

Stock Complex Reorganization

A Summary of Reports and Results by the
Groundfish Management Team

September, 2013

Where did We Leave Off?

June Meeting

- GMT provided methods and a process for reorganizing stock complexes
- GMT provided partial analysis for Slope Rockfish and Other Fish (Cartilaginous and Roundfish)
- Council requested further analysis and Alternatives for:
 - Slope Rockfish, Roundfish, Cartilaginous Fish, and Other Flatfish (lower priority)
 - Evaluate the need for restructuring Shelf Rockfish
 - Specifically examine potential risk of overfishing Vermillion Rockfish

SHELF ROCKFISH

- Evaluated Vermillion Rockfish Issue
 - Coastwide: Catch below OFL and ABC, All Years
- Of 32 Species, Tiger Rockfish found to exceed OFL and ABC
 - OFL = 1 mt; ABC = 0.8 mt
 - Average catch (2004-2011) = 1.1 mt
 - Maximum catch = 1.6 mt (2011)

GMT Recommendation – Shelf Rockfish

Supplemental GMT Report 7, Page 1

- Team does not see urgent need that would change the Council's preference to not reorganize the Shelf Rockfish Complexes at this Time.
 - SSC was consulted about Tiger Rockfish: our interpretation is that risk does not necessarily call for taking species out of the complex now ([Agenda Item G.8.b, Supplemental SSC Report](#))
 - Catches for all other species in the complex were below ABC
 - RCA protects most of these species from excessive harvest

Where are we now?

September Briefing Book

- GMT Report 1:
 - Description of risk analysis
- GMT Report 2:
 - Description of Stock Classification (in or out of the fishery)
- GMT Report 3:
 - Results of GMT Survey to Port Biologists

Supplemental Briefing Book

- Supplemental GMT Report 5:
 - Stock Complex Reorganization - Description of Process
 - Slope Rockfish Alternatives
- Supplemental GMT Report 6
 - Classification of Stocks in the Groundfish FMP
 - Alternatives (in the FMP; out of the FMP; EC Species)
- Supplemental GMT Report 7
 - Stock Complex Alternatives
 - Slope Rockfish
 - Other Fish (Cartilaginous Fish and Roundfish separately)
 - Other Flatfish

GMT's Aim

- Help the Council address National Standard 1 Guidelines on stock complexes and classification of stocks in the FMP.
- This presentation will describe the process and a few important tables/figures that will help with your decision.
- We will not describe or go into details of every complex and numerous potential alternatives
 - We will provide a summary of species that are potentially at risk of overfishing for each complex, as well identify some potential inflator stocks

Overview of the Process

- 1st Step
 - Identify candidate species for FMP classification evaluation and identify alternatives.
- 2nd Step
 - Determine whether Stock Complex Reorganization is Necessary based on risk (by complex) or otherwise beneficial.
 - Follow the process to identify and make necessary changes
 - Dependent on objective(s)
 - Dependent on benefits vs cost

Classifying Stocks

- NS1 Guidelines: Which stocks need Annual Catch Limits (ACLs)?
- Stocks with similar conservation need should be similarly classified:
 - In the fishery: target stocks and non-target stocks where overfishing risk is of concern or are valuable/desirable.
 - EC species: non-target stocks w/o concerning overfishing risk yet some monitoring or other interest.
 - Not in the FMP: not at risk of overfishing or managed elsewhere.
- Compare relative “need” using PSA and catch.

Classifying Stocks

- Report 2
 - Look at all catch (landings + discard) over 2007-11.
 - Filtering out (state/nearshore, other FMPs, invertebrates).
 - Non-FMP species/species groups with > 1 mt avg catch.
 - FMP species with 150 mt average catch and less.
 - PSA Scores less than ~ 2.0

Classifying Stocks

- Report 6
 - Further filtering to list of candidates
 - FMP stocks
 - < 1 mt of catch
 - or
 - < 50% retention and PSA score < ~2.0
 - Non-FMP stocks > 1 mt catch
 - Arranging into Alternatives (Table 1)
 - Three Alternatives – Inclusive to Narrow

Classifying Stocks

- GMT Recommendations
 - Adopt the Alternatives or similar approach: there are possible inconsistencies in how stocks are treated.
 - So far “rapid, broad” look. Direct the GMT and staff to further scrutinize candidate list and data and provide more species specific analysis.
 - Guidance on FMP nearshore species – interest in moving leopard shark, greenlings, cabezon, others to state management?

Restructuring Stock Complexes - Overview

- Describe
 - The General Framework/Thought Process
 - 3 tables and 1 figure (important information to assist with decisions)
 - Summary Table/Template
 - Steps that lead to one result (Slope Rockfish)
 - Summary of Results for Remaining Complexes

- Step 1. In or out of the FMP and EC (Corey Just described)
 - Concurrent consideration of adding or removing species to and from the FMP
 - Example: Other Roundfish – if you end up with few species with an OFL, and numerous other species with no OFL contributions → **PROBLEM?**

Beginning of Step 2 of the Process

- Are Any Stocks Within the Complex at Potential Risk of Overfishing?
 - Catch versus OFL/ABC
 - IF YES, and if the species is managed by area (e.g., North and South of 40 10), then assess on Coastwide basis
 - Discussed in detail in June
- IF YES on a coastwide basis, then need for further consideration (Presumption is to Manage Individually*)

*Per Council practice, the same presumption is followed for stocks that are newly assessed regardless of their catch risk.

Step 2 Cont.: Is Individual Management Necessary/Possible ?

- Considerations
 - Similarity in Appearance
 - Co-Occurrence
 - Allocation Impacts
 - Impact on Sampling Programs (program impacts/data quality improved or compromised)
 - Impact on Fishing Operations and Buyers
 - Note GMT Report 3; ODFW Report (June)
- Other Measures May be Available (pg 3) to leave stock in complex while addressing risk:
 - Harvest Guidelines/Trip Limits – considered in detail later in process

Step 2 Continued: Inflator Species?

- Are Inflator Species in the complex?
 - A stock with a high OFL/ABC relative to catch allows more catch of less abundant species
- What should be done?
 - Individual Management can mitigate risk to stock of concern (removed together or indicator removed on its own).

Step 2 Cont. – Considerations

- We look to same factors for Inflator Species as for species that are at risk of overfishing (e.g. similarity of appearance, co-occurrence, etc.)

Step 3 – Create New Complexes?

- After looking at removing stocks at risk and inflator stocks, the stock complex factors, how do species best group?
- This is addressed in our Report 7(see roundfish complex; cartilaginous complex)
 - “Vulnerable Species Complex”
 - Skate Complex
 - Shark Complex

Final Step: Summarize Your Action

Slope Rockfishes

Species to add to FMP, delete from FMP, or make EC species:

- See Agenda Item G.8.b, GMT Supplemental Statement 6, September 2013

Select a Geographical Option for Managing the Complex (circle one or create one):

- Status Quo
- GMT Alternative 1
- GMT Alternative 2
- Other

Select none to all of the following species for individual management that may be at risk of overfishing (circle all that you would like to manage individually):

- Rougheyeye
- Shortraker
- Aurora
- Blackgill
- Other?

Select none to all of the following species for individual management that may be considered inflator species (circle all that you would like to manage individually):

- Splitnose Rockfish (Area or Coastwide)
- Bank Rockfish (Area or Coastwide)

Select none to one of the following if a new complex is desired (or create your own):

- Rougheyeye-Shortraker
- Rougheyeye-Shortraker-Aurora
- Rougheyeye-Shortraker-Blackgill

Overview of Data Sources

- Risk of Overfishing
 - Supplemental GMT Report 5, Appendix B (begins on Page 26)
 - Catch versus OFL / ABC
 - Did not use PSA

Potential Risk of Overfishing (Catch relative to OFL/ABC) – Slope Rockfish

Appendix B (Table 1)

Species	2013 OFL	2013 ABC	Percent ABC 2011	Percent ABC 2009-2011	Percent ABC 2004-2011	Percent Years Over ABC 2004-2011	Percent OFL 2011	Percent OFL 2009-2011	Percent OFL 2004-2011	Years Over OFL 2004-2011	Percent Coastwide OFL
Aurora Data-Poor Assessment	15.4	12.8	161%	285%	232%	88%	134%	237%	193%	75%	37%
Aurora Full Assessment 2015	17.4	16.6	124%	220%	179%	75%	119%	210%	171%	75%	19%
Bank	17.2	14.4	5%	5%	10%	0%	4%	4%	8%	0%	3%
Blackgill	4.7	3.9	119%	199%	177%	88%	99%	165%	147%	75%	3%
Redbanded	45.3	37.7	0%	60%	80%	25%	0%	50%	66%	0%	81%
Rougheye Data-Poor Assessment	71.1	59.3	349%	396%	315%	100%	291%	331%	263%	100%	99%
Rougheye Full Assessment 2015	201.9	193	107%	122%	97%	50%	103%	116%	92%	63%	98%
Sharpchin	214.5	178.9	4%	4%	6%	0%	3%	4%	5%	0%	96%
Shortraker	18.7	15.6	181%	191%	162%	75%	151%	159%	135%	75%	99%
Yellowmouth	192.4	160.5	0%	2%	3%	0%	0%	2%	3%	0%	100%
Splitnose	939	897.7	3%	9%	11%	0%	3%	9%	10%	0%	36%
Pacific Ocean Perch*	844	807	8%	16%	15%	0%	7%	16%	15%	0%	100%

*Managed outside of complex

**Trace amount caught; i.e., the average catch does not round to 0.1 mt.

Coastwide: Catch relative to OFL/ABC

Table 10. Coastwide analysis of metrics that may be used to evaluate the risk of overfishing for species in complexes identified to exceed an ABC or OFL in each complex. Metrics include (1) average annual catch (2011, 2009-2011, and 2004-2011) as a percent of the 2013 ABC and the 2013 OFL and (2) percent of years (N = 8 years) that catch would have exceeded the 2013 OFL or the 2013 ABC.

Species	2013 OFL	2013 ABC	Percent ABC 2011	Percent ABC 2009-2011	Percent ABC 2004-2011	Percent Years Over ABC 2004-2011	Percent OFL 2011	Percent OFL 2009-2011	Percent OFL 2004-2011	Percent Years Over OFL 2004-2011
Aurora Data-Poor	41.5	34.5	80%	132%	162%	88%	67%	110%	134%	75%
Aurora Full Assessment 2015	91.67	87.33	32%	52%	64%	0%	30%	50%	61%	0%
Blackgill	134.7	122.6	126%	126%	97%	50%	115%	114%	88%	50%
Rougheye Data-Poor	71.5	59.6	348%	396%	315%	100%	290%	330%	263%	100%
Rougheye Full Assessment 2015	206	197	105%	120%	95%	50%	101%	115%	91%	50%
Shortraker	18.8	15.7	180%	199%	166%	75%	150%	166%	138%	75%
Tiger**	1	0.8	201%	123%	134%	63%	161%	98%	107%	50%
Vermilion	279	232.7	97%	78%	89%	25%	81%	65%	75%	13%
Curlfin sole	8.2	5.7	31%	62%	186%	63%	22%	43%	130%	50%
Flathead sole	35	24.3	33%	29%	124%	38%	23%	20%	86%	38%

**Trace amount caught; i.e., the average catch does not round to 0.1 mt

Co-occurrence

- C-Scores
 - Supplemental GMT Report 5 (Appendix A, Pg 13)
- Distribution
 - Supplemental GMT Report 5 (Appendix A, Pg 22)

C-SCORE TABLE

Supplemental GMT Report 5, Appendix A, Pg 13)

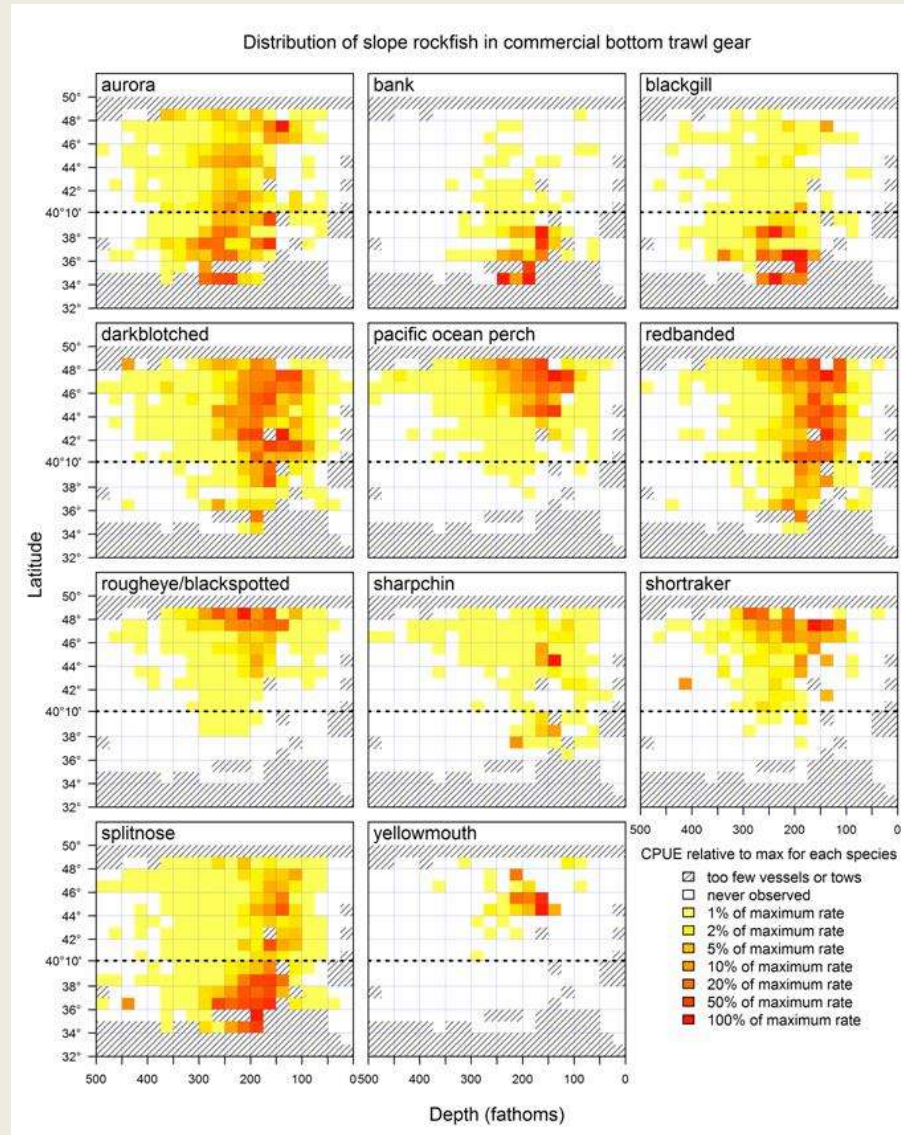
(c) Matrix of normalized C-scores for Slope Rockfish North of 40°10' N lat.

	Splitnose R	Aurora	POP	Redbanded	Rougheye/ Blackspotted	Blackgill	Sharpchin	Shortraker	Bank	Yellowmouth
Darkblotched	0.263	0.482	0.22	0.228	0.298	0.323	0.295	0.428	0.302	0.281
	Splitnose	0.405	0.237	0.145	0.346	0.371	0.189	0.466	0.446	0.229
		Aurora	0.511	0.49	0.484	0.288	0.748	0.475	0.547	0.639
			POP	0.268	0.359	0.563	0.273	0.438	0.649	0.331
				Redbanded	0.41	0.586	0.354	0.567	0.559	0.509
					Rougheye/ Blackspotted	0.684	0.677	0.444	0.805	0.558
						Blackgill	0.841	0.77	0.753	0.787
							Sharpchin	0.863	0.875	0.578
								Shortraker	0.92	0.891
									Bank	0.773

Note: the GMT considered C-scores < 0.200 as high co-occurrence and > 0.700 as very low co-occurrence.

Distribution of Catch (Slope RF North)

Supplemental Report 5, Appendix A, Pg 22



Status Quo Slope Rockfish

Supplemental GMT Report 5, Page 5

Status Quo Slope Rockfish Alternative

Table 1. Status quo slope rockfish stocks and stock complexes.

Slope Rockfish Stocks	Slope Rockfish Stock Complexes	
	N of 40°10'	S of 40°10'
Overfished Stocks	Aurora	Aurora
Darkblotched	Bank	Bank
POP N of 40°10'	Blackgill	Blackgill
Non-overfished Stocks	Redbanded	POP
Longspine thornyhead N and S of 34°27'	Rougheye	Redbanded
Shortspine thornyhead N and S of 34°27'	Sharpchin	Rougheye
Splitnose S of 40°10'	Shortraker	Sharpchin
	Splitnose	Shortraker
	Yellowmouth	Yellowmouth

GMT Alternative 1 (Slope RF)

Supplemental GMT Report 5, Pg 7

Slope Alternative #1

Individual Management Coastwide

Rougeye

Shorthead

Aurora

Splitnose

POP

Slope Rockfish Complex A Coastwide

Yellowmouth

Redbanded

Sharpchin

Slope Rockfish Complex B Coastwide

Bank

Blackgill

Note: this alternative approach to apportioning OFLs/ABCs across management lines. Other measures for allocating between areas might be necessary (e.g. how to address areas/fisheries at the tail end of a stock).

GMT Alternative 2 (Slope RF)

Page 6

Slope Alternative #2

Individual Management Coastwide

Splitnose

Bank

POP

Slope Rockfish North of 40°10' Complex

Yellowmouth

Sharpchin

Shortraker

Rougheye

Redbanded

Aurora

Blackgill*

Slope Rockfish South of 40°10' Complex

Yellowmouth*

Sharpchin*

Shortraker*

Rougheye*

Redbanded

Aurora

Blackgill

*These species have low OFL/ABC contribution to this complex for this area. The determination of whether the policy to prevent overfishing is being violated should be evaluated at the total coastwide OFL.

Summary: Slope Rockfish

GMT Supplemental Report 5, page 11

Slope Rockfishes

Species to add to FMP, delete from FMP, or make EC species:

- See Agenda Item G.8.b, GMT Supplemental Statement 6, September 2013

Select a Geographical Option for Managing the Complex (circle one or create one):

- Status Quo
- GMT Alternative 1
- GMT Alternative 2
- Other

Select none to all of the following species for individual management that may be at risk of overfishing (circle all that you would like to manage individually):

- Rougheye
- Shortraker
- Aurora
- Blackgill
- Other?

Select none to all of the following species for individual management that may be considered inflator species (circle all that you would like to manage individually):

- Splitnose Rockfish (Area or Coastwide)
- Bank Rockfish (Area or Coastwide)

Select none to one of the following if a new complex is desired (or create your own):

- Rougheye-Shortraker
- Rougheye-Shortraker-Aurora
- Rougheye-Shortraker-Blackgill

Summary: Cartilaginous Complex

Cartilaginous Fishes

Species to add to FMP, delete from FMP, or make EC species:

- See Agenda Item G.8.b, GMT Supplemental Statement 6, September 2013 for a complete list of species.

Select none to all of the following species for individual management that may be at risk of overfishing:

- Spiny dogfish
- Other?

Select none to all of the following species for individual management that may be considered inflator species:

- Spotted ratfish
- Dogfish shark
- Other?

Or, for stocks that may be at risk of overfishing, or for stocks that may be considered inflator species, or for any other combinations, select none to all of the following if a new complex is desired:

- Shark and ratfish complex
- Skate complex
- Other?

Summary: Roundfish Complex

Other Roundfish

Species to add to FMP, delete from FMP, or make EC species:

- See Agenda Item G.8.b, GMT Supplemental Statement 6, September 2013 for a complete list of species.

Select none to all of the following species for individual management that may be at risk of overfishing:

- None
- Other?

Select none to all of the following species for individual management that may be considered inflator species:

- Pacific rattail/grenadier
- Kelp greenling
- Other?

Or, for stocks that may be at risk of overfishing, or for stocks that may be considered inflator species, or for any other combinations, select none to all of the following if a new complex is desired:

- Pacific rattail/grenadier-giant rattail/grenadier-other rattails/grenadiers
- Other?

Other Flatfish

Other Flatfish

Species to add to FMP, delete from FMP, or make EC species:

- See Agenda Item G.8.b, GMT Supplemental Statement 6, September 2013 for a complete list of species.

Select none to all of the following species for individual management that may be at risk of overfishing:

- Curlfin sole
- Flathead sole
- Other?

Select none to all of the following species for individual management that may be considered inflator species:

- Pacific sanddab
- Rex sole
- Sand sole
- Other?

Or, for stocks that may be at risk of overfishing, or for stocks that may be considered inflator species, or for any other combinations, select none to all of the following if a new complex is desired:

- Curlfin-flathead
- Butter-curlfin-flathead-rock soles
- Other?

Conclusion

Stocks in an ideal complex would look alike, or be caught together, have similar vulnerabilities to the fishery, etc. The FMP's complexes are not ideal. The GMT's recommendation is to prioritize addressing catch risks. Doing so may be possible without major restructuring. Management options for doing so can be explored in detail through the 2015-16 process. The team sees benefits of reorganizing complexes regardless of catch risk, yet costs also need to be thoroughly examined.

Conclusion cont.

Secondly, apportioning of OFLs/ABCs across the north/south management lines raises questions for many stocks. An alternative is to group stocks more based on co-occurrence and without drawing management lines (i.e. slope rockfish Alt. 1). Some form of allocation or set aside would need to be discussed for treating areas where catch is unlikely or abundance low.