SSC BFME05 report

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NPF

PACIFIC

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5th Meeting of BFME

9-11 December 2024

Tokyo, Japan

Agenda North Pacific Fisheries Commiss Agenda Item 6. Stock assessment and scientific advice on the management of sablefish NPFC-2024-SSC BFME05-MIP North Pacific Fisheries Commission

5th Meeting of the Small Scientific Committee on Bottom Fish and Marine Ecosystems 9-11 December 2024 Tokyo, Japan

NPFC

Provisional Agenda

Agenda Item 1. Opening of the Meeting

Agenda Item 2. Adoption of Agenda

Agenda Item 3. Overview of the outcomes of previous NPFC meetings 3.1 SSC BFME04 3.2 COM07 3.2.1 CMMs 2024-05 and 2024-06 3.2.2 Requests from COM07

- Agenda Item 4. Stock assessment and scientific advice on the management of North Pacific armorhead (NPA)
 - 4.1 Review of Members fishing statistics for NPA in 2023
 - 4.2 NPA monitoring survey and Adaptive Management Procedure (AMP) 4.2.1 Review of the results from 2024 monitoring survey
 - 4.3 Review of Members' research and joint research activities on NPA 4.3.1 NPA species summary document update and review 4.3.2 Other research activities on NPA
 - 4.3.3 Future and planned research activities by Members on NPA in 2025

Group Picture

- Agenda Item 5. Stock assessment and scientific advice on the management of splendid alfonsino (SA)
 - 5.1 Review of Members fishing statistics for SA in 2023
 - 5.2 Review of Members' research and joint research activities on SA
 - 5.2.1 SA species summary document update and review
 - 5.2.2 Other research activities on SA
 - 5.2.3 Future and planned research activities by Members on SA in 2025

Additional Yuriyaku



- 10.2.5 Other topics on measuring cumulative impacts and SAI

Agenda Item 11 Ecosystem considerations

11.1. Summaries of historical discarded bycatch by Members (Canada, Japan, Korea)

Agenda Item 12. Data collection and reporting

12.1 Review of the adequacy of the current observer program for the BFME 12.2 Review of the template for collection of scientific observer data

Agenda Item 13. 5-Year (2024-2028) Rolling Work Plan and NPFC Performance Review

recommendations 13.1 North Pacific armorhead

- 13.2 Splendid alfonsino
- 13.3 Sablefish
- 13.4 Vulnerable marine ecosystems

13.5 Other ecosystem components

13.6 NPFC Performance Review recommendations

Agenda Item 14. Review of CMMs 2024-05 and 2024-06 for bottom fisheries and protection of vulnerable marine ecosystems and CMM 2019-10 for sablefish

Agenda Item 15. Climate change impacts on bottom fisheries and VME

15.1 Discussion of potential impacts of climate change and potential research and advice that the BEME should address





Bottom Fish

Fisheries statistics for 2023

- NPA catch 148 mt
- Splendid Alfonsino catch = 1701 mt
- 1 gillnet and 1 trawl vessel participated from Japan
- No fishing conducted by Canada for Sablefish in CA
- No fishing conducted by Russia for Skilfish in CA



NPA Monitoring Survey





- No indication of recruitment
- 3 of 4 surveys had CPUE of 0 mt/hour



Species summaries updated



NPFC-2024-SSC BFME05-WP04

Species Summary

NPFC Small Scientific Committee on Bottom Fish and Marine Ecosystems 2024-10-21

Sablefish (Anoplopoma fimbria)

Common names: Black cod (USA & Canada) ギンダラ, Gindara (Japan)

은대구, Eun-Daegu (Korea)



Figure 1. Sablefish (Anaplopoma fimbria). Management

Active NPFC Management Measures

The following NPFC conservation and manage species:

 CMM 2024-06 For Bottom Fisheries a CMM 2019-10 For Sablefish in the No Available from https://www.npfc.int/acti

Management Summary

The current management measure for sablef allowable catch of sablefish in the eastern po long-term mean of historical catches from selanded each month for the 6 months of the fi is also managed through input controls by on



NPFC



Figure 1: Photographs of Bervx splendens on different develop ental stages A) arva, B) juvenile, C) young, D) adult (from Watari et al. 2017)



North Pacific Armorhead

NPFC-2024-SSC BFME05-WP02

Species Summary

NPFC SWG-NPA-SA

North Pacific Fisheries Comm

2024-10-24

North Pacific armorhead (Pentaceros wheeleri)

Common names: Pelagic armorhead, Slender armorhead (English); 五棘鲷 (Chinese); クサカリツボダイ (Japanese); 북방돗돔 (Korean); кабан-рыба (Russian)

Biological Information

North Pacific armorhead has a unique life history consisting of a pelagic larva phase and a Horn i achie animeter has a minine in history consume of a perager far va plate and a demersal adult stage on the seamounts (Kiyota et al. 2016). Distribution of the larva includes Gulf of Alaska to North Pacific Ocean off central California and south of Japan, with center of abundance at the Emperor Seamounts. Following their settlements in the seamounts, adults make morphological changes from the 'fat' type to the 'lean' type concurrent with their diteary shifts. Vertical distribution of the adults ranges from 300-500 m. Juveniles at the epipelagic stage mainly feeds on copepods, shifting the targets towards fish and large crustaceans with growth.

Pentaceros wheeleri. A) Pelagic juvenile, B) pelagic subadult, C)

D) demersal adult (lean type) (from Kiyota et al. 2016)



NPFC-2024-SSC BFME05-WP20

Skilfish **Species Summary** 2024-11-26

epis zonifer)

es: Skilfish (English); 白斑裸恙魚(Chinese); アブラボウズ (Japanese); an); эрилепис или морской монах (Russian)

zonifer (Lockington, 1880) is one of the two species belonging to the family lae, and the only species of the genus *Erilepis*. Published data suggest that a found in the surface water layer, among floating algae, and are distributed in

bright white spots on their bodies, but with age their color changes to dark gray, and bright



they switch to the bottom lifestyle. Adult fish inhabit deep rocky bottoms. Young fish have

markings become duller and less visible as the fish grows. Skilfish has a dark body, nearly black fins, and large blue eves above a prominent, cavernous mouth like that of a rockfish (fig. It also has a strong tail fin that is equal to or higher than the fish's head. The fish is a predator, and consumes different species of bony fish, cephalopod mollusks and crustaceans. and may also feed on jellyfish



(Sebastes melanostictus and Sebastes aleutianus) Common names: アラメヌケ, Aramenuke (Japan) 한볼락, Han Bollak (Korea)

NPFC

Species Summary

2024-10-21

NPFC Small Scientific Committee on Bottom Fish and Marine Ecosys

NPFC-2024-SSC

North Pacific Fisheries Comm



Figure 1. Blackspotted rockfish (Sebastes melanostictus).

Blackspotted and Rougheye Rockfishes

Management

Active NPFC Management Measures

The following NPFC conservation and management measures (CMM) pertain to this species:

Bottomfish Assessments – Splendid Alfonsino

- Yield Per Recruit analysis balances the trade-off between growth and mortality
 - If fish are harvested too early, they may not reach their optimal size, resulting in lower yield.
 - If harvest is delayed too long, natural mortality may reduce the number of fish available
 - This analysis identifies the optimal age or size at which to harvest fish to maximize yield
- Spawning Biomass Per Recruit estimates future reproductive potential
- Goal: apply YPR and SPBR analyses for Splendid Alfonsino and test sensitivity of the results to different lifehistory and selectivity assumptions.
- Input data
 - Growth
 - Maturity (SPBR)
 - L-W data
 - Natural mortality (assumed for SPBR)
 - Selectivity (LBSPR, Hordyk et al. 2015)



Results

1.07

Trawl





Table 5.1: Key outputs from the YPR and SPBR analyses.Scenario F_{max} YPR at F_{max} 40% SPBR₀ F_{40} All0.26261.215890.10

All0.26261.215890.10Gillnet0.70300.416010.18

212.3

• Using all length data resulted in the most pessimistic scenario

1613 0.28

- F/M might be overestimated and SPR underestimated because of the large proportion of small individuals caught by the trawl gear compared to the low proportion of large individuals caught by the gillnet fishery
- Using only gillnet data resulted in optimistic results
 - However, this scenario also showed signs of recruitment overfishing for Splendid Alfonsino with SPR declining and below 20% of SPR in an unfished state
- Sensitivity analysis conducted to confirm basic findings
 - Results were very sensitive to growth and maturity



Conclusions

- High likelihood that growth overfishing is occurring
 - harvest before the size that maximizes YPR
- Splendid Alfonsino are being captured before they are mature
 - likely reducing spawning potential (recruitment overfishing)
- Caveat Trawl fishery has dome shaped selectivity which may make the analyses pessimistic about the status of the stock
 - Suggestion that trawling occurs at shallower, flatter regions of seamounts
 - Fishing selectively on immature portion population
- Recommendation look at a data-limited integrated modeling approach





- It is clear that the coastwide stock is in the healthy zone
- TAC projected to be about the same as last year in all three regions



Relative spawning biomass: B/B_0

Bottomfish Assessments – NPA and Skilfish

- Currently no assessments available for NPA and Skilfish
 - Future work of SWG NPA&SA
- Skilfish low priority
 - Fishing is not consistent
 - Data is limited



Research on bottomfish





- Contributed research by Japan
- Supporting evidence that fishers have been avoiding targeting NPA since 2019
- Measure effect of 2019 trawl mesh size change (increase in size) on catch
- No clear impact of this regulation change on the size of catch for Splendid Alfonsino

Christopher G. Ayer and Kota Sawada

Future work on bottomfish

- SWG NPA&SA tasks (in recommendations)
- Sablefish coastwide MSE
- Invited expert renewal





Vulnerable Marine Ecosystems

Research on VME – Data Sharing Objectives

Objective 1. Use the data to learn where VME indicator taxa are known to be present and absent.

- Map the known distribution of VME indicator taxa in the Emperor Seamounts and Cobb-Eickelberg Seamount Chain (this would essentially involve taking all of the presence observations and putting them on a map).
- If possible, map the **absence observations** for VME indicator taxa in the Emperor Seamounts and Cobb-Eickelberg Seamount Chain.

Objective 2. Use the data to determine where there are elevated densities (hotspots) of VME indicator taxa.

- Map the **densities** (where they can be calculated with some accuracy, recognizing that for some surveys/data sets this may be difficult)
- Use the data and tools like kernel density estimation to try to estimate where high density areas might be located.
- Use the new data to validate existing models.

Objective 3. Use the data to update or develop models that predict the presence or absence or density of VME indicator taxa for further visual survey planning.

- Use the data and other sources of data (such as environmental variables, bathymetry, etc.) to update existing species distribution models with the new data or to develop new species distribution models for presence or absence or density of VME indicator taxa.
- Use the models, as appropriate, to prioritize further visual surveys or sample collection as shown in the flow chart on Annex 2.3 of CMM 2023-05 and CMM 2023-06 for scientific purposes.





Research on VME – Japan Survey 2024

- Explore the extent of VME indicator taxa distribution on Yuryaku Seamount
- Follow-up on work by USA (Baco)
- Drop camera to map extent of high/moderate/low density areas









Research on VME - Joint Canada-USA International Seamount Survey



Distribution of presence – by depth & seamount

Overall proportions present

- 57% of transects had coral
- 44% of transects had hexactinellids
- 27% of transects had sea whips
- 27% of transects had hydrocorals





Example - Hexactinellids

Probability of presence











VME Management – Defining VME



• Segmented regression analysis to confirm reasonable VME definition categories from Japan

> Table 1: Density categories of VME indicator species for screening potential VME sites (based on 7.5 m² view angle)

	gorgonians soft corals Antipatharia Porifera	Scleractinia
Zero	0	0
Low	0 < n ≤ 5	0 < n ≤ 5
Medium	5 < n ≤10	5 ≺n ≤ 15
High	10 <	15 <



Table 2: Results of calculated segment points per VME indicator taxa (no. individuals per

	gorgonians	Antipatharia	Porifera	Scleractinia	soft corals	1		
no. data	731	270	307	344	103			
1st segment point	8.70	4.40	3.32	3.80	1.76 (*)	1		
2nd segment point	23.45	15.89	10.42	10.29	7.38 (*)			
*I imited reliability o	f the results d	ue to the data	limitation)					

VME Management – Proposal from USA

• Proposal to close Emperor Seamount Chain to Bottom Fishing (similar to 2023)

Two components:

- 1. Impact analysis for bottom fisheries has not been updated in > 5 years
- 2. Temporary closure proposed based on:
 - High probability of VME indicator taxa throughout ESC and ongoing SAI
 - Precautionary approach suggests that it should be proved that fishery is causing SAI
 - Status of NPA and SA stocks
- Also suggested discrete area closures
 - SSC was unable to evaluate as specific areas were not proposed
- Some Members suggested the closures might be useful given status of fishery



Ecosystem Components



Ecosystem Considerations – Bycatch (Canada, Japan, Korea, Russia)













Crab Rockfish Scarle F Strip Shortspine Roset Splitr Pacific s Fish Au Wi Shortra Longspin Verm Darkbloto Shar Longf Lon Pacific Са Flatfish Arrowto Redbar

l anner crab -			
o unidentified -			
Grenadier -			
n unidentified -			
et kinng crab -			
Pacific halibut -			
Skilfish -			
oetail rockfish -		Canada	
e thornyhead -	H	Canaua	
horn rockfish -	H		
nose rockfish -	H		
sleeper shark -	Ĥ		
n unidentified -	Ĥ		
Octopus -	Î		
irora rockfish -	Í		
idow rockfish -	Í.		
Starfish -	1		
aker rockfish -			
Reptantia -			
e thornyhead -			
Thornyheads -			
illion rockfish -			
Mollusc -			
Coral -	1		
Sponges -			
Snailfish -			
Deepsea sole -			
ched rockfish -			
Viperfish -			
Hydroid -			
k unidentified -			
Sea urchin -			
in dragonfish -			
Blue shark -			
ngnose skate -			
Ocean perch -			
Dover sole -			
nary rockfish -			
n unidentified -			
ooth flounder -			
nded rockfish -			

.

- Bycatch reported over time •
- Some issues with data consistency/quality
- Prepared for next steps

Recommendations



Proposed 5-Year Rolling Work Plan

North Pacific Armorhead	SSC BFME05 (2024)	SSC BFME06 (2025)	SSC BFME07 (2026)	SSC BFME08 (2027)	SSC BFME09 (2028)	Progress	
Assess and monitor status of stock	Update catch data for NPA	Completed annually					
	Review results of NPA monitoring surveys	Completed annually					
	Implement alternative methods for stock status	Implement alternative methods for stock status	Implement alternative methods for stock status	Update status of stock	Update status of stock	Exploring alternative methods for stock status	
	Evaluate trend in directed effort relative to NPA catch		Compare CPUE and acoustic estimates			Completed summary of trend in directed effort (to be presented at BFME05)	
	Identify and conduct additional research on NPA	Completed annually					
	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Review fisheries observer program data collection for adequacy to produce data streams to support management advice	Completed annually	
Conserve stock	Develop conservation objective(s)		Develop conservation objective(s)			Not completed	
	Implement adaptive management		Implement adaptive management			Not completed	
	Develop HCR and implement	Update data and implement HCR	Develop HCR and implement	Update data and implement HCR	Update data and implement HCR	Not completed	

Recommended changes to CMMs 2024-05 and 2024-06 for bottom fisheries and protection of vulnerable marine ecosystems and CMM 2019-10 for sablefish



Review of CMMs – CMM 2024-05 & CMM 2024-06

Revision of coral taxonomy (McFadden et al. 2022)

- Table to crosswalk NPFC VME indicator taxa names with common names
 - Black corals
 - Stony corals
 - Pennatulaceans
 - Gorgonians
 - Soft corals
- Either digital Appendix or Appendix to field guide with reference in CMM



	VME Indica	tor Corals from E	Emperor Seam	ounts: Present Classifie	cation *1, Taxa, and C	ommon (nomina	il) Names in NPI	FC
Subphylum	Class	Order	Superfamily	Family	Genus/Subgenus	NPFC_~2023	NPFC_2024-*2	Guide Cat. *3
				Antipathidae		Black Corals	(Antipatharia)	Black Corala
				Aphanipathidae		Black Corals	(Antipatharia)	Black Corala
		Antipatharia		Cladopathidae	(mm)	Black Corals	(Antipatharia)	Black Corala
				Leiopathidae		Black Corals	(Antipatharia)	Black Corala
				Schizopathidae		Black Corals	(Antipatharia)	Black Corals
				Caryophylliidae		Stony Corals	(Scleractinia)	Hard Corah
	Descention			Deltocyathidae	1.11.1	Stony Corals	(Sclerartinia)	Hard Couils
	Hesacuralia			Dendrophylliidae		Stony Corals	(Scleractinia)	Hard Corah
				Flabellidae		Stony Corals	(Sclerartinia)	Hard Conils
		Scleractinia		Fungiacyathidae		Stony Corals	(Scleractinia)	Hard Corals
				Micrahaciidae		Stony Corals	(Sclerartinia)	Hard Corals
				Oculinidae		Stony Corals (Scleractinia) Stony Corals (Scleractinia)		Hard Corals
				Turbinoliidae				Hard Coraly
				Madreporidae		Stony Corols	(Scleractinia)	Hard Corals
				Asthoptilidae		NA	Pennatulaceana *5	NA
				Balticinidae		NA	Pennatulaceans *5	NA
				Funiculinidae		NA	Pennatulaceans *5	NA
				Konhobe lemnidae		NA	Pennatulaceates *5	NA
				Pennatolidae		NA	Pennarulaceana *5	NA
			Pennatuloidea *5	Protontilidae		NA	Pennatulaceana *5	NA
				Scleronräidae		NA	Pennatulaceans *5	NA
				Stachyneilidae		NA	Pennatulaceana*5	NA
				Umbellulidae		NA	Pennatulacenna #1	NA
		Scleralcyonacea +		Venetilidae		NA	Pennaruhaceana #5	NA
		Calcaxonia-		Virgulariidas		NA	Pennatulacions *5	NA
		Pennatulacea		Chronomeridae		Germania	Cormolohy	Comminant
				Keentuididee		Germania	Componium	Commission
Anthozoe				Primeridan		Geographics	Correntiator	Comining
				Brinseidan		Germanica	Concentions	Commission
				Ci-luides - Bisseldes	Balantania Reference	Alcumacus	Soft Couch	Soft Curale
				Christiniae >> briareidae	Tachycavaaria >> 2000000	Alconnece	Sofe Couch	Soft Courses
				Alcyoniidae *6	Occurring to a	Alamana	Call Courts	Rofe Chinale
				The second data of Conselling and All	Paraminanca	Convenier	Sarcaras	Solt Corats
				Paragorgoate >> Coramicae - 5		Gorgonates	Corponium	Corrections
	Octocorallia *4	0		Coranidae *i		Gorgonarea	Corgonana Este Coroli	Corgonians Set Counts
				Conversion	1000 C C C C C C C C C C C C C C C C C C	Alexandrea	Sort Coran	Son Corais
				m 21	Pseudocladochomus *7	Ancyonacea	Sort Corals	Son Corais
				1 ubiportulae		Alcyonacea	Sort Coran	Soft Corais
				Poidallidae		Alcyonacea	Soft Corals	Soft Corata
				Supmonogorginuae	A	Autyonatea	Son Coran	Soli Corais
				Anthothelidae>> Alcyoniidae "8	Anthonese	Gorgonacea	Corgoniana	Corginitam
				Nephtheidae >> Alcyoniidae *8	Gersenwa	Alcyonacea	Soft Corals	Soft Corais
				Alcyonadae 18		Alcyonaces	Soft Conth	Soft Corals
	Malacalcyonacea			Nephtheidae		Alcyonacea	Soft Corals	Soft Corals
	+ Holaxonia- Alcvoriina		Parakyoniidae		Alcyonacea	Solt Corals	Soft Corais	
			Gorgoniidae		Gorgonacea	Gorgonians	Gorgonians	
				Isialidae		Gorgonacea	Gorgoniana	Gorganians
				Keroeididae		Gorgonacea	Gorgonians	Gorgonians
				Astrogorgiidae		Gorgonacea	Gorgonians	Gorgoniams
				Explexactidae		Gorgonacea	Gorgenians	Gorgonians
				Amhogorgiidae		Gorgonacea	Gorgonians	Gorgoniams
				Acanthogorgiidae		Gorgonacea	Gorgonians	Gorgonians
				Victorgorgiidae		Gorgonacea	Gorgonians	NA
				Plexauridae		Gorgonacea	Gorgonians	NA
				1	Calcigorgia *9	Gorgonacea	Gorgonians	NA

*1 Classification is based on WoRMS (in July 2024)

- *2 Naminal names of VME indicator corals agreed by NPFC for adoption after 2025 (NPFC-2024-COM08-Final Report-ANNEX O-G
- *3 Coral Morphology Categories of "NPFC VME Taxa Identification Guide (Western North Pacific Ocean)"
 - *4 See WoRMS based on McFadden et al. (2022) for the present octocorallian classificaton, and McFadden in Baly et al. (2007) for the former one The current families of octocorals and their correspondence to former suborders/systems are well summarized in Table 2 of McFadden et al. (2022)
 - *5 2024_9th_COM has agreed to add pennatulaceans (see pens) to the VME indicator taxa (entered into force 1 January 2025)
 - *6 The family Corallidae is originally gorgonians (Gorgonacea), but the current classification includes some soft corals (formerly Alcyonacea) (e.g. Anthomastus)
 - *7 Pseudocladochanus is the genus Octocorallia incertae sedis in McFadden et al. (2022) and in elso WoRMS. (See Table 3 in McFadden et al., 2022)
 - *8 The family Alcyoniidae is originally soft corals (former Alcyonacea), but the current classification includes some gorgonians (Gorgonacea) (e.g. Anthothela).
 - *9 Calcigraphie is a gorganian genus in Octocorrallia Incertae sedix in McFadden et al. (2022) and in also WoRMS. (See Table 3 in McFadden et al., 2022) >> pink= Tormer Gorganaces (Gordonians); vellow= former Alcoaneces (Soft Cotals)
 - >> pink= rormer torganacea (torganaces); yellow= tormer Alcyanecea (Soft Carals) WoRMS (World Register of Marine Species) https://www.marinespecies.org/index.php
 - Daly et al. (2007) The phylum Cnidaria: A review of phylogenetic patterns and diversity 300 years after Linnaeus. Zootaxa, 1668: 127–182.
- McFadden et al. (2022) Revisionary systematics of Octocorallia (Cnidaria: Anthozoa) guided by phylogenomics. Bull. Soc. Syst. Biol., 1: 1-79.



Priority Tasks for SWG NPA & SA for BFME06

1) Alternative approaches to NPA assessment

- 1) Depletion Analysis
- 2) NPA IBM approach
- 2) Integrated model for SA
 - 1) Standardize CPUE data for SA
 - 2) Improve and standardize biological data collection
- 3) Update species summaries (SA and NPA)
- 4) Literature review on climate change for SA and NPA

Extension of external experts to help the SWG in these tasks



Tasks for SWG VME for BFME06

- 1) Continue working on visual data objectives (Objective 2b and Objective 3)
 - a) Identify high density VME areas on each fished seamount
 - b) Develop new species distribution (presence/absence and abundance) models for VME taxa on all seamounts
- 2) Prepare to update fishing impacts assessment
- Continue to work to develop a synchronized approach for assessing and managing the risk of SAI and determine data requirements and spatial/temporal resolution for SAI assessment
- 4) Develop or research alternative methods to apply to Japan and Korea's indicator taxa bycatch to further refine encounter thresholds that are taxon and gear specific
- 5) Consider and explore other methods for identifying VME
- 6) Discuss value of using fisheries VME indicator taxa bycatch data for managing VME and develop TOR if sharing is necessary
- 7) Literature review of connectivity, recruitment and recovery of VME indicator taxa among seamounts



Recommendations to the Scientific Committee

- Endorse the updated 2024-2028 SSC BF-ME 5-Year Rolling Work Plan (NPFC-2024-SSC BFME05-WP01 (Rev. 1))
- Consider the SSC BF-ME's comments on the NPFC Performance Review recommendations that concern bottom fishing and marine ecosystems (NPFC-2024-SC09-WP01 (Rev. 5)).
- Adopt the updated species summaries of NPA (Annex D), SA (Annex E), sablefish (Annex F), blackspotted and rougheye rockfishes (Annex G), and skilfish (Annex H).
- Continue to hire external experts to support the work of the SWG NPA-SA.
- Task the SC Chair to present the information in the stock status summaries for sablefish, SA, and NPA (Annex I) to the Commission





Recommend to the SC to present to Commission



NPFC Small Scientific Committee on Bottom Fish & Marine Ecosystems (SSC BF-ME) Chair: Dr. Chris Rooper (Canada)



Sablefish





Comments on Status

- Fish stock healthy
- No CA fishing since 2020
- Economically not profitable
- Likely no fishing in 2025

NPFC Small Scientific Committee on Bottom Fish & Marine Ecosystems (SSC BF-ME)

Chair: Dr. Chris Rooper (Canada)

North Pacific Armorhead



Comments on Status

- Catch slightly higher in 2023 v. 2022
- No indication of strong recruitment
- Effort remained low (1 gillnet, 1 trawl)
- Fishers avoiding NPA since 2019 so the catch may not reflect stock status

NPFC Small Scientific Committee on Bottom Fish & Marine Ecosystems (SSC BF-ME)

Chair: Dr. Chris Rooper (Canada)

0.25



Splendid Alfonsino





Per recruit analyses



400 Length

Comments on Status

- High likelihood that growth overfishing is occurring (harvest before the size that maximizes YPR)
- Splendid Alfonsino are being captured before they are mature, likely reducing the spawning potential
- Caveat Trawl fishery has dome shaped selectivity which may make the analyses pessimistic about the status of the stock