California Department of Fish and Game Proposed Management Measures for the Recreational Groundfish Fishery in 2011 and 2012

The California Department of Fish and Game (CDFG) provides analyses of the proposed depth and season restriction alternatives, as well as other proposed recreational management measures, for the California recreational fishery in 2011 and 2012. Four alternatives and their impacts are provided below—season restrictions apply to boat-based anglers; analyses of additional management measures are included in Attachment 1, and a description of the CDFG RecFISH model used to estimate impacts for each alternative is provided in Attachment 2.

1. Analyses of Depth and Season Restriction Alternatives in the California Recreational Fishery in 2011-2012 *(using the Annual Catch Limit Alternatives under Consideration by the Council)*

The recreational depth and season restrictions possible in 2011 and 2012 remain below the California harvest guidelines (HGs) corresponding to each of the overfished species annual catch limit (ACL) alternatives under consideration by the Council. These alternatives include the No Action Alternative, Preliminary Preferred Alternative ACLs (Alternative 1), Intermediate ACLs (Alternative 2) and Low ACLs (Alternative 3). Individual overfished species present unique constraints in each management area and the proposed alternatives represent the CDFG's best attempt to maximize opportunities under each ACL alternative. The HGs corresponding to each of the ACL alternatives for 2011 and 2012 are presented in Table 1-1 and Table 1-2 respectively.

Table 1-1. The 2011 California recreational harvest guidelines (HG) for each of the ACL alternatives under consideration. The Preliminary Preferred Alternative is referred to as the PPA in the table. The Optimal Yield (OY) equivalent HGs from 2010 are provided.

	Harvest Guideline (HG)			
Species	**No Action Alt 2010 OY eq.**	**Alt 1 PPA**	**Alt 2 Intermediate**	**Alt 3 Low**
Yelloweye Rockfish	2.8	3.4	2.6	1.6
Bocaccio	67.3	162	61.9	32.6
Cowcod Option 1*	0.3	0.3	0.2	0.1
Cowcod Option 2	NA	1.9	1.4	0.9
Canary Rockfish	22.9	22.9	16.5	8.6

*Option 1 is derived from the status quo catch sharing; Option 2 reflects the increased catch share for the recreational fishery under consideration by the Council, as discussed on page 2.

Table 1-2. The 2012 California recreational harvest guidelines (HG) for each of the ACL alternatives under consideration. The Preliminary Preferred Alternative is referred to as the PPA in the table. The Optimal Yield (OY) equivalent HGs from 2010 are provided.

	Harvest Guideline (HG)			
Species	**No Action Alt 2010 OY eq.**	**Alt 1 PPA**	**Alt 2 Intermediate**	**Alt 3 Low**
Yelloweye Rockfish	2.8	3.4	2.6	1.6
Bocaccio	67.3	168.9	65.8	27.6
Cowcod Option 1	0.3	0.3	0.2	0.1
Cowcod Option 2	NA	1.9	1.4	0.9
Canary Rockfish	22.9	24.2	17.7	9.1

Since the harvest limits for 2011 and 2012 do not differ substantially for a given ACL alternative, the implications for future fishing opportunity in the tables below apply to both years. The following information is provided to illustrate the implications of each of the alternatives under consideration by the Council.

- A figure displaying the season and depths for each management area as well as the number of months open to fishing.

- The overfished species impacts are provided for species found in the California recreational fishery including yelloweye rockfish, bocaccio, canary rockfish, cowcod and widow rockfish. In addition, the harvest guidelines (HG) or harvest limits (HL) for each species and the corresponding percentage of the HG/HL represented by the projected impacts are provided.

- The non-overfished species impacts were projected for the season and depth under each alternative. All species were modeled to remain within their respective harvest limits from the preliminary preferred catch sharing for overfished species decided at the April 2010 Council meeting and the preliminary preferred ACLs (assuming 2010 catch sharing for non-overfished species.)

The Northern and North-Central North of Point Arena Management Areas will continue to be constrained by yelloweye rockfish. In the North-Central South of Point Arena and South-Central Management Areas, blue rockfish is a potential constraint on season length, while yelloweye rockfish constrain the maximum allowable depth restrictions and season length at lower ACLs. The Southern Management Area is constrained by cowcod and bocaccio impacts.

Cowcod Catch Sharing Options. The current cowcod harvest limit of 0.3 mt under cowcod catch sharing (Option 1 – Status Quo) was based on projected impacts from the RecFISH model in a past biennial management cycle and though the recreational fishery has been able to remain below this harvest limit with status quo regulations, it constrains the depth restrictions in the Southern Management Area. A revised catch sharing option was proposed for cowcod (Option 2) that would provide the recreational fishery with 47.5% of the 4 mt ACL under the preliminary preferred alternative resulting in a 1.9 mt HG for the recreational fishery. This is more reflective of the historical take in the recreational fishery, which was nearly 50% of the catch, whereas the 0.3 mt harvest limit under Option 1 represents 7.5% of the ACL.

The recreational fisheries are held harmless relative to the catch of widow rockfish. Widow rockfish catch in the California recreational is negligible; therefore its catch in the recreational fishery does not dictate

the season or depth restrictions. The widow rockfish projected impact is provided for each alternative as a harvest target for the recreational fishery. Darkblotched rockfish, Pacific Ocean Perch (POP) and petrale sole are uncommonly encountered in the recreational fishery or infrequently targeted, thus they have not been modeled as a constraint.

Proposed season and depth restriction alternatives also remain within the recreational harvest guidelines for non-overfished species resulting from the ACL alternatives and biennial catch apportionments between sectors of the fishery. Minor nearshore rockfish continues to constrain the recreational fishery in some management areas. The catch of these non-overfished species is tracked inseason and will continue to be monitored during the 2011-2012 season.

Additional Proposed Management Measures under Consideration: The CDFG is proposing the following management actions in 2011 and 2012 under all of the ACL alternatives analyzed below. Details of the management measure analyses are provided in Attachment 1.

- Eliminating the lingcod spawning closure in the California recreational fishery.
- Revising the California scorpionfish (sculpin) depth restriction in the Southern Management Area.
- Eliminating the ten fathom depth closure around the Farallon Islands and Noonday Rock.
- Combining the Monterey South-Central and Morro Bay-South Central recreational management areas.
- Adding a management line at Cape Vizcaino.
- Increasing the cabezon bag limit to 3 fish.
- Decreasing the lingcod size limit to 22 inches.
- Increasing the recreational depth restrictions within the Cowcod Conservation Area from 20 fm to 30.
- Modifying the list of groundfish species allowed to be taken recreationally in the Cowcod Conservation Area to include shelf and slope rockfish.
- Modifying cabezon and kelp greenling gear restrictions to be consistent with rockfish regulations.
- Revising the naming convention for the California recreational management areas.

Recreational Analyses Removed from Consideration

- Increasing the lingcod bag limit.
- Increasing the depth restriction to 50 fm in the Monterey and Morro Bay recreational groundfish management areas.

NO ACTION ALTERNATIVE (2010 OYs)

Season and depth restriction diagrams (Figure 1-1) are provided below under the no action alternative as well as corresponding impacts on overfished species (Table 1-3) and non-overfished species (Table 1-4). Under the no action alternative, the yelloweye rockfish catch HG would be 2.8 mt. The projected yelloweye rockfish impacts of 3.0 mt would exceed the harvest guideline for yelloweye rockfish by 0.2 mt under the current season and depth restrictions. The slight increase in the projected impacts results from updates to model parameters including addition of 2008 and 2009 catch estimates. The impacts on the remaining overfished species and non-overfished species would remain below the specified HGs.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months
Northern	CLOSED				May 15 - Sept 15 <20 fm								4
North-Central North of Pt. Arena	CLOSED				May 15 - Aug 15 <20 fm								3
North-Central South of Pt. Arena	CLOSED					June 13–Oct < 30 fm							4.5
South-Central Monterey	CLOSED				May – Nov 15 < 40 fm								6.5
South-Central Morro Bay	CLOSED				May – Nov 15 < 40 fm								6.5
Southern	CLOSED		Mar –Dec < 60 fm										10

Figure 1-1. Rockfish, cabezon and greenling season and depth restrictions in each management area under the no action alternative.

Under the current regulations, the depth restriction for scorpionfish in the Southern Management Area is limited to 40 fm in January and February when the rockfish, cabezon and greenling season is closed. CDFG has proposed that this depth restriction be increased to 60 fm during these months to make the depth restriction consistent with the Rockfish, Cabezon and Greenling (RCG) depth restrictions during March through December to accommodate requests by industry to simplify regulations, which is not expected to appreciably increase impacts on overfished species.

Table 1-3. Projected impacts to overfished species in the California recreational fishery under the no action alternative (2010 OYs).

Species	2011 HG (mt)	2012 HG (mt)	Projected Impacts (mt)	2011 Percent HG	2012 Percent HG
Yelloweye Rockfish	2.8	2.8	3.0	107%	107%
Bocaccio	67.3	67.3	54.6	81%	81%
Cowcod Option 1	0.3	0.3	0.17	64%	64%
Cowcod Option 2	1.9	1.9	0.17	9%	9%
Canary Rockfish	22.9	22.9	8.0	35%	35%
Widow Rockfish	NA	NA	8.1	NA	NA

Table 1-4. Projected impacts to non-overfished species in the California recreational fishery under the no action alternative.

Species	Projected Impacts (mt)
Black Rockfish	151.0
Blue Rockfish	178.3
Cabezon	23.3
California Scorpionfish	63.8
California Sheephead	31.7
Greenlings	10.5
Lingcod	196.0
Minor Nearshore Rockfish North	7.8
Minor Nearshore Rockfish South	308.6

ALTERNATIVE 1: PRELIMINARY PREFERRED ALTERNATIVE ACLs FOR OVERFISHED SPECIES

Season and depth restriction diagrams (Figure 1-2) as well as corresponding impacts on overfished species (Table 1-6) and non-overfished species (Table 1-7) under this alternative are provided below. The 20 mt yelloweye rockfish ACL under the preliminary preferred alternative and the corresponding 3.4 mt HG allow the limited season in the North-Central North of Point Arena Management Area to be sustained as well as allowing a one and a half month increase to the season in the Northern Management Area. This alternative also provides one and a half months of additional fishing opportunities in the North-Central South of Point Arena Management Area and the Monterey and Morro Bay South-Central Management Areas while providing a 0.3 mt buffer between the projected impacts of 3.1 mt and the harvest guideline of 3.4 mt. The reduced catches of Minor Nearshore Rockfish South and blue rockfish in the 2008 and 2009 seasons resulted in reduced projected impacts for these species in 2011 and 2012, which will accommodate the one and a half month increases in the fishing season in these three management areas. The preliminary preferred alternative would allow for an additional 5.5 months of fishing season statewide over the No Action Alternative, though the resulting seasons still represent very limited fishing opportunity compared to a full year fishing season.

Under the remaining ACL alternatives, the season would have to be reduced in the North-Central North of Point Arena and in other management areas to prevent yelloweye rockfish impacts from exceeding the lower harvest guideline. Yelloweye rockfish impacts are extremely constraining to the fishery North of Point Arena and reductions in the ACLs from the preliminary preferred alternative of 20 mt would result in additional season length reductions in the North-Central North of Point Arena Management Area. This management area is already severely constrained, with only a three month fishing season at 20 fms. Lower ACL options will also require a reduction in the season length in the Northern or North-Central South of Point Arena Management Areas to remain within the yelloweye rockfish harvest guidelines resulting in lost revenue to coastal communities in these areas as well.

While modifying the depth restriction in the Cowcod Conservation Area from 20 to 30 fms is projected to result in increased catch of cowcod, the 2008 Total Mortality Rate catch sharing would provide a significant buffer between the projected impact of 0.17 mt and the 1.9 mt Harvest Guideline under the preliminary preferred alternative. The 168.3 mt bocaccio OY would accommodate any potential increase in bocaccio impacts in the recreational fishery from allowing retention of shelf and slope rockfish and a 30 fm depth restriction in the CCA.

The canary rockfish harvest guideline of 22.9 mt under the preliminary preferred alternative will provide a buffer between the projected impacts and variability in the estimated catch of canary rockfish.

In addition, the proposed options under the PPA will accommodate the proposed changes to management measures other than depth and season.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months
Northern	CLOSED				May 15 - Oct <20 fm								5.5
North-Central North of Pt. Arena	CLOSED				May 15 - Aug 15 <20 fm								3
North-Central South of Pt. Arena	CLOSED					June–Nov < 30 fm							6
South-Central Monterey	CLOSED				May – Dec < 40 fm								8
South-Central Morro Bay	CLOSED				May – Dec < 40 fm								8
Southern	CLOSED		Mar –Dec < 60 fm										10

Figure 1-2. Rockfish, cabezon and greenling season structure under the preliminary preferred alternative (Alternative 1).

Table 1-5. Projected impacts to overfished species in the California recreational fishery under the preliminary preferred alternative (Alternative 1).

Species	2011 HG (mt)	2012 HG (mt)	Projected Impacts (mt)	2011 Percent HG	2012 Percent HG
Yelloweye Rockfish	3.4	3.4	3.1	92%	92%
Bocaccio	161.8	168.9	55.0	34%	33%
Cowcod Option 1	0.3	0.3	0.2	64%	64%
Cowcod Option 2	1.9	1.9	0.2	11%	11%
Canary Rockfish	22.9	24.2	9.1	40%	38%
Widow Rockfish	NA	NA	8.7	NA	NA

Table 1-6. Projected impacts to non-overfished species in the California recreational fishery under the preliminary preferred alternative ACLs (Alternative 1). Results in parenthesis reflect impacts from additional changes to management measures other than season and depth.

Species	Projected Impacts
Black Rockfish	168.9
Blue Rockfish	176.7
Cabezon	26.4 (28.9)
California Scorpionfish	61.4 (63.8)
California Sheephead	31.7
Greenlings	11.9
Lingcod	215.1 (263.2)
Minor Nearshore North	5.6
Minor Nearshore South	347.1

ALTERNATIVE 2: INTERMEDIATE OVERFISHED SPECIES ACLs
Season and depth restriction diagrams (Figure 1-3) as well as corresponding impacts on overfished species (Table 1-7) and non-overfished species (Table 1-8) under this alternative are provided below. This alternative would not allow an increase in the season length in the Northern Management Area despite their reduced impacts on yelloweye rockfish. It would result in a half month reduction in the already highly constrained three month season length in the North-Central North of Point Arena Management Area with the loss of the first two weeks of August. In the North-Central South of Point Arena Management Area, October would be closed to fishing while the season start date was moved from June 13th to June 1st, reducing the season length by a half month relative to the no action alternative. In this management area, both yelloweye and blue rockfish constrain the season lengths. The season length in the Monterey and Morro Bay South-Central Management Areas could still be increased to include December, increasing the season length by one and a half months since yelloweye rockfish is not constraining in this area.

Though the canary rockfish impacts for the California recreational fishery in 2009 were far below the 22.9 mt HG, the annual catches of canary rockfish in the recreational fishery are variable and this residual buffer between projected impacts of 7.4 mt and the HG of 16.5 mt in 2011 should be maintained to prevent the need for inseason action to close the fishery before the proscribed date. The bocaccio HG of 61.9 mt in 2011 under the catch sharing alternative selected by the Council and the cowcod harvest limit of 1.4 mt under the Total Mortality Report catch sharing (Option 2) would provide sufficient residual catch to allow the proposed 30 fm or 40 fm depth restriction in the CCA and retention of shelf and slope rockfish including bocaccio in the CCA.

In addition the proposed options under Alternative 2 will accommodate the proposed changes to management measures other than depth and season.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months
Northern	CLOSED				May 15 - Sep 15 <20 fm								5.5
North-Central North of Pt. Arena	CLOSED				May 15 - Jul <20 fm								2.5
North-Central South of Pt. Arena	CLOSED					June–Sep < 30 fm							4
South-Central Monterey	CLOSED				May – Dec < 40 fm								8
South-Central Morro Bay	CLOSED				May – Dec < 40 fm								8
Southern	CLOSED		Mar –Dec < 60 fm										10

Figure 1-3. Rockfish, cabezon and greenling season structure under Alternative 2 with intermediate ACLs for overfished species.

Table 1-7. Projected impacts to overfished species in the California recreational fishery under Alternative 2 with intermediate ACLs for overfished species.

Species	2011 HG (mt)	2012 HG (mt)	Projected Impacts (mt)	2011 Percent HG	2012 Percent HG
Yelloweye Rockfish	2.6	2.6	2.4	94%	94%
Bocaccio	61.9	65.8	52.2	84%	79%
Cowcod Option 1	0.2	0.2	0.17	85%	85%
Cowcod Option 2	1.4	1.4	0.17	12%	12%
Canary Rockfish	16.5	17.7	7.4	45%	42%
Widow Rockfish	NA	NA	7.8	NA	NA

Table 1-8. Projected impacts to non-overfished species in the California recreational fishery under Alternative 2 with intermediate ACLs. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Impacts
Black Rockfish	145.0
Blue Rockfish	145.1
Cabezon	21.6 (23.8)
California Scorpionfish	61.4 (63.8)
California Sheephead	31.7
Greenlings	9.3
Lingcod	170.3 (209.7)
Minor Nearshore North	7.8
Minor Nearshore South	286.1

ALTERNATIVE 3: LOW OVERFISHED SPECIES ACLs

Season and depth restriction diagrams (Figure 1-4) as well as corresponding impacts on overfished species (Table 1-9) and non-overfished species (Table 1-10) under this alternative are provided below. The reduction in the yelloweye rockfish ACL to 14 mt would result in a 1.6 mt HG for the recreational fishery, which would not allow an increase in the four month fishing season in the Northern Management Area despite their reduced impacts on yelloweye rockfish since the 20 fm depth restriction was put in place in 2008. A reduction to the already highly constrained three month fishing season in the North-Central North of Point Arena Management Area would be needed to remain within the yelloweye rockfish HG; only a one and a half month season could be accommodated,. In addition, the season length in the North-Central South of Point Arena Management Area would have to be decreased by a half month. Rather than the one month increase in season length in the South-Central Management Area proposed under Alternatives 1 and 2, the season would be reduced by 1 month to help maintain the 0.1 mt residual between the 1.6 mt HG and the 1.5 mt projected impacts for yelloweye rockfish and to remain below the bocaccio HG.

With the bocaccio HG of 27.6 mt, season lengths would have to be severely reduced by five months in the Southern Management Area resulting in only a five month fishing season during the least valuable months of the season. The resulting season would not encompass the critical months for rockfish fishing from March through April when Coastal Pelagic and Highly Migratory species are not available to the fishery. In addition, the season in the South-Central Management Area would be reduced by one month resulting in a six month fishing season to reduce bocaccio impacts to within the HG.

Under Alternative 3, the cowcod HG would be 0.1 mt under the status quo catch sharing (Option 1); cowcod is less constraining than the bocaccio OY which requires severe season length reductions or shallower depth restrictions in the Southern Management Area to remain within its 27.6 mt HG. The bocaccio HG in 2011 and the cowcod harvest limit of 0.9 mt under the 2008 Total Mortality Report Catch (Option 2) sharing would provide a 0.85 mt residual catch to allow the proposed increase in depth restriction in the CCA from 20 fm to 30 fm or 40 fm and retention of shelf and slope rockfish including bocaccio in the CCA. Potential increases in bocaccio impacts from these actions would be a concern given the 27.6 mt bocaccio OY and the projected impacts of 26.6 mt in 2011, given the 1 mt residual between the projected impacts and the HG. Though there is concern as to whether the proposed changes to regulations in the CCA could be implemented, the alternative will accommodate all the other proposed

changes to management measures. The reductions in season length in the Southern and South-Central Management Areas as well as forgone increases in fishing opportunity in the CCA would have extreme negative implications for fishing opportunity and the businesses in communities that rely on fishing for their economic well being.

Management Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Months
Northern	CLOSED				May 15 - Sep 15 <20 fm								4
North-Central North of Pt. Arena	CLOSED				May 15 - June <20 fm								1.5
North-Central South of Pt. Arena	CLOSED					June–Sep < 30 fm							4
South-Central Monterey	CLOSED				May – Oct < 40 fm								6
South-Central Morro Bay	CLOSED				May – Oct < 40 fm								6
Southern	CLOSED				May –Sep < 60 fm								5

Figure 1-4. Rockfish, cabezon and greenling season structure under Alternative 3 with low ACLs for overfished species.

Table 1-9. Projected impacts to overfished species in the California recreational fishery under Alternative 3 with low ACLs for overfished species.

Species	2011 HG (mt)	2012 HG (mt)	Projected Impacts (mt)	2011 Percent HG	2012 Percent HG
Yelloweye Rockfish	1.6	1.6	1.5	95%	95%
Bocaccio	32.6	27.6	26.6	82%	97%
Cowcod Option 1	0.1	0.1	0.03	31%	31%
Cowcod Option 2	0.9	0.9	0.03	3%	3%
Canary Rockfish	8.6	9.1	7.6	88%	83%
Widow Rockfish	NA	NA	7.0	NA	NA

Table 1-10. Projected impacts to non-overfished species in the California recreational fishery under Alternative 3 with low ACLs for overfished species. Results in parenthesis reflect changes to management measures other than season and depth.

Species	Projected Impacts
Black Rockfish	148.4
Blue Rockfish	150.3
Cabezon	18.1 (19.9)
California Scorpionfish	16.6 (19.0)
California Sheephead	10.3
Greenlings	9.0
Lingcod	164.7 (196.7)
Minor Nearshore North	10.0
Minor Nearshore South	279.0

Summary of Comparison Among Alternatives.
Provided in Table 1-11 are the number of months open to fishing in each management measure under each of the overfished species ACL alternative under consideration by the Council. Comparison of the alternatives to the No Action alternative provides an indication of the number of months the season would increase or decrease relative to the status quo season length. Comparison of the other alternatives to the Preliminary Preferred Alternatives indicates the forgone fishing opportunity that would result from the selection of lower ACLs.

Table 1-11. Number of months open to fishing in each Management Area under each of the overfished species ACL alternatives under consideration by the Council.

	Months and Season of Fishing under each ACL Alternative			
Management Area	**No Action Alternative**	**Alt 1 Prelimnary Preferred Alternative ACLs**	**Alt 2 Intermediate ACLs**	**Alt 3 Low ACLs**
Northern	4 May 15 - Sep 15	5.5 May 15 - Oct	5.5 May 15 - Sep 15	4 May 15 - Sep 15
North-Central North of Pt. Arena	3 May 15 - Aug 15	3 May 15 - Aug 15	2.5 May 15 - Jul	1.5 May 15 - Jun
North-Central South of Pt. Arena	4.5 Jun 13 - Oct	6 June - Nov	4 Jun - Sep	4 Jun - Sep
South-Central Monterey	6.5 May - Nov 15	8 May - Dec	8 May - Dec	6 May - Oct
South-Central Morro Bay	6.5 May - Nov 15	8 May - Dec	8 May - Dec	6 May - Oct
Southern	10 Mar - Dec	10 Mar - Dec	10 Mar - Dec	5 May -Sep
Total Months	35.5	40.5	38	26.5

Attachment 1: Analysis of Proposed Changes to Management Measures in the California Recreational fishery in 2011 and 2012.

2. Elimination of the Lingcod Spawning Closure in the California Recreational Fishery

Rationale

A lingcod spawning closure has been in place in California from December through March since the southern stock was deemed overfished in 2001. This was done to protect nest-guarding males during the spawning period in the interest of rebuilding the southern lingcod stock more quickly. According to the most recent stock assessment, the southern lingcod stock has rebuilt to 70% of virgin biomass, well above the 40% target biomass set by the Council thus the need to continuing protection is questionable. This will greatly increase the California recreational harvest guideline from 422 mt in 2010 to 1151 mt in 2011 under the preferred ACL and the current catch sharing between sectors.

The lingcod closure is not the only time closure affecting nearshore fisheries. The recreational rockfish cabezon and greenling complex (RCG) season in the Southern Groundfish Management Area is closed in January and February to boat-based anglers and open March through December. The December through March lingcod closure applies to all recreational angers (boat-based as well as shore-based and spear divers). The current discrepancy in the RCG and lingcod seasons can be resolved by allowing lingcod to be retained in March and December to reduce regulatory complexity and allow for additional take while remaining far below the recreational harvest guideline for lingcod.

The annual take in the California recreational fishery has been close to half of the harvest guideline (HG) for the California recreational fishery since 2004 (Table 2-1) due to constraints from over fished species. Under the Council preliminary preferred alternative ACL, the sector specific harvest target for the California recreational fishery will more than double. With limited access to the primary depth distribution of lingcod in deeper waters, few management measures are available to harvest the full harvest guideline of lingcod in 2011 and 2012.

CDFG proposes to eliminate the lingcod spawning closure in the California recreational fishery to reduce regulatory complexity by maintaining consistent seasons with the other groundfish species including rockfish and enhance fishing opportunity during the months open to fishing. Lingcod would remain closed when the RCG is closed to prevent anglers that would target lingcod from accruing regulatory discard mortality on rockfish. For example, in 2011, retention of lingcod would not be allowed in the Southern Management Area in January and February, during the closed season for the RCG complex. From 2004–2009, not a single canary or yelloweye rockfish was encountered from the shore by anglers interviewed in the California Recreational Fishery Survey who were targeting lingcod and only about six tenths (0.6) of a metric ton of bocaccio were encountered in the shore mode statewide during those six years. Clearly, shore-based anglers have minimal impact on overfished species.

For the purpose of regulation consistency and brevity, the CDFG proposes to eliminate the lingcod spawning closure statewide for all modes of fishing including boat-based and shore-based fishing as well as spear diving.

Lingcod Take Relative to Increased OYs/ACLs in 2011

In 2011 and 2012 the Harvest Guideline (HG) for the recreational fishery under the preliminary preferred alternative with the status quo catch sharing will increase dramatically from 422 mt in 2010 to 1151 mt in 2011 and to 1184 mt in 2012. The average statewide recreational lingcod take from 2005–2009 was only 197 mt, which is 47% of the 422 mt HG in 2010 and 17% of the 2011 HG (Table 2-1). The annual lingcod take in 2009 was only 168 mt, which is only 40% of the 422 mt HG and only 14% of the 2011 HG. The unused yield will increase without changes to current management measures.

Table 2-1. Recreational lingcod take by year as compared to the harvest guideline.

Year	Recreational Harvest Guideline (mt)	Recreational Lingcod Catch (mt)	% HG Utilized
2005	422	242	57%
2006	422	301	71%
2007	422	174	41%
2008	422	99	23%
2009	422	168	29%
Average	422	197	44%

The monthly projected take of lingcod in the California Recreational fishery from January to March with the status quo 2010 depth restrictions by management area are reported below in Table 2.2. The RecFISH model projections indicate that opening the lingcod fishery in March and December in the Southern Groundfish Management Area will increase annual statewide catch by only 3.8 mt in 2011. If January through March and December were open to fishing in all management areas, lingcod impacts are only projected to increase by 47.8 mt although under the Preliminary Preferred Alternative, the least restrictive, these months would remain closed to fishing in most management areas. The projected impacts for December and March 2011 were 3.1 mt and 0.7 mt, respectively. This additional take is negligible relative to the 983 mt of unharvested lingcod between the 2011 HG of 1151 mt and the estimated impacts in 2009 of 168 mt.

Table 2-2. Projected impacts on lingcod in each month from December to March in each management area if the season was open.

Management Area	Dec	Jan	Feb	Mar	Total All Months
Northern	0.9	0.7	0.7	4.0	6.3
North Central North of Point Arena	0.9	0.7	0.7	4.0	6.4
North Central South of Point Arena	10.5	2.3	2.3	8.2	23.3
South-Central Management Area	2.2	0.5	0.5	1.7	4.9
Southern Management Area	3.1	1.6	1.6	0.7	6.9
Total All Management Areas	17.6	5.8	5.8	18.6	47.8

Additional lingcod management measures options are also being proposed. An increase in the recreational bag limit to 3 or 4 fish per angler or a reduction of the lingcod size limit to 22 inches under consideration by the Council are not expected to appreciably increase impacts relative to the preliminary preferred 2011 HG. The constraints posed by the bycatch of canary rockfish and yelloweye rockfish continue to prevent commercial and recreational groundfish fisheries from accessing a higher lingcod biomass in deeper water. Few additional methods beyond size limits, bag limits and an increased season length are available to increase the fishing opportunity for lingcod. An even larger residual of lingcod will be left unutilized even if size limits are reduced, bag limits are decreased, and fishing is allowed during the spawning season. The projected lingcod impacts under each alternative and accounting for both allowing retention during the spawning season and a 22 inch size limit from the respective analyses are provided in Table 2-3 as well the corresponding percentage of the recreational harvest guideline for 2011.

Table 2-3. Projected lingcod impacts (mt) under each of the overfished species ACL alternatives and management measures relative to the 2011 recreational HG under the preliminary preferred alternative.

ACL Alternative	Present Lingcod Impacts	No Spawning Closure	Size Limit	No Spawning Closure and 22 in. Length Restriction	Percent 2011 HG
PPA	215.1	220.4	256.8	263.2	23%
Intermediate	170.3	175.6	203.4	209.7	18%
Low	164.7	164.7	196.7	196.7	17%

This residual should compensate for the loss of reproductive output resulting from removal of males during the spawning and nest-guarding period. Opening the spawning season is one of the few ways to harvest additional lingcod given the constraints on fishing deeper water posed by the bycatch of overfished species.

Conclusion: California supports removal of the spawning closure in the recreational fishery for all anglers.

3. Revision to the California Scorpionfish (Sculpin) Depth Restriction in the Southern Management Area

Rationale

CDFG proposes to change the 40 fathom (fm) California scorpionfish depth restriction to 60 fm during the closed season for the RCG complex which is presently in January and February in the Southern Groundfish Management Area (Point Conception to the U.S.-Mexico border). This action will make the scorpionfish depth restriction consistent with the general groundfish depth restriction during the remainder of the year. The scorpionfish depth restriction will be set at 60 fm year-round, simplifying recreational regulations. The 2009 California scorpionfish take was only 62 percent of the recreational harvest guideline (HG). The proposed action will provide additional fishing opportunity south of Point Conception and is not anticipated to result in an appreciable increase in take of overfished species.

Scorpionfish Impacts Relative to Harvest Guidelines

The RecFISH model was used to project 2011–2012 annual scorpionfish and overfished species (e.g. bocaccio, canary, cowcod, yelloweye rockfishes) take with the modified depth restriction. The RecFISH model uses 2005–2009 data to project for 2011–2012. The projected increased impacts for the aforementioned overfished species were compared to the 2011 and 2012 HGs to evaluate whether those HGs would be exceeded as a result of this action. The RecFISH model projects that if scorpionfish is opened to 60 fathoms in the Southern Management Area in January and February, annual statewide scorpionfish take will increase only 1.3 mt from 75.7 mt to 77.0 mt in both years. The projected impacts under each ACL alternative with a 40 fm depth restriction and 60 fm depth restriction on California scorpionfish in Jan and Feb in the Southern Management Measure and the corresponding percentage of the 2012 harvest guideline under the preliminary preferred alternative assuming the current catch sharing are in Table 3-1 below. The projected scorpionfish take including this small increase is below the 2011 and 2012 recreational HG of 89 and 83 metric tons (mt) respectively. The RecFISH model projects this action will result in a negligible increase in the annual take of bocaccio, canary, cowcod, and yelloweye rockfishes (less than 0.01 mt).

Table 3-1. Projected California scorpionfish impacts in metric tons under each of the ACL alternatives with a 40 fm and 60 fm depth restriction in January and February in the Southern Management Area.

ACL Alternative	Scorpionfish Impacts with 40 fm Open in Jan and Feb (SQ) (mt)	Scorpionfish Impacts with 60 fm Open in Jan and Feb (mt)	Percent 2012 HG
PPA	61.4	63.8	76%
Intermediate	61.4	63.8	76%
Low	16.6	19.0	23%

Overfished Species Bycatch

To determine if an appreciable amount of overfished species are affiliated with scorpionfish from 40 fm to 60 fm, the RecFIN boat sample data were queried for 1999–2000 (before many of the recreational regulations were put in place) between 0-60 fm for trips where scorpionfish was targeted. The purpose was to identify whether the take of overfished species was associated with scorpionfish before the 40 fm depth restriction was in place. The boat sample data includes private/charter boat (PC) onboard data and private/rental boat (PR) dockside data and both show that few rockfishes were caught when boat anglers target scorpionfish. The top four ranked species affiliated with scorpionfish were: Pacific mackerel, flatfish order, barracuda, and Pacific sanddab (Fig. 3.1). No overfished species were recorded in the PC onboard sample data during1999–2000. For the same years, the PR boat sample data show the top ranked affiliated species were: flatfish order, barred sandbass, California halibut and spotted sandbass (Fig. 3.2). No overfished species were recorded in the PR dockside sample data during 1999–2000.

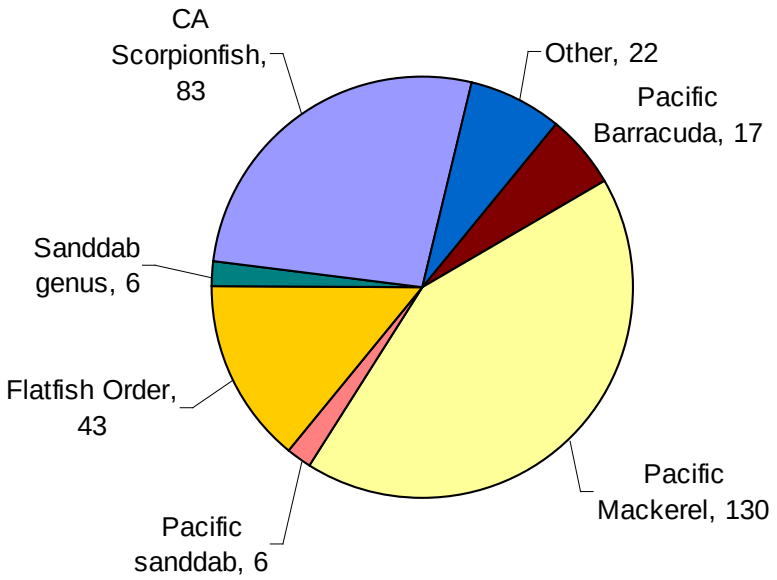

Figure 3-1: Total fish caught onboard party/charter boats targeting CA scorpionfish, 1999–2000, January and February, south of Point Conception. Data source: RecFIN boat sample data.

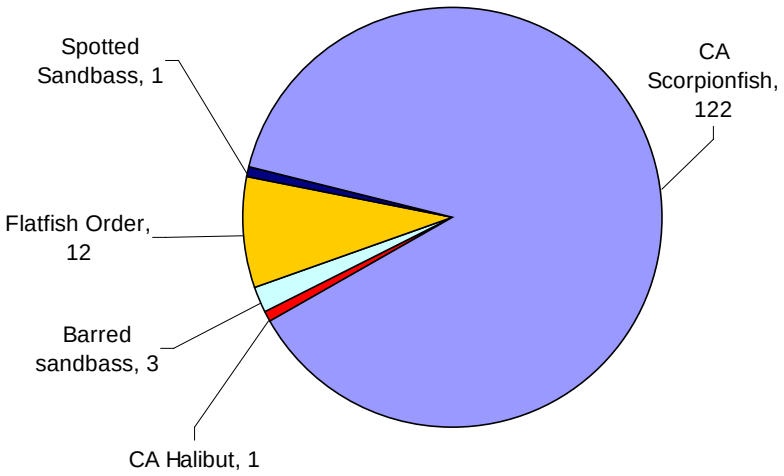

Figure 3-2: Total fish caught onboard private/rental boats targeting CA Scorpionfish, 1999–2000, January and February, south of Point Conception. Data source: RecFIN boat sample data.

To identify the species affiliated with scorpionfish in more recent years, the RecFIN California Recreational Fisheries Survey (CRFS) sample database was used for 2004–2009. All species that were caught in association with scorpionfish (targeted or caught) during the months of January and February south of Point Conception were queried and the data were stratified by PC and PR boat modes. Figures 3-3 and 3-4 show the top six species caught in association with scorpionfish in January and February of 2004–2009 by mode; the results are similar to the boat sample data in Fig. 3-1 and 3-2. Few overfished fish were caught while anglers targeted or caught scorpionfish (Table 3-2). Some bocaccio were encountered while anglers fished for scorpionfish, but no yelloweye were caught, and only two canary rockfish and two cowcod were caught during the entire six-year span.

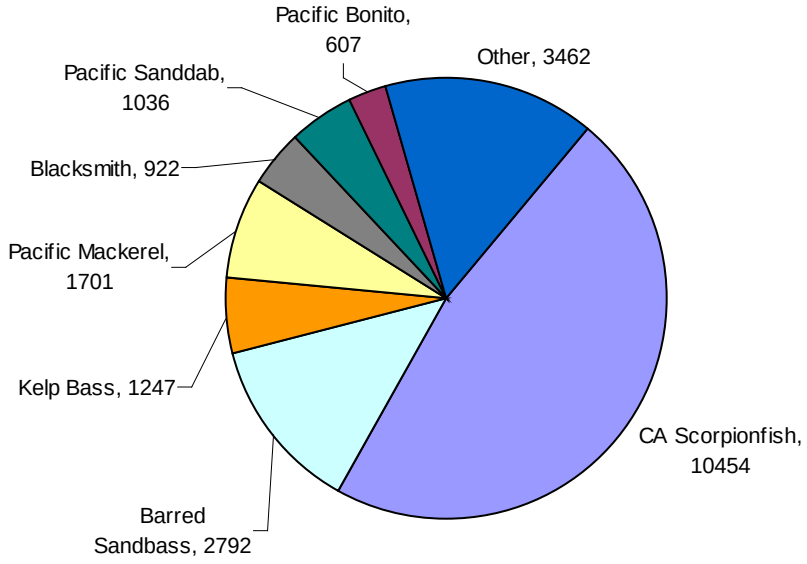

Figure 3-3. Total fish caught on party/charter boats in association with CA scorpionfish, 2004–2009, January and February, south of Point Conception. Data source: CRFS sample data.

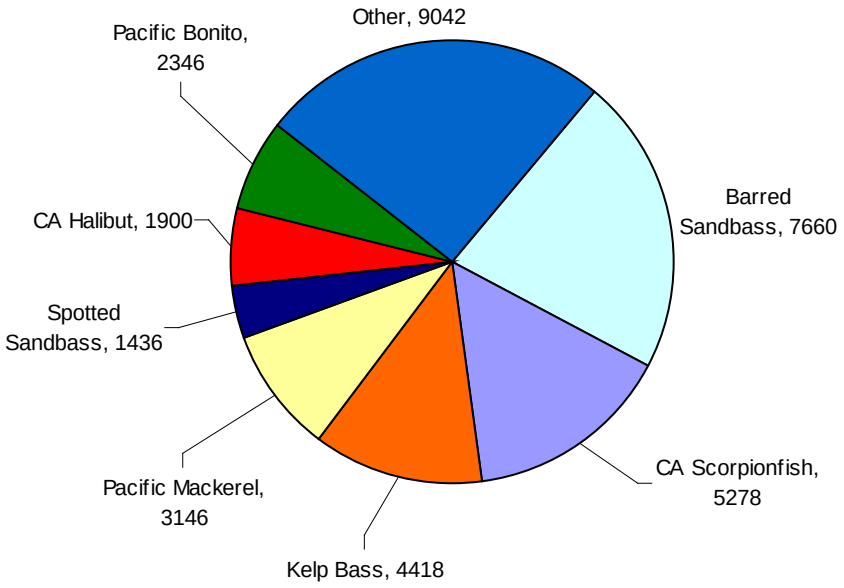

Figure 3-4. Total fish caught on private/rental boats in association with CA scorpionfish, 2004–2009, January and February, south of Point Conception. Data source: CRFS sample data.

Table 3-2. Numbers of overfished species caught in association with CA scorpionfish from boat modes in the Southern Management Area, February and January, 2004–2009. PC = party/charter boats, PR = private/rental boats. Data source: CRFS sample data.

	Numbers of Fish Sampled - PC				
Year	CA Scorpionfish	Bocaccio	Canary	Cowcod	Yelloweye
2004	5469	72	0	0	0
2005	282	0	0	0	0
2006	455	0	0	0	0
2007	1159	0	0	0	0
2008	2230	0	0	0	0
2009	859	0	0	0	0
	Numbers of Fish Sampled - PR				
Year	CA Scorpionfish	Bocaccio	Canary	Cowcod	Yelloweye
2004	3962	56	2	2	0
2005	174	5	0	0	0
2006	397	0	0	0	0
2007	255	0	0	0	0
2008	138	0	0	0	0
2009	352	8	0	0	0

Conclusion
CDFG supports changing the recreational scorpionfish depth restriction in the Southern Groundfish Management Area to 60 fm year-round.

4. Elimination of the Ten Fathom Depth Closure Around the Farallon Islands and Noonday Rock
Rationale
The California Department of Fish and Game (CDFG) proposes to eliminate the 10 fm depth closure around the Farallon Islands and Noonday Rock in the North-Central South of Point Arena Management Area. At present, take or possession of groundfish is prohibited in waters of 10 fm or less around the Farallon Islands and Noonday Rock. This management measure was initially put in place to reduce impacts on shallow nearshore rockfish species such as China, kelp, grass, black and yellow and gopher rockfishes. Marine Protected Areas (MPAs), effective May 1, 2010, prohibit fishing around the Islands. MPAs are depicted by light shading in Figure 4-1. The MPAs are closed to fishing and encompass many of the areas within the 10 fm depth closure (as represented by the black hatched areas within the shaded MPAs in Figure 4-1). Thus, the 10 fm fishery closure is redundant and results in unnecessary regulatory complexity. The remaining open areas not affected by MPAs which are 10 fms or less in depth around the Islands are represented by the black hatch areas outside of the shaded MPA areas in Figure 4-1. These small areas (around Middle Farallons) will remain open to groundfish fishing under the proposed action, although minimal effort is expected to occur there.

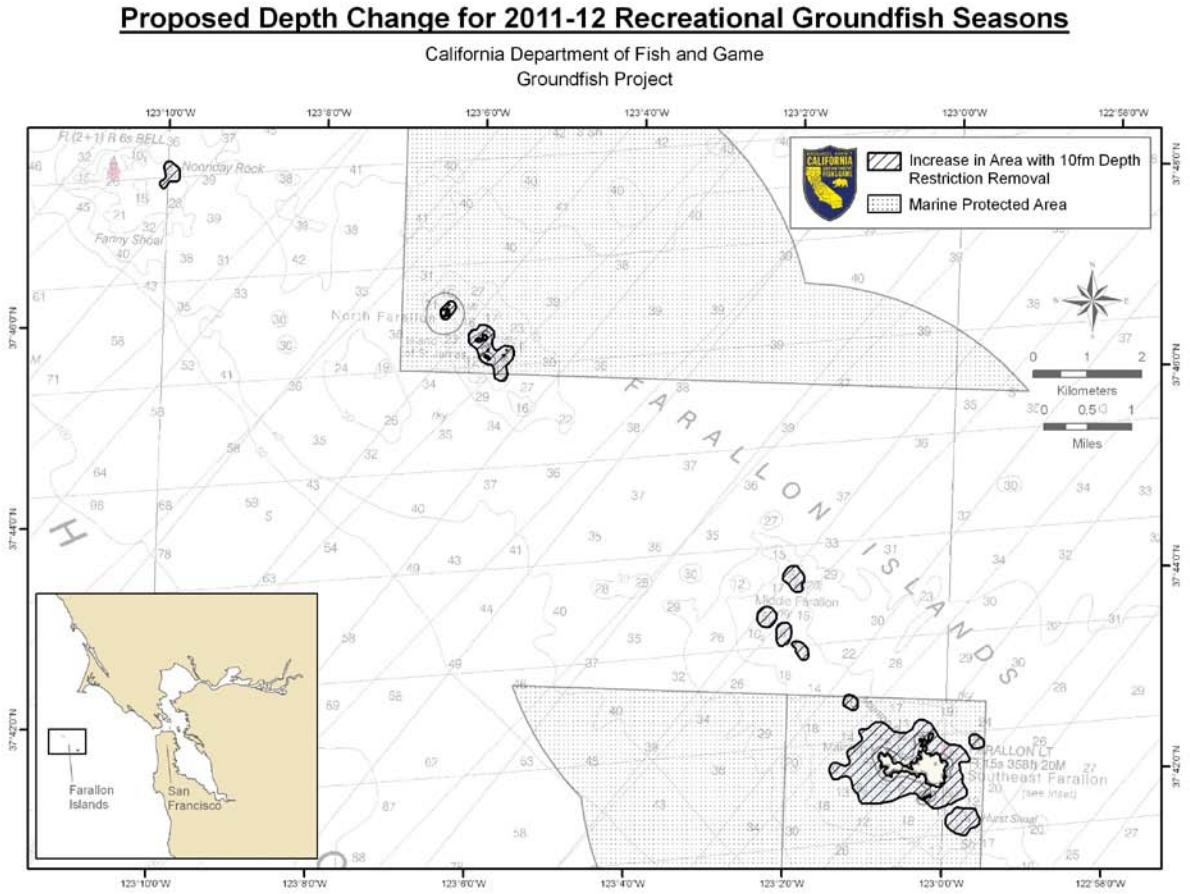

Figure 4-1. Areas within the current 10 fm depth restriction around the Farallon Islands and Noonday Rock and the location of Marine Protected Areas remaining closed to fishing for groundfish.

Fishing Effort in the Proposed Open Areas

The Farallon Islands and Noonday Rock are located approximately 30 miles west of the of the San Francisco Bay entrance, limiting the number of private and rental (PR) boat anglers willing to travel the distance to fish. The party and charter boats (PC) that target groundfish in this area tend to fish in deeper water in pursuit of schooling species and lingcod, rather than the shallow nearshore. The long distance from shore in combination with poor weather and rough conditions limit the number of days that PR or PC boat anglers fish at the Islands during the open months of the season.

Shallow Nearshore Rockfish Catch

A vast majority of the shallow nearshore rockfish habitat is closed to fishing around the Farallon Islands through the MPAs. Even with the remaining areas open to fishing, the majority of fishing effort is anticipated to be focused on deeper depths (20 to 30 fms). Therefore, this proposed action is not expected to greatly increase the statewide catch Minor Nearshore Rockfish South complex. Areas open to fishing would only represent less than one square mile of habitat, primarily distributed around the Middle Farallons and Noonday Rock (Table 4-2). Though this is a small increase in the area open to fishing, elimination of the 10 fathom depth closure will reduce regulatory complexity without greatly impacting Minor Nearshore Rockfish.

Table 4-1. Area gained from elimination of 10 fm depth closure around the Farallon Islands and Noonday Rock

Location Opened to Fishing	Area Increase (sq. miles)
Farallon Islands - Noonday Rock	0.11
Farallon Islands – North*	0.02
Farallon Islands - Middle	0.40
Farallon Islands - Southeast*	0.00

* Little to no increase in area due to MPAs

Conclusion
CDFG supports the elimination of the 10 fm depth closure around the Farallon Islands and Noonday Rock.

5. Combine the Monterey South-Central and Morro Bay-South Central Management Areas
Rationale
CDFG proposes to eliminate the division between the Monterey South-Central (from Pigeon Point to Point Lopez) and the Morro Bay South-Central (Point Lopez to Point Conception) Management Areas to form a single Central Management Area. The original justification for this management line was to allow for finer-scale management in Central California where the main species of concern is canary rockfish. The set harvest limit for canary rockfish has greatly increased since 2008, eliminating the need for the division between these areas. Furthermore, CDFG has not had to enact differing regulations in these two areas since 2006 when the line was put in place.

Conclusion
CDFG supports the elimination of the division between the Monterey South-Central and the Morro Bay South-Central Management Areas, to form a single Central Management Area.

6. Additional Management Line at Cape Vizcaino
Rationale
CDFG proposed to add a management line at Cape Vizcaino (39º 44' N. latitude) in the North-Central North of Point Arena Management Area. Currently, there are no management lines identified in the North-Central North of Point Arena Management Area between Fort Bragg and Shelter Cove. The additional management line allows for finer-scale inseason management for an area which accrues the vast majority of statewide yelloweye rockfish catch. If the yelloweye rockfish catch is projected to exceed the harvest guideline, the North-Central North of Point Arena Management Area may be divided at Cape Vizcaino in order to close groundfish fishing in the northern portion (Shelter Cove) and keep the southern portion (Fort Bragg) open to fishing.

Conclusion
CDFG supports the addition of a management line at Cape Vizcaino.

7. Cabezon Bag Limit Increase
Rationale
The California Department of Fish and Game (CDFG) proposes to increase the statewide bag limit for cabezon. The proposed action will increase the cabezon bag limit from two to three fish statewide within the ten fish RCG bag limit. Additional cabezon impacts can be accommodated within the increased harvest guidelines.

Increase in Catch Expected from Increasing the Cabezon Bag Limit from 2 to 3 fish

CDFG used the RecFIN methodology for Hypothetical Bag Limit Analyses to determine increased impacts cabezon resulting from this change. We used the A+B1+B2 fish from 2004 to 2009 for estimating the increased impact based on all fish encountered. The A fish are sampled dead fish. CDFG assumes for cabezon that B1 includes filets and there were no fish thrown back dead as cabezon have a high survival rate when released. B2 includes live fish over the bag limit or under the size limit of 15".

Since there is no way to estimate the proportion of fish that were undersized, this analysis also assumes there were no fish thrown back as sub-legal and assumes that all B2 fish would be available if the bag limit were increased as the most conservative estimate. All bags over the existing limit are then set to the hypothetical limit to calculate increased take. Results show a consistent increase in expected catch for the all mode for both species, as well as increases in catch for cabezon shore modes.

The Hypothetical Bag Limit Analyses indicated that there would be a 10% increase in total harvested cabezon. The 10% increase represents an estimated 35mt, which is 44% of the 2010 recreational total allowable catch (TAC) of 79mt. The recreational TAC of Cabezon will increase to 122 mt under the preliminary preferred alternative ACL of 179 mt. Given the magnitude of the buffer between recent impacts with a two fish bag limit in place in 2009, an increase in the bag limit from two to three fish is not expected to result in the TAC being exceeded. The projected impacts on cabezon resulting from increasing the 2 fish cabezon bag limit to 3 fish per angler under each overfished species ACL alternative can be accommodated with the 95 mt recreational TAC under the preliminary preferred alternative assuming the current catch sharing (Table 7-1).

Table 7-1. Projected increase in impacts in metric tons from increasing the cabezon bag limit to three cabezon with each overfished ACL option and corresponding resulting percentage 2011 TAC.

ACL Alternative	Present Cabezon Impacts 2 Fish Bag Limit (mt)	Projected Impacts with a Three Fish Limit (mt)	Percent 2011 TAC
PPA	26.3	28.9	30%
Intermediate	21.6	23.8	25%
Low	18.1	19.9	21%

Conclusion
CDFG supports the increased cabezon bag limit of three fish within the ten fish RCG bag limit.

8. Lingcod Size Limit
Rationale
CDFG proposes to lower the minimum size limit for lingcod statewide to 22 inches. The lingcod size limit will be reduced to achieve an annual catch level closer to the recreational HG. The lingcod take has been nearly half of the HG for the years 2004–2009, except 2006 (Table 8-1). The previous stock assessment in 2005 shows the southern lingcod stock has rebuilt. The most recent stock assessment (2009) shows increasing abundance and the HG will likely increase from 422 mt in 2009 to 1151 mt in 2011 under the preliminary preferred alternative. Reducing the size limit will increase annual take, but projections show that the lingcod HG will easily accommodate this change. CDFG has had much support from constituents and industry regarding this proposed action.

The current lingcod size limit in recreational fisheries in Oregon and Washington is 22 inches, so this action will make recreational regulations consistent coast wide. Historically, the California recreational size limit has varied from no size limit prior to 1981 to 30 inches in 2004. The size limit in California has

remained 24 inches since 2005, despite the lingcod catch staying well below the HG. This proposed action will help improve fishing opportunity and achieve the optimum yield of lingcod.

Table 8-1. Recreational lingcod take by year as compared to the harvest guideline (HG).

Year	Recreational HG	Recreational Lingcod Catch (mt)	% HG Utilized
2004	269	130	48%
2005	422	242	57%
2006	422	301	71%
2007	422	174	41%
2008	422	99	23%
2009	422	121*	29%

*Includes RecFIN data through 10/31/09

Increased Impacts

Length frequency distributions of discarded and retained lingcod from 2005 to 2009 in combination with weight-at-length data from CRFS onboard sampling were used to estimate the percent increase in catch (by number of fish and weight). The only available length data for recreational discards are from the onboard sampling of PC boats. As a result, lengths from this mode were assumed to be representative of all modes.

In order to normalize the length frequency distributions for retained and discarded catch, the frequencies were converted to proportions of catch by length and multiplied by the respective catch estimates in numbers of fish. The size limit was 24 inches from 2005 to 2009 and normalized length composition data from all five years were combined to provide an aggregate length frequency distribution for this period. From this distribution, the proportional increase in lingcod catch (by number of fish) expected from a given reduction in the size limit was estimated. This was done by calculating the percentage of lingcod that were between the 24 inch size limit and the 22 inch size limit (Eq. 1 below).

> **Eq. 1.** Proportional Increase in the Number of Lingcod for a Given Size Limit = Number of fish larger than new size limit / Number of fish larger than 24 inches.

The length-weight relationship from the 2009 stock assessment (Hamel 2009) was used to calculate the average weights of each length bin. The expected increase by weight was then estimated by multiplying the average weights by the frequency for that bin. The proportion of catch between the new size limit and the 24 inch size limit was then calculated, reflecting the percentage increase metric tons (Eq. 2 below).

> **Eq. 2.** Proportional Increase in the Weight of Lingcod for a Given Size Limit = Number of fish in each length bin larger than new size limit * weight of fish for each frequency bin (sum of Li x Wi for all $i > x$) / number of fish in each length bin larger than 24 inches * weight for each frequency bin (sum of Li x Wi for all $i > 24$).

Assumptions:

1. Anglers will retain all fish above the size restriction.
2. Anglers will discard all fish below the size restriction.
3. The percent increase in catch from PC mode is representative of all recreational fishing modes in CRFS.

4. The aggregate length frequency distribution for discarded and retained lingcod from 2005-2009 is representative of the stock structure in 2011 and 2012. In reality, it may vary depending on recent recruitment patterns.

The expected percentage increase in catch resulting from reduction of the size limit to 22, 20, or 18 inches and no size limit by number of fish and weight are shown in Table 8-2 below. The increase in catch by weight is estimated to increase from between 19.4% for a 22 inch size limit to 39.3 percent in the absence of a size limit. Even if the lingcod size limit had been eliminated in the years 2005–2009, California would not have exceeded the HG in any year. The length frequency distribution of discarded lingcod does not indicate unusually large year classes will be recruiting to the recreational fishery in the near future, which would have increased catch substantially as a result of a 22 inch size limit.

Table 8-2. Percent increase in recreational lingcod catch estimated to result from each prospective reduced size limit (2005–2009 RecFIN data).

Size Limit (in.)	Percent Increase in Fish (#)	Percent Increase in Catch (mt)
22	38.0%	19.4%
20	65.5%	29.8%
18	83.7%	34.9%
None	115.2%	39.3%

Ability to Accommodate Increased Lingcod Impacts

It is possible to eliminate the lingcod size limit altogether, without exceeding the recreational HG, given the large anticipated increase in the HG. If the size limit was lowered, the increased lingcod fishing mortality would decrease predation on and competition with the less productive *Sebastes* species. A lower lingcod size limit makes it more likely that an angler will obtain the two fish lingcod limit before attaining the RCG limit and stop fishing, rather than continuing to discard rockfish in pursuit of lingcod. So, this proposed action will discourage high-grading and will reduce bycatch of rockfish.

Lingcod exhibit sexual dimorphism in depth distribution, with males found in shallower water than females and males displaying nest-guarding behavior. Males mature between 18 and 20 inches, while females mature between 27 and 30 inches. The current depth restrictions preserve a large proportion of the female spawning biomass in deeper waters, while redistributing fishing effort onto nearshore waters, increasing impacts on males. Thus, it may be prudent to maintain an appreciable size limit, like 22 inches, to ensure that male lingcod abundance is sufficient to maintain an adequate population of mature nest guarding males.

Conclusion

CDFG supports a minimum size limit of 22 inches to preserve nest guarding males, yet still allow for increased lingcod fishing opportunity. The fillet length restriction would also be reduced to reflect the change in the length restriction (i.e. 14 inch fillet length restriction under a 22 inch total length restriction).

9. **Analysis of 30 and 40 fm Recreational Depth Restrictions within the Cowcod Conservation Area** (see Agenda Item B.3a, Attachment 1. Preliminary Analysis of the Integrated Alternatives and Management Measures for 2011-2012 Groundfish Fisheries in the EIS document for full analysis)

10. **Modification to the List of Groundfish Species Allowed to be taken Recreationally in the Cowcod Conservation Areas**

Rationale
Under the current regulations, of the more than 90 species within the Pacific Coast Groundfish Management Plan, only Nearshore Rockfish, cabezon, California scorpionfish, greenlings of the genus *Hexagrammos*, California sheephead, ocean whitefish and lingcod may be retained within the depths and seasons open to recreational groundfish fishing in the Cowcod Conservation Areas (CCA). Currently, all shelf and slope rockfishes encountered within the CCA must be discarded. A percentage of these discarded fish die due to barotrauma and hooking/handling injuries. These fish are wasted as regulatory discards as anglers continue pursuing their 10 fish rockfish, cabezon and greenling (RCG) bag limit of nearshore rockfish, cabezon and greenling, while accruing additional discards. In conjunction with modifying the list of groundfish species that can be retained, the CDFG is also considering an increase in the depth restriction in the Cowcod Conservation Areas (CCA) which would increase the likelihood of encountering shelf rockfish.

The current recreational depth restriction in the Cowcod Conservation Area (CCA) is 20 fm. The CDFG proposes allowing retention of shelf and slope rockfishes within the depths open to recreational groundfish fishing within the CCA. This will make the retention regulations for these species consistent with regulations in the other groundfish management areas. Retention of cowcod, canary and bronzespotted rockfish will still be prohibited statewide. While this change results in a limited increase to overall take of shelf and slope rockfish, this change will eliminate wastage due to regulatory discarding. Identification of these species has proven difficult for anglers and the regulation change will greatly simplify regulations as a result. Minimization of regulatory discarding is an expressed preference of stakeholders. Under the proposed action, recreational anglers are expected to meet their RCG bag limit sooner and with less discarding, reducing the chances of encountering overfished species in pursuit of their bag limit.

Enforceability of Retention Regulations
Discussions with CDFG enforcement indicated that the ability to enforce retention regulations does not differ based on the species that can be retained in this case.

Conclusion
CDFG supports the inclusion of shelf and slope rockfish in the list of allowed species to be taken in the CCAs.

11. Addition of gear Restrictions for Cabezon and Kelp Greenlings
Rationale
CDFG proposes to establish cabezon and greenlings gear restrictions such that no more than one rod with two hooks and one line may be used. This proposed action will eliminate the loophole in existing regulations and make gear restrictions consistent among cabezon, greenlings, rockfish and lingcod. This proposed action will eliminate the discrepancy in allowable methods of take among species which are commonly caught and managed together as the RCG complex. This proposed action will prevent the excessive recreational fishing effort of multiple rods to target cabezon and kelp and rock greenling.

Conclusion
CDFG supports new regulatory language to limit the method of take for cabezon and greenlings to not more than one rod with two hooks and one line.

12. Revised Naming Convention for the California Recreational Management Areas as Compared to the Status Quo Management Areas
Rationale
To simplify the names used to describe the recreational Management Areas, the longer less intuitive status quo names were replaced with single one word names that relate to the geographic location of the area.

The names of the status quo management areas and the new equivalents are provided in Table 11-1. below. Other than the elimination of division between the South-Central Management Areas at Point Lopez, the geographic points delineating each area have not changed. The geographic locations delineating the management areas are also provided.

Table 11-1. New California Recreational Management Area Names for 2011-2012, points and latitudes delineating the new areas and the status quo management area name equivalent.

2011-2012 Management Area Name	Northern Border (Latitude)	Southern Border / (Latitude)	Status Quo Management Area Name
Northern	CA/OR Border (42º N. lat.)	Near Cape Mendocino (40º 10' N. lat.)	Northern
Mendocino	Near Cape Mendocino (40º 10' N. lat.)	Point Arena (38º 57.5' N. lat.)	North-Central North of Point Arena
Bay	Point Arena (38º 57.5' N. lat.)	Pigeon Point (37º 11' N. lat.)	North-Central South of Point Arena
Central	Pigeon Point (37º 11' N. lat.)	Point Conception (34º 27' N. lat.)	Monterey South-Central
			Morro Bay South-Central
Southern	Point Conception (34º 27' N. lat.)	CA/Mexico Border	Southern

Recreational Analyses Removed from Consideration by CDFG

13. Exempting Federally Managed Flatfish from Recreational Groundfish Depth and Season Closures

Exemption of federally managed flatfish, including petrale sole, from depth and season closures may be not be prudent at this time given the depleted status of petrale sole. This management option may be reconsidered once the petrale sole stock has rebuilt.

14. Modify Regulations Regarding Filleting Federal Groundfish Species at Sea

Feedback from the public has identified a number of potentially adverse effects from prohibition of filleting at sea. Deck hands make a considerable portion of their income from filleting the catch of patrons on the way back to port. A prohibition on filleting at sea would result in reduction in much needed income. Party boat operators are required to allow California Recreational Fisheries Survey (CRFS) samplers to collect data onboard their vessels at sea, providing access to fish before being filleted. The fish reported by the angler as a destined for a purpose that would be included in the "plan to eat" disposition code make up less than 9% of unidentified rockfish. Filleted fish make up an unknown but likely a small fraction of this percentage since anglers are required to leave the entire skin attached allowing identification of filleted fish. Given the limited potential for reduction of unidentified rockfish in the recreational catch, filleting regulations will not be changed in the 2011-2012 season.

15. Lingcod Bag limit Increase

Rationale

The CDFG proposed to increase the statewide bag limits for lingcod. The proposed action would increase the lingcod bag limit from two fish to three fish statewide. Additional lingcod impacts can be accommodated within the increased harvest guideline. The action would improve fishing opportunities especially in nearshore areas.

Implications of Increasing the Lingcod Bag Limit from 2 to 3 or 4 Fish
CDFG analyses of bycatch rates show that an increase in the lingcod bag limit is likely to increase the rockfish bycatch including overfished species. Anglers would have to fish for a longer period of time to obtain three lingcod and in the process may encounter additional overfished rockfish including yelloweye rockfish. Given the constraints presented by yelloweye rockfish, there is concern that catch rates may increase if anglers continue to fish for their lingcod bag limit and an increase in the bag limit may result in increased yelloweye rockfish catch per angler. Increasing the lingcod bag limit may also encourage high-grading behavior by recreational anglers as anglers encounter larger rockfish than are currently in their 10 fish bag and high grade these larger fish for smaller dead fish that were previously retained. Although the three fish lingcod bag limit could be accommodated by the lingcod harvest guideline, interactions with over fished species and potential high-grading prevent implementation of an increased lingcod bag limit at this time.

Conclusion
CDFG does not support the change to the lingcod bag limit at this time.

16. Increase in Depth Restriction to 50 fm in the Monterey and Morro Bay Recreational Groundfish Management Areas

Rationale
CDFG proposed to change the depth restriction in the Monterey and Morro Bay South-Central Management Area from 40 fm to 50 fm. Currently, the depth restriction is 40 fm in the South-Central Groundfish Management Areas (Monterey and Morro Bay South-Central Management Areas combined, from Pigeon Point to Point Conception). The area seaward of the depth restriction line is termed the Rockfish Conservation Area (RCA). The South-Central Management Areas have had a depth restriction in place since 2001. The change in RCA lines from 40 fm to 50 fm will provide increased fishing opportunities on the central coast but may not be feasible due to interactions with yelloweye rockfish.

Impacts to Relevant Species
The RecFISH model was used to project the 2011–2012 annual take of select groundfish species with the modified depth restriction. The RecFISH model uses data from 2005–2009 to project for 2011–2012. The RecFISH model projects that if the depth restriction is changed from 40 fm to 50 fm in the South-Central Management Areas in 2011 and 2012, the annual take of select species will increase. There will be no additional impacts for California scorpionfish, California sheephead, greenlings, cowcod, or cabezon. Most of the recreationally caught species commonly encountered in the South-Central Groundfish Management Areas will have small increases in statewide fishing impacts as a result of this action as compared to the Harvest Guideline for the recreational fishery.

Impacts to Species of Concern
Some of the most constraining species and species groups in the Central Groundfish Management Area are blue rockfish and the Minor Nearshore rockfish group (specifically black rockfish). There is additional fishing opportunity available with the status quo ACL option likely for blue rockfish and the Minor Nearshore Rockfish group. The proposed action will cause the negative impacts for Minor Nearshore Rockfish (8.0 mt), and blue rockfish (4.0 mt). Analyses of Minor Shelf Rockfish catch indicate that the increase in take can be accommodated within the status quo ACL which is the preliminary preferred alternative for 2011–2012, or the ACL determined by the Science and Statistical Committee (SSC).

Impacts to Overfished Species
Few cowcod and yelloweye rockfish are encountered in central California, however, at deeper depths, they are more common. With this action, there is projected to be impacts to bocaccio (20.2 mt),

yelloweye (0.2 mt), canary (0.8 mt) and negligible impacts to cowcod (less than 0.01 mt). The 24 mt canary rockfish HG, 1.9 mt cowcod HG, and 163 mt bocaccio HG under the preliminary preferred alternatives will accommodate the projected impacts.

Yelloweye rockfish, however, is a cause for concern. The additional 0.2 mt of yelloweye rockfish catch projected to occur in the South-Central Management Areas represents a substantial increase in statewide yelloweye rockfish catch relative to the 3.4 mt preliminary preferred alternative. The high yelloweye catch, and variability of the catches in the North-Central North of Point Arena Management Area, make *any* increase in yelloweye rockfish catch a cause for concern. If significant residual yelloweye catch is left over between the 2011 catch and the 2011 HG, the 50 fm depth restriction could be put in place for the 2013–2014 management cycle.

Conclusion

At present, the CDFG does not support changing the depth restriction to 50 fm in Central California in 2011 and 2012 though it may be reconsidered in the future. The change from 40 fm to 50 fm would allow for additional fishing opportunity, but the state would like to have an indication of the changes to impacts from other management measures under consideration for 2011 and 2012 California recreational fishery before making additional changes to regulations in 2013-2014 when this action can be reconsidered.

Attachment 2: Methods Used in Modeling the California Recreational Fishing Season and Depth Restrictions for 2011 and 2012.

Description of the Catch Projection Model for the California Recreational Fishery (RecFISH)

The CDFG revised their impact projection model ("RecFISH") that was reviewed by the GMT at their January 2010 meeting and revisions were discussed in a conference call in May of 2010. The GMT recommends this updated model for use in projecting impacts of groundfish species in 2011 -12 California recreational fisheries. This model is described below and is used in impact analyses in this EIS.

Recreational fisheries management for multi-species assemblages in California presents many challenges. In recent years, declining stocks of several rockfish species have dictated recreational groundfish management seasons and depths in California. Increasingly complex restrictions have been necessary to keep total catch of depleted species within the reduced limits that are necessary to rebuild the stocks while providing fishing opportunity.

Prior to 2000, the recreational daily bag limit for rockfish was 15 fish per angler with no closed months or depths. Beginning in 2000, the daily bag limit was reduced to 10 fish. Regulations have changed each year since 2000, making analyses of the effects of particular regulations difficult. In addition, regulations have become more region-specific, adding to the difficulty of modeling projected catches.

Methodology Used to Project Recreational Catches for 2011–12
The recreational catch model incorporates a number of parameters and assumptions, all of which are either risk-neutral or risk-adverse. The basic analytical approach is the same as that used for 2009–10. The 2005-2009 data from the California Recreational Fishery Survey (CRFS) program serves as a baseline. The model output predicts expected catch under any combination of season and depth fishing restrictions for each of the regions

Key differences between 2009-10 and 2011-12 RecFISH model changes

- Includes 2008 & 2009 CRFS catch estimates
- Discard mortalities for 2009 used new GMT methodology
- Revised proportion of catch by depth for management areas north of Point Arena
- Revised proportion of catch by time for management areas north of Point Arena

CDFG/California Recreational Groundfish (RecFISH) Model Assumptions
The following assumptions are made in the application of the RecFISH model in projecting fishing impacts in the California recreational fishery.

- Effort Shift Inshore: The model includes a 27.6 percent increase in expected landings when fishing is restricted to less than 30 fm and a 39.3 percent increase in expected landings when fishing is restricted to less than 20 fm. The increase, or effort shift, is to account for increased effort in a smaller fishing area.

- Discard Mortality: The GMT developed depth-dependent mortality rates for discarded rockfish of the genus *Sebastes* in 10-fm increments, the derivation of which is described in section 4.1.5.6. The species specific depth-dependent mortality rates agreed upon by the GMT and approved by the PFMC in 2008 are applied to the discarded fish (B2 & B3) in the CRFS base data from 2005-09 used in the RecFish model. When projecting the 2011-12 season catch, discard catch estimates are multiplied by the proportion of catch in a given 10-fm depth increment times the depth-dependent mortality rate for the corresponding depth for each species.

Inputs and Key Parameters for the Model
Weighting of Base Years: Base year data 2005-2009 were given nearly equal weighting by applying a 0.99 decay function. The previous biennial cycle made use of a 0.67 decay function to weight 2005 more heavily than 2004. With the exclusion of the 2004 data in the current model due to issues with the comparability of trip types between years, there are five years of data available for the model and these are weighted equally to represent the base catch in the model.

Base Year Catch: Initially, CRFS catch estimates in weight of fish were summed for caught and retained (CRFS "A" catch), filleted/caught otherwise unavailable ("B1" catch), and for species of concern, a proportion of CRFS reported discarded fish derived using depth-based mortality estimates. Base year catch estimates are assumed to be for an unrestricted fishing year with no months closed and no depths closed. Therefore, for each year, a back calculation method was used to obtain an estimate for what the catch would have been if all months and all depths had been open. This back calculation uses month and depth catch proportions derived from historical catch estimates from seasons unregulated by month and depth.

Historical Catch By Month: Estimates of historical percent catch by two-month period were calculated for each region based on Marine Recreational Fisheries Statistics Survey (MRFSS) data (weight of A+B1) from 1993-99, which was a time period when seasons and depths were unconstrained. Proxies were considered on a species by species basis for regions where there was a lack of catch data for that area. Monthly estimates of percent catch then were divided equally (50:50) for each pair of months.

Historical Catch by Depth: Estimates of percent catch by depth were calculated for each region based on MRFSS depth sample data (numbers caught A+B1 for CPFV and A+B1+B2 for PR) from 1999-2000, which was a time period when depths were unconstrained. Proxies were considered on a species by species basis for regions where there was a lack of catch data for that area.

Description of the Catch Projection Model for the California Recreational Fishery (RecFISH)
To improve the accuracy of catch estimates for yelloweye rockfish, two methods were employed when modeling the effect of depth restrictions on the catch of this species:

1. For expanding baseline input catch data from regulated seasons to all depths, unregulated depth distribution of catch data from other areas can be used to supplement the existing historical data; these data must be from unregulated years to be able to expand to all depths. In the Northern Management Area, data from 1999-2003 were used (years unregulated by depth in the North), recent unregulated Oregon catch by depth (1999-2003), and 1999-2000 data from the North-Central area that is north of Point Arena (for bathymetric and fishing effort similarities to the North). For the North-Central area, additional data from dockside party charter catch by depth data from 1999-2000 were used.

2. More recent catch data from CRFS were used to produce region–specific proportions of catch by depth with a higher sample size than historical data to provide improved projections that represent the current depth distribution of catch. Although this data is from regulated years, recent years have seen a consistent regulatory scheme by depth that would allow for use in apportioning catch by depth within the open depth strata. For example, for the Northern Management Area, the years 2004-2007 saw a consistent 0-30 fm depth restriction in place. The catch by depth for those years was used to project the depth distribution within the upper 30 fm for upcoming years (assuming catch will be restricted to within this zone), providing a more current framework than using the historical 1999-2000 data. Similarly, this applies to 2006-2009 catch by depth data for the North-Central Management Areas (same 0-30 fm depth restrictions). These depth distributions are applied as a post-model run adjustment, reapportioning the projections with the new depth distributions.

Determining the Proportion of Angler Reported Unavailable Dead Catch for Yelloweye and Canary Rockfish that was Composed of Discarded Dead Fish:

The California Recreational Fisheries Survey program (CRFS) uses several different catch types in generating catch estimates: sampler examined catch ("A"), angler-reported dead fish ("B1"), and angler reported discarded live catch ("B2"). The B1 category includes disposition such as retained (filleted fish, fish given away, used for bait or otherwise unavailable) and fish discarded dead. Unfortunately, since CRFS began in 2004, no disposition of the B1 catch has been recorded for the majority of private and rental trips which are sampled in the PR1 mode. Therefore, it is not possible to separate the discarded dead fish from the retained unavailable fish in the B1 catch type without use of a proxy for the proportion of fish discarded dead. Attempts have been made to use sparse available data and apply these to the B1 catch data, but little data exists for depleted non-retention species, such as yelloweye and canary rockfish.

To estimate the proportion of B1 catch of yelloweye and canary rockfish that is discarded dead, a "compliance factor" (CF) was determined from recent (2005-2009) CRFS data. The CF is calculated by dividing the B2 catch by the total catch (A+B1+B2); this represents the proportion of fish reported discarded live by anglers (reported live only) while complying with regulations. It is conservative, as a portion of the B1 catch (the discarded dead) in the denominator should be in the numerator. The CF is used as a proxy for the proportion of B1 that is discarded dead, and so it is multiplied by the B1 catch to estimate the total fish discarded dead. This amount is added to the known B2 catch to arrive at total discards. This value is then multiplied by discard mortality factors by depth to obtain the discard mortality. Total mortality is then the retained catch (A+B1, less the proportion of B1 designated discarded dead) + discard mortality. Because the CFs are conservative, the proportions of B1 that are considered otherwise unavailable dead (filleted, used for bait, given away) will be biased high, thereby leading to an estimate of total mortality that is biased high. CFs were determined for each management area for both yelloweye and canary rockfish and applied to the B1 (aggregate unavailable dead catch) catch for these species to provide a conservative proxy estimate of fish discarded dead to which depth dependent mortality rates would be applied in estimating total mortality.

Methodology Used to Calculate Annual Unrestricted Catch

1. Pull (A+B1+B2+B3) Catch for each year from the RecFIN CRFS data web site: http://www.psmfc.org/recfin/forms/est2004.html. Specify species, and select the parameters: month and district under Define Table Layout.

2. Pull historical catch by depth (1999-2000, most recent years unregulated by depth) from the RecFIN boatdepth3 CDFG private access website. Add PC and PR fish caught together for each separate region and species, maintaining combined depth totals for each depth strata. Calculate average percentage of total fish caught within each 10 fm depth stratum (= "Depth Profile") by dividing 10 fm depth strata totals by combined total sum of all strata for the region. Assign proxies as needed for data-poor areas, using adjacent regions, similar species, etc.

3. Pull historical catch through time (1993-1999, the most recent years unregulated by monthly closure) from RecFIN website: http://www.psmfc.org/recfin/forms/est.html. Calculate average wave percents over combined years 1993-1999 by dividing individual wave totals by sum of all waves for each region. Assign proxies as needed for data-poor areas using the other region (North or South) as the proxy.

4. For each management region and species, calculate total regulated catch based on months each set of regulations was in effect. For example, if fishing was only open from 0-60 fm for March-December, sum total catch for those months only. Each management region should now have catch data for all species grouped by the different sets of management regulations (MR sets) in effect for the year so that the identical calculations can easily be performed on identically restricted species.

5. Expanding to All Depths. For each MR set: If there was no depth restriction, use the unmodified total regulated catch as the expected catch for all depths for that period of the year. If a depth restriction was in place, use total regulated catch to expand out each species in each MR set to all depths: from the Depth Profile, divide total regulated catch by sum of proportion of catch represented by the depths where fishing was open. This is the total expected catch for all depths. For example, if fishing for a MR set was open < 20 fm, divide the total catch by the percentage of the catch < 20 fm using the appropriate Depth Profile (historical unregulated catch data) for each species and region.

6. Effort Shift. If the depth restriction is confined to a 20 or 30 fm band, we assume increased effort occurred for these months. To remove this effect, apply an Effort Shift factor to remove the increased fishing (and increased catch) for the constrained depth zone. For example, if a 0-20 fm restriction was in effect, divide the total expected catch for all depths by 1.393 to get final total expected catch for those months. Similarly, use a factor of 1.276 if fishing was restricted within a 30 fm range. No Effort Shift is applied for depth restrictions > 30 fm.

7. Accounting for Closed Months. After expanding to all depths and removing Effort Shift (if needed), sum all the final expected catch values across all the MR sets for the year for each management region and species. Divide this sum by the percent catch for the year that these regulated months represent (from the wave percents for the year). In other words, divide the calculated catch for all open months by the percentage of the catch for the year these months historically represent. This results in the expected annual unregulated catch, expanded out from the regulated catch, for each region and species.

8. Input expected annual unregulated catch for each region-species into the Catch by Year Table in the RecFish Model database. The weighting of the different years' data to be used by the model in projecting catch can be selected at the model-user interface.

Changes to the RecFISH Model for 2011-2012

The CRFS estimates from 2008 and 2009 were added to the estimates from 2005-2007 used in the previous iteration of the model. A fixed 42% discard mortality rate was applied to the B2 and B3 discarded rockfish catch for the input data for 2008. The proportion of catch by depth applied to the depth dependent mortality rates to derive Management Area Specific discard mortality rates were updated and applied to the 2009 in put data. In addition, the proportion of catch by time and proportion of catch by depth in the historical catch were revised as described below, to better reflect the seasonality of effort North of Point Arena and the proportion of catch by depth North of 40 deg 10 min N. Latitude respectively.

1. Elimination of the Division between the Monterey and Morro Bay South-Central Management Areas. These areas are combined to reflect the consolidation of these two management areas into a single South-Central Management Area in 2011 and 2012. The CRFS district 3 shares the boundaries for this Management Area, extending from Pt. Conception to Pigeon Pt, allowing the same geographic scale of projections and inseason catch estimates for this region. A further analysis of this management measure is provided under the management measures analysis section of the EIS under B.3 attachment 1.

2. Revision to the Historical Catch by Month in North of Point Arena. The proportion of catch by wave was refined to a finer spatial resolution. Historically the fishery South of Point Conception, the area between Point Conception and Point Arena and the area between Point Arena and the CA/OR border have different proportions of catch by time due to weather, but previously only the differences North and South of Point Conception were accounted for in the model. In the area North of Point Conception, a far greater proportion of the total catch is derived from areas South of Point Arena biasing the proportion of catch by time. Oregon catch by time data were used as a proxy for North of Point Arena since catch data are available from Oregon during the unregulated fishing season, and the North Coast is similar to Oregon in terms of weather, opportunity and effort.

Historical Oregon data (1993–1999) replaced historic California data (1993–1999) for the North and North-Central North of Point Arena Management Areas for the following species: bocaccio, cabezon, canary rockfish, black rockfish, blue rockfish, brown rockfish, copper rockfish, quillback rockfish, greenling genus, kelp greenling, rock greenling, lingcod, China rockfish, grass rockfish, widow rockfish, and yelloweye rockfish. Oregon RecFIN catch data were extracted by wave for the years 1993–1999 because this is a time when Oregon had open seasons and no depth restrictions similar to California. "Catch" is defined as sampler-examined dead and angler-reported dead fish (A+B1). Estimated total catch in metric tons were compiled in MS Excel by species and wave. Catch-by-wave was converted into catch-by-month by dividing wave data in half. Areas between Point Arena and Point Conception (the North-Central South of Point Arena and the South-Central Management Areas) and Southern California, were not affected by this revision.

3. Revision to the Historical Catch by Depth in the Northern Management Area.
The proportion of catch by depth for the Northern Management Area (40 deg 10 min N. Latitude to the OR/CA border) was previously calculated using data from 1999 and 2000. The RecFISH model now includes data from 2001 and 2002 as well, since depth restrictions did not go into effect until 2003. This increased the sample size and improved the accuracy of the projections. The additional data reduced the reliance on proxy data for the Northern Management Area.

Historical California data (2001–2002) from RecFIN was added the existing data for the Northern North Management Areas for all species within the RecFISH model. The "Boat Depth 3" RecFIN website was used to query the catch by depth data. The data were downloaded into MS Access and aggregated into 60ft (10 fm) depth bins to match the layout found within the RecFISH model. The RecFIN survey data used consist of angler-retained fish (A+B1) as well as angler discarded fish (B2). Proxies were used for some species where data was limited or non-existent. A similar proxy process were used in the model before but the number of proxies was greatly reduced, resulting in a more robust RecFISH model. Recreational Groundfish Management Areas between Cape Mendocino and the California/ Mexico border were not affected by this revision.

The names of the Management Areas will be changed in 2011 to make them shorter and the south-central management areas will be combined to form a single management area, reducing the number of management areas from six to five, reducing regulatory complexity.