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Prioritizing Groundfish Stock Assessments

Preliminary Analysis and Ranking of Pacific Coast Groundfish Species for Assessment in 2023

March 2022 Presentation to the
Pacific Fishery Management Council

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Northwest Fisheries Science Center

Assessment Prioritization Material Overview

- E.8 Attachment 1: Description of the assessment prioritization methodology
- E.8 Attachment 2: Detailed summary of available data to support stock assessments
- E.8 Supplemental REVISED Attachment 3: NMFS assessment prioritization workbook (revised version)

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- E.8 Attachment 1: Description of the assessment prioritization methodology
- E.8 Attachment 2: Detailed summary of available data to support stock assessments
- E.8 Supplemental REVISED Attachment 3: NMFS assessment prioritization workbook (revised version)
  - Error in updating how Fishery Importance ranking impacts the Assessment Frequency Score has been corrected

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Outline

- **Goal**: Identify stocks to be assessed in 2023 as benchmark (full), update, and data-moderate assessments
- Review the prioritization workbook (Attachment 3)
- Review the preliminary species ranks for 2023
  - Discuss available data and workload
- Quick look at the calendar for possible 2023 STAR Panels
- Discuss Attachments 1 and 2, if the Council desires

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Factor Overview

Category	Factor	Source/Basis	Range	Weight
Fishery Importance	Commercial Fishery Importance	Landed Ex-Vessel Revenue, from PacFIN	0-10	0.21
	Recreational Fishery Importance	Weighted Landed Catch, from RecFIN	0-10	0.09
	Importance to Subsistence	Tribal Comm Revenue + Subsistence Input from Habitat Assessment & Tribes	0-10	0.05
	Constituent Demand/ Choke Stock	Higher Value to Fleet or Area, Constraining Species, Recent Mortality vs Draft 2024 ACLs	(-2)-10	0.11
Stock Status	Rebuilding Status	Assessed Status + Rebuilding Projections	0-10	0.10
	Relative Stock Abundance	Latest Assessed Fraction Unfished or PSA	1-10	0.08
	Relative Fishing Mortality	Groundfish Mortality Reports	1-10	0.08
Ecosystem Importance	Key Role in Ecosystem	Top-Down and Bottom-Up Diet Impacts on Managed/Protected Species	0-10	0.05
Assessment Information	Relevant New Type of Information Available	Updated Steepness Prior; New Availability of Trend or Composition Data; Ability to Fix Prior Assessment Issues	0-10	0.05
	Years Since Assessment Relative to Target Frequency	Assessment Output, Fishery and Ecosystem Factor Scores	(-4)-10	0.18

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Fishery Importance – Commercial

Description:

- Sum of 2016-20 coastwide ex-vessel revenue transformed to compress the distribution (same transformation used in 2020)
- Then re-scaled so the top score is 10
- Does not include fish sold by participants in Tribal fisheries
- Point Range: 0–10

Species	Rank	Score	Coastwide Revenue $1000s
Sablefish	1	10.00	116,272
Petrale sole	2	7.98	33,191
Dover sole	3	7.87	30,747
Widow rockfish	4	7.28	19,866
Shortspine thornyhead	5	6.97	15,687
Lingcod	6	6.45	10,162
Yellowtail rockfish	7	6.27	8,655
Black rockfish	8	5.46	4,026
Gopher/Black and yellow rockfish	9	5.21	3,104
Longspine thornyhead	10	5.19	3,041
Cabezon	11	5.09	2,718
Longnose skate	12	5.04	2,580
Chilipepper rockfish	13	4.78	1,927
Vermilion/Sunset rockfish	14	4.74	1,830
Rex sole	15	4.64	1,623

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Fishery Importance – Recreational

Description:

- Pseudo-Revenue is equal to 2016-20 landings by state, multiplied by a state-specific importance weights that range between 0.50 – 2.0.
- Factor score is transformed to compress the distribution then re-scaled so the top score is 10.
- Point Range: 0–10

Species	Rank	Factor Score	Pseudo-Revenue	Retained Catch (mt)
Lingcod	1	10.00	7,337.4	3,700
Black rockfish	2	9.75	6,362.2	3,383
Vermilion/Sunset rockfish	3	8.40	2,786.1	1,483
Blue/Deacon rockfish	4	7.58	1,568.8	858
Copper rockfish	5	7.36	1,335.1	822
Bocaccio	6	6.91	941.7	509
California scorpionfish	7	6.76	834.5	417
Yellowtail rockfish	8	6.69	788.2	638
Canary rockfish	9	6.67	770.3	429
Brown rockfish	10	6.19	510.6	352
Cabezon	11	5.57	282.9	236
Gopher/Black and yellow rockfish	12	5.54	276.0	244
Olive rockfish	13	5.49	262.0	226
Starry rockfish	14	5.14	182.7	166
Squarespot rockfish	15	4.96	148.4	82

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Tribal Importance – Subsistence & Fish Sales

- **Description:**
- Revenue from sales is scored in the same manner as non-Tribal commercial, but with a maximum value of 7
- Subsistence value is scored on a 0.0-3.0 scale, based on input/responses from Tribal representatives
- Point Range: 0–10

Species	Rank	Factor Score	Subsistance Score	Revenue $1000s
Sablefish	1	10.0	3.0	11,780
Petrale sole	2	7.2	2.0	2,374
Yellowtail rockfish	3	7.2	3.0	672
Pacific cod	4	7.0	3.0	495
Lingcod	5	6.6	3.0	292
Canary rockfish	6	5.6	3.0	53
Rex Sole	7	5.2	2.0	160
Dover sole	8	5.1	1.5	300
Sand Sole	9	4.8	2.0	69
English sole	10	4.8	1.5	170
Big skate	11	4.7	2.5	17
Longnose skate	12	4.4	2.0	33
Widow rockfish	13	4.4	2.0	32
Black rockfish	14	4.3	3.0	1.0
Shortraker rockfish	15	3.8	2.0	7

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Choke Species and Constituent Demand

Description:

- Choke Stocks (esp. rebuilding) could constrain the catch of other healthy stocks. Based on comparing recent catches to preliminary 2024 ACLs. [In '2024 SPEX Limiting' Tab]
- Modifiers measure species that are much more important to a specific fleet or state than is reflected in the coastwide comm./rec. ranks
- Point Range: (-2)–10

Species	Rank	Factor Score	Choke Stock	Sum of Modifiers
Quillback rockfish	1	10.0	10	2
Yelloweye rockfish	1	10.0	10	1
Rosethorn rockfish	3	6.0	4	2
Copper rockfish	4	5.0	4	1
Vermilion/Sunset rockfish	4	5.0	4	1
Blue/Deacon rockfish	6	4.0	3	1
Pacific spiny dogfish	6	4.0	2	2
Redbanded rockfish	6	4.0	3	1
Rougheye/Blackspotted rockfish	6	4.0	2	2
Squarespot rockfish	6	4.0	4	0
Stripetail rockfish	6	4.0	4	0
Treefish rockfish	6	4.0	3	1
China rockfish	13	2.0	0	2
Cowcod	13	2.0	-2	4
Flathead sole	13	2.0	2	0

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Rebuilding Stocks

Species	Factor Score	Score Description
Quillback rockfish	4.00	Projected to rebuild in over 20 years
Yelloweye rockfish	6.00	Projected to rebuild within 20 years

Description:

- Accounts for the current rebuilding progress for overfished stocks
- Included quillback rockfish under the assumption the stock would be declared overfished by NMFS, however, the timeline is currently uncertain.
- Point Range: 0–10

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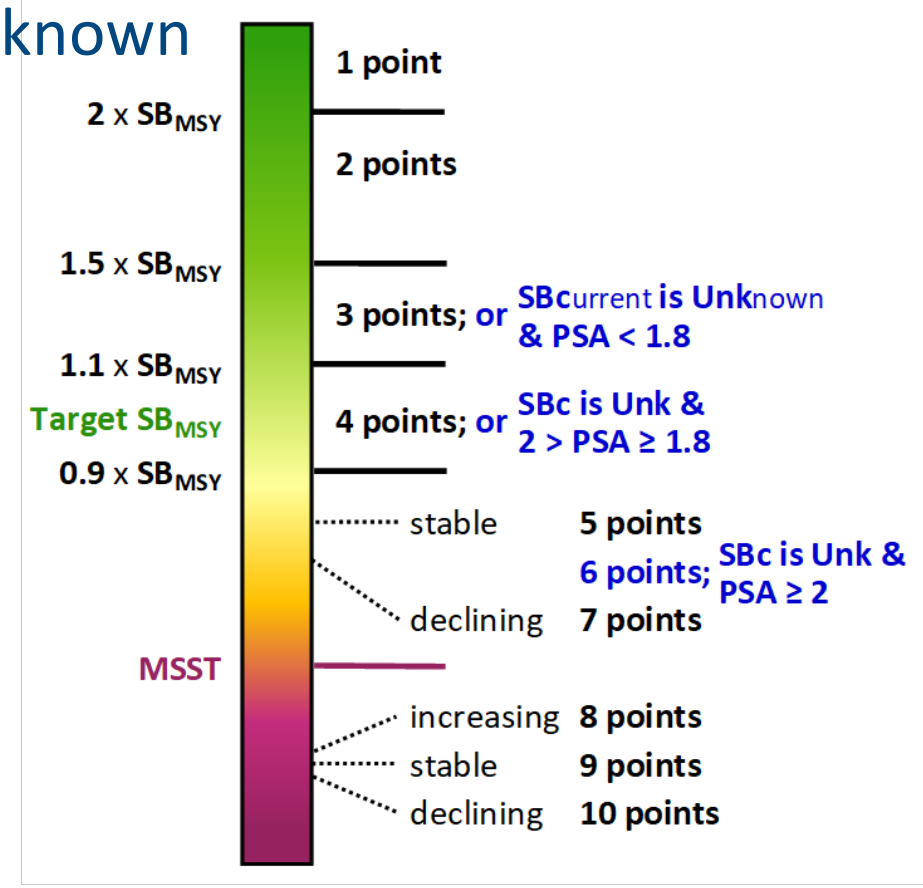
Stock Status

Description:

- Scoring based on estimated percent of unfished spawning biomass/output.
- PSA (vulnerability) scores used when status is unknown
- Point Range: 1–10



Species	Rank	Factor Score	% of Unfished	PSA Score
Quillback rockfish	1	7.0	26%	2.22
Bank rockfish	2	6.0		2.02
Leopard shark	2	6.0		2.00
Redbanded rockfish	2	6.0		2.02
Redstripe rockfish	2	6.0		2.16
Rosethorn rockfish	2	6.0		2.09
Shortraker rockfish	2	6.0		2.25
Silvergray rockfish	2	6.0		2.20
Speckled rockfish	2	6.0		2.10
Copper rockfish	10	5.0	34%	2.27
Greenspotted rockfish	10	5.0	35%	1.98
Yelloweye rockfish	10	5.0	34%	2.13
Pacific spiny dogfish*	10	4.0	42%	2.00
Black rockfish	14	4.0	43%	1.94
Blackgill rockfish	14	4.0	39%	2.08

*Pacific spiny dogfish percent of unfished updated

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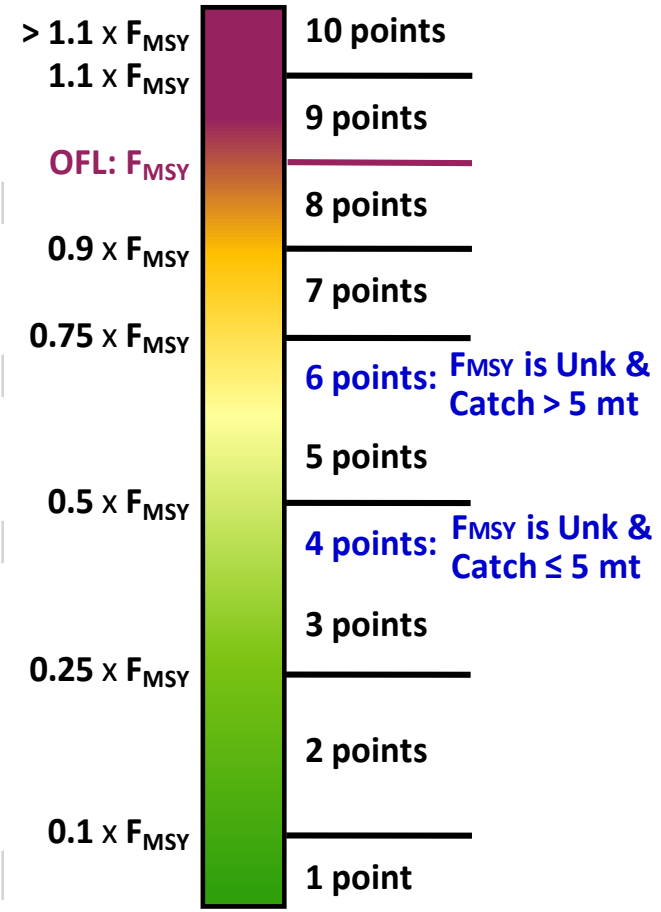
Fishing Mortality

Description:

- Scoring is based percent attainment of the average 2018-20 catch to OFLs in those years
- *Italicized* values indicate that the species makes an OFL contribution to an assemblage
- Values are **Bold** for species with individual OFLs
- Point Range: 1–10



Species	Rank	Factor Score	% OFL Attain.	OFL - Catch (mt)
Quillback rockfish	**1**	**10.0**	*212%*	*-14*
Rosethorn rockfish	**1**	**10.0**	*143%*	*-6*
Squarespot rockfish	**1**	**10.0**	*145%*	*-5*
Stripetail rockfish	**1**	**10.0**	*124%*	*-15*
Vermilion/Sunset rockfish	**1**	**10.0**	*138%*	*-107*
Blue/Deacon rockfish	**3**	**8.0**	*94%*	*24*
Petrale sole	**4**	**7.0**	**84%**	**489**
Redbanded rockfish	**4**	**7.0**	*84%*	*9*
Rougheye/Blackspotted rf	**4**	**7.0**	*87%*	*59*
Treefish rockfish	**4**	**7.0**	*82%*	*2*
Widow rockfish	**4**	**7.0**	**77%**	**2,919**
Brown rockfish	**9**	**5.0**	*53%*	*85*
China rockfish	**9**	**5.0**	*58%*	*18*
Copper rockfish	**9**	**5.0**	*51%*	*164*
Flathead Sole	**9**	**5.0**	*60%*	*14*

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Ecosystem Importance

Description:

Based on Top-down and Bottom-up importance for managed and protected (M-P) species, using all species in the Koehn et al. (2016) Ecopath model

- **Top-down** score: what eats M-P species–
  max = 10 = P. hake
- **Bottom-up** score: what M-P species eat–
  max = 10 = Phytoplankton & infauna
- Ecopath 'assemblage' (e.g. flatfish) scores were distributed among species using 2018-20 OFLs & OFL contributions
- Point Range: 0–10

Species	Rank	Factor Score	Top-down + bottom-up scores
Pacific spiny dogfish	1	10.00	7.35
Sablefish	2	9.62	7.07
Arrowtooth flounder	3	5.71	4.20
Lingcod	4	3.11	2.28
Shortspine thornyhead	5	2.06	1.51
Yellowtail rockfish	6	2.01	1.47
Dover sole	7	1.89	1.39
Longnose skate	8	1.85	1.36
Black rockfish	9	0.95	0.70
Chilipepper rockfish	10	0.83	0.61
Petrale sole	11	0.82	0.61
Widow rockfish	12	0.71	0.52
Bocaccio	13	0.66	0.49
Vermilion/Sunset rf	14	0.53	0.39
Big skate	15	0.48	0.36

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Assessment – New Information

Description:

- Scoring reflects subjective rating of the expected availability of important (new) data/sources or methods that could:
  - Affect the findings of or resolve uncertainties from previous assessments,
  - Allow the assessment "uncertainty" category to be upgraded, or
  - Facilitate a 1st-time assessment.
- Point Range: 0–10

Species	Rank	Factor Score	Last Full Assessment
Splitnose rockfish	1	9.0	2009
Brown rockfish	2	6.0	2013
Pacific sanddab	2	6.0	-
Bank rockfish	4	5.0	-
English sole	4	5.0	2013
Kelp rockfish	4	5.0	-
Olive rockfish	4	5.0	-
Redbanded rockfish	4	5.0	-
Rex sole	4	5.0	2013
Shortraker rockfish	4	5.0	-
Black rockfish	11	4.0	2015
Flag rockfish	11	4.0	-
Grass rockfish	11	4.0	-
Honeycomb rockfish	11	4.0	-
Longspine thornyhead	11	4.0	2013

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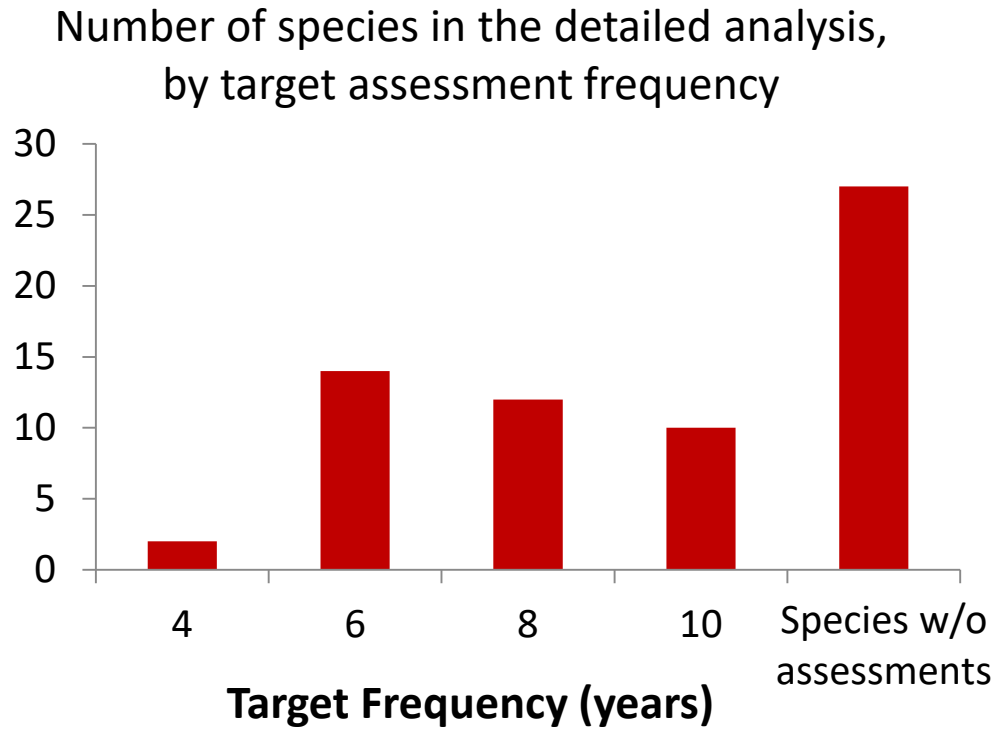
Target Frequency & Years Since Last Assessment

- Most important Factor for lowering rankings after species are assessed
- Initial Target Assessment Frequency are based on mean age in catch
- Additive adjustments to target frequency derived from:
  - Recruitment variability, σ_R,from assessment
  - Fishery Importance (using the rank of the sum of weighted Fishery Factor scores)
  - Ecosystem Importance (from Factor rank)
- Rounded to the nearest 2 years; Range: 4–10
- Initial score is calculated as:
  - Max[(Years since last assessment – Target Frequency), 0]
  - Calculations used for Target Frequency require a prior assessment; value of 4 used for unassessed
- Point Range: (-4)–10 (-4 if assessed in 2021)



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Target Frequency & Years Since Last Assessment

- Splitnose, greenstriped, and black rockfishes rank high because they are beyond their calculated target assessment frequency.
- English and rex soles and brown rockfish were last assessed 9 years ago as index-based data-moderate assessments.
- Majority of top ranked species are ones that have not been assessed to-date, with other than data-poor methods.

Species	Rank	Factor Score	Year of last assessment
Splitnose rockfish	1	8	2009
Greenstriped rockfish	2	6	2009
Pacific cod	2	6	
Black rockfish	4	5	2015
Brown rockfish	4	5	2013
English sole	4	5	2013
Rex Sole	4	5	2013
Greenspotted rockfish	8	4	2011
Leopard shark	8	4	
Olive rockfish	8	4	
Pacific sanddab	8	4	
Rosethorn rockfish	8	4	
Silvergray rockfish	8	4	
Starry rockfish	8	4	
Treefish rockfish	8	4	
Bocaccio	16	3	2017
Canary rockfish	16	3	2015
Chilipepper rockfish	16	3	2015
Flag rockfish	16	3	
Grass rockfish	16	3	
Longspine thornyhead	16	3	2013
Redbanded rockfish	16	3	
Redstripe rockfish	16	3	
Sand Sole	16	3	
Shortraker rockfish	16	3	
Shortspine thornyhead	16	3	2013

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Total Weighted Factor Scores

- All Factor Scores are assembled in the 'Factor Summary' tab
- The Factor Scores are weighted, using the weights shown below
  - These are the same Factor Weights that have been used previously
- The summation of those weighted scores forms the basis for ranking species

Fishery Factors				Status				Assessment Info.	
Comm Factor Score	Rec Factor Score	Tribal Factor Score	Const. Dem/ Choke Sp Factor	Rebuild Factor Score	Stock Status Score	Fishing Mortality Score	Eco-system score	New Info Score	Assess. Freq. Score
0.21	0.09	0.05	0.11	0.10	0.08	0.08	0.05	0.05	0.18

- These rankings are *advisory*, and in the near-term, need to be considered in the context of available data

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2023 Prioritization Ranking

Species	Rank	Total Score	On the 2020 Council list for 2023	2023 Options	Last Assessment	
					Year	Type
Black rockfish	1	3.73	Full	Full	2015	F
Brown rockfish	2	3.55	LB-DM	F/D-M	2013	D-M
Petrale sole	3	3.48	Full	Full	2019	U
Quillback rockfish	4	3.37			2021	LB-DM
Rosethorn rockfish	5	3.25		Full		d-p
Treefish rockfish	6	3.19		D-M		d-p
Blue/Deacon rockfish	7	3.18		Full/Upd	2017	F
Sablefish	8	3.15	F/U	Full/Upd	2021	U
Redbanded rockfish	9	3.10	F/LBDM	F/D-M		d-p
Yelloweye rockfish	10	3.09	Update	Update	2017	F
Yellowtail rockfish	11	2.96	F/U/DM	Full/Upd	2017	F
Pacific cod	12	2.93		F/D-M		
Widow rockfish	13	2.86		Full/Upd	2019	U
Canary rockfish	14	2.86	Update	Full	2015	F
Splitnose rockfish	15	2.70		Full	2009	F
Vermilion/Sunset rf	16	2.65			2021	F
Shortraker rockfish	17	2.61		Full		d-p
Pacific sanddab	18	2.58				d-p
Starry rockfish	19	2.56	LB-DM	F/D-M		d-p
Bocaccio	20	2.55		Update	2017	U

Species	Rank	Total Score	On the 2020 Council list for 2023	2023 Options	Last Assessment	
					Year	Type
Stripetail rockfish	21	2.48		D-M		d-p
Shortspine thornyhead	22	2.48	LB-DM	D-M	2013	F
Rex Sole	23	2.41	LB-DM		2013	D-M
Silvergray rockfish	24	2.41				d-p
China rockfish	25	2.39			2015	F
Olive rockfish	26	2.35	LB-DM	D-M		d-p
Rougheye/Blackspotted rf	27	2.33	Full	Full	2013	F
Grass rockfish	28	2.32				d-p
Copper rockfish	29	2.31		Full	2021	LB-DM
English sole	30	2.23	LB-DM		2013	D-M
Cabezon	31	2.23			2019	F
Greenspotted rockfish	32	2.15	LB-DM		2011	F
Gopher/Black-&-yellow rf	33	2.14		Update	2019	F
Chilipepper rockfish	34	2.14			2015	U
Leopard shark	35	2.03				d-p
Lingcod	36	2.02			2021	F
Greenstriped rockfish	37	1.98		F/D-M	2009	F
Longspine thornyhead	38	1.94	LB-DM	D-M	2013	F
Speckled rockfish	39	1.93				d-p
Pacific spiny dogfish	40	1.93			2021	F

Impact of Supplemental Revision on Rankings

	In original Attachment 3 workbook		In REVISED Attachment 3 workbook		Change from original	
	Rank	Score	Rank	Score	Rank	Score
Black rockfish	2	3.37	**1**	**3.73**	↑ 1	0.36
Brown rockfish	5	3.19	**2**	**3.55**	↑ 3	0.36
Petrale sole	3	3.30	**3**	**3.48**	– 0	0.18
Quillback rockfish	1	3.37	**4**	**3.37**	↓ 3	0
Rosethorn rockfish	4	3.25	**5**	**3.25**	↓ 1	0
Treefish rockfish	10	3.01	**6**	**3.19**	↑ 4	0.18
Blue/Deacon rockfish	11	3.00	**7**	**3.18**	↑ 4	0.18
Sablefish	6	3.15	**8**	**3.15**	↓ 2	0
Redbanded rockfish	7	3.10	**9**	**3.10**	↓ 2	0
Yelloweye rockfish	8	3.09	**10**	**3.09**	↓ 2	0
Yellowtail rockfish	14	2.78	**11**	**2.96**	↑ 3	0.18
Pacific cod	15	2.75	**12**	**2.93**	↑ 3	0.18
Widow rockfish	12	2.86	**13**	**2.86**	↓ 1	0
Canary rockfish	22	2.50	**14**	**2.86**	↑ 8	0.36
Splitnose rockfish	9	3.06	**15**	**2.70**	↓ 6	-0.36
Vermilion/Sunset rf	18	2.65	**16**	**2.65**	↑ 2	0

	In original Attachment 3 workbook		In REVISED Attachment 3 workbook		Change from original	
	Rank	Score	Rank	Score	Rank	Score
Shortraker rockfish	13	2.79	**17**	**2.61**	↓ 4	-0.18
Pacific sanddab	19	2.58	**18**	**2.58**	↑ 1	0
Starry rockfish	16	2.74	**19**	**2.56**	↓ 3	-0.18
Bocaccio	20	2.55	**20**	**2.55**	– 0	0
Stripetail rockfish	17	2.66	**21**	**2.48**	↓ 4	-0.18
Shortspine thornyhead	37	2.12	**22**	**2.48**	↑ 15	0.36
Rex Sole	23	2.41	**23**	**2.41**	– 0	0
Silvergray rockfish	24	2.41	**24**	**2.41**	– 0	0
China rockfish	30	2.21	**25**	**2.39**	↑ 5	0.18
Olive rockfish	21	2.53	**26**	**2.35**	↓ 5	-0.18
Rougheye/Blackspotted rf	26	2.33	**27**	**2.33**	↓ 1	0
Grass rockfish	35	2.14	**28**	**2.32**	↑ 7	0.18
Copper rockfish	27	2.31	**29**	**2.31**	↓ 2	0
English sole	29	2.23	**30**	**2.23**	↓ 1	0
Greenstriped rockfish	25	2.34	**37**	**1.98**	↓ 12	-0.36
Speckled rockfish	28	2.29	**39**	**1.93**	↓ 11	-0.36

20 of top-30 move < 4 spots; another 6 move 4-5; those with more fishery importance move up

Data Availability: Species 1-15

- Note that data adequacy, length and age totals, are summarized on a coastwide basis, where some species may have multiple assessment areas.
- Detailed data summaries available in E.8 Attachment 2
- Index potential is based on information from the NWFSC West Coast Groundfish Trawl or Hook & Line surveys, and evaluation of Rec. CPUE potential

Species	Rank	Last Assessment		SSC OK with Update for next assess.	Data adequacy to support a Benchmark/Full Assessment		
		Year	Type		Tot. Ann. Lengths	Tot. Ann. Ages	Index Potential
Black rockfish	1	2015	F		25626	4744	
Brown rockfish	2	2013	D-M		4405	53	
Petrale sole	3	2019	U	Update	10997	3868	
Quillback rockfish	4	2021	LB-DM		1809	423	
Rosethorn rockfish	5		d-p		1278	510	
Treefish rockfish	6		d-p		599	0	
Blue/Deacon rockfish	7	2017	F	Update	13329	1248	
Sablefish	8	2021	U		21516	5874	
Redbanded rockfish	9		d-p		1785	800	
Yelloweye rockfish	10	2017	F	Update	634	188	
Yellowtail rockfish	11	2017	F	Update	16372	3766	
Pacific cod	12				3407	307	
Widow rockfish	13	2019	U	Update*	10840	2221	
Canary rockfish	14	2015	F		8539	2343	
Splitnose rockfish	15	2009	F		5933	1364	

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Data Availability: Species 16-30

- Note that data adequacy, length and age totals, are summarized on a coastwide basis, where some species may have multiple assessment areas.
- Detailed data summaries available in E.8 Attachment 2
- Index potential is based on information from the NWFSC West Coast Groundfish Trawl or Hook & Line surveys, and evaluation of Rec. CPUE potential

Species	Rank	Last Assessment		SSC OK with Update for next assess.	Data adequacy to support a Benchmark/Full Assessment		
		Year	Type		Tot. Ann. Lengths	Tot. Ann. Ages	Index Potential
Vermilion/Sunset rockfish	16	2021	F		10244	1547	
Shortraker rockfish	17		d-p		314	144	
Pacific sanddab	18		d-p		9235	1498	
Starry rockfish	19		d-p		1978	114	
Bocaccio	20	2017	U	Update	7579	1337	
Stripetail rockfish	21		d-p		2632	559	
Shortspine thornyhead	22	2013	F		12227	2391	
Rex Sole	23	2013	D-M		10408	1551	
Silvergray rockfish	24		d-p		402	145	
China rockfish	25	2015	F		2643	373	
Olive rockfish	26		d-p		2086	42	
Rougheye/Blackspotted rock	27	2013	F		2566	970	
Grass rockfish	28		d-p		655	0	
Copper rockfish	29	2021	LB-DM		4528	361	
English sole	30	2013	D-M		11024	2245	

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Items to Consider

- **Black rockfish** (#1) is a highly-important stock. There is new survey data available in Oregon that could be used to better inform the assessment of this area. Likely to have area-specific assessments (2015 had 3 areas).
- Some of the top-ranked species this cycle are stocks that have not previously been assessed above the catch-only, data-poor level:
  - **Rosethorn rockfish** has limited commercial and recreational data but is well observed in the NWFSC WCGBT survey. Data-moderate or a full assessment may be feasible.
  - **Redbanded rockfish** has enough commercial data and is observed well by the NWFSC WCGBT survey. Full assessment could be feasible.
  - **Treefish** are only observed in California and have medium recreational sampling. Not observed by either of the NWFSC surveys, and a rec. CPUE index is unlikely. A catch and length-based data-moderate would be the most feasible option.

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Items to Consider

- **Quillback rockfish** (#4) was highly ranked this year due to several factors: 1) fishing mortality was 212% of the OFL, 2) potential to be a future choke species, and 3) combined coastwide stock status of 26%. Little additional data would likely be available for new assessment of quillback rockfish in 2023, beyond that used in 2021*.
- There may be a desire to select **copper rockfish** (#29) for a full assessment in 2023, given the 2021 assessment results in California, where a new full assessment could include*:
  - **recreational indices** of abundance N & S of Pt Conception (often uncertain),
  - **CCFRP indices** of abundance,
  - historical **length observations** (reviewed in the 2021 mop-up panel),
  - NWFSC hook & line **survey age data** S of Pt Conception), and
  - very limited **recreational ages**.
- * SSC-recommended workshops on using ROV data in assessments and how to handle spatial issues may provide recommended approaches that could be applied in new assessments for both **copper rockfish** and **quillback rockfish**.

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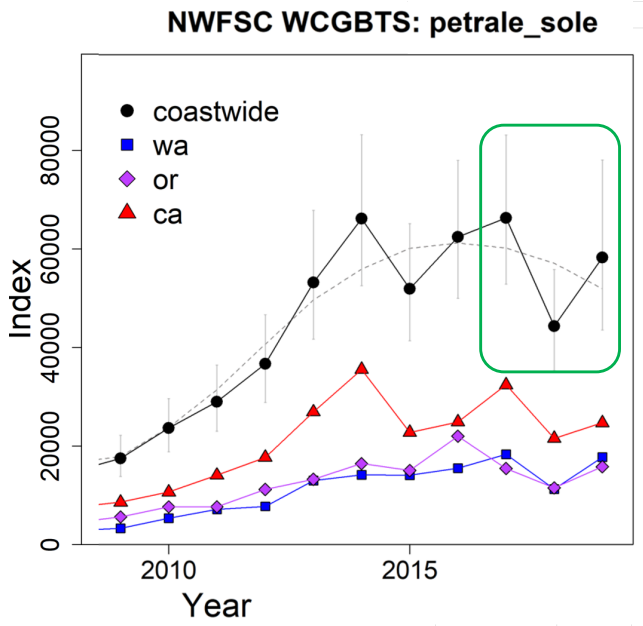
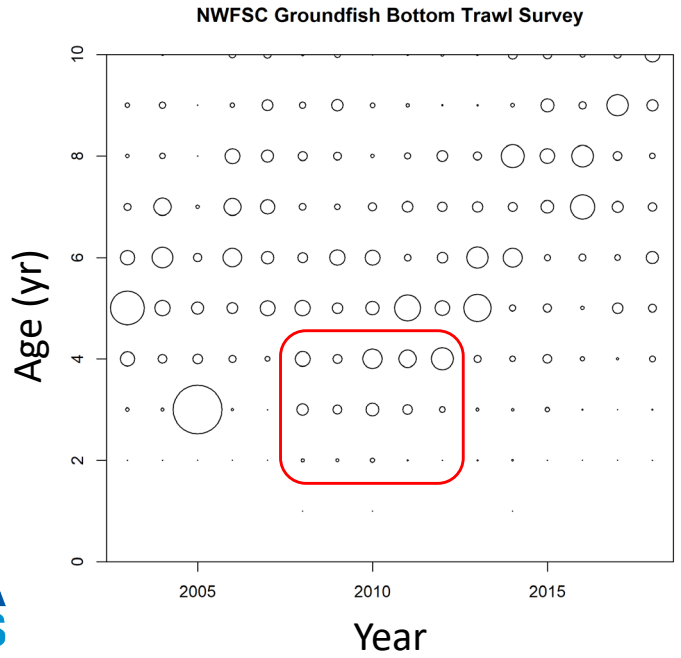
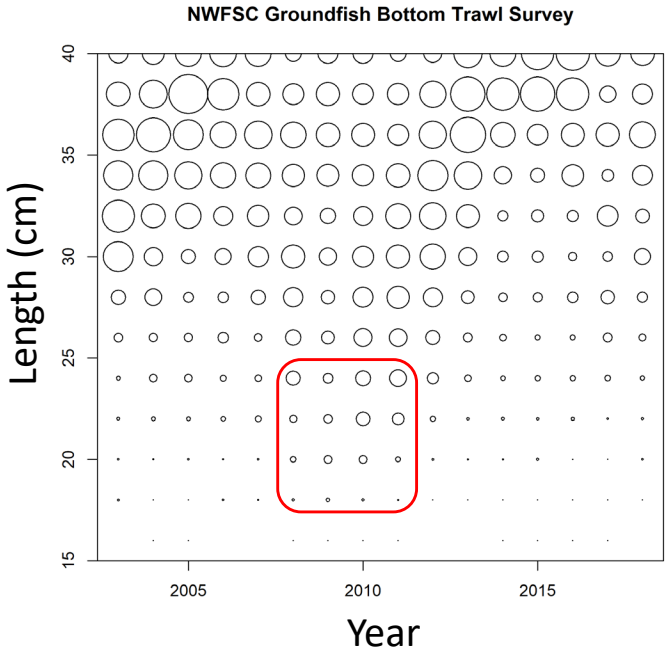
Items to Consider

- The last full assessment of **petrale sole** (#3) was in 2013 (update in 2019). 2021 trawl survey results (not yet available) may be important in evaluating the need for an assessment in 2023
  - New ecosystem driver of recruitment should be included in the next full assessment
  - No sign of strong incoming recruitment since 2010:







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Items to Consider

- The 2017 rebuilding analysis of **yelloweye rockfish** (#10) indicated a 50% probability of rebuilding in 2027. With limited new data available since 2017, may not be enough information to indicate earlier rebuilding, though could be updated.
- The last assessment of **rougheye/blackspotted rockfish** (#27) was in 2013. Future catches could push the ACL contributions from that assessment's projections. Genetic testing since then should inform the proportion of blackspotted rockfish and could warrant revising the current category-2 designation to category 1.
- The last assessments of **longspine thornyhead** (#38) and **shortspine thornyhead** (#22) were in 2013. Prior assessments have effectively been catch/length/index data-moderates since:
  1) We have not yet found a way to age thronyheads reliably, and
  2) both species are well-sampled by the NWFSC WCGBT survey, which can provide indices of abundance, as well as length data

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Items to Consider

- **English sole** (#30), **rex sole** (#23), and **brown rockfish** (#2) were last assessed in 2013 as (index-based) data-moderate assessments:
  - The two flatfish are also well-sampled by the NWFSC WCGBT survey and would be good candidates for data-moderate assessments using catch, length data, and survey indices
  - The prior **brown** assessment relied on a rec. CPUE index. With limited ageing potential, it is not a great candidate for a full assessment, though a full approach would be needed to include both length and rec CPUE data. Potential for a CCFRP index N of Pt. Conception.
- **Stripetail** (#21) and **greenstriped** (#37) **rockfishes** also have good potential data-moderate assessments using catch, length data, and WCGBT survey indices.
- **Blue/Deacon rockfish** (#7) and **Bocaccio** (#20), last assessed in 2017, would be other potential update species

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2023 Calendar, with potential review meeting dates

Considerable uncertainty about early STAR timing, given unknown timing of the June Council meeting

April

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Council Meetings	Most likely **June** main weeks, with meeting starting late the previous week
Possible STAR Panel weeks, for review in June	**Possible, pending June C dates**
Possible STAR Panel weeks, for review in Sept.	**Possible, pending June C dates**
Week for additional review, if needed	**Possible SSC-GSC Pre-Sept. Assessment Review**

Holidays

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Questions

- Additional questions on E.8 Supplemental REVISED Attachment 3: NMFS assessment prioritization workbook?

- Questions on E.8 Attachment 2: Detailed summary of available data to support stock assessments?

- An updated NWFSC WCGBT Survey report, including 2021 data, will be provided prior to the June Council meeting.

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