II. Range of Alternatives – Trawl Rockfish Conservation Areas (RCAs)

Trawl RCAs are areas closed to trawl gears bounded by lines approximating particular depth contours. RCAs were first implemented in September 2002, at the time established as a Darkblotched Rockfish Conservation Area in the area north of 40° 10' N. latitude. In 2003, RCAs were expanded for use coastwide to reduce catch of several overfished species, with differing configurations north and south of 40° 10' N. latitude. In recent years, the Council has also considered RCA modifications to control catch of non-overfished species (e.g., spiny dogfish, longnose skate, and rougheye rockfish).

The eastern and western RCA boundaries have changed over time, primarily to reduce bycatch of overfished species (see Appendix 1). North of 40° 10' N. latitude, the area between the trawl RCA boundary lines approximating the 100 fm through the 150 fm depth contours (often referred to as the core RCA) has remained closed since January 2003, while the majority of the area between the trawl RCA boundary lines approximating the 150 fm through the petrale modified 200 fm lines has been closed since August 2007[1].

With regard to the trawl RCA, Alternatives 4b-4e contemplate replacing the coastwide RCA with varying scales of discrete closed areas, while Alternative 4f removes the RCA entirely. Under Alternative 4b, option 1, new areas would be opened to fishing except the core RCA would remain (i.e., from 100 to 150 fm), while under Alternative 4b, option 3 areas that have had a longer time to recover from groundfish and pink shrimp bottom trawl impacts[2] would not be opened (e.g., some upper slope selected areas between 45° 46' to 40° 10' N. latitude would remain closed).

Essential fish habitat areas within the trawl RCAs that have begun recovery from groundfish bottom trawl and pink shrimp trawl gear impacts will be analyzed in the essential fish habitat (EFH) range of alternatives (ROA). However, the Council may wish to consider habitat recovery metrics in defining the boundaries between potential RCA regions (i.e., habitat that has begun to recover within status quo trawl RCAs), with the assumption that areas which have begun recovery from trawl gear impacts may also subsequently have higher abundances of various species that are of interest to the groundfish trawl sector.

Other Considerations

Separate Ranges of Alternatives (ROA) for RCA closure areas based on latitude: Cape Mendocino (40° 10' N. latitude) is not only a prominently used management boundary, but it is

[1] There was a brief incursion from 250 fm to 150 fm as far south as 45° 03’ N. latitude between April 1, 2007 to August 1, 2007, but the rest of the area between 40° 10’ N. lat. and 45° 03’ N. lat. has remained closed since 2004.
[2] Recovery estimates do not include long-lived biogenic habitat such as coral or sponge. Some species of coral are estimated to be in excess of 100 years old, and rates of colonization recovery after having been impacted is poorly understood, and could likely be longer than the actual life span of the biogenic species impacted.

also an ecologically relevant boundary for species distribution.[3] Similarly, Point Conception (34° 27' N. latitude) is another relevant ecological boundary where the Council may decide that different latitude boundaries may be preferred by the Council from other management boundaries described in the various RCA alternative descriptions below (i.e., the 36° N. latitude management boundary used for species such as blackcod, or the 40° 10' N. latitude management boundary). Therefore, a different range of alternatives for RCAs north and south of 40° 10' N. latitude, and/or north and south of 34° 27' N. latitude, may be desired by the Council. However, the area between 34° 27' N. latitude and the Mexican border has experienced the least amount of impacts in recent years from groundfish bottom trawl gear, and generation of multiple preliminary preferred alternatives (PPA) for each region may unnecessarily complicate analysis. Furthermore, different regions (i.e., the current trawl RCA areas north and south of 40° 10' N. latitude) may have a different library of data products available to the Council to inform decision-making, and the Council may choose to recommend different RCA liberalization decisions between the various latitude areas (see Table 1 below), taking into consideration their risk tolerance for liberalizing RCA areas between different regions.

Table 1. Potential RCA regions for Council consideration. Each RCA region may require different alternative considerations and decision-making. (*)- Indicates that the Council may choose to recommend a Canadian border instead of 48° 10' N. lat., pending further feedback from non-treaty industry representatives and pending feedback from ongoing NMFS/Tribal government-to-government consultation discussions.

Canadian Border- 48.10				
48.10- 40.10	48.10*- 40.10			
40.10-34.27	40.10-34.27	48.10*-34.27		
34.27- Mexican Border	34.27- Mexican Border	34.27-Mexican Border	48.10*-Mex. Border	Coastwide (Can. Border to Mex. Border)

Rotating RCA closure areas: The Council may wish to consider rotating RCAs of interest every 2-3 years in order to allow for specified species conservation while simultaneously designing the timeline for RCA closure to insure that by design, environmental and habitat baselines do not have sufficient time to recover. Such an approach may allow the Council to have greater flexibility to utilize RCA boundary modifications inseason as intended into the future, in a manner by which the National Environmental Policy Act and Magnuson-Stevens Act baselines for analysis would not have sufficient opportunity to change due to long periods of habitat recovery. If the Council chose to further explore the possibility of rotating RCA closure areas, habitat that is in need of recovery would be considered in the EFH range of alternatives.

Long-term Habitat Experimental Design Protocol (Habitat EDP): The Council may wish to consider areas that have begun recovery within currently-closed trawl RCAs, but in which habitat research closure areas may enable the development of long-term cooperative research studies with commercial fishermen: focused on trawl impacts in similar depths and areas with similar species associations. Long-term habitat EDPs could be considered in the EFH range of alternatives to create long-term control (untrawled) and experimental (trawled) areas for research to improve understandings of bottom trawl impacts to habitat. Currently, numerous West Coast scientifically peer-reviewed journal articles published in various research journals lack effective

[3] See June 2013 PFMC meeting briefing book: Supplemental GMT Report 2, Table 4 (last column), Figures 1, 2, and 3 related to species distribution as encountered in NWFSC-WCGOP bottom trawl survey data, 2002-2011 (http://www.pcouncil.org/wp-content/uploads/F8b_SUP_GMT_RPT2_JUN2013BB.pdf).

untrawled versus trawled comparisons for long-term studies that could improve the Council's understanding of habitat recovery, and potentially improve management of trawl fisheries in the future.

Ecosystem-Based Management Approach (EBM): The Council may wish to broadly consider RCA areas that might remain in terms of what services they provide to the ecosystem, and subsequently, to groundfish conservation in a manner that may maximize harvest in order to better achieve optimum yield. For example, the Council may provide further guidance on how to design RCA areas such that a broader set of ecosystem objectives are being met, such as species conservation beyond groundfish (i.e., endangered species, salmon, seabirds). The Council may also decide that EBM approaches to trawl closure areas may be best addressed in potential modifications to EFH closure areas.

Vessel Monitoring: The Council may want to insure that certain data-logging capabilities, or improved Vessel Monitoring System (VMS) ping rates are on schedule to be implemented and available to the trawl fishery in time to enable the creation of small enforceable RCA polygons, prior to the implementation of comprehensive trawl RCA reform. Final Council action on the Vessel Movement Monitoring package is scheduled for April 2016, with regulations scheduled to be implemented in 2017. Human observers and some electronic monitoring (EM) units may not be capable of tracking constant vessel movement in the manner that would be required for enforcement of small, discrete RCA polygons.

II. 1. Range of Alternatives[4]:

Action alternatives 4b-4f consider replacing the coastwide RCA with a series of different, less conservative RCA closure areas, a collection of small RCA polygons, or elimination of the RCA closure areas altogether.

The range of alternatives described below may be duplicated for multiple RCA regions defined by latitude range (i.e., 34° 27' N. latitude to the Mexican border, 34° 27' N. latitude to 40° 10' N. latitude, and 40° 10' N. latitude to the Canadian border). As mentioned above, the Council may wish to recommend different RCA structures (status quo RCAs, RCA polygons, or elimination of RCAs) for different RCA regions, depending on the desired rockfish conservation objectives for each region. As the Council is able to provide more clarification on whether a coastwide RCA approach is preferred, or whether a regional place-based RCA management approach (defined by latitude) is preferable. The suggested RCA range of alternatives described below may provide a starting point for Council deliberations, and, after Council consideration, differing ROAs may result between different regions if desired by the Council.

4a. No Action:

- Current status-quo configuration of the RCA would remain.

Under No Action, the current configuration of the RCA would remain (see Table 2 below) with routine inseason adjustments available to reduce catch of a particular species or species complex,

[4] The Council may wish to consider extending the Northern trawl RCA range of alternatives to the Canadian border, pending further input and feedback from the Council process.

while maximizing catch of target species. The shallowest seaward RCA boundary in the area between 45° 46' N. latitude and 40° 10' N. latitude would be the 200 fm modified petrale line.

Primary catch controls for vessels using trawl gears in the shorebased individual fishing quota (IFQ) program would include RCAs (see Table 2 below), IFQ for selected species (see Table 3 below), and trip limits for non-IFQ species (see Table 4 below). The National Marine Fisheries Service (NMFS) also has the authority to close the Shorebased IFQ fishery as a result of projected overages to prevent the trawl sector in aggregate or the individual trawl sectors (Shorebased IFQ, mothership Co-op, or Catcher-Processor Co-op) from exceeding an annual catch limit (ACL), optimum yield (OY), annual catch target (ACT), or formal allocation specified in the PCGFMP or regulation (see regulations at 660.140(a)(3)).

Table 2. No Action Trawl RCA.

	JAN-FEB	MAR-APR	MAY-AUG	SEPT-OCT	NOV-DEC
North of 48°10' N. lat.	shore - modified[2/] 200 fm line[1/]	shore - 200 fm line [1/]	shore - 150 fm line[1/]	shore - 200 fm line1/	shore - modified2/ 200 fm line[1/]
48°10' N. lat. - 45°46' N. lat.	100 fm line[1/] - 150 fm line[1/]				
45°46' N. lat. - 40°10' N. lat.	100 fm line[1/] - modified[2/] 200 fm line[1/]				
South of 40°10' N. lat.	100 fm line[1/] - 150 fm line[1/ 3/]				

1/ The Rockfish Conservation Area is an area closed to fishing by particular gear types, bounded by lines specifically defined by latitude and longitude coordinates set out at §§ 660.71-660.74. This RCA is not defined by depth contours, and the boundary lines that define the RCA may close areas that are deeper or shallower than the depth contour. Vessels that are subject to the RCA restrictions may not fish in the RCA, or operate in the RCA for any purpose other than transiting.

2/ The "modified" fathom lines are modified to exclude certain petrale sole areas from the RCA.

3/ South of 34°27' N. lat., the RCA is 100 fm line - 150 fm line along the mainland coast; shoreline - 150 fm line around islands.

Table 3. List of IFQ Species in the Shorebased IFQ Program.

ROUNDFISH
Lingcod N. of 40°10’ N. lat.
Lingcod S. of 40°10’ N. lat.
Pacific cod
Pacific whiting
Sablefish N. of 36° N. lat.
Sablefish S. of 36° N. lat.
FLATFISH
Arrowtooth flounder
Dover sole
English sole
Other flatfish stock complex
Petrale sole
Starry flounder
Pacific halibut (IBQ) N. of 40°10' N. lat.
ROCKFISH
BOCACCIO S. OF 40°10' N. LAT.
Canary rockfish
Chilipepper S. of 40°10' N. lat.
COWCOD S. OF 40°10' N. LAT.
DARKBLOTCHED ROCKFISH
Longspine thornyhead N. of 34°27' N. lat.
Minor shelf rockfish complex N. of 40°10' N. lat.
Minor shelf rockfish complex S. of 40°10' N. lat.
Minor slope rockfish complex N. of 40°10' N. lat.
Minor slope rockfish complex S. of 40°10' N. lat.
PACIFIC OCEAN PERCH N. OF 40°10' N. LAT.
Shortspine thornyhead N. of 34°27' N. lat.
Shortspine thornyhead S. of 34°27' N. lat.
Splitnose rockfish S. of 40°10' N. lat.
Widow rockfish
YELLOWEYE ROCKFISH
Yellowtail rockfish N. of 40°10' N. lat.

Table 4. List of Species Managed with Trip Limits in the Shorebased IFQ Program.

Species or Complex		Limit
Minor nearshore rockfish & Black rockfish		300 lb/month
Whiting		
	midwater trawl	Before the primary whiting season: CLOSED. -- During the primary season: mid-water trawl permitted in the RCA. See §660.131 for season and trip limit details. -- After the primary whiting season: CLOSED.
	large & small footrope gear	Before the primary whiting season: 20,000 lb/trip. -- During the primary season: 10,000 lb/trip. -- After the primary whiting season: 10,000 lb/trip.
Cabezon		
	North of 46°16' N. lat.	Unlimited
	South of 46°16' N. lat.	50 lb/ month
Shortbelly		Unlimited
Spiny dogfish		60,000 lb/month
Longnose skate		Unlimited
Big Skate		Unlimited from January 1 to May; 15,000 lbs/month in June; and 35,000 lbs/2 months for the rest of the year
Other Fish [4/]		Unlimited
Longspine thornyhead		
	South of 34°27' N. lat.	24,000 lb/ 2 months

Alternative 4b. Retain a structure that is similar to the current status quo RCA structure while potentially opening some areas within trawl RCAs that have been recently impacted by groundfish pink shrimp bottom trawl gears[5, 6] North of 40° 10' N. latitude.

- Alternative 4b Option 1: Core RCA
    - Retain the core RCA structure between 100 to 150 fathoms between 40° 10' N. latitude and 48° 10' N. latitude, which would open the upper slope area between the 150 fathom line to the modified 200 line between 40° 10' N. latitude and 45° 46' N. lat, which is currently closed under No Action.
- Alternative 4b Option 2: Core RCA except open areas within RCA that have been pink shrimp-trawled
    - Retain the RCA structure between 100 to 150 fathoms between 40° 10' N. latitude and 48° 10' N. latitude, except open the areas within the core RCA that have been recently impacted by pink shrimp trawl gear.
- Alternative 4b Option 3: Status Quo RCA Configuration but open areas within the RCA that have been recently pink shrimp-trawled
    - Retain current status-quo RCA, except open the area that has been recently impacted by pink shrimp trawl gear between 40° 10' N. latitude and 48° 10' N. latitude.

Alternative 4 options are intended purely as species conservation alternatives. Per Council guidance at the April 2015 Council meeting, the purpose of RCA Alternative 4, options 1-3 remains exclusively for species conservation, with habitat conservation concerns being addressed in the EFH range of alternatives. The EFH range of alternatives further considers the "practicable" elements in the Magnuson-Stevens Act relative to minimizing adverse impacts to EFH, and whether habitats that have begun recovery from bottom trawl gear may warrant further EFH protection. Alternative 4 Options 2 and 3 consider whether areas that have recently been impacted by pink shrimp trawl gear may warrant opening for IFQ bottom trawl access, as these areas are already being actively impacted by pink shrimp bottom trawl gear. Alternative 4 options Option 2 and 3 assume that the areas that have begun recovery from groundfish and pink shrimp trawl gear impacts may have a greater abundance of rockfish (or other species of interest to the Council). Conversely, Options 2 and 3 assume that areas recently impacted by pink shrimp bottom trawl may have some degree of a lower abundance of species of interest than areas that have recovered from groundfish and pink shrimp bottom trawl activities.

Areas that may have recovered south of 40° 10' N. latitude from bottom trawl gear are not explored for species conservation in Alternative 4 options because pink shrimp trawl effort is negligible or non-existent south of 40° 10' N. latitude Other open access bottom trawl gears such as California halibut, ridgeback prawn, and sea cucumber are excluded from, and do not engage in fishing effort within the status quo trawl RCAs south of 40° 10' N. latitude.

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[5] Although some trawl recovery metrics consider recent impacts to be within three years (which could include 2014), for the purposes of this analysis, trawl recovery metrics will consider the first three years of the trawl rationalization program (2011-2013). Total mortality reports are also available for these years, and further consideration of 2014 may be most relevant for RCA alternative analysis once total mortality reports are available for 2014.

[6] Potentially utilizing VMS Geographic Information System footprints being developed by NMFS for pink shrimp bottom trawl (2011-2013) and groundfish bottom trawl gears (2011-2013).

In addition, as described above (and demonstrated in Table 1), the Council may instead wish to expand the northern boundaries from 48° 10’ N. latitude to the Canadian border for further analysis.

Alternative 4b Option 1, Core RCA:

- *Retain the core RCA structure between 100 to 150 fathoms,* between 40° 10’ N. latitude and 48° 10’ N. latitude which would open the upper slope area between the 150 fathom line to the modified 200 line between 40° 10’ N. latitude and 45° 46’ N. lat, which is closed under No Action.

Under Alternative 4b Option 1, new areas would be opened to fishing except the core RCA from 100 to 150 fm would remain closed to trawl gears, and areas between 150 fm to the petrale modified 200 line between 45° 46' to 40° 10' N. latitude that have begun to recover from trawl impacts would be opened. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, a coastwide RCA that mirrors current status quo RCA configurations within the core RCA, trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the Pacific Coast Groundfish Fishery Management Plan (PCGFMP) or regulation.

This alternative would not consider any new RCA areas beyond the core RCA. Overfished species, IFQ complex contribution species, and non-IFQ species of interest would all benefit from harvest conservation under Alternative 4b Option 1, due to the core RCA closure areas between 100 and 150 fm remaining.

Alternative 4b Option 2: Core RCA except open areas within RCA that have been pink shrimp-trawled.

- Retain the RCA structure between 100 to 150 fathoms between 40° 10’ N. latitude and 48° 10’ N. latitude, except open the areas within the core RCA that have been recently impacted by pink shrimp trawl gear.

Under Alternative 4b Option 2, new areas would be opened to fishing except the core RCA from 100 to 150 fm would remain closed to trawl gears, and areas between 150 fm to the petrale modified 200 line between 45° 46' to 40° 10' N. latitude that have begun recovery from trawl impacts would remain closed. However, the areas that have been impacted from groundfish trawl and pink shrimp trawl gear between 40° 10' N. latitude and 48° 10' N. latitude and between 100 fm and 150 fm would be opened. VMS footprint analysis products may be useful to help ascertain which areas have been recently impacted by pink shrimp trawl gear between 100 to 150 fm.

The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, a coastwide RCA that mirrors current status quo RCA configurations (except for areas that have been recently impacted by pink shrimp trawl gear would be open to trawl gears), trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl

sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation.

This alternative would not consider any new RCA areas beyond the core RCA areas above 40° 10' N. latitude that have begun recovery. Overfished species, IFQ complex contribution species, and non-IFQ species of interest would all benefit from species conservation under Alternative 4b Option 2, due to the core RCA closure areas between 100 and 150 fm remaining, except for areas that have been recently impacted by pink shrimp trawl gear.

Alternative 4b Option 3: Status Quo RCA Configuration but Open Areas within the RCA that have been Pink Shrimp Trawled

- *Retain current status-quo RCA, except open the area that has been recently impacted by pink shrimp trawl gear between 40° 10' N. latitude and 48° 10' N. latitude.*

Under Alternative 4b Option 3, new areas would be opened to fishing except the status quo RCA would remain closed to trawl gears (i.e., from 100 to 150 fm, and from 100 fm to the petrale modified 200 line) and areas that have begun recovery from trawl impacts would remain closed (i.e., selected areas upper slope areas between 150 fm line to the modified petrale 200 line, from 45°46' to 40°10' N. latitude), except the area that has been recently impacted by pink shrimp trawl gear between 40° 10' N. latitude and 48° 10' N. latitude would be opened. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, a coastwide RCA that mirrors current status quo RCA configurations within the RCA (except open the area that has been recently impacted by pink shrimp trawl gear between 40° 10' N. latitude and 48° 10' N. latitude), trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation.

This alternative would not consider any new RCA areas beyond the areas within the status quo RCA. OFS, IFQ complex contribution species, and non-IFQ species of interest would all benefit from harvest conservation under Alternative 4b Option 3, due to the status quo RCA closure areas that have had a chance to recover from trawl gear remaining.

Alternative 4c. Closures for Overfished Species, Selected IFQ species Managed in Complexes, and Selected Non-IFQ Species:

- RCA: Remove trawl RCA but keep some smaller, more discretely defined RCA polygons to reduce overfished species, selected IFQ species managed in complexes, and selected non-IFQ species

The current trawl RCA would be removed; however, discrete area closures would be implemented to reduce catch of overfished species, selected IFQ species managed in complexes, and selected non-IFQ species, such as spiny dogfish and longnose skate (see Table 5 and Appendix 2). This alternative could include consideration of other species of potential interest to the Council. Closure areas could be developed based on areas of high catch per unit effort

(CPUE) in the NMFS annual trawl survey from 2004 through 2013[7] and fishery dependent data from the Shorebased IFQ Program from 2011-2014[8]. The area closures could be implemented year-round or as needed to control catch. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, RCA polygons, trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation.

Alternative 4c keeps overfished species, selected IFQ species managed in complexes, and other species of interest with high CPUE abundance closed within a collection of discrete RCA polygon areas that are smaller in size and more precise in design than status quo trawl RCAs.

Non-IFQ species of interest by the Council in recent years include spiny dogfish and longnose skate. Total mortality estimates by gear sector and year including percent attainment of 2015 and 2016 ACL are demonstrated in Tables 20 and 21 below. The Council may wish to consider other species of interest in Alternative 4c for further analysis.

Table 5: Species that may be considered for Alternative 4c, although the Council may wish to exclude petrale sole and canary rockfish (italics) from this alternative due to their recently rebuilt status determinations.

Species	Species status	IFQ status
BOCACCIO	OFS	Species-specific IFQ issued
COWCOD		
DARKBLOTCHED		
PACIFIC OCEAN PERCH (POP)		
YELLOWEYE		
PETRALE	OFS in 2015-2016 harvest specifications, but recently declared rebuilt	Species-specific IFQ issued
CANARY		
ROUGHEYE	Not overfished, consistently over complex contribution OFL	IFQ issued at the Slope complex level
SHORTRAKER		
BLACKGILL	Precautionary zone	
LONGNOSE SKATE	Not overfished or in precautionary zone. Above management target	Species-specific IFQ issued
SPINY DOGFISH		Not an IFQ species, managed with single species harvest specification and trip limits

[7] See NMFS trawl survey CPUE analysis under this agenda item.
[8] See Council staff fishery-dependent analysis supplemental statement for areas outside of the status quo RCAs under this agenda item.

Alternative 4d. Closures for Overfished Species and Selected IFQ Species Managed in Complexes

- RCA: Remove trawl RCA but maintain some RCA polygons in order to reduce overfished species bycatch and to reduce catch of selected IFQ species that are managed in complexes

The current trawl RCA would be removed; however or RCA polygons would be implemented to reduce catch of overfished species and selected IFQ species managed in complexes (see Table 6 below, and Appendix 2)[9]. Area closures for overfished species would be developed based on areas of high CPUE in the NMFS annual trawl survey from 2004 through 2013 and could include fishery-dependent data from the Shorebased IFQ Program from 2011-2014. The area closures could be implemented year-round or as needed to control catch. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, RCA polygons, sub-trip limits for selected IFQ species within complexes, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation.

Alternative 4d would result in a net increase of areas available to commercial trawl fishermen, but would implement RCA polygons in order to reduce bycatch of overfished species and selected IFQ species managed in complexes.

IFQ species managed within a complex that have recently been considered by the Council for heightened management awareness include rougheye rockfish (coast-wide), shortraker rockfish (coast-wide), and blackgill rockfish (coastwide). Total mortality estimates by gear sector and year including percent attainment of 2015 and 2016 OFLs or (OFL contribution) are demonstrated in Appendix 2.

Table 6: Species that may be considered for Alternative 4d, although the Council may wish to exclude petrale sole and canary rockfish (italics) from this alternative due to their recently rebuilt status determinations.

Species	Species status	IFQ status
BOCACCIO	OFS	Species-specific IFQ issued
COWCOD		
DARKBLOTCHED		
PACIFIC OCEAN PERCH (POP)		
YELLOWEYE		
PETRALE	OFS in 2015-2016 harvest specifications, but recently declared rebuilt	Species-specific IFQ issued
CANARY		
ROUGHEYE	Not overfished, consistently over complex contribution OFL	IFQ issued at the Slope complex level
SHORTRAKER		
BLACKGILL	Precautionary zone	

[9] The Council may wish to consider other select component species of interest within complexes based on risk of exceeding contribution OFLs, or based upon other management priorities.

Alternative 4e, Closures for Overfished Species:

- RCAs: Remove the trawl RCA but create RCA polygons to reduce bycatch of overfished species.

The current trawl RCA would be removed; however, RCA polygons would be implemented to reduce catch of overfished species (see Table 7). The area closures could be implemented year-round or as needed to control catch. The current list of overfished species includes bocaccio, cowcod, darkblotched, Pacific Ocean perch, and yelloweye rockfish. Canary rockfish and petrale sole are also currently listed as overfished in 2015 and 2016 groundfish regulations, but recent stock assessments indicate that these stocks are no longer overfished. The Council may wish to exclude petrale sole and canary rockfish (italics) from this alternative due to their recently rebuilt status determinations. Total mortality estimates by gear sector and year including percent attainment of 2015 and 2016 OFLs are demonstrated in Appendix 2. All of overfished species are IFQ species. The RCA polygons could be developed based on areas of high CPUE in the NMFS annual trawl survey from 2004 through 2013, and may also consider fishery-dependent data from the Shorebased IFQ Program from 2011-2014. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, RCA polygons for overfished species, trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation.

Alternative 4e would result in a net increase of areas available to commercial trawl fishermen, but would retain RCA polygon areas in order to conserve areas with an assumed high abundance of overfished IFQ species.

Table 7: Species that may be considered for Alternative 4e, although the Council may wish to exclude petrale sole and canary rockfish (italics) from this alternative due to their recently rebuilt status determinations.

Species	Species status	IFQ status
BOCACCIO	OFS	Species-specific IFQ issued
COWCOD		
DARKBLOTCHED		
PACIFIC OCEAN PERCH (POP)		
YELLOWEYE		
PETRALE	OFS in 2015-2016 harvest specifications, but recently declared rebuilt	Species-specific IFQ issued
CANARY		

Alternative 4f, Remove the trawl RCA:

- RCA: Remove the trawl RCA completely

The current trawl RCA would be removed. The primary catch controls for vessels using trawl gear within the Shorebased IFQ Program would be IFQ, trip limits for non-IFQ species, and NMFS authority to close the fishery to prevent the trawl sector in aggregate or the individual trawl sectors from exceeding an ACL, OY, ACT or formal allocation specified in the PCGFMP or regulation. This Alternative would provide the least amount of rockfish harvest conservation areas[10] and the greatest amount of fishing opportunities, by removing all RCA areas currently in place. The alternative would result in a net decrease in rockfish conservation areas due to the individual accountability of the IFQ program. Alternative 4f would further enable participants in the IFQ fishery to demonstrate their skill in exercising individual accountability.

[10] Some rockfish conservation would remain in the EFH closures described in the EFH range of alternatives.

Appendix 1: Historical Trawl RCAs

Table 8: Limited entry trawl RCA depth boundaries by year and month, 2002-2015, including inseason changes.

Year	Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	100 - 150											
	45°46' - 40°10'	100 - m200											
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2014a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	100 - 150											
	45°46' - 40°10'	100 - m200		100 - 200								100 - m200	
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2013a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	75 - m200		75 - 150		100 - 150						75 - 150	
	45°46' - 40°10'			75 - 200		100 - 200						75 - m200	
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2012a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	75 - m200		75 - 150		100 - 150						75 - 150	
	45°46' - 40°10'			75 - 200		100 - 200						75 - m200	
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2011a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	75 - m200		75 - 200		75 - 150		100 - 150		75 - 150			
	45°46' - 40°10'					75 - 200		100 - 200		75 - 200		75 - m200	
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2010a	North of 48°10'	0 - m200		0 - 200		0 - 150				0 - 200		0 - m200	0 - 250
	48°10' - 45°46'	75 - m200		75 - 200		75 - 150		100 - 150		75 - 200		75 - m200	75 - 250
	45°46' - 40°10'					75 - 200		100 - 200					
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2009a	North of 48°10'	0 - m200			0 - 200	0 - 150				0 - 200		0 - m200	
	48°10' - 45°46'	75 - m200			75 - 200	75 - 150		100 - 150		75 - 200		75 - m200	
	45°46' - 40°10'					75 - 200		100 - 200					
	40°10' - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2008a	North of 48°10'	0 - m200		0 - 200		0 - 150						0 - m200	
	48 10 - 46 38.17	75 - m200		60 - 200		60 - 150					75 - 150	75 - m200	
	46 38.17 - 46 16			60 - 200				60 - 150					
	46 16 - 45 46			75 - 200		75 - 150				75 - 200			
	45 46 - 43 20.83			75 - 200									
	43 20.83 - 42 40.50	0 - m200		0 - 200								0 - m200	
	42 40.5 - 40 10	75 - m200		75 - 200		60 - 200					75 - 200	75 - m200	
	40 10 - 34 27	100 - 150											
	South 34 27 (mainland)												
	South 34 27 (islands)	0 - 150											
2007a	North of 48o10'	75 - m250		75 - 250		0 - 150				0 - 200	75 - 200	75 - m200	
	48o10' - 46o38'					75 - 150				75 - 200			
	46o38' - 46o16'					60 -150				60 -200			
	46o16' - 45o03'					75 - 150			75 - 200				
	45o03' - 43o20'					75 - 200							
	43o20' - 42o40'					0 - 200					75 - 200		
	42o40' -40o10'					75 - 200							
	40°10' - 38'	100 - m200		100 - 150								100 - m200	
	38° - 34°27'	100 - 150											
	South 34°27' (mainland)												
	South 34°27' (islands)	0 - 150											
2006a	North 40 10	75 - m200		75 - 200				100 - 250		75 - 250		75 - m250	
	40 10 - 38	75 - 150		100 - 150				100 - 200		100 - 250			
	38 - 34 27							100 - 150				75 - 150	
	South 34 27 (mainland)												
	South 34 27 (islands)	0 - 150											
2005a	North 40 10	75 - m200		100 - 200								0 - 250	
	40 10 - 38	75 - 150		100 - 200		100 - 150							
	38 - 36			100 - 150								0 - 200	
	36 - 34 27											50 - 200	
	South 34 27 (mainland)												
	South 34 27 (islands)	0 - 150										0 - 200	
2004	North 40 10	75 - m200		60 - 200		60 - 150		75 - 150				0 - 250	
	40 10 - 38	75 - 150z				100 - 150z				75 - 150z			
	38 - 36											0 - 200z	
	36 - 34 27											0 - 150	
	South 34 27 (mainland)												
	South 34 27 (islands)	0 - 150											
2003	North 40 10	100 - m250		100 - 250		50 - 200		75 - 200		50 - 200		0 - m200	
	40 10 - 38	50 - m250		60 - 250		60 - 200							
	38 - 34 27	50 - 150		60 - 150									
	South 34 27 (mainland)	100 - 150				100 - 200							
	South 34 27 (islands)	0 - 150				0 - 200							
2002	North 40 10	Within DBCA - CLOSED TO TRAWLING, September - December, special footrope requirements outside DBCA											

Appendix 2: Total Mortality of Overfished Species, selected IFQ species managed in complexes, and non-IFQ species of interest in 2015-2016 Groundfish Harvest Specifications, 2009-2013

Table 9: Total Mortality (mt) of Overfished Species, selected IFQ species managed in complexes, and non-IFQ species of interest in 2015-2016 Groundfish Harvest Specifications, 2009-2013:

		2009	2010	2011	2012	2013	2015 ACL (or comp. OFL)	2016 ACL (or comp. OFL)
Bocaccio S	Total Mortality	1963.14	923.02	938.4	1105.54	2258.93	349	362
	ACL	2433	2393	976	1160	2592		
	Percent Attained	81%	39%	96%	95%	87%		
Cowcod S	Total Mortality	0.51	0.63	0.02	0.09	0.19	10	10
	ACL	4	4	3	10	10		
	Percent Attained	13%	16%	1%	1%	2%		
Darkblotched	Total Mortality	299.59	335.19	124.53	103.21	130.53	338	346
	ACL	285	291	298	296	317		
	Percent Attained	105%	115%	42%	35%	41%		
POP N	Total Mortality	178.58	157.9	60.08	54.17	56.19	158	164
	ACL	189	200	180	183	150		
	Percent Attained	94%	79%	33%	30%	37%		
Yelloweye	Total Mortality	2.27	1.05	1.47	2.87	3.5	18	19
	ACL	17	17	17	17	18		
	Percent Attained	13%	6%	9%	17%	19%		
Petrale	Total Mortality	1963.14	923.02	938.4	1105.54	2258.93	2816	2910
	ACL	2433	2393	976	1160	2592		
	Percent Attained	81%	39%	96%	95%	87%		
Rougheye N&S	Total Mortality	239.11	316.04	241.24	275.14	159.74	Comp. OFL 188.1	Comp. OFL 193
	2015 Component OFL			188.1				
	Percent Attained	127%	168%	128%	146%	85%		
Shortraker N&S	Total Mortality	32.69	42.65	29.54	44.35	29.44	Comp. OFL 15.7	Comp. OFL 15.7
	2015 Component OFL			15.7				
	Percent Attained	208%	272%	188%	282%	188%		
Blackgill N&S	Total Mortality	142.41	164.79	155.99	201.58	80.59	Comp. OFL 129	Comp. OFL 131.7
	2015 Component OFL			129				
	Percent Attained	110%	128%	121%	156%	62%		
Spiny Dogfish	Total Mortality	1104.34	1123.1	1546.34	798.12	636.37	2,101	2,085
	2015 ACL			2101				
	Percent Attained	53%	54%	74%	38%	30%		
Longnose Skate	Total Mortality	1142.2	1175.83	958.32	982.62	981.31	2,000	2,000
	ACL	1349	1349	1349	1349	2000		
	Percent Attained	85%	87%	71%	73%	49%		

Total Mortality of Overfished Species in 2015-2016 Groundfish Harvest Specifications, 2009-2013:

Table 10: Bocaccio rockfish south of 40° 10' N. latitude total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Bocaccio Rockfish South	CA Halibut	0	0	0	0	0	349	362
	Incidental	0.16	0.13	0.09	0.02	0.04		
	LE trawl, Fixed Gear	0	0	0	0	0		
	LE Trawl, Trawl Gear	19.67	12.73	5.31	8.84	12.27		
	Nearshore Fixed Gear	1.05	0.67	0.73	0.75	0.96		
	Nonnearshore Fixed Gear	1.38	1.01	1.57	2.81	2.91		
	Pink Shrimp	0	0.01	0	0.01	0		
	At-Sea Hake	0	0	0	0	0		
	Tribal At-Sea Hake	0	0	0	0	0		
	Shoreside Hake	0	0	0	0	0		
	Tribal Shoreside	0	0	0	0	0		
	Total Mortality	22.26	14.55	7.7	12.45	16.18		
	ACL	288	288	263	274	320		
	Percent Attained	8%	5%	3%	5%	5%		

Table 11: Cowcod rockfish south of 40° 10' N. latitude total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
COWCOD South of 40.10	CA Halibut	0	0	0	0	0	10	10
	Incidental	0	0.03	0	0	0		
	LE trawl, Fixed Gear	0	0	0	0	0		
	LE Trawl, Trawl Gear	0.45	0.6	0.02	0.09	0.19		
	Nearshore Fixed Gear	0	0	0	0	0		
	Nonnearshore Fixed Gear	0.06	0	0	0	0		
	Pink Shrimp	0	0	0	0	0		
	At-Sea Hake	0	0	0	0	0		
	Tribal At-Sea Hake	0	0	0	0	0		
	Shoreside Hake	0	0	0	0	0		
	Tribal Shoreside	0	0	0	0	0		
	Total Mortality	0.51	0.63	0.02	0.09	0.19		
	ACL	4	4	3	10	10		
	Percent Attained	13%	16%	1%	1%	2%		

Table 12: Darkblotched rockfish total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Darkblotched Rockfish	CA Halibut	0	0	0	0	0	338	346
	Incidental	0.05	0.03	0.12	0.08	0.48		
	LE trawl, Fixed Gear	0	0	0.42	0.25	0		
	LE Trawl, Trawl Gear	271.43	288.81	89.22	81.12	112.78		
	Nearshore Fixed Gear	0.13	0.07	0.02	0.1	0.01		
	Nonnearshore Fixed Gear	8.28	18.07	15.9	9.03	3.99		
	Pink Shrimp	18.52	12.39	5.33	4.97	3.67		
	At-Sea Hake	0.31	8.17	12.01	2.7	6.33		
	Tribal At-Sea Hake	0	0	0.18	0	0		
	Shoreside Hake	0.87	7.41	1.22	4.33	3.25		
	Tribal Shoreside	0.01	0.23	0.1	0.64	0.02		
	Total Mortality	299.59	335.19	124.53	103.21	130.53		
	ACL	285	291	298	296	317		
	Percent Attained	105%	115%	42%	35%	41%		

Table 13: Pacific ocean perch (North of 40° 10' N. latitude) total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Pacific Ocean Perch (POP), North of 40.10	CA Halibut	0	0	0	0	0	158	164
	Incidental	0	0.14	0.02	0.16	0.27		
	LE trawl, Fixed Gear	0	0	0.05	0.09	0.01		
	LE Trawl, Trawl Gear	158.24	130.2	46.38	36.17	42.89		
	Nearshore Fixed Gear	0	0	0	0	0		
	Nonnearshore Fixed Gear	0.51	3.81	0.67	0.41	0.26		
	Pink Shrimp	0.47	0.06	0.55	0.24	0.24		
	At-Sea Hake	1.47	16.44	7.19	4.52	5.41		
	Tribal At-Sea Hake	0.09	0.4	1.99	0	0		
	Shoreside Hake	17.19	6.58	0.28	12.36	7.09		
	Tribal Shoreside	0.61	0.28	2.96	0.21	0.03		
	Total Mortality	178.58	157.9	60.08	54.17	56.19		
	ACL	189	200	180	183	150		
	Percent Attained	94%	79%	33%	30%	37%		

Table 14: Yelloweye rockfish total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Yelloweye Rockfish	CA Halibut	0	0	0	0	0	18	19
	Incidental	0.37	0	0.14	0.09	0.1		
	LE trawl, Fixed Gear	0	0	0.01	0	0.01		
	LE Trawl, Trawl Gear	0.11	0.13	0.05	0.03	0.05		
	Nearshore Fixed Gear	0.54	0.15	0.9	2.2	2.71		
	Nonnearshore Fixed Gear	1.21	0.33	0.3	0.39	0.27		
	Pink Shrimp	0	0	0	0	0		
	At-Sea Hake	0	0.01	0	0	0		
	Tribal At-Sea Hake	0	0	0	0	0		
	Shoreside Hake	0	0	0	0	0		
	Tribal Shoreside	0.03	0.44	0.06	0.15	0.35		
	Total Mortality	2.27	1.05	1.47	2.87	3.5		
	ACL	17	17	17	17	18		
	Percent Attained	13%	6%	9%	17%	19%		

Table 15: Petrale Sole total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment. Petrale sole are managed as overfished species in 2015-2016 groundfish harvest specifications measures, but a recent 2015 stock assessment update has determined that the petrale sole stock is rebuilt.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Petrale Sole	CA Halibut	0.05	0.13	0.14	0.2	0.41	2816	2910
	Incidental	1.06	0.18	0.37	0.94	0.71		
	LE trawl, Fixed Gear	0	0	0.12	0.4	0.73		
	LE Trawl, Trawl Gear	1892.08	890.51	810.27	1032.28	2117.48		
	Nearshore Fixed Gear	0	0.01	0	0	0		
	Nonnearshore Fixed Gear	0.2	0.39	0.67	0.85	1.68		
	Pink Shrimp	0.31	1.23	1.77	1.15	1.61		
	At-Sea Hake	0	0	0	0	0		
	Tribal At-Sea Hake	0	0	0	0	0		
	Shoreside Hake	0.02	0.06	0	0	0		
	Tribal Shoreside	69.42	30.5	125.06	69.71	136.31		
	Total Mortality	1963.14	923.02	938.4	1105.54	2258.93		
	ACL	2433	2393	976	1160	2592		
	Percent Attained	81%	39%	96%	95%	87%		

Table 16: Canary rockfish total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment. Canary rockfish are managed as overfished species in 2015-2016 groundfish harvest specifications measures, but a recent category 1 stock assessment has determined that the canary rockfish stock is rebuilt.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
Canary Rockfish	CA Halibut	0	0	0	0	0	122	125
	Incidental	0	0.06	0	1.15	0.21		
	LE trawl, Fixed Gear	0	0	0	0	0		
	LE Trawl, Trawl Gear	8.88	2.32	2.85	5.01	6.84		
	Nearshore Fixed Gear	3.85	6.57	17.12	7.44	10.5		
	Nonnearshore Fixed Gear	0.25	0.05	0.09	0.11	1		
	Pink Shrimp	0.04	0.02	0.03	0.02	0.11		
	At-Sea Hake	0.83	0.47	0.54	0.41	0.66		
	Tribal At-Sea Hake	1.71	0.71	0.54	0	0		
	Shoreside Hake	2.3	4.05	0.85	2.14	3.36		
	Tribal Shoreside	6.28	8.21	11.28	7.24	3.4		
	Total Mortality	24.15	22.45	33.3	23.52	26.07		
	ACL	105	105	102	107	116		
	Percent Attained	23%	21%	33%	22%	22%		

Total Mortality of selected IFQ species managed in complexes, 2009-2013:

Table 17: Rougheye rockfish total mortality by gear sector and year. Includes percent attainment of 2015 and 2016 estimated contribution overfishing limits (OFL).

	Sector	2009	2010	2011	2012	2013	2015 Contr. OFL	2016 Contr. OFL
ROUGHEYE: Rougheye & Blackspotted Total, combined with proportion of Shtrkr/Rgheye data field, Slope Complex North & South of 40.10 Combined	CA Halibut	n/a	n/a	n/a	n/a	n/a	188.1	193
	Incidental	2.18	0.60	0.34	0.72	0.58		
	LE trawl, Fixed Gear	0.00	n/a	15.73	21.44	2.89		
	LE Trawl, Trawl Gear	119.93	156.34	56.28	47.91	62.29		
	Nearshore Fixed Gear	n/a	n/a	0.01	0.02	n/a		
	Nonnearshore Fixed Gear	71.78	109.21	59.66	84.84	55.52		
	Pink Shrimp	n/a	0.07	0.07	0.01	n/a		
	At-Sea Hake	8.64	21.60	78.55	54.00	17.81		
	Tribal At-Sea Hake	0.65	n/a	2.41	n/a	n/a		
	Shoreside Hake	1.61	5.14	3.94	42.74	2.85		
	Tribal Shoreside	33.57	22.39	24.24	15.19	17.42		
	Total Mortality	239.11	316.04	241.24	275.14	159.74		
	Component ABC	N/A	N/A	N/A	N/A	59.6		
	Percent Attained					268%		

Table 18: Shortraker rockfish total mortality by gear sector and year. Includes percent attainment of 2015 and 2016 estimated contribution overfishing limits (OFL).

	Sector	2009	2010	2011	2012	2013	2015 Contr. OFL	2016 Contr. OFL
SHORTRAKER: combined with proportion of Shtrkr/Rgheye data field, Slope Complex North & South of 40.10 Combined	CA Halibut	n/a	n/a	n/a	n/a	n/a	15.7	15.7
	Incidental	0.09	0.04	0.01	0.15	0.12		
	LE trawl, Fixed Gear	3.94	n/a	0.55	2.07	0.06		
	LE Trawl, Trawl Gear	23.72	27.38	21.81	12.68	20.42		
	Nearshore Fixed Gear	n/a	n/a	n/a	n/a	n/a		
	Nonnearshore Fixed Gear	3.47	7.28	3.20	11.87	4.81		
	Pink Shrimp	n/a	n/a	n/a	n/a	n/a		
	At-Sea Hake	0.17	0.22	0.19	0.69	0.02		
	Tribal At-Sea Hake	0.01	0.02	n/a	n/a	n/a		
	Shoreside Hake	0.08	1.45	2.47	5.63	0.59		
	Tribal Shoreside	1.03	1.08	1.26	1.30	0.71		
	Total Mortality	32.69	42.65	29.54	44.35	29.44		
	Component ABC	N/A	N/A	N/A	N/A	15.7		
	Percent Attained					188%		

Table 19: Blackgill rockfish total mortality by gear sector and year. Includes percent attainment of 2015 and 2016 estimated contribution overfishing limits (OFL).

	Sector	2009	2010	2011	2012	2013	2015 Contr. OFL	2016 Contr. OFL
BLACKGILL Slope Complex North and South of 40.10 combined (Coastwide)	CA Halibut	0	0	0	0	0	129	131.7
	Incidental	0.57	5.58	0.01	0.02	0.2		
	LE trawl, Fixed Gear	0	0	2.06	6.64	15.14		
	LE Trawl, Trawl Gear	58.81	67.7	17.33	77.9	44.67		
	Nearshore Fixed Gear	2.44	0.55	0.37	2.31	1.01		
	Nonnearshore Fixed Gear	80.41	90.82	136.19	117.44	19.47		
	Pink Shrimp	0	0	0.01	0	0		
	At-Sea Hake	0	0.03	0	0.03	0.04		
	Tribal At-Sea Hake	0	0	0	0	0		
	Shoreside Hake	0.02	0.08	0	0.23	0.06		
	Tribal Shoreside	0.16	0.02	0	0.01	0.01		
	Total Mortality	142.41	164.79	155.99	201.58	80.59		
	Component ACL	N/A	N/A	N/A	N/A	122.6		
	Percent Attained					66%		

Total Mortality of selected non-IFQ species of interest, 2009-2013:

Table 20: Spiny dogfish total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
SPINY DOGFISH	CA Halibut	3.15	2.98	1.58	1.81	5.81	2,101	2,085
	Incidental	1.26	1.23	0.08	0.07	0.47		
	LE trawl, Fixed Gear	0	0	13.59	28.86	11.69		
	LE Trawl, Trawl Gear	663.67	523.12	366.99	340.26	289.92		
	Nearshore Fixed Gear	3.45	0.46	1.91	0.09	1.17		
	Nonnearshore Fixed Gear	123.3	143.16	65.46	85.82	125.04		
	Pink Shrimp	0.47	16.06	2.89	0.9	0.03		
	At-Sea Hake	34.61	155.77	726.51	177.72	97.47		
	Tribal At-Sea Hake	128.25	121.96	58.57	0.65	0		
	Shoreside Hake	20.74	151.46	181.04	160.1	80.56		
	Tribal Shoreside	125.45	6.9	127.72	1.84	24.21		
	Total Mortality	1104.34	1123.1	1546.34	798.12	636.37		
	ACL	N/A	N/A	N/A	N/A	N/A		
	Percent Attained							

Table 21: Longnose skate total mortality by gear sector and year. Includes 2015 and 2016 annual catch limits (ACL) and percent attainment.

	Sector	2009	2010	2011	2012	2013	2015 ACL	2016 ACL
LONGNOSE SKATE	CA Halibut	0	0.05	0.12	0.02	0.21	2,000	2,000
	Incidental	1.25	2.18	1.05	3.15	2.89		
	LE trawl, Fixed Gear	0	0	7.76	14.98	1.6		
	LE Trawl, Trawl Gear	1041.12	1102.39	802.97	893.43	919.11		
	Nearshore Fixed Gear	0.04	0.06	0.07	0.03	0.13		
	Nonnearshore Fixed Gear	97.47	68.66	141.09	66.38	52.89		
	Pink Shrimp	2.05	0.45	0.96	0.65	1.16		
	At-Sea Hake	0.04	0.55	0.41	0.06	0.28		
	Tribal At-Sea Hake	0.13	0	0.01	0	0		
	Shoreside Hake	0.09	0.15	0.18	0.24	0.1		
	Tribal Shoreside	0	1.34	3.7	3.68	2.94		
	Total Mortality	1142.2	1175.83	958.32	982.62	981.31		
	ACL	1349	1349	1349	1349	2000		
	Percent Attained	85%	87%	71%	73%	49%		