

GROUND FISH MANAGEMENT TEAM RECOMMENDATIONS FOR THE RANGE OF 2005-06 HARVEST LEVELS

The Groundfish Management Team (GMT) considered the results of recently revised assessments for lingcod and cabezon, new cabezon harvest projections, and the range of rebuilding alternatives for bocaccio, cowcod, widow rockfish, and yelloweye rockfish to recommend a revised list of 2005 and 2006 ABCs and OYs for these species. The GMT attempted to capture the full range of harvest levels available using the revised lingcod and cabezon assessments as well as the full range of harvests specified in the Amendment 16-3 DEIS for bocaccio, cowcod, widow rockfish, and yelloweye rockfish. Tables 1 and 2 of this report present the revised alternative ABCs and OYs for these six species and Table 3 presents the cabezon harvest projections provided by Dr. Andre Punt. Tables 1 and 2 present alternative harvest levels that are identical to those adopted for analysis by the Council in November 2003 with the following revisions:

Lingcod

The GMT referred to Table 6 on page 15 of the Addendum to the "Assessment of Lingcod for the Pacific Fishery Management Council in 2003" (presented in the March 2004 briefing book) and segregated lingcod ABCs and OYs north and south of the Columbia-Eureka INPFC management line. The range of lingcod OYs was based as follows: $P_{MAX} = 90\%$ under the Low OY alternative, $P_{MAX} = 70\%$ under the Medium OY alternative, and $P_{MAX} = 60\%$ under the High OY alternative.

Cabezon

The GMT referred to Table 3 in this attachment, which provides cabezon harvest level projections based on the SSC-recommended model from the revised assessment, and ranged OYs as follows: the Low OY alternative assumes an $F_{50\%}$ harvest rate and a 60-20 precautionary adjustment (this is the precautionary adjustment that CDFG uses for nearshore species management), the Medium OY alternative assumes an $F_{45\%}$ harvest rate and a 60-20 precautionary adjustment, and the High OY alternative assumes an $F_{45\%}$ harvest rate and a 40-10 precautionary adjustment.

Bocaccio

The GMT referred to tables presented in the Amendment 16-3 DEIS to range bocaccio ABCs and OYs as follows: the ABC/OY under the Low OY alternative assumed the STARb2 model with $P_{MAX} = 90\%$, the ABC/OY under the Medium OY alternative assumed the STATc model with $P_{MAX} = 70\%$, and the ABC/OY under the High OY alternative assumed the STARb1 model with $P_{MAX} = 60\%$.

Cowcod

The GMT referred to tables presented in the Amendment 16-3 DEIS to range cowcod ABCs and OYs as follows: P_{MAX} under the Low OY alternative is 60% and P_{MAX} under the High OY alternative is 55%.

Widow Rockfish

The GMT referred to tables presented in the Amendment 16-3 DEIS to range widow rockfish ABCs and OYs as follows: the ABC/OY under the Low OY alternative assumed model 7 with $P_{MAX} = 90\%$, the ABC/OY under the Medium OY alternative assumed model 8 with $P_{MAX} = 60\%$, and the ABC/OY under the High OY alternative assumed model 9 with $P_{MAX} = 60\%$.

Yelloweye Rockfish

The GMT referred to tables presented in the Amendment 16-3 DEIS to range yelloweye rockfish OYs as follows: P_{MAX} under the Low OY alternative is 90%, P_{MAX} under the Medium OY alternative is 70%, and P_{MAX} under the High OY alternative is 60%.

TABLE 1. Groundfish Management Team-recommended alternatives for acceptable biological catches (ABCs) and total catch optimum yields (OYs) (mt) for 2005. (Overfished stocks in CAPS).

| Stock | 2004 ABCs/OYs | | 2005 ABC and OY Alternatives | | | | | | | |
|--|----------------------------|---------|------------------------------------|-------|--------|--------|---------|--------|---------------|--------|
| | | | Low OY | | Med OY | | High OY | | Council OY a/ | |
| | ABC | OY | ABC | OY | ABC | OY | ABC | OY | ABC | OY |
| LINGCOD - coastwide | 1,385 | 735 | 2,922 | 2,467 | 2,922 | 2,588 | 2,922 | 2,636 | | |
| Columbia and US-Vanc. areas | | | 1,874 | 1,874 | 1,874 | 1,874 | 1,874 | 1,874 | | |
| Eureka, Monterey, and Conception areas | | | 1,048 | 594 | 1,048 | 714 | 1,048 | 762 | | |
| Pacific Cod | 3,200 | 3,200 | 3,200 | 1,600 | | | 3,200 | 3,200 | | |
| PACIFIC WHITING (Coastwide) | 514,441 | 250,000 | Decision deferred until March 2005 | | | | | | | |
| Sablefish (Coastwide) | 8,487 | 7,786 | 8,368 | 6,500 | 8,368 | 7,761 | 8,368 | 8,335 | 8,368 | 7,761 |
| North of Conception | 8,185 | 7,510 | | 6,270 | | 7,486 | | 8,040 | | 7,486 |
| Conception area | 302 | 276 | | 230 | | 275 | | 295 | | 275 |
| PACIFIC OCEAN PERCH | 980 | 444 | | | 966 | 447 | | | 966 | 447 |
| Shortbelly Rockfish | 13,900 | 13,900 | | | 13,900 | 13,900 | | | 13,900 | 13,900 |
| WIDOW ROCKFISH | 3,460 | 284 | 2,833 | 0 | 3,218 | 285 | 3,668 | 505 | | |
| CANARY ROCKFISH b/ | 256 | 47 | 270 | 43 | 270 | 48 | 270 | 48 | 270 | 48 |
| Chilipepper Rockfish | 2,700 | 2,000 | | | 2,700 | 2,000 | | | 2,700 | 2,000 |
| BOCACCIO | 400 | 250 | 447 | 135 | 566 | 308 | 745 | 713 | | |
| Splitnose Rockfish | 615 | 461 | | | 615 | 461 | | | 615 | 461 |
| Yellowtail Rockfish | 4,320 | 4,320 | | | 3,896 | 3,896 | | | 3,896 | 3,896 |
| Shortspine Thornyhead | 1,030 | 983 | | | 1,055 | 999 | | | 1,055 | 999 |
| Longspine Thornyhead | 2,461 | 2,461 | | | 2,461 | 2,461 | | | 2,461 | 2,461 |
| S. of Pt. Conception | 390 | 195 | | | 390 | 195 | | | 390 | 195 |
| COWCOD (S. Concep) | 5 | 2.4 | 5 | 2.1 | | | 5 | 2.4 | | |
| N. Concep & Monterey | 19 | 2.4 | 19 | 2.1 | | | 19 | 2.4 | | |
| DARKBLOTCHED | 240 | 240 | | | 269 | 269 | | | 269 | 269 |
| YELLOWWEYE | 53 | 22 | 54 | 24 | 54 | 27 | 54 | 28 | | |
| Nearshore Species | | | | | | | | | | |
| Black WA | 540 | 540 | | | 540 | 540 | | | 540 | 540 |
| Black OR-CA | 775 | 775 | | | 753 | 753 | | | 753 | 753 |
| Minor Rockfish North | 3,680 | 2,250 | | | 3,680 | 2,250 | | | 3,680 | 2,250 |
| Remaining Rockfish North | 1,612 | 1,216 | | | 1,612 | 1,216 | | | 1,612 | 1,216 |
| Bocaccio | 318 | 239 | | | 318 | 239 | | | 318 | 239 |
| Chilipepper - Eureka | 32 | 32 | | | 32 | 32 | | | 32 | 32 |
| Redstripe | 576 | 432 | | | 576 | 432 | | | 576 | 432 |
| Sharpchin | 307 | 230 | | | 307 | 230 | | | 307 | 230 |
| Silvergrey | 38 | 29 | | | 38 | 29 | | | 38 | 29 |
| Splitnose | 242 | 182 | | | 242 | 182 | | | 242 | 182 |
| Yellowmouth | 99 | 74 | | | 99 | 74 | | | 99 | 74 |
| Other Rockfish North | 2,068 | 1,034 | | | 2,068 | 1,034 | | | 2,068 | 1,034 |
| Minor Rockfish South | 3,412 | 1,968 | | | 3,412 | 1,968 | | | 3,412 | 1,968 |
| Remaining Rockfish South | 854 | 689 | | | 854 | 689 | | | 854 | 689 |
| Bank | 350 | 263 | | | 350 | 263 | | | 350 | 263 |
| Blackgill | 343 | 306 | | | 343 | 306 | | | 343 | 306 |
| Sharpchin | 45 | 34 | | | 45 | 34 | | | 45 | 34 |
| Yellowtail | 116 | 87 | | | 116 | 87 | | | 116 | 87 |
| Other Rockfish South | 2,558 | 1,279 | | | 2,558 | 1,279 | | | 2,558 | 1,279 |
| Cabezon (off CA only) | Managed under "Other Fish" | | 88 | 44 | 103 | 51 | 103 | 91 | | |
| Dover Sole | 8,510 | 7,440 | | | 8,510 | 7,440 | | | 8,510 | 7,440 |
| English Sole | 3,100 | 3,100 | | | 3,100 | 3,100 | | | 3,100 | 3,100 |
| Petrале Sole | 2,762 | 2,762 | | | 2,762 | 2,762 | | | 2,762 | 2,762 |
| Arrowtooth Flounder | 5,800 | 5,800 | | | 5,800 | 5,800 | | | 5,800 | 5,800 |
| Other Flatfish | 7,700 | 7,700 | 7,700 | 3,850 | | | 12,000 | 12,000 | | |
| Other Fish | 14,700 | 14,700 | 15,000 | 7,500 | | | 15,000 | 15,000 | | |

a/ Council OY is the Council's preferred harvest alternative for 2005.

b/ The canary rockfish ABC and OY are based on the Council's adopted rebuilding strategy that has a rebuilding target year of 2074, a specified harvest control rule ($F = 0.220$), and comports to a P_{MAX} (probability of successful rebuilding within the maximum allowable time period) of 60%. The OY varies by the commercial:recreational catch share due to the fact that the recreational fishery takes smaller fish and therefore has a greater "per ton" impact than the commercial fishery.

TABLE 2. Groundfish Management Team-recommended alternatives for acceptable biological catches (ABCs) and total catch optimum yields (OYs) (mt) for 2006. (Overfished stocks in CAPS).

| Stock | 2004 ABCs/OYs | | 2006 ABC and OY Alternatives | | | | | | | |
|--|----------------------------|---------|------------------------------------|-------|--------|--------|---------|--------|---------------|--------|
| | ABC | OY | Low OY | | Med OY | | High OY | | Council OY a/ | |
| | | | ABC | OY | ABC | OY | ABC | OY | ABC | OY |
| LINGCOD - coastwide | 1,385 | 735 | 2,716 | 2,299 | 2,716 | 2,414 | 2,716 | 2,459 | | |
| Columbia and US-Vanc. Areas | | | 1,694 | 1,694 | 1,694 | 1,694 | 1,694 | 1,694 | | |
| Eureka, Monterey, and Conception areas | | | 1,021 | 605 | 1,021 | 719 | 1,021 | 764 | | |
| Pacific Cod | 3,200 | 3,200 | 3,200 | 1,600 | | | 3,200 | 3,200 | | |
| PACIFIC WHITING (Coastwide) | 514,441 | 250,000 | Decision deferred until March 2006 | | | | | | | |
| Sablefish (Coastwide) | 8,487 | 7,786 | 8,175 | 6,500 | 8,175 | 7,634 | 8,175 | 8,149 | 8,175 | 7,634 |
| North of Conception | 8,185 | 7,510 | | 6,270 | | 7,363 | | 7,860 | | 7,363 |
| Conception area | 302 | 276 | | 230 | | 271 | | 289 | | 271 |
| PACIFIC OCEAN PERCH | 980 | 444 | | | 934 | 447 | | | 934 | 447 |
| Shortbelly Rockfish | 13,900 | 13,900 | | | 13,900 | 13,900 | | | 13,900 | 13,900 |
| WIDOW ROCKFISH | 3,460 | 284 | 2,670 | 0 | 3,059 | 289 | 3,510 | 513 | | |
| CANARY ROCKFISH b/ | 256 | 47 | 279 | 45 | 279 | 51 | 279 | 51 | 279 | 51 |
| Chilipepper Rockfish | 2,700 | 2,000 | | | 2,700 | 2,000 | | | 2,700 | 2,000 |
| BOCACCIO | 400 | 250 | 443 | 140 | 549 | 309 | 733 | 704 | | |
| Splitnose Rockfish | 615 | 461 | | | 615 | 461 | | | 615 | 461 |
| Yellowtail Rockfish | 4,320 | 4,320 | | | 3,681 | 3,681 | | | 3,681 | 3,681 |
| Shortspine Thornyhead | 1,030 | 983 | | | 1,077 | 1,018 | | | 1,077 | 1,018 |
| Longspine Thornyhead | 2,461 | 2,461 | | | 2,461 | 2,461 | | | 2,461 | 2,461 |
| S. of Pt. Conception | 390 | 195 | | | 390 | 195 | | | 390 | 195 |
| COWCOD (S. Concep) | 5 | 2.4 | 5 | 2.1 | | | 5 | 2.4 | | |
| N. Concep & Monterey | 19 | 2.4 | 19 | 2.1 | | | 19 | 2.4 | | |
| DARKBLOTCHED | 240 | 240 | | | 294 | 294 | | | 294 | 294 |
| YELLOWEYE | 53 | 22 | 55 | 25 | 55 | 28 | 55 | 29 | | |
| Nearshore Species | | | | | | | | | | |
| Black WA | 540 | 540 | | | 540 | 540 | | | 540 | 540 |
| Black OR-CA | 775 | 775 | | | 736 | 736 | | | 736 | 736 |
| Minor Rockfish North | 3,680 | 2,250 | | | 3,680 | 2,250 | | | 3,680 | 2,250 |
| Remaining Rockfish North | 1,612 | 1,216 | | | 1,612 | 1,216 | | | 1,612 | 1,216 |
| Bocaccio | 318 | 239 | | | 318 | 239 | | | 318 | 239 |
| Chilipepper - Eureka | 32 | 32 | | | 32 | 32 | | | 32 | 32 |
| Redstripe | 576 | 432 | | | 576 | 432 | | | 576 | 432 |
| Sharpchin | 307 | 230 | | | 307 | 230 | | | 307 | 230 |
| Silvergrey | 38 | 29 | | | 38 | 29 | | | 38 | 29 |
| Splitnose | 242 | 182 | | | 242 | 182 | | | 242 | 182 |
| Yellowmouth | 99 | 74 | | | 99 | 74 | | | 99 | 74 |
| Other Rockfish North | 2,068 | 1,034 | | | 2,068 | 1,034 | | | 2,068 | 1,034 |
| Minor Rockfish South | 3,412 | 1,968 | | | 3,412 | 1,968 | | | 3,412 | 1,968 |
| Remaining Rockfish South | 854 | 689 | | | 854 | 689 | | | 854 | 689 |
| Bank | 350 | 263 | | | 350 | 263 | | | 350 | 263 |
| Blackgill | 343 | 306 | | | 343 | 306 | | | 343 | 306 |
| Sharpchin | 45 | 34 | | | 45 | 34 | | | 45 | 34 |
| Yellowtail | 116 | 87 | | | 116 | 87 | | | 116 | 87 |
| Other Rockfish South | 2,558 | 1,279 | | | 2,558 | 1,279 | | | 2,558 | 1,279 |
| Cabezon (off CA only) | Managed under "Other Fish" | | 94 | 63 | 108 | 72 | 108 | 107 | | |
| Dover Sole | 8,510 | 7,440 | | | 8,510 | 7,440 | | | 8,510 | 7,440 |
| English Sole | 3,100 | 3,100 | | | 3,100 | 3,100 | | | 3,100 | 3,100 |
| Petrale Sole | 2,762 | 2,762 | | | 2,762 | 2,762 | | | 2,762 | 2,762 |
| Arrowtooth Flounder | 5,800 | 5,800 | | | 5,800 | 5,800 | | | 5,800 | 5,800 |
| Other Flatfish | 7,700 | 7,700 | 7,700 | 3,850 | | | 12,000 | 12,000 | | |
| Other Fish | 14,700 | 14,700 | 15,000 | 7,500 | | | 15,000 | 15,000 | | |

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b/ The canary rockfish ABC and OY are based on the Council's adopted rebuilding strategy that has a rebuilding target year of 2074, a specified harvest control rule ($F = 0.220$), and comports to a P_{MAX} (probability of successful rebuilding within the maximum allowable time period) of 60%. The OY varies by the commercial:recreational catch share due to the fact that the recreational fishery takes smaller fish and therefore has a greater "per ton" impact than the commercial fishery.

Table 3. Median harvest levels corresponding to three control rules for the “new catch & 1947-present CPUE index” analysis. Results are shown for two F_{MSY} proxies ($F_{50\%}$ and $F_{45\%}$).

| Year | F_{MSY} proxy – $F_{50\%}$ | | | F_{MSY} proxy – $F_{45\%}$ | | |
|------|------------------------------|-------|-----|------------------------------|-------|-----|
| | 40-10 | 60-20 | ABC | 40-10 | 60-20 | ABC |
| 2004 | 62 | 26 | 82 | 74 | 31 | 99 |
| 2005 | 80 | 44 | 88 | 91 | 51 | 103 |
| 2006 | 97 | 63 | 94 | 107 | 72 | 108 |
| 2007 | 100 | 74 | 97 | 110 | 83 | 109 |
| 2008 | 100 | 81 | 97 | 107 | 88 | 108 |
| 2009 | 101 | 87 | 98 | 106 | 93 | 107 |
| 2010 | 102 | 95 | 99 | 107 | 100 | 107 |
| 2011 | 104 | 102 | 101 | 108 | 106 | 107 |
| 2012 | 106 | 110 | 103 | 111 | 112 | 107 |
| 2013 | 108 | 116 | 104 | 110 | 117 | 106 |
| 2014 | 109 | 122 | 105 | 110 | 121 | 105 |
| 2015 | 111 | 126 | 106 | 110 | 124 | 105 |
| 2016 | 112 | 133 | 107 | 110 | 128 | 104 |
| 2017 | 114 | 141 | 109 | 114 | 133 | 104 |
| 2018 | 115 | 147 | 111 | 114 | 136 | 104 |
| 2019 | 116 | 149 | 112 | 113 | 138 | 104 |
| 2020 | 118 | 151 | 112 | 114 | 143 | 102 |
| 2021 | 120 | 154 | 114 | 115 | 145 | 102 |
| 2022 | 122 | 157 | 114 | 117 | 148 | 101 |
| 2023 | 124 | 160 | 117 | 118 | 153 | 101 |