# Tables and Graphics Relevant to Deciding 2011-2012 Groundfish Annual Catch Limits

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**Table 2-2a. Range of 2011 annual catch limit (ACL) alternatives (mt) adopted for analysis. NOTE the range of ACL alternatives will be limited by the specified ABC since an ACL cannot exceed the ABC (highlighted cells equal projected OFLs). ABC specifications have yet to be decided; therefore, some of the higher ACLs may not be legally viable. Also, the GMT has yet to determine their recommendations for the minor rockfish, Other Flatfish, and Other Fish complexes, so those values are missing. (Overfished stocks in CAPS; Stocks with new assessments in bold; ACL alternatives with a scientific uncertainty adjustment incorporated are in *bold italic* with a bold border around the cell).**

| Stock | No Action Alternative | Status Quo Alternative a/ | 2011 Action Alternatives | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2010 OY | 2011 ACL | Alt 1 ACL | Alt 2 ACL | Alt 3 ACL | Alt 4 ACL | Alt 5 ACL | Alt 6 ACL |
| **Lingcod - coastwide** | 4,829 | | ***2,481*** | 3,593 | 4,961 | | | |
| **Lingcod N. of 42° N latitude (OR & WA)** | | | ***1,219*** | 2,172 | 2,438 | | | |
| **Lingcod S. of 42° N latitude (CA)** | | | ***1,262*** | 1,421 | 2,523 | | | |
| Pacific Cod | 1,600 | | 1,600 | | | | | |
| **Pacific Whiting (U.S.)** | 193,935 | | 67,970 | 135,939 | 404,318 | | | |
| Sablefish - coastwide | | | | | | | | |
| Sablefish N. of 36° N latitude | 6,471 | | 4,343 | 4,599 | 5,770 | 5,770 | 6,109 | |
| Sablefish S. of 36° N latitude | 1,258 | | ***1,022*** | ***894*** | 1,358 | 2,715 | 1,188 | |
| **PACIFIC OCEAN PERCH** | 200 | 180 | 0 | 180 | 204 | 265 | | |
| Shortbelly | 6,950 | | 6,950 | | | | | |
| **WIDOW** | 509 | 352 | 0 | 200 | 400 | 600 | 1,000 | 3,000 |
| **CANARY** | 105 | 102 | 0 | 49 | 69 | 102 | 128 | 155 |
| Chilipepper b/ | 2,447 | | 2,229 | | | | | |
| **BOCACCIO S. of 40°10' N latitude** | 288 | 263 | 0 | 53 | 109 | 263 | 373 | |
| **Splitnose c/** | 461 | | 145 | 291 | 618 | 1,236 | Manage in Complex | |
| Yellowtail N. of 40°10' N latitude | 4,562 | | 4,566 | | | | | |
| Shortspine Thornyhead - N. of 34°27' N latitude | 1,591 | | 1,573 | 1,573 | | | | |
| Shortspine Thornyhead - S. of 34°27' N latitude | 410 | | ***405*** | 811 | | | | |
| Longspine Thornyhead - N. of 34°27' N latitude | 2,175 | | ***2,119*** | 2,825 | | | | |
| Longspine Thornyhead - S. of 34°27' N latitude | 385 | | ***375*** | 751 | | | | |
| **COWCOD (Con + Mon)** | 4 | 4 | 0 | 2 | 3 | 4 | 9 | |
| **DARKBLOTCHED** | 291 | 332 | 0 | 130 | 222 | 298 | 332 | 461 |
| **YELLOWEYE** | 17 | 20 | 0 | 9 | 13 | 17 | 20 | 20 |
| Black Rockfish (WA) | 464 | | 445 | | | | | |
| Black Rockfish (OR-CA) | 1,000 | | 1,000 | | | | | |
| California scorpionfish | 155 | | 133 | 144 | | | | |
| **Cabezon (CA)** | 79 | | 102 | 160 | | | | |
| **Cabezon (OR)** | | | 29 | 50 | | | | |
| Dover Sole | 16,500 | | 16,500 | 44,400 | | | | |
| English Sole | 9,745 | | 7,158 | | | | | |
| **PETRALE SOLE (1,200 mt 2010 OY)** | 1,200 | | 0 | 459 | 695 | 1,021 | | |
| **PETRALE SOLE (1,200 mt 2010 OY; no winter fishery)** | 1,200 | | 0 | 586 | 810 | 1,170 | | |
| Arrowtooth Flounder | 10,112 | | 9,109 | | | | | |
| Starry Flounder | 1,077 | | ***1,130*** | 1,507 | | | | |
| Longnose skate | 1,349 | | 1,349 | | | | | |

a/ The status quo alternative are the ACLs under the current SPR harvest rates prescribed in rebuilding plans as applied to the estimated biomass for the stock. This alternative applies only to the overfished species with adopted rebuilding plans and differs from the No Action alternative, which is based on the 2010 OYs in regulation.

b/ Chilipepper rockfish are projected from the 2007 assessment based on the population occurring in waters off CA and OR. They were specified for south of 40°10' N latitude in 2009-10, but should have been applied for the waters off CA and OR.

c/ Splitnose rockfish specifications in 2009-10 were for south of 40°10' N latitude. The 2011-12 specifications are projected from the 2009 assessment and apply coastwide.

**Table 2-2b. Range of 2012 annual catch limit (ACL) alternatives (mt) adopted for analysis. NOTE the range of ACL alternatives will be limited by the specified ABC since an ACL cannot exceed the ABC (highlighted cells equal projected OFLs). ABC specifications have yet to be decided; therefore, some of the higher ACLs may not be legally viable. Also, the GMT has yet to determine their recommendations for the minor rockfish, Other Flatfish, and Other Fish complexes, so those values are missing. (Overfished stocks in CAPS; Stocks with new assessments in bold; ACL alternatives with a scientific uncertainty adjustment incorporated are in *bold italic* with a bold border around the cell).**

| Stock | No Action Alternative | Status Quo Alternative a/ | 2012 Action Alternatives | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2010 OY | 2012 ACL | Alt 1 ACL | Alt 2 ACL | Alt 3 ACL | Alt 4 ACL | Alt 5 ACL | Alt 6 ACL |
| **Lingcod - coastwide** | 4,829 | | ***2,424*** | 3,551 | 4,848 | | | |
| **Lingcod N. of 42° N latitude (OR & WA)** | | | ***1,126*** | 2,020 | 2,251 | | | |
| **Lingcod S. of 42° N latitude (CA)** | | | ***1,299*** | 1,531 | 2,597 | | | |
| Pacific Cod | 1,600 | | 1,600 | | | | | |
| **Pacific Whiting (U.S.)** | 193,935 | | 67,970 | 135,939 | 404,318 | | | |
| Sablefish - coastwide | | | | | | | | |
| Sablefish N. of 36° N latitude | 6,471 | | 4,240 | 4,490 | 5,594 | 5,594 | 5,923 | |
| Sablefish S. of 36° N latitude | 1,258 | | ***998*** | ***873*** | 1,316 | 2,632 | 1,152 | |
| **PACIFIC OCEAN PERCH** | 200 | 183 | 0 | 183 | 208 | 269 | | |
| Shortbelly | 6,950 | | 6,950 | | | | | |
| **WIDOW** | 509 | 339 | 0 | 200 | 400 | 600 | 1,000 | 3,000 |
| **CANARY** | 105 | 107 | 0 | 51 | 72 | 107 | 134 | 162 |
| Chilipepper b/ | 2,447 | | 2,013 | | | | | |
| **BOCACCIO S. of 40°10' N latitude** | 288 | 274 | 0 | 56 | 115 | 274 | 384 | |
| **Splitnose c/** | 461 | | 145 | 291 | 618 | 1,236 | Manage in complex | |
| Yellowtail N. of 40°10' N latitude | 4,562 | | 4,573 | | | | | |
| Shortspine Thornyhead - N. of 34°27' N latitude | 1,591 | | 1,556 | 1,556 | | | | |
| Shortspine Thornyhead - S. of 34°27' N latitude | 410 | | ***401*** | 802 | | | | |
| Longspine Thornyhead - N. of 34°27' N latitude | 2,175 | | ***2,063*** | 2,751 | | | | |
| Longspine Thornyhead - S. of 34°27' N latitude | 385 | | ***366*** | 731 | | | | |
| **COWCOD (Con + Mon)** | 4 | 4 | 0 | 2 | 3 | 4 | 9 | |
| **DARKBLOTCHED** | 291 | 329 | 0 | 131 | 222 | 296 | 329 | 453 |
| **YELLOWEYE** | 17 | 21 | 0 | 9 | 13 | 17 | 20 | 21 |
| Black Rockfish (WA) | 464 | | 435 | | | | | |
| Black Rockfish (OR-CA) | 1,000 | | 1,000 | | | | | |
| California scorpionfish | 155 | | 124 | 132 | | | | |
| **Cabezon (CA)** | 79 | | 105 | 156 | | | | |
| **Cabezon (OR)** | | | 29 | 48 | | | | |
| Dover Sole | 16,500 | | 16,500 | 44,826 | | | | |
| English Sole | 9,745 | | 5,790 | | | | | |
| **PETRALE SOLE (1,200 mt 2010 OY)** | 1,200 | | 0 | 624 | 1,125 | 1,279 | | |
| **PETRALE SOLE (1,200 mt 2010 OY; no winter fishery)** | 1,200 | | 0 | 732 | 1,192 | 1,369 | | |
| Arrowtooth Flounder | 10,112 | | 8,241 | | | | | |
| Starry Flounder | 1,077 | | ***1,166*** | | | | | |
| Longnose skate | 1,349 | | 1,349 | | | | | |

a/ The status quo alternative is informed by the ACLs under the current SPR harvest rates prescribed in rebuilding plans as applied to the estimated biomass for the stock. This alternative applies only to the overfished species with adopted rebuilding plans and differs from the No Action alternative, which is based on the 2010 OYs in regulation.

b/ Chilipepper rockfish are projected from the 2007 assessment based on the population occurring in waters off CA and OR. They were specified for south of 40°10' N latitude in 2009-10, but should have been applied for the waters off CA and OR.

c/ Splitnose rockfish specifications in 2009-10 were for south of 40°10' N latitude. The 2011-12 specifications are projected from the 2009 assessment and apply coastwide.

| Table 2-2c. Basis for the 2011-2012 annual catch limit alternatives adopted for analysis. | | | | | | |
|---|---|---|---|---|---|---|
| **Stock** | **2011-12 Action Alternatives** | | | | | |
| | **Alt 1 ACL** | **Alt 2 ACL** | **Alt 3 ACL** | **Alt 4 ACL** | **Alt 5 ACL** | **Alt 6 ACL** |
| **Lingcod - coastwide** | Sum of N & S ACLs. | Sum of N & S ACLs. | Sum of N & S OFLs. | | | |
| **Lingcod N. of 42° N latitude (OR & WA)** | Projected OFL from the base case model in the 2009 assessment with a 50% precautionary reduction due to assessment uncertainty and overfished species bycatch concerns. | Low catch from low M model in the 2009 assessment. | Base catch from base model in the 2009 assessment. | | | |
| **Lingcod S. of 42° N latitude (CA)** | Base case catch from the base case model in the 2009 assessment with a 50% precautionary reduction due to assessment uncertainty and overfished species bycatch concerns. | Low catch from low M model in the 2009 assessment. | Base catch from base model in the 2009 assessment. | | | |
| Pacific Cod | OY/ACL = 50% of the ABC/OFL since this an unassessed stock. | | | | | |
| **Pacific Whiting (U.S.)** | Half the 2009 OY. | 2009 OY. | 150% of the 2008 OY of 269,545 mt. | | | |
| Sablefish N. of 36° N latitude | 68% of coastwide OY/ACL projected from the low stock size and low catch case in the 2007 assessment. 68% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 72% of coastwide OY/ACL projected from the low stock size and low catch case in the 2007 assessment. 72% is the 2003-06 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 68% of coastwide OY/ACL projected from the base case in the 2007 assessment. 68% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 68% of coastwide OY/ACL projected from the base case in the 2007 assessment. 68% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 72% of coastwide OY/ACL projected from the base case in the 2007 assessment. 72% is the 2003-06 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | |
| Sablefish S. of 36° N latitude | 32% of the coastwide OY/ACL projected from the low stock size and low catch case in the 2007 assessment with a 50% precautionary adjustment due to assessment uncertainty. 32% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 28% of the coastwide OY/ACL projected from the low stock size and low catch case in the 2007 assessment with a 50% precautionary adjustment due to assessment uncertainty. 28% is the 2003-06 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 32% of the coastwide OY/ACL projected from the base case in the 2007 assessment with a 50% precautionary adjustment due to assessment uncertainty. 32% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 32% of the coastwide OY/ACL projected from the base case in the 2007 assessment without a precautionary adjustment due to assessment uncertainty. 32% is the 2003-08 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | 28% of the coastwide OY/ACL projected from the base case in the 2007 assessment with a 50% precautionary adjustment due to assessment uncertainty. 28% is the 2003-06 ave. proportion of the estimated swept-area biomass from the NWFSC shelf-slope survey. | |
| **PACIFIC OCEAN PERCH** | SPR = F100%; T (@ F=0) = 2018; Pmax = 95.8%. | Status quo SPR = F86.4%; Ttarget = 2020; Pmax = 89.7%. | SPR = F84.8% (HR that produces the 2009 and 2010 OYs); Ttarget = 2021; Pmax = 88.7%. | SPR = F81.1%; Ttarget = 2021; Pmax = 85.6%. | | |
| Shortbelly | 50% of status quo ABC/OY. | | | | | |

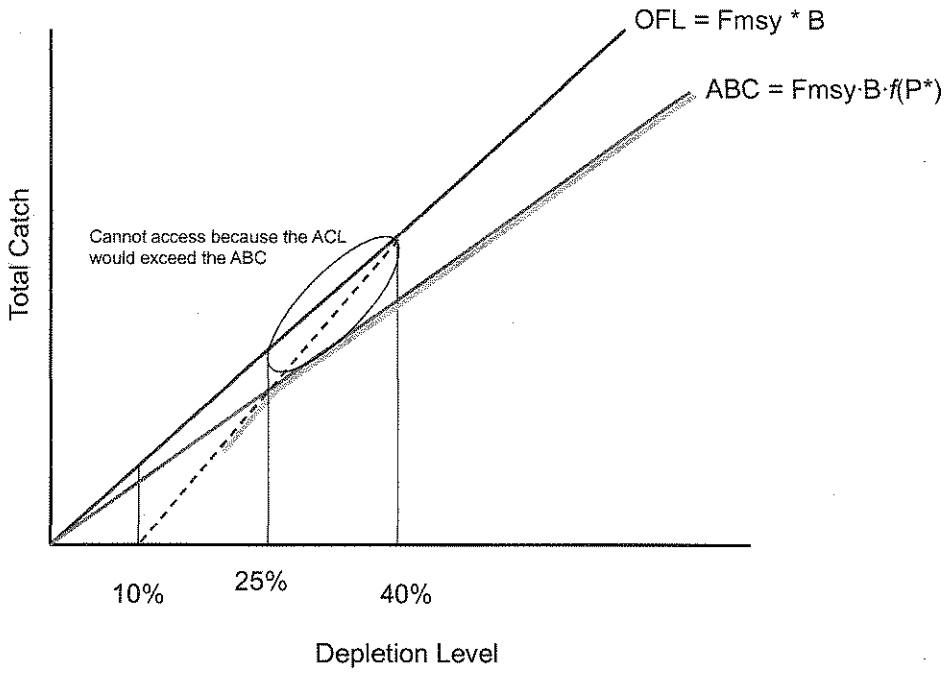
| Table 2-2c (continued). Basis for the 2011-2012 annual catch limit alternatives adopted for analysis. | | | | | | |
|---|---|---|---|---|---|---|
| **Stock** | **2011-12 Action Alternatives** | | | | | |
| | **Alt 1 ACL** | **Alt 2 ACL** | **Alt 3 ACL** | **Alt 4 ACL** | **Alt 5 ACL** | **Alt 6 ACL** |
| **WIDOW** | T (@ F=0) = 2010; Projected spawning outputs in 2011 and 2012 are 2% and 4% above the B40% target, respectively. | Ttarget = 2010; Projected spawning outputs in 2011 and 2012 are 2% and 4% above the B40% target, respectively. | Ttarget = 2010; Projected spawning outputs in 2011 and 2012 are 2% and 4% above the B40% target, respectively. | Ttarget = 2010; Projected spawning outputs in 2011 and 2012 are 2% and 3% above the B40% target, respectively. | Ttarget = 2010; Projected spawning outputs in 2011 and 2012 are 2% and 3% above the B40% target, respectively. | Ttarget = 2010; Projected spawning output in 2011 is 2% above the B40% target and at the B40% target in 2012. |
| **CANARY** | SPR=F100%; T(@F=0) = 2024; Pmax = 75%. | SPR = F94.4%; Ttarget = 2025; Pmax = 75%. | SPR = F92.2%; Ttarget = 2026; Pmax = 75%. | SPR = F88.7% (SQ SPR from rebuilding plan); Ttarget = 2027; Pmax = 75%. | SPR = F86%; Ttarget = 2027; Pmax = 75%. | SPR = F83.4%; Ttarget = 2028; Pmax = 75%. |
| Chilipepper | ACL = ABC from base model in the 2007 assessment. The projected (and status quo) ABCs + ACLs (OYs) should have been for waters off CA + OR, not just S. of 40°10' N latitude. | | | | | |
| **BOCACCIO S. of 40°10' N latitude** | SPR=F100%; T(@F=0) = 2019. | SPR = F95%; Ttarget = 2019. ACL projected from the 2009 assessment, which assessed the stock south of 43° N latitude, but reduced by 6% to represent the proportion of the stock south of 40°10' N latitude (based on proportion on historical catch). | SPR = F90%; Ttarget = 2020. ACL projected from the 2009 assessment, which assessed the stock south of 43° N latitude, but reduced by 6% to represent the proportion of the stock south of 40°10' N latitude (based on proportion on historical catch). | SPR = F77.7% (SQ SPR in rebuilding plan); Ttarget = 2022. ACL projected from the 2009 assessment, which assessed the stock south of 43° N latitude, but reduced by 6% to represent the proportion of the stock south of 40°10' N latitude (based on proportion on historical catch). | SPR = F70%; Ttarget = 2024. ACL projected from the 2009 assessment, which assessed the stock south of 43° N latitude, but reduced by 6% to represent the proportion of the stock south of 40°10' N latitude (based on proportion on historical catch). | |
| **Splitnose** | Coastwide ACL based on 50% of average removals in the last ten years. SQ specifications were for south of 40°10' N latitude. | Coastwide ACL based on the average removals in the last ten years. SQ specifications were for south of 40°10' N latitude. | Coastwide ACL = 50% of the MSY at the proxy biomass target of B40% (estimated from the 2009 assessment). SQ specifications were for south of 40°10' N latitude. | Coastwide ACL = the MSY at the proxy biomass target of B40% (estimated from the 2009 assessment). SQ specifications were for south of 40°10' N latitude. | | |
| Yellowtail N. of 40°10' N latitude | ACL projected from the 2005 assessment, based on the F50% catch. | | | | | |

| Table 2-2c (continued). Basis for the 2011-2012 annual catch limit alternatives adopted for analysis. | | | | | | |
|---|---|---|---|---|---|---|
| Stock | 2011-12 Action Alternatives | | | | | |
| | Alt 1 ACL | Alt 2 ACL | Alt 3 ACL | Alt 4 ACL | Alt 5 ACL | Alt 6 ACL |
| Shortspine Thornyhead - N. of 34°27' N latitude | ACL = 66% of the projected coastwide ABC/OY since the 2005 assessment indicated 66% of the biomass occurs N. of Pt. Conception (status quo methodology). | ACL = 66% of the projected coastwide ABC/OY since the 2005 assessment indicated 66% of the biomass occurs N. of Pt. Conception (status quo methodology). | | | | |
| Shortspine Thornyhead - S. of 34°27' N latitude | ACL = 34% of the projected coastwide ABC/OY since the 2005 assessment indicated 34% of the biomass occurs S of Pt. Conception with an additional 50% precautionary reduction to account for the paucity of survey data S of Pt. Conception (status quo methodology). | ACL = 34% of the projected coastwide ABC/OY since the 2005 assessment indicated 34% of the biomass occurs S of Pt. Conception without a precautionary reduction for scientific uncertainty. | | | | |
| Longspine Thornyhead - N. of 34°27' N latitude | Coastwide ACL projected from the 2005 assessment was apportioned N & S of Pt. Conception as follows: Assumed constant density throughout the Conception area and estimated 79% of the assessed coastwide biomass occurs N of Pt. Conception, with a 25% precautionary reduction to account for relatively higher assessment uncertainty (status quo methodology). | Coastwide ACL projected from the 2005 assessment was apportioned N & S of Pt. Conception as follows: Assumed constant density throughout the Conception area and estimated 79% of the assessed coastwide biomass occurs N of Pt. Conception, without a precautionary reduction for scientific uncertainty. | | | | |
| Longspine Thornyhead - S. of 34°27' N latitude | Coastwide ACL projected from the 2005 assessment was apportioned N & S of Pt. Conception as follows: Assumed constant density throughout the Conception area and estimated 21% of the assessed coastwide biomass occurs S of Pt. Conception, with a 50% precautionary reduction to account for relatively higher assessment uncertainty and a paucity of survey data for the Conception area (status quo methodology). | Coastwide ACL projected from the 2005 assessment was apportioned N & S of Pt. Conception as follows: Assumed constant density throughout the Conception area and estimated 21% of the assessed coastwide biomass occurs S of Pt. Conception, without a precautionary reduction for scientific uncertainty. | | | | |

| Table 2-2c (continued). Basis for the 2011-2012 annual catch limit alternatives adopted for analysis. | | | | | | |
|---|---|---|---|---|---|---|
| **Stock** | **2011-12 Action Alternatives** | | | | | |
| | **Alt 1 ACL** | **Alt 2 ACL** | **Alt 3 ACL** | **Alt 4 ACL** | **Alt 5 ACL** | **Alt 6 ACL** |
| **COWCOD (Con + Mon)** | SPR=F100%; T(@F=0) = 2060; Pmax = 78.4%. | SPR = F90%; Ttarget = 2064; Pmax =72.4%. ACLs projected from the 2009 rebuilding analysis, which pertains to the Conception area, are doubled to account for the Monterey area. | SPR = F79.0% (SPR HR in current rebuilding plan); Ttarget = 2071; Pmax = 66.2%. ACLs projected from the 2009 rebuilding analysis, which pertains to the Conception area, are doubled to account for the Monterey area. | SPR = F59.7%; Ttarget = Tmax = 2097; Pmax = 50%. ACLs projected from the 2009 rebuilding analysis, which pertains to the Conception area, are doubled to account for the Monterey area. | | |
| **DARKBLOTCHED** | SPR=F100%; T(@F=0) = 2016; Pmax = 100%. | SPR = F81.8%; Ttarget = 2018; Pmax =99.7%. | SPR = F71.9%; Ttarget = 2022; Pmax =95.1%. | SPR = F64.9%; Ttarget = 2025; Pmax =85.2%. | SPR (SPR HR in current rebuilding plan) = F62.1%; Ttarget = 2027; Pmax =78.8%. | SPR = F52.8%; Ttarget = Tmax = 2037; Pmax =50%. |
| **YELLOWEYE** | SPR=F100%; T(@F=0) = 2047; Pmax = 99.3%. | SPR = F86%; Ttarget = 2058; Pmax =82.5%. | SPR = F80.7%; Ttarget = 2065; Pmax = 75.6%. | SPR = F76%; Ttarget = 2074; Pmax = 68.9%. | SPR (SPR HR in current rebuilding plan) = F71.9%; Ttarget = 2087; Pmax = 54.9%. | SPR = F70.9%; Ttarget = Tmax = 2092; Pmax =50%. |
| Black Rockfish (WA) | ACL projected under the base model (M=0.16 males, M=0.24 females) in the 2007 assessment with a 3% reduction to account for the portion of the stock estimated between Cape Falcon and the Columbia River. | | | | | |
| Black Rockfish (OR-CA) | Constant catch scenario (status quo) evaluated in the 2009-10 specifications FEIS (evaluated from results of the 2007 assessment). | | | | | |
| California scorpionfish | ACL projected from the 2005 assessment under the CA 60:20 precautionary adjustment. | ACL projected from the 2005 assessment under the 40:10 precautionary adjustment. | | | | |
| **Cabezon (CA)** | Based on the low M scenario in the 2009 assessment with the 40:10 precautionary reduction. | Based on the base case scenario in the 2009 assessment with the 40:10 precautionary reduction. | | | | |
| **Cabezon (OR)** | Based on the low M scenario in the 2009 assessment with the 40:10 precautionary reduction. | Based on the base case scenario in the 2009 assessment with the 40:10 precautionary reduction. | | | | |

| Table 2-2c (continued). Basis for the 2011-2012 annual catch limit alternatives adopted for analysis. | | | | | | |
|---|---|---|---|---|---|---|
| **Stock** | **2011-12 Action Alternatives** | | | | | |
| | **Alt 1 ACL** | **Alt 2 ACL** | **Alt 3 ACL** | **Alt 4 ACL** | **Alt 5 ACL** | **Alt 6 ACL** |
| Dover Sole | Estimated MSY from the 2005 assessment based on an F40% harvest rate. This is the SQ specification. | Projected ABC/OFL from the 2005 assessment based on a new SPR harvest rate of F30% (new proxy $F_{MSY}$ harvest rate for federally managed flatfish). | | | | |
| English Sole | Projected ACL from base model in the 2007 updated assessment using an F40% harvest rate. | | | | | |
| **Petrale Sole (under 1,200 mt 2010 OY)** | Run 3 in the 2009 rebuilding analysis: rebuilding under a zero-harvest strategy assuming a 2010 OY of 1,200 mt; Ttarget (=Tmin) is predicted by 2014. | Run 1d from from the 2009 rebuilding analysis: projected ACL assuming a 2010 OY of 1,200 mt, the 2009 fleet allocation, and an SPR of 0.5. Predicted time to rebuild = 2014 or the same as Tmin. | Run 4 from from the 2009 rebuilding analysis: projected ACL assuming a 2010 OY of 1,200 mt, the 2009 fleet allocation, and the 25:6.25 control rule. Predicted time to rebuild = 2016 or 2 years longer than Tmin. | Run 5 from from the 2009 rebuilding analysis: projected OFL assuming a 2010 OY of 1,200 mt, the 2009 fleet allocation, and an SPR of 0.3. Predicted time to rebuild = 2017 or 3 years longer than Tmin. | | |
| **Petrale Sole (under 1,200 mt 2010 OY; no winter fishery)** | Run 3 in the 2009 rebuilding analysis: rebuilding under a zero-harvest strategy assuming a 2010 OY of 1,200 mt and no winter fishery. Ttarget (=Tmin) is predicted by 2014. | Run 1d from from the 2009 rebuilding analysis: projected ACL assuming a 2010 OY of 1,200 mt, no winter fishery, and an SPR of 0.5. Predicted time to rebuild = 2014 or the same as Tmin. | Run 4 from from the 2009 rebuilding analysis: projected ACL assuming a 2010 OY of 1,200 mt, no winter fishery, and the 25:6.25 control rule. Predicted time to rebuild = 2017 or 3 years longer than Tmin. | Run 5 from from the 2009 rebuilding analysis: projected OFL assuming a 2010 OY of 1,200 mt, no winter fishery, and an SPR of 0.3 (i.e., OFL control rule). Predicted time to rebuild = 2018 or 4 years longer than Tmin. | | |
| Arrowtooth Flounder | Projected ACL from the base model in the 2007 assessment using an F40% harvest rate. | | | | | |
| Starry Flounder | Projected ACL from the 2005 assessment using a F40% harvest rate and with a 25% precautionary reduction (data-poor assessment). | | | | | |
| Longnose skate | Based on a 50% increase in the average 2004-06 landings and discard mortality. | | | | | |

Option 1: Application of the 40/10 control rule to OFL




Option 2: more precautionary approach to application of the 40/10 control rule

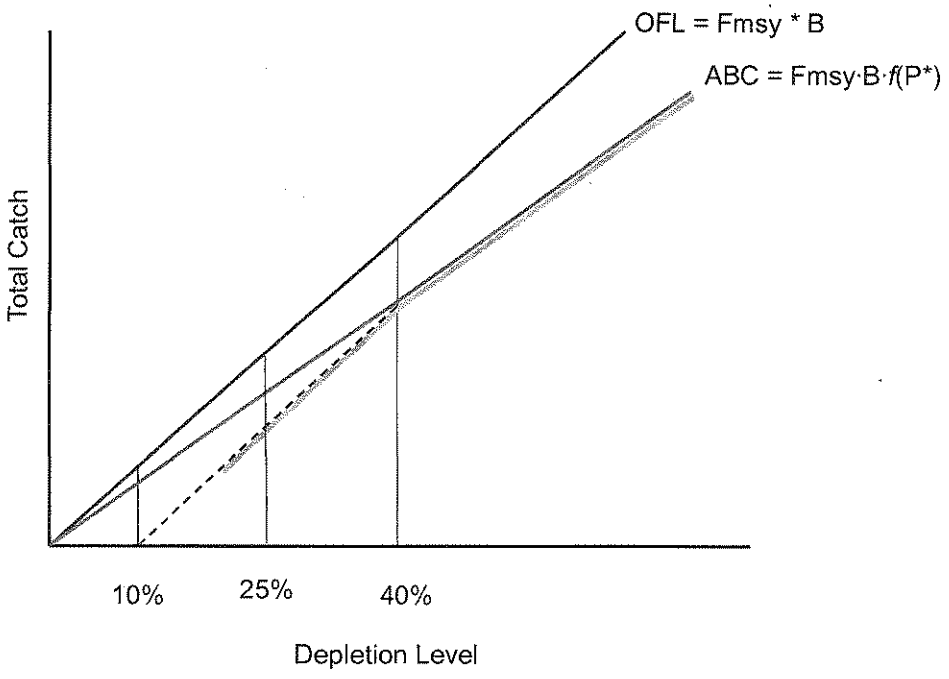



**Figure 2-1. Options for defining the 40-10 control rule under the Amendment 23 framework.**

**Table 2-3a. Coastwide sablefish OFL, ABC, and ACL projections under two 40-10 control rule options for 2011 and 2012.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2011 OFL (mt) | 8,808 | | | | | | |
| 2012 OFL (mt) | 8,623 | | | | | | |
| 2011 depletion | 36.0% | | | | | | |
| 2012 depletion | 35.1% | | | | | | |
| | **Overfishing Probability (P*)** | | | | | | |
| | **0.45** | **0.40** | **0.35** | **0.30** | **0.25** | **0.20** | **0.15** |
| 2011 ABC (mt) | 8,418 | 8,040 | 7,667 | 7,293 | 6,909 | 6,506 | 6,065 |
| 2011 ACL under option 1 40-10 adj | | | | 8,485 | | | |
| 2011 ACL under option 2 40-10 adj | 7,296 | 6,968 | 6,645 | 6,321 | 5,988 | 5,639 | 5,256 |
| 2012 ABC (mt) | 8,242 | 7,871 | 7,506 | 7,140 | 6,764 | 6,369 | 5,938 |
| 2012 ACL under option 1 40-10 adj | | | | 8,227 | | | |
| 2012 ACL under option 2 40-10 adj | 6,896 | 6,585 | 6,280 | 5,974 | 5,659 | 4,492 | 4,968 |

**Table 2-3b. Blue rockfish OFL, ABC, and ACL projections under two 40-10 control rule options for 2011 and 2012. a/**

| | |
|---|---|
| 2011 OFL (mt) b/ | 219 |
| 2012 OFL (mt) b/ | 217 |
| 2011 depletion | 30.4% |
| 2012 depletion | 30.2% |
| 2011 ABC (mt) c/ | 164 |
| 2011 ACL under option 1 40-10 adj | 196 |
| 2011 ACL under option 2 40-10 adj | 147 |
| 2012 ABC (mt) c/ | 163 |
| 2012 ACL under option 1 40-10 adj | 193 |
| 2012 ACL under option 2 40-10 adj | 145 |

a/ All specifications are for the stock occurring in the area assessed in 2007, which extends north of Pt. Conception at $34^{0}27'$ N latitude to the OR-CA border at $42^{0}$ N latitude.

b/ OFLs for blue rockfish, which are managed under the minor nearshore rockfish complexes north and south of $40^{0}10'$ N latitude, are apportioned 12.7% to the north and 87.3% to the south with an additional 18 mt contribution for the Conception area based on historical catches.

c/ Preliminary ABCs are based on a presumptive 25% scientific uncertainty buffer since this is a proposed category 2 stock. Area apportionment of ABCs would be the same as described for OFLs (see footnote b/).

**Table 2-4. Estimated time to rebuild and SPR harvest rate relative to alternative 2011-2012 ACLs for depleted west coast groundfish species.**

| Species | Current Ttarget | ACL Alt. | Median Time to Rebuild | ACLs (mt) 2011 | ACLs (mt) 2012 | SPR HR | Basis |
|---|---|---|---|---|---|---|---|
| Bocaccio | 2026 | 1 | 2019 | 0 | 0 | F100% | |
| ( S of 40°10' N | | 2 | 2019 | 53 | 56 | F95% | Varying the range of SPR harvest rates |
| lat.) a/ | | 3 | 2020 | 109 | 115 | F90% | Varying the range of SPR harvest rates |
| | | 4 | 2022 | 263 | 274 | F77.7% | SPR harvest rate in the current rebuilding plan |
| | | 5 | 2024 | 373 | 384 | F70% | Varying the range of SPR harvest rates |
| | | | 2028 | 539 | 545 | F60% | |
| | | | 2031 | 605 | 609 | F56% | Highest ACL that meets legal requirement for 50% probability of rebuilding by Tmax |
| Canary | 2021 | 1 | 2024 | 0 | 0 | F100% | |
| | | 2 | 2025 | 49 | 51 | F94.4% | The SPR rate that restults from a 2010 OY of 44 mt (possible reduction under interim analysis) |
| | | 3 | 2026 | 69 | 72 | F92.2% | The SPR rate that results from a 2009/2010 OY of 105 mt |
| | | 4 | 2027 | 102 | 107 | F88.7% | SPR harvest rate in the current rebuilding plan, 2027 is also the Ttarget from the 2009 rebuilding analysis |
| | | 5 | 2027 | 129 | 135 | F86% | 50% probability to recover by 2027, which is a year that occurs between TF=0 and Tmax, given a 2010 OY of 105 mt |
| | | 6 | 2028 | 155 | 162 | F83.4% | OY resulting from applying an SPR harvest rate of 88.7% to the 2007 assessment results |
| | | | 2031 | 253 | 263 | F74.4% | 50% probability to recover by 2031, which is a year that occurs between TF=0 and Tmax, given a 2010 OY of 105 mt |
| | | | 2035 | 308 | 318 | F70% | 50% probability to recover by 2035, which is a year that occurs between TF=0 and Tmax, given a 2010 OY of 105 mt |
| | | | 2043 | 396 | 408 | F63.4% | 50% probability to recover by 2043, which is a year that occurs between TF=0 and Tmax, given a 2010 OY of 105 mt |
| | | | 2046 | 415 | 426 | F62.1% | Highest ACL that meets legal requirement for 50% probability of rebuilding by Tmax, given a 2010 OY of 105 mt |
| Cowcod | 2072 | 1 | 2060 | 0 | 0 | F100% | |
| | | 2 | 2064 | 2 | 2 | F90% | Amendment 16-4 SPR harvest rate |
| | | 3 | 2068 | 3 | 3 | F82.7% | |
| | | 4 | 2071 | 4 | 4 | F79% | SPR harvest rate in the current rebuilding plan; also the 2009/2010 OY of 4 mt |
| | | 5 | 2097 | 9 | 9 | F59.7% | Highest ACL that meets legal requirement for 50% probability of rebuilding by Tmax |
| Darkblotched | 2028 | 1 | 2016 | 0 | 0 | F100% | |
| | | 2 | 2018 | 130 | 131 | F81.8% | Varying the range of ACLs for analysis |
| | | 3 | 2022 | 222 | 222 | F71.9% | SPR harvest rate that results in a 50% probability of rebuilding by 2022 a year between TF=0 and Tmax |
| | | 4 | 2025 | 298 | 296 | F64.9% | The SPR rate that results from a 2009/2010 OY of 285 and 291 mt, respectively |
| | | 5 | 2027 | 332 | 329 | F62.1% | SPR harvest rate in the current rebuilding plan |
| | | | 2037 | 461 | 453 | F52.8% | Highest ACL that meets legal requirement for 50% probability of rebuilding by Tmax |
| POP | 2017 | 1 | 2018 | 0 | 0 | F100% | |
| | | 2 | 2020 | 180 | 183 | F86.4% | SPR harvest rate in the current rebuilding plan |
| | | 3 | 2021 | 204 | 208 | F84.8% | The SPR rate that restults from a 2009/2010 OY (189, 200 mt respectively) |
| | | 4 | 2021 | 265 | 269 | F81.1% | SPR harvest rate that results in a 50% probability of rebuilding by 2021, a year between TF=0 and Tmax |
| | | | 2024 | 404 | 408 | F73.6% | SPR harvest rate that results in a 50% probability of rebuilding by 2024, a year between TF=0 and Tmax |
| | | | 2031 | 635 | 635 | F63.6% | SPR harvest rate that results in a 50% probability of rebuilding by 2031, a year between TF=0 and Tmax |
| | | | 2038 | 751 | 747 | F59.5% | SPR harvest rate that results in a 50% probability of rebuilding by 2038, a year between TF=0 and Tmax |
| | | | 2045 | 836 | 829 | F56.8% | Highest ACL that meets legal requirement for 50% probability of rebuilding by Tmax |

**Table 2-4 (continued). Estimated time to rebuild and SPR harvest rate relative to alternative 2011-2012 ACLs for depleted west coast groundfish species.**

| Species | Current Ttarget | ACL Alt. | Median Time to Rebuild | ACLs (mt) 2011 | ACLs (mt) 2012 | SPR HR | Basis |
|---|---|---|---|---|---|---|---|
| Widow | 2015 | 1 | 2010 | 0 | 0 | | Constant catch scenarios |
| | | 2 | 2010 | 200 | 200 | | |
| | | 3 | 2010 | 400 | 400 | | |
| | | 4 | 2010 | 600 | 600 | | |
| | | 5 | 2010 | 1,000 | 1,000 | | |
| | | 6 | 2010 | 3,000 | 3,000 | | |
| Yelloweye | 2084 | 1 | 2047 | 0 | 0 | F100% | |
| | | 2 | 2058 | 9 | 9 | F86% | Apply the harvest rate that generated the 2009/2010 OY of 17 mt |
| | | 3 | 2065 | 13 | 13 | F80.7% | SPR harvest rate that results in a 50% probability of rebuilding by 2065, a year between TF=0 and Tmax |
| | | 4 | 2074 | 17 | 17 | F76% | SPR harvest rate that results in a 50% probability of rebuilding by 2074, a year between TF=0 and Tmax, also the 2009/2010 OY |
| | | 5 | 2084 | 20 | 20 | F72.8% | SPR harvest rate that results in a 50% probability of rebuilding by 2084, the Ttarget in the current rebuilding plan |
| | | 6 | 2087 | 20 | 21 | F71.9% | SPR harvest rate in the current rebuilding plan under constant harvest rate strategy |
| | | | 2092 | 21 | 22 | F70.9% | SPR harvest rate that results in a 50% probability of rebuilding by 2092, which is Tmax |
| Petrale (with a winter fishery) c/ | NA | 1 | 2014 | 0 | 0 | F100% | |
| | | 2 | 2014 | 459 | 624 | F50% | |
| | | 3 | 2016 | 695 | 1,125 | 25:6.25 rule | Actual harvest control rule for flatfish is 25:5. This needs to be recalculated |
| | | 4 | 2017 | 1,021 | 1,279 | F30% | Projected OFL under the F30% Frmsy proxy |
| Petrale (without a winter fishery) c/ | NA | 1 | 2014 | 0 | 0 | F100% | |
| | | 2 | 2014 | 586 | 732 | F50% | |
| | | 3 | 2016 | 810 | 1,192 | 25:6.25 rule | Actual harvest control rule for flatfish is 25:5. This needs to be recalculated |
| | | 4 | 2017 | 1,170 | 1,369 | F30% | Projected OFL under the F30% Frmsy proxy |

a/ All bocaccio alternatives have been reduced from the rebuilding analysis results by 6% to represent the portion of the stock south of 40°10' N. Latitude (Agenda Item E.2.c, Supplemental SSC Report, September 2009).

b/ All cowcod alternatives have been doubled from the rebuilding analysis to account for the Monterrey contribution (see the 2009-2010 Spex FEIS).

c/ Projected ACLs for petrale sole differ whether winter fishing on spawning aggregations is allowed or not due to differences in fishery selectivity (i.e., larger, more mature fish are caught in the winter).

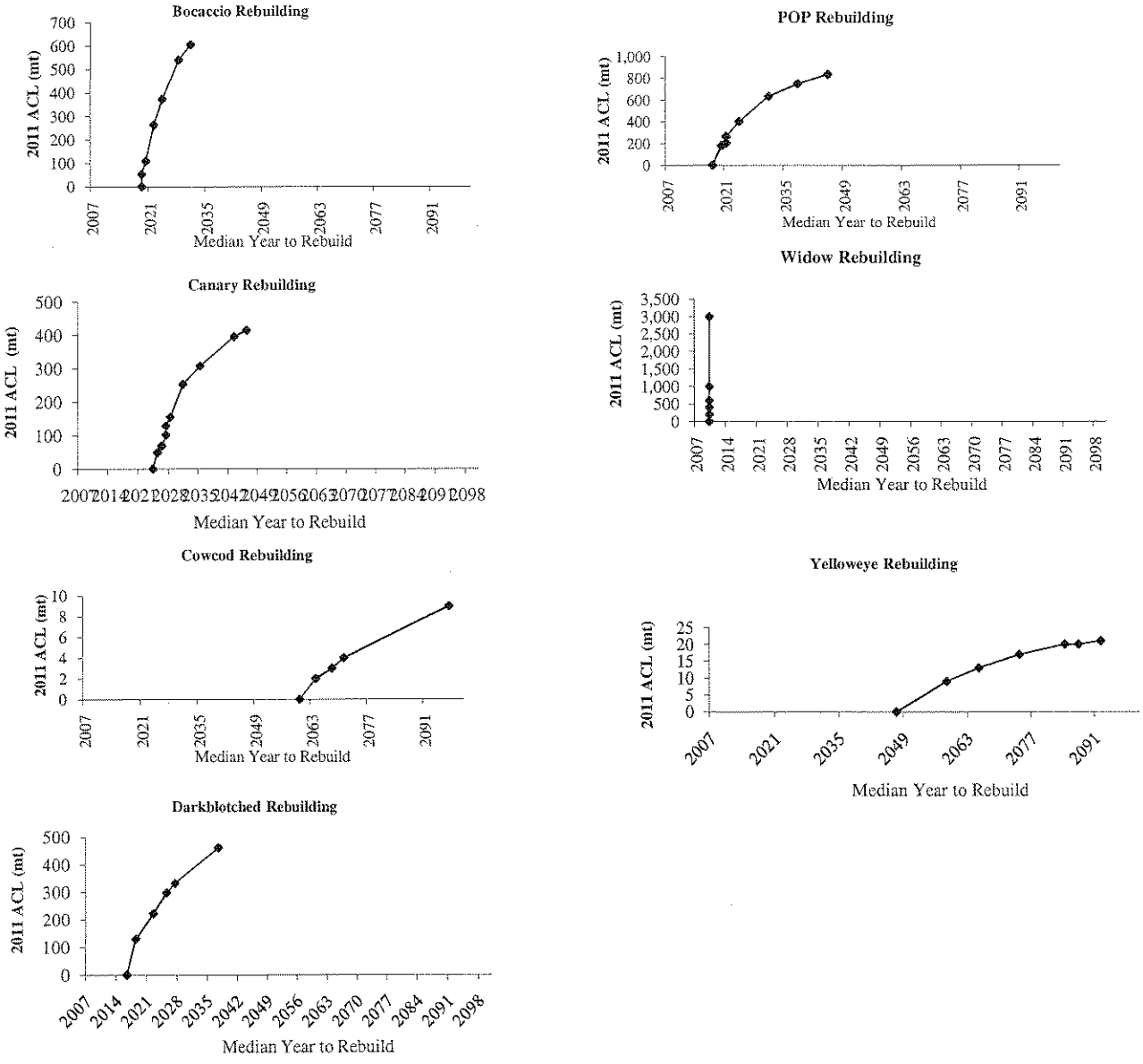



Figure 2-2a. 2011 annual catch limits (mt) vs. predicted rebuilding times for seven overfished rockfish species.

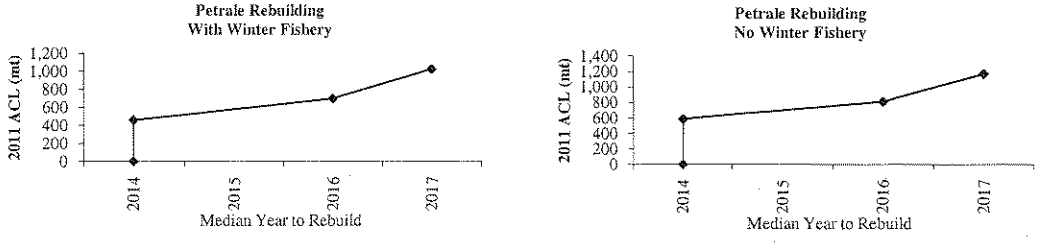



Figure 2-2b. 2011 annual catch limits (mt) vs. predicted rebuilding times for petrale sole.