and discarded species respectively	OY set to sum of ABC's Halibut mortality limit reduced by 30%	For all rockfish species: $F_{ABC} = F_{60\%}$ Risk-averse adjustment: $F_{Har} = F_{msy}$ * Adjustment $F_{ABC} = \min(F_{Har}, F_{40\%}, F_{OFL\_FMP1})$ For rockfish species $F_{ABC\_RF} = \min(F_{60\%}, F_{Har})$	Same as FMP 1	Same as FMP 1
4.1	Same as FMP 1	OY set to sum of ABC's Fisheries with more than 33% bycatch (not counting Pcod, pollock and arrowtooth) eliminated	Uncertainty corrections based on survey CVs $F_{ABC} = F_{75\%}$ for all prey species and rockfish	Full retention	Same as FMP 1
4.2	No bycatch	No constraints	No fishing	No retention	$0

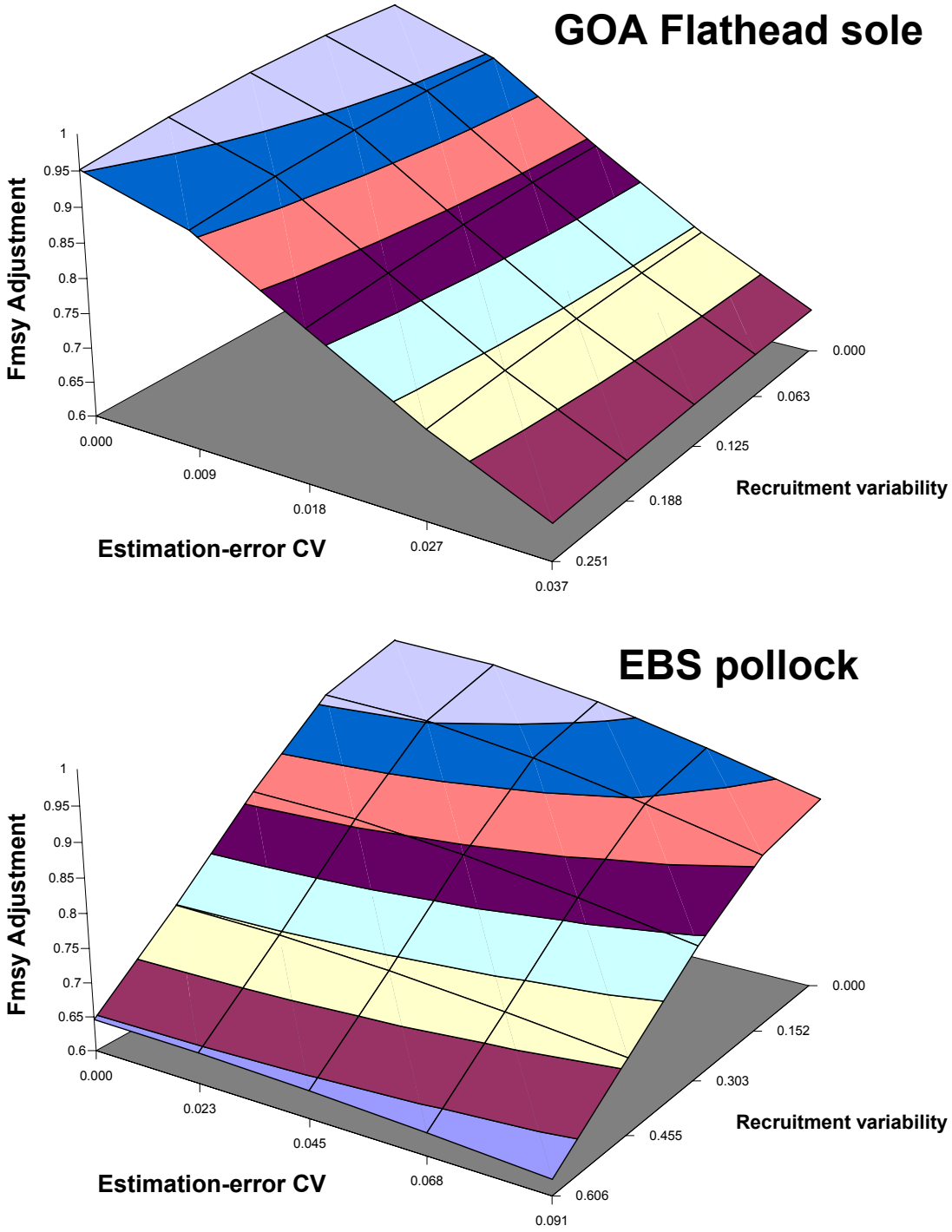

Figure 1-1. **Two example sensitivity analyses contrasting the effect of different levels of variability in estimation error (left axis) and recruitment variability (right axis). Note that as recruitment variability and estimate error are zero, the risk-averse harvest rate is equal to F_{msy}. Note also that the relationship between growth, maturation, and age-specific vulnerability additionally affects these patterns..**

2.0 Catch Matrices by Fishery

For the main reported species, the PSC species, and the other non-target species have been compiled for gear-area-target specie using 1997-2001 as the baseline average (except that for all FMPs except FMP 2.2, the EBS pollock fishery and the AI Atka mackerel fisheries the average of 2000 & 2001 was used to better reflect the AFA and other recent management measures).

FMP 3.2 rationalizing fisheries.

Two aspects:

1) improve (reduce) bycatch of heavily discarded species

Currently for each species within a fishery:

C = Catch = Retained + Discarded

Under FMP 3.2:

C = Retained + Discarded * 0.8

2) improve (increase) retention rates (reduce discarded species) by 80%.

Risk-averse harmonic mean estimates of F_{msy}

FMP 3.2 model implemented, testing with preliminary versions/assumptions of covariance matrix.

For species assessments where multiple fisheries are explicitly included selectivity and fishery average-weights-at-age were computed as a weighted mean values:

$$S_a = \sum_{f=1}^{n_f} s_{a,f} r_f,$$

$$W_a = \sum_{f=1}^{n_f} w_{a,f} r_f,$$

$$\sum_{f=1}^{n_f} r_f = 1$$

where r_f is the proportion of fishing mortality attributed to each fishery *f*. Since covariance matrices were unavailable from three assessments, an average correlation matrix was computed based on related species. I.e., for Pacific cod, the average correlation matrix was computed from pollock and Atka mackerel. For Greenland turbot, a CV of 19% was assumed for 2003 numbers at age with a diagonal covariance matrix. For ATF and flathead sole the natural mortality assumed for females was used for both sexes. Average weight and selectivity at age was computed as a simple mean over both sexes.

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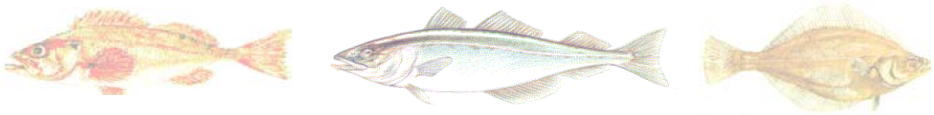
3.0 Programmatic SEIS Model Comments

PSEIS Model Comments
February 13th 2003

James Ianelli

Alaska Fisheries
Science Center
Seattle, WA



North Pacific multi-species management model

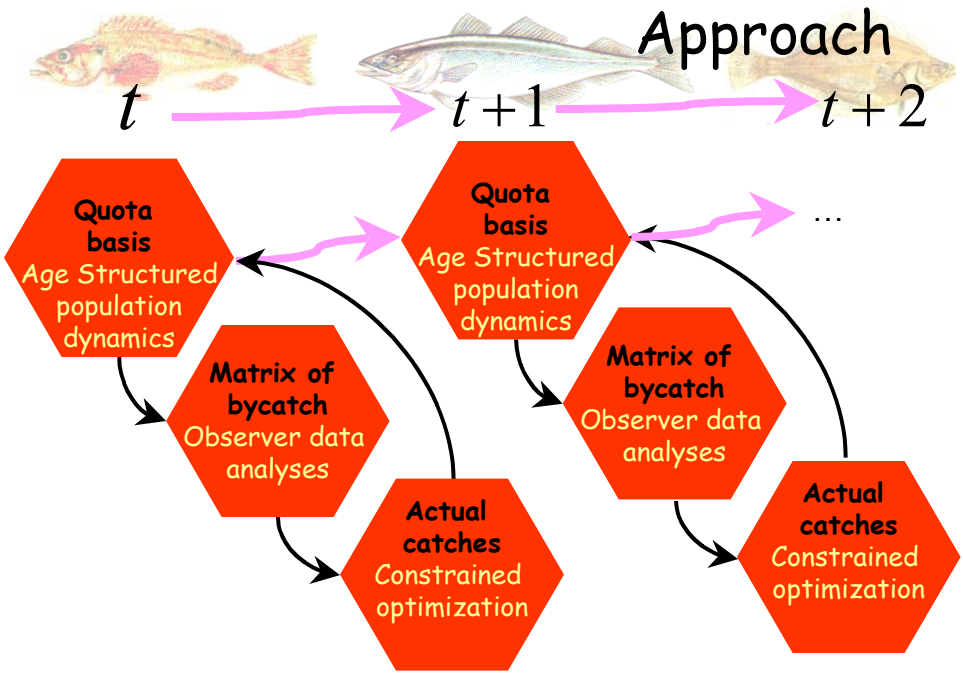
- **Needed for providing a more "realistic" analyses of fishing alternatives for environmental impact statement**

Background

- **Single species "what ifs" unrealistic due to**
  - ✶ Managed bycatch constraints
  - ✶ Total allowable catches within each region
    (OY specified to fall within a range of total catch)
  - ✶ Market considerations and other factors
- **Need to have policy setting placed within realistic, data-based bycatch arrays**

Difficulties

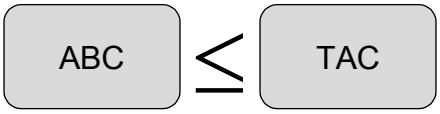
- **Linking:**
  - ✶ Stock assessment information
    (demographics by management group)
  - ✶ Target fishery/species information
    (observer and official region data)
  - ✶ Actual inseason fisheries and management behavior
    (constraints due to multispecies nature of fishery)



Management structure

Selected age-structured Stocks

BS/AI	GOA
Pollock BS	Pollock
Pollock AI	Pcod
Pcod	DeepFlat
Yfin	Rex
Gturb	ShallFlat
ATF	Flthdsole
RockSole	ATF
Flthdsole	Sablefish
AKPLC	POP
Sablefish	SHrkrReye
POPAI	SST
POP	
Atka	



Catch

Schematic catch matrix

(Based on observer data)

	Species/Stock	A	B	C	D
Fishery	BS/AI Pelagic trawl pollock	$C_{i,j}$	$\cdots$		$C_{i,n}$
	BS/AI bottom trawl yellowfin sole	$\vdots$	$\ddots$		
	BS/AI Longline Pacific cod				
	BS/AI Pot (trap) Pacific cod				
	BS/AI Longline Sablefish	$C_{m,j}$			$C_{m,n}$

Main Weaknesses

- ✶ Constant, non-varying bycatch matrix
- ✶ Linkage between single-species stock assessment "gear" and bycatch matrix "gear" is absent
- ✶ Fisheries mgt mimicked to be "optimal"
- ✶ No explicit within-season management
  - Other than what may be implemented in bycatch matrix
- ✶ Bycatch data derived from a single year in which (probably) none of the alternatives were specified

- **Model output is only one tool, not "THE" tool**
  - ✶ Common sense should dictate the extent of using model results

4.0 Appendix H Model Output Tables and Figures

The following tables highlight output from the multi-species model used to analyze the Programmatic SEIS alternatives. Catch, ABC, spawning biomass, fishing mortality and total biomass were used to indicate projections for target species, forage species, and other species. Bycatch of some species is also shown. Model projections for Alternatives 1-4 are presented first, followed by the projections for the PPA.

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Bering Sea and Aleutian Islands Alternatives 1 through 4 Tables

Table 4-1 Projections of eastern Bering Sea pollock by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Pollock								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	1,485.0	1,485.0	1,485.0	1,485.0	1,485.0	1,485.0	1,485.0
	2003	1,507.3	2,869.3	2,312.7	1,486.6	1,636.7	362.1	0.0
	2004	1,512.6	2,104.3	1,866.9	1,479.4	1,636.2	388.1	0.0
	2005	1,501.0	1,713.9	1,439.8	1,496.7	1,497.1	403.7	0.0
	2006	1,318.4	1,549.7	1,336.4	1,464.8	1,311.9	419.0	0.0
	2007	1,287.4	1,577.2	1,408.4	1,364.7	1,302.6	439.3	0.0
	Avg	1,425.3	1,962.9	1,672.8	1,458.4	1,476.9	402.4	0.0
ABC		1,703.8	1,817.6	1,703.8	1,703.8	1,703.8	767.2	0.0
	2003	2,179.2	2,869.3	2,321.7	2,321.7	1,959.7	362.1	0.0
	2004	1,871.4	2,104.3	1,866.9	2,129.1	1,753.6	388.1	0.0
	2005	1,577.5	1,713.9	1,439.8	1,926.3	1,499.7	403.7	0.0
	2006	1,408.0	1,549.7	1,337.5	1,697.6	1,327.2	419.0	0.0
	2007	1,461.8	1,583.6	1,421.0	1,638.4	1,354.5	439.4	0.0
	Avg	1,699.6	1,964.2	1,677.4	1,942.6	1,578.9	402.4	0.0
	Equilibrium	2,754.5	2,410.2	2,754.5	2,754.5	2,754.5	5,164.7	6,886.3
Spawning Biomass	2002	3,680.6	3,680.6	3,680.6	3,680.6	3,680.6	3,680.6	3,680.6
	2003	3,450.7	3,236.6	3,329.3	3,453.6	3,432.1	3,602.8	3,646.8
	2004	3,177.0	2,519.2	2,787.9	3,190.5	3,104.9	3,809.8	4,011.1
	2005	2,897.2	2,128.1	2,467.9	2,919.3	2,799.1	3,937.5	4,285.8
	2006	2,799.9	2,063.6	2,456.4	2,798.1	2,719.9	4,125.7	4,598.3
	2007	2,938.6	2,215.0	2,631.1	2,883.5	2,871.7	4,433.3	5,014.8
	Avg	3,052.7	2,432.5	2,734.5	3,049.0	2,985.5	3,981.8	4,311.4
	Equilibrium	0.342	0.448	0.342	0.342	0.342	0.066	0.000
Fishing mortality	2002	0.187	0.187	0.187	0.187	0.187	0.187	0.187
	2003	0.206	0.448	0.341	0.203	0.226	0.045	0.000
	2004	0.230	0.448	0.342	0.223	0.257	0.045	0.000
	2005	0.255	0.448	0.302	0.252	0.266	0.045	0.000
	2006	0.242	0.448	0.292	0.273	0.249	0.045	0.000
	2007	0.236	0.447	0.299	0.264	0.246	0.045	0.000
	Avg	0.234	0.448	0.315	0.243	0.249	0.045	0.000
Total Biomass	2002	12,967	12,967	12,967	12,967	12,967	12,967	12,967
	2003	11,767	11,767	11,767	11,767	11,767	11,767	11,767
	2004	11,313	9,991	10,530	11,333	11,187	12,434	12,790
	2005	11,300	9,598	10,289	11,350	11,073	13,348	14,027
	2006	11,399	9,774	10,618	11,444	11,213	14,146	15,094
	2007	11,620	10,027	10,951	11,516	11,471	14,762	15,943
	Avg	11,480	10,231	10,831	11,482	11,342	13,291	13,924
Equil. Average Age F=0		3.16	3.16	3.16	3.16	3.16	3.16	3.16
Avg. age at the end of 2007		2.53	2.32	2.43	2.50	2.50	2.94	3.11

Table 4-2 Projections of Aleutian Islands pollock by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Aleutian Islands pollock								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	2003	1.8	52.4	2.1	1.8	1.5	4.3	0.0
	2004	1.7	52.4	1.9	1.7	1.5	4.3	0.0
	2005	1.7	52.4	1.9	1.7	1.4	4.3	0.0
	2006	1.7	52.4	2.0	1.6	1.3	4.3	0.0
	2007	1.7	52.2	2.1	1.7	1.3	4.3	0.0
	Avg	1.7	52.3	2.0	1.7	1.4	4.3	0.0

Table 4-3 **Projections of Bering Sea and Aleutian Islands Pacific cod by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

BSAI Pacific Cod								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	183.0	183.0	183.0	183.0	183.0	183.0	183.0
	2003	234.0	322.5	235.7	232.8	227.4	58.1	0.0
	2004	248.4	331.9	264.6	246.5	236.6	71.2	0.0
	2005	248.1	321.8	268.6	246.3	233.9	80.4	0.0
	2006	246.1	300.1	258.3	243.7	235.5	84.6	0.0
	2007	237.7	294.7	249.9	236.7	230.2	88.3	0.0
	Avg	242.9	314.2	255.4	241.2	232.7	76.5	0.0
ABC		292.0	311.4	292.0	292.0	292.0	131.7	0.0
	2003	235.7	322.5	235.7	235.7	241.4	58.1	0.0
	2004	264.9	331.9	264.6	265.2	274.6	71.2	0.0
	2005	271.8	321.8	268.6	272.4	283.8	80.4	0.0
	2006	265.7	300.1	258.8	266.6	279.8	84.6	0.0
	2007	262.5	294.7	252.2	264.0	278.9	88.3	0.0
	Avg	260.1	314.2	256.0	260.8	271.7	76.5	0.0
	Equilibrium	412.3	360.8	412.3	412.3	412.3	773.1	1,030.8
Spawning Biomass	2002	404.5	404.5	404.5	404.5	404.5	404.5	404.5
	2003	402.9	396.9	402.8	403.0	403.3	413.9	417.3
	2004	418.3	382.3	416.7	418.8	421.3	490.9	515.8
	2005	442.2	379.2	434.7	443.4	449.5	575.1	625.6
	2006	445.4	360.2	431.2	447.2	457.3	633.2	711.8
	2007	442.6	346.0	425.1	445.1	457.2	671.8	775.4
	Avg	430.3	372.9	422.1	431.5	437.7	557.0	609.2
	Equilibrium	0.342	0.409	0.342	0.342	0.342	0.088	0.000
Fishing mortality	2002	0.228	0.228	0.228	0.228	0.228	0.228	0.228
	2003	0.286	0.409	0.288	0.284	0.277	0.066	0.000
	2004	0.277	0.409	0.297	0.274	0.261	0.066	0.000
	2005	0.269	0.409	0.297	0.266	0.249	0.066	0.000
	2006	0.274	0.409	0.296	0.271	0.256	0.066	0.000
	2007	0.267	0.409	0.287	0.265	0.252	0.066	0.000
	Avg	0.275	0.409	0.293	0.272	0.259	0.066	0.000
Total Biomass	2002	1,933	1,933	1,933	1,933	1,933	1,933	1,933
	2003	2,061	2,061	2,061	2,061	2,061	2,061	2,061
	2004	2,079	1,986	2,078	2,081	2,086	2,266	2,327
	2005	2,079	1,908	2,060	2,082	2,097	2,429	2,558
	2006	2,095	1,869	2,057	2,099	2,126	2,569	2,762
	2007	2,118	1,868	2,072	2,124	2,155	2,683	2,930
	Avg	2,086	1,938	2,065	2,089	2,105	2,401	2,528
Equil. Average Age F=0		3.20	3.20	3.20	3.20	3.20	3.20	3.20
Avg. age at the end of 2007		2.78	2.64	2.75	2.78	2.80	3.05	3.18

Table 4-4 **Projections of Eastern Bering Sea yellowfin sole by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Yellowfin Sole								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	65.0	65.0	65.0	65.0	65.0	65.0	65.0
	2003	71.5	130.5	113.6	70.4	113.6	96.2	0.0
	2004	71.5	125.9	107.7	69.8	107.7	92.7	0.0
	2005	72.2	117.6	102.4	70.1	102.4	89.3	0.0
	2006	93.3	110.2	96.5	79.7	96.5	86.2	0.0
	2007	89.6	104.3	88.7	84.0	88.7	83.6	0.0
	Avg	79.6	117.7	101.8	74.8	101.8	89.6	0.0
ABC		103.3	110.2	103.3	103.3	103.3	103.3	0.0
	2003	113.6	134.8	113.6	113.6	113.6	96.2	0.0
	2004	111.8	125.9	107.7	111.9	107.7	92.7	0.0
	2005	109.8	117.6	102.4	110.1	102.4	89.3	0.0
	2006	107.6	110.2	96.5	108.0	96.5	86.2	0.0
	2007	103.5	104.3	88.7	105.2	88.7	83.6	0.0
	Avg	109.3	118.6	101.8	109.8	101.8	89.6	0.0
	Equilibrium	385.0	336.9	385.0	385.0	385.0	385.0	962.6
Spawning Biomass	2002	450.7	450.7	450.7	450.7	450.7	450.7	450.7
	2003	450.9	442.2	444.7	451.0	444.7	447.3	461.0
	2004	444.7	412.0	421.8	445.4	421.8	431.3	484.9
	2005	437.0	383.4	400.1	438.5	400.1	415.5	507.1
	2006	425.9	358.6	381.1	429.9	381.1	401.2	528.4
	2007	409.0	337.1	364.9	417.5	364.9	388.0	547.8
	Avg	433.5	386.7	402.5	436.5	402.5	416.6	505.8
	Equilibrium	0.115	0.138	0.115	0.115	0.115	0.115	0.000
Fishing mortality	2002	0.064	0.064	0.064	0.064	0.064	0.064	0.064
	2003	0.071	0.133	0.115	0.070	0.115	0.097	0.000
	2004	0.072	0.138	0.115	0.070	0.115	0.097	0.000
	2005	0.074	0.138	0.115	0.072	0.115	0.097	0.000
	2006	0.099	0.138	0.114	0.084	0.114	0.097	0.000
	2007	0.099	0.138	0.109	0.091	0.109	0.097	0.000
	Avg	0.083	0.137	0.114	0.078	0.114	0.097	0.000
Total Biomass	2002	1,552	1,552	1,552	1,552	1,552	1,552	1,552
	2003	1,544	1,544	1,544	1,544	1,544	1,544	1,544
	2004	1,532	1,472	1,489	1,533	1,489	1,507	1,604
	2005	1,527	1,416	1,451	1,530	1,451	1,482	1,668
	2006	1,531	1,380	1,428	1,536	1,428	1,471	1,735
	2007	1,520	1,361	1,420	1,538	1,420	1,471	1,806
	Avg	1,531	1,435	1,467	1,536	1,467	1,495	1,672
Equil. Average Age F=0		**8.04**	**8.04**	**8.04**	**8.04**	**8.04**	**8.04**	**8.04**
Avg. age at the end of 2007		**6.23**	**5.91**	**6.07**	**6.27**	**6.07**	**6.17**	**6.96**

Table 4-5 **Projections of Eastern Bering Sea Greenland turbot by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Greenland Turbot								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	2003	8.2	21.2	9.1	8.2	1.6	5.5	0.0
	2004	8.1	15.7	8.0	8.1	1.6	5.1	0.0
	2005	7.0	12.2	6.8	7.0	1.6	4.7	0.0
	2006	5.9	10.0	5.8	5.9	2.1	4.4	0.0
	2007	5.4	8.8	5.2	5.4	2.9	4.2	0.0
	Avg	6.9	13.6	7.0	6.9	2.0	4.8	0.0
ABC		11.6	12.3	11.6	11.6	11.6	11.6	0.0
	2003	9.1	21.2	9.1	9.1	14.4	5.5	0.0
	2004	8.1	15.7	8.0	8.1	14.0	5.1	0.0
	2005	7.0	12.2	6.8	7.0	13.6	4.7	0.0
	2006	5.9	10.0	5.8	5.9	13.4	4.4	0.0
	2007	5.4	8.8	5.3	5.4	13.1	4.2	0.0
	Avg	7.1	13.6	7.0	7.1	13.7	4.8	0.0
	Equilibrium	54.4	47.6	54.4	54.4	54.4	54.4	135.9
Spawning Biomass	2002	67.8	67.8	67.8	67.8	67.8	67.8	67.8
	2003	64.9	64.9	64.9	64.9	64.9	64.9	64.9
	2004	58.1	48.2	57.4	58.1	63.2	60.2	64.5
	2005	52.3	37.9	51.8	52.3	62.0	56.6	64.4
	2006	48.6	32.1	48.3	48.6	61.4	54.1	64.8
	2007	46.8	29.3	46.6	46.8	61.1	52.8	65.8
	Avg	54.1	42.5	53.8	54.1	62.5	57.7	64.9
	Equilibrium	0.380	0.483	0.380	0.380	0.380	0.380	0.000
Fishing mortality	2002	0.052	0.052	0.052	0.052	0.052	0.052	0.052
	2003	0.170	0.483	0.190	0.170	0.032	0.112	0.000
	2004	0.190	0.483	0.190	0.190	0.033	0.112	0.000
	2005	0.182	0.483	0.180	0.182	0.033	0.112	0.000
	2006	0.169	0.483	0.167	0.169	0.045	0.112	0.000
	2007	0.162	0.483	0.160	0.162	0.066	0.109	0.000
	Avg	0.175	0.483	0.177	0.175	0.042	0.111	0.000
Total Biomass	2002	106	106	106	106	106	106	106
	2003	102	102	102	102	102	102	102
	2004	95	83	94	95	101	97	102
	2005	89	71	88	89	100	94	103
	2006	86	66	86	86	101	93	105
	2007	86	64	86	86	103	93	109
	Avg	92	77	91	92	101	96	104
Equil. Average Age F=0		5.93	5.93	5.93	5.93	5.93	5.93	5.93
Avg. age at the end of 2007		4.56	4.12	4.56	4.56	4.87	4.71	5.08

Table 4-6 **Projections of Eastern Bering Sea arrowtooth by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Arrowtooth								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	9.1	9.1	9.1	9.1	9.1	9.1	9.1
	2003	10.8	15.0	12.7	10.7	8.5	3.6	0.0
	2004	10.8	14.1	11.3	10.7	8.5	3.5	0.0
	2005	10.8	13.4	11.1	10.5	8.3	3.7	0.0
	2006	11.0	12.9	11.8	10.6	8.2	4.0	0.0
	2007	11.4	12.8	13.9	10.5	8.2	4.2	0.0
	Avg	11.0	13.6	12.2	10.6	8.3	3.8	0.0
ABC		52.9	54.9	52.9	52.9	52.9	52.9	0.0
	2003	150.5	186.2	150.5	150.5	150.5	124.5	0.0
	2004	142.8	175.4	142.4	142.8	143.3	119.4	0.0
	2005	133.8	163.5	133.4	133.9	134.8	113.2	0.0
	2006	123.9	150.8	123.5	124.1	125.4	106.1	0.0
	2007	113.9	138.1	113.3	114.1	115.8	98.6	0.0
	Avg	133.0	162.8	132.6	133.1	134.0	112.4	0.0
	Equilibrium	209.0	182.9	209.0	209.0	209.0	209.0	522.6
Spawning Biomass	2002	475.9	475.9	475.9	475.9	475.9	475.9	475.9
	2003	450.8	450.3	450.5	450.8	451.0	451.6	452.0
	2004	419.8	416.8	418.6	419.9	421.5	425.1	427.7
	2005	386.2	381.6	384.9	386.4	389.2	395.5	400.1
	2006	353.2	347.6	351.7	353.5	357.4	365.8	372.2
	2007	329.5	323.5	327.6	330.1	335.0	345.0	353.1
	Avg	387.9	384.0	386.7	388.1	390.8	396.6	401.0
	Equilibrium	0.297	0.380	0.297	0.297	0.297	0.297	0.000
Fishing mortality	2002	0.015	0.015	0.015	0.015	0.015	0.015	0.015
	2003	0.019	0.026	0.022	0.019	0.015	0.006	0.000
	2004	0.020	0.026	0.021	0.020	0.016	0.006	0.000
	2005	0.021	0.027	0.022	0.021	0.016	0.007	0.000
	2006	0.023	0.028	0.025	0.022	0.017	0.008	0.000
	2007	0.026	0.030	0.032	0.024	0.018	0.009	0.000
	Avg	0.022	0.027	0.025	0.021	0.016	0.007	0.000
Total Biomass	2002	811	811	811	811	811	811	811
	2003	767	767	767	767	767	767	767
	2004	717	713	715	717	719	724	728
	2005	668	661	666	668	672	682	688
	2006	625	616	623	625	631	644	653
	2007	597	588	594	598	605	621	633
	Avg	675	669	673	675	679	687	694
Equil. Average Age F=0		5.43	5.43	5.43	5.43	5.43	5.43	5.43
Avg. age at the end of 2007		4.80	4.54	4.78	4.81	4.84	4.91	4.96

Table 4-7 **Projections of Eastern Bering Sea rock sole by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Rock Sole								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	40.3	40.3	40.3	40.3	40.3	40.3	40.3
	2003	53.0	51.9	65.8	44.0	34.2	38.0	0.0
	2004	52.8	50.9	58.1	40.6	33.3	38.8	0.0
	2005	52.5	49.3	57.9	42.1	38.0	38.7	0.0
	2006	51.8	47.8	61.2	41.2	38.9	38.6	0.0
	2007	51.7	47.2	54.3	42.7	41.2	38.5	0.0
	Avg	52.4	49.4	59.5	42.1	37.1	38.5	0.0
ABC		62.6	66.6	62.6	62.6	62.6	62.6	0.0
	2003	108.4	129.4	108.4	108.4	108.0	95.3	0.0
	2004	96.0	114.8	94.2	97.3	98.2	86.2	0.0
	2005	84.8	101.7	82.4	87.7	89.5	77.9	0.0
	2006	72.0	86.9	69.2	76.0	78.2	68.0	0.0
	2007	61.9	75.5	58.2	66.8	69.1	60.1	0.0
	Avg	84.6	101.7	82.5	87.2	88.6	77.5	0.0
	Equilibrium	156.3	136.7	156.3	156.3	156.3	156.3	390.7
Spawning Biomass	2002	331.0	331.0	331.0	331.0	331.0	331.0	331.0
	2003	298.9	299.0	298.0	299.6	300.3	300.0	302.8
	2004	267.3	267.9	261.8	271.9	276.3	274.4	292.3
	2005	238.0	239.5	230.7	247.1	254.1	250.4	283.3
	2006	202.1	204.7	193.1	214.4	222.1	218.6	263.5
	2007	172.4	176.4	161.3	187.4	195.1	192.3	247.7
	Avg	235.7	237.5	229.0	244.1	249.6	247.1	277.9
	Equilibrium	0.173	0.209	0.173	0.173	0.173	0.173	0.000
Fishing mortality	2002	0.055	0.055	0.055	0.055	0.055	0.055	0.055
	2003	0.081	0.079	0.102	0.067	0.052	0.057	0.000
	2004	0.092	0.088	0.103	0.069	0.055	0.065	0.000
	2005	0.104	0.097	0.118	0.080	0.070	0.072	0.000
	2006	0.121	0.110	0.151	0.090	0.082	0.083	0.000
	2007	0.142	0.126	0.161	0.107	0.099	0.094	0.000
	Avg	0.108	0.100	0.127	0.083	0.072	0.074	0.000
Total Biomass	2002	970	970	970	970	970	970	970
	2003	877	877	877	877	877	877	877
	2004	801	802	788	810	820	816	854
	2005	750	753	733	770	787	778	851
	2006	700	705	679	728	746	737	839
	2007	671	680	645	706	725	717	844
	Avg	760	764	744	778	791	785	853
Equil. Average Age F=0		5.90	5.90	5.90	5.90	5.90	5.90	5.90
Avg. age at the end of 2007		4.70	4.37	4.62	4.80	4.85	4.85	5.34

Table 4-8 **Projections of Eastern Bering Sea flathead sole by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Flathead Sole								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	13.9	13.9	13.9	13.9	13.9	13.9	13.9
	2003	13.1	26.4	23.9	11.1	11.5	6.0	0.0
	2004	13.0	24.9	13.4	10.9	11.3	6.0	0.0
	2005	17.2	23.8	12.6	11.1	11.1	6.9	0.0
	2006	21.7	23.2	17.7	11.2	10.8	7.8	0.0
	2007	21.4	23.1	23.4	11.8	10.7	8.5	0.0
	Avg	17.3	24.3	18.2	11.2	11.1	7.0	0.0
ABC		32.5	34.6	32.5	32.5	32.5	32.5	0.0
	2003	64.8	78.6	64.8	64.8	64.2	53.7	0.0
	2004	60.7	70.9	58.9	61.0	60.4	51.3	0.0
	2005	56.8	64.1	55.1	57.5	56.8	49.0	0.0
	2006	52.6	58.0	51.8	54.2	53.6	46.7	0.0
	2007	47.9	52.8	47.9	51.1	50.6	44.5	0.0
	Avg	56.6	64.9	55.7	57.7	57.1	49.0	0.0
	Equilibrium	124.3	108.8	124.3	124.3	124.3	124.3	310.7
Spawning Biomass	2002	248.5	248.5	248.5	248.5	248.5	248.5	248.5
	2003	231.0	229.4	229.7	231.2	231.2	231.9	232.6
	2004	215.0	205.0	208.0	216.5	216.2	220.4	224.9
	2005	199.5	183.5	193.6	202.7	202.3	209.4	217.6
	2006	181.7	163.8	179.3	189.1	188.7	197.7	209.7
	2007	163.0	146.3	162.8	176.2	176.3	186.0	201.9
	Avg	198.0	185.6	194.7	203.1	202.9	209.1	217.3
	Equilibrium	0.286	0.355	0.286	0.286	0.286	0.286	0.000
Fishing mortality	2002	0.053	0.053	0.053	0.053	0.053	0.053	0.053
	2003	0.053	0.110	0.099	0.045	0.047	0.024	0.000
	2004	0.057	0.115	0.060	0.047	0.049	0.025	0.000
	2005	0.081	0.122	0.061	0.051	0.051	0.031	0.000
	2006	0.112	0.132	0.092	0.055	0.053	0.036	0.000
	2007	0.122	0.145	0.135	0.061	0.056	0.042	0.000
	Avg	0.085	0.125	0.089	0.052	0.051	0.032	0.000
Total Biomass	2002	540	540	540	540	540	540	540
	2003	513	513	513	513	513	513	513
	2004	497	484	486	498	498	503	509
	2005	489	466	479	492	492	501	512
	2006	483	457	479	492	491	504	520
	2007	478	454	478	496	496	510	531
	Avg	492	475	487	498	498	506	517
Equil. Average Age F=0		5.39	5.39	5.39	5.39	5.39	5.39	5.39
Avg. age at the end of 2007		4.53	4.02	4.38	4.57	4.58	4.66	4.84

Table 4-9 **Projections of Eastern Bering Sea Alaska plaice by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Alaska Plaice								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	11.4	11.4	11.4	11.4	11.4	11.4	11.4
	2003	14.2	17.2	14.8	9.2	12.5	11.1	0.0
	2004	13.6	16.5	13.4	9.0	11.9	10.7	0.0
	2005	13.4	15.5	12.9	9.1	11.5	10.5	0.0
	2006	13.2	14.7	12.7	10.0	11.0	10.2	0.0
	2007	12.3	14.1	12.4	10.6	10.3	10.0	0.0
	Avg	13.4	15.6	13.2	9.6	11.5	10.5	0.0
ABC		70.6	75.6	70.6	70.6	70.6	70.6	0.0
	2003	137.0	164.8	137.0	137.0	131.9	113.4	0.0
	2004	136.0	162.9	135.9	137.0	131.3	113.1	0.0
	2005	136.0	162.4	136.0	137.9	131.6	113.6	0.0
	2006	136.8	163.0	136.9	139.2	132.6	114.6	0.0
	2007	138.0	164.3	138.1	140.7	134.0	115.8	0.0
	Avg	136.8	163.5	136.8	138.4	132.3	114.1	0.0
	Equilibrium	130.9	114.5	130.9	130.9	130.9	130.9	327.2
Spawning Biomass	2002	276.9	276.9	276.9	276.9	276.9	276.9	276.9
	2003	275.2	274.8	275.1	276.0	275.5	275.7	277.3
	2004	273.5	271.8	273.3	276.2	274.4	275.2	281.2
	2005	273.3	270.7	273.2	277.6	274.8	276.0	285.8
	2006	274.4	271.4	274.6	279.8	276.6	278.0	291.0
	2007	276.5	273.2	276.8	282.3	279.3	280.8	296.3
	Avg	274.6	272.4	274.6	278.4	276.1	277.1	286.3
	Equilibrium	0.279	0.344	0.279	0.279	0.279	0.279	0.000
Fishing mortality	2002	0.021	0.021	0.021	0.021	0.021	0.021	0.021
	2003	0.026	0.032	0.027	0.017	0.023	0.020	0.000
	2004	0.025	0.031	0.025	0.016	0.022	0.020	0.000
	2005	0.025	0.029	0.024	0.016	0.021	0.019	0.000
	2006	0.024	0.027	0.023	0.018	0.020	0.018	0.000
	2007	0.022	0.026	0.023	0.019	0.019	0.018	0.000
	Avg	0.025	0.029	0.024	0.017	0.021	0.019	0.000
Total Biomass	2002	1,077	1,077	1,077	1,077	1,077	1,077	1,077
	2003	1,083	1,083	1,083	1,083	1,083	1,083	1,083
	2004	1,087	1,084	1,086	1,092	1,089	1,090	1,101
	2005	1,093	1,087	1,092	1,101	1,096	1,098	1,118
	2006	1,099	1,092	1,099	1,111	1,103	1,106	1,133
	2007	1,105	1,098	1,106	1,118	1,111	1,115	1,147
	Avg	1,093	1,089	1,093	1,101	1,096	1,098	1,116
Equil. Average Age F=0		4.51	4.51	4.51	4.51	4.51	4.51	4.51
Avg. age at the end of 2007		4.40	4.36	4.38	4.40	4.40	4.40	4.47

Table 4-10 **Projections of Bering Sea and Aleutian Islands other flatfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Units are in thousands of metric tons.**

Other Flatfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	2.6	2.6	2.6	2.6	2.6	2.6	2.6
	2003	3.1	3.3	3.1	2.1	2.2	1.9	0.0
	2004	3.0	3.1	2.8	2.1	2.1	1.9	0.0
	2005	3.0	3.0	2.7	2.1	2.1	1.9	0.0
	2006	2.9	2.8	2.7	2.2	2.0	1.8	0.0
	2007	2.8	2.8	2.8	2.3	1.9	1.8	0.0
	Avg	3.0	3.0	2.8	2.1	2.0	1.9	0.0

Table 4-11 Projections of Bering Sea and Aleutian Islands sablefish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

BSAI Sablefish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	1.9	1.6	1.6	1.6	1.6	1.6	1.6
	2003	1.0	7.8	2.5	1.9	1.9	0.5	0.0
	2004	1.1	7.3	2.6	1.9	1.9	0.4	0.0
	2005	1.4	7.0	2.5	1.8	1.9	0.4	0.0
	2006	1.8	7.0	2.4	1.8	1.9	0.5	0.0
	2007	1.6	7.1	2.4	1.7	1.8	0.5	0.0
	Avg	1.4	7.3	2.5	1.8	1.9	0.5	0.0
ABC		7.3	7.8	7.3	7.3	7.3	7.3	0.0
	2003	6.7	7.8	6.7	6.7	5.7	4.0	0.0
	2004	6.8	7.3	6.7	6.7	5.7	4.1	0.0
	2005	7.1	7.1	6.8	6.9	5.9	4.3	0.0
	2006	7.6	7.1	7.1	7.3	6.2	4.6	0.0
	2007	8.0	7.2	7.5	7.7	6.5	4.9	0.0
	Avg	7.2	7.3	6.9	7.1	6.0	4.3	0.0
	Equilibrium	31.1	27.2	31.1	31.1	31.1	31.1	77.6
Spawning Biomass	2002	29.3	29.3	29.3	29.3	29.3	29.3	29.3
	2003	31.2	31.2	31.2	31.2	31.2	31.2	31.2
	2004	32.4	29.4	31.7	32.0	32.0	32.6	32.8
	2005	32.4	26.9	31.0	31.6	31.6	32.8	33.2
	2006	33.7	25.9	31.8	32.6	32.6	34.3	34.9
	2007	35.4	25.6	33.1	34.2	34.1	36.4	37.2
	Avg	33.0	27.8	31.8	32.3	33.5	32.3	33.8
	Equilibrium	0.118	0.140	0.118	0.118	0.118	0.118	0.000
Fishing mortality	2002	0.028	0.028	0.028	0.028	0.028	0.028	0.028
	2003	0.015	0.140	0.044	0.032	0.033	0.008	0.000
	2004	0.014	0.140	0.044	0.032	0.032	0.007	0.000
	2005	0.019	0.139	0.043	0.030	0.031	0.007	0.000
	2006	0.023	0.139	0.040	0.028	0.030	0.007	0.000
	2007	0.020	0.139	0.039	0.027	0.028	0.007	0.000
	Avg	0.018	0.139	0.042	0.030	0.031	0.007	0.000
Total Biomass	2002	82	82	82	82	82	82	82
	2003	87	87	87	87	87	87	87
	2004	92	85	91	91	91	93	93
	2005	98	84	94	96	96	98	99
	2006	103	84	98	100	100	104	105
	2007	107	84	101	104	104	109	111
	Avg	97	85	94	95	95	98	99
Equil. Average Age F=0		9.50	9.50	9.50	9.50	9.50	9.50	9.50
Avg. age at the end of 2007		6.72	6.55	6.63	6.72	6.71	6.88	6.93

Table 4-12 **Projections of Bering Sea and Aleutian Islands Pacific ocean perch by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Pacific Ocean Perch								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	14.8	14.8	14.8	14.8	14.8	14.8	14.8
	2003	9.2	18.2	12.9	10.5	7.6	0.7	0.0
	2004	9.2	18.0	12.6	9.2	7.7	0.8	0.0
	2005	10.6	17.7	12.7	8.7	7.9	0.9	0.0
	2006	12.6	17.5	13.0	10.1	8.0	0.9	0.0
	2007	12.1	17.4	13.6	10.8	8.0	0.9	0.0
	Avg	10.7	17.8	12.9	9.9	7.8	0.8	0.0
ABC		16.3	17.4	16.3	16.3	11.4	7.3	0.0
	2003	15.1	18.2	15.1	15.1	7.6	2.8	0.0
	2004	15.3	18.0	14.9	15.2	7.7	3.0	0.0
	2005	15.6	17.7	14.9	15.4	7.9	3.1	0.0
	2006	15.9	17.6	15.0	15.9	8.1	3.2	0.0
	2007	15.9	17.4	15.1	16.2	8.2	3.3	0.0
	Avg	15.5	17.8	15.0	15.6	7.9	3.1	0.0
	Equilibrium	137.4	120.2	137.4	137.4	206.1	257.6	343.5
Spawning Biomass	2002	137.5	137.5	137.5	137.5	137.5	137.5	137.5
	2003	135.6	134.7	135.2	135.5	135.8	136.5	136.6
	2004	135.8	131.1	133.9	135.3	136.7	140.3	140.7
	2005	136.3	128.0	133.1	136.0	138.0	144.6	145.3
	2006	137.1	125.9	133.1	137.6	140.1	149.8	150.9
	2007	137.3	123.9	133.0	138.8	142.2	155.0	156.5
	Avg	136.4	128.7	133.7	136.6	138.5	145.2	146.0
	Equilibrium	0.048	0.057	0.048	0.048	0.024	0.012	0.000
Fishing mortality	2002	0.046	0.046	0.046	0.046	0.046	0.046	0.046
	2003	0.029	0.057	0.040	0.033	0.023	0.002	0.000
	2004	0.028	0.057	0.039	0.028	0.023	0.002	0.000
	2005	0.032	0.057	0.039	0.026	0.024	0.002	0.000
	2006	0.038	0.057	0.040	0.030	0.023	0.002	0.000
	2007	0.036	0.057	0.042	0.032	0.023	0.002	0.000
	Avg	0.032	0.057	0.040	0.030	0.023	0.002	0.000
Total Biomass	2002	375	375	375	375	375	375	375
	2003	374	374	374	374	374	374	374
	2004	379	370	375	378	381	388	388
	2005	384	366	377	383	388	402	403
	2006	389	364	380	390	395	416	418
	2007	391	362	382	395	402	430	433
	Avg	384	367	378	384	388	402	403
Equil. Average Age F=0		14.01	14.01	14.01	14.01	14.01	14.01	14.01
Avg. age at the end of 2007		10.38	9.93	10.23	10.41	10.53	10.90	10.95

Table 4-13 Projections of Aleutian Islands Other rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Other Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.547	0.547	0.547	0.547	0.547	0.547	0.547
	2003	0.099	0.838	0.325	0.291	0.153	0.064	0.000
	2004	0.099	0.764	0.296	0.285	0.150	0.064	0.000
	2005	0.133	0.733	0.272	0.255	0.137	0.064	0.000
	2006	0.192	0.705	0.277	0.247	0.108	0.064	0.000
	2007	0.180	0.692	0.288	0.251	0.114	0.064	0.000
	Avg	0.141	0.747	0.291	0.266	0.132	0.064	0.000

Table 4-14 Projections of Eastern Bering Sea other rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Other Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.399	0.399	0.399	0.399	0.399	0.399	0.399
	2003	0.096	0.155	0.132	0.116	0.051	0.148	0.000
	2004	0.097	0.119	0.133	0.117	0.052	0.145	0.000
	2005	0.103	0.103	0.125	0.112	0.050	0.144	0.000
	2006	0.106	0.102	0.115	0.106	0.051	0.144	0.000
	2007	0.100	0.109	0.122	0.101	0.054	0.145	0.000
	Avg	0.100	0.118	0.126	0.110	0.052	0.145	0.000

Table 4-15 Projections of Bering Sea and Aleutian Islands northern rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Northern Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	4.600	4.600	4.600	4.600	4.600	4.600	4.600
	2003	1.363	11.877	7.946	6.389	2.917	1.248	0.000
	2004	1.369	10.457	7.183	6.260	3.301	1.439	0.000
	2005	2.123	8.740	6.470	5.393	3.717	1.542	0.000
	2006	4.345	8.127	6.383	5.342	3.957	1.569	0.000
	2007	3.951	8.286	6.522	5.489	3.932	1.570	0.000
	Avg	2.630	9.497	6.901	5.775	3.565	1.474	0.000

Table 4-16 Projections of Bering Sea and Aleutian Islands shortraker/rougheye by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Shortraker/Rougheye								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.573	0.573	0.573	0.573	0.573	0.573	0.573
	2003	0.723	1.210	0.967	0.848	0.419	0.123	0.000
	2004	0.724	1.210	0.967	0.749	0.419	0.123	0.000
	2005	0.791	1.210	0.967	0.724	0.419	0.123	0.000
	2006	0.886	1.210	0.967	0.783	0.419	0.123	0.000
	2007	0.855	1.210	0.967	0.814	0.419	0.123	0.000
	Avg	0.796	1.210	0.967	0.784	0.419	0.123	0.000

Table 4-17 Projections of Aleutian Islands Atka mackerel by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Atka Mackerel								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	47.6	47.6	47.6	47.6	47.6	47.6	47.6
	2003	7.9	99.7	82.8	74.3	49.1	10.4	0.0
	2004	7.9	78.6	67.9	72.0	53.4	12.1	0.0
	2005	15.1	64.2	54.5	55.8	55.8	13.0	0.0
	2006	43.0	60.6	54.1	54.3	51.5	13.7	0.0
	2007	39.3	63.2	57.8	57.0	51.6	14.5	0.0
	Avg	22.6	73.3	63.4	62.7	52.3	12.8	0.0
ABC		65.3	69.3	65.3	65.3	65.3	29.9	0.0
	2003	82.8	99.7	82.8	82.8	64.7	10.4	0.0
	2004	95.3	78.6	67.9	72.1	63.9	12.1	0.0
	2005	103.1	64.2	54.5	55.9	56.5	13.0	0.0
	2006	107.3	60.6	54.1	54.5	52.1	13.7	0.0
	2007	103.3	63.2	57.8	58.0	53.2	14.5	0.0
	Avg	98.4	73.3	63.4	64.6	58.1	12.8	0.0
	Equilibrium	88.9	77.8	88.9	88.9	88.9	166.8	222.4
Spawning Biomass	2002	118.5	118.5	118.5	118.5	118.5	118.5	118.5
	2003	128.8	100.7	106.2	108.9	116.7	128.1	131.0
	2004	132.7	74.7	84.8	86.9	102.8	130.5	138.2
	2005	136.4	65.3	77.7	78.5	93.8	134.6	146.4
	2006	137.6	68.3	81.7	82.0	95.2	144.9	160.0
	2007	139.6	73.7	87.6	88.0	100.8	157.0	175.0
	Avg	135.0	76.5	87.6	88.9	101.9	139.0	150.1
	Equilibrium	0.447	0.564	0.447	0.447	0.447	0.089	0.000
Fishing mortality	2002	0.251	0.251	0.251	0.251	0.251	0.251	0.251
	2003	0.036	0.564	0.447	0.393	0.244	0.048	0.000
	2004	0.031	0.564	0.425	0.436	0.270	0.047	0.000
	2005	0.056	0.564	0.387	0.391	0.310	0.047	0.000
	2006	0.168	0.564	0.395	0.394	0.306	0.047	0.000
	2007	0.179	0.564	0.406	0.401	0.304	0.047	0.000
	Avg	0.094	0.564	0.412	0.403	0.287	0.047	0.000
Total Biomass	2002	480	480	480	480	480	480	480
	2003	462	462	462	462	462	462	462
	2004	491	402	418	426	451	489	499
	2005	529	388	412	415	453	523	542
	2006	558	397	427	428	459	555	582
	2007	557	410	442	442	470	583	617
	Avg	519	412	432	435	459	522	541
Equil. Average Age F=0		3.82	3.82	3.82	3.82	3.82	3.82	3.82
Avg. age at the end of 2007		2.74	2.61	2.73	2.74	2.85	3.40	3.58

Table 4-18 **Projections of Bering Sea and Aleutian Islands squid by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Squid								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.784	0.784	0.784	0.784	0.784	0.784	0.784
	2003	1.270	2.572	1.970	1.266	1.106	0.296	0.000
	2004	1.275	1.905	1.594	1.259	1.107	0.319	0.000
	2005	1.266	1.563	1.226	1.273	1.013	0.333	0.000
	2006	1.114	1.419	1.134	1.245	0.886	0.347	0.000
	2007	1.086	1.444	1.203	1.158	0.881	0.365	0.000
	Avg	1.202	1.781	1.425	1.240	0.999	0.332	0.000

Table 4-19 **Projections of Bering Sea and Aleutian Islands other species by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Other Species								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	26.467	26.467	26.467	26.467	26.467	26.467	26.467
	2003	29.968	24.992	32.048	27.593	21.871	7.673	0.000
	2004	29.861	23.167	31.942	29.319	22.712	7.912	0.000
	2005	30.548	21.771	31.490	29.225	22.426	8.181	0.000
	2006	31.316	20.983	31.222	29.019	22.203	8.334	0.000
	2007	30.752	21.052	31.040	28.378	21.551	8.467	0.000
	Avg	30.489	22.393	31.548	28.707	22.153	8.113	0.000

Table 4-20 **Projections of Bering Sea and Aleutian Islands grenadier by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Grenadier								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	6.18	6.18	6.18	6.18	6.18	6.18	6.18
	2003	7.84	13.64	10.04	7.84	1.13	6.03	0.00
	2004	7.84	9.62	8.73	7.84	1.09	5.69	0.00
	2005	7.03	7.08	7.88	7.04	1.07	5.40	0.00
	2006	6.29	15.43	7.39	6.26	1.35	5.15	0.00
	2007	5.87	13.12	6.50	5.88	1.83	4.89	0.00
	Avg	6.97	11.78	8.11	6.97	1.29	5.43	0.00

Table 4-21 **Projections of Bering Sea and Aleutian Islands halibut mortality by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

BSAI Halibut Mortality								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	3.208	3.208	3.208	3.208	3.208	3.208	3.208
	2003	4.575	3.814	4.575	4.118	3.303	1.829	0.000
	2004	4.575	3.566	4.575	4.118	3.303	1.826	0.000
	2005	4.575	3.357	4.575	4.118	3.303	1.822	0.000
	2006	4.572	3.180	4.557	4.118	3.303	1.819	0.000
	2007	4.564	3.140	4.411	4.104	3.295	1.816	0.000
	Avg	4.572	3.412	4.539	4.115	3.301	1.822	0.000

Table 4-22 **Projections of Bering Sea and Aleutian Islands forage fish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Forage Fish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	2003	0.08	0.13	0.12	0.08	0.07	0.02	0.00
	2004	0.08	0.10	0.10	0.08	0.07	0.02	0.00
	2005	0.08	0.09	0.08	0.08	0.06	0.02	0.00
	2006	0.07	0.08	0.07	0.08	0.06	0.03	0.00
	2007	0.07	0.08	0.08	0.07	0.06	0.03	0.00
	Avg	0.07	0.09	0.09	0.08	0.06	0.02	0.00

Gulf of Alaska Alternatives 1 through 4 Tables

Table 4-23 Projections of Gulf of Alaska pollock by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Pollock								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	50.4	50.4	50.4	50.4	50.4	50.4	50.4
	2003	48.9	115.0	44.2	44.2	35.7	10.6	0.0
	2004	64.8	118.4	57.5	57.4	47.5	16.0	0.0
	2005	82.1	126.8	72.2	72.3	61.0	21.7	0.0
	2006	107.8	148.8	93.0	93.2	79.8	27.9	0.0
	2007	132.9	166.9	111.1	111.3	96.4	33.1	0.0
	Avg	87.3	135.2	75.6	75.7	64.1	21.9	0.0
ABC		176.2	190.2	176.2	176.2	176.2	74.7	0.0
	2003	48.9	115.0	58.4	58.4	46.9	12.3	0.0
	2004	64.8	118.4	78.2	78.2	64.6	18.6	0.0
	2005	82.7	126.8	100.6	100.7	85.2	26.4	0.0
	2006	110.8	148.8	133.1	133.1	113.8	35.7	0.0
	2007	139.6	166.9	162.5	162.4	139.3	43.4	0.0
	Avg	89.3	135.2	106.6	106.5	90.0	27.3	0.0
	Equilibrium	240.2	210.2	240.2	240.2	240.2	450.4	600.5
Spawning Biomass	2002	136.3	136.3	136.3	136.3	136.3	136.3	136.3
	2003	143.1	138.8	143.4	143.4	144.0	145.5	146.1
	2004	164.0	140.2	165.9	165.9	169.2	179.0	183.3
	2005	179.6	140.4	183.9	183.9	190.4	210.8	220.7
	2006	199.4	150.6	206.7	206.6	216.3	248.4	265.1
	2007	228.2	171.4	240.2	240.1	253.5	301.4	326.9
	Avg	182.9	148.3	188.0	188.0	194.7	217.0	228.4
	Equilibrium	0.294	0.350	0.294	0.294	0.294	0.079	0.000
Fishing mortality	2002	0.174	0.174	0.174	0.174	0.174	0.174	0.174
	2003	0.139	0.350	0.126	0.126	0.101	0.029	0.000
	2004	0.162	0.350	0.142	0.142	0.115	0.036	0.000
	2005	0.178	0.350	0.154	0.154	0.126	0.041	0.000
	2006	0.192	0.350	0.163	0.164	0.135	0.043	0.000
	2007	0.209	0.350	0.172	0.172	0.142	0.043	0.000
	Avg	0.176	0.350	0.151	0.152	0.124	0.038	0.000
Total Biomass	2002	681	681	681	681	681	681	681
	2003	799	799	799	799	799	799	799
	2004	923	862	927	927	935	959	969
	2005	1,057	955	1,067	1,067	1,083	1,132	1,155
	2006	1,149	1,021	1,167	1,167	1,191	1,269	1,309
	2007	1,213	1,066	1,242	1,242	1,274	1,389	1,448
	Avg	1,028	941	1,040	1,040	1,056	1,109	1,136
Equil. Average Age F=0		3.60	3.60	3.60	3.60	3.60	3.60	3.60
Avg. age at the end of 2007		3.00	2.77	3.07	3.07	3.13	3.34	3.45

Table 4-24 Projections of Gulf of Alaska Pacific cod by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

GOA Pacific Cod								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2003	39.5	71.7	57.1	57.1	50.4	13.2	0.0
	2004	38.8	64.9	49.5	49.4	45.5	14.2	0.0
	2005	41.1	65.3	51.0	51.0	47.6	15.7	0.0
	2006	44.7	69.0	57.0	57.0	53.5	17.4	0.0
	2007	47.1	72.9	63.8	63.8	59.7	19.0	0.0
	Avg	42.2	68.8	55.7	55.7	51.3	15.9	0.0
ABC		74.4	80.3	74.4	74.4	74.4	31.7	0.0
	2003	52.1	72.0	59.9	59.9	52.1	13.4	0.0
	2004	50.4	65.0	51.7	51.7	46.9	14.5	0.0
	2005	54.6	65.4	53.3	53.3	49.3	16.2	0.0
	2006	62.1	69.3	59.7	59.8	55.7	18.3	0.0
	2007	67.6	73.5	67.0	67.0	62.5	20.4	0.0
	Avg	57.4	69.0	58.3	58.3	53.3	16.6	0.0
	Equilibrium	90.3	79.0	90.3	90.3	90.3	169.4	225.8
Spawning Biomass	2002	97.9	97.9	97.9	97.9	97.9	97.9	97.9
	2003	89.6	87.5	88.5	88.5	88.9	91.1	91.8
	2004	86.4	75.1	80.4	80.4	82.7	96.0	101.0
	2005	87.7	69.9	79.1	79.1	82.4	104.0	113.1
	2006	92.4	69.7	81.8	81.8	85.6	114.8	128.1
	2007	98.8	71.7	85.7	85.7	90.1	127.2	144.7
	Avg	91.0	74.8	83.1	83.1	85.9	106.6	115.7
	Equilibrium	0.350	0.421	0.350	0.350	0.350	0.091	0.000
Fishing mortality	2002	0.255	0.255	0.255	0.255	0.255	0.255	0.255
	2003	0.217	0.419	0.324	0.324	0.282	0.070	0.000
	2004	0.214	0.421	0.295	0.295	0.263	0.069	0.000
	2005	0.212	0.420	0.289	0.289	0.260	0.068	0.000
	2006	0.210	0.419	0.299	0.299	0.270	0.067	0.000
	2007	0.204	0.417	0.312	0.312	0.280	0.066	0.000
	Avg	0.211	0.419	0.304	0.304	0.271	0.068	0.000
Total Biomass	2002	568	568	568	568	568	568	568
	2003	575	575	575	575	575	575	575
	2004	607	575	589	589	596	633	647
	2005	647	593	621	621	631	693	719
	2006	683	615	652	652	664	748	784
	2007	713	631	675	675	688	793	841
	Avg	645	598	622	622	631	688	713
Equil. Average Age F=0		3.20	3.20	3.20	3.20	3.20	3.20	3.20
Avg. age at the end of 2007		2.84	2.68	2.75	2.75	2.78	2.99	3.08

Table 4-25 Projections of Gulf of Alaska deep flatfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Deep Flatfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.588	0.588	0.588	0.588	0.588	0.588	0.588
	2003	1.833	3.352	1.342	1.194	0.990	0.448	0.000
	2004	1.594	2.655	1.276	1.170	0.913	0.459	0.000
	2005	1.576	2.335	1.152	1.037	0.898	0.485	0.000
	2006	1.579	2.391	1.161	1.041	0.929	0.515	0.000
	2007	1.564	2.423	1.167	1.040	0.942	0.531	0.000
	Avg	1.629	2.631	1.220	1.096	0.934	0.488	0.000

Table 4-26 Projections of Gulf of Alaska rex sole by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

Rex Sole								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	3.009	3.009	3.009	3.009	3.009	3.009	3.009
	2003	3.253	9.324	3.375	3.306	3.106	0.147	0.000
	2004	3.211	9.218	3.340	3.278	3.081	0.353	0.000
	2005	3.101	9.160	3.319	3.257	3.073	0.805	0.000
	2006	2.702	9.159	3.280	3.273	3.064	1.430	0.000
	2007	2.529	9.161	3.175	3.282	3.026	1.727	0.000
	Avg	2.959	9.204	3.298	3.279	3.070	0.892	0.000

Table 4-27 Projections of Gulf of Alaska shallow flatfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

Shallow Flatfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	6.842	6.842	6.842	6.842	6.842	6.842	6.842
	2003	5.380	1.209	5.971	4.753	3.582	3.880	0.000
	2004	5.361	1.273	5.895	4.399	4.081	3.892	0.000
	2005	5.411	1.328	5.886	4.328	3.893	3.921	0.000
	2006	5.363	1.373	5.492	3.787	3.218	3.930	0.000
	2007	5.149	1.397	4.987	3.509	2.863	3.944	0.000
	Avg	5.333	1.316	5.646	4.155	3.527	3.913	0.000

Table 4-28 Projections of Gulf of Alaska flathead sole by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

Flathead Sole								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	2.03	2.03	2.03	2.03	2.03	2.03	2.03
	2003	1.672	1.560	1.647	1.357	1.348	0.504	0.000
	2004	1.680	1.994	1.637	1.325	1.394	0.533	0.000
	2005	1.663	2.323	1.643	1.334	1.338	0.590	0.000
	2006	1.610	2.397	1.534	1.323	1.260	0.664	0.000
	2007	1.538	2.410	1.476	1.320	1.070	0.715	0.000
	Avg	1.633	2.137	1.587	1.332	1.282	0.601	0.000
ABC		13.5	14.3	13.5	13.5	13.5	13.5	0.0
	2003	41.4	51.5	41.4	41.4	36.1	34.2	0.0
	2004	40.1	49.6	40.1	40.1	35.0	33.4	0.0
	2005	38.7	47.6	38.7	38.8	33.9	32.5	0.0
	2006	37.6	45.8	37.6	37.6	32.9	31.7	0.0
	2007	36.6	44.3	36.6	36.7	32.1	31.1	0.0
	Avg	38.9	47.8	38.9	38.9	34.0	32.6	0.0
	Equilibrium	38.2	33.4	38.2	38.2	38.2	38.2	95.4
Spawning Biomass	2002	96.9	96.9	96.9	96.9	96.9	96.9	96.9
	2003	93.5	93.5	93.5	93.5	93.5	93.5	93.5
	2004	90.4	90.0	90.4	90.4	90.5	91.1	91.5
	2005	87.8	86.9	87.9	87.9	88.1	89.0	89.8
	2006	85.7	84.1	85.8	85.8	86.1	87.4	88.5
	2007	84.1	82.0	84.2	84.3	84.6	86.1	87.6
	Avg	88.3	87.3	88.3	88.4	88.6	89.4	90.2
	Equilibrium	0.417	0.546	0.417	0.417	0.417	0.417	0.000
Fishing mortality	2002	0.017	0.017	0.017	0.017	0.017	0.017	0.017
	2003	0.016	0.022	0.016	0.015	0.014	0.006	0.000
	2004	0.017	0.026	0.016	0.016	0.014	0.007	0.000
	2005	0.017	0.030	0.017	0.017	0.015	0.008	0.000
	2006	0.019	0.032	0.018	0.018	0.016	0.009	0.000
	2007	0.019	0.033	0.019	0.018	0.016	0.009	0.000
	Avg	0.018	0.029	0.017	0.017	0.015	0.008	0.000
Total Biomass	2002	229	229	229	229	229	229	229
	2003	224	224	224	224	224	224	224
	2004	221	221	221	221	222	222	223
	2005	220	218	220	220	220	222	223
	2006	218	216	219	219	219	221	223
	2007	218	215	218	218	219	221	224
	Avg	220	219	220	221	221	222	223

Table 4-29 Projections of Gulf of Alaska arrowtooth by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

Arrowtooth								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	19.964	19.964	19.964	19.964	19.964	19.964	19.964
	2003	12.609	21.873	13.968	12.699	9.757	2.540	0.000
	2004	12.419	22.147	13.746	12.452	9.789	2.941	0.000
	2005	12.280	22.461	13.678	12.412	9.810	3.775	0.000
	2006	11.891	22.720	13.654	12.640	9.918	4.950	0.000
	2007	11.741	22.849	13.639	12.878	9.835	5.629	0.000
	Avg	12.188	22.410	13.737	12.616	9.822	3.967	0.000
ABC		104.0	109.2	104.0	104.0	104.0	104.0	0.0
	2003	159.8	186.8	159.8	159.8	159.8	138.7	0.0
	2004	164.8	191.5	164.6	164.7	165.1	143.9	0.0
	2005	170.9	197.5	170.7	170.9	171.5	150.2	0.0
	2006	175.4	201.6	175.0	175.4	176.2	154.8	0.0
	2007	179.3	205.0	178.8	179.2	180.3	158.7	0.0
	Avg	170.0	196.5	169.8	170.0	170.6	149.2	0.0
	Equilibrium	494.5	432.7	494.5	494.5	494.5	494.5	1,236.2
Spawning Biomass	2002	1,113.8	1,113.8	1,113.8	1,113.8	1,113.8	1,113.8	1,113.8
	2003	1,117.5	1,117.5	1,117.5	1,117.5	1,117.5	1,117.5	1,117.5
	2004	1,130.3	1,122.7	1,129.2	1,130.2	1,132.6	1,138.5	1,140.5
	2005	1,151.7	1,136.4	1,149.5	1,151.6	1,156.1	1,167.5	1,171.9
	2006	1,156.5	1,133.8	1,153.3	1,156.3	1,162.7	1,178.4	1,185.6
	2007	1,155.7	1,125.8	1,151.3	1,154.9	1,163.1	1,181.8	1,192.5
	Avg	1,142.3	1,127.2	1,140.2	1,142.1	1,146.4	1,156.7	1,161.6
	Equilibrium	0.140	0.165	0.140	0.140	0.140	0.140	0.000
Fishing mortality	2002	0.017	0.017	0.017	0.017	0.017	0.017	0.017
	2003	0.011	0.018	0.012	0.011	0.008	0.002	0.000
	2004	0.010	0.018	0.011	0.010	0.008	0.002	0.000
	2005	0.010	0.018	0.011	0.010	0.008	0.003	0.000
	2006	0.009	0.018	0.010	0.010	0.007	0.004	0.000
	2007	0.009	0.017	0.010	0.010	0.007	0.004	0.000
	Avg	0.010	0.018	0.011	0.010	0.008	0.003	0.000
Total Biomass	2002	1,816	1,816	1,816	1,816	1,816	1,816	1,816
	2003	1,863	1,863	1,863	1,863	1,863	1,863	1,863
	2004	1,923	1,913	1,921	1,923	1,926	1,934	1,936
	2005	1,993	1,973	1,990	1,993	1,998	2,013	2,019
	2006	2,043	2,013	2,039	2,042	2,051	2,071	2,080
	2007	2,086	2,047	2,080	2,085	2,096	2,120	2,134
	Avg	1,982	1,962	1,979	1,981	1,987	2,000	2,006
Equil. Average Age F=0		5.11	5.11	5.11	5.11	5.11	5.11	5.11
Avg. age at the end of 2007		5.02	4.96	5.01	5.02	5.03	5.06	5.09

Table 4-30 Projections of Gulf of Alaska sablefish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

GOA Sablefish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	12.8	12.8	12.8	12.8	12.8	12.8	12.8
	2003	14.3	18.5	15.1	15.1	9.0	5.5	0.0
	2004	13.4	17.4	13.9	13.9	8.9	5.5	0.0
	2005	12.5	16.8	12.8	12.8	8.7	5.4	0.0
	2006	12.4	17.0	13.0	13.0	9.2	5.3	0.0
	2007	12.7	17.2	13.4	13.4	9.7	5.3	0.0
	Avg	13.1	17.4	13.7	13.7	9.1	5.4	0.0
ABC		18.1	19.4	18.1	18.1	18.1	18.1	0.0
	2003	15.1	18.5	15.1	15.1	9.0	8.1	0.0
	2004	14.1	17.4	13.9	13.9	8.9	8.3	0.0
	2005	13.1	16.9	12.9	12.9	8.7	8.5	0.0
	2006	13.5	17.1	13.3	13.3	9.2	9.1	0.0
	2007	14.2	17.4	13.9	13.9	9.7	9.7	0.0
	Avg	14.0	17.5	13.8	13.8	9.1	8.7	0.0
	Equilibrium	77.1	67.4	77.1	77.1	77.1	77.1	192.7
Spawning Biomass	2002	72.8	72.8	72.8	72.8	72.8	72.8	72.8
	2003	73.8	73.8	73.8	73.8	73.8	73.8	73.8
	2004	71.5	69.6	71.1	71.1	73.8	75.2	77.6
	2005	67.1	63.8	66.6	66.6	71.2	74.0	78.6
	2006	66.7	61.7	66.1	66.1	72.3	76.4	83.1
	2007	68.0	61.3	67.2	67.2	74.8	80.3	89.0
	Avg	69.4	66.0	68.9	68.9	73.2	75.9	80.4
	Equilibrium	0.118	0.140	0.118	0.118	0.118	0.118	0.000
Fishing mortality	2002	0.091	0.091	0.091	0.091	0.091	0.091	0.091
	2003	0.106	0.140	0.113	0.113	0.066	0.040	0.000
	2004	0.104	0.140	0.108	0.108	0.066	0.040	0.000
	2005	0.098	0.139	0.101	0.101	0.063	0.038	0.000
	2006	0.094	0.139	0.098	0.098	0.063	0.036	0.000
	2007	0.091	0.139	0.098	0.098	0.064	0.034	0.000
	Avg	0.099	0.139	0.104	0.104	0.064	0.038	0.000
Total Biomass	2002	204	204	204	204	204	204	204
	2003	206	206	206	206	206	206	206
	2004	208	204	207	207	214	217	223
	2005	211	203	210	210	221	228	238
	2006	215	203	214	214	228	238	254
	2007	219	203	217	217	235	248	268
	Avg	212	204	211	211	221	227	238
Equil. Average Age F=0		9.50	9.50	9.50	9.50	9.50	9.50	9.50
Avg. age at the end of 2007		6.14	5.86	6.11	6.11	6.38	6.57	6.84

Table 4-31 Projections of Gulf of Alaska slope rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Other Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.572	0.572	0.572	0.572	0.572	0.572	0.572
	2003	0.733	1.065	0.980	0.980	0.714	0.173	0.000
	2004	0.684	1.021	0.979	0.980	0.691	0.173	0.000
	2005	0.627	1.006	0.925	0.964	0.682	0.173	0.000
	2006	0.654	1.017	0.917	0.951	0.726	0.173	0.000
	2007	0.680	1.032	0.914	0.941	0.746	0.173	0.000
	Avg	0.676	1.028	0.943	0.963	0.712	0.173	0.000

Table 4-32 Projections of Gulf of Alaska pelagic shelf rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Pelagic Shelf Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	3.318	3.318	3.318	3.318	3.318	3.318	3.318
	2003	2.800	1.595	1.819	1.735	1.151	0.391	0.000
	2004	2.535	1.591	1.904	1.684	1.141	0.394	0.000
	2005	2.035	1.589	1.644	1.844	1.066	0.398	0.000
	2006	2.071	1.589	1.540	1.629	1.234	0.405	0.000
	2007	2.076	1.589	1.544	1.588	1.276	0.409	0.000
	Avg	2.303	1.591	1.690	1.696	1.173	0.399	0.000

Table 4-33 Projections of Gulf of Alaska demersal shelf rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Demersal Shelf Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.182	0.182	0.182	0.182	0.182	0.182	0.182
	2003	0.350	0.465	0.350	0.350	0.226	0.045	0.000
	2004	0.334	0.464	0.327	0.327	0.225	0.037	0.000
	2005	0.309	0.451	0.303	0.302	0.222	0.031	0.000
	2006	0.301	0.443	0.301	0.300	0.232	0.022	0.000
	2007	0.298	0.438	0.300	0.299	0.244	0.018	0.000
	Avg	0.318	0.452	0.316	0.316	0.230	0.031	0.000

Table 4-34 Projections of Gulf of Alaska shortraker/rougheye by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Shortraker/Rougheye								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	1.300	1.300	1.300	1.300	1.300	1.300	1.300
	2003	1.080	1.522	1.404	1.423	0.730	0.272	0.000
	2004	1.009	1.468	1.289	1.310	0.715	0.272	0.000
	2005	0.940	1.425	1.181	1.205	0.689	0.272	0.000
	2006	0.954	1.420	1.168	1.204	0.739	0.272	0.000
	2007	0.976	1.415	1.184	1.209	0.798	0.272	0.000
	Avg	0.992	1.450	1.245	1.270	0.734	0.272	0.000

Table 4-35 Projections of Gulf of Alaska northern rockfish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Northern Rockfish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	3.339	3.339	3.339	3.339	3.339	3.339	3.339
	2003	3.009	1.444	1.462	1.318	0.756	0.341	0.000
	2004	2.691	1.444	1.616	1.346	0.819	0.347	0.000
	2005	2.077	1.443	1.394	1.548	0.891	0.359	0.000
	2006	2.075	1.444	1.369	1.344	1.056	0.377	0.000
	2007	2.017	1.443	1.405	1.321	1.076	0.387	0.000
	Avg	2.374	1.444	1.449	1.375	0.920	0.362	0.000
ABC		4.0	4.3	4.0	4.0	2.7	1.7	0.0
	2003	5.3	6.3	5.3	5.3	2.6	0.7	0.0
	2004	5.0	6.0	5.1	5.1	2.6	0.7	0.0
	2005	4.8	5.8	4.9	4.9	2.5	0.7	0.0
	2006	4.6	5.6	4.7	4.7	2.4	0.7	0.0
	2007	4.4	5.4	4.6	4.6	2.3	0.7	0.0
	Avg	4.8	5.8	4.9	4.9	2.5	0.7	0.0
	Equilibrium	25.3	22.1	25.3	25.3	37.9	47.4	63.2
Spawning Biomass	2002	44.6	44.6	44.6	44.6	44.6	44.6	44.6
	2003	42.7	42.7	42.7	42.7	42.7	42.7	42.7
	2004	40.9	41.6	41.6	41.6	41.9	42.0	42.2
	2005	39.1	40.3	40.2	40.4	40.8	41.2	41.5
	2006	37.5	38.9	38.8	39.0	39.7	40.3	40.7
	2007	35.9	37.6	37.5	37.6	38.5	39.4	39.9
	Avg	39.2	40.2	40.2	40.3	40.7	41.1	41.4
	Equilibrium	0.056	0.066	0.056	0.056	0.027	0.014	0.000
Fishing mortality	2002	0.033	0.033	0.033	0.033	0.033	0.033	0.033
	2003	0.031	0.015	0.015	0.014	0.008	0.004	0.000
	2004	0.030	0.015	0.017	0.014	0.009	0.004	0.000
	2005	0.024	0.016	0.016	0.017	0.010	0.004	0.000
	2006	0.025	0.017	0.016	0.015	0.012	0.004	0.000
	2007	0.025	0.017	0.017	0.016	0.013	0.004	0.000
	Avg	0.027	0.016	0.016	0.015	0.010	0.004	0.000
Total Biomass	2002	112	112	112	112	112	112	112
	2003	107	107	107	107	107	107	107
	2004	103	105	105	105	106	106	106
	2005	100	103	103	103	104	105	106
	2006	98	102	102	102	103	105	106
	2007	97	101	101	101	103	105	106
	Avg	101	104	103	104	105	106	106
Equil. Average Age F=0		12.58	12.58	12.58	12.58	12.58	12.58	12.58
Avg. age at the end of 2007		11.26	11.49	11.49	11.51	11.61	11.75	11.84

Table 4-36 Projections of Gulf of Alaska Pacific ocean perch by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Pacific Ocean Perch								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	11.572	11.572	11.572	11.572	11.572	11.572	11.572
	2003	8.676	16.027	10.033	10.782	4.954	2.481	0.000
	2004	8.535	15.993	8.791	9.656	5.313	2.508	0.000
	2005	8.265	15.903	8.245	8.455	5.382	2.563	0.000
	2006	8.149	15.895	7.933	8.482	5.299	2.641	0.000
	2007	7.972	15.815	7.732	8.250	5.718	2.680	0.000
	Avg	8.319	15.926	8.547	9.125	5.333	2.574	0.000
ABC		13.5	14.5	13.5	13.5	9.3	5.9	0.0
	2003	13.7	16.2	12.0	12.0	6.0	3.1	0.0
	2004	13.9	16.1	12.1	12.1	6.1	3.3	0.0
	2005	14.2	16.0	12.4	12.3	6.3	3.4	0.0
	2006	14.6	16.1	12.8	12.7	6.6	3.6	0.0
	2007	15.1	16.2	13.2	13.1	6.8	3.7	0.0
	Avg	14.3	16.1	12.5	12.5	6.4	3.4	0.0
Spawning Biomass	Equilibrium	104.8	91.7	104.8	104.8	157.2	196.5	262.1
	2002	113.6	113.6	113.6	113.6	113.6	113.6	113.6
	2003	113.0	111.9	112.8	112.7	113.5	113.8	114.1
	2004	112.9	108.9	112.3	111.9	114.9	116.3	117.6
	2005	113.5	106.4	112.8	112.1	116.7	119.2	121.6
	2006	114.6	104.4	114.0	113.1	119.0	122.7	126.1
	2007	116.7	103.3	116.1	115.1	122.2	127.0	131.5
	Avg	114.1	107.0	113.6	113.0	117.2	119.8	122.2
Fishing mortality	Equilibrium	0.050	0.060	0.050	0.050	0.024	0.013	0.000
	2002	0.042	0.042	0.042	0.042	0.042	0.042	0.042
	2003	0.031	0.059	0.036	0.039	0.018	0.009	0.000
	2004	0.030	0.059	0.032	0.035	0.019	0.009	0.000
	2005	0.029	0.059	0.029	0.030	0.018	0.009	0.000
	2006	0.028	0.059	0.027	0.029	0.017	0.008	0.000
	2007	0.026	0.058	0.025	0.027	0.018	0.008	0.000
	Avg	0.029	0.059	0.030	0.032	0.018	0.009	0.000
Total Biomass	2002	335	335	335	335	335	335	335
	2003	338	338	338	338	338	338	338
	2004	345	337	343	343	348	351	353
	2005	351	336	349	348	358	363	368
	2006	357	335	356	354	367	375	383
	2007	363	334	362	360	376	386	396
	Avg	351	336	350	348	358	363	368
Equil. Average Age F=0		14.33	14.33	14.33	14.33	14.33	14.33	14.33
Avg. age at the end of 2007		10.65	10.12	10.64	10.60	10.83	11.00	11.84

Table 4-37 Projections of Gulf of Alaska thornyheads by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

Thornyheads								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	1.500	1.500	1.500	1.500	1.500	1.500	1.500
	2003	1.027	1.754	1.201	1.185	0.640	0.292	0.000
	2004	0.951	1.624	1.118	1.106	0.636	0.297	0.000
	2005	0.896	1.565	1.036	1.024	0.624	0.306	0.000
	2006	0.874	1.579	1.024	1.027	0.640	0.319	0.000
	2007	0.868	1.587	1.028	1.037	0.660	0.327	0.000
	Avg	0.923	1.622	1.081	1.076	0.640	0.308	0.000
ABC		1.8	1.9	1.8	1.8	1.3	0.9	0.0
	2003	2.5	3.1	2.5	2.5	1.2	0.5	0.0
	2004	2.6	3.1	2.6	2.6	1.2	0.5	0.0
	2005	2.6	3.1	2.6	2.6	1.3	0.5	0.0
	2006	2.7	3.1	2.7	2.7	1.3	0.6	0.0
	2007	2.7	3.1	2.7	2.7	1.3	0.6	0.0
	Avg	2.6	3.1	2.6	2.6	1.3	0.5	0.0
Spawning Biomass	Equilibrium	17.2	15.0	17.2	17.2	25.7	32.2	42.9
	2002	23.5	23.5	23.5	23.5	23.5	23.5	23.5
	2003	23.6	23.6	23.6	23.6	23.6	23.6	23.6
	2004	23.8	23.4	23.7	23.7	24.0	24.2	24.3
	2005	24.0	23.3	23.9	23.9	24.4	24.7	25.0
	2006	24.3	23.3	24.1	24.1	24.8	25.3	25.7
	2007	24.6	23.2	24.3	24.3	25.2	25.8	26.4
	Avg	24.1	23.4	23.9	23.9	24.4	24.7	25.0
Fishing mortality	Equilibrium	0.053	0.065	0.053	0.053	0.025	0.013	0.000
	2002	0.032	0.032	0.032	0.032	0.032	0.032	0.032
	2003	0.021	0.037	0.025	0.025	0.013	0.006	0.000
	2004	0.019	0.034	0.023	0.022	0.013	0.006	0.000
	2005	0.018	0.032	0.021	0.020	0.012	0.006	0.000
	2006	0.017	0.032	0.020	0.020	0.012	0.006	0.000
	2007	0.016	0.032	0.020	0.020	0.012	0.006	0.000
	Avg	0.018	0.033	0.022	0.021	0.012	0.006	0.000
Total Biomass	2002	54	54	54	54	54	54	54
	2003	54	54	54	54	54	54	54
	2004	54	54	54	54	55	55	55
	2005	55	53	54	54	56	56	57
	2006	55	53	55	55	56	57	58
	2007	56	53	55	55	57	59	60
	Avg	55	53	54	55	56	56	57
Equil. Average Age F=0		12.67	12.67	12.67	12.67	12.67	12.67	12.67
Avg. age at the end of 2007		10.23	9.90	10.15	10.16	10.35	10.50	10.63

Table 4-38 Projections of Gulf of Alaska Atka mackerel by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).

Atka Mackerel								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	2003	0.0	NA	0.4	0.3	0.1	0.0	0.0
	2004	0.1	NA	0.4	0.3	0.2	0.0	0.0
	2005	0.1	NA	0.4	0.4	0.2	0.0	0.0
	2006	0.1	NA	0.3	0.4	0.2	0.0	0.0
	2007	0.1	NA	0.3	0.4	0.2	0.0	0.0
	Avg	0.1	NA	0.3	0.4	0.2	0.0	0.0
ABC		0.6	0.7	0.6	0.6	0.6	0.6	0.0
	2003	0.6	6.2	0.6	0.6	0.6	0.6	0.0
	2004	0.6	6.2	0.6	0.6	0.6	0.6	0.0
	2005	0.6	6.2	0.6	0.6	0.6	0.6	0.0
	2006	0.6	6.2	0.6	0.6	0.6	0.6	0.0
	2007	0.6	6.2	0.6	0.6	0.6	0.6	0.0
	Avg	0.6	6.2	0.6	0.6	0.6	0.6	0.0

Table 4-39 Projections of Gulf of Alaska halibut mortality by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Halibut Mortality								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	2.300	2.300	2.300	2.300	2.300	2.300	2.300
	2003	2.046	3.056	2.300	2.070	1.610	0.704	0.000
	2004	2.005	3.056	2.299	2.070	1.610	0.734	0.000
	2005	2.024	3.056	2.297	2.070	1.610	0.802	0.000
	2006	2.055	3.056	2.294	2.070	1.609	0.885	0.000
	2007	2.050	3.056	2.282	2.070	1.598	0.934	0.000
	Avg	2.036	3.056	2.295	2.070	1.607	0.812	0.000

Table 4-40 Projections of Gulf of Alaska grenadiers by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).

Grenadiers								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	11.4	11.4	11.4	11.4	11.4	11.4	11.4
	2003	13.4	19.7	16.0	16.0	8.1	7.3	0.0
	2004	12.7	18.4	14.7	14.7	7.9	7.5	0.0
	2005	12.1	17.9	13.6	13.6	7.8	7.6	0.0
	2006	12.0	18.1	14.0	14.0	8.2	7.7	0.0
	2007	12.1	18.4	14.6	14.6	8.7	7.7	0.0
	Avg	12.5	18.5	14.6	14.6	8.1	7.6	0.0

Table 4-41 Projections of Gulf of Alaska forage fish by FMP. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).

Forage Fish								
		FMP 1	FMP 2.1	FMP 2.2	FMP 3.1	FMP 3.2	FMP 4.1	FMP 4.2
Catch	2002	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	2003	0.09	0.21	0.06	0.06	0.04	0.01	0.00
	2004	0.12	0.21	0.08	0.08	0.06	0.02	0.00
	2005	0.15	0.23	0.11	0.11	0.08	0.03	0.00
	2006	0.20	0.27	0.14	0.14	0.11	0.04	0.00
	2007	0.24	0.30	0.17	0.17	0.13	0.05	0.00
	Avg	0.16	0.25	0.11	0.11	0.09	0.03	0.00

Bering Sea and Aleutian Islands Preferred Alternative Tables

Table 4-42 Projections of Eastern Bering Sea pollock by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

BSAI Pollock			
		PA.1	PA.2
Catch	2002	1,485.0	1,485.0
	2003	1,486.6	1,543.6
	2004	1,479.4	1,527.0
	2005	1,491.5	1,514.1
	2006	1,320.5	1,333.4
	2007	1,274.8	1,291.3
	Avg	1,410.6	1,441.9
ABC		1,703.8	1,703.8
	2003	2,179.2	1,959.7
	2004	1,881.2	1,778.9
	2005	1,599.7	1,571.1
	2006	1,429.8	1,376.3
	2007	1,478.3	1,383.7
	Avg	1,713.7	1,613.9
Spawning Biomass	Equilibrium	2,754.5	2,754.5
	2002	3,680.6	3,680.6
	2003	3,453.6	3,445.5
	2004	3,190.5	3,159.8
	2005	2,920.1	2,876.1
	2006	2,821.5	2,776.3
	2007	2,957.7	2,913.9
	Avg	3,068.7	3,034.3
Fishing mortality	Equilibrium	0.342	0.342
	2002	0.187	0.187
	2003	0.203	0.211
	2004	0.223	0.234
	2005	0.251	0.260
	2006	0.240	0.248
	2007	0.233	0.241
	Avg	0.230	0.239
Total Biomass	2002	12,967	12,967
	2003	11,767	11,767
	2004	11,333	11,278
	2005	11,350	11,256
	2006	11,449	11,350
	2007	11,660	11,564
	Avg	11,512	11,443
Equil. Average Age F=0		3.16	3.16
Avg. age at the end of 2007		2.52	2.51

Table 4-43 Projections of A1 pollock by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Aleutian Islands Pollock			
		PA.1	PA.2
Catch	2002	1.0	1.0
	2003	1.8	1.4
	2004	1.7	1.4
	2005	1.7	1.5
	2006	1.6	1.5
	2007	1.6	1.5
	Avg	1.7	1.4

Table 4-44 **Projections of Bering Sea and Aleutian Islands Pacific cod by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

BSAI Pacific Cod			
		PA.1	PA.2
Catch	2002	183.0	183.0
	2003	232.8	220.5
	2004	246.5	231.8
	2005	246.1	232.6
	2006	243.2	233.9
	2007	236.7	229.9
	Avg	241.1	229.7
ABC		292.0	292.0
	2003	235.7	241.4
	2004	265.2	275.9
	2005	272.4	285.9
	2006	266.6	281.9
	2007	264.2	281.3
	Avg	260.8	273.3
Spawning Biomass	Equilibrium	412.3	412.3
	2002	404.5	404.5
	2003	403.0	403.8
	2004	418.8	424.0
	2005	443.4	453.6
	2006	447.3	461.7
	2007	445.3	461.5
	Avg	431.6	440.9
Fishing mortality	Equilibrium	0.342	0.342
	2002	0.228	0.228
	2003	0.284	0.268
	2004	0.274	0.254
	2005	0.266	0.245
	2006	0.270	0.252
	2007	0.265	0.250
	Avg	0.272	0.254
Total Biomass	2002	1,933	1,933
	2003	2,061	2,061
	2004	2,081	2,094
	2005	2,082	2,109
	2006	2,099	2,137
	2007	2,125	2,167
	Avg	2,089	2,113
Equil. Average Age F=0		3.20	3.20
Avg. age at the end of 2007		2.78	2.80

Table 4-45 **Projections of Eastern Bering Sea yellowfin sole by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Yellowfin Sole			
		PA.1	PA.2
Catch	2002	65.0	65.0
	2003	70.4	69.4
	2004	69.8	69.4
	2005	74.5	75.5
	2006	94.1	94.6
	2007	89.1	90.4
	Avg	79.6	79.9
ABC		103.3	103.3
	2003	113.6	113.6
	2004	111.9	112.0
	2005	110.1	110.2
	2006	107.6	107.6
	2007	103.4	103.4
	Avg	109.3	109.4
	Equilibrium	385.0	385.0
Spawning Biomass	2002	450.7	450.7
	2003	451.0	451.2
	2004	445.4	445.9
	2005	437.9	438.3
	2006	426.0	426.0
	2007	408.9	408.6
	Avg	433.8	434.0
	Equilibrium	0.115	0.115
Fishing mortality	2002	0.064	0.064
	2003	0.070	0.069
	2004	0.070	0.070
	2005	0.077	0.078
	2006	0.100	0.101
	2007	0.099	0.101
	Avg	0.083	0.084
Total Biomass	2002	1,552	1,552
	2003	1,544	1,544
	2004	1,533	1,534
	2005	1,530	1,531
	2006	1,531	1,531
	2007	1,520	1,519
	Avg	1,532	1,532
Equil. Average Age F=0		8.04	8.04
Avg. age at the end of 2007		6.23	6.28

Table 4-46 **Projections of Eastern Bering Sea Greenland turbot by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

EBS Greenland Turbot			
		PA.1	PA.2
Catch	2002	2.7	2.7
	2003	8.2	6.5
	2004	8.1	5.9
	2005	7.0	5.4
	2006	5.9	5.6
	2007	5.4	5.3
	Avg	6.9	5.7
ABC		11.6	11.6
	2003	9.1	14.4
	2004	8.1	13.1
	2005	7.0	12.1
	2006	5.9	11.0
	2007	5.4	10.0
	Avg	7.1	12.1
	Equilibrium	54.4	54.4
Spawning Biomass	2002	67.8	67.8
	2003	64.9	64.9
	2004	58.1	59.4
	2005	52.3	55.3
	2006	48.6	52.5
	2007	46.8	50.5
	Avg	54.1	56.5
	Equilibrium	0.380	0.380
Fishing mortality	2002	0.052	0.052
	2003	0.170	0.133
	2004	0.190	0.132
	2005	0.182	0.131
	2006	0.169	0.146
	2007	0.162	0.150
	Avg	0.175	0.138
Total Biomass	2002	106	106
	2003	102	102
	2004	95	96
	2005	89	92
	2006	86	91
	2007	86	90
	Avg	92	94
Equil. Average Age F=0		5.93	5.93
Avg. age at the end of 2007		4.56	4.62

Table 4-47 **Projections of Eastern Bering Sea arrowtooth by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Arrowtooth Flounder			
		PA.1	PA.2
Catch	2002	9.1	9.1
	2003	10.7	8.3
	2004	10.7	8.3
	2005	10.6	8.7
	2006	10.7	8.8
	2007	10.6	8.8
	Avg	10.7	8.6
ABC		52.9	52.9
	2003	150.5	150.5
	2004	142.8	143.4
	2005	133.9	134.9
	2006	124.0	125.4
	2007	114.0	115.7
	Avg	133.1	134.0
	Equilibrium	209.0	209.0
Spawning Biomass	2002	475.9	475.9
	2003	450.8	451.1
	2004	419.9	421.7
	2005	386.4	389.4
	2006	353.4	357.3
	2007	330.0	334.6
	Avg	388.1	390.8
	Equilibrium	0.297	0.297
Fishing mortality	2002	0.015	0.015
	2003	0.019	0.014
	2004	0.020	0.015
	2005	0.021	0.017
	2006	0.023	0.018
	2007	0.024	0.020
	Avg	0.021	0.017
Total Biomass	2002	811	811
	2003	767	767
	2004	717	719
	2005	668	673
	2006	625	631
	2007	598	605
	Avg	675	679
Equil. Average Age F=0		5.43	5.43
Avg. age at the end of 2007		4.81	4.84

Table 4-48 **Projections of Eastern Bering Sea rock sole by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Rock Sole			
		PA.1	PA.2
Catch	2002	40.3	40.3
	2003	44.0	46.1
	2004	40.6	46.0
	2005	41.1	46.6
	2006	38.4	48.1
	2007	41.6	48.0
	Avg	41.1	47.0
ABC		62.6	62.6
	2003	108.4	108.0
	2004	97.3	96.6
	2005	87.7	86.2
	2006	76.1	74.1
	2007	67.3	64.3
	Avg	87.3	85.8
	Equilibrium	156.3	156.3
Spawning Biomass	2002	331.0	331.0
	2003	299.6	299.4
	2004	271.9	270.6
	2005	247.2	243.8
	2006	215.0	209.5
	2007	189.0	180.4
	Avg	244.5	240.7
	Equilibrium	0.173	0.173
Fishing mortality	2002	0.055	0.055
	2003	0.067	0.070
	2004	0.069	0.079
	2005	0.078	0.090
	2006	0.084	0.109
	2007	0.104	0.126
	Avg	0.080	0.095
Total Biomass	2002	970	970
	2003	877	877
	2004	810	808
	2005	770	763
	2006	729	717
	2007	710	690
	Avg	779	771
Equil. Average Age F=0		5.90	5.90
Avg. age at the end of 2007		4.82	4.74

Table 4-49 **Projections of Eastern Bering Sea flathead sole by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Flathead Sole			
		PA.1	PA.2
Catch	2002	13.9	13.9
	2003	11.1	10.8
	2004	10.9	10.8
	2005	11.1	12.1
	2006	11.2	12.1
	2007	11.7	12.7
	Avg	11.2	11.7
ABC		32.5	32.5
	2003	64.8	64.2
	2004	61.0	60.5
	2005	57.5	57.0
	2006	54.2	53.6
	2007	51.1	50.4
	Avg	57.7	57.1
	Equilibrium	124.3	124.3
Spawning Biomass	2002	248.5	248.5
	2003	231.2	231.3
	2004	216.5	216.7
	2005	202.7	202.9
	2006	189.1	188.6
	2007	176.2	175.2
	Avg	203.1	202.9
	Equilibrium	0.286	0.286
Fishing mortality	2002	0.053	0.053
	2003	0.045	0.044
	2004	0.047	0.047
	2005	0.051	0.056
	2006	0.055	0.059
	2007	0.061	0.067
	Avg	0.052	0.054
Total Biomass	2002	540	540
	2003	513	513
	2004	498	499
	2005	492	493
	2006	492	491
	2007	496	495
	Avg	498	498
Equil. Average Age F=0		5.39	5.39
Avg. age at the end of 2007		4.57	4.56

Table 4-50 **Projections of Eastern Bering Sea Alaska plaice by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Alaska Plaice			
		PA.1	PA.2
Catch	2002	11.4	11.4
	2003	9.2	8.6
	2004	9.0	8.6
	2005	9.5	9.3
	2006	11.4	11.1
	2007	11.1	10.8
	Avg	10.0	9.7
ABC		70.6	70.6
	2003	137.0	131.9
	2004	137.0	132.0
	2005	137.9	132.9
	2006	139.2	134.2
	2007	140.3	135.3
	Avg	138.3	133.3
	Equilibrium	130.9	130.9
Spawning Biomass	2002	276.9	276.9
	2003	276.0	276.1
	2004	276.2	276.5
	2005	277.5	277.9
	2006	279.5	279.9
	2007	281.5	282.1
	Avg	278.1	278.5
	Equilibrium	0.279	0.279
Fishing mortality	2002	0.021	0.021
	2003	0.017	0.016
	2004	0.016	0.016
	2005	0.017	0.017
	2006	0.021	0.020
	2007	0.020	0.019
	Avg	0.018	0.017
Total Biomass	2002	1,077	1,077
	2003	1,083	1,083
	2004	1,092	1,092
	2005	1,101	1,102
	2006	1,110	1,111
	2007	1,117	1,118
	Avg	1,100	1,101
Equil. Average Age F=0		4.51	4.51
Avg. age at the end of 2007		4.40	4.40

Table 4-51 **Projections of Bering Sea and Aleutian Islands other flatfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Units are in thousands of metric tons.**

Other Flatfish			
		PA.1	PA.2
Catch	2002	2.6	2.6
	2003	2.1	1.8
	2004	2.1	1.8
	2005	2.1	1.9
	2006	2.3	2.1
	2007	2.3	2.1
	Avg	2.2	1.9

Table 4-52 **Projections of Bering Sea and Aleutian Islands sablefish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

BSAI Sablefish			
		PA.1	PA.2
Catch	2002	1.6	1.6
	2003	1.9	0.8
	2004	1.9	0.6
	2005	1.8	0.6
	2006	1.8	0.6
	2007	1.7	0.6
	Avg	1.8	0.6
ABC		7.3	7.3
	2003	6.7	4.0
	2004	6.7	4.1
	2005	6.9	4.2
	2006	7.3	4.5
	2007	7.7	4.8
	Avg	7.1	4.3
	Equilibrium	31.1	31.1
Spawning Biomass	2002	29.3	29.3
	2003	31.2	31.2
	2004	32.0	32.5
	2005	31.6	32.6
	2006	32.6	34.1
	2007	34.2	36.1
	Avg	32.3	33.3
	Equilibrium	0.118	0.118
Fishing mortality	2002	0.028	0.028
	2003	0.032	0.013
	2004	0.032	0.011
	2005	0.030	0.010
	2006	0.028	0.010
	2007	0.027	0.009
	Avg	0.030	0.010
Total Biomass	2002	82	82
	2003	87	87
	2004	91	92
	2005	96	98
	2006	100	103
	2007	104	108
	Avg	95	98
Equil. Average Age F=0		9.50	9.50
Avg. age at the end of 2007		6.72	6.86

Table 4-53 Projections of Bering Sea and Aleutian Islands Pacific ocean perch by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.

BSAI Pacific ocean perch			
		PA.1	PA.2
Catch	2002	14.8	14.8
	2003	10.5	7.6
	2004	9.2	7.7
	2005	9.5	7.8
	2006	12.0	7.8
	2007	11.7	7.8
	Avg	10.6	7.8
ABC		16.3	11.4
	2003	15.1	7.6
	2004	15.2	7.7
	2005	15.4	7.9
	2006	15.9	8.1
	2007	15.9	8.2
	Avg	15.5	7.9
	Equilibrium	137.4	206.1
Spawning Biomass	2002	137.5	137.5
	2003	135.5	135.8
	2004	135.3	136.7
	2005	135.9	138.0
	2006	137.1	140.2
	2007	137.5	142.3
	Avg	136.2	138.6
	Equilibrium	0.048	0.024
Fishing mortality	2002	0.046	0.046
	2003	0.033	0.023
	2004	0.028	0.023
	2005	0.029	0.023
	2006	0.036	0.023
	2007	0.035	0.022
	Avg	0.032	0.023
Total Biomass	2002	375	375
	2003	374	374
	2004	378	381
	2005	383	388
	2006	389	395
	2007	392	402
	Avg	383	388
Equil. Average Age F=0		14.01	14.01
Avg. age at the end of 2007		10.37	10.54

Table 4-54 **Projections of Aleutian Islands Other rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

AI Other Rockfish			
		PA.1	PA.2
Catch	2002	0.547	0.547
	2003	0.291	0.151
	2004	0.285	0.144
	2005	0.255	0.144
	2006	0.236	0.130
	2007	0.246	0.130
	Avg	0.263	0.140

Table 4-55 **Projections of Eastern Bering Sea other rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

EBS Other Rockfish			
		PA.1	PA.2
Catch	2002	0.399	0.399
	2003	0.116	0.072
	2004	0.117	0.070
	2005	0.111	0.068
	2006	0.104	0.068
	2007	0.100	0.066
	Avg	0.110	0.069

Table 4-56 **Projections of Bering Sea and Aleutian Islands northern rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Northern Rockfish			
		PA.1	PA.2
Catch	2002	4.600	4.600
	2003	6.389	2.942
	2004	6.260	3.340
	2005	5.417	3.503
	2006	5.382	3.710
	2007	5.507	3.717
	Avg	5.791	3.442

Table 4-57 Projections of Bering Sea and Aleutian Islands shortraker/rougheye by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

BSAI Shortraker/Rougheye Rockfish			
		PA.1	PA.2
Catch	2002	0.573	0.573
	2003	0.848	0.419
	2004	0.749	0.419
	2005	0.765	0.419
	2006	0.873	0.419
	2007	0.856	0.419
	Avg	0.818	0.419

Table 4-58 **Projections of Aleutian Islands Atka mackerel by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

AI Atka mackerel			
		PA.1	PA.2
Catch	2002	47.6	47.6
	2003	74.3	49.6
	2004	72.0	53.9
	2005	55.8	55.3
	2006	54.3	51.4
	2007	57.0	51.6
	Avg	62.7	52.4
ABC		65.3	65.3
	2003	82.8	64.7
	2004	72.1	63.7
	2005	55.9	56.1
	2006	54.5	52.0
	2007	58.0	53.1
	Avg	64.6	57.9
	Equilibrium	88.9	88.9
Spawning Biomass	2002	118.5	118.5
	2003	108.9	116.5
	2004	86.9	102.4
	2005	78.5	93.5
	2006	82.0	95.1
	2007	88.0	100.7
	Avg	88.9	101.7
	Equilibrium	0.447	0.447
Fishing mortality	2002	0.251	0.251
	2003	0.393	0.247
	2004	0.436	0.274
	2005	0.391	0.309
	2006	0.394	0.305
	2007	0.401	0.304
	Avg	0.403	0.288
Total Biomass	2002	480	480
	2003	462	462
	2004	426	451
	2005	415	452
	2006	428	458
	2007	442	470
	Avg	435	459
Equil. Average Age F=0		3.82	3.82
Avg. age at the end of 2007		2.73	2.85

Table 4-59 **Projections of Bering Sea and Aleutian Islands squid by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Squid			
		PA.1	PA.2
Catch	2002	0.784	0.784
	2003	1.266	1.045
	2004	1.259	1.034
	2005	1.268	1.025
	2006	1.120	0.899
	2007	1.081	0.871
	Avg	1.199	0.975

Table 4-60 **Projections of Bering Sea and Aleutian Islands other species by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Other Species			
		PA.1	PA.2
Catch	2002	26.467	26.467
	2003	27.593	20.534
	2004	29.319	21.685
	2005	29.319	22.030
	2006	29.192	22.409
	2007	28.407	21.988
	Avg	28.766	21.729

Table 4-61 **Projections of Bering Sea and Aleutian Islands grenadier by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Grenadier			
		PA.1	PA.2
Catch	2002	6.181	6.181
	2003	7.843	3.983
	2004	7.841	3.521
	2005	7.034	3.202
	2006	6.231	3.343
	2007	5.869	3.186
	Avg	6.964	3.447

Table 4-62 **Projections of Bering Sea and Aleutian Islands halibut mortality by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Halibut			
		PA.1	PA.2
Catch	2002	3.208	3.208
	2003	4.118	3.316
	2004	4.118	3.372
	2005	4.118	3.440
	2006	4.118	3.563
	2007	4.105	3.525
	Avg	4.115	3.443

Table 4-63 **Projections of Bering Sea and Aleutian Islands forage fish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Forage Fish			
		PA.1	PA.2
Catch	2002	0.05	0.05
	2003	0.08	0.07
	2004	0.08	0.07
	2005	0.08	0.06
	2006	0.08	0.06
	2007	0.07	0.06
	Avg	0.08	0.06

Gulf of Alaska Preferred Alternative Tables

Table 4-64 **Projections of Gulf of Alaska pollock by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

GOA Pollock			
		PA.1	PA.2
Catch	2002	50.4	50.4
	2003	37.8	35.7
	2004	50.1	47.4
	2005	64.5	60.9
	2006	85.8	79.8
	2007	108.3	96.4
	Avg	69.3	64.0
ABC		176.2	176.2
	2003	48.9	46.9
	2004	67.2	64.6
	2005	88.9	85.2
	2006	122.2	113.9
	2007	155.1	139.3
	Avg	96.5	90.0
	Equilibrium	240.2	240.2
Spawning Biomass	2002	136.3	136.3
	2003	143.8	144.0
	2004	168.3	169.2
	2005	188.7	190.5
	2006	213.5	216.3
	2007	248.5	253.6
	Avg	192.6	194.7
	Equilibrium	0.294	0.294
Fishing mortality	2002	0.174	0.174
	2003	0.107	0.101
	2004	0.122	0.115
	2005	0.134	0.126
	2006	0.145	0.135
	2007	0.164	0.142
	Avg	0.134	0.123
Total Biomass	2002	681	681
	2003	799	799
	2004	933	935
	2005	1,079	1,083
	2006	1,184	1,191
	2007	1,263	1,275
	Avg	1,052	1,057
Equil. Average Age F=0		3.60	3.60
Avg. age at the end of 2007		3.09	3.07

Table 4-65 **Projections of Gulf of Alaska Pacific cod by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

GOA Pacific cod			
		PA.1	PA.2
Catch	2002	51.0	51.0
	2003	57.1	50.3
	2004	49.5	45.5
	2005	51.0	47.5
	2006	57.0	53.6
	2007	63.7	59.9
	Avg	55.6	51.4
ABC		74.4	74.4
	2003	59.9	52.1
	2004	51.7	46.9
	2005	53.3	49.3
	2006	59.8	55.7
	2007	67.0	62.5
	Avg	58.3	53.3
	Equilibrium	90.3	90.3
Spawning Biomass	2002	97.9	97.9
	2003	88.5	88.9
	2004	80.4	82.7
	2005	79.1	82.4
	2006	81.8	85.6
	2007	85.7	90.1
	Avg	83.1	85.9
	Equilibrium	0.350	0.350
Fishing mortality	2002	0.255	0.255
	2003	0.324	0.282
	2004	0.295	0.263
	2005	0.289	0.260
	2006	0.299	0.270
	2007	0.312	0.281
	Avg	0.304	0.271
Total Biomass	2002	568	568
	2003	575	575
	2004	589	596
	2005	621	631
	2006	652	664
	2007	675	688
	Avg	622	631
Equil. Average Age F=0		3.20	3.20
Avg. age at the end of 2007		2.75	2.78

Table 4-66 **Projections of Gulf of Alaska deep flatfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Deep Water Flatfish			
		PA.1	PA.2
Catch	2002	0.100	0.100
	2003	1.251	0.869
	2004	1.217	0.865
	2005	1.066	0.881
	2006	1.070	0.911
	2007	1.091	0.967
	Avg	1.139	0.899

Table 4-67 **Projections of Gulf of Alaska rex sole by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons**

Rex Sole			
		PA.1	PA.2
Catch	2002	3.009	3.009
	2003	3.347	3.092
	2004	3.303	3.076
	2005	3.276	3.075
	2006	3.282	3.053
	2007	3.283	3.042
	Avg	3.298	3.068

Table 4-68 **Projections of Gulf of Alaska shallow flatfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons**

Shallow Water Flatfish			
		PA.1	PA.2
Catch	2002	6.842	6.842
	2003	5.954	5.127
	2004	5.842	5.010
	2005	5.843	5.034
	2006	5.442	5.141
	2007	4.968	4.998
	Avg	5.610	5.062

Table 4-69 Projections of Gulf of Alaska flathead sole by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

GOA Flathead Sole			
		PA.1	PA.2
Catch	2002	2.0	2.0
	2003	1.7	1.5
	2004	1.6	1.5
	2005	1.6	1.5
	2006	1.5	1.5
	2007	1.5	1.5
	Avg	1.6	1.5
ABC		13.5	13.5
	2003	41.4	36.1
	2004	40.1	35.0
	2005	38.9	33.9
	2006	37.7	33.0
	2007	36.9	32.2
	Avg	39.0	34.0
	Equilibrium	38.2	38.2
Spawning Biomass	2002	96.9	96.9
	2003	93.5	93.5
	2004	90.5	90.6
	2005	88.1	88.2
	2006	86.1	86.3
	2007	84.7	84.9
	Avg	88.6	88.7
	Equilibrium	0.417	0.417
Fishing mortality	2002	0.017	0.017
	2003	0.014	0.013
	2004	0.014	0.013
	2005	0.014	0.014
	2006	0.014	0.014
	2007	0.014	0.015
	Avg	0.014	0.014
Total Biomass	2002	229	229
	2003	224	224
	2004	221	222
	2005	220	220
	2006	219	219
	2007	219	219
	Avg	221	221
Equil. Average Age F=0		5.37	5.37
Avg. age at the end of 2007		5.18	5.18

Table 4-70 Projections of Gulf of Alaska arrowtooth by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons

Arrowtooth Flounder			
		PA.1	PA.2
Catch	2002	20.0	20.0
	2003	13.6	10.2
	2004	13.2	10.1
	2005	13.1	10.3
	2006	13.2	10.7
	2007	13.5	11.0
	Avg	13.3	10.5
ABC		104.0	104.0
	2003	159.8	159.8
	2004	164.6	165.0
	2005	170.8	171.4
	2006	175.1	176.1
	2007	179.0	180.1
	Avg	169.9	170.5
	Equilibrium	494.5	494.5
Spawning Biomass	2002	1,113.8	1,113.8
	2003	1,117.5	1,117.5
	2004	1,129.5	1,132.2
	2005	1,150.3	1,155.5
	2006	1,154.5	1,161.7
	2007	1,152.8	1,161.6
	Avg	1,140.9	1,145.7
	Equilibrium	0.140	0.140
Fishing mortality	2002	0.017	0.017
	2003	0.011	0.009
	2004	0.011	0.008
	2005	0.010	0.008
	2006	0.010	0.008
	2007	0.010	0.008
	Avg	0.010	0.008
Total Biomass	2002	1,816	1,816
	2003	1,863	1,863
	2004	1,922	1,925
	2005	1,991	1,998
	2006	2,040	2,049
	2007	2,082	2,094
	Avg	1,980	1,986
Equil. Average Age F=0		5.11	5.11
Avg. age at the end of 2007		5.02	5.03

Table 4-71 **Projections of Gulf of Alaska sablefish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

GOA Sablefish			
		PA.1	PA.2
Catch	2002	12.8	12.8
	2003	15.1	9.0
	2004	13.9	8.9
	2005	12.8	8.7
	2006	13.0	9.2
	2007	13.5	9.7
	Avg	13.7	9.1
ABC		18.1	18.1
	2003	15.1	9.0
	2004	13.9	8.9
	2005	12.9	8.7
	2006	13.3	9.2
	2007	13.9	9.7
	Avg	13.8	9.1
	Equilibrium	77.1	77.1
Spawning Biomass	2002	72.8	72.8
	2003	73.8	73.8
	2004	71.1	73.8
	2005	66.6	71.2
	2006	66.1	72.3
	2007	67.2	74.8
	Avg	68.9	73.2
	Equilibrium	0.118	0.118
Fishing mortality	2002	0.091	0.091
	2003	0.113	0.066
	2004	0.108	0.066
	2005	0.101	0.063
	2006	0.098	0.063
	2007	0.099	0.064
	Avg	0.104	0.064
Total Biomass	2002	204	204
	2003	206	206
	2004	207	214
	2005	210	221
	2006	214	228
	2007	217	235
	Avg	211	221
Equil. Average Age F=0		9.50	9.50
Avg. age at the end of 2007		6.10	6.38

Table 4-72 **Projections of Gulf of Alaska slope rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

GOA Other Rockfish			
		PA.1	PA.2
Catch	2002	0.572	0.572
	2003	0.980	0.712
	2004	0.980	0.687
	2005	0.955	0.672
	2006	0.943	0.711
	2007	0.944	0.745
	Avg	0.960	0.705

Table 4-73 **Projections of Gulf of Alaska pelagic shelf rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Pelagic Shelf Rockfish			
		PA.1	PA.2
Catch	2002	3.318	3.318
	2003	1.716	1.214
	2004	1.802	1.162
	2005	1.853	1.086
	2006	1.645	1.274
	2007	1.657	1.372
	Avg	1.735	1.222

Table 4-74 **Projections of Gulf of Alaska demersal shelf rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.**

Demersal Shelf Rockfish			
		PA.1	PA.2
Catch	2002	0.182	0.182
	2003	0.350	0.227
	2004	0.327	0.226
	2005	0.302	0.223
	2006	0.300	0.233
	2007	0.304	0.243
	Avg	0.316	0.231

Table 4-75 Projections of Gulf of Alaska shortraker/rougheye by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Shortraker/Rougheye Rockfish			
		PA.1	PA.2
Catch	2002	1.300	1.300
	2003	1.418	0.731
	2004	1.306	0.710
	2005	1.202	0.679
	2006	1.200	0.724
	2007	1.231	0.776
	Avg	1.272	0.724

Table 4-76 **Projections of Gulf of Alaska northern rockfish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Northern Rockfish			
		PA.1	PA.2
Catch	2002	3.3	3.3
	2003	1.3	0.8
	2004	1.5	0.9
	2005	1.5	0.9
	2006	1.4	1.1
	2007	1.4	1.2
	Avg	1.4	1.0
ABC		4.0	2.7
	2003	5.3	2.6
	2004	5.1	2.6
	2005	4.9	2.5
	2006	4.7	2.4
	2007	4.6	2.3
	Avg	4.9	2.5
	Equilibrium	25.3	37.9
Spawning Biomass	2002	44.6	44.6
	2003	42.7	42.7
	2004	41.6	41.8
	2005	40.3	40.8
	2006	38.9	39.6
	2007	37.6	38.4
	Avg	40.2	40.7
	Equilibrium	0.056	0.027
Fishing mortality	2002	0.033	0.033
	2003	0.013	0.009
	2004	0.016	0.009
	2005	0.017	0.010
	2006	0.016	0.013
	2007	0.017	0.014
	Avg	0.016	0.011
Total Biomass	2002	112	112
	2003	107	107
	2004	105	105
	2005	103	104
	2006	102	103
	2007	101	103
	Avg	104	105
Equil. Average Age F=0		12.58	12.58
Avg. age at the end of 2007		11.49	11.59

Table 4-77 **Projections of Gulf of Alaska Pacific ocean perch by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Pacific ocean perch			
		PA.1	PA.2
Catch	2002	11.6	11.6
	2003	10.5	5.0
	2004	9.2	5.3
	2005	8.3	5.1
	2006	8.3	4.9
	2007	8.3	5.0
	Avg	8.9	5.1
ABC		13.5	9.3
	2003	12.0	6.0
	2004	12.1	6.1
	2005	12.4	6.3
	2006	12.8	6.6
	2007	13.1	6.8
	Avg	12.5	6.4
	Equilibrium	104.8	157.2
Spawning Biomass	2002	113.6	113.6
	2003	112.7	113.5
	2004	112.1	114.9
	2005	112.4	116.7
	2006	113.5	119.1
	2007	115.5	122.5
	Avg	113.2	117.3
	Equilibrium	0.050	0.024
Fishing mortality	2002	0.042	0.042
	2003	0.038	0.018
	2004	0.033	0.019
	2005	0.029	0.017
	2006	0.028	0.016
	2007	0.028	0.016
	Avg	0.031	0.017
Total Biomass	2002	335	335
	2003	338	338
	2004	343	348
	2005	349	358
	2006	355	367
	2007	361	376
	Avg	349	358
Equil. Average Age F=0		14.33	14.33
Avg. age at the end of 2007		10.61	10.85

Table 4-78 **Projections of Gulf of Alaska thornyheads by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Rows labeled "Equilibrium" represent the single-species long-term expected values. Biomass units are in thousands of metric tons.**

Thornyhead Rockfish			
		PA.1	PA.2
Catch	2002	1.5	1.5
	2003	1.2	0.6
	2004	1.1	0.6
	2005	1.0	0.6
	2006	1.0	0.6
	2007	1.1	0.7
	Avg	1.1	0.6
ABC		1.8	1.3
	2003	2.5	1.2
	2004	2.6	1.2
	2005	2.6	1.3
	2006	2.7	1.3
	2007	2.7	1.3
	Avg	2.6	1.3
	Equilibrium	17.2	25.7
Spawning Biomass	2002	23.5	23.5
	2003	23.6	23.6
	2004	23.7	24.0
	2005	23.9	24.4
	2006	24.1	24.8
	2007	24.3	25.2
	Avg	23.9	24.4
	Equilibrium	0.053	0.025
Fishing mortality	2002	0.032	0.032
	2003	0.025	0.013
	2004	0.023	0.013
	2005	0.020	0.012
	2006	0.020	0.012
	2007	0.020	0.012
	Avg	0.022	0.012
Total Biomass	2002	54	54
	2003	54	54
	2004	54	55
	2005	54	56
	2006	55	56
	2007	55	57
	Avg	55	56
Equil. Average Age F=0		12.67	12.67
Avg. age at the end of 2007		10.15	10.35

Table 4-79 Projections of Gulf of Alaska Atka mackerel by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).

Atka mackerel			
		PA.1	PA.2
Catch	2002	0.2	0.2
	2003	0.3	0.1
	2004	0.3	0.2
	2005	0.4	0.2
	2006	0.4	0.2
	2007	0.4	0.2
	Avg	0.4	0.2
ABC		0.6	0.6
	2003	0.6	0.6
	2004	0.6	0.6
	2005	0.6	0.6
	2006	0.6	0.6
	2007	0.6	0.6
	Avg	0.6	0.6

Table 4-80 Projections of Gulf of Alaska halibut mortality by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Units are in thousands of metric tons.

Halibut			
		PA.1	PA.2
Catch	2002	2.300	2.300
	2003	2.300	1.814
	2004	2.299	1.734
	2005	2.299	1.771
	2006	2.300	1.874
	2007	2.302	1.950
	Avg	2.300	1.829

Table 4-81 **Projections of Gulf of Alaska grenadiers by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Grenadiers			
		PA.1	PA.2
Catch	2002	11.39	11.39
	2003	15.96	8.03
	2004	14.71	7.92
	2005	13.65	7.76
	2006	13.95	8.21
	2007	14.54	8.70
	Avg	14.56	8.13

Table 4-82 **Projections of Gulf of Alaska forage fish by alternative. Values represent means over 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly).**

Forage Fish			
		PA.1	PA.2
Catch	2002	0.03	0.03
	2003	0.06	0.04
	2004	0.08	0.06
	2005	0.11	0.08
	2006	0.14	0.11
	2007	0.17	0.13
	Avg	0.11	0.09

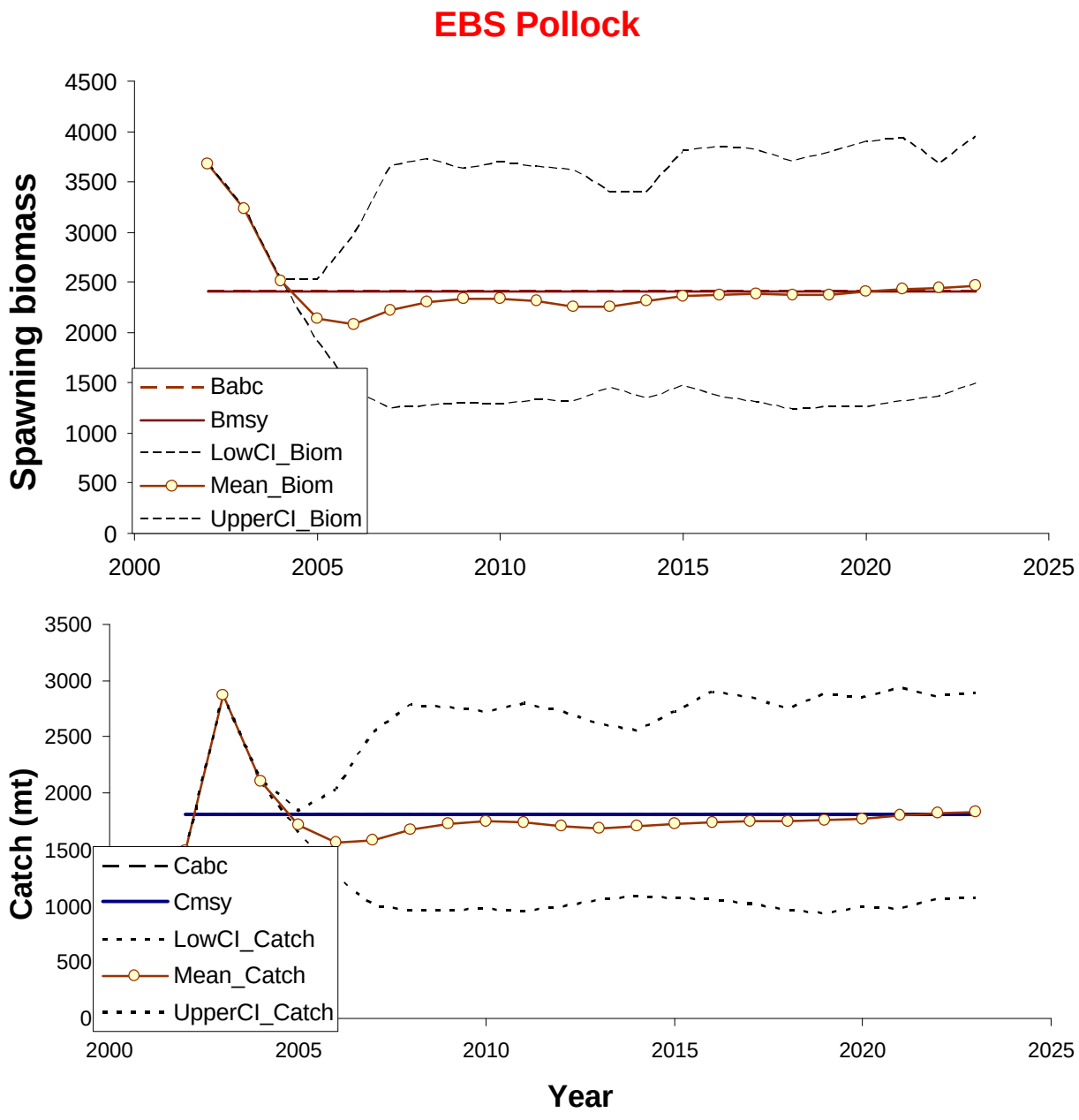

Figure 4-1. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Eastern Bering Sea pollock long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

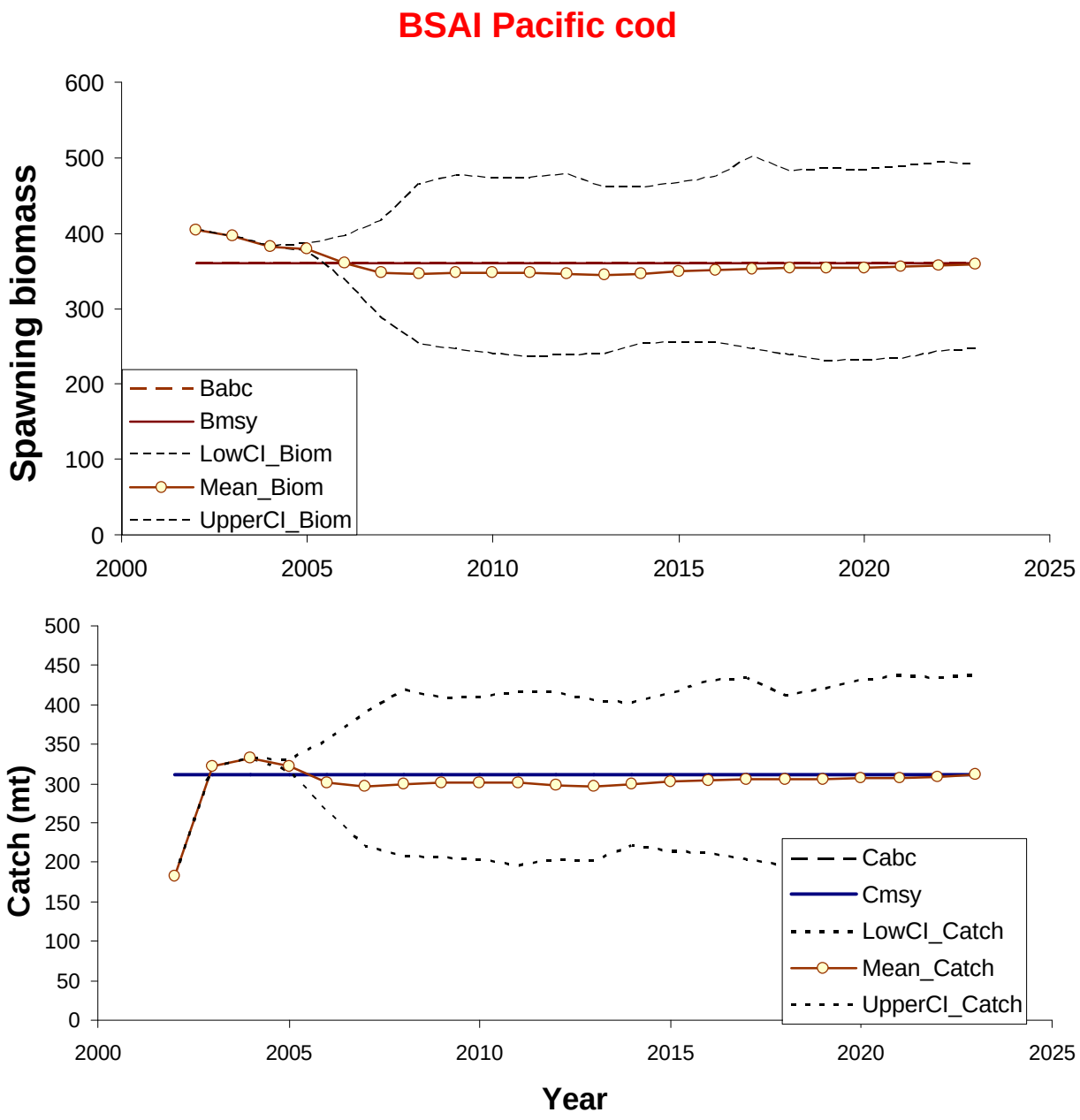

Figure 4-2. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands Pacific cod long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

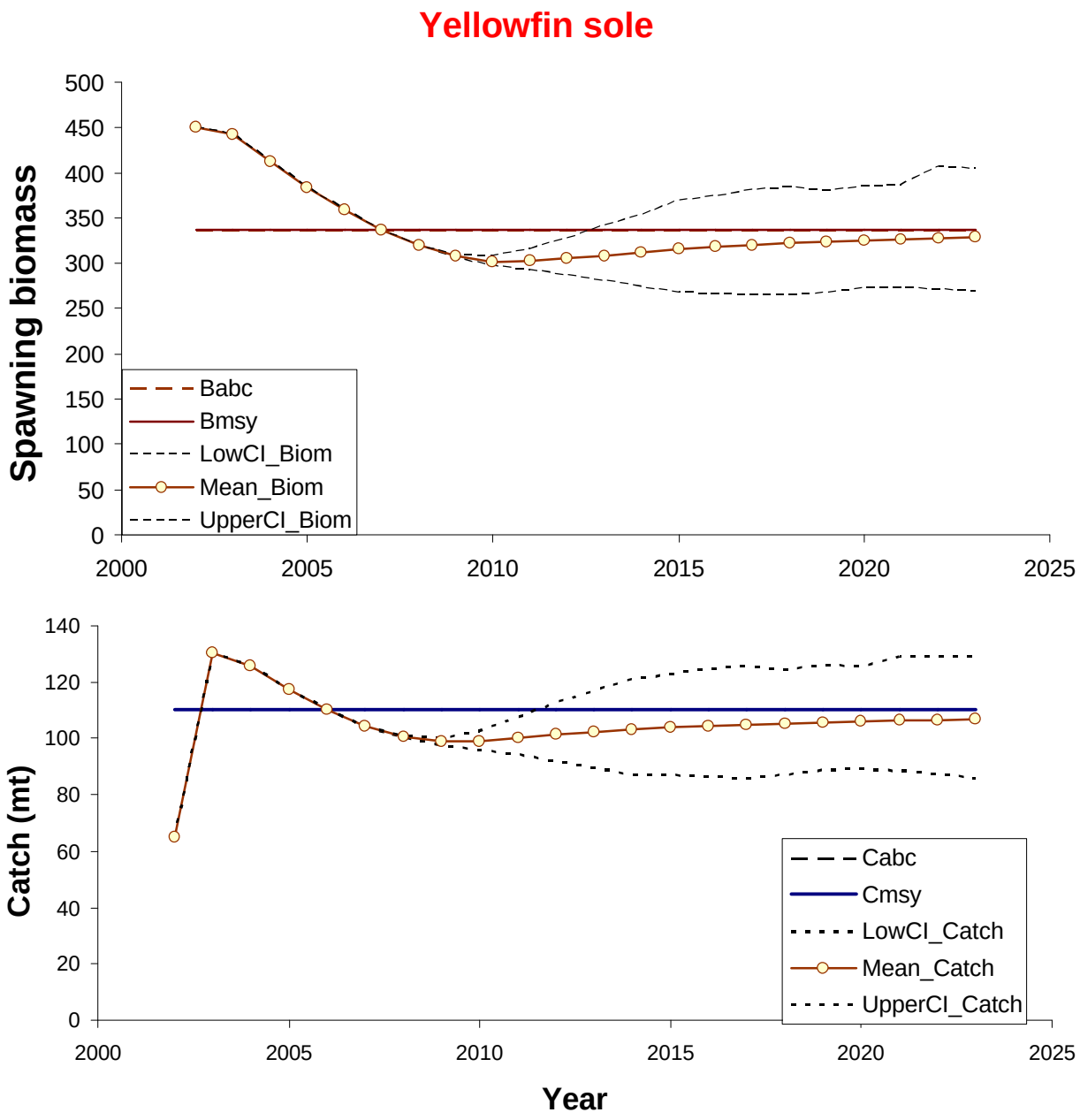

Figure 4-3. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for yellowfin sole long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

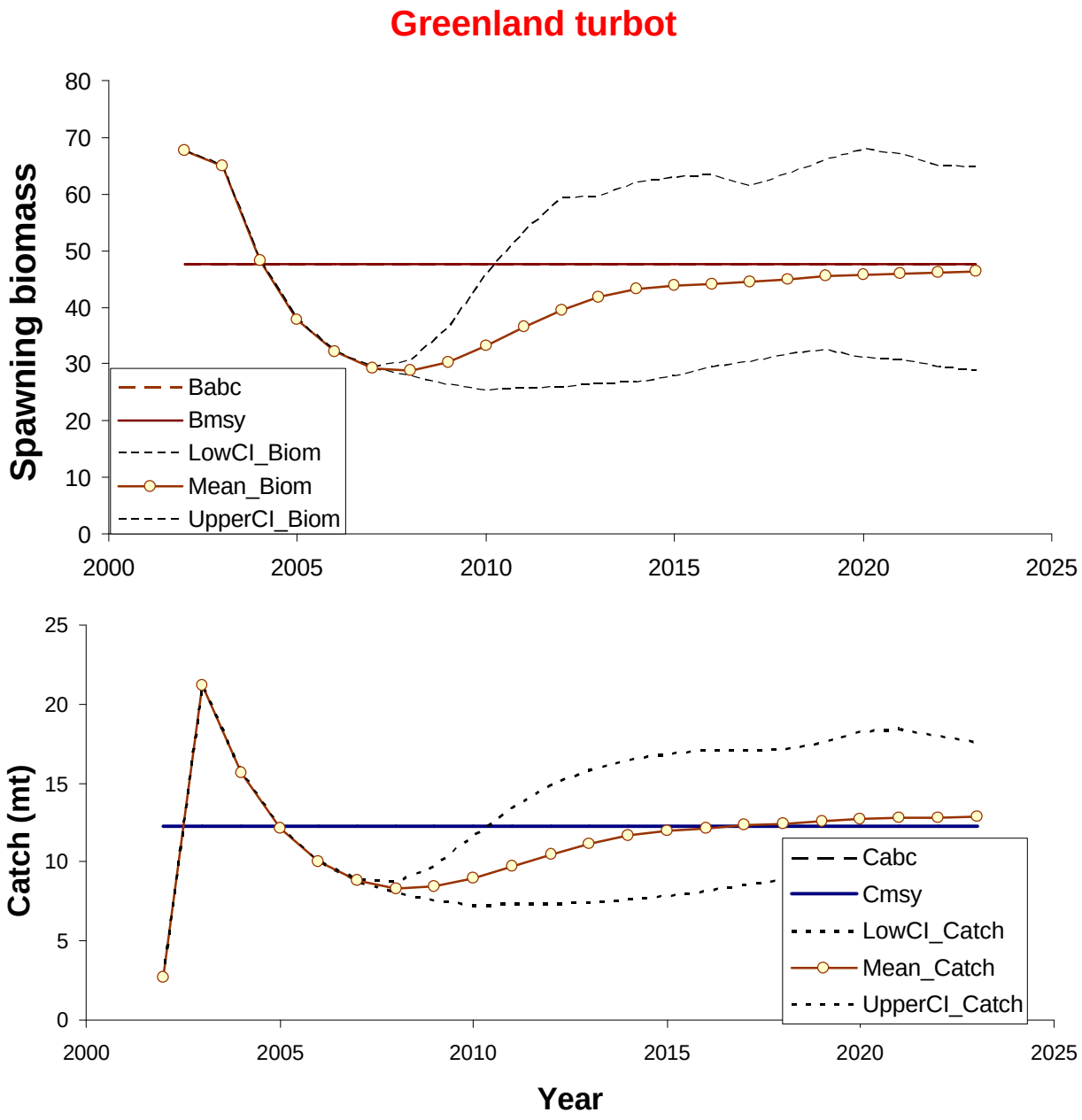

Figure 4-4. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands Greenland turbot long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

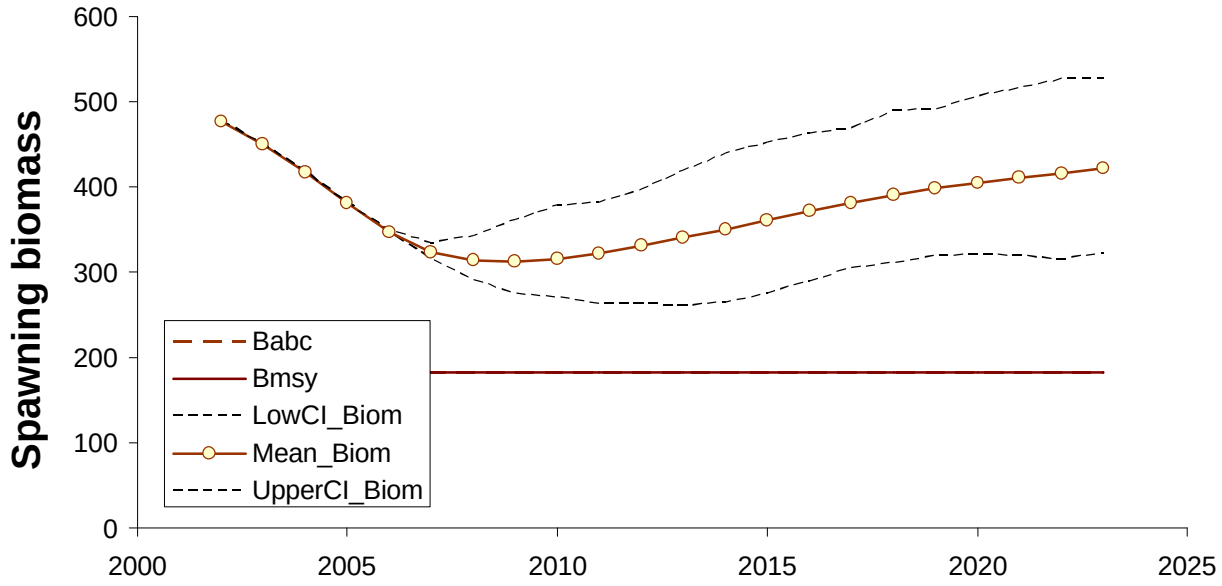

Figure 4-5. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands arrowtooth flounder long-term projections under Alternative 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

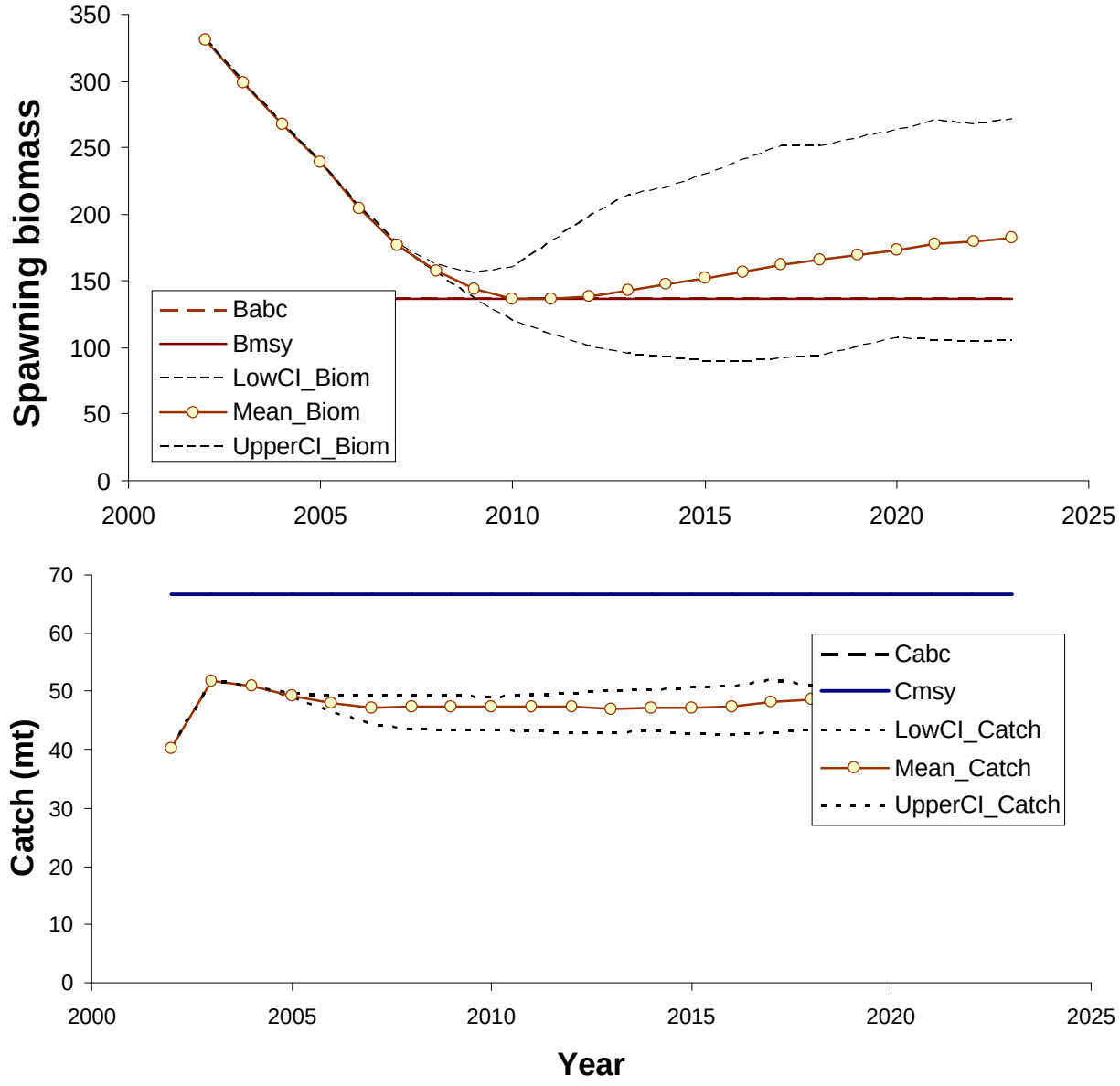

Figure 4-6. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Eastern Bering Sea rock sole long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

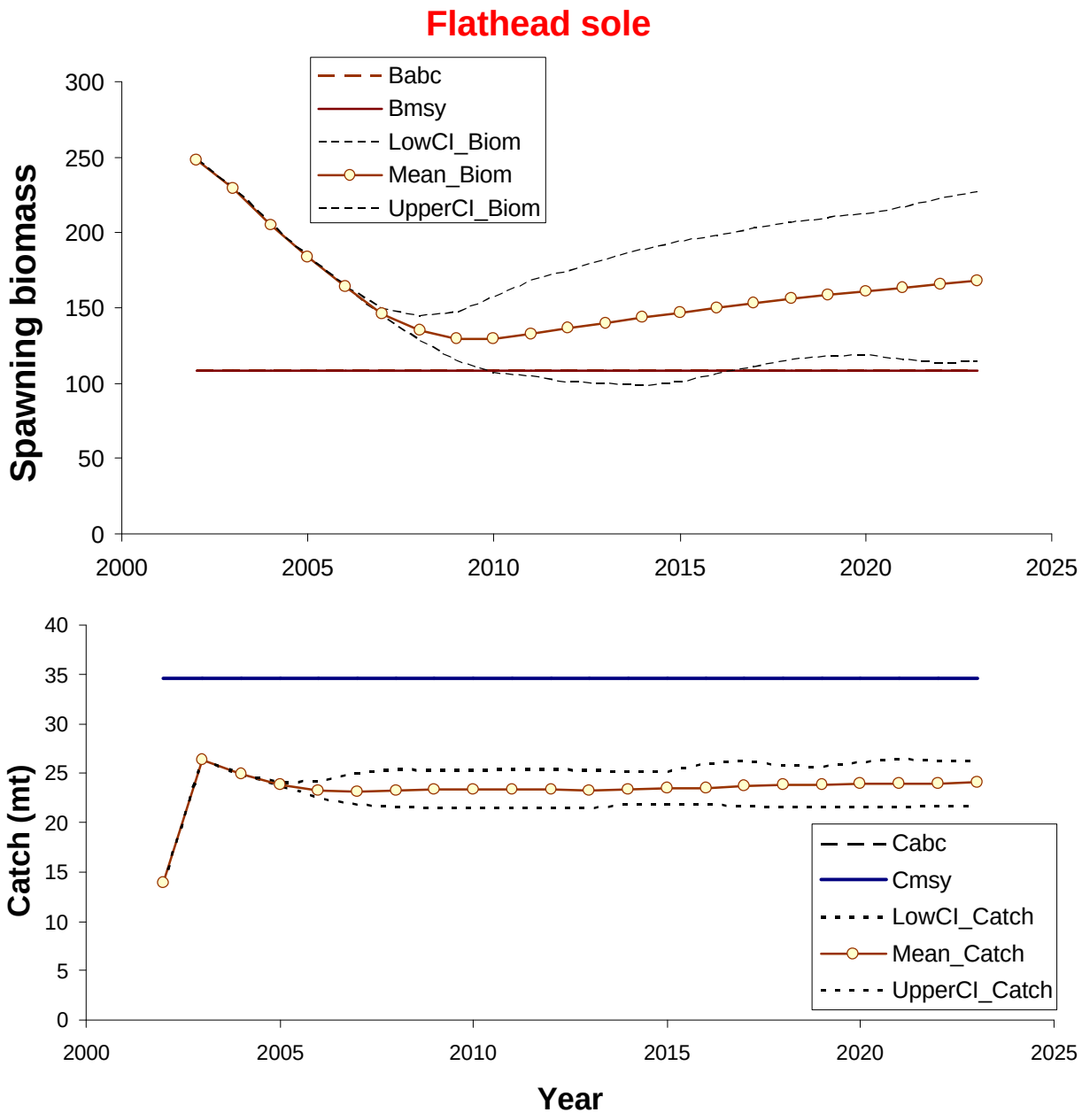

Figure 4-7. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Eastern Bering Sea flathead sole long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

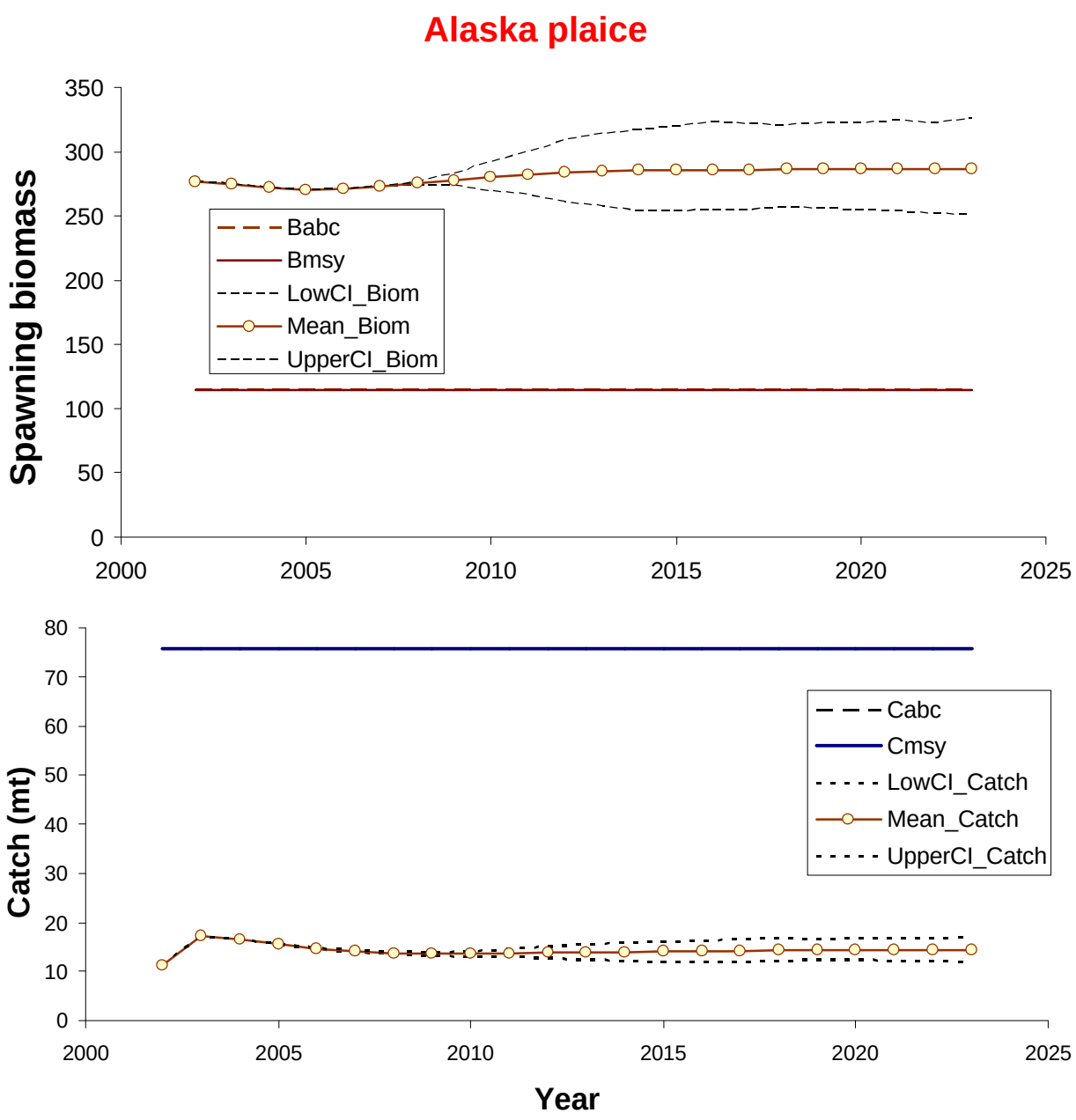

Figure 4-8. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Eastern Bering Sea Alaska plaice long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

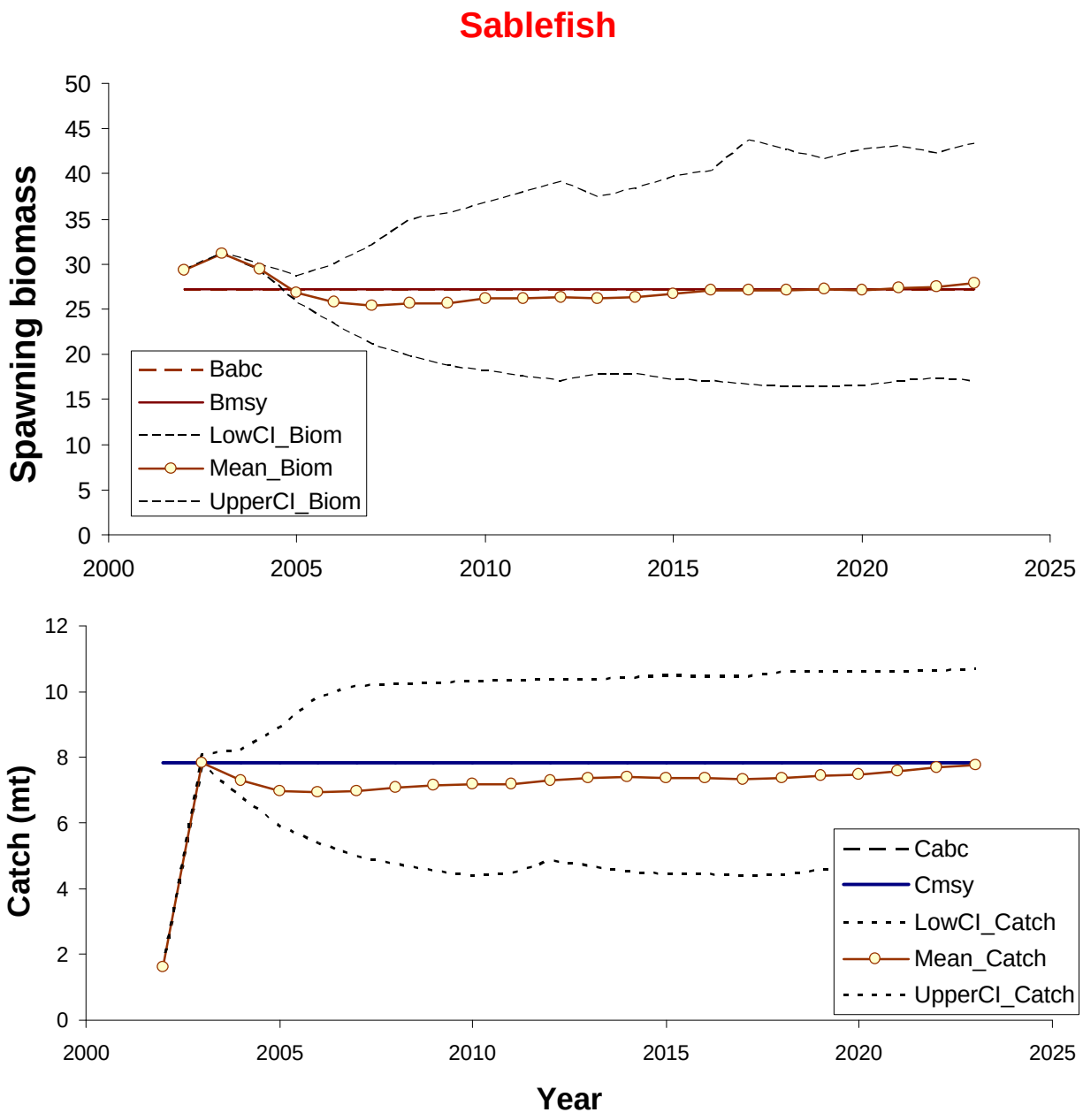

Figure 4-9. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands sablefish long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

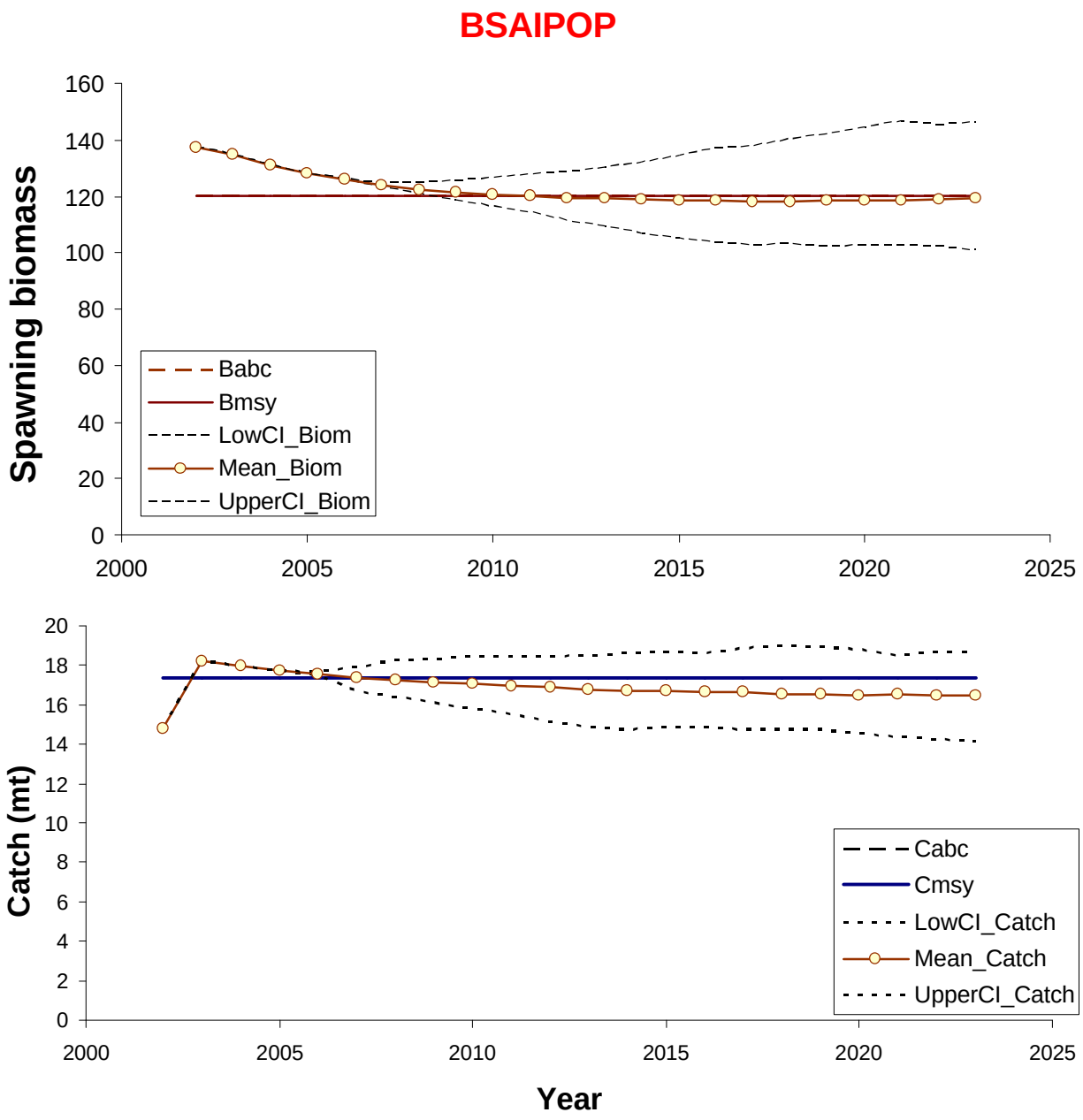

Figure 4-10. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands Pacific ocean perch long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

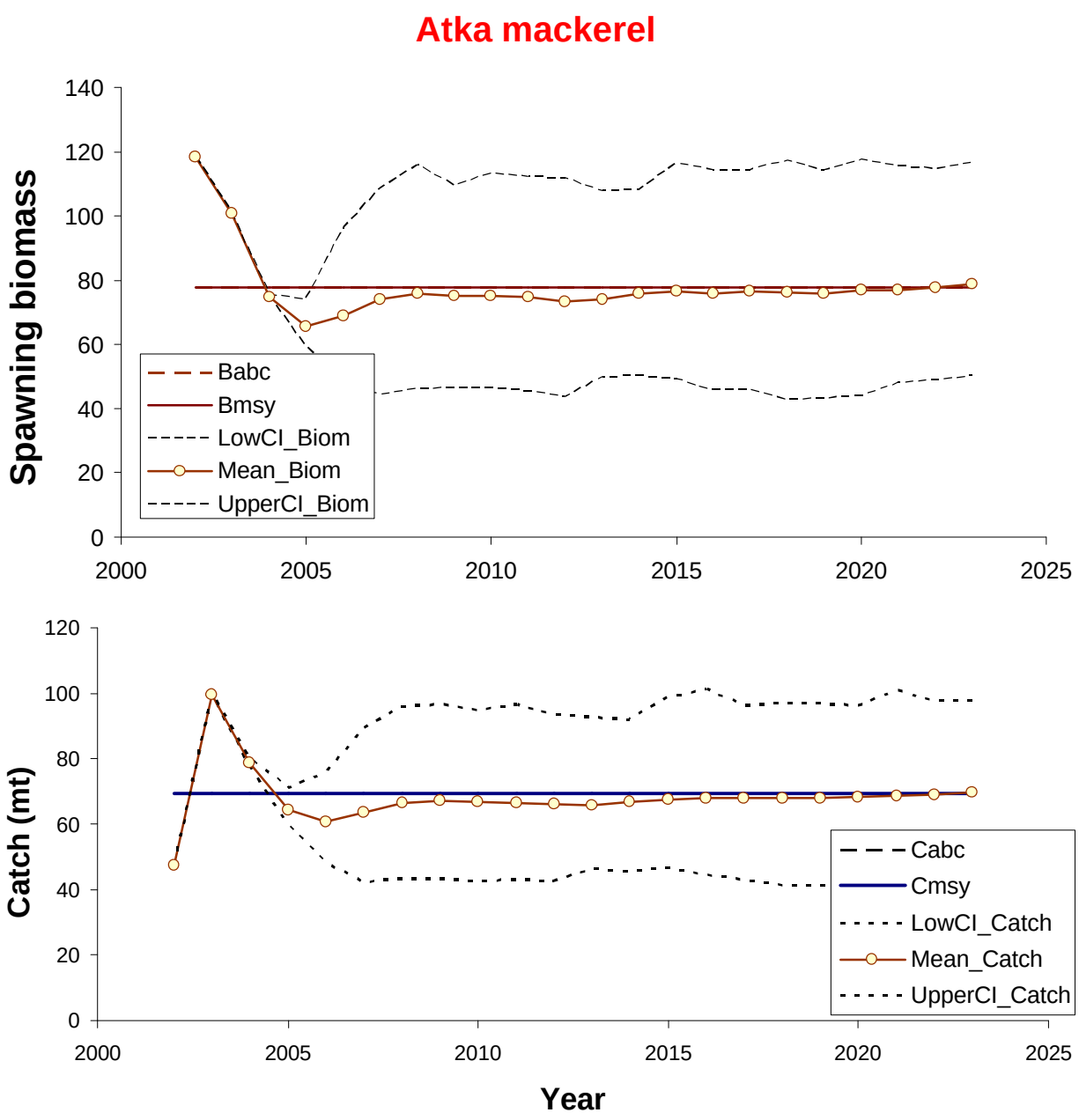

Figure 4-11. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Bering Sea and Aleutian Islands Atka mackerel long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

Gulf of Alaska

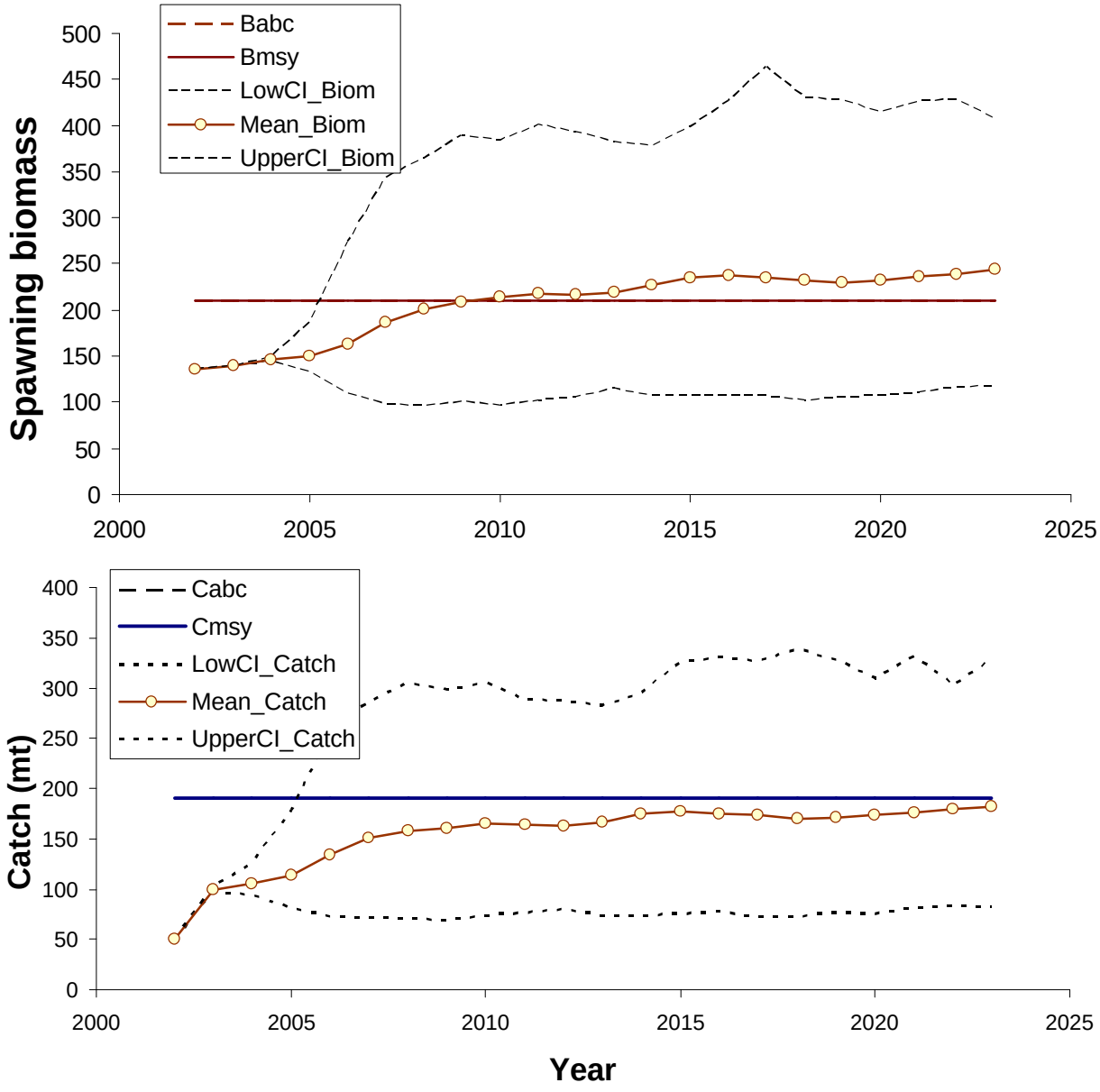

Figure 4-12. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Gulf of Alaska pollock long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.

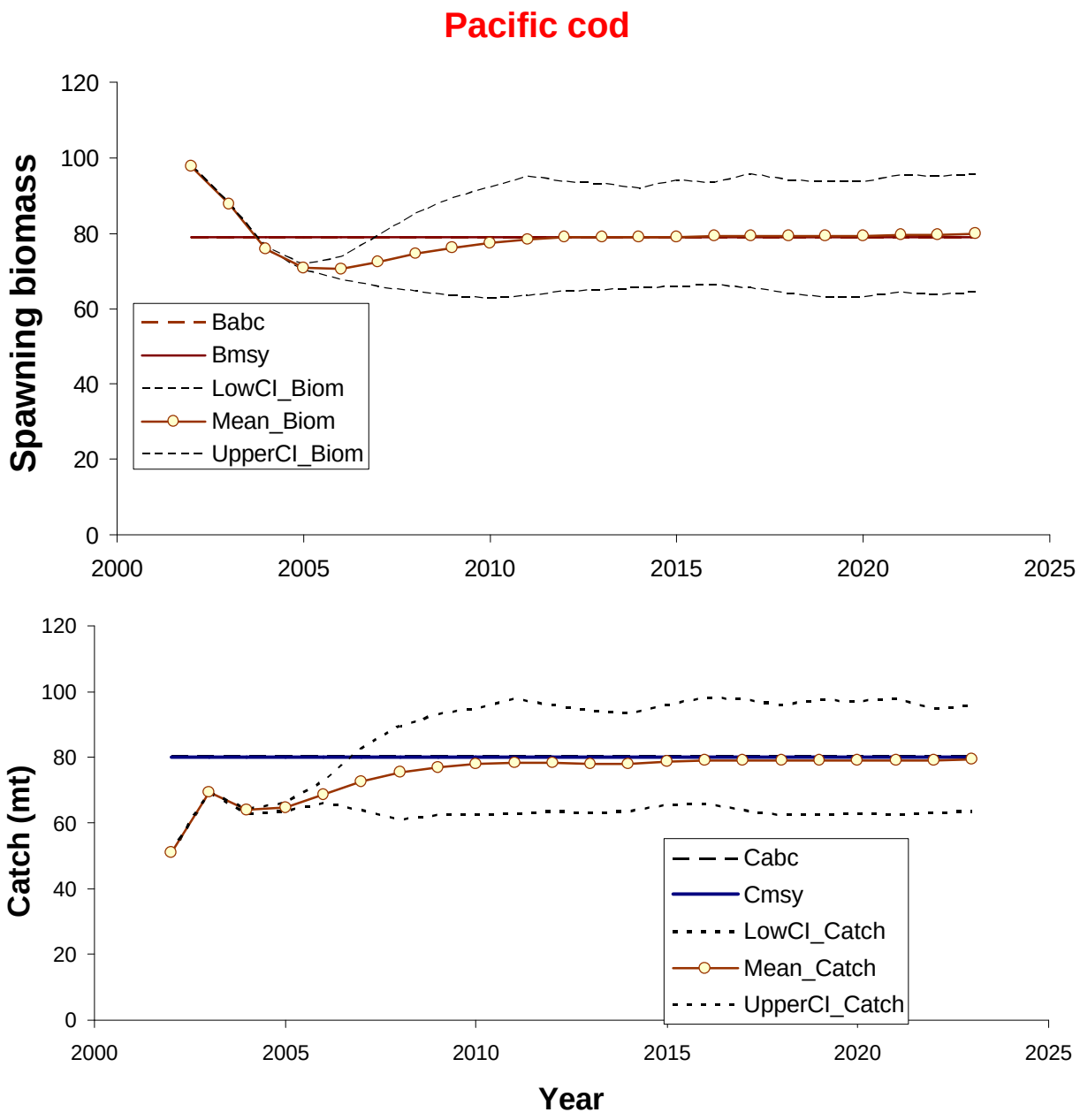

Figure 4-13. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Gulf of Alaska Pacific cod long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

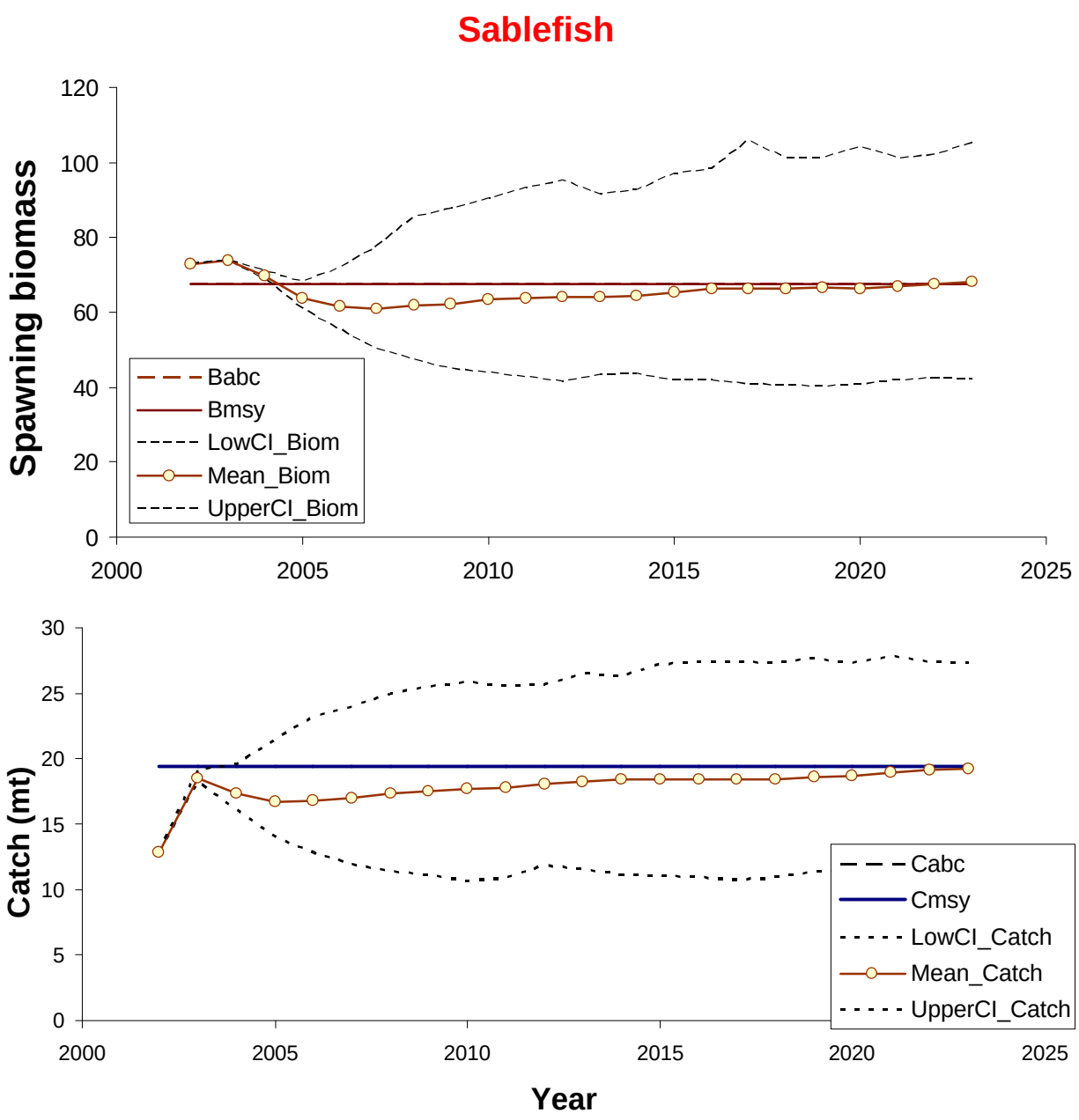

Figure 4-14. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Gulf of Alaska sablefish long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

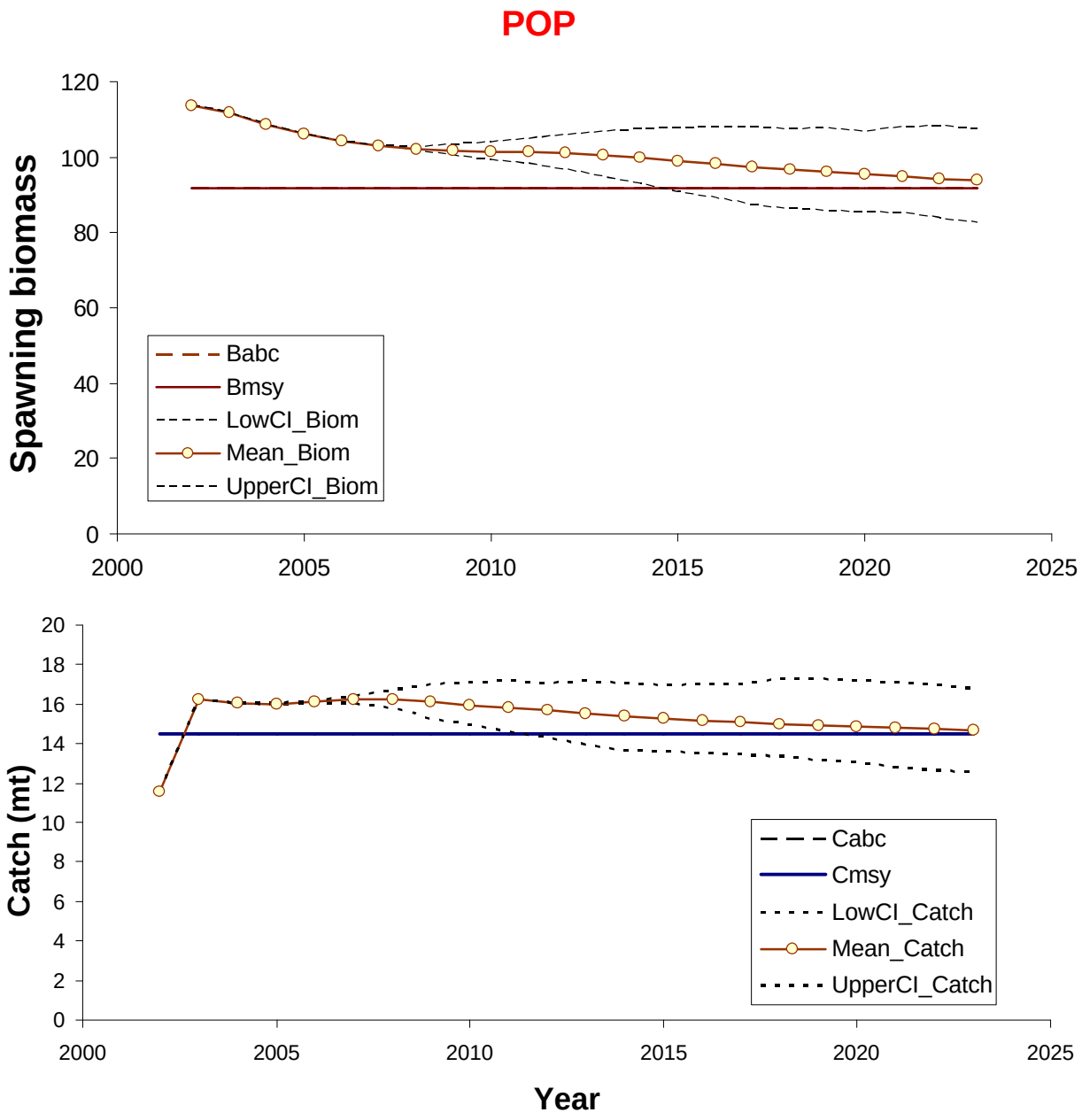

Figure 4-15. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for Pacific ocean perch long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

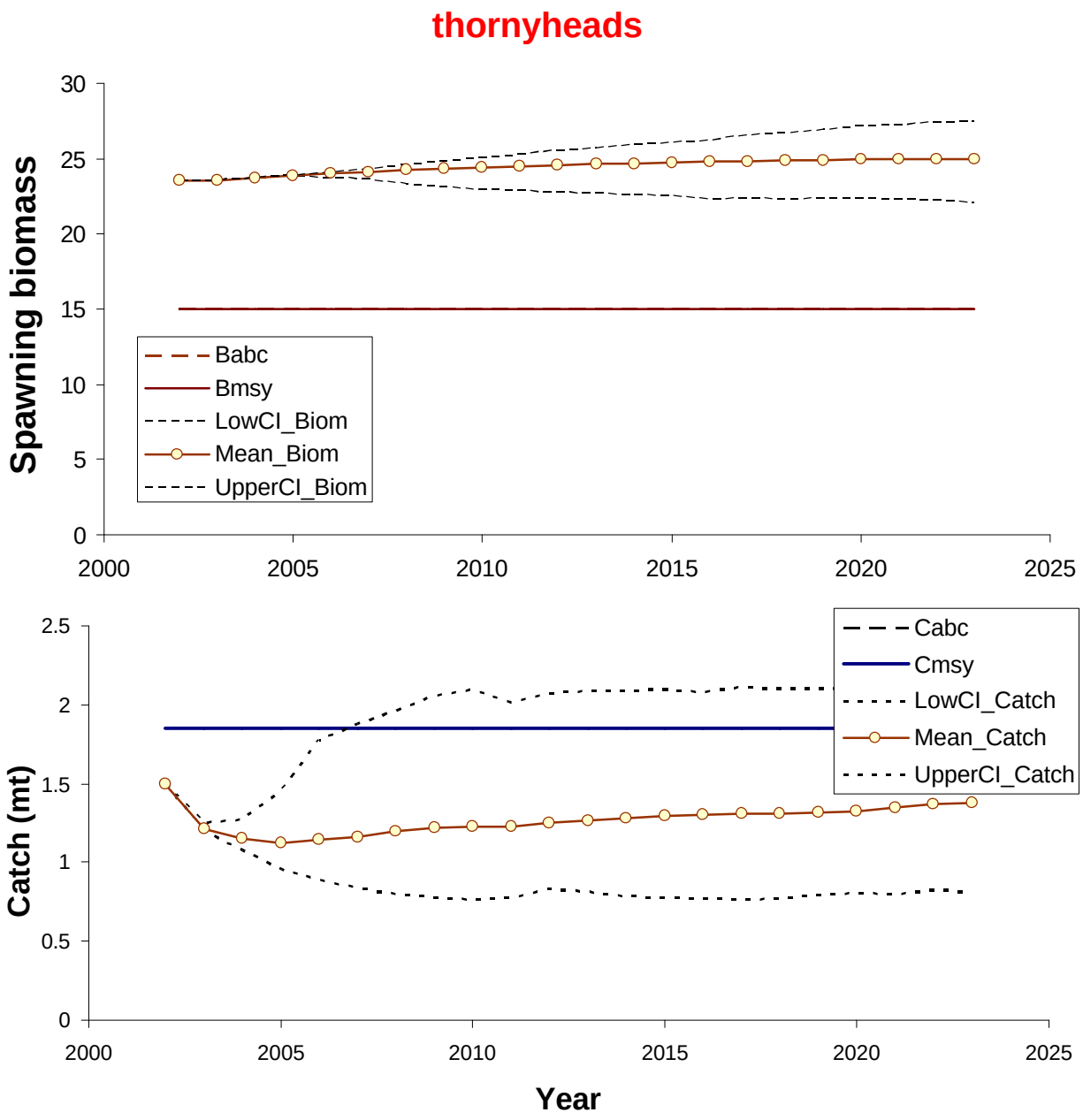

Figure 4-16. **Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds based on 200 simulations for GOA thornyheads long-term projections under FMP 2.1. Note that the C_{ABC} and B_{ABC} equal the C_{MSY} and B_{MSY} values which for this Alternative use $B_{35\%}$ and $F_{35\%}$ as target biomass and fishing mortality rate levels.**

Eastern Bering Sea / Aleutian Islands

Figures

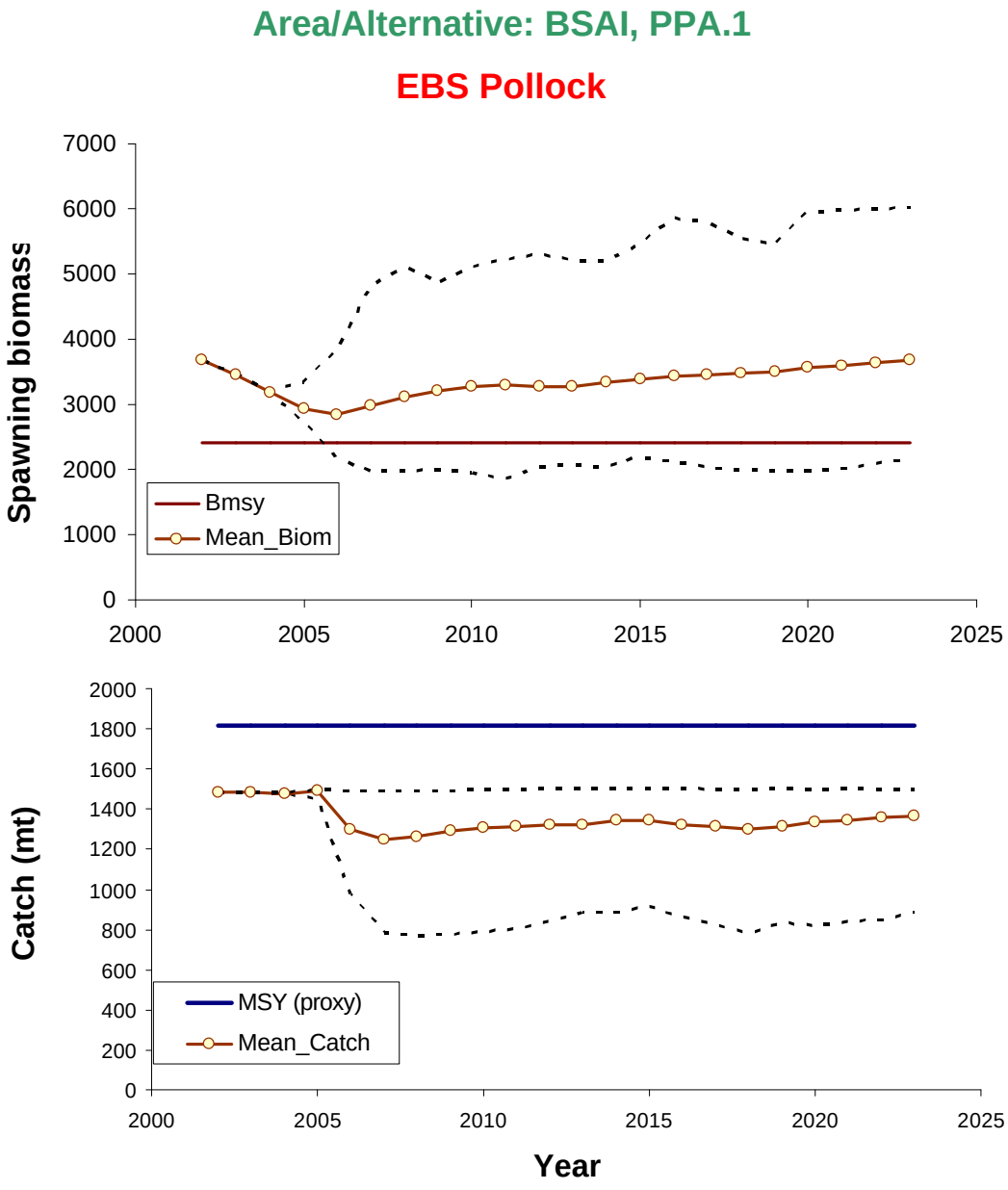

Figure H.4-17. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for EBS Pollock under FMP PPA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

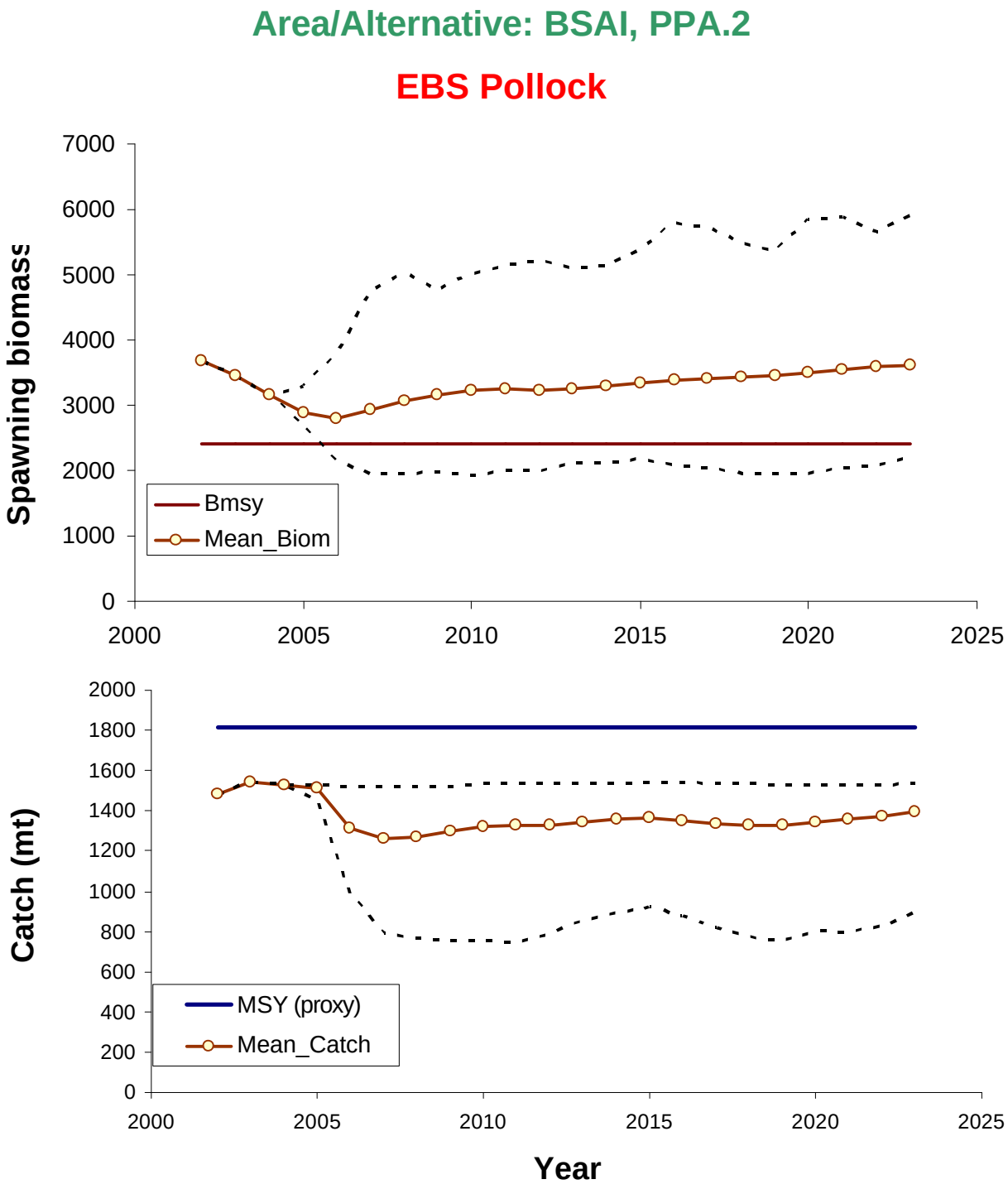

Figure H.4-18. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for EBS Pollock under FMP PPA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

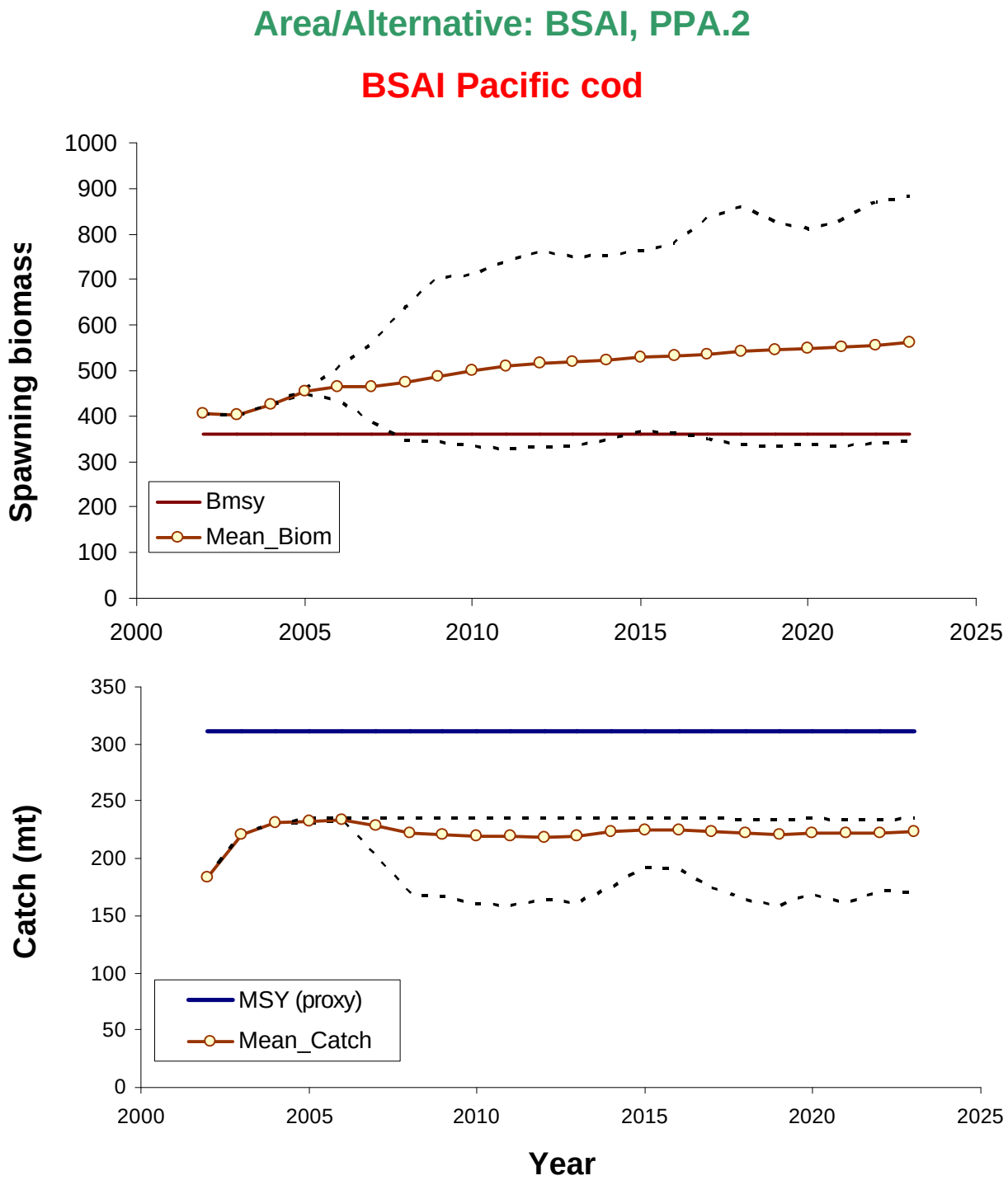

Figure H.4-19. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for BSAI Pacific cod under FMP PPA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

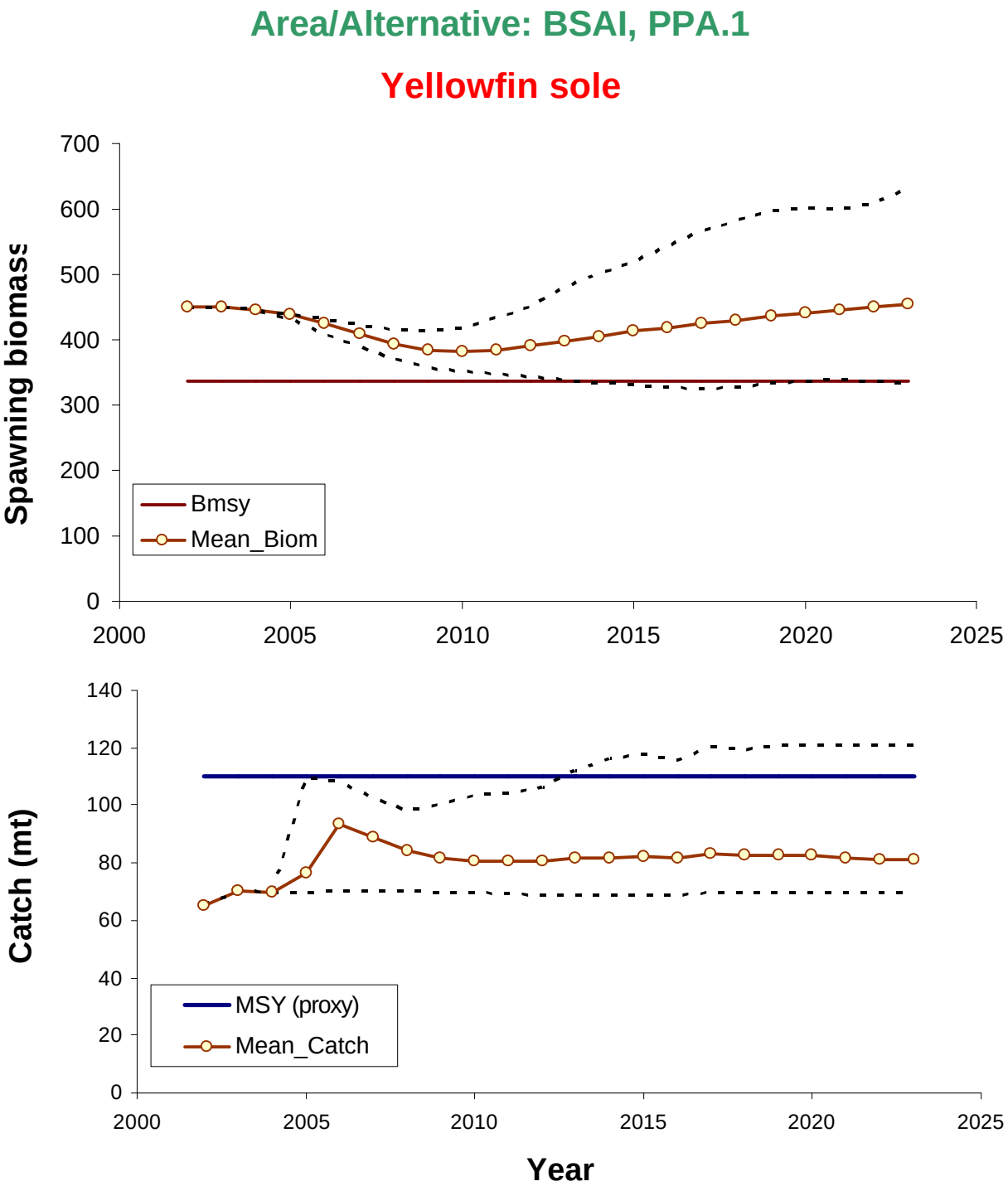

Figure H.4-20. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Yellowfin sole under FMP PPA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

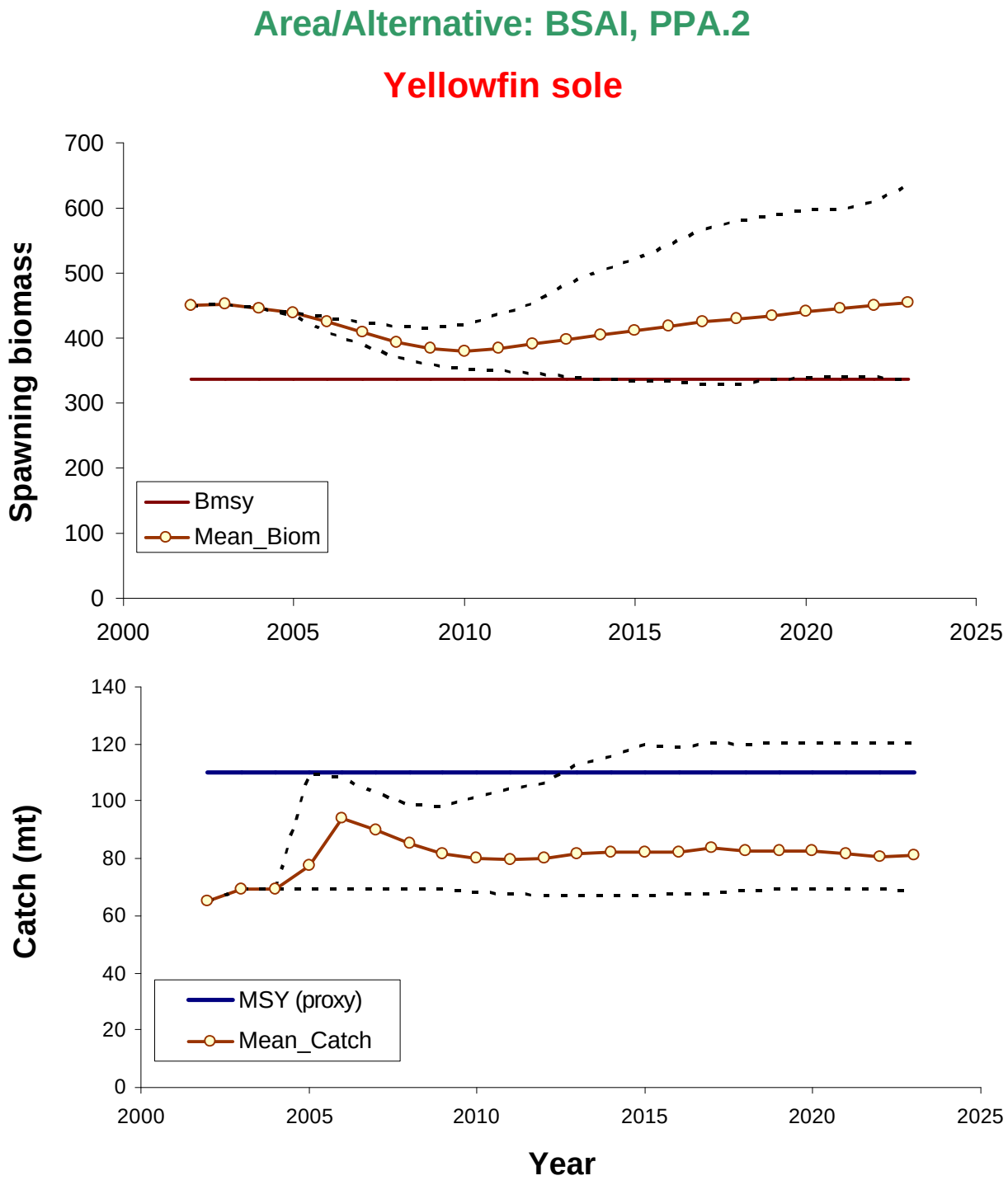

Figure H.4-21. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Yellowfin sole under FMP PPA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

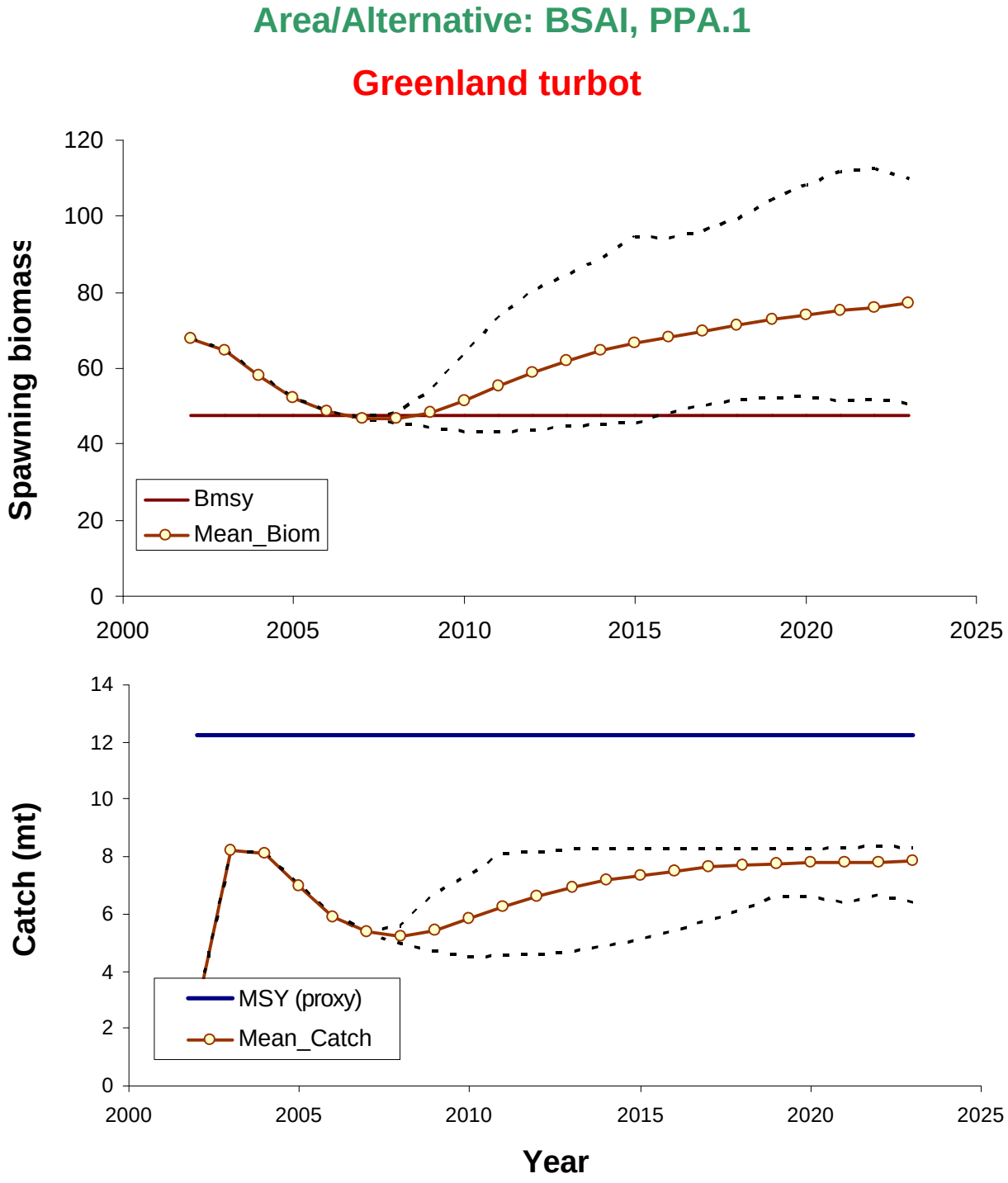

Figure H.4-22. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Greenland turbot under FMP PPA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

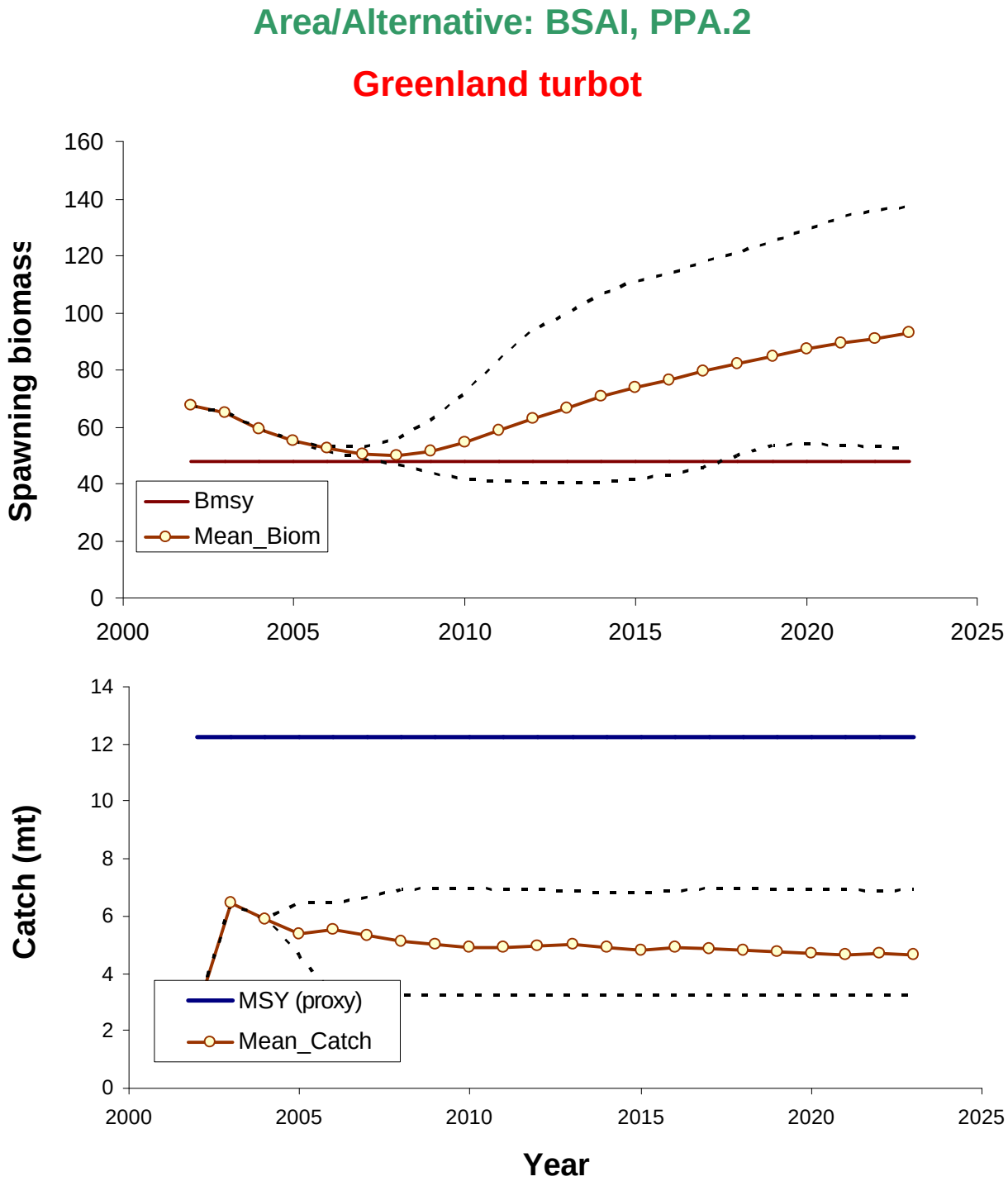

Figure H.4-23. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Greenland turbot under FMP PPA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

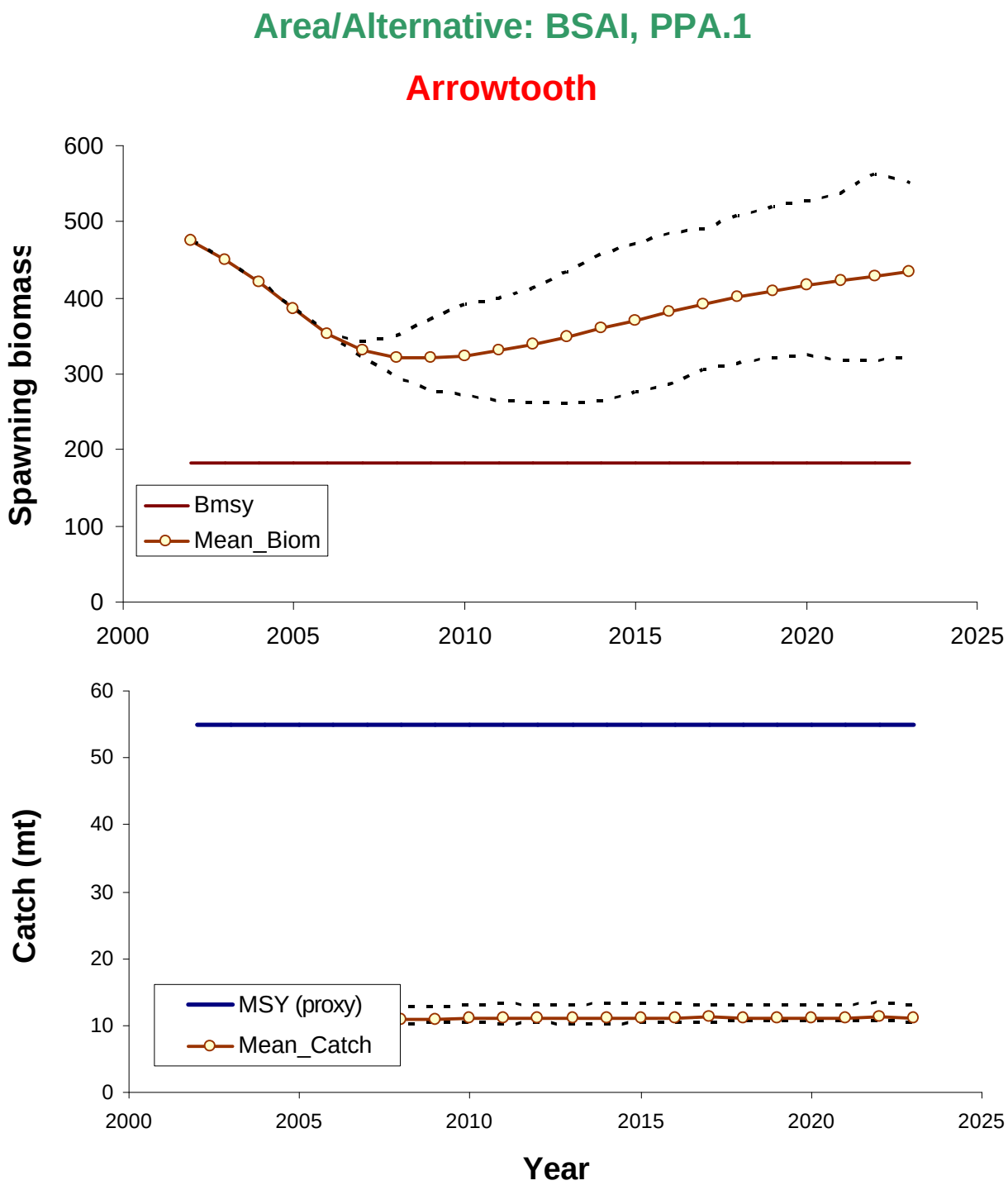

Figure 4-24. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Arrowtooth under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

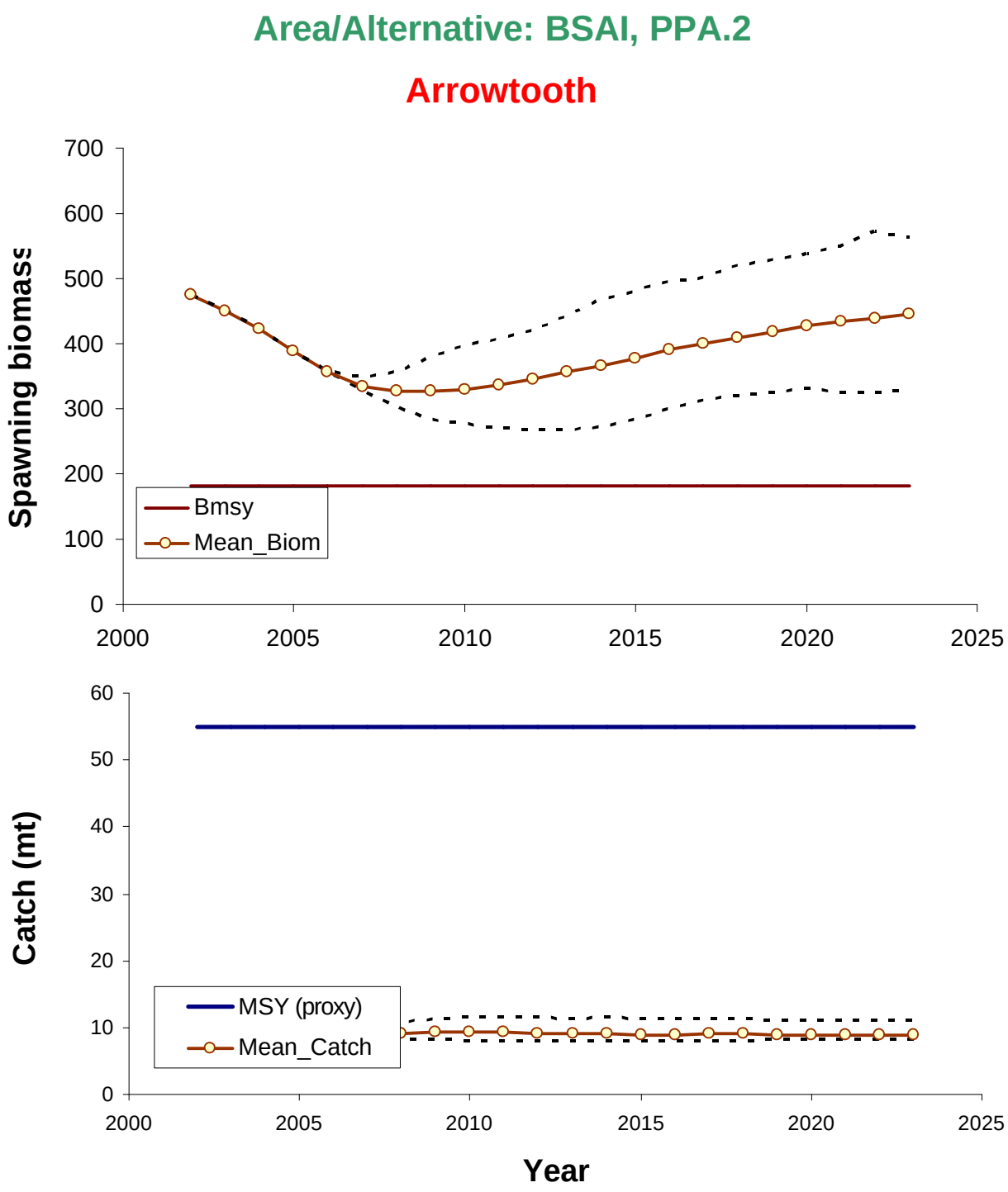

Figure 4-25. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Arrowtooth under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

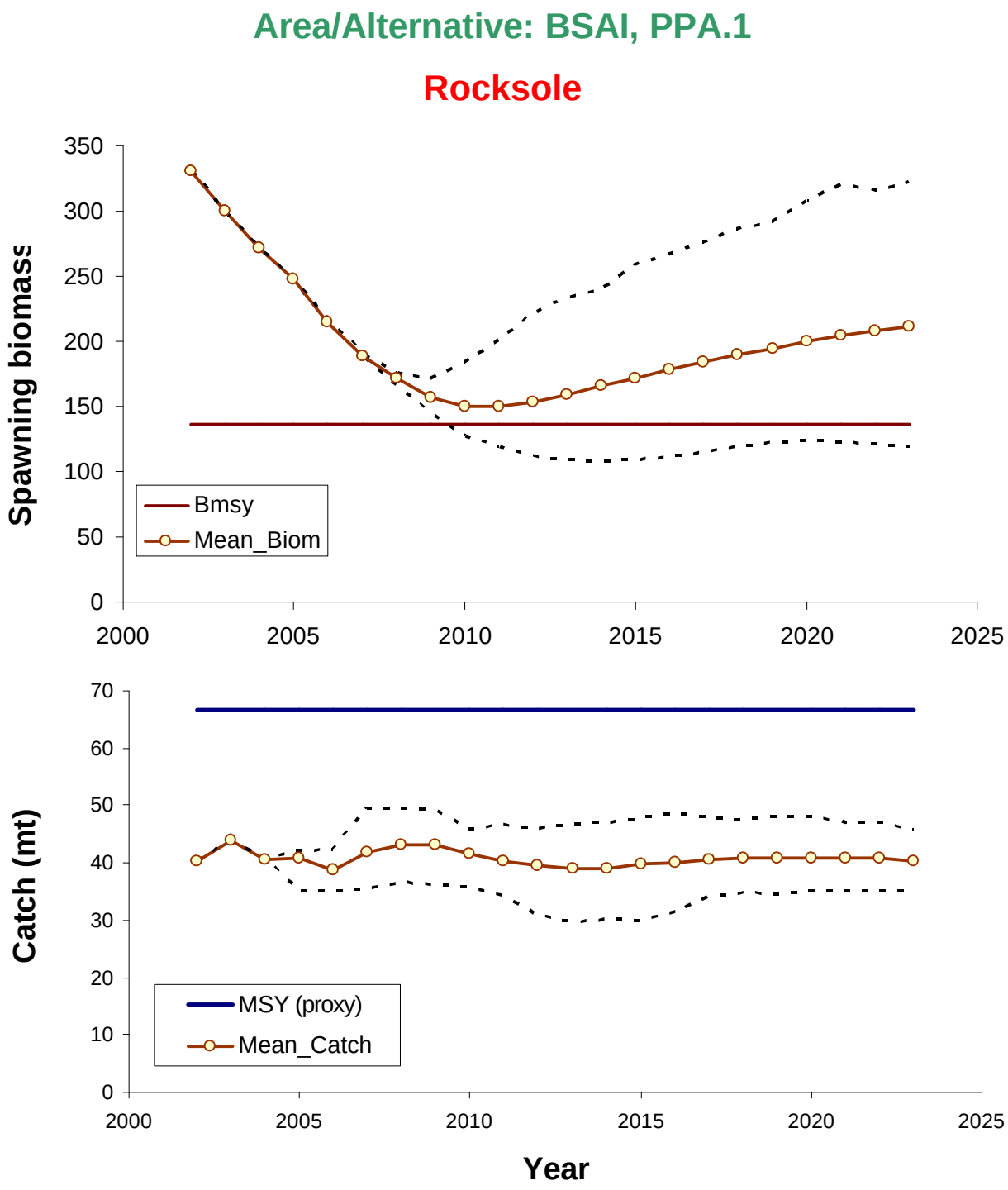

Figure 4-26. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Rocksole under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

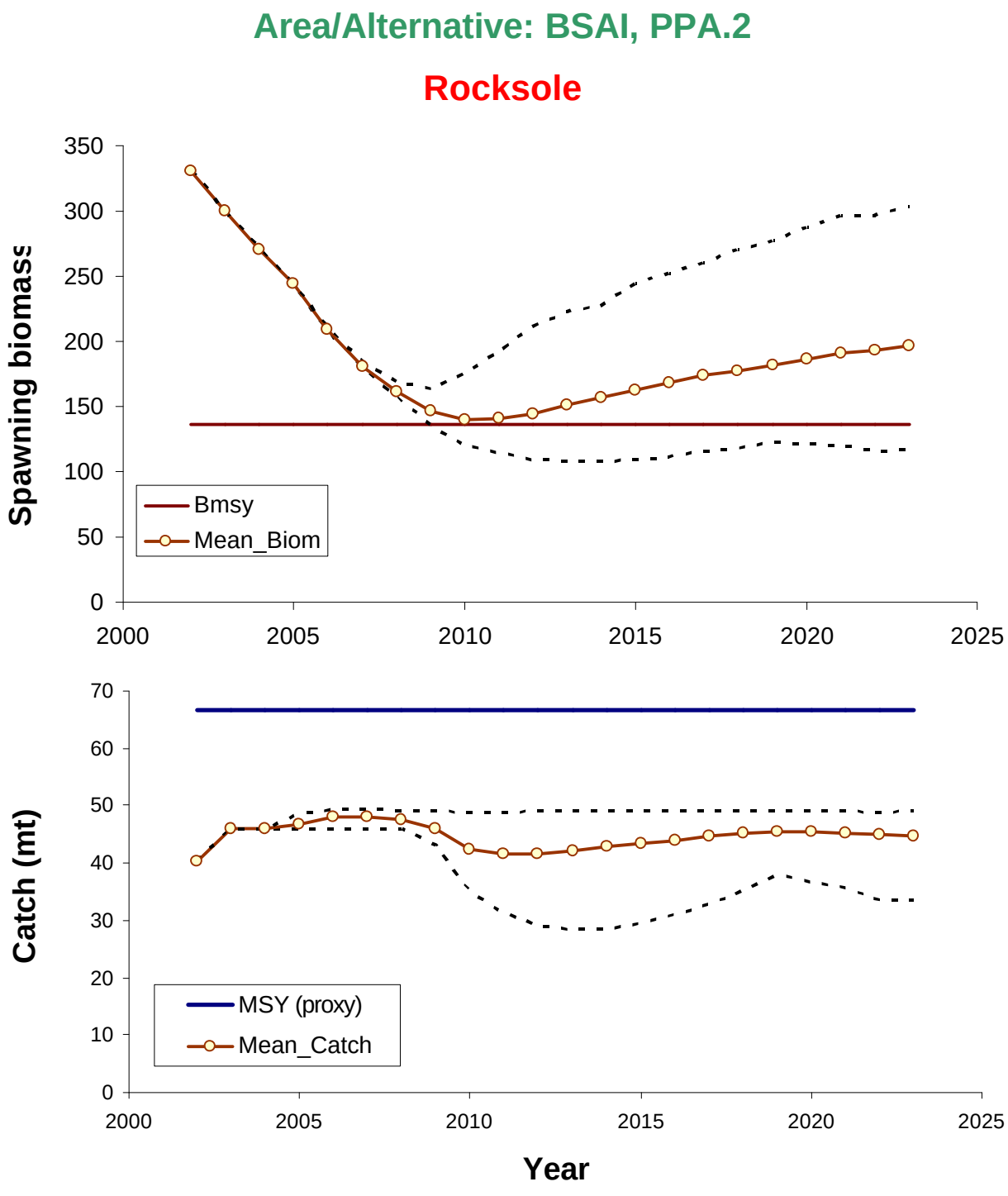

Figure 4-27. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Rocksole under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

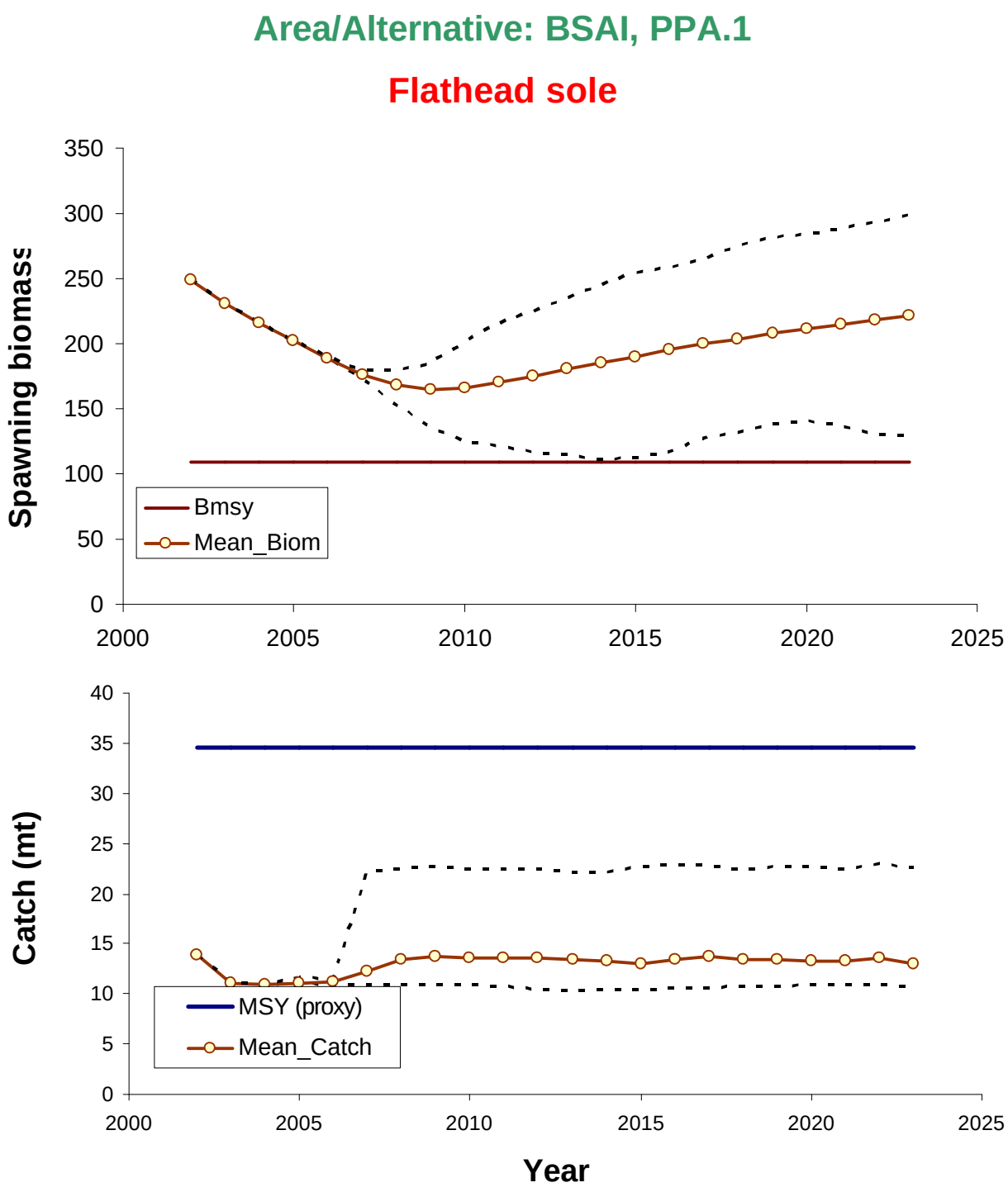

Figure 4-28. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Flathead sole under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

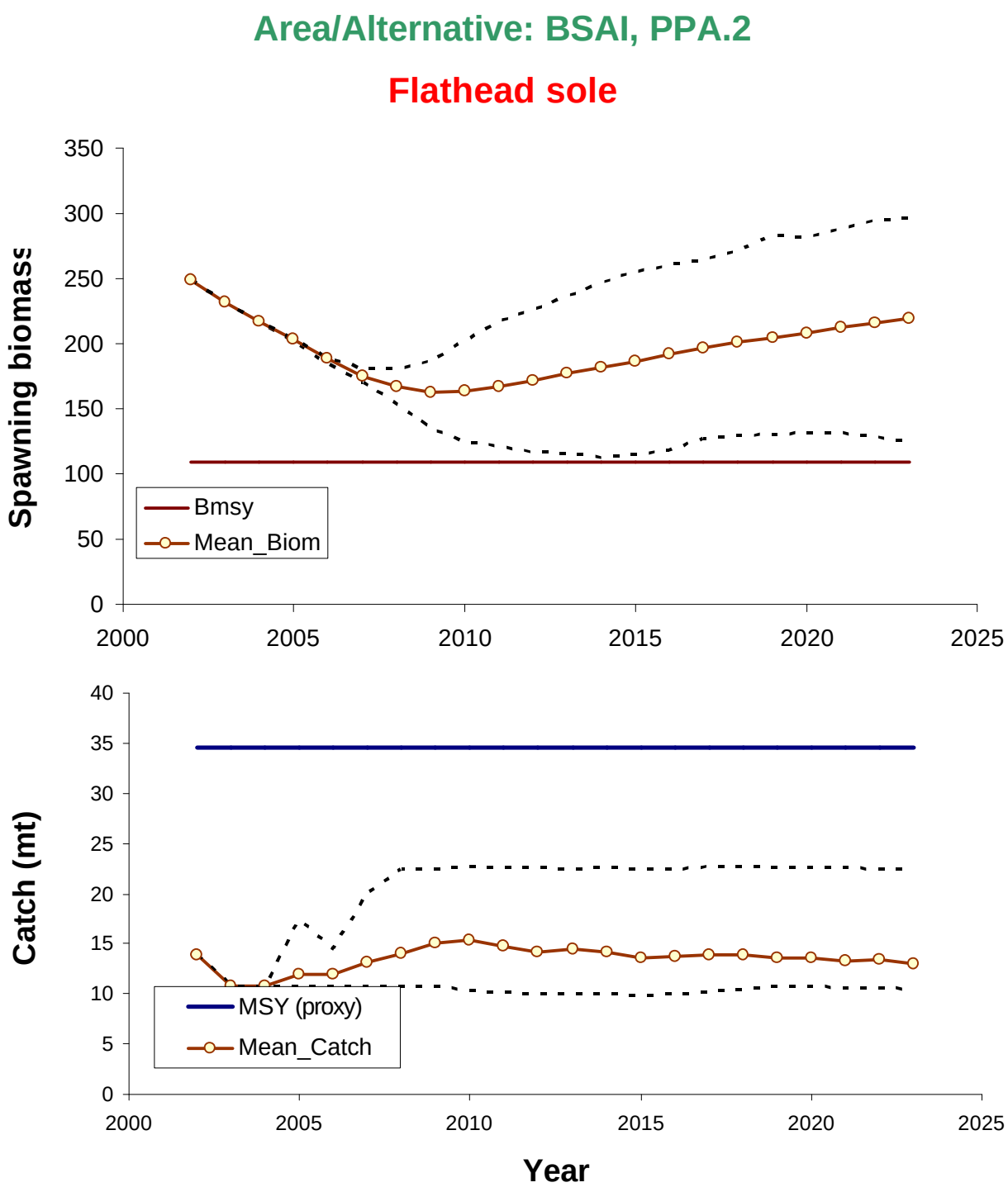

Figure 4-29. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Flathead sole under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

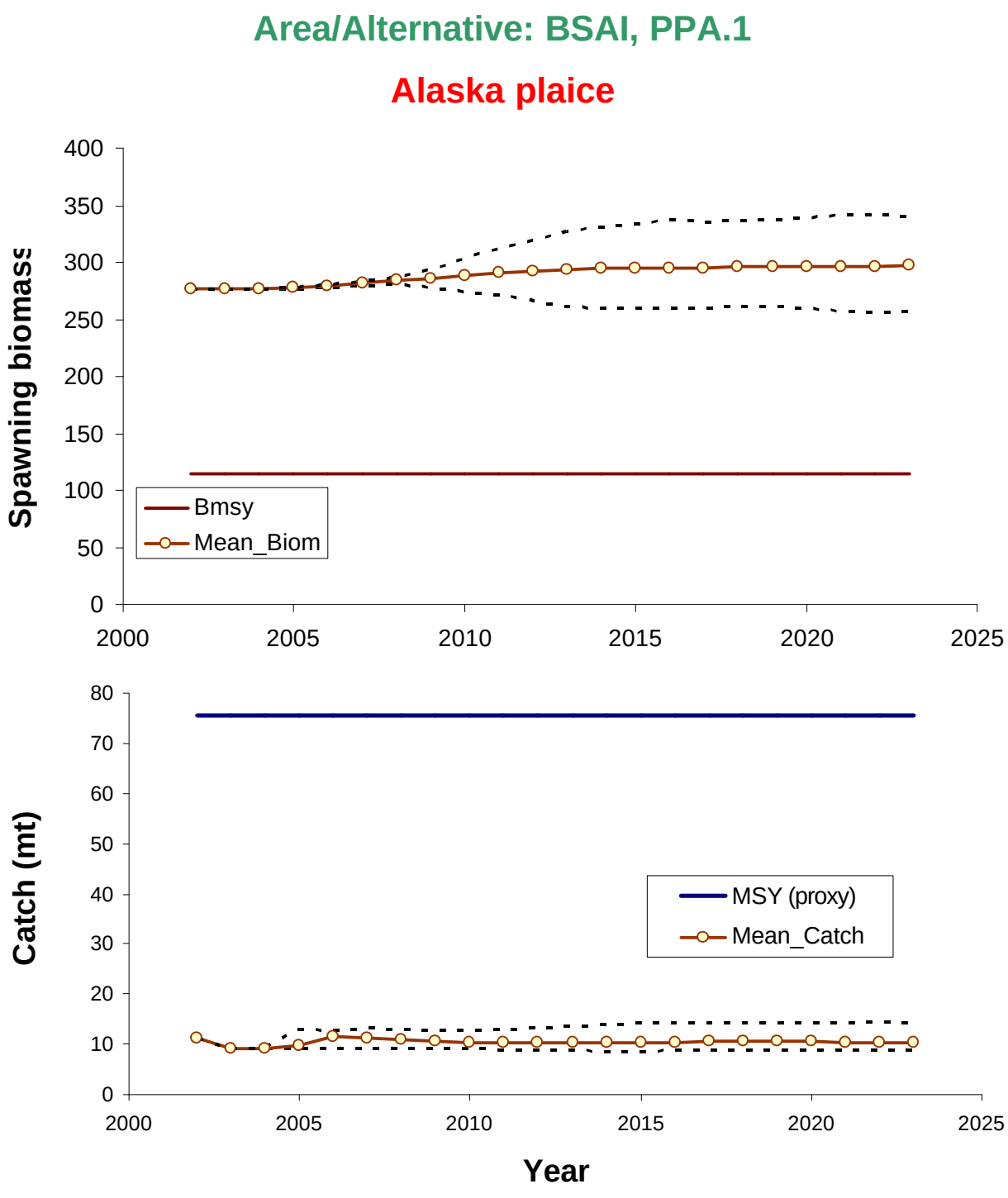

Figure 4-30. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Alaska plaice under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

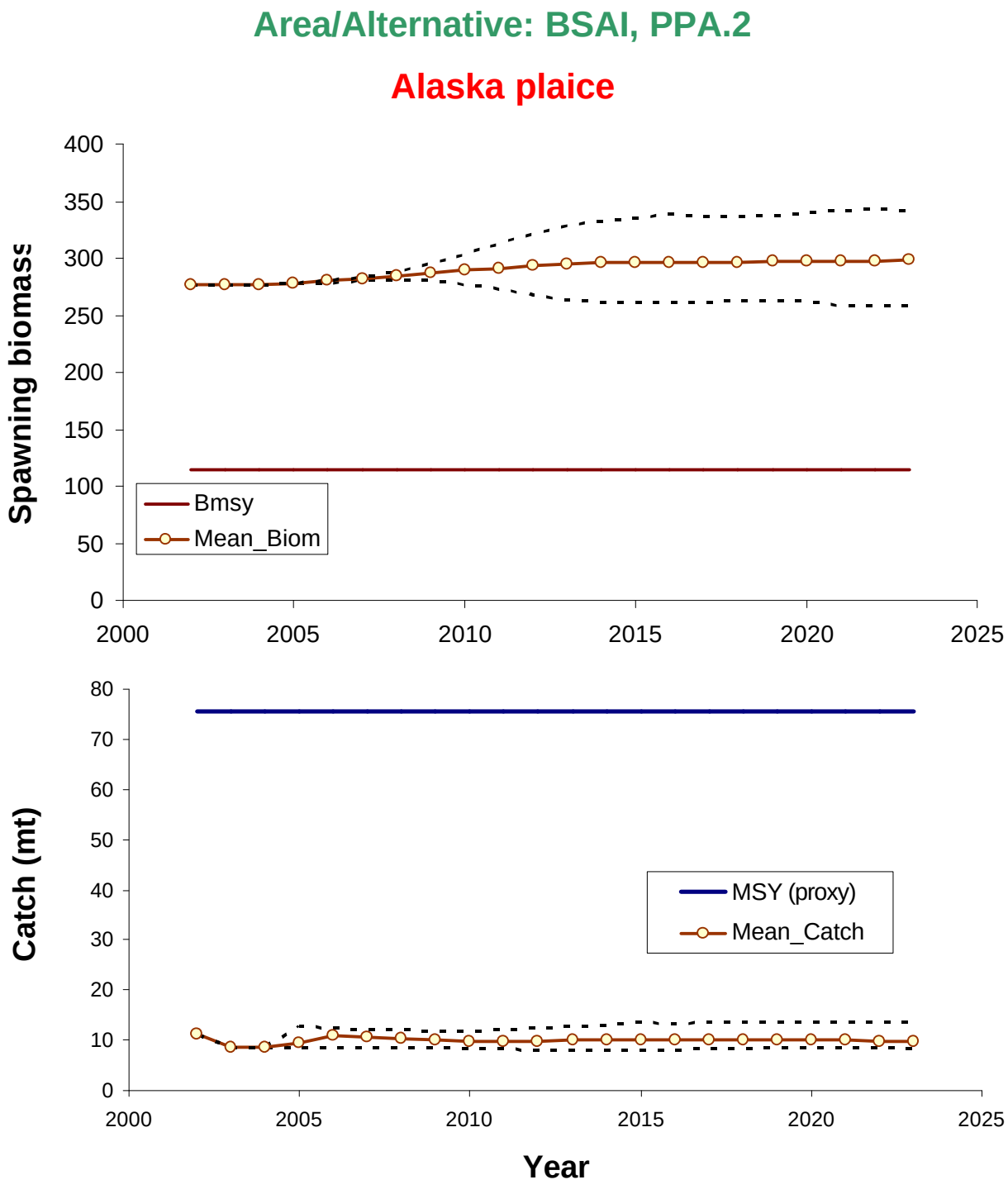

Figure 4-31. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Alaska plaice under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

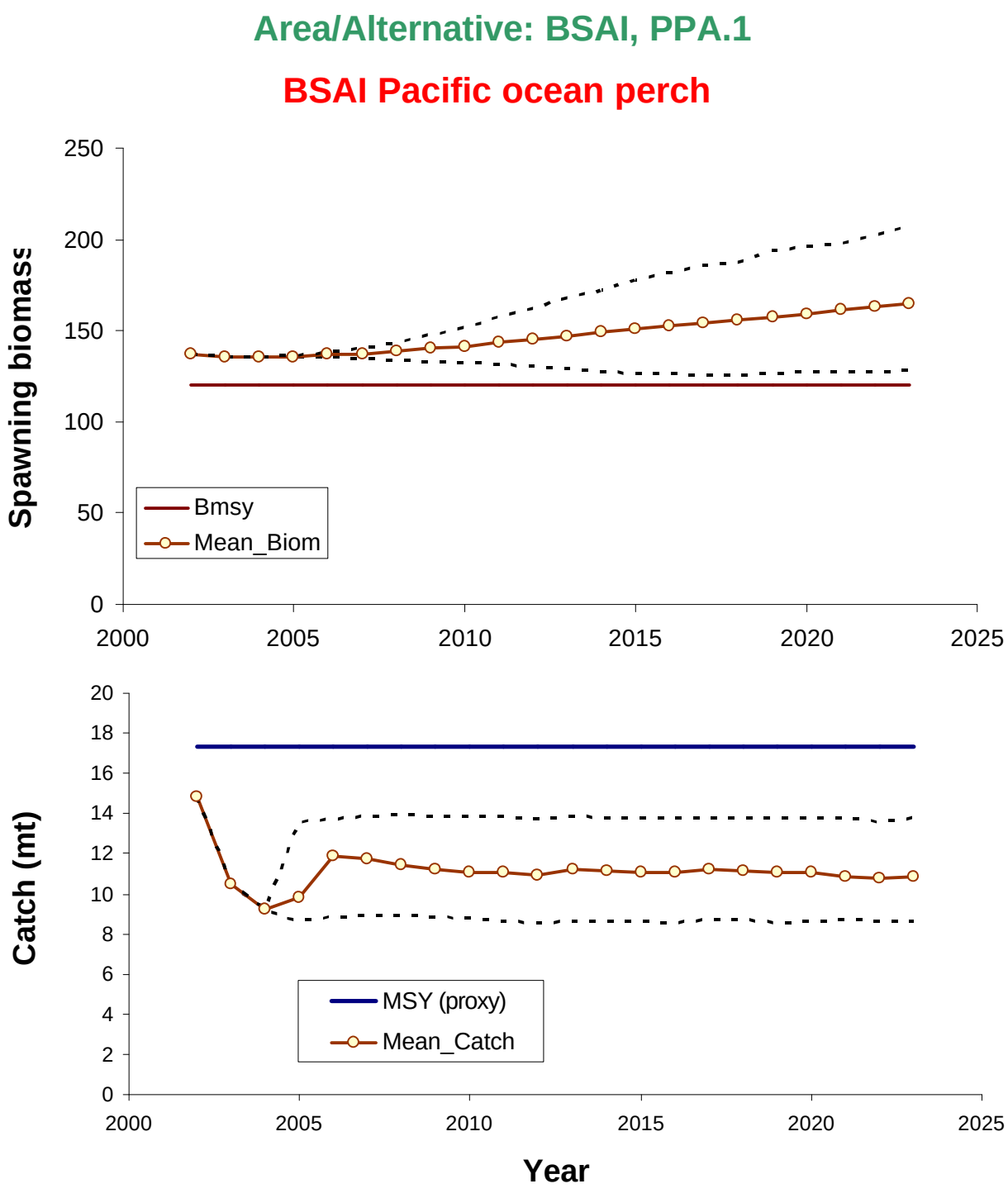

Figure 4-32. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for BSAI Pacific ocean perch under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

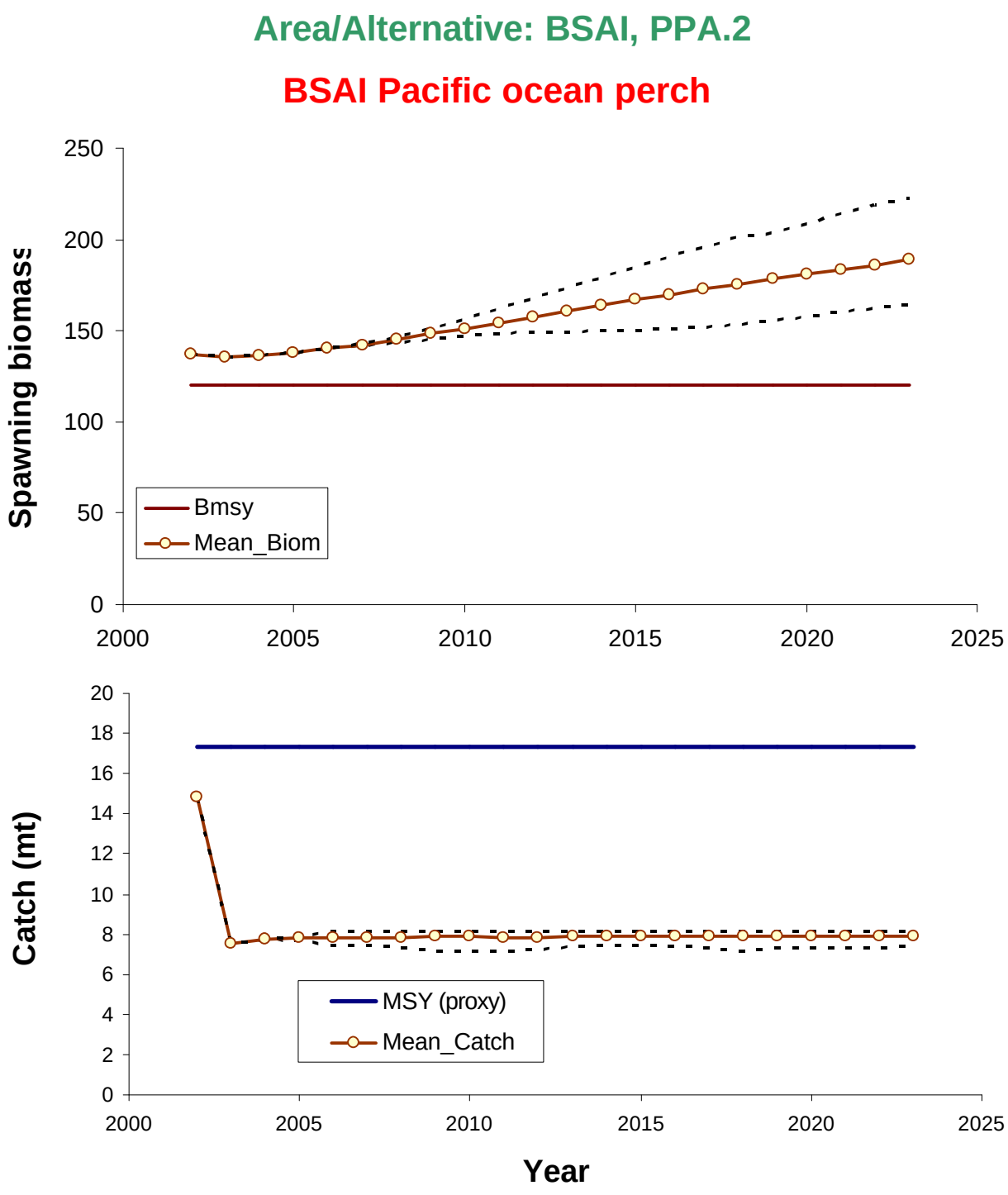

Figure 4-33. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for BSAI Pacific ocean perch under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

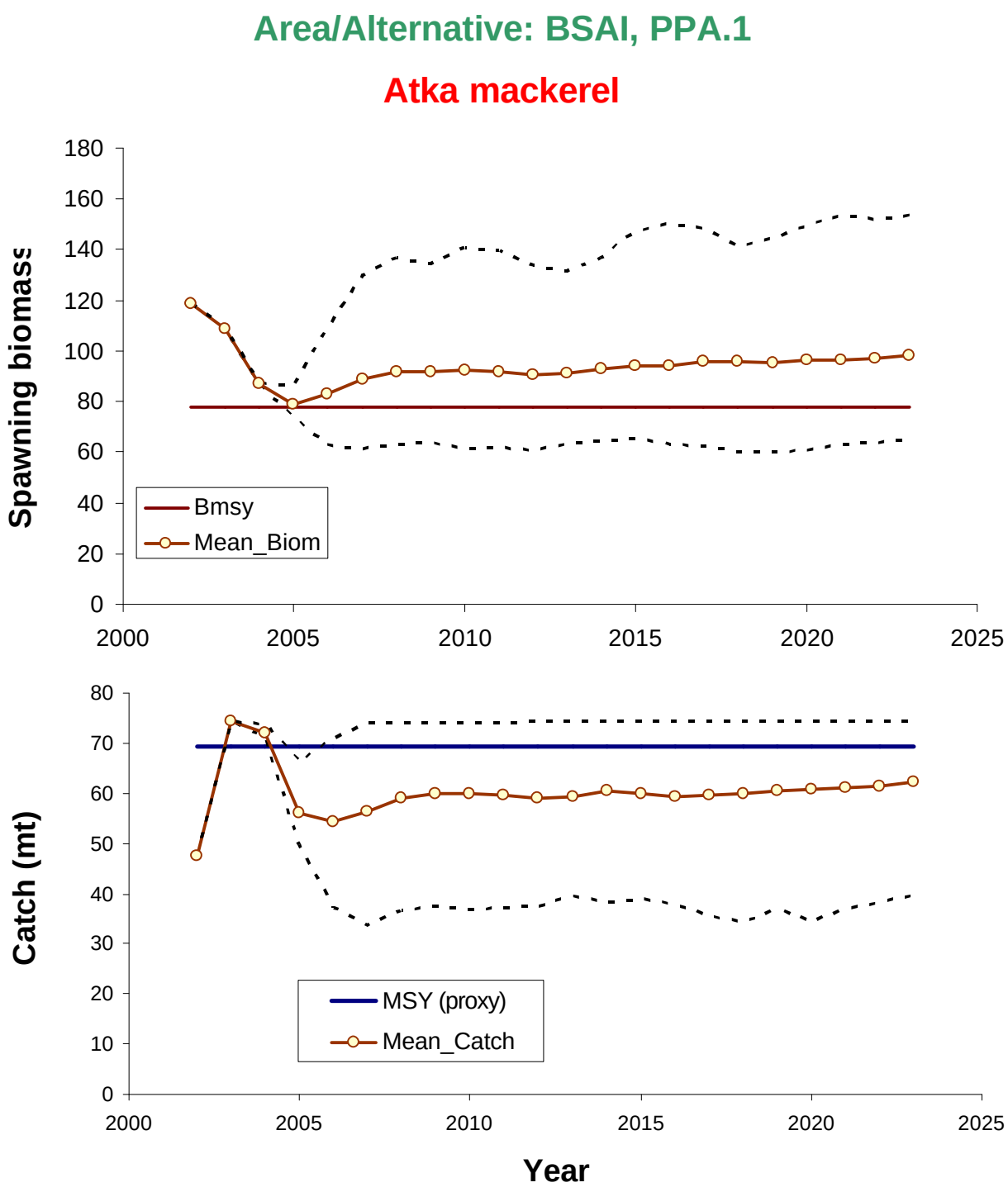

Figure 4-34. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Atka mackerel under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

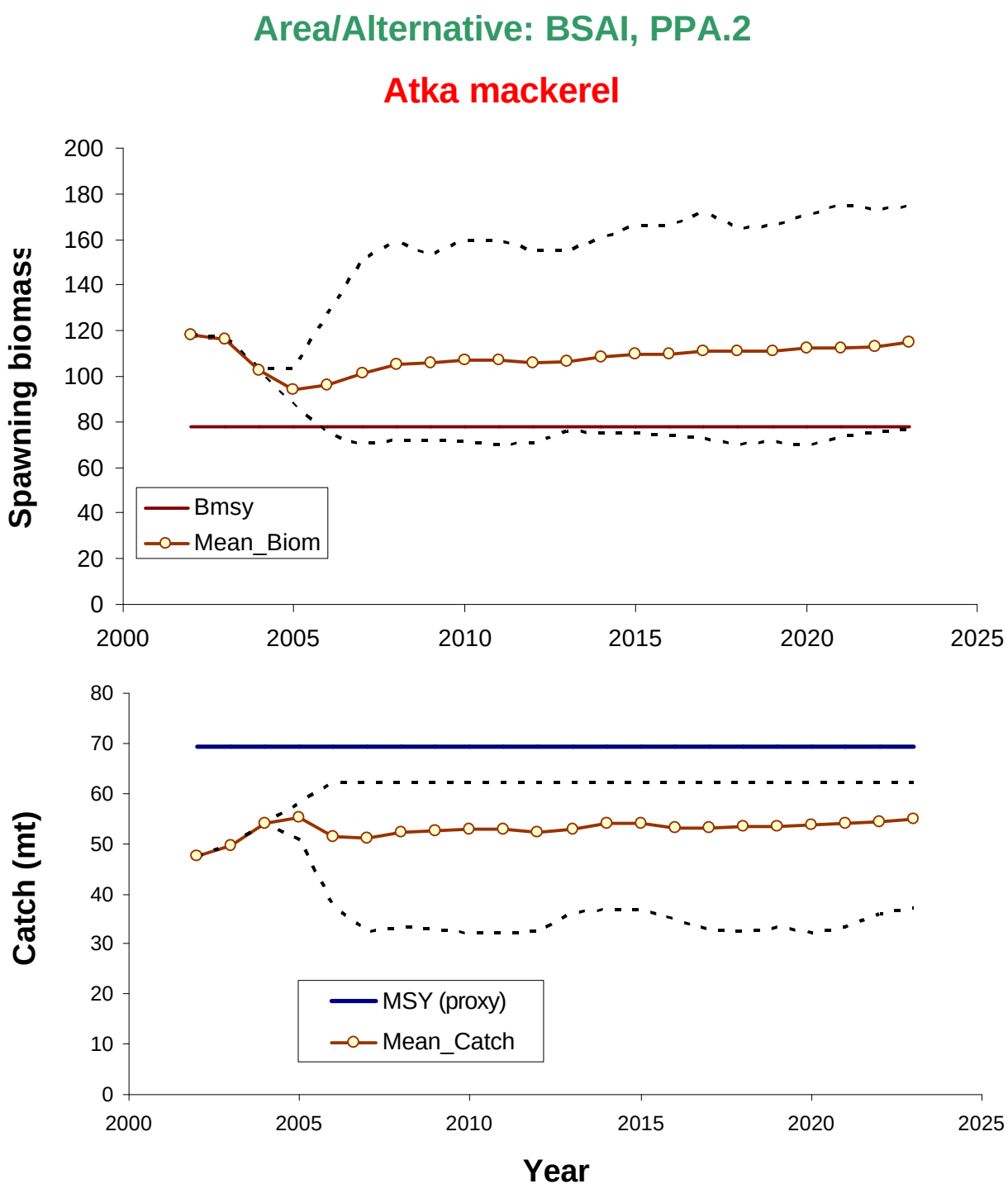

Figure 4-35. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Atka mackerel under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

Table 4-83. Projections of Bering Sea/Aleutian Islands EBS Pollock by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		EBS Pollock			
	B0	Babc	Bmsy		
	6,886.3	2,754.5	2,410.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1,484.99	1,484.99	1,484.99	1,484.99
	2003	1,486.56	1,486.56	1,486.56	1,486.57
	2004	1,477.63	1,479.52	1,479.34	1,480.43
	2005	1,451.68	1,494.76	1,488.30	1,499.76
	2006	977.22	1,330.98	1,302.58	1,492.13
	2007	778.89	1,278.43	1,243.80	1,488.45
	2012	841.96	1,476.87	1,319.36	1,504.77
	2017	818.03	1,475.69	1,310.49	1,497.39
	2022	851.46	1,475.69	1,357.52	1,496.87
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	3,680.6	3,680.6	3,680.6	3,680.6
Biomass	2003	3,453.6	3,453.6	3,453.6	3,453.7
	2004	3,185.4	3,189.2	3,190.8	3,199.5
	2005	2,694.2	2,859.9	2,933.7	3,340.4
	2006	2,168.8	2,690.0	2,844.5	3,823.0
	2007	1,986.0	2,719.7	2,977.4	4,811.0
	2012	2,043.4	2,979.8	3,273.0	5,308.0
	2017	2,037.0	3,121.6	3,455.2	5,804.6
	2022	2,090.8	3,380.2	3,634.8	6,006.9
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.187	0.187	0.187	0.187
Mortality	2003	0.203	0.203	0.203	0.203
	2004	0.222	0.223	0.223	0.224
	2005	0.236	0.252	0.250	0.257
	2006	0.197	0.236	0.235	0.268
	2007	0.167	0.226	0.225	0.273
	2012	0.125	0.216	0.219	0.268
	2017	0.110	0.206	0.206	0.264
	2022	0.111	0.205	0.210	0.270

Table 4-84. Projections of Bering Sea/Aleutian Islands EBS Pollock by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		EBS Pollock			
	B0	Babc	Bmsy		
	6,886.3	2,754.5	2,410.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1,484.99	1,484.99	1,484.99	1,484.99
	2003	1,543.60	1,543.61	1,543.61	1,543.61
	2004	1,526.96	1,526.97	1,526.97	1,526.98
	2005	1,453.88	1,523.61	1,510.48	1,526.62
	2006	985.63	1,331.99	1,316.25	1,523.39
	2007	789.54	1,287.96	1,261.82	1,522.72
	2012	792.60	1,520.10	1,328.23	1,538.24
	2017	817.28	1,520.09	1,334.29	1,534.34
	2022	828.87	1,520.10	1,376.20	1,528.87
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	3,680.6	3,680.6	3,680.6	3,680.6
Biomass	2003	3,445.5	3,445.5	3,445.5	3,445.5
	2004	3,154.8	3,158.5	3,160.0	3,168.5
	2005	2,653.5	2,815.0	2,889.8	3,293.8
	2006	2,132.9	2,652.5	2,799.4	3,767.8
	2007	1,952.4	2,679.2	2,933.1	4,745.1
	2012	2,009.1	2,952.6	3,238.0	5,223.0
	2017	2,037.5	3,037.0	3,407.7	5,732.2
	2022	2,078.7	3,323.3	3,587.9	5,667.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.187	0.187	0.187	0.187
Mortality	2003	0.211	0.211	0.211	0.211
	2004	0.233	0.234	0.234	0.234
	2005	0.247	0.261	0.259	0.266
	2006	0.203	0.243	0.243	0.276
	2007	0.175	0.234	0.233	0.279
	2012	0.132	0.223	0.215	0.276
	2017	0.119	0.214	0.211	0.271
	2022	0.116	0.214	0.207	0.275

Table 4-85. Projections of Bering Sea/Aleutian Islands AI Pollock by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		AI Pollock			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.04	1.04	1.04	1.04
	2003	1.75	1.75	1.75	1.75
	2004	1.72	1.73	1.73	1.73
	2005	1.51	1.67	1.68	1.85
	2006	1.46	1.52	1.58	1.73
	2007	1.48	1.68	1.63	1.73
	2012	1.48	1.71	1.96	1.87
	2017	1.49	1.72	1.95	1.86
	2022	1.49	1.72	1.93	1.85

Table 4-86. Projections of Bering Sea/Aleutian Islands AI Pollock by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		AI Pollock			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.04	1.04	1.04	1.04
	2003	1.40	1.40	1.40	1.40
	2004	1.42	1.42	1.42	1.42
	2005	1.43	1.44	1.46	1.51
	2006	1.44	1.47	1.47	1.51
	2007	1.19	1.46	1.45	1.52
	2012	1.36	1.45	1.45	1.51
	2017	1.40	1.45	1.45	1.51
	2022	1.42	1.45	1.45	1.51

Table 4-87. Projections of Bering Sea/Aleutian Islands BSAI Pacific cod by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		BSAI Pacific cod			
	B0	Babc	Bmsy		
	1,030.8	412.3	360.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	183.00	183.00	183.00	183.00
	2003	232.81	232.81	232.81	232.81
	2004	246.51	246.52	246.53	246.56
	2005	244.12	246.29	246.04	246.52
	2006	233.23	244.71	242.82	246.73
	2007	186.71	244.43	234.27	246.85
	2012	167.32	245.77	229.08	246.70
	2017	167.46	245.75	228.78	246.61
	2022	169.40	246.25	230.61	246.58
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	404.5	404.5	404.5	404.5
Biomass	2003	403.0	403.0	403.0	403.0
	2004	418.6	418.7	418.8	419.1
	2005	439.5	442.6	443.6	449.5
	2006	421.9	442.5	448.4	487.5
	2007	375.3	436.8	447.8	539.4
	2012	332.2	469.4	496.5	734.1
	2017	345.3	484.7	517.9	799.9
	2022	332.5	523.0	538.2	840.3
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.228	0.228	0.228	0.228
Mortality	2003	0.284	0.284	0.284	0.284
	2004	0.274	0.274	0.274	0.274
	2005	0.259	0.267	0.266	0.269
	2006	0.232	0.275	0.269	0.288
	2007	0.198	0.272	0.261	0.289
	2012	0.166	0.246	0.240	0.288
	2017	0.144	0.241	0.231	0.284
	2022	0.141	0.229	0.226	0.280

Table 4-88. Projections of Bering Sea/Aleutian Islands BSAI Pacific cod by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		BSAI Pacific cod			
	B0	Babc	Bmsy		
	1,030.8	412.3	360.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	183.00	183.00	183.00	183.00
	2003	220.48	220.48	220.48	220.48
	2004	231.76	231.76	231.76	231.77
	2005	231.78	231.96	232.66	234.59
	2006	231.93	234.34	233.65	235.42
	2007	201.97	232.16	228.36	234.73
	2012	164.65	231.47	218.90	234.51
	2017	174.51	232.00	222.94	234.90
	2022	172.13	232.11	221.81	233.97
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	404.5	404.5	404.5	404.5
	2003	403.8	403.8	403.8	403.8
	2004	423.8	424.0	424.0	424.4
	2005	449.4	452.8	453.7	459.7
	2006	434.3	457.2	462.7	502.3
	2007	385.6	454.1	463.8	558.2
	2012	332.3	483.3	515.7	764.6
	2017	350.2	508.7	537.0	832.9
	2022	340.6	544.8	556.6	871.7
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.228	0.228	0.228	0.228
	2003	0.268	0.268	0.268	0.268
	2004	0.254	0.254	0.254	0.254
	2005	0.238	0.245	0.245	0.252
	2006	0.213	0.255	0.251	0.280
	2007	0.181	0.256	0.248	0.284
	2012	0.151	0.226	0.222	0.277
	2017	0.136	0.226	0.220	0.277
	2022	0.132	0.211	0.212	0.275

Table 4-89. Projections of Bering Sea/Aleutian Islands Yellowfin sole by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1			Yellowfin sole		
	B0		Babc	Bmsy	
	962.6		385.0	336.9	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	65.00	65.00	65.00	65.00
	2003	70.41	70.41	70.41	70.41
	2004	69.79	69.81	69.81	69.82
	2005	69.99	70.11	76.31	110.08
	2006	70.03	104.95	93.60	108.02
	2007	70.09	99.09	89.00	102.51
	2012	68.87	70.09	80.82	106.29
	2017	69.60	70.01	83.22	120.26
	2022	69.74	69.92	80.88	120.71
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	450.7	450.7	450.7	450.7
Biomass	2003	451.0	451.0	451.0	451.0
	2004	445.4	445.4	445.4	445.4
	2005	432.6	438.5	437.6	438.5
	2006	409.5	425.7	425.2	431.4
	2007	388.3	402.9	408.3	423.9
	2012	344.2	382.3	390.7	450.7
	2017	325.9	402.2	425.1	566.1
	2022	335.6	425.4	450.8	609.3
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.064	0.064	0.064	0.064
Mortality	2003	0.070	0.070	0.070	0.070
	2004	0.070	0.070	0.070	0.070
	2005	0.072	0.072	0.079	0.115
	2006	0.073	0.115	0.100	0.115
	2007	0.075	0.115	0.099	0.115
	2012	0.064	0.083	0.090	0.115
	2017	0.053	0.084	0.088	0.115
	2022	0.050	0.076	0.081	0.115

Table 4-90. Projections of Bering Sea/Aleutian Islands Yellowfin sole by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2			Yellowfin sole		
	B0		Babc	Bmsy	
	962.6		385.0	336.9	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	65.00	65.00	65.00	65.00
	2003	69.43	69.43	69.43	69.43
	2004	69.45	69.45	69.45	69.45
	2005	69.45	69.45	77.44	110.21
	2006	69.44	104.25	94.06	108.20
	2007	69.44	99.19	90.08	102.67
	2012	67.39	69.45	80.18	106.65
	2017	67.70	69.45	83.50	120.23
	2022	68.97	69.44	80.66	120.17
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	450.7	450.7	450.7	450.7
Biomass	2003	451.2	451.2	451.2	451.2
	2004	445.9	445.9	445.9	445.9
	2005	433.2	439.1	438.0	439.2
	2006	409.9	426.5	425.2	432.3
	2007	388.7	403.5	408.0	425.0
	2012	346.3	378.4	390.4	452.5
	2017	330.5	399.0	424.5	566.4
	2022	340.1	424.5	450.3	610.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.064	0.064	0.064	0.064
Mortality	2003	0.069	0.069	0.069	0.069
	2004	0.070	0.070	0.070	0.070
	2005	0.071	0.071	0.080	0.115
	2006	0.073	0.115	0.100	0.115
	2007	0.074	0.115	0.100	0.115
	2012	0.064	0.082	0.089	0.115
	2017	0.053	0.087	0.088	0.115
	2022	0.049	0.077	0.081	0.115

Table 4-91. Projections of Bering Sea/Aleutian Islands Greenland turbot by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Greenland turbot			
B0		Babc	Bmsy		
135.9		54.4	47.6		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.70	2.70	2.70	2.70
	2003	8.21	8.21	8.21	8.21
	2004	8.11	8.11	8.11	8.11
	2005	6.96	6.96	6.96	6.96
	2006	5.91	5.91	5.91	5.92
	2007	5.33	5.35	5.36	5.40
	2012	4.59	6.80	6.63	8.17
	2017	5.77	8.09	7.62	8.25
	2022	6.68	8.14	7.82	8.35
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	67.8	67.8	67.8	67.8
Biomass	2003	64.9	64.9	64.9	64.9
	2004	58.1	58.1	58.1	58.1
	2005	52.3	52.3	52.3	52.3
	2006	48.6	48.6	48.6	48.6
	2007	46.7	46.8	46.8	47.0
	2012	43.8	56.6	58.8	80.4
	2017	50.1	65.7	69.9	96.4
	2022	51.7	71.7	76.1	112.5
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.052	0.052	0.052	0.052
Mortality	2003	0.170	0.170	0.170	0.170
	2004	0.190	0.190	0.190	0.190
	2005	0.182	0.182	0.182	0.182
	2006	0.169	0.169	0.169	0.169
	2007	0.162	0.162	0.162	0.163
	2012	0.152	0.188	0.181	0.190
	2017	0.128	0.181	0.174	0.190
	2022	0.106	0.171	0.163	0.190

Table 4-92. Projections of Bering Sea/Aleutian Islands Greenland turbot by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Greenland turbot			
	B0	Babc	Bmsy		
	135.9	54.4	47.6		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.70	2.70	2.70	2.70
	2003	6.47	6.47	6.47	6.47
	2004	5.87	5.88	5.88	5.88
	2005	4.58	5.38	5.39	6.46
	2006	3.25	6.42	5.51	6.47
	2007	3.25	6.04	5.30	6.65
	2012	3.24	4.99	4.95	6.90
	2017	3.25	4.37	4.87	6.96
	2022	3.25	3.95	4.69	6.89
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	67.8	67.8	67.8	67.8
Biomass	2003	64.9	64.9	64.9	64.9
	2004	59.4	59.4	59.4	59.4
	2005	55.3	55.3	55.3	55.3
	2006	51.6	52.4	52.4	53.1
	2007	48.9	49.8	50.5	53.0
	2012	40.3	59.5	62.7	93.8
	2017	45.8	74.6	79.4	118.1
	2022	52.8	87.4	91.1	136.3
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.052	0.052	0.052	0.052
Mortality	2003	0.133	0.133	0.133	0.133
	2004	0.132	0.132	0.132	0.132
	2005	0.111	0.131	0.132	0.159
	2006	0.082	0.170	0.145	0.174
	2007	0.084	0.172	0.149	0.194
	2012	0.056	0.124	0.135	0.234
	2017	0.042	0.092	0.102	0.190
	2022	0.034	0.069	0.084	0.172

Table 4-93. Projections of Bering Sea/Aleutian Islands Arrowtooth by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Arrowtooth			
B0		Babc	Bmsy		
522.6		209.0	182.9		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	9.13	9.13	9.13	9.13
	2003	10.69	10.69	10.69	10.69
	2004	10.69	10.69	10.69	10.69
	2005	10.53	10.55	10.64	11.03
	2006	10.47	10.73	10.72	10.98
	2007	10.05	10.48	10.72	12.35
	2012	10.30	10.66	11.11	13.15
	2017	10.44	10.83	11.19	13.04
	2022	10.53	10.83	11.20	13.45
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	475.9	475.9	475.9	475.9
Biomass	2003	450.8	450.8	450.8	450.8
	2004	419.9	419.9	419.9	419.9
	2005	386.4	386.4	386.4	386.4
	2006	352.8	353.4	353.4	354.1
	2007	321.9	328.3	330.3	342.2
	2012	263.3	334.7	339.8	412.1
	2017	306.0	379.7	392.2	490.6
	2022	316.8	419.0	429.2	562.0
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.015	0.015	0.015	0.015
Mortality	2003	0.019	0.019	0.019	0.019
	2004	0.020	0.020	0.020	0.020
	2005	0.021	0.021	0.021	0.022
	2006	0.022	0.023	0.023	0.023
	2007	0.023	0.024	0.025	0.029
	2012	0.023	0.029	0.031	0.041
	2017	0.018	0.025	0.026	0.037
	2022	0.016	0.023	0.023	0.033

Table 4-94. Projections of Bering Sea/Aleutian Islands Arrowtooth by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Arrowtooth			
	B0	Babc	Bmsy		
	522.6	209.0	182.9		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	9.13	9.13	9.13	9.13
	2003	8.25	8.25	8.25	8.25
	2004	8.33	8.33	8.33	8.33
	2005	8.24	8.30	8.67	10.21
	2006	8.14	8.77	8.73	9.37
	2007	8.14	9.03	8.91	10.50
	2012	8.01	8.37	9.02	11.42
	2017	8.06	8.37	9.01	11.30
	2022	8.14	8.19	8.84	11.13
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	475.9	475.9	475.9	475.9
Biomass	2003	451.1	451.1	451.1	451.1
	2004	421.7	421.7	421.7	421.7
	2005	389.2	389.5	389.4	389.5
	2006	356.0	357.4	357.3	358.3
	2007	326.5	333.1	334.9	347.3
	2012	269.1	341.3	346.2	420.8
	2017	314.1	389.0	400.8	501.7
	2022	324.7	430.0	439.3	573.8
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.015	0.015	0.015	0.015
Mortality	2003	0.014	0.014	0.014	0.014
	2004	0.015	0.015	0.015	0.015
	2005	0.016	0.016	0.017	0.020
	2006	0.017	0.018	0.018	0.020
	2007	0.018	0.021	0.020	0.024
	2012	0.017	0.023	0.024	0.033
	2017	0.014	0.019	0.020	0.030
	2022	0.012	0.017	0.018	0.027

Table 4-95. Projections of Bering Sea/Aleutian Islands Rocksole by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1			Rocksole		
B0		Babc	Bmsy		
390.7		156.3	136.7		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	40.32	40.32	40.32	40.32
	2003	43.96	43.96	43.96	43.96
	2004	40.57	40.66	40.65	40.70
	2005	35.23	41.99	40.77	42.22
	2006	35.20	37.93	38.66	42.46
	2007	35.37	42.08	41.95	49.71
	2012	31.02	40.87	39.58	45.86
	2017	34.02	40.65	40.45	47.76
	2022	35.10	40.66	40.78	47.07
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	331.0	331.0	331.0	331.0
Biomass	2003	299.6	299.6	299.6	299.6
	2004	271.8	271.8	271.9	271.9
	2005	247.1	247.2	247.2	247.6
	2006	214.3	214.8	215.1	217.0
	2007	187.2	189.1	189.0	190.4
	2012	112.1	148.5	153.5	221.3
	2017	115.3	173.6	184.4	276.1
	2022	121.9	193.1	208.2	315.9
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.055	0.055	0.055	0.055
Mortality	2003	0.067	0.067	0.067	0.067
	2004	0.069	0.069	0.069	0.069
	2005	0.066	0.079	0.077	0.080
	2006	0.077	0.082	0.084	0.093
	2007	0.088	0.105	0.105	0.125
	2012	0.076	0.121	0.116	0.145
	2017	0.060	0.099	0.103	0.140
	2022	0.051	0.090	0.093	0.142

Table 4-96. Projections of Bering Sea/Aleutian Islands Rocksole by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Rocksole			
	B0	Babc	Bmsy		
	390.7	156.3	136.7		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	40.32	40.32	40.32	40.32
	2003	46.06	46.06	46.06	46.06
	2004	46.05	46.05	46.05	46.05
	2005	46.04	46.04	46.69	48.59
	2006	46.04	48.80	48.06	49.29
	2007	46.04	48.83	47.98	49.29
	2012	29.16	45.61	41.46	48.95
	2017	32.84	46.04	44.63	49.20
	2022	33.66	46.04	44.94	48.90
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	331.0	331.0	331.0	331.0
Biomass	2003	299.4	299.4	299.4	299.4
	2004	270.6	270.6	270.6	270.7
	2005	243.6	243.8	243.8	243.9
	2006	208.4	209.6	209.5	210.3
	2007	178.4	180.0	180.5	183.8
	2012	109.6	135.2	144.8	211.1
	2017	115.5	157.8	173.4	260.1
	2022	116.4	177.2	193.7	296.6
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.055	0.055	0.055	0.055
Mortality	2003	0.070	0.070	0.070	0.070
	2004	0.079	0.079	0.079	0.079
	2005	0.088	0.088	0.090	0.094
	2006	0.103	0.110	0.108	0.112
	2007	0.118	0.129	0.126	0.130
	2012	0.090	0.129	0.126	0.147
	2017	0.074	0.123	0.117	0.144
	2022	0.065	0.110	0.109	0.148

Table 4-97. Projections of Bering Sea/Aleutian Islands Flathead sole by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Flathead sole			
	B0	Babc	Bmsy		
	310.7	124.3	108.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	13.87	13.87	13.87	13.87
	2003	11.13	11.13	11.13	11.13
	2004	10.93	10.94	10.94	10.94
	2005	11.01	11.07	11.14	11.61
	2006	10.96	11.09	11.17	11.49
	2007	10.98	11.09	12.32	22.30
	2012	10.55	11.03	13.65	22.45
	2017	10.68	11.00	13.69	22.90
	2022	10.91	10.99	13.60	22.99
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	248.5	248.5	248.5	248.5
	2003	231.2	231.2	231.2	231.2
	2004	216.5	216.5	216.5	216.5
	2005	202.6	202.7	202.7	202.7
	2006	188.4	189.0	189.1	189.6
	2007	172.4	175.7	176.2	180.1
	2012	116.5	177.3	175.5	225.1
	2017	127.0	198.4	199.8	264.9
	2022	130.9	217.2	218.1	293.6
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.053	0.053	0.053	0.053
	2003	0.045	0.045	0.045	0.045
	2004	0.047	0.047	0.047	0.047
	2005	0.050	0.051	0.051	0.054
	2006	0.053	0.054	0.055	0.056
	2007	0.055	0.058	0.064	0.121
	2012	0.048	0.062	0.084	0.174
	2017	0.040	0.056	0.074	0.159
	2022	0.035	0.051	0.067	0.149

Table 4-98. Projections of Bering Sea/Aleutian Islands Flathead sole by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Flathead sole			
B0		Babc	Bmsy		
310.7		124.3	108.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	13.87	13.87	13.87	13.87
	2003	10.77	10.77	10.77	10.77
	2004	10.77	10.77	10.77	10.77
	2005	10.76	10.77	11.99	17.45
	2006	10.76	11.66	11.95	14.54
	2007	10.76	12.78	13.12	20.04
	2012	10.02	10.78	14.22	22.53
	2017	10.18	10.77	13.82	22.66
	2022	10.62	10.76	13.42	22.40
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	248.5	248.5	248.5	248.5
Biomass	2003	231.3	231.3	231.3	231.3
	2004	216.7	216.7	216.7	216.7
	2005	202.1	203.0	202.9	203.1
	2006	184.4	189.4	188.7	190.1
	2007	170.6	175.5	175.4	180.6
	2012	117.4	174.1	172.2	225.9
	2017	127.5	196.7	196.5	264.2
	2022	128.0	216.4	215.9	294.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.053	0.053	0.053	0.053
Mortality	2003	0.044	0.044	0.044	0.044
	2004	0.047	0.047	0.047	0.047
	2005	0.049	0.049	0.055	0.081
	2006	0.052	0.057	0.059	0.071
	2007	0.054	0.067	0.069	0.106
	2012	0.047	0.065	0.089	0.170
	2017	0.039	0.059	0.077	0.162
	2022	0.035	0.050	0.068	0.152

Table 4-99. Projections of Bering Sea/Aleutian Islands Alaska plaice by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Alaska plaice			
	B0	Babc	Bmsy		
	327.2	130.9	114.5		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	11.36	11.36	11.36	11.36
	2003	9.17	9.17	9.17	9.17
	2004	9.01	9.01	9.01	9.01
	2005	9.06	9.09	9.68	13.00
	2006	9.07	12.56	11.40	12.82
	2007	9.08	12.25	11.12	13.32
	2012	8.77	9.08	10.37	13.24
	2017	8.96	9.06	10.62	14.10
	2022	8.99	9.04	10.38	14.50
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	276.9	276.9	276.9	276.9
	2003	276.0	276.0	276.0	276.0
	2004	276.2	276.2	276.2	276.2
	2005	277.0	277.6	277.5	277.6
	2006	277.9	279.4	279.4	280.0
	2007	279.5	280.9	281.5	282.9
	2012	266.2	289.7	292.2	319.5
	2017	259.8	291.6	295.3	335.0
	2022	256.2	293.3	296.6	341.2
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.021	0.021	0.021	0.021
	2003	0.017	0.017	0.017	0.017
	2004	0.016	0.016	0.016	0.016
	2005	0.016	0.016	0.018	0.024
	2006	0.016	0.023	0.021	0.023
	2007	0.016	0.022	0.020	0.024
	2012	0.014	0.016	0.018	0.022
	2017	0.013	0.017	0.018	0.025
	2022	0.013	0.016	0.018	0.025

Table 4-100. Projections of Bering Sea/Aleutian Islands Alaska plaice by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Alaska plaice			
	B0	Babc	Bmsy		
	327.2	130.9	114.5		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	11.36	11.36	11.36	11.36
	2003	8.58	8.58	8.58	8.58
	2004	8.58	8.58	8.58	8.58
	2005	8.58	8.58	9.44	12.57
	2006	8.58	12.12	11.05	12.39
	2007	8.58	11.87	10.75	12.21
	2012	8.10	8.58	9.76	12.46
	2017	8.17	8.58	10.12	13.47
	2022	8.47	8.58	9.83	13.47
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	276.9	276.9	276.9	276.9
	2003	276.1	276.1	276.1	276.1
	2004	276.5	276.5	276.5	276.5
	2005	277.5	278.0	277.9	278.0
	2006	278.5	280.0	279.9	280.6
	2007	280.3	281.6	282.0	283.6
	2012	268.2	290.3	293.2	321.0
	2017	260.9	292.1	296.5	336.1
	2022	258.0	295.2	297.8	342.6
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.021	0.021	0.021	0.021
	2003	0.016	0.016	0.016	0.016
	2004	0.016	0.016	0.016	0.016
	2005	0.016	0.016	0.017	0.023
	2006	0.015	0.022	0.020	0.022
	2007	0.015	0.021	0.019	0.022
	2012	0.013	0.015	0.017	0.021
	2017	0.013	0.016	0.017	0.022
	2022	0.013	0.015	0.017	0.023

Table 4-101. Projections of Bering Sea/Aleutian Islands Other flatfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Other flatfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.63	2.63	2.63	2.63
	2003	2.11	2.11	2.11	2.11
	2004	2.05	2.05	2.05	2.05
	2005	2.07	2.08	2.14	2.47
	2006	2.07	2.42	2.30	2.44
	2007	2.08	2.38	2.30	2.73
	2012	1.97	2.08	2.22	2.65
	2017	2.03	2.07	2.25	2.76
	2022	2.04	2.06	2.23	2.76

Table 4-102. Projections of Bering Sea/Aleutian Islands Other flatfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Other flatfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.63	2.63	2.63	2.63
	2003	1.82	1.82	1.82	1.82
	2004	1.82	1.82	1.82	1.82
	2005	1.82	1.82	1.92	2.27
	2006	1.82	2.19	2.09	2.25
	2007	1.82	2.14	2.05	2.21
	2012	1.64	1.82	1.90	2.25
	2017	1.68	1.82	1.98	2.36
	2022	1.77	1.82	1.95	2.34

Table 4-103. Projections of Bering Sea/Aleutian Islands Sablefish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Sablefish			
B0		Babc	Bmsy		
77.6		31.1	27.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.63	1.63	1.63	1.63
	2003	1.88	1.88	1.88	1.88
	2004	1.88	1.88	1.88	1.88
	2005	1.82	1.82	1.82	1.83
	2006	1.77	1.77	1.77	1.77
	2007	1.69	1.74	1.74	1.75
	2012	1.67	1.81	1.80	1.88
	2017	1.75	1.88	1.84	1.89
	2022	1.76	1.88	1.86	1.89
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	29.3	29.3	29.3	29.3
Biomass	2003	31.2	31.2	31.2	31.3
	2004	31.7	31.9	32.0	32.5
	2005	30.4	31.2	31.5	33.6
	2006	29.5	31.6	32.5	37.5
	2007	28.5	32.6	34.0	43.2
	2012	29.5	42.4	44.2	64.3
	2017	33.4	48.2	51.4	72.9
	2022	35.5	54.8	56.3	79.1
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.028	0.028	0.028	0.028
Mortality	2003	0.031	0.032	0.032	0.033
	2004	0.028	0.033	0.032	0.034
	2005	0.024	0.031	0.031	0.035
	2006	0.019	0.029	0.029	0.035
	2007	0.017	0.027	0.027	0.035
	2012	0.015	0.022	0.023	0.032
	2017	0.013	0.021	0.021	0.031
	2022	0.012	0.019	0.020	0.029

Table 4-104. Projections of Bering Sea/Aleutian Islands Sablefish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Sablefish			
B0		Babc	Bmsy		
77.6		31.1	27.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.63	1.63	1.63	1.63
	2003	0.75	0.75	0.75	0.75
	2004	0.63	0.63	0.63	0.63
	2005	0.57	0.61	0.61	0.66
	2006	0.51	0.66	0.62	0.68
	2007	0.51	0.64	0.62	0.69
	2012	0.51	0.59	0.65	1.08
	2017	0.51	0.57	0.63	1.07
	2022	0.51	0.54	0.62	0.99
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	29.3	29.3	29.3	29.3
Biomass	2003	31.2	31.2	31.2	31.3
	2004	32.2	32.4	32.5	33.0
	2005	31.4	32.2	32.5	34.5
	2006	31.0	33.1	34.0	38.9
	2007	30.5	34.5	35.9	45.1
	2012	32.7	46.0	47.9	68.4
	2017	38.1	53.1	56.5	78.1
	2022	41.1	60.9	62.3	85.6
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.028	0.028	0.028	0.028
Mortality	2003	0.012	0.013	0.013	0.013
	2004	0.009	0.011	0.011	0.011
	2005	0.007	0.010	0.010	0.012
	2006	0.005	0.010	0.010	0.013
	2007	0.005	0.009	0.009	0.013
	2012	0.004	0.007	0.008	0.018
	2017	0.003	0.006	0.007	0.014
	2022	0.003	0.005	0.006	0.013

Table 4-105. Projections of Bering Sea/Aleutian Islands BSAI Pacific Ocean perch by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		BSAI Pacific ocean perch			
	B0	Babc	Bmsy		
	343.5	137.4	120.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	14.80	14.80	14.80	14.80
	2003	10.51	10.51	10.51	10.51
	2004	9.17	9.20	9.20	9.25
	2005	8.61	8.78	9.82	13.60
	2006	8.84	13.29	11.90	13.76
	2007	8.96	13.02	11.73	13.88
	2012	8.53	9.27	10.93	13.74
	2017	8.74	10.50	11.23	13.76
	2022	8.66	10.50	10.78	13.57
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	137.5	137.5	137.5	137.5
	2003	135.5	135.5	135.5	135.5
	2004	135.3	135.3	135.3	135.3
	2005	135.5	136.0	135.9	136.0
	2006	135.3	137.3	137.0	137.7
	2007	134.5	137.0	137.5	140.1
	2012	130.8	144.2	145.3	162.2
	2017	125.5	151.3	154.2	185.7
	2022	127.3	161.1	163.1	202.1
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.046	0.046	0.046	0.046
	2003	0.033	0.033	0.033	0.033
	2004	0.028	0.028	0.028	0.028
	2005	0.026	0.027	0.030	0.041
	2006	0.026	0.040	0.036	0.041
	2007	0.026	0.040	0.035	0.042
	2012	0.022	0.027	0.031	0.043
	2017	0.021	0.028	0.031	0.043
	2022	0.020	0.026	0.028	0.042

Table 4-106. Projections of Bering Sea/Aleutian Islands BSAI Pacific Ocean perch by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		BSAI Pacific ocean perch			
	B0	Babc	Bmsy		
	343.5	206.1	120.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	14.80	14.80	14.80	14.80
	2003	7.55	7.55	7.55	7.55
	2004	7.74	7.74	7.74	7.74
	2005	7.69	7.81	7.82	7.93
	2006	7.42	7.84	7.82	8.11
	2007	7.44	7.87	7.83	8.11
	2012	7.27	7.94	7.86	8.12
	2017	7.31	8.00	7.88	8.12
	2022	7.33	8.05	7.91	8.11
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	137.5	137.5	137.5	137.5
Biomass	2003	135.8	135.8	135.8	135.8
	2004	136.7	136.7	136.7	136.7
	2005	138.0	138.0	138.0	138.0
	2006	140.1	140.2	140.2	140.2
	2007	141.8	142.2	142.4	143.1
	2012	149.3	156.7	157.7	168.0
	2017	151.7	171.6	172.5	195.4
	2022	162.7	182.9	186.3	218.9
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.046	0.046	0.046	0.046
Mortality	2003	0.023	0.023	0.023	0.023
	2004	0.023	0.023	0.023	0.023
	2005	0.023	0.023	0.023	0.024
	2006	0.022	0.023	0.023	0.024
	2007	0.022	0.022	0.022	0.023
	2012	0.019	0.020	0.020	0.022
	2017	0.017	0.019	0.019	0.022
	2022	0.015	0.018	0.018	0.021

Table 4-107. Projections of Bering Sea/Aleutian Islands Aleutian Islands other rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Aleutian Islands other rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.55	0.55	0.55	0.55
	2003	0.29	0.29	0.29	0.29
	2004	0.28	0.28	0.29	0.29
	2005	0.22	0.25	0.25	0.27
	2006	0.19	0.23	0.24	0.28
	2007	0.19	0.23	0.24	0.29
	2012	0.20	0.26	0.26	0.29
	2017	0.20	0.26	0.26	0.29
	2022	0.21	0.27	0.26	0.29

Table 4-108. Projections of Bering Sea/Aleutian Islands Aleutian Islands other rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Aleutian Islands other rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.55	0.55	0.55	0.55
	2003	0.15	0.15	0.15	0.15
	2004	0.14	0.14	0.14	0.14
	2005	0.13	0.14	0.14	0.15
	2006	0.11	0.13	0.13	0.15
	2007	0.08	0.14	0.13	0.15
	2012	0.10	0.15	0.14	0.15
	2017	0.11	0.15	0.14	0.15
	2022	0.11	0.15	0.14	0.15

Table 4-109. Projections of Bering Sea/Aleutian Islands EBS other rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		EBS other rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower	Median	Mean	Upper
Catch	2002	0.40	0.40	0.40	0.40
	2003	0.12	0.12	0.12	0.12
	2004	0.12	0.12	0.12	0.12
	2005	0.11	0.11	0.11	0.11
	2006	0.10	0.10	0.10	0.11
	2007	0.09	0.10	0.10	0.10
	2012	0.09	0.11	0.11	0.12
	2017	0.10	0.11	0.11	0.12
	2022	0.10	0.12	0.11	0.12

Table 4-110. Projections of Bering Sea/Aleutian Islands EBS other rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		EBS other rockfish			
	B0		Babc	Bmsy	
	NA		NA	NA	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.40	0.40	0.40	0.40
	2003	0.07	0.07	0.07	0.07
	2004	0.07	0.07	0.07	0.07
	2005	0.06	0.07	0.07	0.07
	2006	0.06	0.07	0.07	0.07
	2007	0.06	0.07	0.07	0.07
	2012	0.06	0.06	0.07	0.08
	2017	0.06	0.06	0.06	0.08
	2022	0.06	0.06	0.06	0.08

Table 4-111. Projections of Bering Sea/Aleutian Islands BSAI northern rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		BSAI northern rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	4.60	4.60	4.60	4.60
	2003	6.39	6.39	6.39	6.39
	2004	6.21	6.25	6.26	6.35
	2005	5.18	5.34	5.43	5.94
	2006	4.50	5.39	5.38	6.19
	2007	4.27	5.50	5.47	6.36
	2012	4.46	5.63	5.59	6.39
	2017	4.37	5.66	5.62	6.39
	2022	4.48	5.86	5.71	6.39

Table 4-112. Projections of Bering Sea/Aleutian Islands BSAI northern rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		BSAI northern rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	4.60	4.60	4.60	4.60
	2003	2.94	2.94	2.94	2.94
	2004	3.34	3.34	3.34	3.34
	2005	3.22	3.50	3.51	3.72
	2006	3.15	3.70	3.70	4.12
	2007	3.14	3.75	3.73	4.12
	2012	2.78	3.96	3.74	4.12
	2017	2.82	4.00	3.78	4.12
	2022	3.00	4.06	3.81	4.12

Table 4-113. Projections of Bering Sea/Aleutian Islands BSAI shortraker/rougheye by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		BSAI shortraker/rougheye			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.57	0.57	0.57	0.57
	2003	0.85	0.85	0.85	0.85
	2004	0.75	0.75	0.75	0.75
	2005	0.72	0.73	0.78	0.96
	2006	0.72	0.94	0.87	0.96
	2007	0.73	0.92	0.86	0.96
	2012	0.72	0.75	0.83	0.96
	2017	0.73	0.85	0.85	0.97
	2022	0.73	0.85	0.83	0.96

Table 4-114. Projections of Bering Sea/Aleutian Islands BSAI shortraker/rougheye by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		BSAI shortraker/rougheye			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.57	0.57	0.57	0.57
	2003	0.42	0.42	0.42	0.42
	2004	0.42	0.42	0.42	0.42
	2005	0.42	0.42	0.42	0.42
	2006	0.42	0.42	0.42	0.42
	2007	0.42	0.42	0.42	0.42
	2012	0.42	0.42	0.42	0.42
	2017	0.42	0.42	0.42	0.42
	2022	0.42	0.42	0.42	0.42

Table 4-115. Projections of Bering Sea/Aleutian Islands Atka mackerel by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		Atka mackerel			
	B0	Babc	Bmsy		
	222.4	88.9	77.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	47.58	47.58	47.58	47.58
	2003	74.30	74.30	74.30	74.30
	2004	71.01	71.87	72.06	73.67
	2005	49.58	54.59	56.05	66.04
	2006	37.27	53.70	54.29	70.93
	2007	33.70	56.10	56.34	74.17
	2012	37.36	59.31	59.07	74.30
	2017	35.73	59.65	59.62	74.30
	2022	38.32	64.50	61.40	74.30
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	118.5	118.5	118.5	118.5
Biomass	2003	108.8	108.9	108.9	109.0
	2004	86.5	86.8	86.9	87.5
	2005	73.5	77.5	78.7	86.0
	2006	63.0	79.4	82.8	108.6
	2007	61.1	82.9	88.7	129.9
	2012	60.7	82.9	90.7	133.6
	2017	62.7	86.8	95.7	148.5
	2022	63.9	88.1	97.1	152.2
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.251	0.251	0.251	0.251
Mortality	2003	0.392	0.393	0.393	0.394
	2004	0.434	0.436	0.436	0.439
	2005	0.365	0.386	0.391	0.431
	2006	0.309	0.395	0.392	0.447
	2007	0.295	0.399	0.392	0.447
	2012	0.296	0.384	0.399	0.447
	2017	0.279	0.389	0.385	0.447
	2022	0.266	0.390	0.394	0.447

Table 4-116. Projections of Bering Sea/Aleutian Islands Atka mackerel by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		Atka mackerel			
B0		Babc	Bmsy		
222.4		88.9	77.8		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	47.58	47.58	47.58	47.58
	2003	49.64	49.64	49.64	49.64
	2004	53.89	53.90	53.90	53.90
	2005	50.64	55.19	55.19	58.03
	2006	37.37	51.60	51.25	62.26
	2007	32.46	52.15	50.96	62.26
	2012	32.61	56.28	52.39	62.26
	2017	32.90	57.09	53.11	62.26
	2022	36.13	59.53	54.40	62.26
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	118.5	118.5	118.5	118.5
Biomass	2003	116.5	116.5	116.5	116.7
	2004	101.8	102.3	102.4	103.4
	2005	87.9	92.2	93.9	103.4
	2006	74.4	91.5	96.1	127.2
	2007	70.3	94.1	101.6	151.3
	2012	70.5	97.2	106.1	155.3
	2017	72.4	100.4	111.1	171.9
	2022	75.9	104.0	113.2	173.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.251	0.251	0.251	0.251
Mortality	2003	0.246	0.247	0.247	0.248
	2004	0.270	0.274	0.274	0.276
	2005	0.294	0.308	0.307	0.319
	2006	0.249	0.306	0.302	0.334
	2007	0.236	0.304	0.297	0.334
	2012	0.213	0.288	0.283	0.334
	2017	0.192	0.290	0.282	0.334
	2022	0.190	0.290	0.281	0.334

Table 4-117. Projections of Bering Sea/Aleutian Islands "other species" by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		BSAIOTHSPP			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	26.47	26.47	26.47	26.47
	2003	27.59	27.59	27.59	27.59
	2004	29.32	29.32	29.32	29.32
	2005	29.22	29.23	29.36	30.07
	2006	27.78	29.21	29.11	29.93
	2007	25.16	29.18	28.26	29.62
	2012	22.65	29.21	27.98	29.39
	2017	23.73	29.27	28.12	29.75
	2022	23.79	29.28	28.30	29.33

Table 4-118. Projections of Bering Sea/Aleutian Islands "other species" by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		BSAIOTHSPP			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	26.47	26.47	26.47	26.47
	2003	20.53	20.53	20.53	20.53
	2004	21.69	21.69	21.69	21.69
	2005	21.64	21.67	22.06	23.03
	2006	21.59	22.64	22.35	22.81
	2007	20.29	21.64	21.87	22.76
	2012	16.78	21.59	21.01	23.10
	2017	18.31	21.59	21.36	23.12
	2022	17.87	21.59	21.19	22.96

Table 4-119. Projections of Bering Sea/Aleutian Islands Pacific Halibut mortality by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.1		HALM			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.21	3.21	3.21	3.21
	2003	4.12	4.12	4.12	4.12
	2004	4.12	4.12	4.12	4.12
	2005	4.12	4.12	4.12	4.12
	2006	4.12	4.12	4.12	4.12
	2007	3.92	4.12	4.09	4.12
	2012	3.28	4.12	3.98	4.12
	2017	3.61	4.12	4.02	4.12
	2022	3.64	4.12	4.04	4.12

Table 4-120. Projections of Bering Sea/Aleutian Islands Pacific Halibut mortality by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Bering Sea & Aleutian Islands					
FMP: PA.2		HALM			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.21	3.21	3.21	3.21
	2003	3.32	3.32	3.32	3.32
	2004	3.37	3.37	3.37	3.37
	2005	3.36	3.37	3.45	3.66
	2006	3.34	3.64	3.55	3.66
	2007	3.34	3.56	3.52	3.65
	2012	2.70	3.34	3.28	3.64
	2017	3.10	3.35	3.39	3.65
	2022	3.05	3.34	3.36	3.65

Gulf of Alaska

Figures

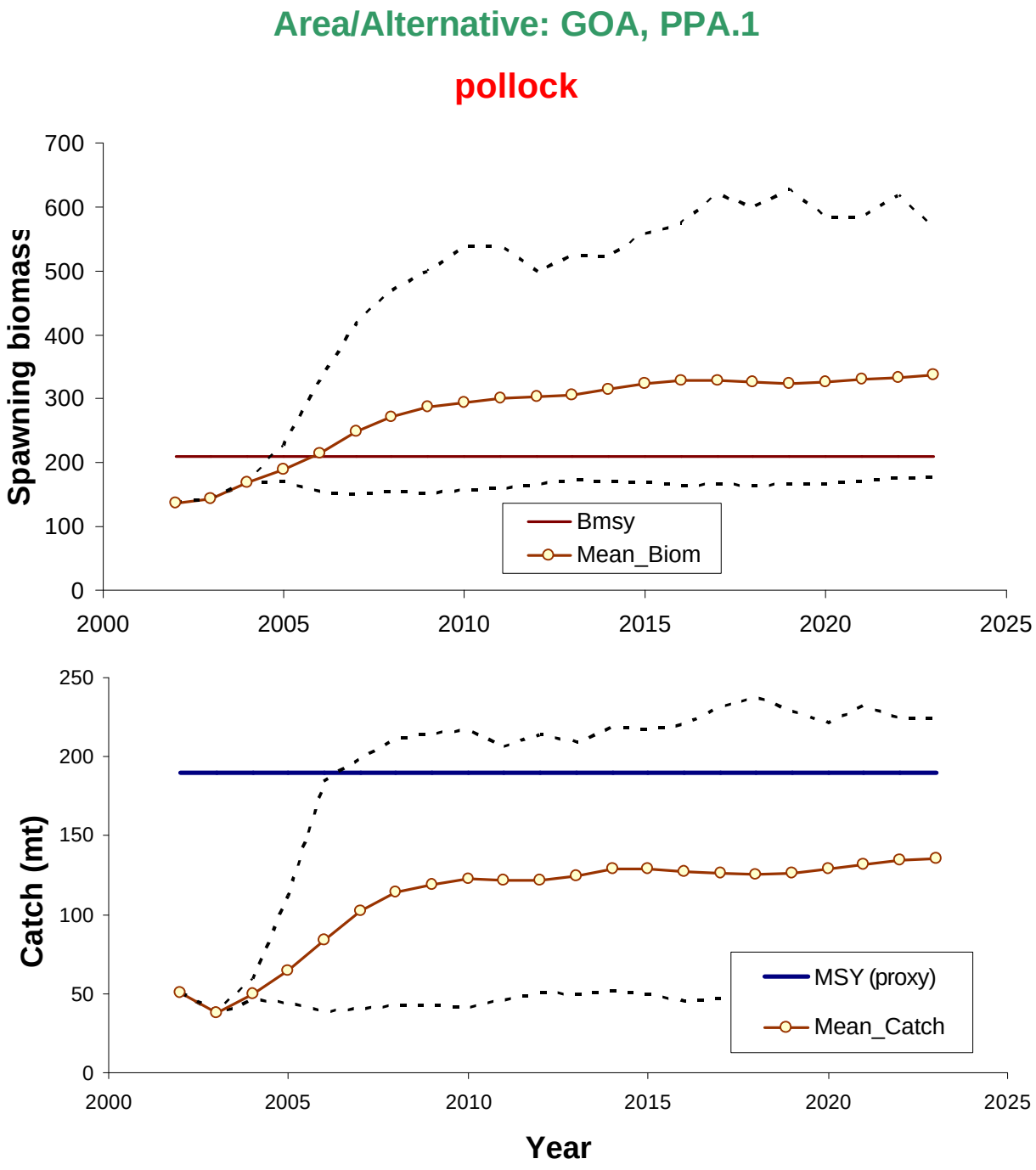

Figure 4-36. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for pollock under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

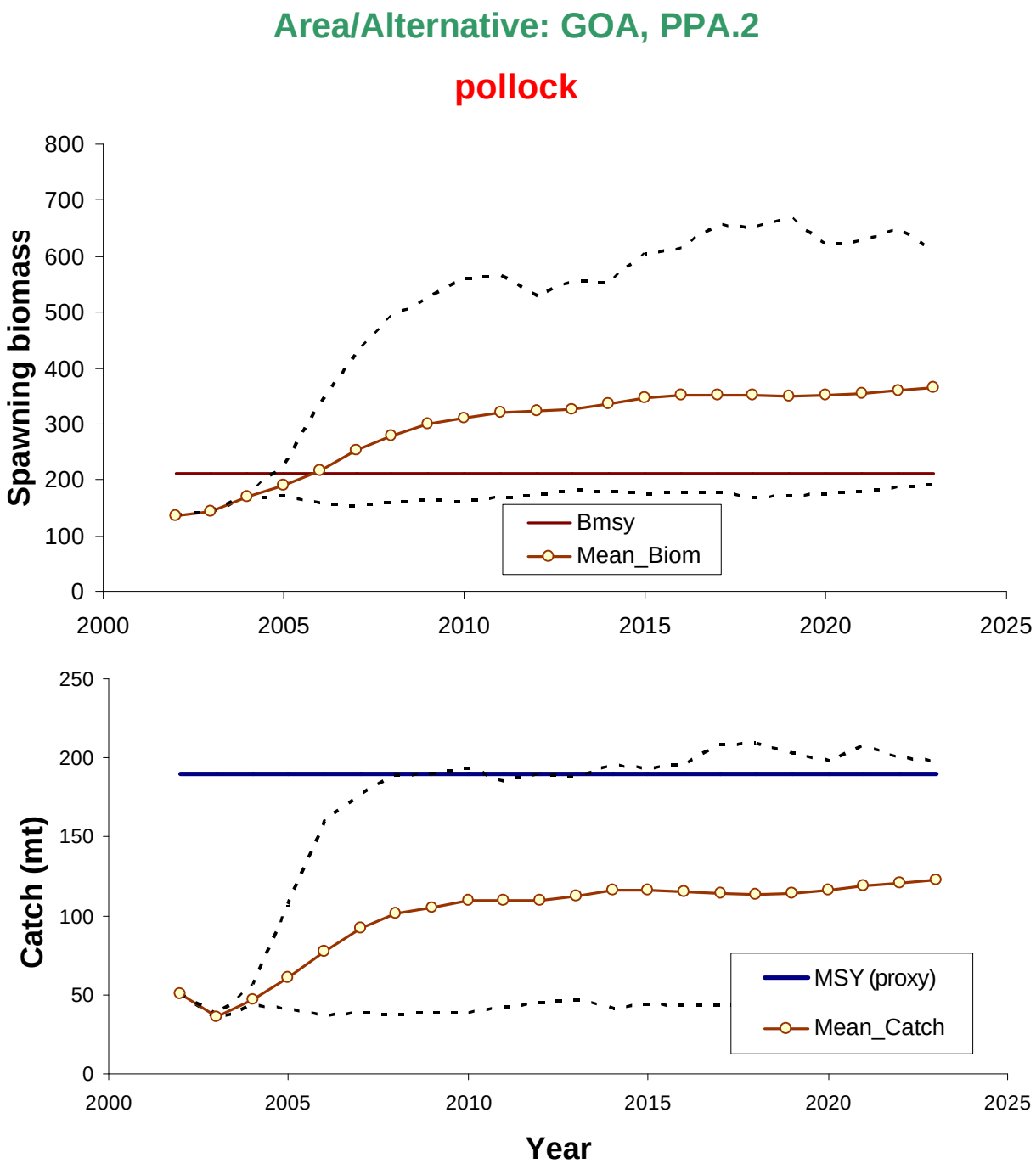

Figure 4-37. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for pollock under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

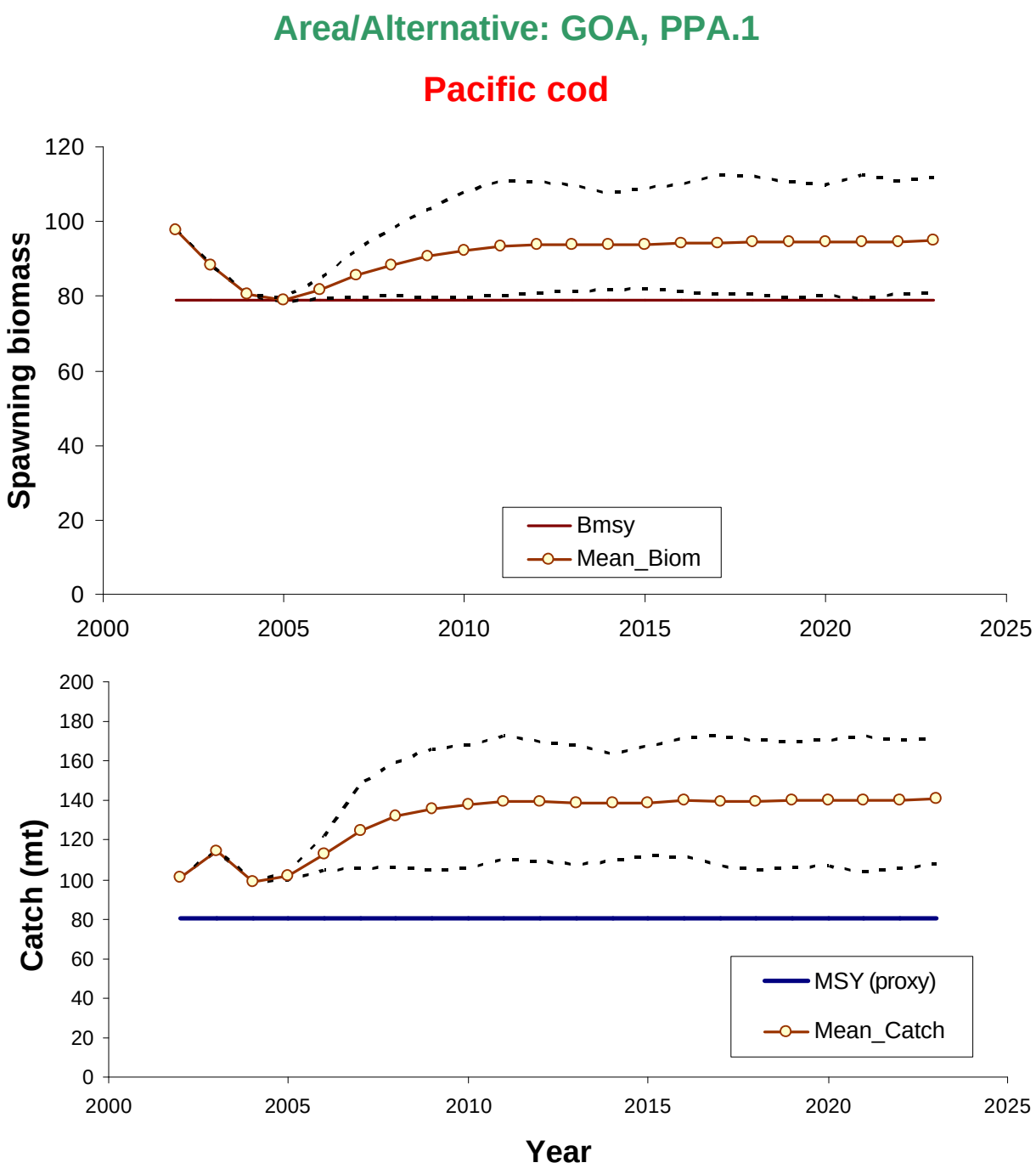

Figure 4-38. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Pacific cod under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

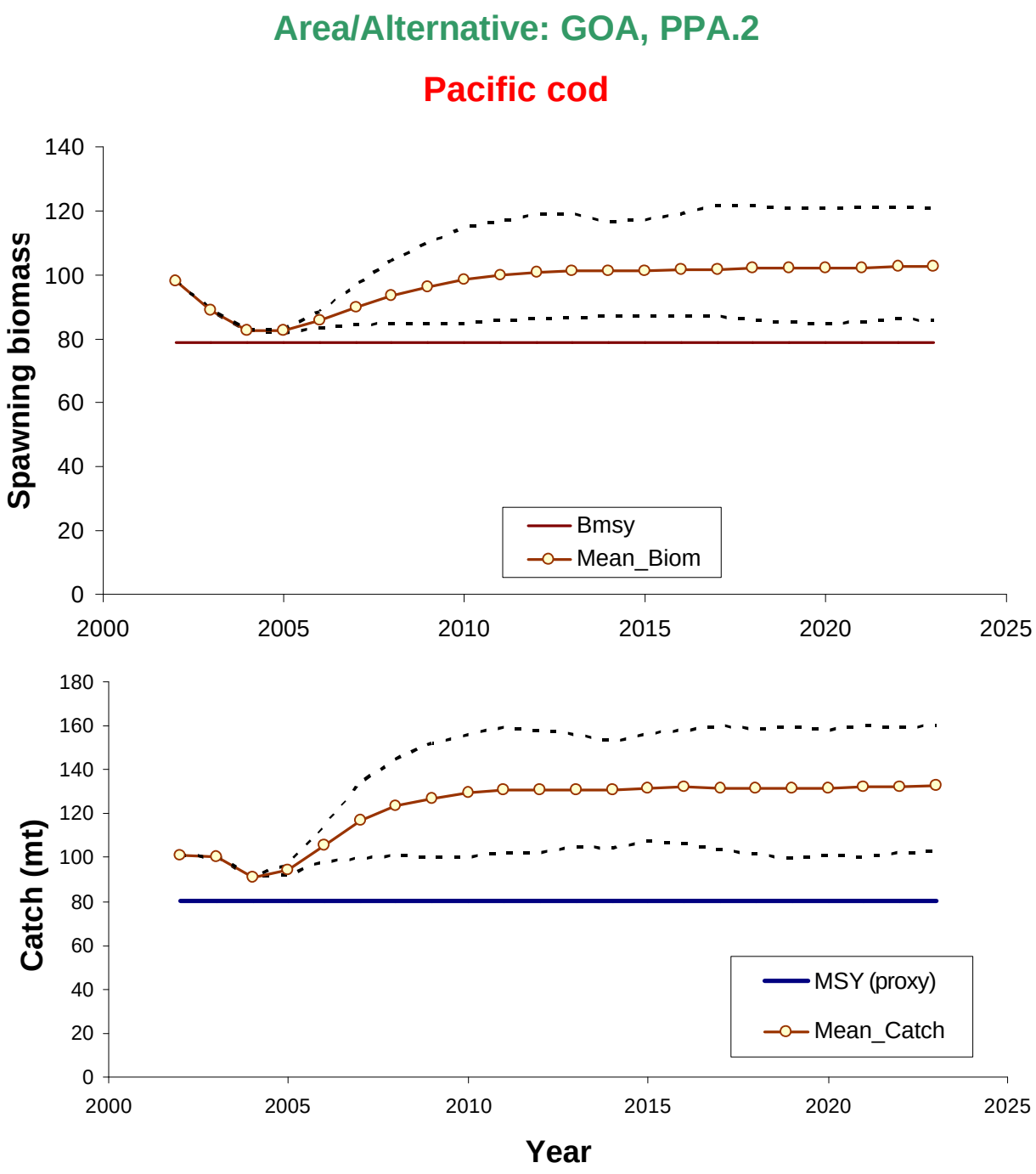

Figure 4-39. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Pacific cod under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

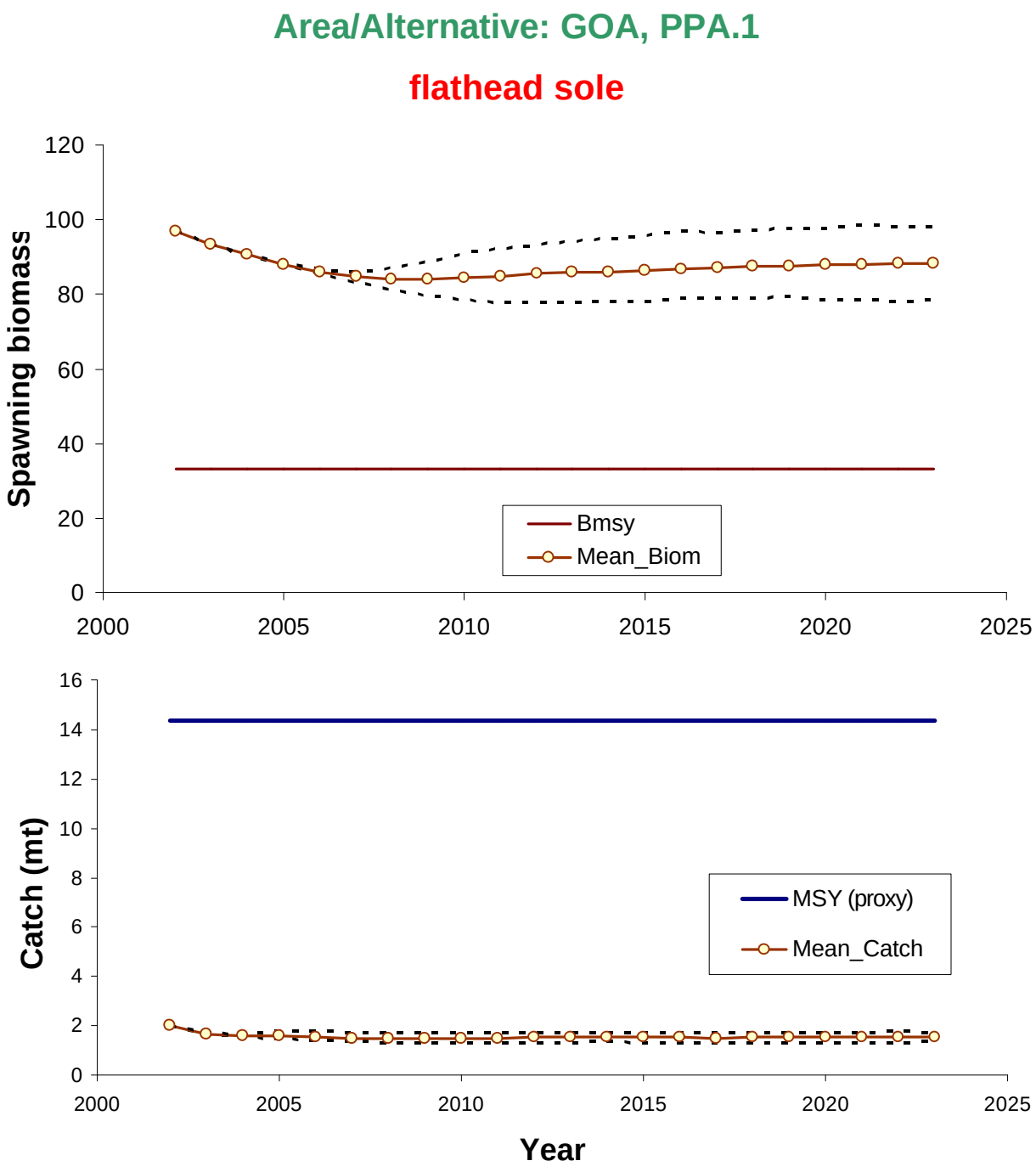

Figure 4-40. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for flathead sole under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

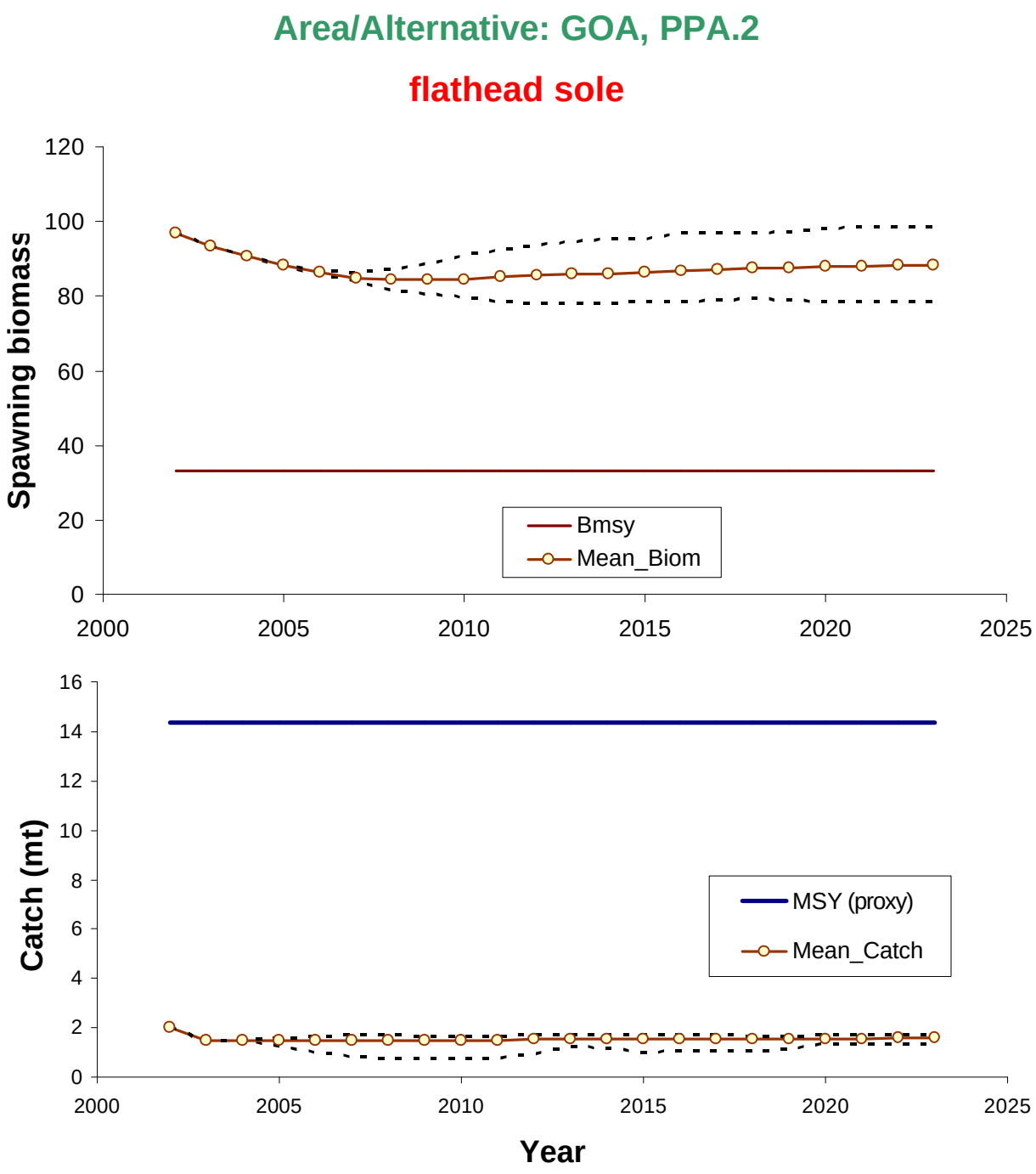

Figure 4-41. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for flathead sole under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

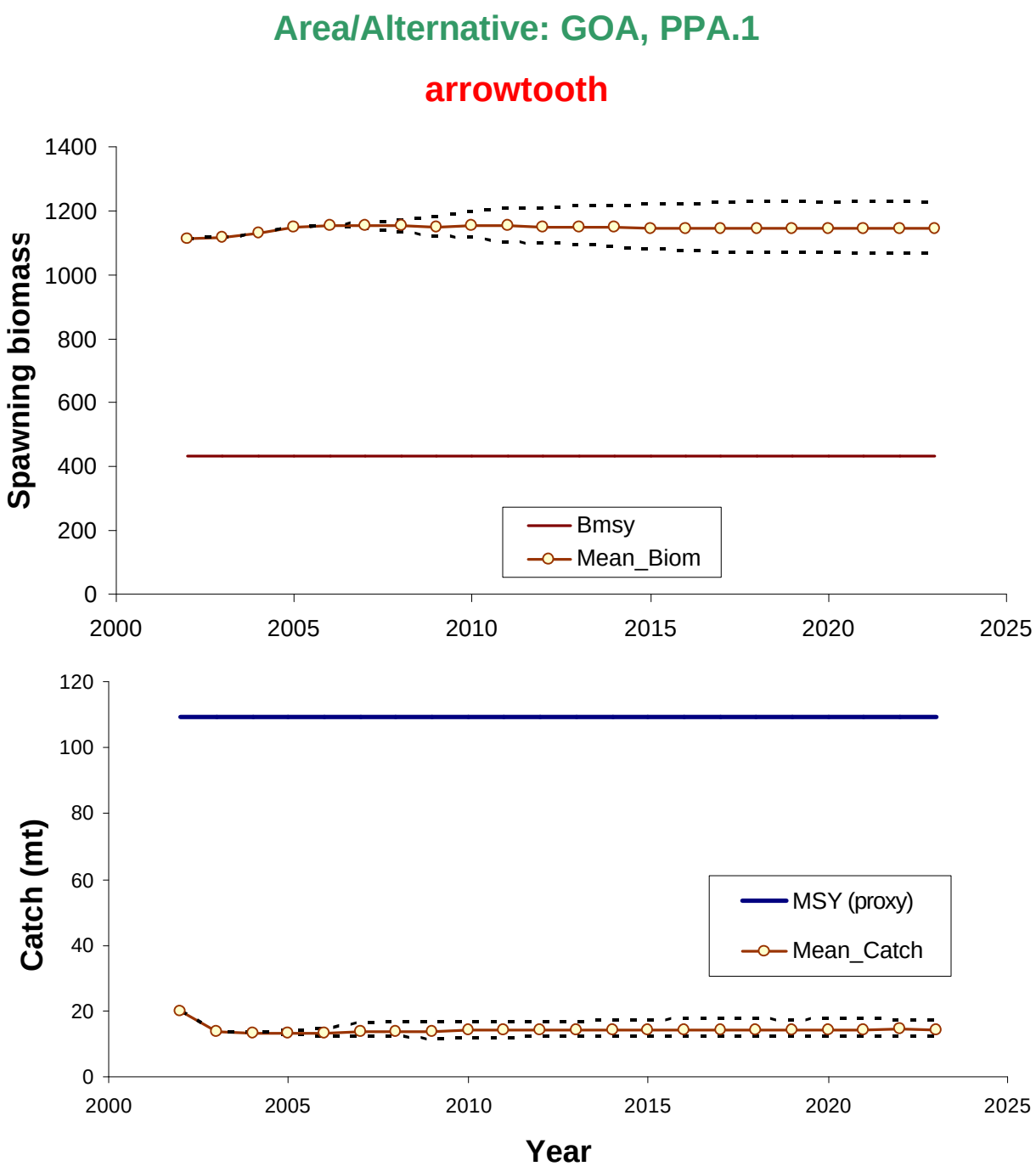

Figure 4-42. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for arrowtooth under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

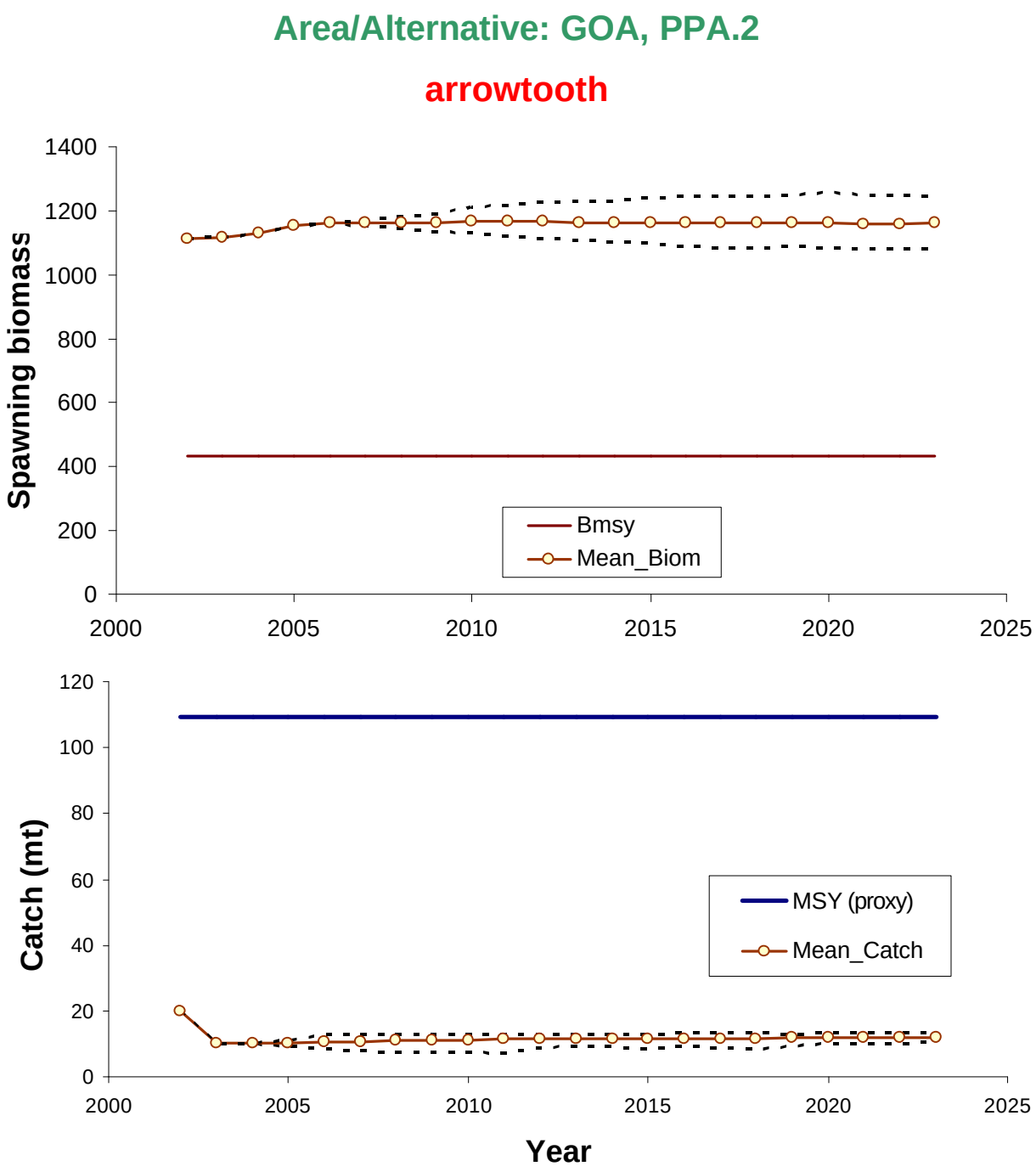

Figure 4-43. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for arrowtooth under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

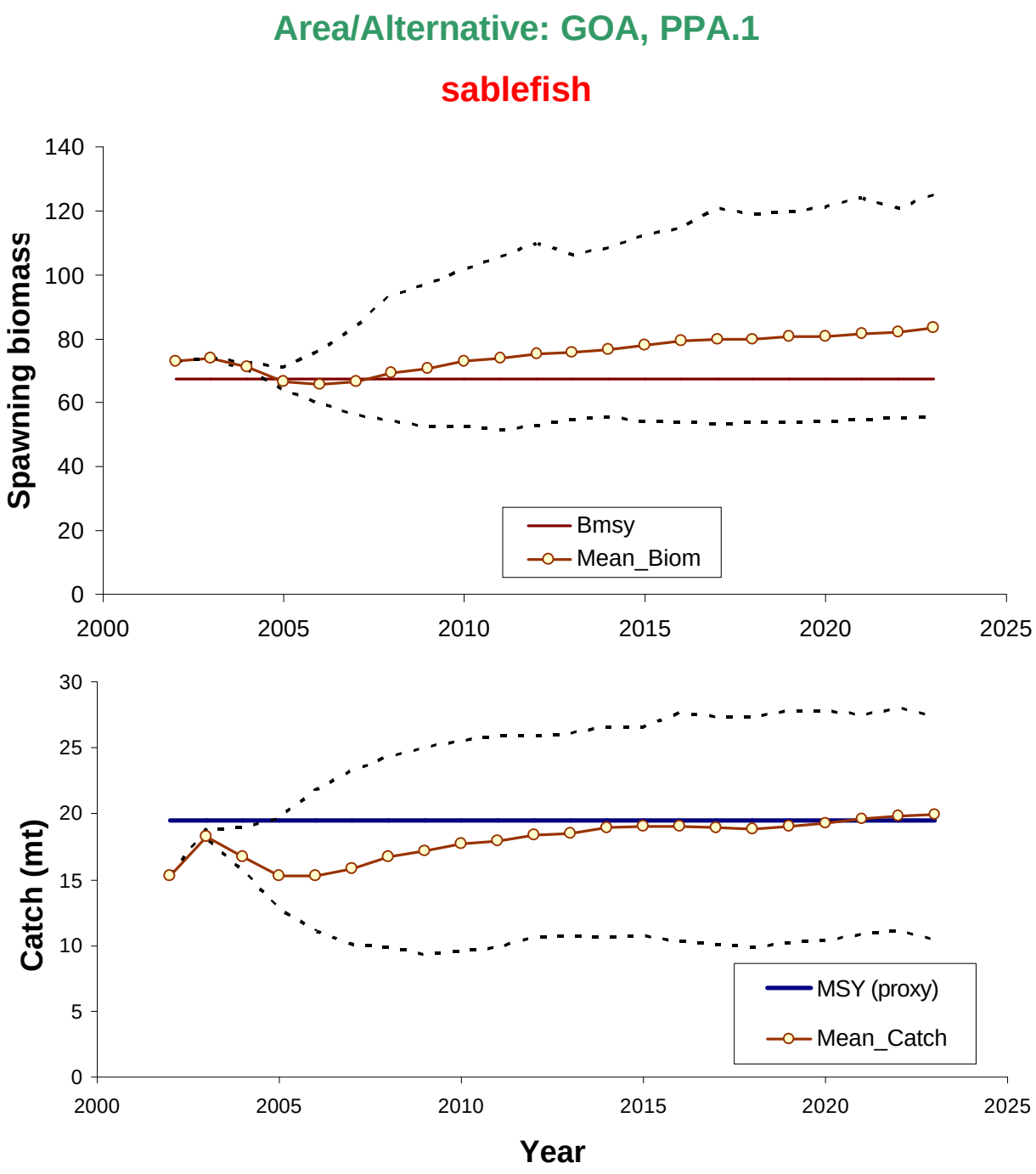

Figure 4-44. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for sablefish under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

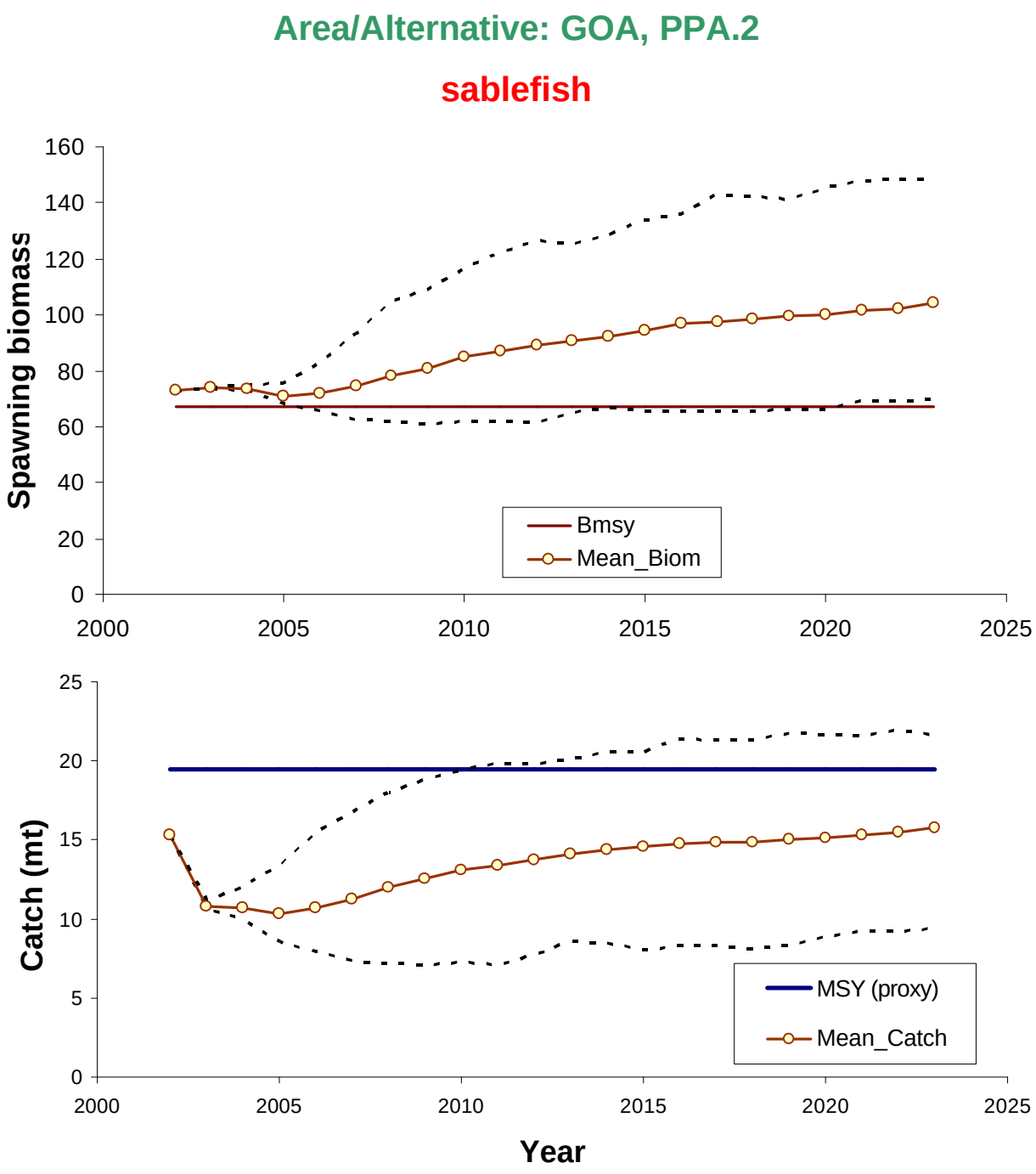

Figure 4-45. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for sablefish under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

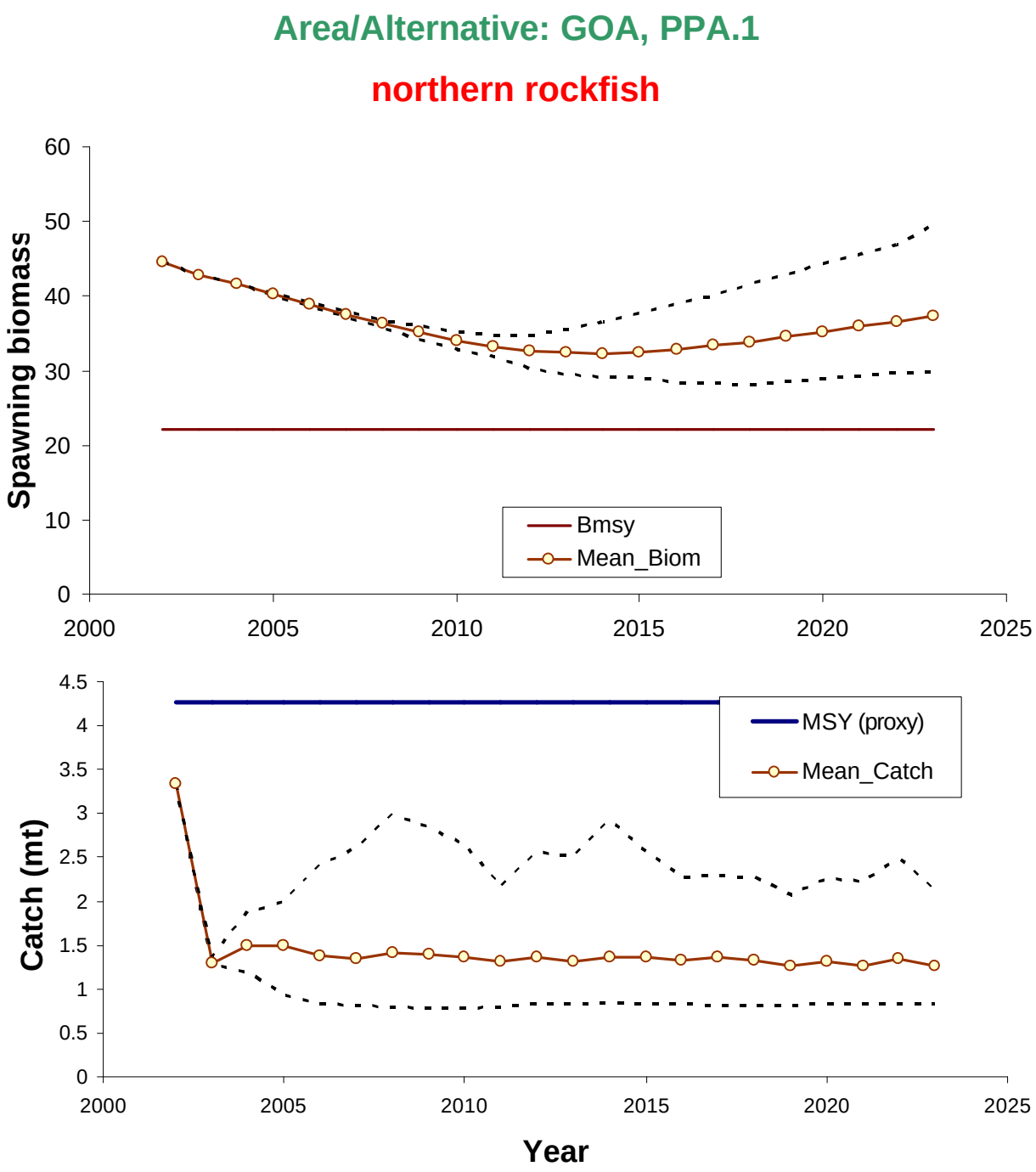

Figure 4-46. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for northern rockfish under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

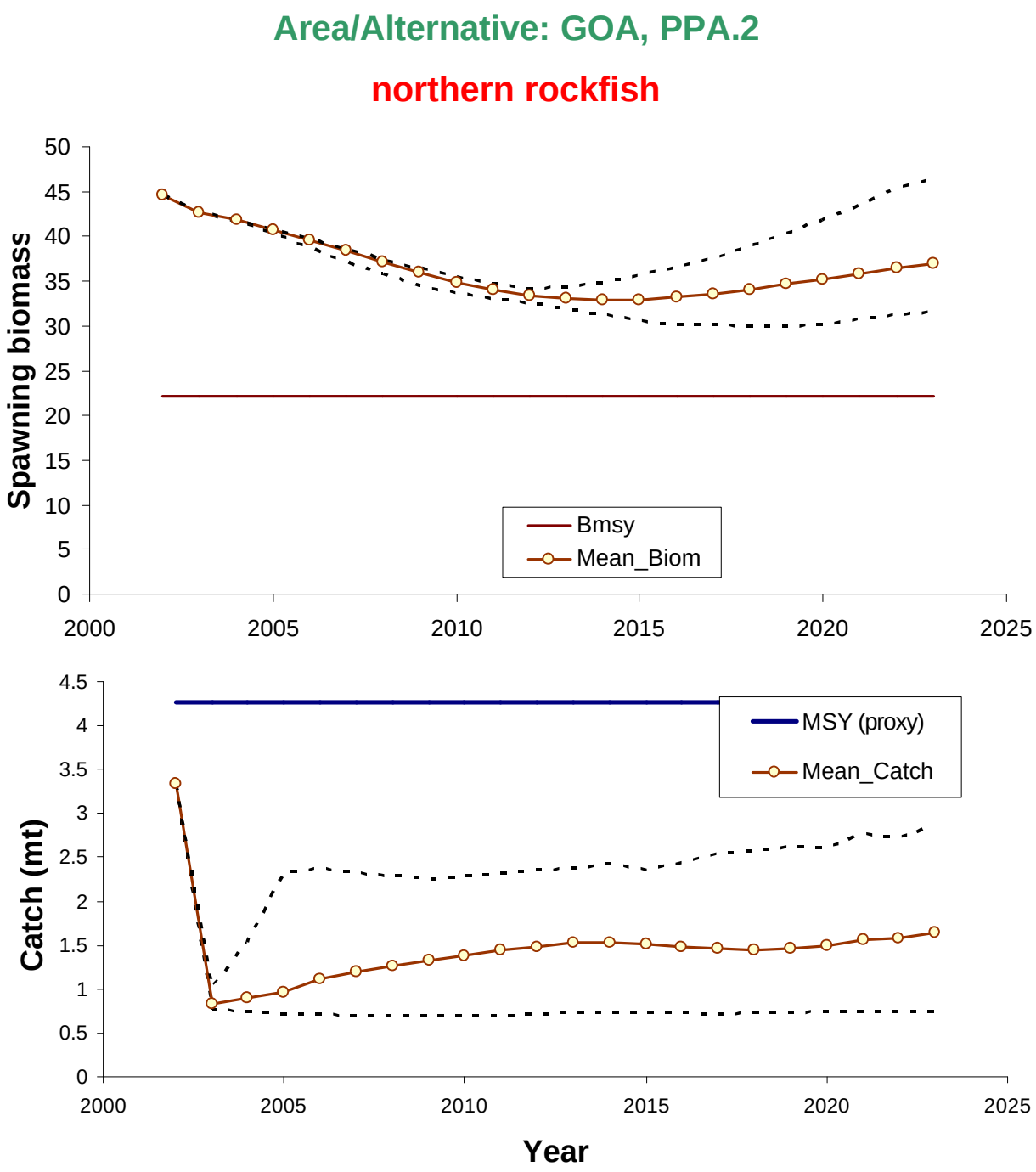

Figure 4-47. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for northern rockfish under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

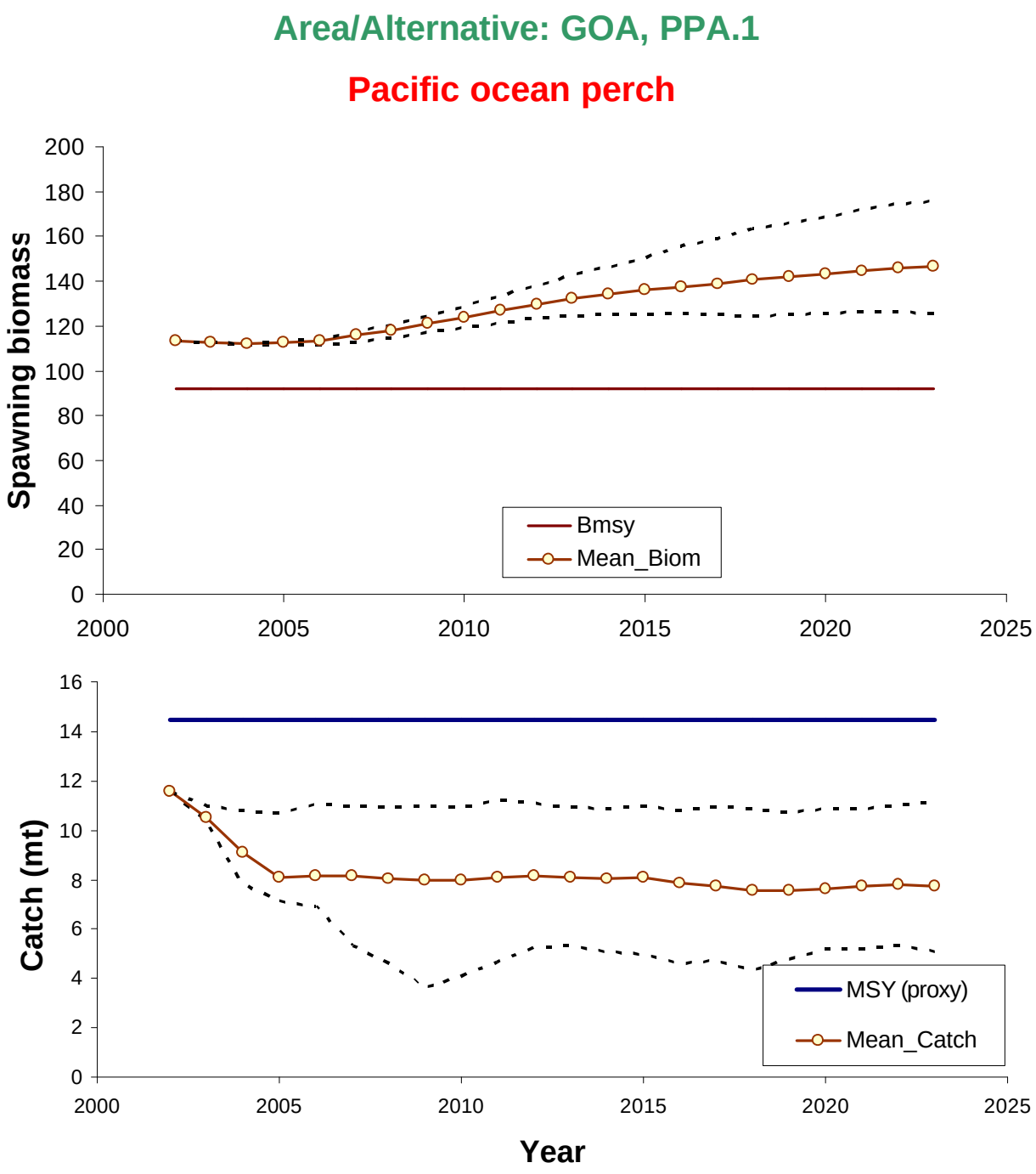

Figure 4-48. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Pacific Ocean perch under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

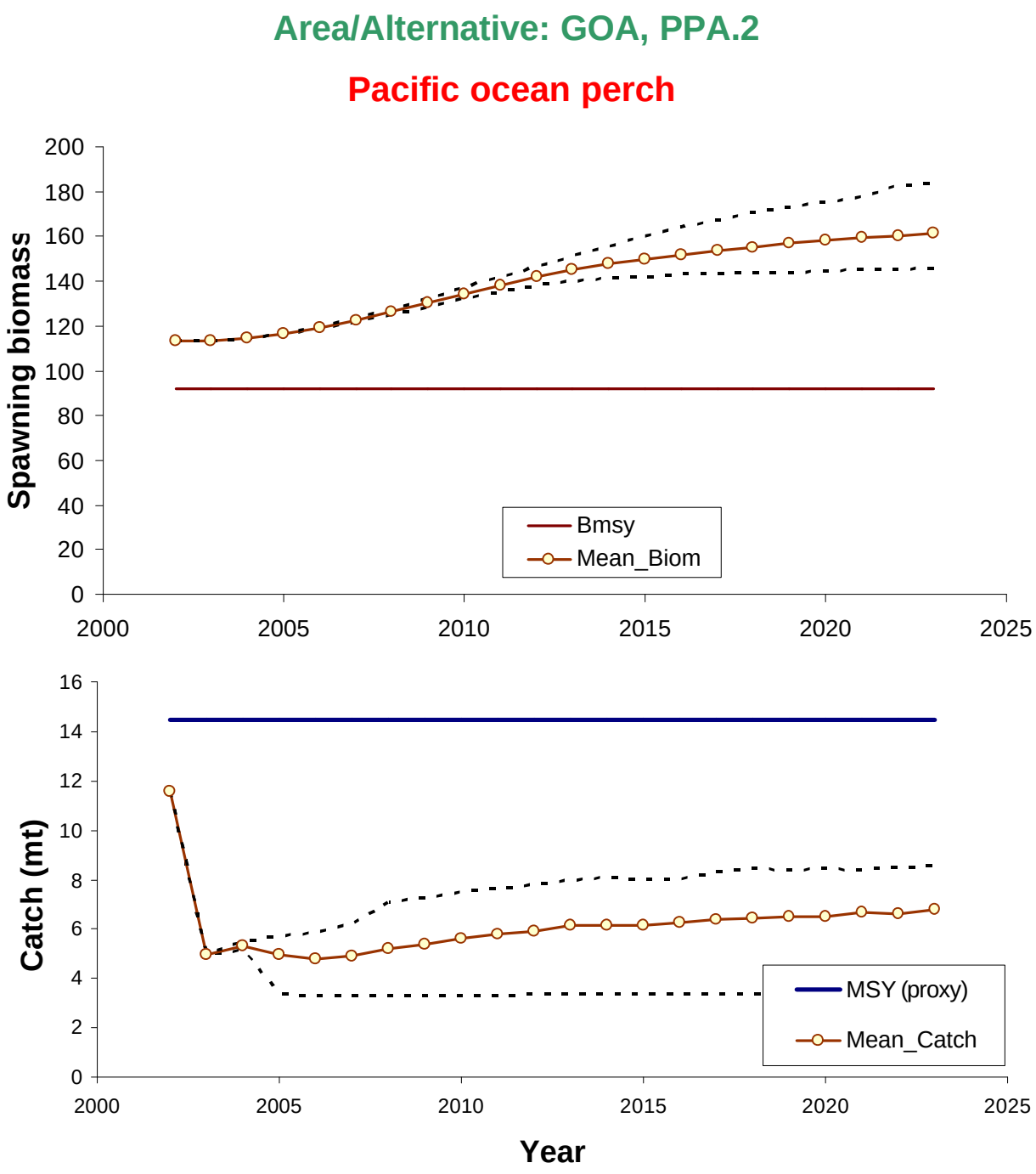

Figure 4-49. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for Pacific Ocean perch under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

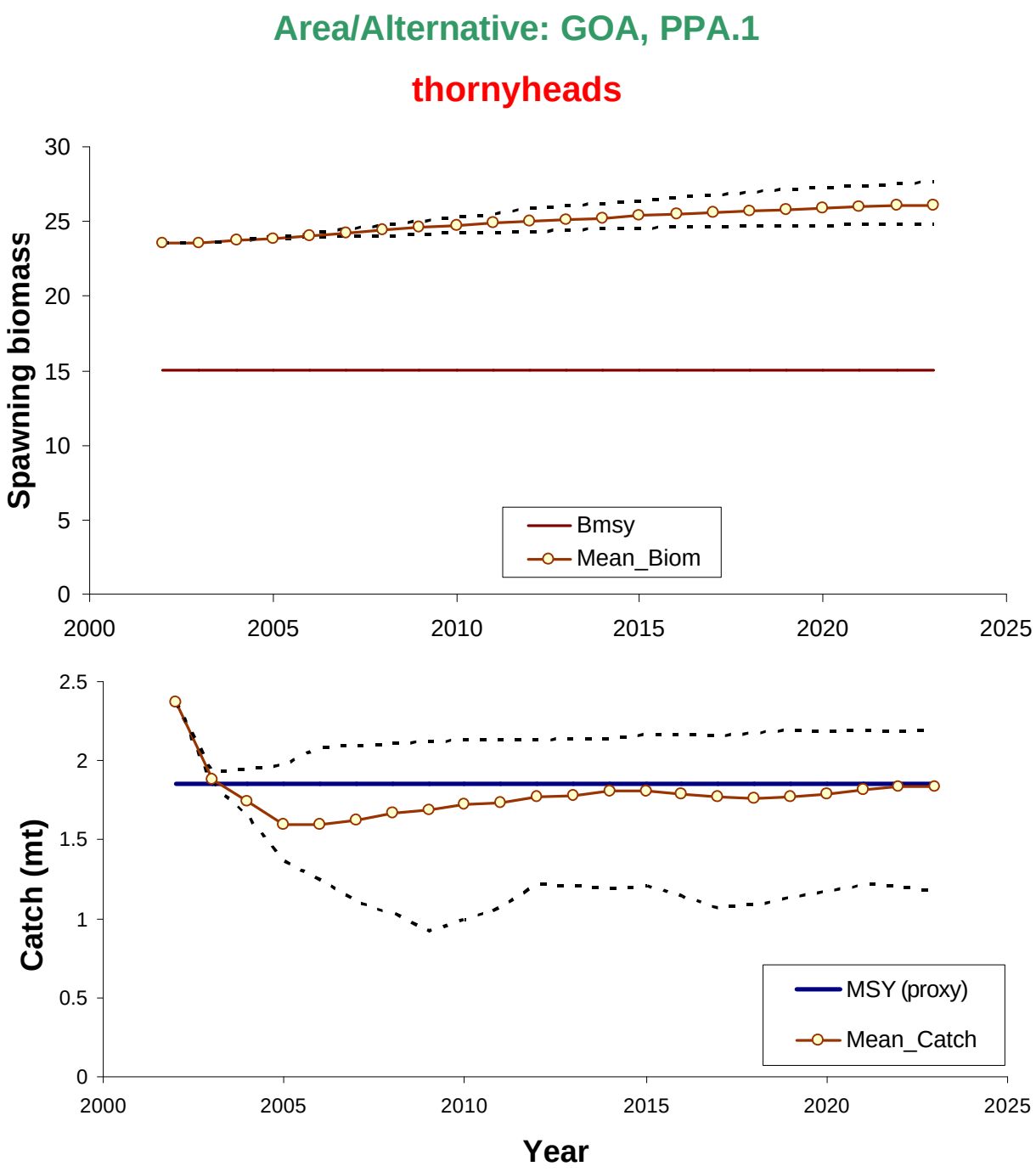

Figure 4-50. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for thornyheads under FMP PA.1. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

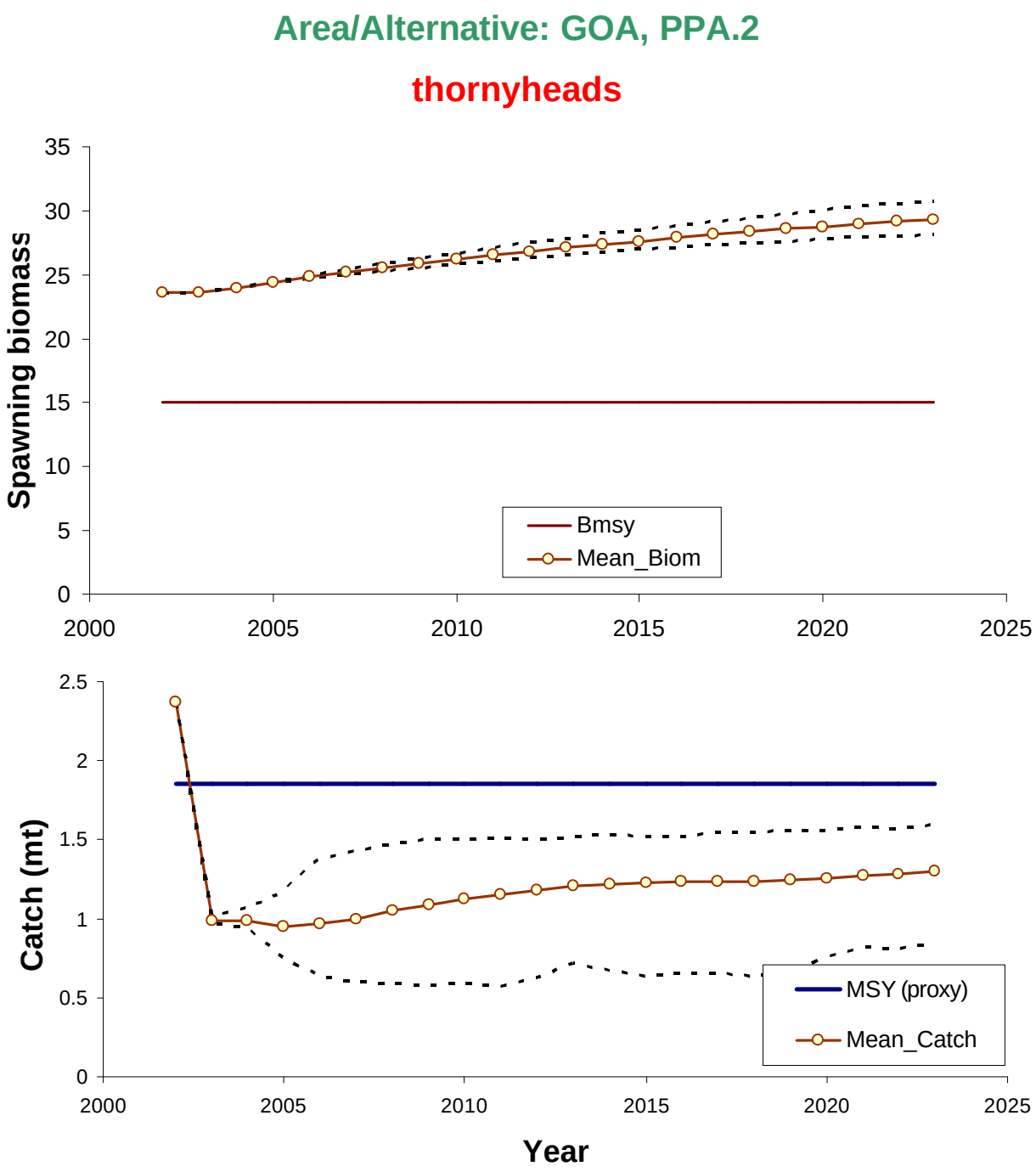

Figure 4-51. Spawning biomass (top panel) and catch (lower panel) with 95% confidence bounds (dashed lines) based on 200 simulations long-term projections for thornyheads under FMP PA.2. Note that the MSY and BMSY plotted are based on B35 and F35 as proxies.

Tables

Table 4-121. Projections of Gulf of Alaska pollock by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		pollock			
B0		Babc	Bmsy		
600.5		240.2	210.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	50.39	50.39	50.39	50.39
	2003	37.28	37.58	37.86	39.11
	2004	46.21	48.45	50.19	58.79
	2005	44.56	55.57	64.66	112.00
	2006	38.72	65.18	83.78	184.37
	2007	40.75	86.77	102.45	199.24
	2012	50.72	117.54	121.98	213.64
	2017	46.64	110.80	126.21	231.85
	2022	51.04	128.36	134.64	224.02
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	136.3	136.3	136.3	136.3
Biomass	2003	143.8	143.8	143.8	143.9
	2004	167.2	167.8	168.4	170.8
	2005	170.8	180.4	189.0	225.7
	2006	156.1	188.7	214.2	331.0
	2007	150.4	217.9	248.9	416.2
	2012	167.3	264.0	302.3	498.9
	2017	166.8	270.3	328.3	619.6
	2022	174.5	295.6	332.9	617.5
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.174	0.174	0.174	0.174
Mortality	2003	0.106	0.107	0.107	0.107
	2004	0.121	0.122	0.122	0.122
	2005	0.125	0.129	0.134	0.156
	2006	0.114	0.134	0.141	0.187
	2007	0.111	0.151	0.156	0.197
	2012	0.126	0.176	0.176	0.198
	2017	0.124	0.173	0.172	0.198
	2022	0.129	0.182	0.177	0.199

Table 4-122. Projections of Gulf of Alaska pollock by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		pollock			
B0		Babc	Bmsy		
600.5		240.2	210.2		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	50.39	50.39	50.39	50.39
	2003	35.11	35.44	35.71	36.91
	2004	43.30	45.75	47.46	55.88
	2005	41.82	52.28	60.99	106.74
	2006	37.23	62.76	77.56	159.21
	2007	38.29	81.38	92.32	176.89
	2012	45.13	107.71	109.56	189.76
	2017	43.72	103.43	114.62	208.57
	2022	50.21	112.56	120.84	200.38
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	136.3	136.3	136.3	136.3
Biomass	2003	143.9	143.9	144.0	144.0
	2004	168.1	168.6	169.2	171.7
	2005	172.7	182.1	190.8	227.4
	2006	158.8	191.4	217.1	335.9
	2007	153.3	221.5	253.9	428.1
	2012	172.4	283.6	322.0	528.6
	2017	176.2	292.4	352.6	657.0
	2022	187.1	319.3	358.4	649.9
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.174	0.174	0.174	0.174
Mortality	2003	0.100	0.101	0.101	0.101
	2004	0.113	0.114	0.114	0.115
	2005	0.116	0.121	0.125	0.148
	2006	0.108	0.125	0.131	0.159
	2007	0.103	0.139	0.137	0.159
	2012	0.112	0.157	0.149	0.161
	2017	0.114	0.157	0.148	0.161
	2022	0.120	0.158	0.151	0.161

Table 4-123. Projections of Gulf of Alaska Pacific cod by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			Pacific cod		
	B0		Babc	Bmsy	
	225.8		90.3	79.0	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	100.92	100.92	100.92	100.92
	2003	113.54	114.11	114.04	114.25
	2004	98.84	99.09	99.08	99.30
	2005	99.96	101.43	101.55	103.35
	2006	104.84	111.86	112.59	121.70
	2007	105.44	123.08	124.79	148.00
	2012	109.25	139.92	139.49	169.64
	2017	106.89	138.89	139.57	172.89
	2022	105.90	141.08	140.30	170.68
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	97.9	97.9	97.9	97.9
Biomass	2003	88.5	88.5	88.5	88.5
	2004	80.3	80.4	80.4	80.6
	2005	78.5	79.1	79.1	79.9
	2006	79.4	81.5	81.7	84.5
	2007	79.8	85.0	85.5	92.2
	2012	81.0	92.3	93.8	110.5
	2017	80.6	92.2	94.4	112.7
	2022	80.4	94.0	94.7	111.0
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.255	0.255	0.255	0.255
Mortality	2003	0.322	0.324	0.324	0.325
	2004	0.294	0.295	0.295	0.295
	2005	0.287	0.289	0.289	0.292
	2006	0.290	0.298	0.299	0.309
	2007	0.292	0.311	0.311	0.331
	2012	0.297	0.330	0.323	0.331
	2017	0.294	0.330	0.322	0.331
	2022	0.293	0.330	0.322	0.331

Table 4-124. Projections of Gulf of Alaska Pacific cod by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			Pacific cod		
	B0		Babc	Bmsy	
	225.8		90.3	79.0	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	100.92	100.92	100.92	100.92
	2003	100.54	100.55	100.55	100.55
	2004	90.94	91.11	91.13	91.34
	2005	92.52	94.82	94.61	96.68
	2006	98.47	104.99	105.76	113.48
	2007	99.36	116.74	117.18	134.38
	2012	102.29	130.92	131.03	158.31
	2017	103.65	129.87	131.76	160.21
	2022	102.02	132.07	132.29	159.36
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	97.9	97.9	97.9	97.9
Biomass	2003	88.9	88.9	88.9	88.9
	2004	82.6	82.7	82.7	82.8
	2005	81.8	82.3	82.4	83.0
	2006	83.3	85.3	85.6	88.3
	2007	84.3	89.3	89.9	96.6
	2012	86.2	99.4	100.8	119.1
	2017	87.1	100.0	101.9	121.8
	2022	86.0	102.6	102.5	121.3
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.255	0.255	0.255	0.255
Mortality	2003	0.282	0.282	0.282	0.282
	2004	0.262	0.263	0.263	0.263
	2005	0.256	0.261	0.260	0.263
	2006	0.260	0.269	0.269	0.278
	2007	0.263	0.282	0.280	0.289
	2012	0.271	0.288	0.285	0.290
	2017	0.273	0.288	0.286	0.290
	2022	0.269	0.288	0.285	0.290

Table 4-125. Projections of Gulf of Alaska deep flatfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		deep flatfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.10	0.10	0.10	0.10
	2003	1.25	1.25	1.25	1.25
	2004	1.21	1.21	1.22	1.24
	2005	0.91	0.92	1.05	1.24
	2006	0.87	1.15	1.05	1.25
	2007	0.86	1.15	1.08	1.24
	2012	0.85	1.17	1.15	1.25
	2017	0.86	1.15	1.16	1.27
	2022	0.86	1.18	1.18	1.26

Table 4-126. Projections of Gulf of Alaska deep flatfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		deep flatfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.10	0.10	0.10	0.10
	2003	0.87	0.87	0.87	0.87
	2004	0.85	0.86	0.87	0.87
	2005	0.79	0.85	0.88	0.89
	2006	0.75	0.86	0.92	1.38
	2007	0.69	0.88	0.95	1.20
	2012	0.75	1.17	1.07	1.24
	2017	0.79	1.17	1.10	1.46
	2022	0.83	1.17	1.12	1.30

Table 4-127. Projections of Gulf of Alaska rex sole by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		rex sole			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.01	3.01	3.01	3.01
	2003	3.34	3.35	3.35	3.35
	2004	3.30	3.30	3.31	3.32
	2005	3.25	3.26	3.27	3.32
	2006	3.22	3.26	3.28	3.35
	2007	3.21	3.28	3.29	3.37
	2012	3.21	3.33	3.30	3.40
	2017	3.11	3.32	3.30	3.46
	2022	3.20	3.33	3.31	3.44

Table 4-128. Projections of Gulf of Alaska rex sole by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		rex sole			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.01	3.01	3.01	3.01
	2003	3.09	3.09	3.09	3.09
	2004	3.07	3.07	3.08	3.09
	2005	2.94	3.08	3.07	3.11
	2006	2.52	3.10	3.02	3.18
	2007	2.46	3.13	2.99	3.22
	2012	2.58	3.19	3.09	3.26
	2017	2.60	3.19	3.11	3.29
	2022	2.76	3.20	3.14	3.27

Table 4-129. Projections of Gulf of Alaska Shallow flatfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			Shallow flatfish		
	B0		Babc	Bmsy	
	NA		NA	NA	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	6.84	6.84	6.84	6.84
	2003	5.88	5.96	5.95	5.98
	2004	5.72	5.86	5.84	5.86
	2005	5.71	5.88	5.84	5.89
	2006	4.74	5.35	5.41	5.98
	2007	3.87	4.97	5.01	6.02
	2012	3.34	5.16	4.97	6.10
	2017	3.35	4.76	4.83	6.13
	2022	3.41	5.30	5.05	6.15

Table 4-130. Projections of Gulf of Alaska Shallow flatfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			Shallow flatfish		
	B0		Babc	Bmsy	
	NA		NA	NA	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	6.84	6.84	6.84	6.84
	2003	5.12	5.13	5.13	5.13
	2004	4.99	5.00	5.01	5.04
	2005	4.91	5.04	5.03	5.14
	2006	4.58	5.17	5.09	5.34
	2007	3.16	5.20	4.88	5.40
	2012	3.25	4.69	4.57	5.40
	2017	3.32	4.78	4.61	5.41
	2022	3.36	4.68	4.61	5.40

Table 4-131. Projections of Gulf of Alaska flathead sole by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			flathead sole		
	B0		Babc	Bmsy	
	95.4		38.2	33.4	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.03	2.03	2.03	2.03
	2003	1.68	1.68	1.68	1.68
	2004	1.53	1.59	1.59	1.68
	2005	1.49	1.58	1.60	1.75
	2006	1.41	1.45	1.51	1.77
	2007	1.34	1.45	1.49	1.69
	2012	1.30	1.53	1.52	1.71
	2017	1.31	1.46	1.50	1.71
	2022	1.32	1.57	1.54	1.74
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	96.9	96.9	96.9	96.9
	2003	93.5	93.5	93.5	93.5
	2004	90.5	90.5	90.5	90.5
	2005	87.9	88.1	88.1	88.2
	2006	85.6	86.1	86.1	86.6
	2007	83.3	84.7	84.8	86.1
	2012	77.7	84.9	85.5	93.5
	2017	79.0	86.3	87.2	96.6
	2022	78.2	87.9	88.2	98.0
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.017	0.017	0.017	0.017
	2003	0.014	0.014	0.014	0.014
	2004	0.014	0.014	0.014	0.015
	2005	0.014	0.014	0.015	0.016
	2006	0.013	0.014	0.014	0.017
	2007	0.013	0.014	0.014	0.016
	2012	0.012	0.015	0.015	0.017
	2017	0.012	0.014	0.014	0.017
	2022	0.012	0.015	0.015	0.017

Table 4-132. Projections of Gulf of Alaska flathead sole by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			flathead sole		
	B0		Babc	Bmsy	
	95.4		38.2	33.4	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.03	2.03	2.03	2.03
	2003	1.50	1.50	1.50	1.50
	2004	1.48	1.48	1.49	1.50
	2005	1.25	1.50	1.49	1.59
	2006	0.98	1.55	1.47	1.67
	2007	0.84	1.59	1.46	1.69
	2012	0.95	1.59	1.52	1.69
	2017	1.06	1.60	1.53	1.69
	2022	1.35	1.60	1.57	1.71
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	96.9	96.9	96.9	96.9
	2003	93.5	93.5	93.5	93.5
	2004	90.6	90.6	90.6	90.6
	2005	88.1	88.2	88.2	88.4
	2006	85.9	86.2	86.3	86.7
	2007	83.9	84.8	84.9	86.2
	2012	78.3	85.0	85.6	93.7
	2017	79.0	86.5	87.2	97.0
	2022	78.6	87.9	88.2	98.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.017	0.017	0.017	0.017
	2003	0.013	0.013	0.013	0.013
	2004	0.013	0.013	0.013	0.013
	2005	0.011	0.014	0.014	0.014
	2006	0.009	0.015	0.014	0.016
	2007	0.008	0.015	0.014	0.016
	2012	0.009	0.016	0.015	0.018
	2017	0.010	0.015	0.015	0.018
	2022	0.012	0.015	0.015	0.017

Table 4-133. Projections of Gulf of Alaska arrowtooth by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			arrowtooth		
	B0		Babc	Bmsy	
	1,236.2		494.5	432.7	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	19.96	19.96	19.96	19.96
	2003	13.53	13.55	13.56	13.63
	2004	13.08	13.12	13.23	13.65
	2005	12.63	12.85	13.08	14.09
	2006	12.29	12.88	13.19	14.54
	2007	12.21	13.21	13.54	16.58
	2012	12.31	14.06	14.05	16.90
	2017	12.22	14.12	14.20	17.63
	2022	12.33	14.22	14.42	17.44
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	1,113.8	1,113.8	1,113.8	1,113.8
Biomass	2003	1,117.5	1,117.5	1,117.5	1,117.5
	2004	1,129.5	1,129.5	1,129.5	1,129.6
	2005	1,149.9	1,150.3	1,150.3	1,150.8
	2006	1,152.6	1,154.6	1,154.6	1,157.1
	2007	1,145.2	1,152.8	1,153.2	1,161.8
	2012	1,099.8	1,149.4	1,150.9	1,209.5
	2017	1,072.9	1,137.9	1,146.2	1,228.9
	2022	1,065.4	1,136.4	1,145.2	1,231.7
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.017	0.017	0.017	0.017
Mortality	2003	0.011	0.011	0.011	0.011
	2004	0.011	0.011	0.011	0.011
	2005	0.010	0.010	0.010	0.011
	2006	0.009	0.010	0.010	0.011
	2007	0.009	0.010	0.010	0.012
	2012	0.008	0.009	0.009	0.011
	2017	0.008	0.009	0.009	0.011
	2022	0.008	0.009	0.009	0.011

Table 4-134. Projections of Gulf of Alaska arrowtooth by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			arrowtooth		
	B0		Babc	Bmsy	
	1,236.2		494.5	432.7	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	19.96	19.96	19.96	19.96
	2003	10.20	10.21	10.23	10.29
	2004	9.98	10.03	10.10	10.35
	2005	9.23	10.18	10.25	11.16
	2006	8.21	10.58	10.54	12.89
	2007	7.78	11.12	10.75	12.62
	2012	8.64	11.84	11.52	12.86
	2017	8.78	11.84	11.72	13.22
	2022	10.31	12.04	11.92	13.12
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	1,113.8	1,113.8	1,113.8	1,113.8
Biomass	2003	1,117.5	1,117.5	1,117.5	1,117.5
	2004	1,132.2	1,132.2	1,132.2	1,132.3
	2005	1,155.2	1,155.5	1,155.5	1,156.0
	2006	1,160.3	1,161.7	1,161.9	1,164.2
	2007	1,155.8	1,161.3	1,162.1	1,170.5
	2012	1,114.0	1,163.0	1,165.5	1,224.9
	2017	1,086.0	1,153.3	1,161.7	1,246.8
	2022	1,080.9	1,152.4	1,160.5	1,250.3
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.017	0.017	0.017	0.017
Mortality	2003	0.008	0.009	0.009	0.009
	2004	0.008	0.008	0.008	0.008
	2005	0.007	0.008	0.008	0.009
	2006	0.006	0.008	0.008	0.010
	2007	0.006	0.008	0.008	0.009
	2012	0.006	0.008	0.008	0.008
	2017	0.006	0.007	0.007	0.008
	2022	0.007	0.007	0.007	0.008

Table 4-135. Projections of Gulf of Alaska sablefish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			sablefish		
	B0		Babc	Bmsy	
	192.7		77.1	67.4	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	15.31	15.31	15.31	15.31
	2003	18.02	18.17	18.29	18.83
	2004	15.65	16.41	16.77	18.96
	2005	12.70	14.52	15.22	19.71
	2006	11.11	14.38	15.22	21.81
	2007	10.11	15.19	15.80	23.27
	2012	10.61	18.68	18.36	25.90
	2017	10.03	18.38	18.90	27.29
	2022	11.02	20.21	19.83	28.02
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	72.8	72.8	72.8	72.8
	2003	73.7	73.7	73.8	73.9
	2004	70.4	70.8	71.1	72.3
	2005	63.9	65.7	66.5	71.0
	2006	59.7	64.1	65.9	76.2
	2007	56.0	64.3	66.8	83.8
	2012	52.8	72.0	75.2	109.9
	2017	53.2	72.1	79.6	121.0
	2022	55.1	75.9	82.2	120.8
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.091	0.091	0.091	0.091
	2003	0.113	0.113	0.113	0.113
	2004	0.107	0.108	0.108	0.110
	2005	0.097	0.100	0.100	0.105
	2006	0.090	0.097	0.098	0.107
	2007	0.085	0.097	0.099	0.111
	2012	0.082	0.104	0.104	0.115
	2017	0.080	0.102	0.103	0.116
	2022	0.083	0.103	0.103	0.116

Table 4-136. Projections of Gulf of Alaska sablefish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			sablefish		
	B0		Babc	Bmsy	
	192.7		77.1	67.4	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	15.31	15.31	15.31	15.31
	2003	10.68	10.77	10.84	11.15
	2004	9.99	10.45	10.70	12.03
	2005	8.62	9.80	10.31	13.41
	2006	7.90	10.11	10.74	15.37
	2007	7.36	10.75	11.29	16.71
	2012	7.70	13.62	13.79	19.88
	2017	8.28	13.98	14.81	21.28
	2022	9.24	15.02	15.53	21.99
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	72.8	72.8	72.8	72.8
Biomass	2003	73.7	73.7	73.8	73.9
	2004	73.0	73.5	73.7	75.0
	2005	68.5	70.3	71.1	75.8
	2006	65.6	70.1	72.1	83.0
	2007	62.7	71.4	74.3	93.4
	2012	61.7	85.5	89.2	126.6
	2017	65.8	90.9	97.7	143.1
	2022	69.5	97.4	102.4	148.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.091	0.091	0.091	0.091
Mortality	2003	0.065	0.066	0.066	0.066
	2004	0.065	0.065	0.066	0.067
	2005	0.061	0.062	0.063	0.067
	2006	0.058	0.062	0.063	0.069
	2007	0.055	0.063	0.063	0.069
	2012	0.054	0.069	0.066	0.069
	2017	0.057	0.069	0.067	0.069
	2022	0.059	0.069	0.067	0.069

Table 4-137. Projections of Gulf of Alaska Other rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		Other rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.57	0.57	0.57	0.57
	2003	0.98	0.98	0.98	0.98
	2004	0.98	0.98	0.98	0.98
	2005	0.86	0.98	0.95	0.98
	2006	0.79	0.98	0.93	0.98
	2007	0.74	0.98	0.93	0.98
	2012	0.80	0.98	0.96	0.98
	2017	0.76	0.98	0.95	0.98
	2022	0.79	0.98	0.96	0.98

Table 4-138. Projections of Gulf of Alaska Other rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		Other rockfish			
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.57	0.57	0.57	0.57
	2003	0.70	0.71	0.71	0.73
	2004	0.64	0.67	0.68	0.77
	2005	0.57	0.64	0.67	0.87
	2006	0.49	0.68	0.69	0.91
	2007	0.41	0.74	0.73	0.96
	2012	0.56	0.89	0.85	0.98
	2017	0.59	0.87	0.86	0.98
	2022	0.63	0.94	0.89	0.98

Table 4-139. Projections of Gulf of Alaska northern rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			northern rockfish		
	B0		Babc	Bmsy	
	63.2		25.3	22.1	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.34	3.34	3.34	3.34
	2003	1.27	1.29	1.30	1.36
	2004	1.20	1.47	1.50	1.88
	2005	0.93	1.43	1.49	2.00
	2006	0.83	1.31	1.38	2.41
	2007	0.82	1.24	1.35	2.61
	2012	0.83	1.26	1.36	2.56
	2017	0.81	1.23	1.36	2.30
	2022	0.83	1.18	1.34	2.49
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	44.6	44.6	44.6	44.6
Biomass	2003	42.7	42.7	42.7	42.8
	2004	41.6	41.6	41.6	41.6
	2005	40.1	40.3	40.3	40.5
	2006	38.7	38.8	38.9	39.3
	2007	37.2	37.6	37.6	37.9
	2012	30.4	32.4	32.7	34.9
	2017	28.4	32.7	33.3	40.2
	2022	29.6	35.1	36.6	47.0
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.033	0.033	0.033	0.033
Mortality	2003	0.013	0.013	0.013	0.014
	2004	0.013	0.016	0.016	0.020
	2005	0.010	0.016	0.017	0.022
	2006	0.010	0.015	0.016	0.027
	2007	0.010	0.015	0.016	0.031
	2012	0.009	0.015	0.017	0.033
	2017	0.008	0.013	0.016	0.029
	2022	0.007	0.012	0.014	0.026

Table 4-140. Projections of Gulf of Alaska northern rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			northern rockfish		
	B0		Babc	Bmsy	
	63.2		37.9	22.1	
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.34	3.34	3.34	3.34
	2003	0.76	0.78	0.83	1.02
	2004	0.75	0.75	0.90	1.53
	2005	0.72	0.76	0.97	2.32
	2006	0.71	0.77	1.11	2.38
	2007	0.71	0.78	1.20	2.33
	2012	0.72	1.41	1.48	2.36
	2017	0.72	1.36	1.46	2.55
	2022	0.74	1.51	1.58	2.72
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	44.6	44.6	44.6	44.6
Biomass	2003	42.7	42.7	42.7	42.8
	2004	41.8	41.8	41.8	41.9
	2005	40.4	40.8	40.8	40.8
	2006	38.8	39.7	39.6	39.8
	2007	37.2	38.6	38.4	38.6
	2012	32.5	33.3	33.4	34.1
	2017	30.1	33.0	33.6	37.6
	2022	31.3	35.3	36.4	45.4
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.033	0.033	0.033	0.033
Mortality	2003	0.008	0.008	0.009	0.011
	2004	0.008	0.008	0.010	0.016
	2005	0.008	0.008	0.011	0.026
	2006	0.008	0.009	0.013	0.027
	2007	0.008	0.009	0.014	0.027
	2012	0.009	0.017	0.017	0.027
	2017	0.008	0.014	0.016	0.027
	2022	0.008	0.015	0.016	0.027

Table 4-141. Projections of Gulf of Alaska Pacific ocean perch by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		Pacific ocean perch			
	B0	Babc	Bmsy		
	262.1	104.8	91.7		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	11.57	11.57	11.57	11.57
	2003	10.34	10.47	10.54	11.01
	2004	7.80	8.84	9.08	10.82
	2005	7.16	7.61	8.10	10.67
	2006	6.89	7.53	8.17	11.05
	2007	5.29	7.46	8.16	10.98
	2012	5.25	7.54	8.13	11.12
	2017	4.75	7.41	7.74	10.93
	2022	5.33	7.18	7.79	11.03
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	113.6	113.6	113.6	113.6
Biomass	2003	112.6	112.7	112.7	112.7
	2004	111.7	112.1	112.1	112.3
	2005	111.3	112.6	112.5	113.2
	2006	111.6	114.0	113.7	114.7
	2007	112.8	116.1	115.7	117.3
	2012	123.7	128.8	129.8	138.2
	2017	124.8	137.0	139.0	159.2
	2022	126.4	143.5	145.8	174.5
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.042	0.042	0.042	0.042
Mortality	2003	0.038	0.038	0.038	0.040
	2004	0.028	0.032	0.033	0.039
	2005	0.025	0.027	0.028	0.038
	2006	0.023	0.026	0.028	0.038
	2007	0.017	0.025	0.027	0.037
	2012	0.014	0.024	0.025	0.035
	2017	0.012	0.023	0.023	0.033
	2022	0.013	0.021	0.022	0.032

Table 4-142. Projections of Gulf of Alaska Pacific ocean perch by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		Pacific ocean perch			
	B0	Babc	Bmsy		
	262.1	157.2	91.7		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	11.57	11.57	11.57	11.57
	2003	4.95	4.99	4.98	5.00
	2004	5.14	5.36	5.34	5.47
	2005	3.34	5.37	4.94	5.72
	2006	3.33	5.37	4.81	5.82
	2007	3.32	5.30	4.92	6.20
	2012	3.34	5.98	5.91	7.79
	2017	3.34	6.39	6.37	8.34
	2022	3.54	6.70	6.63	8.50
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	113.6	113.6	113.6	113.6
	2003	113.5	113.5	113.5	113.5
	2004	114.9	114.9	114.9	114.9
	2005	116.6	116.7	116.7	116.9
	2006	118.8	119.0	119.2	120.0
	2007	121.8	122.2	122.6	124.0
	2012	137.9	141.3	141.9	146.6
	2017	143.3	152.2	153.7	167.2
	2022	145.6	159.1	160.5	183.0
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.042	0.042	0.042	0.042
	2003	0.018	0.018	0.018	0.018
	2004	0.018	0.019	0.019	0.019
	2005	0.011	0.018	0.017	0.019
	2006	0.011	0.018	0.016	0.019
	2007	0.010	0.017	0.015	0.019
	2012	0.010	0.017	0.017	0.022
	2017	0.009	0.018	0.017	0.022
	2022	0.009	0.018	0.017	0.022

Table 4-143. Projections of Gulf of Alaska pelagic shelf rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			pelagic shelf rockfish		
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.32	3.32	3.32	3.32
	2003	1.69	1.71	1.72	1.78
	2004	1.51	1.84	1.84	2.13
	2005	1.34	1.77	1.80	2.22
	2006	0.92	1.63	1.64	2.55
	2007	0.79	1.45	1.57	2.74
	2012	0.84	1.40	1.63	2.71
	2017	0.79	1.43	1.61	2.48
	2022	0.93	1.35	1.62	2.62

Table 4-144. Projections of Gulf of Alaska demersal shelf rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			demersal shelf rockfish		
	B0	Babc	Bmsy		
	NA	NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	0.18	0.18	0.18	0.18
	2003	0.35	0.35	0.35	0.35
	2004	0.31	0.32	0.32	0.35
	2005	0.25	0.29	0.30	0.35
	2006	0.23	0.29	0.29	0.35
	2007	0.22	0.31	0.30	0.35
	2012	0.23	0.35	0.32	0.35
	2017	0.21	0.35	0.32	0.35
	2022	0.23	0.35	0.33	0.35

Table 4-145. Projections of Gulf of Alaska shortraker/rougheye rockfish by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		shortraker/rougheye rockfish			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.30	1.30	1.30	1.30
	2003	1.39	1.41	1.42	1.47
	2004	1.20	1.28	1.30	1.48
	2005	1.00	1.15	1.18	1.45
	2006	0.84	1.15	1.18	1.57
	2007	0.75	1.23	1.21	1.56
	2012	0.82	1.34	1.31	1.57
	2017	0.74	1.33	1.31	1.59
	2022	0.85	1.38	1.34	1.59

Table 4-146. Projections of Gulf of Alaska shortraker/rougheye rockfish by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		shortraker/rougheye rockfish			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	1.30	1.30	1.30	1.30
	2003	0.72	0.73	0.73	0.75
	2004	0.63	0.69	0.71	0.81
	2005	0.49	0.63	0.67	0.92
	2006	0.49	0.68	0.71	1.03
	2007	0.49	0.76	0.76	1.17
	2012	0.51	0.94	0.94	1.31
	2017	0.51	0.97	1.00	1.35
	2022	0.56	1.05	1.04	1.36

Table 4-147. Projections of Gulf of Alaska thornyheads by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		thornyheads			
B0		Babc	Bmsy		
42.9		17.2	15.0		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.37	2.37	2.37	2.37
	2003	1.86	1.87	1.88	1.93
	2004	1.65	1.72	1.75	1.94
	2005	1.37	1.53	1.60	1.97
	2006	1.24	1.57	1.59	2.08
	2007	1.11	1.63	1.62	2.09
	2012	1.22	1.89	1.77	2.13
	2017	1.07	1.91	1.78	2.16
	2022	1.21	1.93	1.84	2.19
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning	2002	23.5	23.5	23.5	23.5
Biomass	2003	23.6	23.6	23.6	23.6
	2004	23.7	23.7	23.7	23.7
	2005	23.8	23.9	23.9	23.9
	2006	23.9	24.1	24.1	24.2
	2007	24.0	24.3	24.3	24.5
	2012	24.3	25.0	25.0	25.9
	2017	24.6	25.4	25.6	26.8
	2022	24.8	25.9	26.1	27.5
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing	2002	0.032	0.032	0.032	0.032
Mortality	2003	0.024	0.025	0.025	0.025
	2004	0.021	0.022	0.022	0.025
	2005	0.017	0.019	0.020	0.025
	2006	0.015	0.019	0.020	0.026
	2007	0.013	0.020	0.020	0.026
	2012	0.014	0.023	0.021	0.026
	2017	0.012	0.022	0.021	0.027
	2022	0.013	0.023	0.022	0.026

Table 4-148. Projections of Gulf of Alaska thornyheads by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		thornyheads			
	B0	Babc	Bmsy		
	42.9	25.7	15.0		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.37	2.37	2.37	2.37
	2003	0.98	0.99	0.99	1.01
	2004	0.94	0.98	0.99	1.07
	2005	0.74	0.95	0.95	1.17
	2006	0.64	0.98	0.97	1.38
	2007	0.60	1.02	1.00	1.43
	2012	0.63	1.21	1.18	1.51
	2017	0.65	1.24	1.24	1.55
	2022	0.81	1.31	1.29	1.57
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Spawning Biomass	2002	23.5	23.5	23.5	23.5
	2003	23.6	23.6	23.6	23.6
	2004	24.0	24.0	24.0	24.0
	2005	24.4	24.4	24.4	24.4
	2006	24.7	24.8	24.8	24.9
	2007	25.0	25.2	25.2	25.4
	2012	26.3	26.8	26.8	27.5
	2017	27.3	28.0	28.1	29.1
	2022	28.1	29.1	29.2	30.6
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Fishing Mortality	2002	0.032	0.032	0.032	0.032
	2003	0.013	0.013	0.013	0.013
	2004	0.012	0.012	0.013	0.014
	2005	0.009	0.012	0.012	0.014
	2006	0.008	0.012	0.012	0.017
	2007	0.007	0.012	0.012	0.017
	2012	0.007	0.014	0.013	0.017
	2017	0.007	0.013	0.013	0.017
	2022	0.008	0.014	0.013	0.017

Table 4-149. Projections of Gulf of Alaska Atka mackerel by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		Atka mackerel			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower CONFIDENCE INTERVAL	Median	Mean	Upper confidence interval
Catch	2002	0.17	0.17	0.17	0.17
	2003	0.34	0.34	0.35	0.35
	2004	0.34	0.34	0.34	0.35
	2005	0.34	0.35	0.35	0.37
	2006	0.33	0.35	0.35	0.39
	2007	0.22	0.36	0.35	0.42
	2012	0.23	0.38	0.36	0.43
	2017	0.18	0.37	0.35	0.43
	2022	0.23	0.38	0.36	0.43

Table 4-150. Projections of Gulf of Alaska Atka mackerel by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. Confidence Interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		Atka mackerel			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower Confidence Interval	Median	Mean	Upper Confidence Interval
Catch	2002	0.17	0.17	0.17	0.17
	2003	0.14	0.15	0.15	0.15
	2004	0.13	0.18	0.17	0.19
	2005	0.05	0.17	0.15	0.21
	2006	0.05	0.16	0.14	0.22
	2007	0.06	0.16	0.15	0.23
	2012	0.06	0.17	0.17	0.26
	2017	0.07	0.19	0.19	0.29
	2022	0.09	0.20	0.19	0.30

Table 4-151. Projections of Gulf of Alaska other spp by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1		other spp			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.75	3.75	3.75	3.75
	2003	5.38	5.40	5.41	5.48
	2004	5.79	5.83	5.84	5.93
	2005	5.75	5.88	5.94	6.16
	2006	5.74	6.20	6.26	7.16
	2007	5.65	6.42	6.44	7.45
	2012	5.54	6.23	6.42	7.57
	2017	5.52	6.39	6.58	7.60
	2022	5.53	6.25	6.47	7.57

Table 4-152. Projections of Gulf of Alaska other spp by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2		other spp			
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	3.75	3.75	3.75	3.75
	2003	4.54	4.54	4.55	4.56
	2004	4.21	4.24	4.26	4.35
	2005	4.23	4.42	4.47	4.80
	2006	4.40	4.88	4.96	5.67
	2007	4.42	5.36	5.40	6.44
	2012	4.69	5.95	5.85	6.71
	2017	4.73	5.94	5.89	6.78
	2022	4.77	6.05	5.96	6.90

Table 4-153. Projections of Gulf of Alaska Halibut mortality by alternative PA.1. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.1			Halibut mortality		
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.30	2.30	2.30	2.30
	2003	2.30	2.30	2.30	2.30
	2004	2.30	2.30	2.30	2.30
	2005	2.27	2.30	2.30	2.30
	2006	2.30	2.30	2.30	2.30
	2007	2.30	2.30	2.30	2.30
	2012	2.30	2.30	2.30	2.30
	2017	2.30	2.30	2.30	2.30
	2022	2.30	2.30	2.30	2.30

Table 4-154. Projections of Gulf of Alaska Halibut mortality by alternative PA.2. Values are based on 200 simulations. The 2002 values represent the baseline year for the projections (catches have been specified explicitly). Catch and biomass units are in thousands of metric tons. confidence interval = 5th (Lower) and 95th (Upper) percentile of simulation output.

Gulf of Alaska					
FMP: PA.2			Halibut mortality		
B0		Babc	Bmsy		
NA		NA	NA		
	Year	Lower confidence interval	Median	Mean	Upper confidence interval
Catch	2002	2.30	2.30	2.30	2.30
	2003	1.81	1.81	1.81	1.82
	2004	1.72	1.73	1.73	1.76
	2005	1.66	1.76	1.77	1.86
	2006	1.66	1.87	1.86	2.06
	2007	1.49	1.98	1.92	2.07
	2012	1.73	2.07	2.00	2.07
	2017	1.76	2.07	2.01	2.07
	2022	1.84	2.07	2.03	2.07

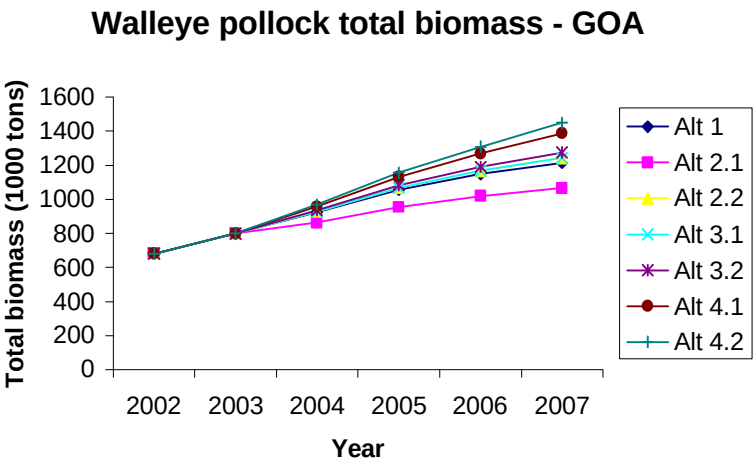

Figure 4-52. Total biomass of assessed pelagic forage species in the Gulf of Alaska (walleye pollock only).

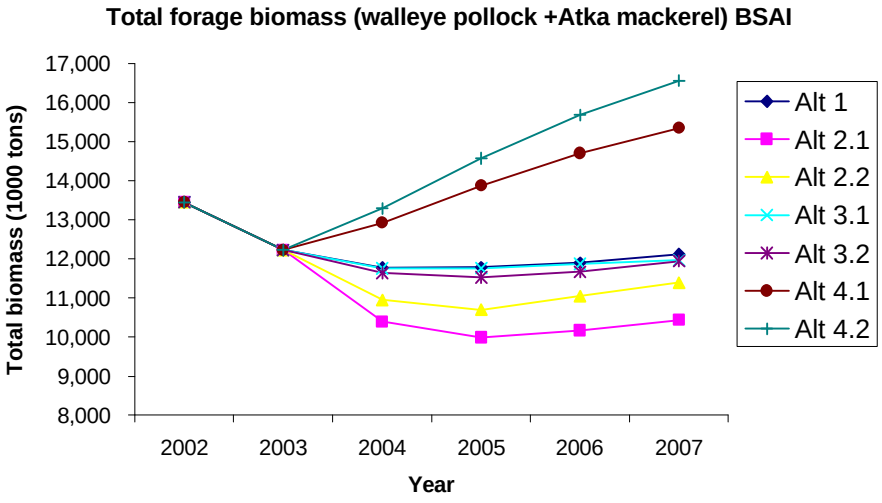

Figure 4-53. Total biomass of assessed pelagic forage species in the Bering Sea and Aleutian Islands (Bering Sea walleye pollock and Aleutian Islands Atka mackerel).

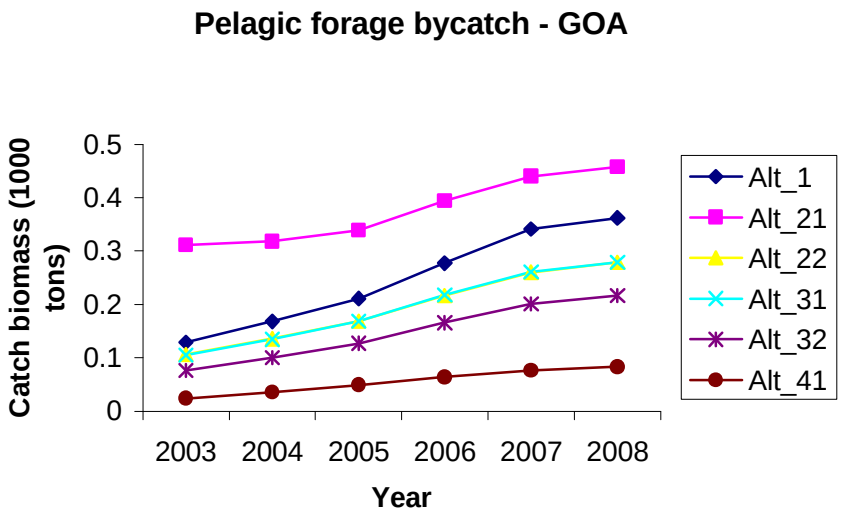

Figure 4-54. Catch biomass of pelagic forage species (squid, herring, gunnel, sticheidae, sandfish, smelts, lanternfish, sandlance) in the Gulf of Alaska.

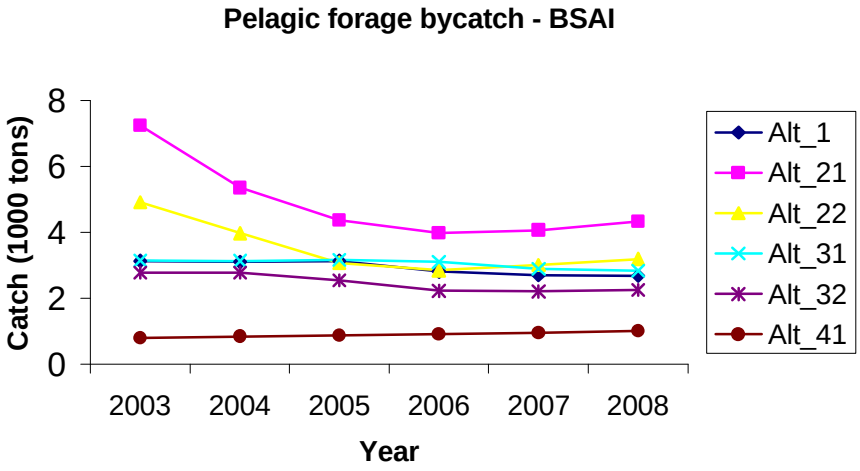

Figure 4-55. Catch biomass of pelagic forage species (squid, herring, gunnel, sticheidae, sandfish, smelts, lanternfish, sandlance) in the Bering Sea and Aleutian Islands.

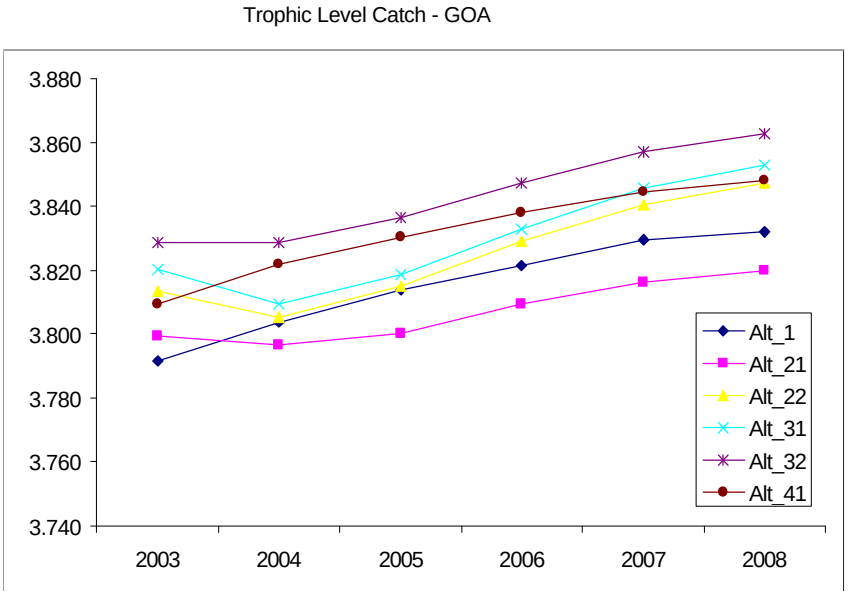

Figure 4-56. Trophic level of the total catch in the Gulf of Alaska.

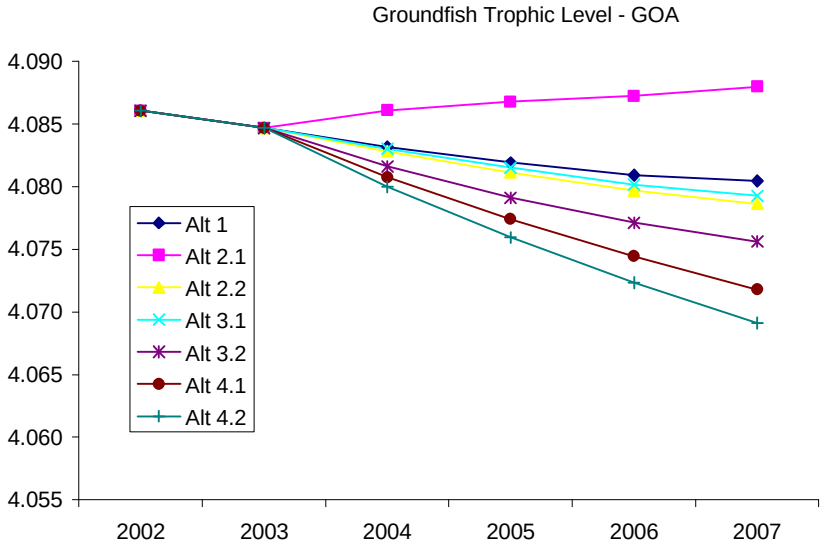

Figure 4-57. Trophic level of the groundfish biomass (includes only species with age-structured models) in the Gulf of Alaska.

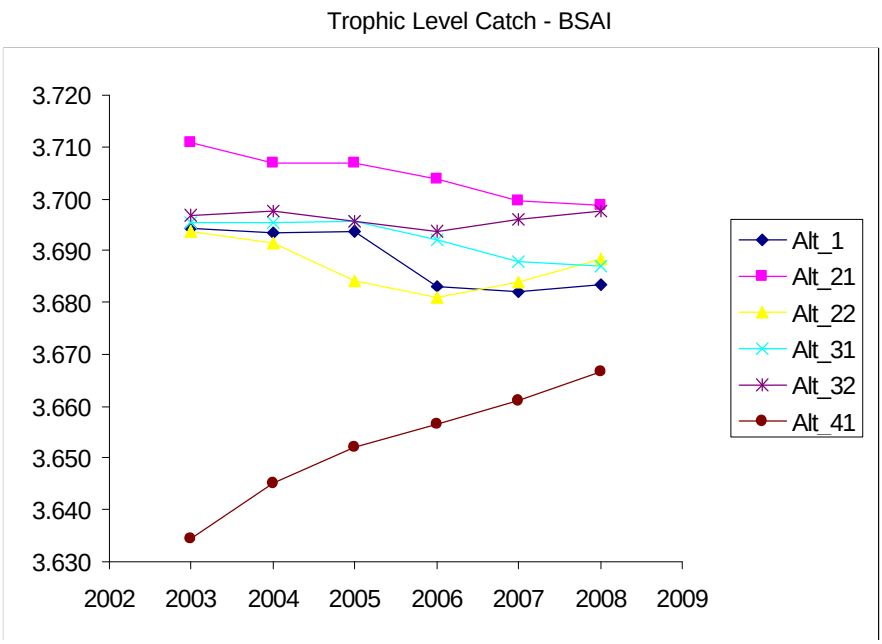

Figure 4-58. Trophic level of the total catch biomass in the Bering Sea and Aleutian Islands.

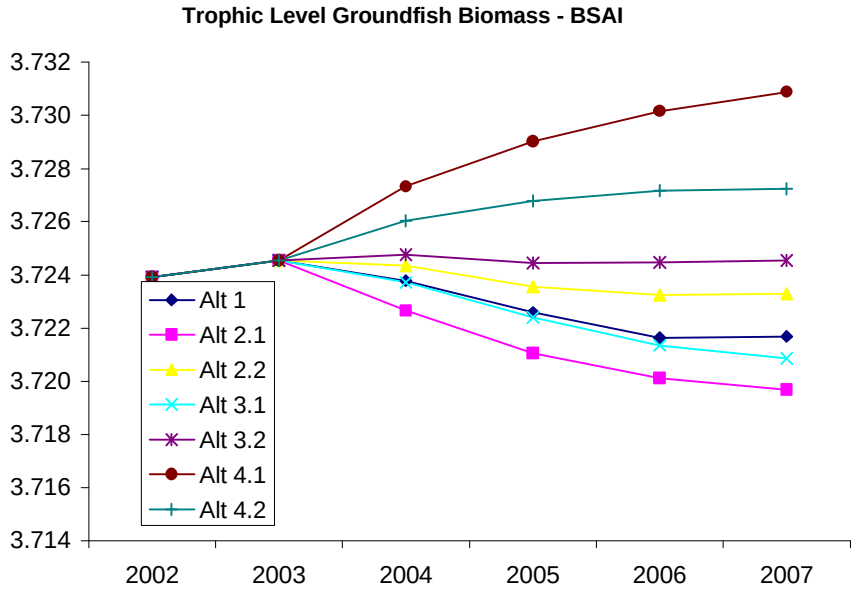

Figure 4-59. Trophic level of the groundfish biomass (includes only species with age-structured models) in the Bering Sea and Aleutian Islands.

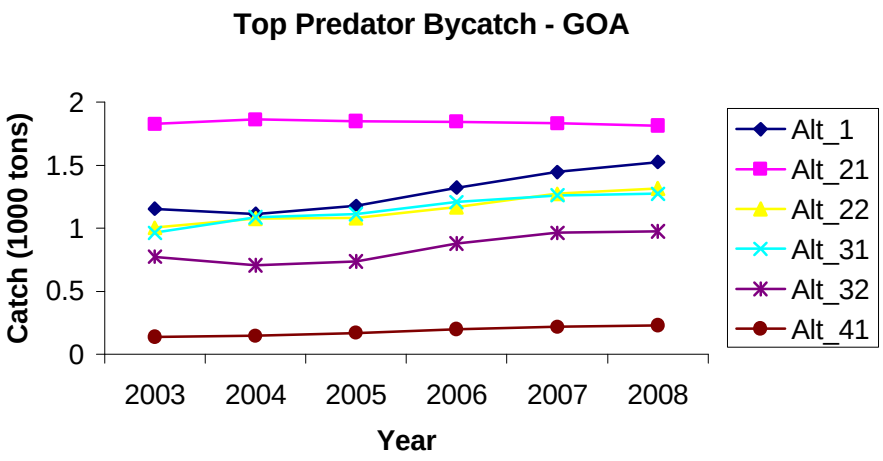

Figure 4-60. Bycatch of top predator species (sharks, birds) in the Gulf of Alaska.

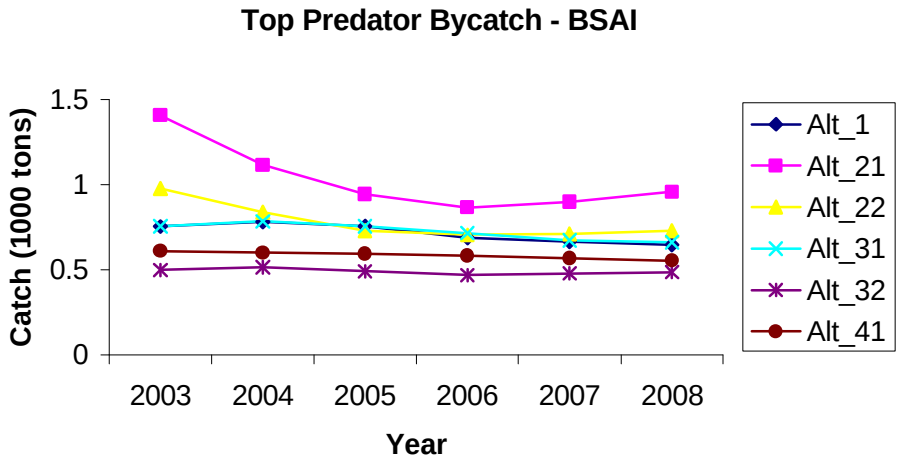

Figure 4-61. Bycatch of top predator species (sharks, birds) in the Bering Sea and Aleutian Islands.

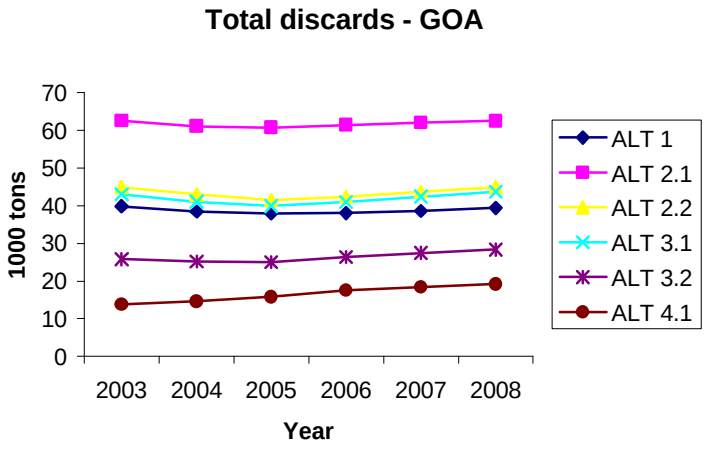

Figure 4-62. Total catch biomass in the Gulf of Alaska.

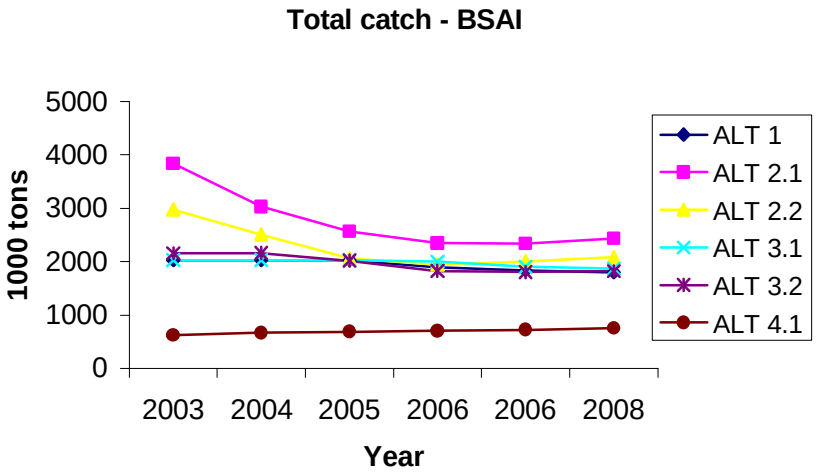

Figure 4-63. Total catch biomass in the Bering Sea and Aleutian Islands.

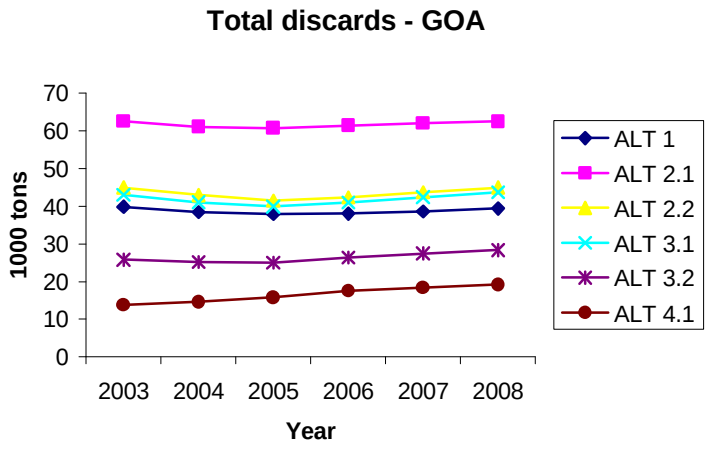

Figure 4-64. Total discarded catch in the Gulf of Alaska.

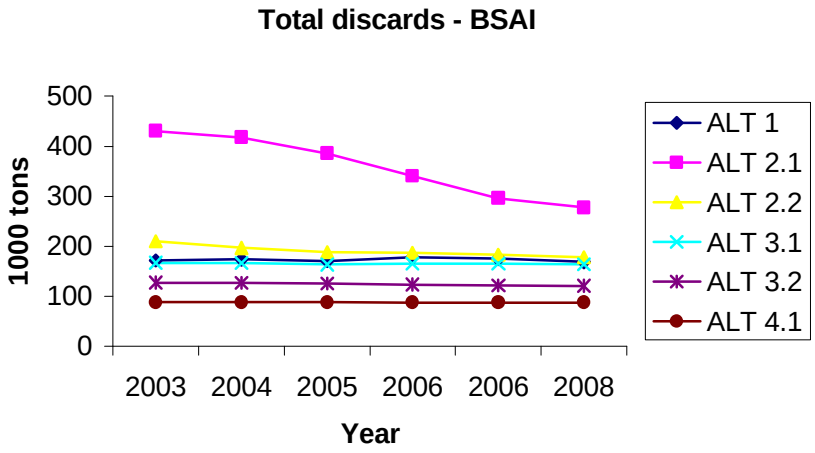

Figure 4-65. Total discarded catch in the Bering Sea and Aleutian Islands.

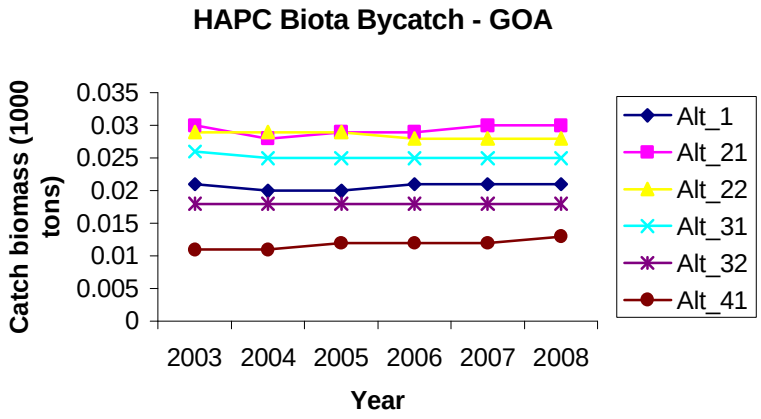

Figure 4-66. Habitat areas of particular concern biota (seapen/whip, sponge, anemone, coral) bycatch in the Gulf of Alaska.

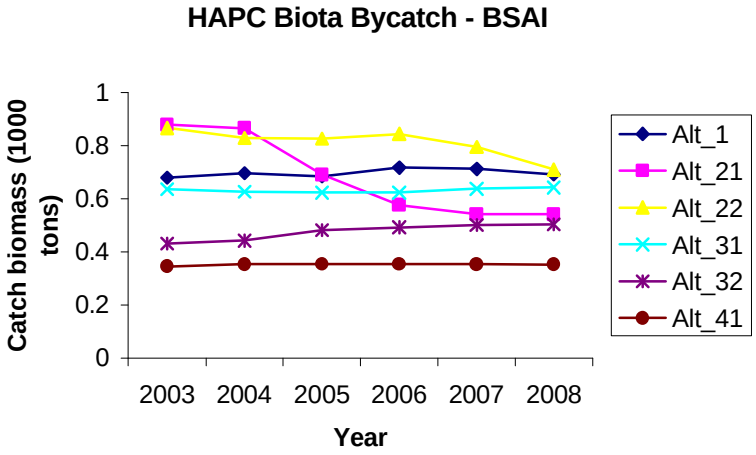

Figure 4-67. Habitat areas of particular concern biota (seapen/whip, sponge, anemone, coral) bycatch in the Bering Sea and Aleutian Islands.