

## SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON INITIAL ACTIONS FOR SETTING 2015-2016 GROUND FISH FISHERIES

The Scientific and Statistical Committee (SSC) reviewed and discussed a number of topics relating to Agenda Item G.7 “Initial Actions for Setting 2015-2016 Groundfish Fisheries”, including 1) the proposed 2015-16 overfishing limits (OFLs), stock categories, and sigma values for stocks and stock complexes (Agenda Item G.7.a, Attachment 1), 2) a new proxy  $F_{MSY}$  spawning potential ratio for elasmobranchs (Agenda Item G.7.b, SSC Groundfish Subcommittee Statement Regarding a Change in Target SPR Rate for West Coast Elasmobranch Species), 3) Dr. André Punt’s briefing paper on Management Strategy Evaluation for Rebuilding Revision Rules: A Proof of Concept (Agenda Item G.7.a, Attachment 2), and 4) the GMT’s response to the SSC Economics Subcommittee report on data and models to be used in the socioeconomic analysis for the 2015-16 groundfish biennial specifications process (Agenda Item G.7.b, Supplemental GMT Report). Mr. John DeVore was available to answer questions and contributed to the discussions.

### 2015-16 Overfishing Limits, Stock Categories, and Sigma Values

The SSC reviewed the draft table of OFLs for 2015-16 and with the assistance of Mr. DeVore developed a revised table (attached) that includes changes to some of the OFL values (e.g., the revised OFL for bocaccio rockfish is from the 2013 assessment rather than the 2011 rebuilding analysis), category assignments (e.g., longspine and shortspine thornyhead are now category 2 stocks) and corrections to some subcategory designations. Information was unavailable for several stocks pending further analyses (e.g., a rebuilding analysis for cowcod and revised data-moderate assessment results for China rockfish). The information for the Other Fish stock complex will be completed following the Council’s decision on restructuring this stock complex. The table shows “NA” values for canary rockfish pending a review of the 2011 rebuilding analysis, which may have had a mis-specification. With regard to buffers for scientific uncertainty, the SSC recommends calculating values for the percentage reductions in OFLs based on the information presented in Table 3 of Agenda Item G.7.a, Attachment 1, but notes that the column of values for shortspine thornyhead does not apply because the SSC has determined that this stock should be treated as a category 2 stock.

The SSC notes that several of the stocks listed in the OFL table are from assessments that are now rather dated (e.g., gopher rockfish was last assessed in 2005). Because catch projections become increasingly uncertain as the length of the projection period increases, the buffer for scientific uncertainty should also increase. During the coming year the SSC will consider different approaches for revising OFL buffers for increasing scientific uncertainty through time, which will affect harvest specifications for 2017 and beyond.

The SSC recommends the OFL values and category designations indicated in the attached table. Values that are unavailable (NA) will be provided in a revised table at the November Council meeting.

#### Proxy $F_{MSY}$ Spawning Potential Ratio for Elasmobranchs

The SSC reviewed the Groundfish Subcommittee's report on a new proxy  $F_{MSY}$  spawning potential ratio for elasmobranchs and received a presentation from Dr. Martin Dorn, who conducted the analysis that informed the Subcommittee report. The SSC concurs with the Subcommittee's recommendation that the Council adopt  $F_{SPR50\%}$  as the default proxy fishing mortality rate for elasmobranch species managed by the Council. However, to inform management decisions for 2017 and beyond the SSC may recommend further revision to the default SPR for elasmobranchs based on an analysis of the maximum rate of population increase implied by the number of pups per female, which is constraining in elasmobranch species compared to rockfish or other species that produce large numbers of offspring per female.

The SSC was not presented with any information to justify changing the  $B_{MSY}$  proxy from the current proxy of  $B_{40\%}$ .

#### Management Strategy Evaluation for Rebuilding Revision Rules

The SSC received a presentation from Dr. André Punt on the software that he has developed for conducting a management strategy evaluation (MSE) of possible rules for revising rebuilding plans (e.g., whether, when, and by how much to change the target SPR). The software is designed to measure how different revision rules for rebuilding plans are impacted by uncertainty in assessments and other sources of noise, and how the rules influence relative performance in terms of catch, variability in catch, and the frequency of false declarations that a stock has rebuilt. This tool will provide useful guidance to the Council, but designing an appropriate set of simulation runs will require consultation with Council staff and advisory bodies and careful planning of a simulation experiment to evaluate a limited set of revision rules. The SSC notes that the Council currently has only one stock (cowcod) for which a new rebuilding analysis will be conducted. The SSC recommends that the process for developing revision rules for rebuilding plans be separated from the development of Amendment 24 and the 2015-16 biennial management specification process. Dr. Punt will collaborate with the GMT to further develop the analysis and will provide a summary to the Council in November.

#### GMT response to the SSC Economics Subcommittee report

In 2012-2013, the SSC Economics and Groundfish Subcommittees reviewed data and models used in the socioeconomic analysis for the groundfish specifications process. The report by the Groundfish Management Team (Agenda Item G.7, GMT Report) discusses how the GMT intends to incorporate some of the SSC recommendations into the 2015-16 specifications analysis, and also notes other issues raised by SSC that would require longer-term work and consultation with the SSC and various staff at NMFS and state agencies. The SSC recommends

a 1-2 day meeting of the GMT and the SSC Economics Subcommittee in 2014 to address some of these longer-term issues. Priority issues to be addressed at the meeting and the materials to be prepared in advance of the meeting would be identified in consultation with the GMT.

Table 1. 2014 OFLs (mt) and SSC-recommended 2015 and 2016 OFLs (mt) for west coast groundfish stocks (overfished stocks in CAPS; stocks with new assessments in **bold**; component stocks in status quo stock complexes in *italics*).

Stock	2014 OFL	Category	2015 OFL	2016 OFL
<b>OVERFISHED STOCKS</b>				
<b>BOCACCI S. of 40°10' N. latitude</b>	<b>881</b>	<b>1</b>	<b>1,444</b>	<b>1,351</b>
CANARY	741	1	NA	NA
COWCOD S. of 40°10' N. latitude	12		<b>NA</b>	<b>NA</b>
<i>COWCOD (Conception)</i>	<b>7</b>	<b>2</b>	<i>NA</i>	<i>NA</i>
<i>COWCOD (Monterey)</i>	5	3	<i>NA</i>	<i>NA</i>
<b>DARKBLOTCHED</b>	<b>553</b>	<b>1</b>	<b>588</b>	<b>595</b>
PACIFIC OCEAN PERCH	838	1	842	850
<b>PETRALE SOLE</b>	<b>2,774</b>	<b>1</b>	<b>2,946</b>	<b>3,044</b>
YELLOWEYE	51	2	52	52
<b>NON-OVERFISHED STOCKS</b>				
Arrowtooth Flounder	6,912	2	6,599	6,396
Black Rockfish (OR-CA)	1,166	1	1,176	1,183
Black Rockfish (WA)	428	1	421	423
Cabazon (CA)	165	1	161	158
Cabazon (OR)	49	1	49	49
California scorpionfish	122	1	119	117
Chilipepper S. of 40°10' N. latitude	1,722	1	1,703	1,694
Dover Sole	77,774	1	66,871	59,221
<b>English Sole</b>	<b>5,906</b>	<b>2</b>	<b>12,092</b>	<b>8,493</b>
Lingcod N. of 40°10' N. latitude	3,162	1	3,010	2,891
Lingcod S. of 40°10' N. latitude	1,276	2	1,205	1,136
Longnose skate	2,816	1	2,449	2,405
<b>Longspine Thornyhead (coastwide)</b>	<b>3,304</b>	<b>2</b>	<b>5,007</b>	<b>4,763</b>
Pacific Cod	3,200	3	3,200	3,200
Sablefish (coastwide)	7,158	1	7,857	8,526
Shortbelly	6,950	2	6,950	6,950
<b>Shortspine Thornyhead (coastwide)</b>	<b>2,310</b>	<b>2</b>	<b>3,203</b>	<b>3,169</b>
Splitnose S. of 40°10' N. latitude	1,747	1	1,794	1,826
Starry Flounder	1,834	2	1,841	1,847
Widow	4,435	1	4,137	3,990
<b>Yellowtail N. of 40°10' N. latitude</b>	<b>4,584</b>	<b>2</b>	<b>12,281</b>	<b>11,647</b>
<b>STOCK COMPLEXES</b>				
Minor Nearshore Rockfish North	110		NA	NA
<i>Black and yellow</i>	<i>0.01</i>	3	<i>0.01</i>	<i>0.01</i>
<i>Blue (CA)</i>	<i>27.4</i>	2	<i>27.4</i>	<i>27.7</i>
<i>Blue (OR &amp; WA)</i>	<i>32.3</i>	3	<i>32.3</i>	<i>32.3</i>
<b>Brown</b>	<b>5.5</b>	<b>2</b>	<i>NA</i>	<i>NA</i>
<i>Calico</i>	-	3	-	-
<b>China</b>	<b>9.8</b>	<b>2</b>	<i>NA</i>	<i>NA</i>
<b>Copper</b>	<b>26.0</b>	<b>2</b>	<i>NA</i>	<i>NA</i>
<i>Gopher</i>	-	3	-	-
<i>Grass</i>	<i>0.7</i>	3	<i>0.7</i>	<i>0.7</i>
<i>Kelp</i>	<i>0.01</i>	3	<i>0.01</i>	<i>0.01</i>
<i>Olive</i>	<i>0.3</i>	3	<i>0.3</i>	<i>0.3</i>
<i>Quillback</i>	<i>7.4</i>	3	<i>7.4</i>	<i>7.4</i>
<i>Treefish</i>	<i>0.2</i>	3	<i>0.2</i>	<i>0.2</i>
Minor Shelf Rockfish North	2,195		2,207	2,217

Stock	2014 OFL	Category	2015 OFL	2016 OFL
<i>Bronzespotted</i>	-	3	-	-
<i>Bocaccio</i>	284.0	3	284.0	284.0
<i>Chameleon</i>	-	3	-	-
<i>Chilipepper</i>	129.6	3	128.2	127.5
<i>Cowcod</i>	-	3	-	-
<i>Flag</i>	0.1	3	0.1	0.1
<i>Freckled</i>	-	3	-	-
<i>Greenblotched</i>	1.3	3	1.3	1.3
<i>Greenspotted 40°10' to 42° N. latitude</i>	9.4	2	9.3	9.3
<i>Greenspotted N. of 42 N. latitude (OR &amp; WA)</i>	6.1	3	6.1	6.1
<i>Greenstriped</i>	1,268.3	2	1,281.9	1,292.0
<i>Halfbanded</i>	-	3	-	-
<i>Harlequin</i>	-	3	-	-
<i>Honeycomb</i>	-	3	-	-
<i>Mexican</i>	-	3	-	-
<i>Pink</i>	0.004	3	0.004	0.004
<i>Pinkrose</i>	-	3	-	-
<i>Puget Sound</i>	-	3	-	-
<i>Pygmy</i>	-	3	-	-
<i>Redstripe</i>	269.9	3	269.9	269.9
<i>Rosethorn</i>	12.9	3	12.9	12.9
<i>Rosy</i>	3.0	3	3.0	3.0
<i>Silvergray</i>	159.4	3	159.4	159.4
<i>Speckled</i>	0.2	3	0.2	0.2
<i>Squarespot</i>	0.2	3	0.2	0.2
<i>Starry</i>	0.004	3	0.004	0.004
<b>Stripetail</b>	<b>40.4</b>	<b>3</b>	<b>40.4</b>	<b>40.4</b>
<i>Swordspine</i>	0.0001	3	0.0001	0.0001
<i>Tiger</i>	1.0	3	1.0	1.0
<i>Vermilion</i>	9.7	3	9.7	9.7
Minor Slope Rockfish North	1,553		1,804	1,817
<b>Aurora</b>	<b>15.4</b>	<b>1</b>	<b>17.4</b>	<b>17.5</b>
<i>Bank</i>	17.2	3	17.2	17.2
<i>Blackgill</i>	4.7	3	4.7	4.7
<i>Redbanded</i>	45.3	3	45.3	45.3
<b>Rougheye</b>	<b>71.1</b>	<b>1</b>	<b>201.9</b>	<b>205.8</b>
<b>Sharpchin</b>	<b>214.5</b>	<b>2</b>	<b>305.6</b>	<b>297.6</b>
<i>Shortraker</i>	18.7	3	18.7	18.7
<i>Splitnose</i>	974.1	1	1,000.6	1,018.2
<i>Yellowmouth</i>	192.4	3	192.4	192.4
Minor Nearshore Rockfish South	1,160		NA	NA
<i>Shallow Nearshore Species</i>	NA	NA	NA	NA
<i>Black and yellow</i>	27.5	3	27.5	27.5
<b>China</b>	<b>16.6</b>	<b>2</b>	<b>NA</b>	<b>NA</b>
<i>Gopher (N of Pt. Conception)</i>	153.0	1	148.0	144.0
<i>Gopher (S of Pt. Conception)</i>	25.6	3	25.6	25.6
<i>Grass</i>	59.6	3	59.6	59.6
<i>Kelp</i>	27.7	3	27.7	27.7
<i>Deeper Nearshore Species</i>	NA	NA	NA	NA
<i>Blue (assessed area)</i>	187.8	2	188.6	190.3
<i>Blue (S of 34°27' N. latitude)</i>	72.9	3	72.9	72.9
<b>Brown</b>	<b>204.6</b>	<b>2</b>	<b>NA</b>	<b>NA</b>

Stock	2014 OFL	Category	2015 OFL	2016 OFL
<i>Calico</i>	-	3	-	-
<b>Copper</b>	<b>141.5</b>	<b>2</b>	<b>NA</b>	<b>NA</b>
<i>Olive</i>	224.6	3	224.6	224.6
<i>Quillback</i>	5.4	3	5.4	5.4
<i>Treefish</i>	13.2	3	13.2	13.2
Minor Shelf Rockfish South	1,912.9		1,914.1	1,915.4
<i>Bronzespotted</i>	3.6	3	3.6	3.6
<i>Chameleon</i>	-	3	-	-
<i>Flag</i>	23.4	3	23.4	23.4
<i>Freckled</i>	-	3	-	-
<i>Greenblotched</i>	23.1	3	23.1	23.1
<i>Greenspotted</i>	80.3	2	79.0	78.4
<i>Greenstriped</i>	232.7	2	235.1	237.0
<i>Halfbanded</i>	-	3	-	-
<i>Harlequin</i>	-	3	-	-
<i>Honeycomb</i>	9.9	3	9.9	9.9
<i>Mexican</i>	5.1	3	5.1	5.1
<i>Pink</i>	2.5	3	2.5	2.5
<i>Pinkrose</i>	-	3	-	-
<i>Pygmy</i>	-	3	-	-
<i>Redstripe</i>	0.5	3	0.5	0.5
<i>Rosethorn</i>	2.1	3	2.1	2.1
<i>Rosy</i>	44.5	3	44.5	44.5
<i>Silvergray</i>	0.5	3	0.5	0.5
<i>Speckled</i>	39.4	3	39.4	39.4
<i>Squarespot</i>	11.1	3	11.1	11.1
<i>Starry</i>	62.6	3	62.6	62.6
<b>Stripetail</b>	<b>23.6</b>	<b>3</b>	<b>23.6</b>	<b>23.6</b>
<i>Swordspine</i>	14.2	3	14.2	14.2
<i>Tiger</i>	0.04	3	0.04	0.04
<i>Vermilion</i>	269.3	3	269.3	269.3
<i>Yellowtail</i>	1,064.4	3	1,064.4	1,064.4
Minor Slope Rockfish South	685		806	807
<b>Aurora</b>	<b>26.1</b>	<b>1</b>	<b>74.3</b>	<b>74.3</b>
<i>Bank</i>	503.2	3	503.2	503.2
<i>Blackgill</i>	134.0	2	137.0	140.0
<i>Pacific ocean perch</i>	-	3	-	-
<i>Redbanded</i>	10.4	3	10.4	10.4
<b>Rougheye</b>	<b>0.4</b>	<b>1</b>	<b>4.1</b>	<b>4.2</b>
<b>Sharpchin</b>	<b>9.8</b>	<b>2</b>	<b>76.4</b>	<b>74.4</b>
<i>Shortraker</i>	0.1	3	0.1	0.1
<i>Yellowmouth</i>	0.8	3	0.8	0.8
Other Flatfish	10,060		11,298	9,948
<i>Butter sole</i>	4.6	3	4.6	4.6
<i>Curlfin sole</i>	8.2	3	8.2	8.2
<i>Flathead sole</i>	35.0	3	35.0	35.0
<b>Pacific sanddab</b>	<b>4,801.0</b>	<b>3</b>	<b>4,801.0</b>	<b>4,801.0</b>
<b>Rex sole</b>	<b>4,371.5</b>	<b>2</b>	<b>5,609.0</b>	<b>4,259.0</b>
<i>Rock sole</i>	66.7	3	66.7	66.7
<i>Sand sole</i>	773.2	3	773.2	773.2
Other Fish a/	6,802	3	NA	NA
<i>Big skate</i>	458.0	3	c/	c/

Stock	2014 OFL	Category	2015 OFL	2016 OFL
<i>Cabezon (WA)</i>	<i>b/</i>	3	<i>b/</i>	<i>b/</i>
<i>California skate</i>	86.0	3	<i>c/</i>	<i>c/</i>
<i>Finescale codling</i>	<i>b/</i>	3	<i>b/</i>	<i>b/</i>
<i>Kelp greenling (CA)</i>	118.9	3	<i>c/</i>	<i>c/</i>
<i>Kelp greenling (OR &amp; WA)</i>	<i>b/</i>	3	<i>b/</i>	<i>b/</i>
<i>Leopard shark</i>	167.1	3	<i>c/</i>	<i>c/</i>
<i>Pacific grenadier</i>	1,519.0	3	<i>c/</i>	<i>c/</i>
<i>Ratfish</i>	1,441.0	3	<i>c/</i>	<i>c/</i>
<i>Soupsin shark</i>	61.6	3	<i>c/</i>	<i>c/</i>
<i>Spiny dogfish</i>	2,950.0	2	2,522.7	2,503.3

a/ Values for these specifications are the sum of known contributions of component stocks.

b/ No OFL contribution for these stocks given the lack of an approved method.

c/ No OFL recommended pending decisions on restructuring this complex.

Table 2. The basis for SSC-recommended 2015 and 2016 OFLs for West Coast groundfish stocks.

Stock	Comments
<b>OVERFISHED STOCKS</b>	
<b>BOCACCI</b> S. of 40°10' N. latitude	<b>Projected using a 50% SPR from the 2013 update stock assessment with a 6% reduction to subtract the portion of the assessed stock north of 40°10' N. lat.</b>
CANARY	OFL projections not yet available pending a review of the 2011 rebuilding analysis, which may have had a mis-specification
COWCOD S. of 40°10' N. latitude	Sum of Conception and Monterey OFLs.
<i>COWCOD (Conception)</i>	<b>Projected using a 50% SPR from the 2013 stock assessment.</b>
<i>COWCOD (Monterey)</i>	Not yet available. Revised DB-SRA estimate.
<b>DARKBLOTCHED</b>	<b>Projected using a 50% SPR from the 2013 stock assessment</b>
PACIFIC OCEAN PERCH	Projected using a 50% SPR from the 2011 rebuilding analysis
<b>PETRALE SOLE</b>	<b>Projected using a 30% SPR from the 2013 stock assessment</b>
YELLOWEYE	Projected using a 50% SPR from the 2011 rebuilding analysis
<b>NON-OVERFISHED STOCKS</b>	
Arrowtooth Flounder	Projected using a 30% SPR from the 2007 full assessment.
Black Rockfish (OR-CA)	Projected using a 50% SPR from the 2007 full assessment with the addition of 3% of the northern OFL to account for the portion of the stock estimated between Cape Falcon and the Columbia River.
Black Rockfish (WA)	Projected using a 50% SPR from the 2007 full assessment with a 3% reduction to account for the portion of the stock estimated between Cape Falcon and the Columbia River.
Cabazon (CA)	Projected using a 45% SPR from the 2009 full assessment.
Cabazon (OR)	Projected using a 45% SPR from the 2009 full assessment.
California scorpionfish	Projected using a 45% SPR from the 2005 full assessment.
Chilipepper S. of 40°10' N. latitude	Projected using a 50% SPR from the 2007 full assessment. The portion of the coastwide stock south of 40°10' N. lat. (93%) is based on average historical landings.
Dover Sole	Projected using a 30% SPR from the 2011 full assessment.
<b>English Sole</b>	<b>Projected using a 30% SPR from the 2013 data-moderate assessment.</b>
Lingcod N. of 40°10' N. latitude	Projected using a 45% SPR from the 2009 full assessment with 48% of the OFL S. of 42° N. latitude added to account for line shift.
Lingcod S. of 40°10' N. latitude	Projected using a 45% SPR from the 2009 full assessment with 48% of the OFL S. of 42° N. latitude subtracted to account for line shift.
Longnose skate	Projected using a 50% SPR from the 2007 full assessment. 2015 and 2016 OFLs projected using the status quo 45% SPR rate are 2,745 and 2,686 mt, respectively.
<b>Longspine Thornyhead (coastwide)</b>	<b>Projected using a 50% SPR from the 2013 full assessment.</b>
Pacific Cod	Status quo OFL.
Sablefish (coastwide)	Projected using a 45% SPR from the 2011 full assessment.
Shortbelly	MSY estimated from 2007 assessment.
<b>Shortspine Thornyhead (coastwide)</b>	<b>Projected using a 50% SPR from the 2013 full assessment.</b>



Stock	Comments
Splitnose S. of 40°10' N. latitude	Projected using a 50% SPR from the 2009 full assessment. The portion of the coastwide stock south of 40°10' N. lat. (64.2%) is based on average historical (1916-2008) landings.
Starry Flounder	Projected using a 30% SPR from the 2005 full assessment.
Widow	Projected using a 50% SPR from the 2011 full assessment.
<b>Yellowtail N. of 40°10' N. latitude</b>	<b>Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<b>STOCK COMPLEXES</b>	
Minor Nearshore Rockfish North	Sum of OFL contributions of component stocks in the complex.
<i>Black and yellow</i>	<i>DB-SRA estimate.</i>
<i>Blue (CA)</i>	<i>Projected using a 50% SPR from the 2007 full assessment. The portion of the assessed stock in CA north of 40°10' N. lat. (12.7%) is based on average historical landings.</i>
<i>Blue (OR &amp; WA)</i>	<i>DCAC estimate.</i>
<b>Brown</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<i>Calico</i>	<i>No harvest contribution (3a stock). Max. landings &lt;2 mt, 1928-2008; mainly a discard species</i>
<b>China</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<b>Copper</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<i>Gopher</i>	<i>No harvest contribution (3a stock).</i>
<i>Grass</i>	<i>DB-SRA estimate.</i>
<i>Kelp</i>	<i>DB-SRA estimate.</i>
<i>Olive</i>	<i>DB-SRA estimate.</i>
<i>Quillback</i>	<i>DB-SRA estimate.</i>
<i>Treefish</i>	<i>DB-SRA estimate.</i>
Minor Shelf Rockfish North	Sum of OFL contributions of component stocks in the complex.
<i>Bronzespotted</i>	<i>No harvest contribution in the north (3a stock)</i>
<i>Bocaccio</i>	<i>DB-SRA estimate.</i>
<i>Chameleon</i>	<i>No harvest contribution (3a stock).</i>
<i>Chilipepper</i>	<i>Projected using a 50% SPR from the 2007 full assessment. The portion of the coastwide stock north of 40°10' N. lat. (7%) is based on average historical landings.</i>
<i>Cowcod</i>	<i>No harvest contribution (3a stock).</i>
<i>Flag</i>	<i>DB-SRA estimate.</i>
<i>Freckled</i>	<i>No harvest contribution (3a stock).</i>
<i>Greenblotched</i>	<i>DB-SRA estimate.</i>
<i>Greenspotted 40°10' to 42° N. latitude</i>	<i>Projection using a 50% SPR from the full 2011 assessment. The portion of the assessed area north of 40°10' N lat. (22.2% of OFL from northern California model) based on average historical catch.</i>
<i>Greenspotted N. of 42 N. latitude (OR &amp; WA)</i>	<i>DCAC estimate</i>
<i>Greenstriped</i>	<i>Projected using a 50% SPR from the full 2009 assessment. The portion of the coastwide stock north of 40°10' N. lat. (84.5%) is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.</i>

Stock	Comments
<i>Halfbanded</i>	<i>No harvest contribution (3a stock). Max. landings &lt;2 mt, 1928-2008; mainly a discard species</i>
<i>Harlequin</i>	<i>DB-SRA estimate.</i>
<i>Honeycomb</i>	<i>No harvest contribution in the north (3a stock)</i>
<i>Mexican</i>	<i>No harvest contribution in the north (3a stock)</i>
<i>Pink</i>	<i>DB-SRA estimate.</i>
<i>Pinkrose</i>	<i>DB-SRA estimate.</i>
<i>Puget Sound</i>	<i>No harvest contribution (3a stock).</i>
<i>Pygmy</i>	<i>No harvest contribution (3a stock).</i>
<i>Redstripe</i>	<i>DB-SRA estimate.</i>
<i>Rosethorn</i>	<i>DB-SRA estimate.</i>
<i>Rosy</i>	<i>DB-SRA estimate.</i>
<i>Silvergray</i>	<i>DB-SRA estimate.</i>
<i>Speckled</i>	<i>DB-SRA estimate.</i>
<i>Squarespot</i>	<i>DB-SRA estimate.</i>
<i>Starry</i>	<i>DB-SRA estimate.</i>
<b><i>Stripetail</i></b>	<b><i>DB-SRA estimate. Only status determined from 2013 data-moderate assessment, so presumed to remain a cat. 3 stock.</i></b>
<i>Swordspine</i>	<i>DB-SRA estimate.</i>
<i>Tiger</i>	<i>DB-SRA estimate.</i>
<i>Vermilion</i>	<i>DB-SRA estimate.</i>
Minor Slope Rockfish North	Sum of OFL contributions of component stocks in the complex.
<b><i>Aurora</i></b>	<b><i>Projected using a 50% SPR from the 2013 full assessment. The portion of the coastwide stock north of 40°10' N lat. (19%) is based on average survey biomass.</i></b>
<i>Bank</i>	<i>DB-SRA estimate.</i>
<i>Blackgill</i>	<i>DCAC estimate.</i>
<i>Redbanded</i>	<i>DB-SRA estimate.</i>
<b><i>Rougheye</i></b>	<b><i>Projected using a 50% SPR from the 2013 full assessment. The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012.</i></b>
<b><i>Sharpchin</i></b>	<b><i>Coastwide OFLs projected using a 50% SPR from the 2013 data-moderate assessment. OFLs are apportioned north and south of 40°10' N lat. (80%N, 20% S) based on average swept area biomass estimates from the triennial survey.</i></b>
<i>Shortraker</i>	<i>DB-SRA estimate.</i>
<i>Splitnose</i>	<i>Projected using a 50% SPR from the 2009 full assessment. The portion of the coastwide stock north of 40°10' N. lat. (35.8%) is based on average historical (1916-2008) landings.</i>
<i>Yellowmouth</i>	<i>DB-SRA estimate.</i>
Minor Nearshore Rockfish South	Sum of OFL contributions of component stocks in the complex.
<i>Shallow Nearshore Species</i>	

Stock	Comments
<i>Black and yellow</i>	<i>DB-SRA estimate.</i>
<b>China</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<i>Gopher (N of Pt. Conception)</i>	<i>Projected using a 50% SPR from the 2005 full assessment.</i>
<i>Gopher (S of Pt. Conception)</i>	<i>DCAC estimate.</i>
<i>Grass</i>	<i>DB-SRA estimate.</i>
<i>Kelp</i>	<i>DB-SRA estimate.</i>
<i>Deeper Nearshore Species</i>	
<i>Blue (assessed area)</i>	<i>Projected using a 50% SPR from the 2007 full assessment. The portion of the assessed stock in CA south of 40°10' N. lat. (87.3%) is based on average historical landings.</i>
<i>Blue (S of 34°27' N. latitude)</i>	<i>DCAC estimate.</i>
<b>Brown</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<i>Calico</i>	<i>No harvest contribution (3a stock). Max. landings &lt;2 mt, 1928-2008; mainly a discard species</i>
<b>Copper</b>	<b>Not yet available. Projected using a 50% SPR from the 2013 data-moderate assessment.</b>
<i>Olive</i>	<i>DB-SRA estimate.</i>
<i>Quillback</i>	<i>DB-SRA estimate.</i>
<i>Treefish</i>	<i>DB-SRA estimate.</i>
Minor Shelf Rockfish South	Sum of OFL contributions of component stocks in the complex.
<i>Bronzespotted</i>	<i>DB-SRA estimate.</i>
<i>Chameleon</i>	<i>No harvest contribution (3a stock).</i>
<i>Flag</i>	<i>DB-SRA estimate.</i>
<i>Freckled</i>	<i>No harvest contribution (3a stock).</i>
<i>Greenblotched</i>	<i>DB-SRA estimate.</i>
<i>Greenspotted</i>	<i>Projection using a 50% SPR from the full 2011 assessment. The portion of the assessed area south of 40°10' N lat. (77.8% of OFL from northern California model from average historical catch + the OFL from the southern California model)</i>
<i>Greenstriped</i>	<i>Projected using a 50% SPR from the full 2009 assessment. The portion of the coastwide stock south of 40°10' N. lat. (15.5%) is based on the mean of the 2003-2008 swept area biomass estimates from the NMFS trawl survey.</i>
<i>Halfbanded</i>	<i>No harvest contribution (3a stock).</i>
<i>Harlequin</i>	<i>DB-SRA estimate.</i>
<i>Honeycomb</i>	<i>DB-SRA estimate.</i>
<i>Mexican</i>	<i>DB-SRA estimate.</i>
<i>Pink</i>	<i>DB-SRA estimate.</i>
<i>Pinkrose</i>	<i>DB-SRA estimate.</i>
<i>Pygmy</i>	<i>No harvest contribution (3a stock).</i>
<i>Redstripe</i>	<i>DB-SRA estimate.</i>
<i>Rosethorn</i>	<i>DB-SRA estimate.</i>

Stock	Comments
<i>Rosy</i>	<i>DB-SRA estimate.</i>
<i>Silvergray</i>	<i>DB-SRA estimate.</i>
<i>Speckled</i>	<i>DB-SRA estimate.</i>
<i>Squarespot</i>	<i>DB-SRA estimate.</i>
<i>Starry</i>	<i>DB-SRA estimate.</i>
<b><i>Stripetail</i></b>	<b><i>DB-SRA estimate. Only status determined from 2013 data-moderate assessment, so presumed to remain a cat. 3 stock.</i></b>
<i>Swordspine</i>	<i>DB-SRA estimate.</i>
<i>Tiger</i>	<i>DB-SRA estimate.</i>
<i>Vermilion</i>	<i>DB-SRA estimate.</i>
<i>Yellowtail</i>	<i>DB-SRA estimate.</i>
Minor Slope Rockfish South	Sum of OFL contributions of component stocks in the complex.
<b><i>Aurora</i></b>	<b><i>Projected using a 50% SPR from the 2013 full assessment. The portion of the coastwide stock south of 40°10' N lat. (81%) is based on average survey biomass.</i></b>
<i>Bank</i>	<i>DB-SRA estimate.</i>
<i>Blackgill</i>	<i>Projected using a 50% SPR from the 2011 full assessment.</i>
<i>Pacific ocean perch</i>	<i>No harvest contribution (3a stock).</i>
<i>Redbanded</i>	<i>DB-SRA estimate.</i>
<b><i>Rougheye</i></b>	<b><i>Projected using a 50% SPR from the 2013 full assessment. The coastwide OFLs are apportioned north (98%) and south (2%) based on average landings during 1985-2012.</i></b>
<b><i>Sharpchin</i></b>	<b><i>Coastwide OFLs projected using a 50% SPR from the 2013 data-moderate assessment. OFLs are apportioned north and south of 40°10' N lat. (80%N, 20% S) based on average swept area biomass estimates from the triennial survey.</i></b>
<i>Shortraker</i>	<i>DB-SRA estimate.</i>
<i>Yellowmouth</i>	<i>DB-SRA estimate.</i>
Other Flatfish	Sum of OFL contributions of component stocks in the complex.
<i>Butter sole</i>	<i>Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study.</i>
<i>Curlfin sole</i>	<i>Based on the average catch during 1994-1998 + a 60% discard rate estimated from the EDCP study.</i>
<i>Flathead sole</i>	<i>Max. catch = 35 mt in 2005</i>
<b><i>Pacific sanddab</i></b>	<b><i>DB-SRA estimate. Only status determined from 2013 full assessment, so presumed to remain a cat. 3 stock.</i></b>
<b><i>Rex sole</i></b>	<b><i>Projected using a 50% SPR from the 2013 data-moderate assessment.</i></b>
<i>Rock sole</i>	<i>DB-SRA estimate.</i>
<i>Sand sole</i>	<i>DB-SRA estimate.</i>
Other Fish a/	No analytical basis for the status quo OFL.
<i>Big skate</i>	<i>Derived from survey biomass and MSY harvest rate estimates</i>
<i>Cabezon (WA)</i>	

Stock	Comments
<i>California skate</i>	<i>Derived from survey biomass and MSY harvest rate estimates</i>
<i>Finescale codling</i>	
<i>Kelp greenling (CA)</i>	<i>DB-SRA estimate.</i>
<i>Kelp greenling (OR &amp; WA)</i>	
<i>Leopard shark</i>	<i>DB-SRA estimate.</i>
<i>Pacific grenadier</i>	<i>Derived from survey biomass and MSY harvest rate estimates</i>
<i>Ratfish</i>	<i>Derived from survey biomass and MSY harvest rate estimates</i>
<i>Southern shark</i>	<i>DCAC estimate.</i>
<i>Spiny dogfish</i>	<i>Projected using a 50% SPR from the 2011 full assessment. 2015 and 2016 OFLs projected using the status quo 45% SPR rate are 2,921 and 2,893 mt, respectively.</i>

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