

EXCERPTS FROM CHAPTER 4 ON FISHING IN MULTIPLE IFQ MANAGEMENT AREAS

GEAR CHANGES FOR THE
PACIFIC COAST GROUND FISH FISHERY'S
TRAWL CATCH SHARE PROGRAM

Preliminary Draft EIS

UNREVIEWED DRAFT

*This draft has not been through full NMFS/Council staff review,
including General Counsel and NEPA Coordinator review.*

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NOTE: This document does not include the new Alternative G3 described in
Agenda Item G.9, NMFS Report, June 2016.

4.7 Fishing in Multiple IFQ Management Areas (G)

Section 4.7 evaluates the impacts of the alternatives on fishing in multiple IFQ management areas during a single fishing trip in the trawl catch share program. As noted in the section title, this is labeled issue G to help the reader differentiate the issues in Sections 4.1 through 4.8. The alternatives are analyzed by environmental component: physical component (Section 4.7.1), biological component (Section 4.7.2), and socioeconomic component (Section 4.7.3). Table 4-11 summarizes the impacts for these environmental components.

The Shorebased IFQ Program includes IFQ management areas, specified in regulation at §660.140(c)(2), that are based on the stock information for select species, harvest allocations, and the corresponding QS for species. The IFQ management areas are as follows:

- Between the U.S./Canada border and 40°10' N. latitude
- Between 40°10' N. latitude and 36° N. latitude
- Between 36° N. latitude and 34°27' N. latitude
- Between 34°27' N. latitude and the U.S./Mexico border

As described in Section 2.7, there are two alternatives for fishing in multiple IFQ management areas on a single fishing trip. These are labeled Alternatives G1 and G2 to help the reader differentiate the alternatives from alternatives for other gear-related issues in this EIS.

- **Multiple Areas Alternative G1 (No-action)** – Fishing in multiple IFQ management areas would remain restricted under Alternative G1 (No-action). In the Shorebased IFQ Program, trawl vessels could not fish in more than one IFQ management area on the same trip.
- **Multiple Areas Alternative G2** – Fishing in multiple IFQ management areas on the same trip would be allowed. If retaining catch from multiple IFQ management areas on a single trip, then catch would have to be sorted by IFQ management area and recorded on separate electronic fish tickets.

Table 4-11. Summary of physical, biological, and socioeconomic impacts for fishing in multiple IFQ management areas (G).

Multiple IFQ Management Areas (G)				
		Physical Impacts	Biological Impacts	Socioeconomic Impacts
Multiple Areas Alternative G1 (No-action)	Only fish in one area per trip	<i>Ecosystem:</i> Low negative impact. ----- <i>EFH:</i> Neutral impact.	<i>Target species:</i> Neutral impact on overall harvest or stock productivity. ----- <i>Non-target species:</i> Neutral impact on overall harvest or stock productivity. ----- <i>Protected species:</i> Low negative impact on salmon and eulachon.	<i>Harvesters:</i> Low negative impact. ----- <i>Processors:</i> Neutral impact. ----- <i>Fishing Communities:</i> Low to medium negative impact with magnitude dependent on proximity to management lines. ----- <i>Management entities:</i> Low positive impact.
Multiple Areas Alternative G2	Fish in multiple areas per trip. Sort catch by area. Record on separate electronic fish tickets.	<i>Ecosystem:</i> Low negative impact. ----- <i>EFH:</i> Neutral impact.	<i>Target species:</i> Neutral impact on overall harvest or stock productivity. ----- <i>Non-target species:</i> Neutral impact on overall harvest or stock productivity. ----- <i>Protected species:</i> Low negative impact on salmon and eulachon.	<i>Harvesters:</i> Medium positive impact. ----- <i>Processors:</i> Neutral impact. ----- <i>Fishing Communities:</i> Low to medium positive impact with magnitude dependent on proximity to management lines. ----- <i>Management entities:</i> Low negative impact.

Note: Impacts of Alternative G2 are compared to Alternative G1 (No-action).

4.7.1 Physical Environment

This section evaluates the physical impacts of the alternatives for fishing in multiple IFQ management areas on a single fishing trip. Section 4.7.1.1 considers the impacts on the Pacific Coast Marine Ecosystem. Section 4.7.1.2 considers impacts on essential fish habitat or EFH. Table 4-11 summarizes the physical impacts of the alternatives.

4.7.1.1 Pacific Coast Marine Ecosystem

Section 3.1.1 provides background on the Pacific Coast Marine Ecosystem. This section uses that information to evaluate the impacts of the alternatives on the Pacific Coast Marine Ecosystem.

4.7.1.1.1 Multiple Areas Alternative G1 (No-action)

Alternative G1 (no-action) would have an ongoing low negative impact on the Pacific Coast Marine Ecosystem. This impact would result from fishing activity and removal of a portion of the stocks for various marine species.

4.7.1.1.2 Multiple Areas Alternative G2

Alternative G2 would have the same (low negative) impact on the Pacific Coast Marine Ecosystem as Alternative G1 (No-action).

4.7.1.2 Essential Fish Habitat

Section 3.1.2 provides background on EFH. This section uses that information to evaluate the impacts of the alternatives on EFH.

4.7.1.2.1 Multiple Areas Alternative G1 (No-action)

Under Alternative G1 (No-action), EFH protections would continue to prohibit bottom contact gear, including bottom trawl and fixed gear, from specific areas designated as EFH. Alternative G1 (No-action) would likely have a neutral impact on EFH because those areas remain protected.

4.7.1.2.2 Multiple Areas Alternative G2

Alternative G2 would have the same (neutral) impact as Alternative G1 (No-action) because EFH protections for bottom contact gear, including bottom trawl and fixed gear, would remain in place. While there might be some redistribution of impacts on the seafloor and habitat, Alternative G2 would not change the areas that could be fished.

4.7.2 Biological Environment

This section evaluates the biological impacts of the alternatives for fishing in multiple IFQ management areas on a single fishing trip. Section 4.7.2.1 considers the impacts on groundfish target species. Section 4.7.2.2 considers impacts on non-target species. Section 4.7.2.3 considers impacts on protected species. Table 4-11 summarizes the biological impacts of the alternatives.

4.7.2.1 Target Species

Groundfish target species are described in Section 3.2.1. The primary target species in the groundfish trawl catch share program are as follows: Pacific whiting (with midwater trawl), Dover sole (with bottom trawl), thornyheads (shortspine and longspine with bottom trawl), sablefish (with bottom trawl and fixed gear), petrale sole (with bottom trawl), widow rockfish (with midwater trawl), yellowtail rockfish (with midwater trawl), and chilipepper rockfish (with midwater trawl).

4.7.2.1.1 Multiple Areas Alternative G1 (No-action)

Under Alternative G1 (No-action), target species would continue to be managed to sustainable levels under provisions of the Groundfish FMP. Within the trawl catch share program, the target species catch would continue to be managed with allocations for most target species, and in the Shorebased IFQ Program, with quota pounds for all target species. In addition, all sectors of the trawl catch share program (Shorebased IFQ, MS Coop, and C/P Coop) would continue to be fully monitored. There would continue to be 100 percent monitoring and accountability for target species catch.

The IFQ management areas were established with implementation of the trawl catch share program in 2011. They were based on species' areas, as specified in the harvest limit tables for all IFQ species combined. Groupings and area subdivisions for IFQ species are those groupings and area subdivisions for which annual catch limits or annual catch targets are specified in Tables 1a and 2d in 50 CFR Part 660, Subpart C in Federal regulation, and those for which there is an area-specific, precautionary harvest policy. For example, some IFQ species are managed as either a single species with different QSSs by area (e.g., shortspine thornyhead north and south of 34° 27' N. latitude), or as a single species in one area and as a component of a species group in another area (e.g., Pacific ocean perch north of 40°10' N. latitude and minor slope rockfish south of 40°10' N. latitude). To address the different quota pounds for species in the different IFQ management areas, vessels were prohibited from fishing in different areas during the same trip. Because landings in the Shorebased IFQ Program would include a mix of all hauls taken during a single trip, a vessel would be required to fish entirely in one IFQ management area during any trip to address sorting requirements, at-sea observation, and enforcement of IFQ limits.

In the Shorebased IFQ Program, retained and discarded catch of all species (groundfish (target and non-target species), non-groundfish (non-target species), and protected species) is tracked by 100 percent monitoring using at-sea observers and shorebased catch monitors. Landings of IFQ species, including target species, are reported on electronic fish tickets by first receivers. The electronic fish ticket also records what gear type was fished on the trip in what IFQ management area. In addition, the catch monitor tracks and records landed catch during the offload and reports landed catch in the online IFQ vessel account system. The higher of the two catch values is then deducted from the vessel's quota pounds for IFQ species.

There is a low risk of catch exceeding the trawl allocations under Alternative G1 (No-action). Fish is tracked by the IFQ management area in which it is caught, and it is counted against the appropriate allocations. The No-action Alternative would not be likely to jeopardize the sustainability of any target species because it would not increase the harvest of available target species over that which is currently available for the trawl catch share program established under the biennial harvest specifications and management measures. Total mortality (catch and discard) would continue to be set at sustainable levels. Alternative G1 (No-action) would likely have a neutral impact on overall harvest and stock productivity.

4.7.2.1.2 Multiple Areas Alternative G2

As described under Alternative G1 (No-action), target species would continue to be managed to sustainable levels with individual accountability and 100 percent monitoring of target species under Alternative G2. Catch would continue to be sorted and stored on the vessels by IFQ management area. Allowing vessels to fish in multiple IFQ management areas on a single fishing trip under Alternative G2 would have the same (neutral) impact on overall harvest of target species and stock productivity as Alternative G1 (No-action).

The electronic fish ticket would have to capture which fish were caught in what IFQ management area for catch accounting. Data on the management area where fish were caught contribute to stock assessments, in part, to determine removals from particular stocks for stock productivity and, ultimately, annual overfishing levels and acceptable biological catches for groundfish species. If catch were sorted on the vessel by IFQ management areas, 100 percent at-sea monitoring would remain, and multiple electronic fish tickets would be used to capture which fish were caught in what management areas on a trip, enabling tracking species retained for catch accounting and stock assessment data. If multiple fish tickets were used, it would be beneficial to include a new field on the fish ticket with the trip identifier. For trips recorded on multiple fish tickets, this would improve the accuracy of the trip

data by reducing the time and the assumptions managers sometimes would have to make to reconstruct trip level data.

4.7.2.2 Non-target Species

Non-target species caught in the trawl catch share program are described in Section 3.2.2. Depending on the fishing strategy, target species in one fishery (e.g., sablefish caught in the DTS fishery) may be a non-target species in another (e.g., sablefish caught in the pelagic rockfish fishery). The primary non-target species in the groundfish trawl catch share program by fishery are as follows:

- Pacific whiting fisheries – minor slope rockfish north of 40°10' N. latitude, other groundfish, widow rockfish, yellowtail rockfish, and other non-groundfish (greater than 50 mt on average from 2011 to 2014, see Table 3-3).
- Non-whiting trawl fisheries – chilipepper rockfish, darkblotched rockfish, English sole, lingcod north of 40°10' N. latitude, minor slope rockfish north and south of 40°10' N. latitude, Pacific cod, Pacific whiting, splitnose rockfish south of 40°10' N. latitude, widow rockfish, non-FMP flatfish, and non-FMP skates (between 50 mt and 500 mt on average from 2011 to 2014, Table 3-3).
- Fixed gear fisheries – longnose skate, minor slope rockfish north and south of 40°10' N. latitude, other groundfish, shortspine thornyhead north of 34°27' N. latitude, and other non-groundfish (greater than 5 mt on average from 2011 to 2014, Table 3-3).

4.7.2.2.1 Multiple Areas Alternative G1 (No-action)

For non-target groundfish species (including overfished species and spiny dogfish) and Pacific halibut, regulations are in place under the Pacific Coast Groundfish FMP and the Halibut Act and Area 2A Catch Sharing Plan to limit incidental catch of halibut and groundfish to ensure that impacts on these species are sustainable. These regulations include quotas, trip/possession limits, size limits, and time/area closures. For non-target groundfish species that are part of a stock complex, a group of different groundfish species managed as a unit, component stocks should also be monitored to ensure that no one stock's sustainability is jeopardized. For non-groundfish species, regulations in place for HMS and CPS establish harvest limits and account for other sources of mortality.

Under Alternative G1 (No-action), total catch of non-target species, including overfished groundfish species, would be likely to remain comparable to recent years and within acceptable harvest levels. There would be a low risk of non-target species catch exceeding acceptable incidental harvest amounts. Non-target groundfish species would continue to be 100 percent monitored and managed within sustainable harvest limits (ABCs). Non-groundfish species would continue to be monitored to varying

degrees by fishing strategy through WCGOP and would be reported through the Groundfish Mortality Reports. Any increased catch could be addressed with appropriate management adjustments. The No-action Alternative would not be likely to jeopardize the sustainability of any non-target species, and it would have a neutral impact on overall harvest of non-target species. Total mortality (catch and discard) would continue to be monitored to ensure that it would be at sustainable levels. Alternative G1 (No-action) would have a neutral impact on stock productivity for non-target species.

4.7.2.2.2 Multiple Areas Alternative G2

As described under Alternative G1 (No-action), non-target species, including overfished species and most non-target, non-groundfish species, would continue to be 100 percent monitored under the trawl catch share program. In addition, the WCGOP Groundfish Mortality Report would provide annual information and catch trends. Allowing vessels to fish in multiple IFQ management areas on a single fishing trip under Alternative G2 would have the same (neutral) impact on overall harvest of non-target species and stock productivity as Alternative G1 (No-action).

The electronic fish ticket would have to capture which fish were caught in what IFQ management area for catch accounting. Data on the management area where fish were caught contribute to stock assessments, in part, to determine removals from particular stocks for stock productivity and, ultimately, annual overfishing levels and acceptable biological catches for non-target groundfish species and for many non-target, non-groundfish species, like salmon, CPS, and HMS. If catch were sorted on the vessel by IFQ management areas, 100 percent at-sea monitoring would remain, and multiple electronic fish tickets would be used to capture which fish were caught in what management areas on a trip, then species retained could be tracked for catch accounting and for stock assessment data. If multiple fish tickets were used, it would be beneficial to include a new field on the fish ticket with the trip identifier. For trips recorded on multiple fish tickets, this would improve the accuracy of the trip data by reducing the time and the assumptions managers would sometimes have to make to reconstruct trip level data.

There would be an increased chance of misreporting under Alternative G2 compared to Alternative G1 (No-action). Certain species are more affected by misreporting than others. For example, bocaccio rockfish, which is under a rebuilding plan south of 40°10' N. latitude (i.e., overfished) and part of the minor shelf complex north of 40°10' N. latitude, could be fished on both sides of the 40°10' N. latitude management line, with most fish caught to the south. If the catch were misreported as minor shelf rockfish north of 40°10' N. latitude, it would, over time, impact the overfished stock. Using 100

percent monitoring and sorting/storing catch by management area would reduce incidences of misreporting.

4.7.2.3 Protected Species

Protected species that interact with the Pacific coast groundfish fishery are described in Section 3.2.3. Of these protected species, ESA-listed salmon and eulachon would most be the most likely species to be affected by the proposed action for trawl catch share program gear changes.

4.7.2.3.1 Multiple Areas Alternative G1 (No-action)

Under Alternative G1(No-action), total catch of protected species would be likely to remain comparable to recent years which have had a low negative impact. In recent years, catch of both salmon and eulachon has exceeded levels specified in the incidental take statements, triggering reinitiation. NMFS reinitiated ESA Section 7 consultation on the FMP with respect to its effects on listed salmonids. In 2014, the Pacific whiting fishery exceeded its incidental take of Chinook salmon, triggering a reinitiation for salmon take in the groundfish fishery. Patterns of incidental catch of Chinook in groundfish fisheries show interannual variability. High years are generally followed by several lower years. On average, the groundfish fishery has remained well below amounts allowed in the incidental take statement.

At the Council’s June 2015 meeting, new estimates of eulachon take from fishing activity under the FMP indicated that the incidental take threshold in the 2012 biological opinion was exceeded. The increased bycatch may be due to increased eulachon abundance. In light of the new fishery and abundance information, NMFS is evaluating the impacts of fishing under the FMP on eulachon to determine if reinitiation or modification of the incidental take statement will be necessary.

Alternative G1 (No-action) would continue to have 100 percent monitoring of protected species. The WCGOP Mortality Report would continue to provide annual information and trends in fishery interactions with protected species.

4.7.2.3.2 Multiple Areas Alternative G2

Under Alternative G2, similar to Alternative G1 (No-action), protected species, including salmon and eulachon, would continue to be 100 percent monitored under the trawl catch share program. In addition, the WCGOP Mortality Report would continue to provide annual information and catch trends. Allowing vessels to fish in multiple IFQ management areas on a single fishing trip under Alternative G2 would have the same (low negative) impact on overall harvest of protected species and stock productivity as Alternative G1(No-action).

The electronic fish ticket would have to capture which fish were caught in what IFQ management area to enable catch accounting and protected species management. Data on the management area where fish were caught contribute to stock assessments and ESA consultations, in part, by determining stock productivity and, ultimately, incidental take levels for protected species. If catch were sorted on the vessel by IFQ management areas, 100 percent at-sea monitoring and multiple electronic fish tickets used to capture which fish were caught in what management areas on a trip would enable tracking species retained for catch accounting and for protected species management. If multiple fish tickets were used, it would be beneficial to include a new field on the fish ticket with the trip identifier. For trips recorded on multiple fish tickets, this would improve the accuracy of the trip data by reducing the time and the assumptions managers sometimes would have to make to reconstruct trip-level data.

There would be an increased chance of misreporting under Alternative G2 compared to Alternative G1 (No-action). Certain species are more affected by misreporting than others. For example, Pacific halibut, which has an individual bycatch quota (IBQ) north of 40°10. N. latitude, but not south of 40°10. N. latitude, could be fished on both sides of the 40°10. N. latitude management line, with most fish being caught to the south. If the catch were misreported as halibut caught south of 40°10. N. latitude, it might, over time, impact the stock. Applying 100 percent monitoring and sorting/storing catch by management area would reduce incidences of misreporting.

4.7.3 Socioeconomic Environment

This section evaluates the socioeconomic impacts of the alternatives for fishing in multiple IFQ management areas on a single fishing trip. Section 4.7.3.1 considers the impacts on harvesters. Section 4.7.3.2 considers impacts on first receivers/processors. Section 4.7.3.3 considers impacts on fishing communities. Section 4.7.3.4 considers impacts on management entities. Table 4-11 summarizes the socioeconomic impacts of the alternatives.

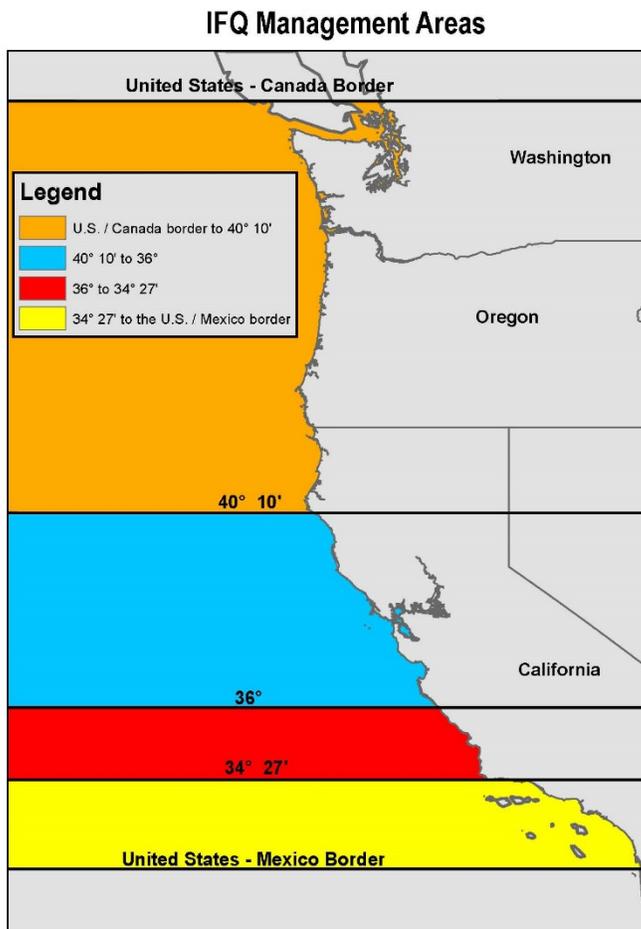
4.7.3.1 Harvesters

Section 3.3.1 provides background on harvesters. This section uses that information to evaluate the impacts of the alternatives on the harvesters.

4.7.3.1.1 Multiple Areas Alternative G1 (No-action)

Under Alternative G1 (No-action), target species would continue to be managed to sustainable levels under provisions of the Groundfish FMP. Within the trawl catch share program, the target species catch would continue to be managed with allocations for most target species, and in the Shorebased IFQ Program, with quota pounds for all target species. In addition, all sectors of the trawl catch share

program (Shorebased IFQ, MS Coop, and C/P Coop) would continue to be fully monitored. There would continue to be 100 percent monitoring and accountability for target species catch.



Alternative G1 (No-action) would have an ongoing low negative impact on harvesters by restricting the ability of fishermen to optimize fishing effort. Fishermen might have to expend extra fuel and pay for additional observer days at sea for steaming back to port in order to begin a new trip in an adjacent management area.

4.7.3.1.2 Multiple Areas Alternative G2

As described under Alternative G1 (No-action), target species under Alternative G2 would continue to be managed to sustainable levels with individual accountability and 100 percent monitoring of target species.

Under Alternative G2, catch would be

Figure 4-1. IFQ Management Areas.

sorted and stored on the vessels by IFQ management area.

Allowing vessels to fish in multiple IFQ management areas

on a single fishing trip under Alternative G2 would likely have a medium positive impact on harvesters, particularly those having home ports near management area boundaries (Figure 4-1). The number of vessels participating and the average days at sea (Table 4-12) indicate that the greatest benefit would be for DTS and non-whiting, non-DTS trawlers in Coos Bay, Oregon, Crescent City, Eureka, and Fort Bragg, California, and for trawl-endorsed groundfish fixed gear vessels Morro Bay, California. At-sea Pacific whiting vessels might also benefit from not having to return to port to fish across management lines, as these vessels would deliver at-sea and, thus, would make fewer trips back to port than shoreside vessels.

Table 4-12. Average days at sea and (number of vessels) by fishery and home port (2012).

	At-Sea Pacific Whiting	Shoreside Pacific Whiting	DTS Trawl	Non-whiting, non-DTS Trawl	Groundfish Fixed Gear with Trawl Endorsement
Astoria	**	44.9 (3)	58.3 (16)	24.7 (15)	41.2 (5)
Brookings		**	45.6 (6)	1.9 (3)	**
Coos Bay		**	51.5 (9)	15.3 (7)	**
Crescent City			22 (3)	**	
Eureka			45.4 (8)	3.3 (3)	
Fort Bragg			35.4 (4)	13.2 (4)	**
Morro Bay					36.2 (6)
Newport	29.6 (9)	47.9 (15)	21.7 (8)	7.8 (5)	31.4 (3)
Puget Sound	34.8 (7)	58.2 (4)	34.3 (3)	25.0 (3)	34.2 (4)
San Francisco	**		**	19.8 (3)	**
South and central WA coast		**	**	**	
Tillamook			**	**	**

** Suppressed to maintain confidentiality.

4.7.3.2 First Receivers/Processors

Section 3.3.2 provides background on first receivers/processors. This section uses that information to evaluate the impacts of the alternatives on the first receivers/processors.

4.7.3.2.1 Multiple Areas Alternative G1 (No-action)

While Alternative G1 (No-action) might inhibit optimal fishing opportunities for harvesters, it would not be likely to have any direct effect on processors, as it would not change the areas open for fishing or the gear configurations allowed for removal. Thus, expected size and species of catch would not be likely to change, and ex-vessel prices should remain the same under either alternative. Alternative G1 (No-action) would have a neutral impact on processors.

4.7.3.2.2 Multiple Areas Alternative G2

While Alternative G2 would likely be a cost savings measure for harvesters, it would likely have a low negative impact on first receivers in the form of an increased paperwork burden, as they would have to fill out additional fish tickets for trips that took place in multiple management areas. Despite this minor operational burden, the overall impact would likely be neutral, as Alternative G2 would not change the areas open for fishing, or the gear configurations allowed for removal. Thus, expected size and species

of catch would not be likely to change. Similar to G1 (No-action), Alternative G2 would have a neutral impact on processors.

4.7.3.3 Fishing Communities

Section 3.3.3 provides background on fishing communities. This section uses that information to evaluate the impacts of the alternatives on the fishing communities.

4.7.3.3.1 Multiple Areas Alternative G1 (No-action)

The Multiple Areas Alternative G1 has a medium- negative impact on vessels from home ports near the management area dividing lines, or that frequently fish in multiple management areas throughout a season. As shown on the map in Figure 4.1, management area lines bisect the Washington coast, southern Oregon, the Eureka area, and the Central California coast.

4.7.3.3.2 Multiple Areas Alternative G2

The Multiple Areas Alternative G2 likely has the greatest positive impact on vessels coming from home ports near the management area dividing lines. As shown on the map in Figure 4.1, management area lines bisect the Washington coast, southern Oregon, the Eureka area, and the Central California coast. Vessels that regularly fish north and south of the management lines are likely to most benefit from Alternative G2, experiencing a high-positive impact, while vessels that typically fish in one management area or do not frequently change the management area they are targeting are likely to experience low-positive impacts, thus the Multiple Areas Alternative G2 will likely have a medium-positive impact on fishing communities near the dividing lines. This includes essentially all the ports described in Chapter 3.3.4, with the exception of Newport, Astoria, and Ilwaco which all fall solidly within the Columbia area.

4.7.3.4 Management Entities

Section 3.3.4 provides background on management entities. This section uses that information to evaluate the impacts of the alternatives on management entities.

4.7.3.4.1 Multiple Areas Alternative G1 (No-action)

Restricting vessels to fishing, within one management area under Alternative G1 (No-action) would have a low positive impact on management entities. Data on the management area where fish were caught would continue to contribute to stock assessments, in part, to determine removals from particular stocks for stock productivity and, ultimately, annual overfishing levels and acceptable biological catches for groundfish species.

4.7.3.4.2 Multiple Areas Alternative G2

Opening up fishing in multiple management areas under Alternative G2 would require an update to electronic fish tickets and, correspondingly, to the fish ticket database. This would enable capturing which fish were caught in what IFQ management area for catch accounting, as well maintaining a distinct trip identification number to identify landings from the same trip regardless of management area. For trips recorded on multiple fish tickets, this would improve the accuracy of the trip data by reducing the time and the assumptions managers would sometimes have to make to reconstruct trip level data. If catch were sorted on the vessel by IFQ management areas, 100 percent at-sea monitoring would remain, and multiple electronic fish tickets would be used to capture which fish were caught in what management areas on a trip. Thus, species retained could be tracked for catch accounting and for stock assessment data. Data on the management area where fish were caught contribute to stock assessments, in part, to determine removals from particular stocks for stock productivity and, ultimately, annual overfishing levels and acceptable biological catches for groundfish species. The costs associated with implementing fish ticket updates would impose low negative impacts on management entities.