REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

Apppendix H

TO THE
RATIONALIZATION OF THE PACIFIC COAST
GROUNDFISH LIMITED ENTRY TRAWL FISHERY
FINAL ENVIRONMENTAL IMPACT STATEMENT

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Regulatory Impact Review and
Initial Regulatory Flexibility Analysis

Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery AND Allocation of Harvest Opportunity BETWEEN Sectors of the Pacific Coast Groundfish Fishery

National Marine Fisheries Service, Northwest Region
Initial Analysis May 2010

Executive Summary

The Pacific Fishery Management Council (Council) prepared a draft environmental impact statement for Amendment 20 to the Pacific Coast Groundfish Fishery Management Plan (FMP); a notice of availability was published on December 4, 2009 (74 FR 63751). The Council also prepared a draft environmental impact statement for Amendment 21 to the Pacific Coast Groundfish FMP; a notice of availability was published on January 29, 2010 (75 FR 4812). The trawl rationalization program would consist of (1) an IFQ program for the shore-based, limited entry groundfish trawl fleet and (2) cooperative programs (co-ops) for the at-sea whiting limited entry groundfish trawl fleet. The trawl rationalization program is intended to increase net economic benefits, create economic stability, provide full utilization of the trawl sector allocation, consider environmental impacts, and promote conservation through individual accountability for catch and bycatch.

A summary of the proposed action is as follows. The proposed action is to replace the current, primary management tool used to control the West Coast groundfish trawl catch—a system of two-month cumulative landing limits for most species and season closures for whiting—with a system requiring more individual accountability by the assignment of limited access privileges (LAPs). LAPs are a form of output control whereby an individual fisherman, community, or other entity is granted the privilege to catch a specified portion of the total allowable catch (TAC). The alternatives include (1) a catch-based IFQ system where all groundfish catch (landings plus bycatch) by limited entry trawl vessels would count against a vessel's IFQ holdings, which could be applied to the whole groundfish trawl fishery or selected trawl sectors; and (2) a system of co-ops that would be applied to one or more of the fishery sectors that target Pacific whiting. The status quo alternative (no action) could also be considered for application to one or more trawl fishery sectors, even if one or both action alternatives (IFQs or co-ops) are chosen for the other trawl sectors.

The description of purpose and need in section 1.2 of the Amendment 20 DEIS also outlines the objectives of the proposed action. The introductory paragraph in Chapter 1 and section 1.3 of the DEIS, background to the purpose and need provide information on the legal basis for the proposed action (proposed rule). The Council articulated the following goal for the trawl rationalization program: "Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch." The objectives supporting this goal are as follows: provide a mechanism for total catch accounting; provide for a viable, profitable, and efficient groundfish fishery; promote

practices that reduce bycatch and discard mortality, and minimize ecological impacts; increase operational flexibility; minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical; promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry; provide quality product for the consumer; and increase safety in the fishery.

As part of the proposed action, NMFS would place observers and/or cameras on board all catcher vessels in the shore-based sector (which combines the current shore-based whiting and non-whiting trawl sectors). Existing requirements for motherships, catcher vessels in the mothership sector, and catcher-processors would continue. Independently contracted processing plant monitors would track landings. There would also be new reporting requirements related to the tracking of QS and quota pounds (QP) in the shore-based fishery.

This proposed rule has been determined to be significant for purposes of Executive Order 12866.

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule, if adopted, would have on small entities. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the SUMMARY section of the preamble.

The Council has prepared two EIS documents: Amendment 20—Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery, which would create the structure and management details of the trawl fishery rationalization program, and Amendment 21—Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery, which would allocate the groundfish stocks between trawl and non-trawl fisheries. The two draft EISs prepared by the Council provide economic analyses of the Council's preferred alternatives and draft RIR and IRFAs. The draft RIR and IRFAs were updated and combined into a single RIR/IRFA, which comprises this document. Among other things, this single RIR/IRFA contains additional information on characterizing the participants in the fishery and on the tracking and monitoring costs associated with this program.

Due to the complexity of the proposed fishery management measures, the rule associated with this analysis proposes only certain key components that would be needed both to issue permits and endorsements in time for use in the 2011 fishery and to have the 2011 specifications reflect the new allocation scheme. Specifically, this rule would establish the allocations set forth under Amendment 21 and would establish procedures for initial issuance of permits, endorsements, and QS under the IFQ and co-op programs. NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, co-op permits/agreements, first receiver site licenses, quota share accounts, vessel QP accounts, further tracking and monitoring components, and economic data collection requirements. To encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future "cost-recovery" rule, based on a recommended methodology yet to be developed by the Council.

The RIR/IRFA analyzes two alternatives—the No Action Alternative and the Preferred Alternative. The analysis of the no action alternative describes what is likely to occur in the absence of the proposed action. It provides a benchmark against which to compare the incremental effects of the proposed action. Under the no action alternative, the current, primary management tool used to control the Pacific coast groundfish trawl catch includes a system of two-month cumulative landing limits for most species and season closures for Pacific whiting. This management program would continue under the no action alternative. Only long-term, fixed allocations for Pacific whiting and sablefish north of 36° N. lat. would exist. All other groundfish species would not be formally allocated between the trawl and non-trawl sectors. Allocating the available harvest of groundfish species and species complexes would take place during the Council process of deciding biennial harvest specifications and management measures and, as such, would be considered short-term allocations.

The analysis of the preferred alternative describes what is likely to occur as a result of the proposed action. Under the preferred alternative, the existing shore-based whiting and shore-based non-whiting sectors of the Pacific Coast groundfish limited entry trawl fishery would be managed as one sector under a system of IFQs, and the at-sea whiting sectors of the fishery (i.e., catcher-processor sector and mothership sector, which includes motherships and catcher vessels) would be managed under a system of sector-specific harvesting co-ops. The catcher-processor sector would continue to operate under the existing, self-developed co-op program entered into voluntarily by that sector. A distinct set of groundfish species and Pacific halibut would be covered by the rationalization program. Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented and matched against QP. The Council specified that observers would be required on all vessels, and shore-based monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly for nonwhiting, shore-based vessels.

The limited entry trawl fishery is divided into two broad sectors: a multi-species trawl fishery, which most often uses bottom trawl gear (hereafter called the non-whiting fishery), and the Pacific whiting fishery, which uses midwater trawl gear. The non-whiting fishery is principally managed through two-month cumulative landing limits along with closed areas to limit overfished species bycatch. Fishery participants target the range of species described above with the exception of Pacific whiting. By weight, the vast majority of trawl vessel groundfish is caught in the Pacific whiting fishery. In contrast, the non-whiting fishery accounts for the majority of limited entry trawl fishery ex-vessel revenues. On average for the period from 2000 to 2005, Pacific whiting accounted for about 75 percent of the quantity of groundfish landed in the limited entry trawl fishery, but only 21 percent of the value due to their relatively low ex-vessel price.

Non-whiting trawl vessels deliver their catch to shoreside processors and buyers located along the coasts of Washington, Oregon, and California. They tend to have their homeports located in towns within the same general area where they make deliveries, though there are several cases of vessels delivering to multiple ports during a year. Some Pacific whiting trawl vessels are

catcher-processors that, as their name implies, process their catch on-board, while other vessels in this sector deliver their catch to shoreside processors or motherships that receive Pacific whiting for processing but do not directly harvest the fish.

Over time, landings in the limited entry trawl fishery have fluctuated, especially on a species-specific basis. Pacific whiting has grown in importance, especially in recent years. Through the 1990s, the volume of Pacific whiting landed in the fishery increased. In 2002 and 2003, landings of Pacific whiting declined due to information showing the stock was depleted, and the subsequent regulations that restricted harvest in order to rebuild the species. From 2003 through 2007, estimated Pacific whiting ex-vessel revenues averaged about $29 million. In 2008, these participants harvested about 248,000 tons of whiting worth about $63 million in ex-vessel revenues, based on shore-based ex-vessel prices of $254 per ton, the highest ex-vessel revenues and prices on record. In comparison, the 2007 fishery harvested about 224,000 tons worth $36 million at an average ex-vessel price of about $160 per ton.

While the Pacific whiting fishery has grown in importance in recent years, harvests in the non-whiting component of the limited entry trawl fishery have declined steadily since the 1980s. Ex-vessel revenues in the fishery peaked in the mid 1990s at over $60 million. Following the passage of the Sustainable Fisheries Act (1996) and the listing of several species as overfished, harvests became increasingly restricted, and landings and revenues declined steadily until 2002. Since 2002, ex-vessel revenues have stabilized at approximately $23 to $27 million per year. In 2007, the Council estimated that 159 trawlers landed 94,000 metric tons (mt) of groundfish, earning $37 million in ex-vessel revenues, for an average of $234,000 per vessel.

Expected Effects of Amendment 21—Intersector Allocation

The allocation of harvest opportunity between sectors under the proposed regulation does not differ significantly from the allocation made biennially under the no action alternative. The primary economic effect of the long-term allocation under the proposed regulations is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery. As described elsewhere, the trawl rationalization program could create an incentive structure and facilitate more comprehensive monitoring to allow bycatch reduction and effective management of the groundfish fisheries. In support of the trawl rationalization program, the main socioeconomic impact of Amendment 21 allocations is longer-term stability for the trawl industry. While the preferred Amendment 21 allocations do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions. The economic effects of Amendment 21 arise from the impacts on current and future harvests. The need to constrain groundfish harvests to address overfishing has had substantial socioeconomic impacts. The groundfish limited entry trawl sector has experienced a large contraction, spurred in part by a partially federally subsidized vessel and permit buyback program implemented in 2005. This $46 million buyback program was financed by a congressional appropriation of $10 million and an industry loan of $36 million. Approximately 240 groundfish, crab, and shrimp permits were retired from state and Federal fisheries, and there was a 35 percent reduction in the groundfish trawl permits. To repay the loan, groundfish,

shrimp and crab fisheries are subject to landings fees. Follow-on effects of the buyback have been felt in coastal communities where groundfish trawlers comprise a large portion of the local fleet. As the fleet size shrinks, and ex-vessel revenues decline, income and employment in these communities are affected. Fishery-related businesses in the community may cease operations because of lost business. This can affect non-groundfish fishery sectors that also depend on the services provided by these businesses, such as providing ice and buying fish. An objective to the trawl rationalization program is to mitigate some of these effects by increasing revenues and profits within the trawl sector.

However, because further fleet consolidation is expected, the resulting benefits are likely to be unevenly distributed among coastal communities. Some communities may see their groundfish trawl fleet shrink further as the remaining vessels concentrate in a few major ports. Species subject to Amendment 21 allocations would be lingcod, Pacific cod, sablefish south of 36° N. lat., Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of 40° 10' N. lat., shortspine thornyhead (north and south of 34° 27' N. lat.), longspine thornyhead north of 34° 27' N. lat., darkblotched rockfish, minor slope rockfish (north and south of 40° 10' N. lat.), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish. While the preferred Amendment 21 allocations of these species do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

Based on ex-vessel revenue projections, Table 4-18 (Amendment 21 Intersector Allocation DEIS) shows the potential 2010 yield to trawl and non-trawl (including recreational) sectors under the Amendment 21 alternatives and the potential 2010 value of alternative trawl allocations. Under the status quo option Alternative 1, the projected ex-vessel value of the trawl allocation is $56 million while the projected ex-vessel value of the Council's preferred alternative is $54 million, indicating a potential increase to the non-trawl sectors and a potential decrease to the trawl sector.

In addition to the species above, halibut would also be specifically allocated to the trawl fishery. The proposed regulations include a halibut trawl bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch and for harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce halibut bycatch and bycatch mortality. Pacific halibut currently cannot be retained in any U.S. or Canadian trawl fisheries per the policy of the IPHC. The Council's intent on setting a total catch limit of Pacific halibut in Area 2A trawl fisheries is to limit and progressively reduce the bycatch to provide more benefits to directed halibut fisheries. The program establishes a limit for total Pacific halibut bycatch mortality (legal-sized and sublegal fish) by using an individual bycatch quota in the trawl fishery. The initial amount for the first two years of the trawl rationalization program would be calculated by taking 15 percent of the Area 2A total constant exploitation yield (CEY) as set by the International Pacific Halibut Commission (IPHC) for the previous year, not to exceed 130,000 pounds (lbs) per year for total mortality. For example, if the trawl rationalization program went into effect in 2013, the trawl halibut IBQ would be set at 15 percent of the Area 2A CEY adopted for 2012 or 130,000 lbs per year, whichever is less, for 2013 and 2014 (years 1 and 2 of the program). Beginning with the third year of implementation, the

maximum amount set aside for the trawl rationalization program would be reduced to 100,000 lbs per year for total mortality. This amount may be adjusted downward through the biennial specifications process for future years.

Currently there are no total catch limits of Pacific halibut specified for the west coast trawl fishery. Trawl bycatch of Pacific halibut, therefore, does not limit the trawl fishery. A phased-in halibut bycatch reduction program would provide sufficient time to establish a baseline of trawl halibut bycatch under the new rationalization program and would enable harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce both halibut bycatch and bycatch mortality. By limiting the bycatch of Pacific halibut in the limited entry trawl fisheries, Amendment 21 would control bycatch and could provide increased benefits to Washington, Oregon, and California fishermen targeting Pacific halibut. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

Effects of Amendment 20-Trawl Rationalization

Due to the lack of quantitative data, an overall comprehensive model was not feasible. Instead, a set of models designed to focus on specific issues was developed. For example, models were used to analyze the effects of the initial allocation of QS in the trawl IFQ program; project geographic shifts in fishery patterns; and illustrate the potential for reducing bycatch, increasing target catch, and increasing revenues. To illustrate the benefits of the IFQ program, a model projecting the expected amount of fleet consolidation in the shore-based non-whiting fishery was developed. This model illustrates the potential for the fleet to reduce bycatch and potentially increase the amount of target species harvested. This model is primarily based on bycatch reduction experiences in the Pacific whiting fishery and on the arrowtooth flounder fishery as carried out under an exempted fishing permit. The model accounts for the fact that trawlers harvest many species (multiple outputs). The model also uses fish ticket data and the data from the recently completed West Coast Limited Entry Cost Earnings Survey sponsored by the NMFS Northwest Fisheries Science Center. [For the other sectors, similar models could not be developed because the appropriate cost data were unavailable.]

Estimates of potential economic benefits are generated based on the predicted harvesting practices from the first step analysis. Because the west coast nonwhiting groundfish fishery is not a derby fishery, it is expected that economic benefits will come through cost reductions and increased access to target species that arise from modifications in fishing behavior (overfished species avoidance). The key output of this analysis is an estimate of post-rationalization equilibrium harvesting cost.

Changes in harvesting costs can arise from three sources. First, the total fixed costs incurred by the groundfish trawl fleet change as the size of the fleet changes. Since many limited entry trawlers incur annual fixed costs of at least $100,000, reductions in fleet size can result in substantial cost savings. In other words, fewer vessels in the fishery will lead to decreased costs through a decrease in annual fixed costs. Second, costs may change as fishery participation changes, no longer incurring diseconomies of scope (such as the costs of frequently switching gear for participating in multiple fisheries). Third, costs may change as vessels are able to buy

and sell quota to take advantage of economies of scale and operate at the minimum point on their long-run average cost curve (i.e. the strategy that minimizes the cost of harvesting).

The major conclusions of this model suggest that (with landings held at 2004 levels), the current groundfish fleet (non-whiting component), which consisted of 117 vessels in 2004, will be reduced by roughly 50 percent to 66 percent, or 40 to 60 vessels under an IFQ program. The reduction in fleet size implies cost savings of $18 to $22 million for the year 2004 (most recent year of the data). Vessels that remain active will, on average, be more cost efficient and will benefit from economies of scale that are currently unexploited under controlled access regulations in the fishery. The cost savings estimates are significant, amounting to 60 percent of the costs incurred currently, suggesting that IFQ management may be an attractive option for the Pacific Coast Groundfish Fishery. Assuming a 10 percent annual return to the vessel capital investment, estimates indicate that the 2004 groundfish fleet incurred a total cost of $39 million. The PacFIN data indicate fleetwide revenue at roughly $36 million in 2004. Therefore, fleetwide losses of about $3 million occurred in 2004. Based on a lower 5 percent return to vessel capital, the results suggest that the groundfish fleet merely broke even in 2004; i.e., dockside revenues were offset by the fleet wide harvesting costs. The results also suggest that a switch from the current controlled access management program to IFQs could yield a significant increase in resource rents in the Pacific Coast Groundfish fishery. For instance, the analysis finds that the 2004 groundfish catch generated zero resource rent. Instead, it could have yielded a substantial positive rent at about $14 million.

As the model was based on the 2004 fishery, it may be useful to show current trends in the fishery. In 2004, the shorebased non-whiting trawl fishery generated about $30 million in ex-vessel revenues. According to cost estimates discussed above, however, this fishery was at best breaking even or perhaps suffering a loss of up to $2 million. Since 2004, shorebased non-whiting trawl fisheries have increased their revenues to about $40 million. The increases in shorebased revenues have come from increased landings of flatfish and sablefish and significant increase in sablefish ex-vessel prices. Sablefish now accounts for almost half of the trawl fleet's revenues. While revenues were increasing, so were fuel prices. Fuel costs are about 30 to 40 percent of the vessels' revenues. The average 2005 to 2009 revenues were about $28 million, or 22 percent greater than 2004. The average 2005 to 2009 fuel price was about $2.81, 70 percent greater than that of 2004. Therefore, it appears that 2009 fishery may not be that much improved over that of 2004.

Based on the various models, ex-vessel revenues for the non-whiting sector of the limited entry trawl fishery are estimated to be approximately $30 to 50 million per year under the preferred alternative, compared to $22 to 25 million under the no action alternative. This revenue increase is expected to occur in a rationalized fishery, because target species quotas can be more fully utilized. Currently, in the non-whiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level by means of IFQs provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. In addition, under the preferred alternative, the non-whiting sector would have control over harvest timing over the whole calendar year. Under the no action alternative,

the non-whiting sector would continue to operate under two-month cumulative landing limits, which reduces flexibility within the period, because any difference between actual limits and the period limit cannot be carried over to the next period. Finally, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line- or pot-gear-caught fish. This opportunity would mainly relate to sablefish, which are caught in deeper water, rather than nearshore species where state level regulatory constraints apply.

The preferred alternative may also increase ex-vessel revenues of non-whiting trawl harvesters by changing their bargaining power with processors over ex-vessel prices. Under the preferred alternative, the current two-month cumulative limits structure of the non-whiting trawl fishery would be replaced with QP that is available for a year, thereby extending the time horizon harvesters have to negotiate prices with processors without losing available fishing opportunity. The extended period would give harvesters greater latitude to hold out for better prices compared to the no action alternative. However, these negotiations will also be affected by the availability of target species, as well as the availability of bycatch.

Costs for the non-whiting sector of the limited entry trawl fishery are expected to decrease under the preferred alternative because of productivity gains related to fleet consolidation. Productivity gains would be achieved through lower capital requirements and a move to more efficient vessels. Operating costs for the non-whiting sector are predicted to decrease by as much as 60 percent annually. Based on estimates of current costs, this percentage decrease represents a $13.8 million cost reduction relative to the no action alternative.

The accumulation limits considered under the preferred alternative are not expected to introduce cost inefficiencies in the non-whiting sector, provided that current prices and harvest volumes do not decrease. However, the preferred alternative would impose new costs on the non-whiting sector that would not be incurred under the no action alternative. First, a landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed under the preferred alternative to recover management costs, such as maintenance of the system of QS accounts. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $500 a day if independent contractors are hired. The daily observer cost could place a disproportionate adverse economic burden on small businesses because such costs would comprise a larger portion of small vessels costs than that of larger vessels.

The increase in profits that commercial harvesters are expected to experience under the preferred alternative may render them better able to sustain the costs of complying with the new reporting and monitoring requirements. The improved harvesting cost efficiency under the preferred alternative may allow the non-whiting sector to realize profits of $14 to 23 million compared to $0 or less under the no action alternative. In addition, a provision that allows vessels managed under the IFQ program to use other legal gear (gear switching) would allow sablefish allocated to the trawl sector to be sold at a higher price per pound, possibly contributing to increased profits. The imposition of accumulation limits could reduce the expected increase in the profitability of the non-whiting sector by restricting the amount of expected cost savings, and the costs of at-sea observers may reduce profits by about $2.2 million, depending on the fee

structure. However, the profits earned by the non-whiting sector would still be substantially higher under the preferred alternative than under the no action alternative.

New entrants are likely to face a barrier to entry in the Pacific Coast groundfish limited entry trawl fishery in the form of the cost of acquiring QS (or a co-op share in the case of the at-sea whiting sector). This disadvantages them in comparison to those entities that receive an initial allocation of harvest privileges. Small entities may be particularly disadvantaged to the degree that they may find it more difficult to finance such quota purchases. Among the goals the Council identified for the adaptive management program was to use the reserved non-whiting QS to facilitate new entry into the fishery. In addition, the Council identified, as a trailing action, a framework to allow the establishment and implementation of community fishing associations as part of the adaptive management program. These entities could facilitate entry into the fishery by leasing QS at below market rates, thereby leveling the playing field in terms of costs between initial recipients of QS and new entrants.

The incremental effects of the preferred alternative on buyers and processors of trawl caught groundfish are detailed Sections 4.9 to 4.10 of the Rationalization of the Amendment 20 Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS. Even though processors may have to pay fishermen higher ex-vessel prices, processors may see cost savings under the preferred alternative to the degree that rationalization allows greater control over the timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation in the non-whiting sector could also provide cost savings for processors if landings occur in fewer locations, thereby reducing the need for facilities and/or transport. The preferred alternative would also impose new costs on processors that would not be incurred under the no action alternative. Processors would be required to pay some or all of the costs of plant monitors, who would verify landings. Similar to at-sea observers, these monitors would be independent contractors rather than direct employees of the processing firm.

In the non-whiting processing industry, harvest volumes may increase because of a decrease in constraining species bycatch and a subsequent increase in underutilized target species catch. This boost in target species catch may increase utilization of processing capital and processing activity. [It should be noted that if, under the current system, bycatch has been underreported, with 100 percent observer coverage under the new system, the gains in increased target catches may be less than expected.] Consequently, the possibility of capital consolidation in the non-whiting shore-based sector may be lower than in the shore-based whiting sector. However, shifts in the distribution of landings across ports as a result of fleet consolidation, industry agglomeration, and the comparative advantage of ports (a function of bycatch rates in the waters constituting the operational area for the port, differences in infrastructure, and other factors) could lead to consolidation in processing activity at a localized or regional scale, as well as an expansion in processing activity elsewhere. To mitigate harm to adversely impacted non-whiting shoreside processors, the adaptive management program provides a mechanism to distribute non-whiting QS to processors, thereby ensuring that some processors receive greater landings of groundfish than would otherwise be the case.

As noted above, the preferred alternative may reduce the power of non-whiting shoreside processors to negotiate ex-vessel prices with harvesters. The larger harvest volume due to bycatch avoidance may lower processor average costs, which could offset the negative effects on non-whiting shoreside processors of a shift in bargaining power. In addition, processors could purchase QS over the long term, thereby increasing their negotiation power. However, the accumulation limits included in the preferred alternative would limit the ability of processors to purchase substantial quantities of QS. Alternatively, the adaptive management provision could be used to allocate QS to non-whiting shoreside processors, thereby providing them additional leverage when negotiating terms with harvesters.

The allocation of 20 percent of the initial shore-based whiting QS to the shoreside processor portion of the groundfish fishery would give these processors more influence in negotiations over ex-vessel prices and would tend to offset the gains in bargaining power for harvesters. For example, a processor could use QS to induce a harvester that is short of QP for a Pacific whiting trip to make deliveries under specified conditions and prices. Because of a reduction in peak harvest volume, however, fewer processing companies and/or facilities may be necessary to handle harvest volumes of Pacific whiting, meaning some companies may find themselves without enough product to continue justifying processing operations of Pacific whiting.

Revenues from harvesting and processing trawl-caught groundfish are expected to increase. Total revenue from nonwhiting trawl fisheries was $25 million in 2007. Revenue is expected to increase 1.1 to 1.6 times in a rationalized fishery, depending on bycatch rate reductions and stock status. Revenue increases are mainly expected because, under rationalized fisheries, target species quotas can be more fully utilized. Currently, in the nonwhiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. Whiting fisheries are more directly managed through quotas and, in recent years, by limits on bycatch. Beginning in 2009, bycatch limits have been established for each of the three whiting sectors. For the shore-based and mothership whiting sectors, the fishery can potentially close before the whiting allocation is fully harvested because a bycatch cap is reached. [The catcher-processor sector currently operates as a voluntary co-op and is, therefore, better able to coordinate harvest strategy to avoid reaching bycatch limits.] However, in general, the whiting sectors have been able to harvest their sector allocations. Whiting vessels could increase revenues due to improved product recovery as a result of the ability to better control harvest timing. As mentioned above, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line or pot gear caught fish.

Harvester and possibly processor costs are expected to decrease because of productivity gains related to fleet consolidation. Cost savings would be due to lower capital requirements and a move to more efficient vessels in the nonwhiting sector. Costs are predicted to decrease by as much as 60 percent annually, which, based on estimates of current operating costs, would represent a $13.8 million decrease. Similar levels of consolidation are expected for shorebased and mothership catcher vessels. Proposed mitigation measures could reduce these costs savings.

For example, a 1 percent quota share accumulation limit could reduce cost savings by as much as 20 percent. However, the accumulation limits considered in the alternatives are not expected to introduce higher costs at current prices and harvest volume. The proposed action would introduce some new costs. First, up to 3 percent of the value of landings may be assessed to cover administrative and management costs. Second, new at-sea observer requirements would be introduced and vessels would have to pay the cost, estimated at $350 to $500 a day.

Processors may see cost-savings to the degree that rationalization allows greater control over the timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation could also drive some cost savings on the part of processors if landings occur in fewer locations. This would reduce the need for facilities and/or transport. Under the proposed action, processors would be required to pay the costs of plant monitors, who would verify landings. These monitors would not be directly employed by the processing firm but, similar to at-sea observers, would be independent contractors.

Rationalization of the groundfish trawl sector is expected to free up capital and labor because of increases in productivity. [Since the basic input, trawl-caught fish, is subject to an underlying constraint due to biological productivity, increases in labor and capital productivity are expected to reduce the amount of those inputs needed.] However, from a national net benefit perspective, these effects are neutral since capital and labor can be put to some productive use elsewhere in the broader economy. Also, current groundfish fishery participants who receive QS (trawl limited entry trawl permit holders and eligible shoreside processors) are compensated to the degree that the asset value of the QS covers capital losses.

The tracking and monitoring costs of this program will be provided in more detail during the "program components" rulemaking process. However, the RIR/IRFA to this rule contains some preliminary estimates. After a transition period, initial estimates of the annual Federal and state agency costs to run the shore-based fishery (including whiting) are about $5 million. Based on the observer cost of $500 per day, the annual costs of observers is about $4 million. At $350 per day, the compliance monitoring program is just over $1 million annually. These figures add up to just over $10 million. From a cost-benefit viewpoint, if consolidation leads to $14 million savings from reduced harvesting costs, and the new program increases the tracking and monitoring costs of $10 million, there is a projected net gain of about $4 million. This does not take into account expectations that costs will likely be reduced due to consolidation or the increases in expected revenues discussed above.

While the effect of the preferred alternative on revenues and costs in the whiting sector of the limited entry trawl fishery is more difficult to estimate, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery in comparison to the no action alternative. Under the preferred alternative, some consolidation may occur in the shoreside and mothership sectors of the Pacific whiting fishery, though the magnitude of consolidation is expected to be less than in the non-whiting sector. The

existing catcher-processor co-op would continue under the preferred alternative, with effects on the catcher-processor sector that look similar, or identical, to those of the no action alternative. However, the change from a vessel-restriction under Amendment 15 to the permit-based limit of Amendment 21 will provide additional flexibility that currently does not exist in the whiting fishery.

This proposed rule would regulate businesses that harvest groundfish and processors that want to process limited entry trawl groundfish. Under the RFA, the term "small entities" includes small businesses, small organizations, and small governmental jurisdictions. For small businesses, the Small Business Administration has established size criteria for all major industry sectors in the U.S, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts that do not exceed $4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, is not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full time, part time, temporary, or other basis, at all its affiliated operations worldwide. For marinas and charter/party boats, a small business is one with annual receipts not in excess of $7.0 million. The RFA defines a small organization as any nonprofit enterprise that is independently owned and operated and is not dominant in its field. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000.

NMFS makes the following conclusions based primarily on analyses associated with fish ticket and limited entry permit data, available employment data provided by processors, information on the charterboat and tribal fleets, and available industry responses industry to ongoing survey on ownership. Entities were analyzed as to whether they were only affected by the Amendment 21 allocation processes (non-trawl), or whether they were affected by both Amendments 20 and 21 (trawl).

The non-trawl businesses are associated with the following fleets: limited entry fixed gear (approximately 150 companies), open access groundfish (1,100), charterboats (465), and the tribal fleet (four tribes with 66 vessels). Available information on average revenue per vessel suggests that all the entities in this group can be considered small.

For the trawl sector, there are 177 permit holders. Nine limited entry trawl permits are associated with the catcher-processing vessels that are considered large companies. Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large shore-based processing company or with a non-profit organization who considers itself a large organization. Nine other permit owners indicated that they were large companies. Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Three of the six mothership processors are large companies. Within the

14 shorebased whiting first receivers/processors, there are four large companies. Including the shorebased whiting first receivers, in 2008, there were 75 first receivers that purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000); 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000); and 13 large purchasers (purchases greater than $1.0 million). Because of the costs of obtaining a processor site license, procuring and scheduling a catch monitor, and installing and using the electronic fish ticket software, these small purchasers will likely opt out of buying groundfish, or arrange to purchase fish from another company that has obtained a processing site license.

The major impacts of this rule appear to be on two groups: Shoreside processors, which are a mix of large and small processors; and shore-based trawlers, which are also a mix of large and small companies. The non-whiting shore-based trawlers are currently operating at a loss or, at best, are breaking even. The new rationalization program would lead to profitability, but only with a reduction of about 60 percent of the fleet. This program would lead to major changes in the fishery. To help mitigate against these changes, as discussed above, the agency has announced its intent, subject to available Federal funding, that participants would initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors would be increased every year so that, once the fishery has transitioned to the rationalization program, the industry would be responsible for 100 percent of the cost of hiring the observers and catch monitors by 2014. NMFS believes that an incrementally reduced subsidy to industry funding would enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system. In addition, to help mitigate against the negative impacts of this program, the Council has adopted an adaptive management program (CFA) in which, starting in year three of the program, 10 percent of non-whiting QS would be set aside every year to address community impacts and industry transition needs. After reviewing the initial effects of ITQ programs in other parts of the world, the council had placed a short-term QS trading prohibition so that fishermen can learn from their experiences and not make premature sales of their QS. The Council also envisions future regulatory processes that would allow CFAs to be established to help aid communities and fishermen.

Regulatory Impact Review and
Initial Regulatory Flexibility Analysis

Proposed Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery AND Allocation of Harvest Opportunity BETWEEN Sectors of the Pacific Coast Groundfish Fishery
National Marine Fisheries Service, Northwest Region
Initial Analysis May 2010

1. INTRODUCTION

This document is a Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA) that describes the expected economic impacts of selected alternatives contained in the following two proposed amendments to the Pacific Coast Groundfish Fishery Management Plan:

- *Amendment 20—Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery*. Amendment 20 would create the structure and management details of the trawl fishery rationalization program.

- Amendment 21—*Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery*. Amendment 21 would allocate the groundfish stocks between trawl and non-trawl fisheries.

The Northwest Region of the National Marine Fisheries Service (NMFS-NWR) is developing regulations that will, if approved by the U.S. Secretary of Commerce, implement the plan amendments. The rulemaking process must comply with Executive Order (EO) 12866 and the Regulatory Flexibility Act (RFA). The RFA requires the agency to prepare and make available for public comment an IRFA that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities. The IRFA aids the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities. The EO covers a variety of regulatory policy considerations and establishes procedural requirements for RIRs that will contain analyses of the benefits and costs of regulatory actions.

Trawl Rationalization Program Structure

The trawl rationalization program would consist of (1) an individual fishing quota (IFQ) program for the shore-based trawl fleet and (2) cooperative (co-op) programs for the at-sea trawl fleet. The shore-based trawl fleet would include IFQ participants who land groundfish to shore-based processors or first receivers. The at-sea trawl fleet would include fishery participants harvesting whiting with midwater trawl gear (i.e., whiting catcher/processor vessels, whiting motherships, and whiting catcher vessels associated with motherships). The co-op programs for the at-sea trawl fleet are further divided as follows: (1) a single whiting catcher/processor co-op that forms; and (2) one or more whiting mothership co-ops that may form. Vessels may also choose to fish in an open access or non-co-op fishery that would be unaffiliated with a co-op. For the co-op and non-co-op fishery, vessel owners pool their harvest together.

The IFQ program for the shore-based fleet would require NMFS to make an initial allocation of harvest quota share (QS) (expressed as a percentage of the total sector amount) through a new QS permit to current owners of limited entry trawl permits and shore-based whiting first receivers who meet the qualifying criteria. Depending on a person's limited entry trawl permit history in qualifying years, the permit owner will receive an initial allocation for various target species/species groups (approximately 20 species), some with area designations. In addition, NMFS would allocate QS for overfished species based on a proxy of the amount of target species allocated to the quota shareholder. Shore-based whiting first receivers will receive an initial allocation of whiting only, based on their history of being the first receiver reported on state fish tickets (with an opportunity to reassign their history). Each year, based on the optimum yield (OY) amounts for each species and the amount of QS a holder has for a particular species/area, NMFS would allocate quota pounds (QP) to the QS account. The QS owner, in turn, must allocate QP to vessel accounts. Vessels are required to have IFQ or QP in an account to cover all IFQ landings and discards incurred while fishing under this program. In order to comply with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), NMFS would track ownership interest in QS to determine if individuals are within set accumulation limits, both at the initial allocation stage and during the operation of the program. In Amendment 20, the Pacific Fishery Management Council (Council) has adopted limits (by species group and area) on the amount of QS an individual can control (i.e., control limits) and limits on the amount of QP that may be registered to a vessel for use in a given year.

For the at-sea whiting component of the trawl rationalization program, the Council has adopted a program that provides for a catcher-processor co-op and mothership co-ops that differ from how the co-ops have operated in the past. The catcher-processor co-op will not require an initial allocation of catch shares to individual vessels, provided that a co-op is established. However, whiting catch shares for the mothership fleet (called catch history assignments) would initially be allocated to qualifying limited entry trawl permits that were registered to catcher vessels in qualifying years and which were used in the mothership whiting fishery. The catch history assignments would be non-severable from the permit. Holders of qualifying permits that are allocated a whiting catch history assignment may choose to participate in the mothership co-op or non-co-op fishery. Similar to the shore-based IFQ program, NMFS would be required to track permit ownership interests in the mothership sector to determine if individuals comply with accumulation limits. For species subject to trawl rationalization, Amendment 21 would modify the way annual harvest guidelines are distributed. Under the current allocation strategy established in Amendment 6, a commercial harvest guideline (HG) is established. This commercial HG is then divided between limited entry and open access. Under Amendment 21, the limited entry fixed gear fishery would no longer receive a formal allocation. In addition, the commercial HG would be changed to a general HG, which would also apply to recreational fisheries.

Instead of deriving a commercial HG from OY, NMFS would establish a fishery HG applicable to both commercial and recreational fisheries. The HG would be derived by reducing OY in the manner currently described for the commercial HG, except that the recreational catch would not be subtracted; it would be included in the fishery HG. NMFS would then divide the fishery HG into allocations for the trawl and non-trawl fisheries. This differs from the current regime that divides between limited entry and open access. For some species under the proposed program,

the recreational fishery and the limited entry fixed gear fishery would share in the non-trawl allocation with the open access fleet. This proposed rule sets forth the specific percentages of the fishery HG for covered species that would be allocated to the trawl and non-trawl fisheries.

In order to implement the recommended IFQ and Co-op programs, it would be necessary for each of these trawl sectors to have a specific allocation of catch that could be divided among participants. While this could be accomplished through the specification process under the status quo, the council determined that a fixed allocation within the fishery management plan (FMP) would be preferable because it would promote predictability and the type of stability that facilitates successful relationships that make individual-based programs work. Thus, the Council recommended formal allocations in Amendment 21. In addition, Amendment 21 would establish total catch limits for Pacific halibut, as well as set-asides to accommodate the rationalized trawl fleet. The total catch limits would protect the directed fishery for halibut, as well as reducing overall halibut catch limits.

Species not covered by Amendment 21 would continue to be informally allocated through the biennial specifications process.

Introductory Note on the Analysis

Due to the complexity of the proposed fishery management measures, the rule associated with this analysis proposes only certain key components that would be necessary to have permits and endorsements issued in time for use in the 2011 fishery and to have the 2011 specifications reflect the new allocation scheme. Specifically, this rule would establish the formal allocations set forth under Amendment 21 and establish procedures for initial issuance of permits, endorsements, and quota shares under the IFQ and co-op programs. NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, co-op permits/agreements, first receiver site licenses, quota share accounts, vessel QP accounts, further tracking and monitoring components, and economic data collection requirements. In order to encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future cost-recovery rule based on a recommended methodology yet to be developed by the Council.

To support the rulemaking described above, this analysis will be accordingly updated and revised. However, this initial analysis will assess the entire program by drawing heavily upon the Council's November 2010 document "Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery Draft Environmental Impact Statement," including its "Appendix H Preliminary Draft Regulatory Impact Review and Preliminary Initial Regulatory Flexibility Analysis." This analysis also updates the tracking and monitoring cost analysis found in Appendix A, Section A-2.3.3, Analysis of Components, Elements, and Options for the Individual Fishing Quota Alternative Trawl Individual Quota Components Analysis. This updated analysis also includes a discussion of the tracking and monitoring costs of the mothership and catch-processor sectors. This update is Attachment 1 to this document: "Update on Tracking and Monitoring Costs."

The analysis that follows constitutes both the RIR and IRFA as many of their required elements are the same. In terms of meeting the analytical requirements of an RIR and IRFA, the analysis adopts the following approach set forth in the 2007 *Guidelines for Economic Reviews of National Marine Fisheries Service Regulatory Actions*:

> At a minimum, the RIR and the [IRFA] should include a good qualitative discussion of the economic effects of the selected alternatives. Quantification of these effects is desirable, but the analyst needs to weigh such quantification against the significance of the issue and available studies and resources. Generally, a good qualitative discussion of the expected effects would be better than poor quantitative analyses.

The next two sections further describe the considerations and requirements of a RIR and IRFA.

2. REGULATORY IMPACT REVIEW CONSIDERATIONS AND REQUIREMENTS

NMFS requires the preparation of an RIR for all regulatory actions of public interest. The RIR provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives, so that public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses many of the items in the regulatory philosophy and principles of EO 12866.

The RIR is designed to determine whether the proposed action could be considered a significant regulatory action according to EO 12866. EO 12866 requires that an RIR assess whether an action would be a significant regulatory action and mandates that the RIR identify the expected outcomes of the proposed management alternatives. An action may be considered significant if it is expected to 1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3) materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the EO.

The RIR analysis includes a description of management objectives, a description of the fishery, statement of the problem, a description of each alternative considered in the analysis, and an economic analysis of the expected effects of each selected alternative relative to the no action alternative.

3. INITIAL REGULATORY FLEXIBILITY ANALYSIS CONSIDERATIONS AND

REQUIREMENTS

The RFA, 5 U.S.C. 603 et seq., requires government agencies to assess the effects that regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those effects. When an agency proposes regulations, the RFA requires the agency to prepare an IRFA that describes the impact on small businesses, non-profit enterprises, local governments, and other small entities and make the IRFA available for public comment. The IRFA is designed to aid the agency in considering all reasonable regulatory alternatives that would minimize the economic impact on affected small entities. Under the RFA, an agency does not have to conduct an IRFA and/or final RFA (FRFA) if an agency can certify that the proposed rule will not have a significant economic impact on a substantial number of small entities. To perform this certification, the agency has to state the basis and purpose of the rule, describe and estimate the number of small entities to which the rule applies, estimate economic impacts on small entities (by entity size and industry), and explain the criteria used to evaluate whether the rule would impose "significant economic impacts."

Under the RFA, the term "small entities" includes small businesses, small organizations, and small governmental jurisdictions.

Small businesses. The Small Business Administration has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts that do not exceed $4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all of its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $4.0 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. For marinas and charter/party boats, a small business is one with annual receipts that do not exceed $7.0 million.

Small organizations. The RFA defines a small organization as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000.

4. REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

4.1 Statement of the Problem, Including Reasons for Considering the Proposed Actions

This section summarizes the purpose and need for the proposed actions as discussed in Section 1.2 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.3 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

Despite a program completed in 2003 to buy back groundfish limited entry permits and associated vessels, management of the Pacific coast limited entry groundfish trawl fishery is still marked by serious biological, social, and economic concerns similar to those cited in the U.S. Commission on Ocean Policy's 2004 report, *An Ocean Blueprint for the 21st Century*. The trawl fishery is currently viewed as economically unsustainable due to the number of participating vessels (excess capacity), a regulatory approach that constrains efficiency, and the status of certain groundfish stocks, along with the measures in place to protect those stocks.

One major source of concern stems from the management of bycatch, particularly of overfished species. Over the past several years, the groundfish management efforts of the Council have been involved in drafting rebuilding plans for overfished species, minimizing bycatch, and specific management of overfished species.

As highlighted in the following problem statement that the Council sent out for public review in a June 2004 scoping document, these problems with capacity, economic inefficiency, and bycatch management are interconnected with problems related to the ability to achieve OY; the need for a precautionary management approach; and the need for a flexible system that allows for variations and contingencies, long-term and short-term concerns for communities, and safety. The problem statement is presented below:

> As a result of the legal requirement to minimize bycatch of overfished species, considerable harvest opportunity is being forgone in an economically stressed fishery. The west coast groundfish trawl fishery is a multi-species fishery in which fishermen exert varying and limited control of the mix of species in their catch. The optimum yields (OYs) for many overfished species have been set at low levels, placing a major constraint on the industry's ability to fully harvest the available OYs of the more abundant target species that co-occur with the overfished species, wasting economic opportunity. Average discard rates for the fleet are applied to project bycatch of overfished species. These discard rates determine the degree to which managers must constrain the harvest of target species that co-occur with overfished species. These discard rates are developed over a long period of time and do not rapidly respond to changes in fishing behavior by individual vessels or for the fleet as a whole. Under this system, there is little direct incentive for individual vessels to do everything possible to avoid take of species for which there are conservation concerns, such as overfished species. In an economically stressed environment, uncertainties about average

bycatch rates become highly controversial. As a consequence, members of fishing fleets tend to place pressure on managers to be less conservative in their estimates of bycatch. Given all of these factors, in the current system there are uncertainties about the accuracy of bycatch estimation, few incentives for the individual to reduce personal bycatch rates, and an associated loss of economic opportunity related to the harvest of target species.

The current management regime is not responsive to the wide variety of fishing business strategies and operational concerns. For example, historically the Pacific Council has tried to maintain a year-round groundfish fishery. Such a pattern works well for some business strategies in the industry, but there has been substantial comment from fishermen who would prefer to be able to pursue a more seasonal groundfish fishing strategy. The current management system does not have the flexibility to accommodate these disparate interests. Nor does it have the sophistication, information, and ability to make timely responses necessary to react to changes in market, weather, and harvest conditions that occur during the fishing year. The ability to react to changing conditions is a key factor in conducting an efficient fishery in a manner that is safe for the participants.

Fishery stock depletion and economic deterioration of the fishery are concerns for fishing communities. Communities have a vital interest in the short-term and long-term economic viability of the industry, the income and employment opportunities it provides, and the safety of participants in the fishery.

In summary, management of the fishery is challenged with the competing goals of: minimizing bycatch, taking advantage of the available allowable harvests of more abundant stocks, increasing management efficiency, and responding to community interest. "Taking advantage of the available allowable harvests" includes conducting safe and efficient harvest activities in a manner that optimizes net benefits over both the short and long term.

In addition to problems specified in the problem statement, the two DEISs also deal with issues of foregone opportunities, stress within the management system, discard rates, and overfished species.

With respect to allocation of harvest opportunity between sectors of the Pacific Coast groundfish fishery, only long-term fixed allocations for Pacific whiting and sablefish north of 36° N latitude exist. Currently there are established procedures for any species to be formally allocated between commercial open access and limited entry sectors based on catch history for the license limitation allocation period. However, these are rarely implemented due to constraints imposed by management measures designed to rebuild overfished species. Allocating the available harvest of groundfish species and species complexes occurs in the Council process of deciding biennial harvest specifications and management measures; as such, these are considered short-term allocations. Amendment 21 makes a formal allocation between sectors for the majority of groundfish species, and it would, essentially, supersede these preexisting procedures in a single action.

4.2 Description of the Management Objectives and Legal Basis for the Proposed Actions

This section summarizes the management objectives for the proposed actions as discussed in Section 1.2 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.3 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

The purpose of the proposed rationalization of the Pacific coast groundfish limited entry trawl fishery is outlined in the following goal and objectives:

Goal: Create and implement a capacity rationalization plan that increases net economic benefits, create individual economic stability, provide for full utilization of the trawl sector allocation, considers environmental impacts, and achieve individual accountability of catch and bycatch.

Objectives: The above goal is supported by the following objectives:

1. Provide a mechanism for total catch accounting.
2. Provide for a viable, profitable, and efficient groundfish fishery.
3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts.
4. Increase operational flexibility.
5. Minimize adverse effects from an individual fishing quota (IFQ) program on fishing communities and other fisheries to the extent practical.
6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.
7. Provide quality product for the consumer.
8. Increase safety in the fishery.

In summary, the trawl rationalization program is intended to increase net economic benefits, create individual economic stability, provide full utilization of the trawl sector allocation, consider environmental impacts, and achieve individual accountability for catch and bycatch.

The purposes of the proposed allocation of harvest opportunity between sectors of the Pacific coast groundfish fishery are as follows:

1. To simplify or streamline future decisions by making formal allocations of specified groundfish stocks and stock complexes. If approved, formal allocations would be fixed and do not have to be decided through every biennial process or developed indirectly through the structure of management measures.
2. To support rationalization of the Pacific coast groundfish limited entry trawl fishery. Long-term, formal allocations of Amendment 21 groundfish species to the limited entry trawl sectors would provide more certainty to these sectors by reducing the risk that these sectors would be closed because of other non-trawl sectors exceeding their allocation. Such certainty will be especially important under the proposed IFQ and harvest co-operative systems proposed under the trawl rationalization program, because it would

make it easier for fishermen to make long-range planning decisions based on the allocation of harvest privileges. In addition, supporting rationalization of the limited entry trawl fishery, which would require individual accountability of catch and bycatch, would improve overall total catch accounting of groundfish species by the group with the largest amounts of groundfish catch, the trawl sector. While allocations could be made biennially to support trawl rationalization, this would be a more difficult and controversial process than making those decisions in advance.

3. To limit the bycatch of Pacific halibut in future limited entry trawl fisheries. The proposed action would place a total catch limit on Pacific halibut with the intent of further minimization of Pacific halibut bycatch in Area 2A trawl fisheries. The action would be consistent with the MSA mandate to minimize bycatch and would provide increased benefits to Area 2A fishermen targeting Pacific halibut.

The introductory paragraphs in Section 1.1 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 1.1 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS* provide information on the legal basis for the proposed actions. The trawl rationalization program would be a limited access privilege program (LAPP) under the MSA, 16 U.S.C. §§ 1851–1891d, as reauthorized in 2007.

4.3 Description of Each Selected Alternative, Including the No-action Alternative

The term "selected alternatives" refers to the alternatives NMFS determined will be analyzed in the RIR and IRFA. The selected alternatives for this RIR and IRFA are the no action alternative and the Council's preferred alternative. The effects of the other action alternatives that were not selected are analyzed in the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS.*

4.3.1 No Action Alternative

The analysis of the no action alternative describes what is likely to occur in the absence of the proposed action. It provides a benchmark against which the incremental effects of the proposed action can be compared. This section summarizes the description of the no action alternative presented in Section 2.1 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 2.1.1 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS.*

Under the no action alternative, the current, primary management tool used to control the Pacific coast groundfish trawl catch—a system of two-month cumulative landing limits for most species and season closures for Pacific whiting—would continue. Only long-term fixed allocations for Pacific whiting and sablefish north of 36° N latitude would exist—all other groundfish species would not be formally allocated between the trawl and non-trawl sectors. Allocating the available harvest of groundfish species and species complexes would occur in the Council process of deciding biennial harvest specifications and management measures and, as such, would be considered short-term allocations.

4.3.2 Preferred Alternative

This section summarizes the description of the preferred alternative presented in Section 2.4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 2.1.6 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

Table 1 provides an overview of the elements of the trawl rationalization program under the preferred alternative. The existing shoreside whiting and shoreside non-whiting sectors of the Pacific Coast groundfish limited entry trawl fishery would be managed as one sector under a system of IFQs, and the at-sea whiting sectors of the fishery (i.e., catcher-processor sector and mothership sector, which includes motherships and catcher vessels) would be managed under a system of sector-specific harvesting co-ops. The catcher-processor sector would continue to operate under the existing, self-developed co-op program entered into voluntarily by that sector. A distinct set of groundfish species and Pacific halibut would be covered by the rationalization program.

Table 1. Summary of elements under the no action alternative and preferred alternative for trawl rationalization program.

Element	No-action Alternative	Preferred Alternative
Catch Control Tool	two-month cumulative trip limits for non-whiting trawl sector	IFQ program for shoreside whiting and non-whiting trawl sectors (trip limits for non-IFQ species)
	Seasonal management for whiting trawl sector	Harvesting co-operatives for at-sea whiting sector
Initial Allocation and Qualification	None	For shoreside fisheries for use 1994 to 2003 catch history Equal sharing of 1994 to 2003 buyback history in non-catcher-processor sectors (except the incidentally caught overfished species other than canary)
		Rebuilding stocks and halibut allocated on a bycatch rate/pro-rata
		Mothership catcher vessel endorsement and allocation based on 1994 to 2003 catch history; Mothership permit: at least 1,000 mt in two years from 1997 to 2003
Accumulation Limits	None	Shoreside non-whiting sector: 2.7% control limit and 3.2% vessel use limit
		Shoreside whiting sector : 10% control limit and 15% per vessel limit
		Mothership sector: Cannot process more than 45%
		Mothership catcher vessel sector: 20% control limit and 30% usage limit
		Catcher-processor sector: none

Table 2 cont. Summary of elements under the no action alternative and preferred alternative for trawl rationalization program.

Element	No-action Alternative	Preferred Alternative
Grandfather clause	None	None, but entities must divest overage QS at the end of year four
Processor Initial Allocation / Co-op Affiliations	None	Annual mothership declaration requirement
		20% shoreside processor allocation of shoreside whiting
		No processor allocation of non-whiting groundfish
Species Covered	All groundfish	Select groundfish species and Pacific halibut in shoreside sector
		Select groundfish species in at-sea sector; At-sea sector bycatch is allocated at co-op level
Number of Trawl Sectors	Four	Three
Adaptive Management	None	10% QS set aside for shoreside non-whiting groundfish species
Area Management	Trip limits vary by area; main split at $40^0$10' N latitude	None
Carry-over	None	Carryover exists; allowance decreases if OY declines
Permits	Limited Entry, Pacific Whiting Vessel License	Limited entry, mothership permit, catcher-processor endorsement, mothership catcher vessel endorsements

At the start of the IFQ program, quota shares (QS) would initially be allocated to fishery participants based on catch/processing history during a catch history qualification period, 1994 to 2003. After the first two years of the program, shareholders will be free to buy and sell the QS thus distributed. QS represent a proportion, or percent, of the total allowable catch (which is called the optimum yield [OY]in groundfish management) of different groundfish stocks. Each year, these shares are converted from a percent to a quantity by issuing QP based on the OYs/annual catch limits established for the year. The amount of groundfish caught by a limited entry trawl vessel, even if it is subsequently discarded, must be matched by an equivalent quantity of QP. The QP is expended in this way, with the matched amount deducted from the vessel's account.

Harvesters in the shoreside sector would receive all the initial allocation of non-whiting QS (minus any amount held back for the adaptive management program in future years) and 80 percent of whiting QS. Processors in the shoreside sector would receive the remaining 20 percent of whiting QS.

Both QS and QP would be perfectly divisible and tradable. However, to prevent a particular individual, corporation, or other entity from acquiring an excessive QS, accumulation limits

would restrict the amount of QS any single entity may hold or control (the control limit) and the amount of QP that can be placed on a vessel during a given year to cover catch (the vessel limit). These limits would vary between whiting and non-whiting groundfish. For mothership catcher vessels, a usage limit would act similar to a vessel limit. The preferred alternative includes a two-year moratorium on QS sales, followed by a two-year period over which entities receiving an initial allocation of QS in excess of the limits can and must divest their excess QS to any willing receiver.

An adaptive management program that would reserve 10 percent of non-whiting QS for the shoreside sector could be used to address a variety of objectives, such as creating incentives for bycatch reduction and use of habitat-friendly gear, mitigating adverse impacts to processors and fishing communities, and helping second generation fishermen/new entrants. During the first two years of implementation of the preferred alternative, the adaptive management QP would be passed through to QS holders in proportion to their holdings. Allocations of other species' QP under the program would begin in the third year, based on further specification of adaptive management program objectives and mechanisms.

These regulations would modify the existing limited entry permit system and would replace the Pacific whiting vessel license system with a series of endorsements. In 2009, NMFS implemented Amendment 15, which required a Pacific whiting vessel license for any vessel participating in either the shorebased or at-sea whiting fisheries. These licenses were issued to limit the number of vessels in the whiting fishery based on participation history in these fisheries. Under the trawl rationalization program, the Pacific whiting vessel licenses will permanently expire and will be replaced by a new mothership permit and new catcher/processor and mothership catcher vessel endorsements for existing Pacific Coast limited entry permits. [Although the Pacific whiting vessel license restricts what vessels can participate in the whiting fishery, these new endorsements convert the at-sea fisheries into a series of limited entry fisheries with tradable permits and endorsements.]

For the mothership catcher vessels, the years 1994 to 2003 would be used for endorsement qualification, and the best 8 out of 10 years from 1994 to 2003 would be used for catch history assignment. Mothership catcher vessels would be required to declare which co-op they will join before the beginning of the fishing year. They would then be obligated to assign their catch to the associated mothership processor for that fishing season. In any subsequent year, they could change their affiliation without first participating in the non co-op fishery through the pre-season declaration. Provision for a non co-op fishery would still be included in the program structure. Any vessel not wishing to affiliate with a co-op could participate in the non co-op fishery and deliver to any willing mothership processor. Since the catcher-processor sector would continue to operate as a single voluntary co-op, catch history assignment is unnecessary; the co-op would have access to the full sector allocation. Should the catcher-processor co-op fail because, for example, the co-op does not manage harvest such that allocations are repeatedly exceeded, the catcher-processor sector would be managed under a system of IFQs, and an equal amount of QS would be issued to each permit with a catcher-processor endorsement.

Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented and matched against QP. The Council specified that

observers would be required on all vessels, and shoreside monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly nonwhiting shoreside vessels. As a result, more accurate estimates of total mortality would be expected to benefit stock conservation goals, as well as other goals discussed herein.

Amendment 20 would require NMFS-certified, at-sea observers on each vessel. These include shoreside catcher vessels, mothership catcher vessels, mothership processors, and catcher-processors. Because this is a new program, ensuring adequate observer coverage would be particularly important for monitoring the complex suite of allocations. Observers aboard vessels would be required to account adequately for catch and bycatch in the fishery. Among his or her duties, the observer would record fishing effort and estimate total, retained, and discarded catch weight by species; determine species composition of retained and discarded catch (non-whiting vessels) and document the reasons for discard; record interactions and sightings of protected species; take biological samples from tagged fish and discards, and estimate viability of Pacific halibut. Observers would be essential to monitor IBQ in the fishery, including IBQ weighing and discarding.

An increase in observer and catch-monitoring coverage requirements would result in increased costs over the status quo observer program costs. There would be a combined status quo, pay-as-you-go industry funding, and an agency-funded observer and catch monitor system, as required for each sector. The agency has announced its intent, subject to available Federal funding, that participants will initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors will be increased every year so that, by 2014, once the fishery has transitioned to the rationalization program, the industry will be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry funding will enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

Amendment 20 would require that first receivers—shoreside processors and other entities that receive groundfish from IFQ harvesters—sort, weigh, and report all landings of IFQ species under a catch monitoring plan. First receivers will be required to hire NMFS-certified catch monitors to verify all shoreside deliveries of IFQ species; ensure that species are sorted according to Federal species of species group; ensure that the fish are weighed on periodically tested, state-certified scales; and record and submit catch data daily.

To ensure that the QP program goals are met and landings are tracked, first receivers will be required to submit electronic fish tickets using software provided by the Pacific States Marine Fisheries Commission. Further, vessels will be required to continue to use vessel monitoring systems for purposes of indicating location of the vessels and to make declarations. In addition, there are plans to develop and require an electronic vessel logbook, but this component will not be immediately implemented.

To ensure that program goals to track transferrable QS and QP are met, NMFS is also developing

an online accounting system for the tracking and trading of QS by owner and for the tracking, trading, and use of the QP that result from these quota shares by vessels.

The preferred alternative for the proposed allocation of harvest opportunity between sectors of the Pacific coast groundfish fishery is as follows:

- Make long-term, formal allocations of the following species between the non-treaty limited entry trawl sectors and non-treaty, non-trawl sectors: lingcod, Pacific cod, sablefish south of 36^0 N latitude, Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of $40^0$10' N latitude, shortspine thornyhead (north and south of $34^0$27' N latitude), longspine thornyhead north of $34^0$27' N latitude, darkblotched rockfish, minor slope rockfish (north and south of $40^0$10' N latitude), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish.
- Determine a scheme for an initial shoreside trawl sector allocation to the shoreside whiting and shoreside non-whiting sectors of above species other than darkblotched rockfish, Pacific ocean perch, and widow rockfish, as well as sablefish north of 36^0 N latitude.
- Apportion the limited entry trawl allocation of darkblotched rockfish, Pacific ocean perch, and widow rockfish to the four current trawl sectors (shoreside non-whiting, shoreside whiting, at-sea whiting mothership, and at-sea whiting catcher-processor).
- Consider yield set-asides to accommodate the projected bycatch of above species other than darkblotched rockfish, Pacific ocean perch, and widow rockfish by the two at-sea whiting trawl sectors (motherships and catcher-processors).
- Determine a total catch limit of Pacific halibut in Area 2A trawl fisheries to limit the future bycatch of this prohibited trawl species.

4.4 Description of the Fishery and All Affected Entities, Including the Small Entities to Which the Proposed Actions Apply

This section summarizes stakeholder profiles presented in Chapter 3 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS* and Section 3.4 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery DEIS*.

4.4.1 Description of the Fishery

The Pacific Coast groundfish fishery as a whole comprises several different major sectors, defined by fishing gear, species targeted, and regulatory context. In addition to the limited entry trawl fleet, there are open access and the fixed gear fleets. Recreational fishermen also harvest groundfish. For the limited entry trawl fleet, the list of current target species includes flatfish, roundfish, thornyheads, and a few species of rockfish. Primary flatfish target species include petrale sole and Dover sole. Roundfish target species include Pacific whiting, Pacific cod, and sablefish. Some rockfish species, especially Pacific ocean perch and widow rockfish, were important trawl targets until the mid 1990s. However, seven rockfish species are currently declared overfished under the MSA. The need to rebuild these stocks to a healthy size has led to various harvest constraints on groundfish fisheries, and rockfish are generally no longer a target

of these fisheries.

The groundfish trawl fishery is subject to a license limitation program (referred to as limited entry) implemented in 1992. Groundfish fixed-gear fisheries—using longline and pot gear—are managed under a complementary limited entry program. Most of the Pacific coast commercial groundfish harvest occurs in the limited entry fisheries. Some retention of groundfish is allowed without a limited entry permit; these vessels comprise the open access sector. The gears used by the open access sector include longline, vertical hook and line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl gears.

The limited entry trawl fishery is divided into two broad sectors: a multispecies trawl fishery, which most often uses bottom trawl gear (hereafter called the non-whiting fishery), and the Pacific whiting fishery, which uses midwater trawl gear. The non-whiting fishery is principally managed through two-month cumulative landing limits along with closed areas to limit overfished species bycatch.[1] Fishery participants target the range of species described above with the exception of Pacific whiting. By weight, the vast majority of trawl vessel groundfish is caught in the Pacific whiting fishery. In contrast, the non-whiting fishery accounts for the majority of limited entry trawl fishery ex-vessel revenues. On average from 2000 to 2005, Pacific whiting accounted for about 75 percent of the quantity of groundfish landed in the limited entry trawl fishery but only 21 percent of the value due to their relatively low ex-vessel price.

Non-whiting trawl vessels deliver their catch to shoreside processors and buyers located along the coasts of Washington, Oregon, and California. They tend to have their homeports located in towns within the same general area where they make deliveries, though there are several cases of vessels delivering to multiple ports during a year. Some Pacific whiting trawl vessels are catcher-processors, which, as their name implies, process their catch on board, while other vessels in this sector deliver their catch to shoreside processors or motherships that receive Pacific whiting for processing, but do not directly harvest the fish.

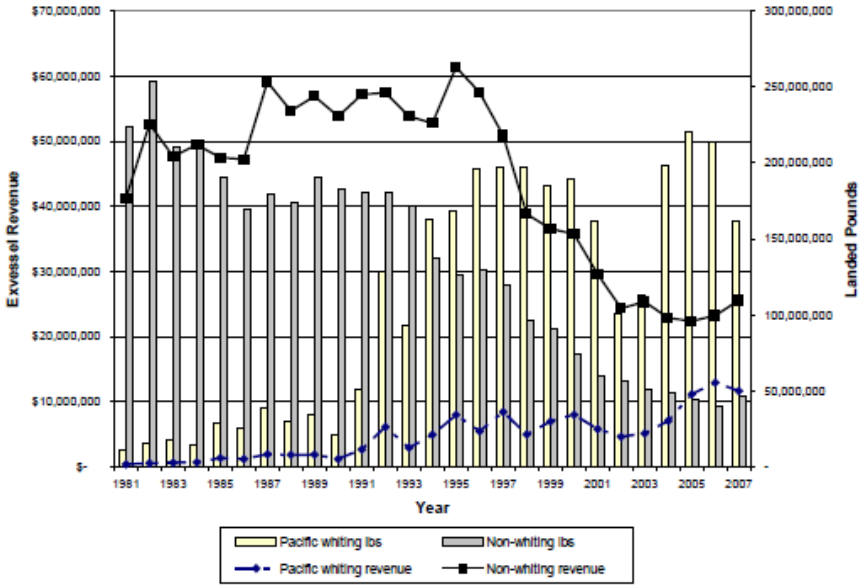
Over time, landings in the limited entry trawl fishery have fluctuated, especially on a species-specific basis. Pacific whiting has grown in importance, especially in recent years. Through the 1990s, the volume of Pacific whiting landed in the fishery increased. In 2002 and 2003, landings of Pacific whiting declined due to information showing the stock was depleted and the subsequent regulations that restricted harvest in order to rebuild the species. From 2003 to 2007, estimated Pacific whiting ex-vessel revenues averaged about $29 million. In 2008, these participants harvested about 248,000 tons of whiting worth about $63 million in ex-vessel revenues based on shoreside ex-vessel prices of $254 per ton—the highest ex-vessel revenues and prices on record. In comparison, the 2007 fishery harvested about 224,000 tons worth $36 million at an average ex-vessel price of about $160 per ton.

While the Pacific whiting fishery has grown in importance in recent years, harvests in the non-whiting component of the limited entry trawl fishery have declined steadily since the 1980s. Ex-

1 The non-whiting fishery currently uses bottom trawl gear exclusively. However, in the past there have been fisheries targeting widow rockfish and other rockfish species with midwater gear. Due to the need to limit catches of overfished species, these fisheries have been closed. However, once overfished species stocks are rebuilt, the fisheries could reopen.

vessel revenues in the fishery peaked in the mid 1990s at over $60 million. Following the passage of the Sustainable Fisheries Act (1996) and the listing of several species as overfished, harvests became increasingly restricted, and landings and revenues declined steadily until 2002. Since 2002, ex-vessel revenues have stabilized at around $23 to $27 million per year (Figure 1). In 2007, the Council estimates that 159 trawlers landed 94,000 mt of groundfish, earning $37 million in ex-vessel revenues, for an average of $234,000 per vessel.

Figure 1. Shoreside landed pounds and ex-vessel revenue from whiting and non-whiting groundfish caught using trawl gear.



Limited entry trawl vessels make most of their landings in Oregon. During the 2004 to 2006 period, the Oregon ports that received the largest amounts of landed weight and revenue were Newport, Astoria, and Charleston/Coos Bay, Oregon. Eureka, Fort Bragg and Crescent City, California; Brookings, Oregon; and Bellingham Bay, Blaine and Neah Bay, Washington comprise the remaining top 10 largest ports for trawl vessel landings. Non-whiting landings and revenues by non-tribal trawlers in Oregon are significantly larger than the other two states. A detailed description of west coast fishing communities and their economic dependence on the groundfish fishery is found in the *Final Environmental Impact Statement for Biennial Harvest Specifications and Management Measures* (PFMC and NMFS 2009).

Non-whiting trawl vessels deliver their catch from targeted trips to 63 shoreside processing companies located in all three Pacific coast states. Thirty-six to forty-six of these companies received non-whiting groundfish in any one year from 2004 to 2006. There are few major non-whiting groundfish processing centers on the Pacific coast. Only seven cities processed more than 1 percent of coast wide landings, and the largest processing center, Astoria, Oregon, accounted for more than two-thirds of processing activity by weight of landed fish. In 2008, Pacific whiting trawl vessels landed their catch at 16 first receivers located in ports in all three states. Between 8 and 16 of these companies received whiting in any one year from 1997 to 2008. Since processing Pacific whiting requires specialized equipment, most whiting processing plants process whiting only.

Limited entry fixed gear vessels use longline and fish pots (traps) to target groundfish. Limited entry fixed gear vessels principally target sablefish. Limited entry fixed gear vessels may also participate in open access fisheries or in the limited entry trawl fishery. Directed open access vessels use various non-trawl gears to target particular groundfish species or species groups. Longline and hook and line gear are the most common open access gear types used by vessels directly targeting groundfish and are generally used to target sablefish, rockfish, and lingcod. Pot gear is used for targeting sablefish, thornyheads and rockfish. Like the limited entry trawl fleet, limited entry fixed gear vessels and directed open access vessels deliver their catch to ports along the Washington, Oregon, and California coast.

In addition to commercial and tribal participants, state-managed recreational fisheries harvest groundfish. These recreational fisheries are managed by a series of seasons, area closures, and bag limits. Recreational groundfish fisheries occurring off the Pacific coast accounted for about 22 percent of all recreational anglers and 12 percent of trips.

Recreational fishing is an important economic contributor to the Pacific coast in general, and to some communities specifically. The recreational fishing fleet is composed of charter and private vessels. The private fleet typically consists of vessels owned by residents living in or near areas where they fish. The charter boat fleet is a for-hire fleet that plays a large role in the tourism sector of many Pacific coast communities. Opportunities to fish on a charter vessel can be a substantial draw for tourists considering a visit to the coast. The distribution of resident and non-resident ocean anglers among the Pacific coast states in 2000, 2001, and 2002 demonstrates the geographic importance of recreational fishing. Southern California has more than twice the number of resident recreational marine anglers than the next most populous region, Washington State. While most of the recreational anglers are residents of those states where they fish, a significant number of anglers are also non-residents. Oregon had the largest percentage of non-resident ocean anglers in all three years.

About 525 charter boats made up the charter boat fleet in 2005. This is a decrease of almost 30 percent from the 753 charter vessels estimated in the Council's 2005/2006 Groundfish Specifications EIS. Estimates of numbers of private boats are unavailable. Recreational fishing in the open ocean generally declined slightly between 1996 and 2003; however, charter effort decreased while private effort increased during that period. Part of this increase likely resulted from longer salmon seasons associated with increased abundance during the period.

The Makah, Quileute, Hoh, and Quinault Tribes off the Washington coast participate in tribal commercial, ceremonial, and subsistence fisheries for groundfish according to their treaty rights. Participants in the tribal commercial fishery use gear similar to non-tribal commercial fisheries operating off Washington. Groundfish caught in the tribal commercial fishery is typically sold through the same markets as non-tribal commercial groundfish catch. The harvest of the four tribes is taken into account when OYs are established. For a few species (sablefish and whiting, for example) a share of the OYs for groundfish species taken in their fisheries is explicitly allocated. For most species, expected tribal harvest levels are taken into account in setting regulations for other sectors, but there is no allocation to the tribes. For those species allocated to the tribes, and for other species for which expected harvest levels are identified, the tribes

oversee the prosecution of their fisheries separate from the management of other groundfish fishery sectors.

4.4.2 Estimate of the Number of Small Entities to Which the Proposed Action will Apply

The following discussion provides information on the number of small and large businesses that participate in the Amendment 20 Trawl Rationalization Programs. Information from the following sources was reviewed, in addition to information found in the Amendment 20 DEIS, other Council documents, and industry publications (these publications are used to assess size as well as affiliations):

- NMFS NWFSC Survey of Limited Entry Trawlers (ex-vessel revenue estimates)
- NMFS Annual Process Product Survey (employment estimates)
- Pacific States Marine Fisheries Commission Pacific Fishery Information Network—Processor/First Receiver purchases of groundfish from limited entry trawlers (ex-vessel revenues)
- NMFS NWR Ownership Survey (respondents classify themselves as large or small)

The NMFS Northwest Fisheries Science Center surveyed limited entry trawlers that delivered to shoreside plants or to motherships in 2004. [The survey did not include catcher processors or motherships.] These sources paint slightly different but consistent pictures of the size of the participants. The discussion provides two perspectives—one that addresses the entities affected by the intersector allocation decisions of Amendment 21 (all major fishing groups that harvest groundfish) and another that address the groups affected by implementation of the trawl rationalization program (shorebased processors, shorebased trawlers, mothership processors and catcher vessels, and catcher-processors).

Amendment 21 Analysis:

Amendment 20 directly regulates the groundfish trawl, mothership, and catcher-processor fleets and shorebased trawl groundfish processors whereas Amendment 21 affects not only those groups, but the other groundfish fleets—fixed gear and open access because of the allocation rules. These businesses are associated with vessels that either target groundfish or harvest groundfish as bycatch (including vessels that participate in the limited entry (trawl and fixed gear), open access, or charter boat portion of the groundfish fishery), or are associated with processors and buyers of groundfish (including shoreside and at-sea processors). These rules also affect companies that own and fish the limited entry trawl permits and the companies that lease these permits.

NMFS NWR issued 399 limited entry permits at the beginning of 2010. These permits include 177 endorsed for trawl (172 trawl only, 4 trawl and longline, and 1 trawl and trap-pot); 199 endorsed for longline (191 longline only, 4 longline and trap-pot, and 4 trawl and longline); 32 endorsed for trap-pot (27 trap-pot only, 4 longline and trap-pot, and 1 trawl and trap-pot). Of the longline and trap-pot permits, 164 are sablefish endorsed. Of these endorsements, 117 are stacked on 45 vessels. Because not all affected groups operate under the Federal limited entry permit, a review of participation in groundfish fisheries based on actual harvests provides a broader perspective.

Chapter 3 of the DEIS provides the following estimates. In 2007, there were six motherships supplied by 20 mothership catcher vessels with many vessels also delivering shoreside. Nine catcher-processors also fished and processed. About 159 trawlers fished in either the limited entry or open access fisheries. The limited entry fixed gear fleet was composed of 130 hook and line vessels and 20 pot vessels. The open access fleet is composed of several gear types—644 hook and line vessels, 57 net vessels, 180 pot vessels, 151 salmon troll vessels, and 32 trawlers. From 2004 to 2006, there were 63 different first receivers of trawl-caught groundfish. During 2007, 14 first receivers purchased whiting from 37 shorebased trawlers.

Although not directly regulated by these rules, tribal fleets participate in this fishery. According to Chapter 7 of the 0910 Groundfish Specifications EIS, the tribal fleet consists of approximately 66 vessels: longline (52), whiting trawl (4), and non-whiting trawl (10). The 2009 Review of Ocean Salmon Fisheries indicates that there were 465 salmon charterboats. These are presumed to be vessels that also will fish for groundfish. In 2007, 142 vessels were issued halibut licenses. Therefore, this rule affects an estimated 2000 business entities—permit holders, vessels, and first receivers that would be directly regulated by the proposed rule. No small organizations or small governmental jurisdictions would be directly regulated by the proposed actions. Although not directly regulated by this proposed rule, approximately 20 fishing communities that range from small towns to major cities are indirectly affected by this rule because of the potential reduction in the number of first receivers/processors and limited entry trawlers, as well as resulting changes in where fish is landed to be processed. In general, these 2,000 entities are presumed to be small with the exceptions noted below based on various analyses.

Non-Trawl Sectors—The following discussion provides small business estimates for groundfish fishery participants that are affected by Amendment 21's allocation policies, but do not qualify

to participate in Amendment 20's trawl rationalization programs. NMFS has very limited information on the companies associated with the following fleets However, it is expected that these companies (unless these vessels are owned or affiliated with large entities), are most likely to be classified as small companies based on average annual ex-vessel revenues that are far below the $4.0 million level. In 2007, the average limited entry fixed gear hook and line vessel earned $88,000 in groundfish revenues; limited entry fixed gear pot vessels earned about $200,000 in groundfish revenues, and the average open access vessel earned about $7,000 in groundfish revenues. Most of the 1,100 open access vessels target other fisheries. In 2007, salmon trollers averaged $11,000 in salmon revenue per vessel, shrimp trawlers $157 million in shrimp revenues, crab pot vessels $157,000 in crab revenues, and purse seiners $269,900 in coastal pelagic species revenues.

Current revenues for charterboats are unavailable. However, the Pacific States Marine Fisheries Commission surveyed approximately 12 percent of the charter and head boats licensed to operate in California, Oregon, and Washington on their 2000 operations. Vessels were categorized according to the region in which they were home ported: southern California (for homeports from the Mexican border to Point Conception), northern California (for homeports north of Point Conception to the Oregon border), Oregon, and Washington. Vessel size class was defined in terms of vessel length: "small" for lengths of 15 to 30 feet, "medium" for lengths of 31 to 49 feet, and "large" for lengths greater than 49 feet. The estimates of average revenues from all types of recreational activities, including fishing and whale watching charterboat estimates, ranged from $7,000 for small Oregon vessels, $131,000 for medium Washington vessels, $184,000 for large Northern California vessels, and $770,000 for large Southern California vessels, the largest in the coastal fleet. These estimates confirm that that those charterboats most likely to fish for groundfish qualify as small entities.

Amendment 20 Analysis:

NWFSC Survey: During 2004, 116 limited entry trawlers fished on the West Coast, but did not participate in the whiting fishery during 2004. Of these 116 limited entry trawlers, 71 responded to the NWFSC's cost-earnings survey. Among the 71 respondents, the average total revenue from all sources (west coast landings, Alaska landings, at sea deliveries, etc) was $368,271. None of the 71 respondents had revenue exceeding $2,000,000 in 2004. Twenty-six limited entry trawlers fished in the shoreside whiting fishery during 2004 (this figure does not include five limited entry trawlers that had positive whiting landings worth less than $2,500). Of these 26 vessels, the NWFSC received 19 responses to the cost earnings survey. Adding all sources of revenue collected by the cost earnings survey (revenue from landings in locations other than the west coast, at-sea deliveries, and other sources of revenue) to west coast landings revenue reported in PacFIN shows that these 19 vessels had average revenue of $971,871from all sources. Of the 19 survey respondents, the three vessels with the greatest total revenue all earned between $1.7 million and $1.8 million during 2004.

Of the seven limited entry trawl vessels that fished as catcher vessels for motherships in the at-sea whiting fishery and did not have any west coast landings, none had revenue exceeding $4,000,000. These seven vessels had average revenue of $1,624,488 million, and one vessel had revenue of $3.6 million. Of the five limited entry vessels that fished as catcher vessels for

motherships in the at sea whiting fishery and made shoreside whiting landings in 2004, none had revenue over $4 million in 2004. The five vessels had average revenue of $1,554,283 and included three vessels with revenue of $1.7 million to $1.8 million (the same three vessels as noted in the response to the previous question).

Annual Processed Products Survey-Employment Estimates for 2009: This voluntary survey was sent to primary processors and secondary processors in Oregon and Washington, 11 companies of which were primary processors of groundfish. Respondents to this survey, among other things, are to provide monthly estimates of employment. Only one of the shorebased processors reported employing more than 500 employees in any one month. Three of these processors are associated with the same parent company, and, collectively, these companies employ more than 500 employees. Therefore, out of nine companies in Oregon and Washington, seven companies are small and two are large. Catcher-processor and mothership companies were also surveyed. These vessels employ from 100 to 140 employees per vessel.

Chapter 3 of the Amendment 20 DEIS: Processing companies are not necessarily first receivers—they may process fish initially delivered to a buyer who then sells the fish to the processor. The Pacific Fishery Management Council staff indicates that from 2004 to 2006 (Table 3-53 DEIS), 63 shoreside companies received non-whiting. In 2008, 6 companies were first receivers of whiting for a total of 69 companies that received groundfish from 2004 to 2008. Three of these companies have multiple state operations (Table 3-42 DEIS). The companies that receive nonwhiting vary widely in terms of the volume received. Nearly 70 percent, or 44 companies, received fewer than 50 mt during the three-year period (Table 3-45 DEIS). A large proportion of these companies receives but does not process nonwhiting; they include restaurants, wholesalers and retailers, or distributors. Of the remaining 19 companies that received more than 50 mt, only 7 received more than 1,000 mt. One received more than 5,000 mt, and one received more than 20,000 mt. The companies that receive whiting also vary widely in terms of the volume received. Five firms received more than 10,000 mt each during the period, including three with more than 30,000 mt. At the other end of the scale, 4 of the 13 firms received less than 1,000 mt during the period (Table 3-38 DEIS).

PSMFC PacFIN—Small Purchaser Analysis: NMFS reviewed the 2008 and 2009 purchases of limited entry trawl groundfish by first receiver. The results for both years are similar, so only the 2008 results are discussed. In 2008, 75 first receivers purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000), 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000), and 13 large purchasers (purchases greater than $1.0 million). When the trawl rationalization program is implemented, to continue buying limited entry trawl groundfish, these purchasers will have to obtain a processor site license that includes requirements to submit electronic fish tickets, provide a catch monitoring plan, and schedule a catch monitor. Assuming that a catch monitor costs $350 per day and assuming that the start-up costs of applying for a license, developing a plan, and obtaining the electronic fish ticket software are an additional $350, the total initial start-up cost is about $700. [Note that, in the first few years, the costs of catch monitors will be subsidized in part by NMFS.] Further assuming that undertaking these steps only makes financial sense if the start-up cost is less than 0.5 percent of the groundfish purchased, than a processing site /first receiver would have to

purchase about $140,000 to break even financially based on these assumptions. Therefore, many of the 36 small purchasers are likely to stop purchasing groundfish from limited entry trawlers as a result of this program. Five of these small purchasers bought less than $10,000 worth of limited entry trawl groundfish. The majority of these small purchasers were not major purchasers of other fish (21 of these small purchasers bought less than $150,000 of fish [groundfish and non-groundfish] in total with 14 of these first receivers, purchasing less than $10,000 in limited entry trawl groundfish). This is not to say that all of these purchasers will go out of business as result of these rules. NMFS does not know how dependent these businesses are on groundfish because the agency does not have data on all sources of income (fishery and non-fishery) of these first receivers. In addition, these companies could make arrangements to purchase fish from another company that has obtained a processing site license or groundfish harvested by fixed gear.

NMFS Ownership Survey: The NMFS Northwest Regional Office is in the final stages of completing a voluntary ownership survey. Respondents to this survey were asked if they consider themselves small businesses or non-profit organizations based on the definitions above. In February 2009, this form was sent to the 177 limited entry permit holders and associated vessels (approximately 150 vessels—not all permits have vessels attached to them.) This form was also sent to the six mothership processors who have Pacific whiting vessel licenses and to the 14 first receiver/shorebased processors who hold 2009 first receiver whiting exempted fishery permits. Thirty-three limited-entry permit holders, thirty-six trawlers, 1 mothership processor, and six shorebased whiting first receivers/processors have yet to respond to this survey. Based on this survey, review of available information on those companies who have yet to respond or on those few companies who responded to the survey but did not respond to the small business question, the following characterization of the industry is provided. The nine limited entry trawl permits that are associated with the catcher-processor vessels are considered large companies. [According to the Pacific Whiting Conservation and Whiting Co-operative website, www.pacificwhiting.org, the catcher-processor fleet is made up of three companies that operate ten vessels. Of these companies, two have wholesale sales from whiting, Pollock, and other products that are at least $500 million—see the *Seafood Business Magazine* discussion below. The remaining company is assumed to be a large business because in addition to the two whiting catcher-processors operate off Alaska along with other company vessels.] Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large, shorebased processing company or with a non-profit organization that considers itself a large organization. Nine other permit owners indicated that they were large companies. Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Three of the six mothership processors are large companies. There are four large companies within the 14 shorebased whiting first receivers/processors.

Seafood Business Magazine (www.seafoodbusiness.com—archives): In the whiting fishery (at-sea and shoreside), many of the processing companies involved are closely affiliated with the 10 ten seafood suppliers with wholesale sales of ranging from about $500 to $1 billion. These companies tend to be involved with Alaska fisheries, and some have major foreign affiliations. [See "In the can: North America's seafood suppliers grow sales despite fears of an economic

downturn," May 5, 2008; and "Bottom Dollar: The Top 25 North American seafood suppliers had a strong 2008, but the future is in question," June 19, 2009]

Amendment 20 and Amendment 21 Summary Conclusion: NMFS makes the following conclusions based primarily on analyses associated with fish ticket and limited entry permit data, available employment data provided by processors, information on charterboat and tribal fleets, and available industry responses to ongoing surveysd on ownership. Entities were analyzed as to whether they were only affected by the Amendment 21 allocation processes—non-trawl—or if they were affected by both Amendments 20 and 21—(trawl). The non-trawl businesses are associated with the following fleets: limited entry fixed gear (approximately 150 companies), open-access groundfish (1,100), charterboats (465), and the tribal fleet (four tribes with 66 vessels).

Available information on average revenue per vessel suggests that all the entities in this group can be considered small. For the trawl sector, there are 177 trawl vessel permit holders. Nine limited entry trawl permits are associated with the catcher-processing vessels, which are considered large companies. Of the remaining 168 limited entry permits, 25 limited entry trawl permits are either owned or closely associated with a large shorebased processing company or with a non-profit organization that considers itself a large organization. Nine other permit owners indicated that they were large "companies." Almost all of these companies are associated with the shorebased and mothership whiting fisheries. The remaining 134 limited entry trawl permits are projected to be held by small companies. Available information suggests that the at-sea and shorebased processing sectors consists of few large firms, a few moderate-size firms, and a considerable number of small firms. Four of the six mothership processors are large companies. Within the 14 shorebased whiting first receivers/processors, there are four large companies, including, the shorebased whiting receivers, in 2008, 75 first receivers purchased limited entry trawl groundfish. There were 36 small purchasers (less than $150,000), 26 medium purchasers (purchases greater than $150,000 but less than $1,000,000), and 13 large purchasers (purchases greater than $1.0 million). Because of the costs of obtaining a processed processor site license, procuring and scheduling a catch monitor, and installing and using the electronic fish ticket software, these small purchasers will likely opt out of buying groundfish or make arrangements to purchase fish from another company that has obtained a processing site license.

4.5 Economic Analysis of the Expected Effects of Each Selected Alternative Relative to the No-action Alternative, Including the Costs of Compliance for Small Entities

The economic impacts of the selected alternatives are detailed in Chapter 4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery—Amendment 20 DEIS* (TRAT DEIS) and Chapter 4 of the *Allocation of Harvest Opportunity Between Sectors of the Pacific Coast Groundfish Fishery—Amendment 21 DEIS* (ISADEIS). The allocation of harvest opportunity between sectors under the preferred alternative does not differ significantly from the allocation made biennially under the no action alternative. The primary economic effect of the long-term, formal allocation under the preferred alternative is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery.

Expected Effects of Amendment 21—Intersector Allocation

The allocation of harvest opportunity between sectors under the proposed regulation does not differ significantly from the biennial allocation under the no action alternative. The primary economic effect of the long-term, formal allocation under the proposed regulations is to provide more certainty in future trawl harvest opportunities, which would enable better business planning for participants in the rationalized fishery. As described elsewhere, the trawl rationalization program could create an incentive structure and facilitate more comprehensive monitoring to allow bycatch reduction and effective management of the groundfish fisheries. In support of the trawl rationalization program, the main socioeconomic impact of Amendment 21 allocations is longer-term stability for the trawl industry. While the preferred Amendment 21 allocations do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

The economic effects of Amendment 21 arise from the impacts on current and future harvests. The need to constrain groundfish harvests to address overfishing has had substantial socioeconomic impacts. The groundfish limited entry trawl sector has experienced a large contraction, spurred in part by a partially federally subsidized vessel and permit buyback program implemented in 2005. This $46 million buyback program was financed by a congressional appropriation of $10 million and an industry loan of $36 million. About 240, groundfish, crab, shrimp permits were retired from state and Federal fisheries—there was a 35 percent reduction in the groundfish trawl permits. To repay the loan, groundfish, shrimp and crab fisheries are subject to landings fees. Follow-on effects of the buyback have been felt in coastal communities where groundfish trawlers comprise a large portion of the local fleet. As the fleet shrinks and ex-vessel revenues decline, income and employment in these communities is affected. Fishery-related businesses in the community may cease operations because of lost business. This can affect non-groundfish fishery sectors that also depend on the services provided by these businesses, such as providing ice and buying fish. An objective to the trawl rationalization program is to mitigate some of these effects by increasing revenues and profits within the trawl sector. However, because further fleet consolidation is expected, the resulting benefits are likely to be unevenly distributed among coastal communities. Some communities may see their groundfish trawler fleet shrink further as the remaining vessels concentrate in a few major ports.

Species subject to Amendment 21's allocations would be lingcod, Pacific cod, sablefish south of 36° N. lat., Pacific ocean perch, widow rockfish, chilipepper rockfish, splitnose rockfish, yellowtail rockfish north of 40° 10' N. lat., shortspine thornyhead (north and south of 34° 27' N. lat.), longspine thornyhead north of 34° 27' N. lat., darkblotched rockfish, minor slope rockfish (north and south of 40° 10' N. lat.), Dover sole, English sole, petrale sole, arrowtooth flounder, starry flounder, and Other Flatfish. While the preferred Amendment 21 allocations of these species do not differ significantly from status quo ad hoc allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery. This is the main purpose for the Amendment 21 actions.

Amendment 21 would formally allocate a subset of the harvest guideline to the four trawl sectors: SS (whiting and non-whiting), mothership, catcher vessel, and catcher-processor. With to the species subject to Amendment 21's allocations, this would leave the limited entry fixed gear, open access, and recreational fisheries in a pool that would divide the remaining HG (via the biennial specification process). [The open access component of the groundfish fishery consists of fishermen who target groundfish without limited entry permits and fishermen who target non-groundfish fisheries that incidentally catch groundfish.] In general, the allocations are based on catch history from 2003 to 2005 and the recommendations of the Groundfish Allocation Committee. The Council believed that a relatively recent catch period should form the basis for deciding sector allocations since discards during this period were better informed, and current management strategies, such as specification of rockfish conservation areas, are more likely in the near future. However, the Council made modifications for several species. For chilipepper rockfish south of 40º10' N. lat., Amendment 21 contains a higher non-trawl allocation. This is intended to provide greater non-trawl access to this healthy stock off California. Amendment 21 would not allocate longspine thornyhead south of 34° 27' N. lat. to the trawl fishery. Longspine thornyhead are an incidentally caught species south of 34° 27' N. lat., and the available yields are not projected to constrain any of the groundfish fisheries there that incidentally catch these fish. Amendment 21 would allocate a much higher percentage of the available yield of starry flounder to non-trawl sectors (50 percent) than recommended by the Groundfish Allocation Committee. The catch history of starry flounder is highly uncertain, but they are significantly caught in nearshore trawl fisheries and recreational fisheries on the West Coast. The Council thought a 50:50 trawl and non-trawl sharing of the available harvest of starry flounder was the fairest allocation. Amendment 21 includes a higher non-trawl allocation of species in the Other Flatfish complex than recommended by the Groundfish Allocation Committee (10 percent vs. 5 percent). While most of these species are dominant to the trawl fishery, there are some species, such as Pacific sanddabs, that are significantly caught in non-trawl fisheries. The Council believed a higher non-trawl share of the available harvest of Other Flatfish species would better preserve non-trawl fishing opportunities.

Based on ex-vessel revenue projections, Table 4-18 (ISADEIS) shows the potential 2010 yield to trawl and non-trawl (including recreational) sectors under the Amendment 21 alternatives and the potential 2010 value of alternative trawl allocations. Under the no action alternative, the projected ex-vessel value of the trawl allocation is $56 million, while the projected ex-vessel value of the Council's preferred alternative is $54 million—indicating a potential increase to the non-trawl sectors and a potential decrease to the trawl sector.

In addition to the species above, halibut would also be specifically allocated to the trawl fishery. The proposed regulations include a halibut trawl bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch and to allow harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce halibut bycatch and bycatch mortality. Pacific halibut cannot currently be retained in any U.S. or Canadian trawl fisheries per the policy of the IPHC. The Council's intent on setting a total catch limit of Pacific halibut in Area 2A trawl fisheries is to limit the bycatch and progressively reduce the bycatch from these limits to provide more benefits to directed halibut fisheries. The program establishes a limit for total Pacific halibut bycatch mortality (legal-size and sublegal fish) by using an IBQ in the trawl fishery. The initial amount for the first two years of the trawl

rationalization program would be calculated by taking 15 percent of the Area 2A total constant exploitation yield (CEY) as set by the International Pacific Halibut Commission (IPHC) for the previous year not to exceed 130,000 lbs per year for total mortality. For example, if the trawl rationalization program went into effect in 2013, the trawl halibut IBQ would be set at 15 percent of the Area 2A CEY adopted for 2012 or 130,000 lbs per year, whichever is less, for 2013 and 2014 (years one and two of the program). Beginning with the third year of implementation, the maximum amount set aside for the trawl rationalization program would be reduced to 100,000 lbs per year for total mortality. This amount may be adjusted downward through the biennial specifications process for future years.

Currently there are no total catch limits of Pacific halibut specified for the west coast trawl fishery. Trawl bycatch of Pacific halibut, therefore, does not limit the trawl fishery. It would apply a halibut bycatch reduction program in phases to provide sufficient time to establish a baseline of trawl halibut bycatch under the new rationalization program and for harvesters to explore methods (e.g., adjustments to time and/or area fished, gear modifications) to reduce both halibut bycatch and bycatch mortality. By limiting the bycatch of Pacific halibut in the limited entry trawl fisheries, Amendment 21 would control bycatch and could provide increased benefits to Washington, Oregon, and California fishermen targeting Pacific halibut. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

The Council's preferred alternative uses a halibut-abundance-based method for setting the initial trawl allocation by keeping it tied to a percentage of the CEY, but adds a maximum limit on the allocation amount. The initial limit is set at 130,000 lbs, which represents an approximate reduction of 50 percent from the total bycatch estimate provided by the Northwest Fisheries Science Center for the most recent year (2007) If the proposed regulations were applied to the total CEY in 2007 and compared to the actual mortality recorded for 2007, the trawl fishery would find itself about 20,000 lbs short. Similarly, if these regulations were applied in 2008 and 2009, the amount of halibut allocated to the trawl sector would fall short of actual harvests by 204,000 and 161,000 pounds, respectively.

The Council decided to apply the 130,000-pound limit over a four-year period to give the trawl industry more time to learn strategies (and areas) for minimizing their Pacific halibut bycatch. Since this may become the most constraining bycatch species for the rationalized trawl fishery on the northern shelf, this extra adjustment period before the further downward modification of the total catch limit to 100,000 pounds is considered for the fifth year. Additionally, allowing more flexibility for considering a new total catch limit of Pacific halibut in future processes to decide biennial management measures was considered necessary because the limit is lower than the bycatch observed under the WCGOP, and it was unclear how such a stringent limit might affect the fishery. It may turn out that the socioeconomic impacts are too great under these stringent limits, and the Council may ultimately decide to increase the total catch limit. Conversely, the trawl industry may adjust well to these lower limits, and the realized bycatch of Pacific halibut will be lower than the prescribed total limits of 130,000 or 100,000 pounds. In that case, the Council may want to adjust the future total catch limit downward from 100,000 pounds to provide more benefits to Area 2A directed halibut fisheries. In either case, the Council preferred the flexibility of deciding future total catch limits of Pacific halibut in the biennial

specifications and management measures process to avoid a more lengthy and burdensome FMP amendment process for making these decisions. Reducing the maximum limit to 100,000 lbs beginning the third year of the program provides an additional incentive for harvesters to modify their fishing behavior to reduce bycatch and/or bycatch mortality. Information from the Canadian IFQ program indicates that trawl fishermen can voluntarily implement measures to reduce bycatch by avoiding areas known to produce high volumes of halibut, and reduce bycatch mortality by reducing their tow time. Reducing the trawl limit would also provide more halibut to those who participate in the directed tribal, commercial, and recreational halibut fisheries.

If the total CEY from the stock assessment prior to trawl rationalization implementation reflected relatively low abundance (e.g., 640,000 lbs), this would produce an initial trawl allocation of 96,000 lbs. While this is considerably less than what the trawl fishery has caught in previous years, it would also be applied to an exploitation yield lower than what Area 2A has experienced in the past 10 years. This helps ensure that the primary use of halibut is to provide fish for the directed tribal, commercial, and recreational fisheries. If abundance were higher and along the lines of the amounts produced by the 2004 and 2005 assessments (e.g., more than 1 million lbs), the trawl allocation would be capped at 130,000 lbs.

When the Canadian government rationalized its British Columbia groundfish fishery in 1996, an arbitrary cap of 1 million pounds was set for halibut bycatch mortality in that trawl fishery. Halibut bycatch mortality before prior to rationalization was about 1.5 million pounds. The first year of the quota program, halibut bycatch mortality was reduced to about 300,000 pounds. Several factors were the decline of the cod fishery (and a decline in associated halibut bycatch), harvester avoidance behavior, and 100 percent observer coverage, combined with slower fishing practices that allowed the observer to measure every halibut caught and released. Information from the Canadian IFQ program indicates that trawl fishermen can voluntarily implement measures to reduce bycatch by avoiding areas known to produce high volumes of halibut and can reduce bycatch mortality by reducing their tow time (which prevents halibut from being crushed in the trawl cod end).

General Effects of Amendment 21 Trawl Rationalization

The focus of the remaining economic analysis is on the effects of rationalization of the Pacific Coast groundfish limited entry trawl fishery. Below is a summary of the incremental differences (in economic terms) between the proposed action and no action alternative discussed in these draft environmental impact statements. The economic analysis in Chapter 4 of the Amendment 20 FEIS relies predominantly on available fish ticket information (landings and revenues). Section 4.2.1.3 notes the following data limitations:

- Cost and earnings data for individual harvesters are available only for a single year.
- Cost and earnings data for individual processors are unavailable.
- Comprehensive primary data on processed products and product prices are unavailable.
- Final market demand for groundfish products is not well known.
- Data showing the total catch (landings plus discard) of groundfish by individual vessels is unavailable.

Because of the lack of quantitative data, an overall comprehensive model was not feasible. Instead, a set of models designed to focus on specific issues was developed, or are already available. These include the following:

- A model showing the effects of the initial allocation of QS in a trawl IFQ program
- A model assessing the expected amount of fleet consolidation
- A model illustrating the potential for geographic shifts in fishery patterns
- A model illustrating the potential to reduce the catch rate of overfished species and the associated potential for increased target species catch and revenue
- A qualitative comparative advantage model illustrating the potential for regions to be negatively or positively impacted by rationalization
- Available stock assessments showing stock abundance over time under various harvested quantities
- An ecosystem-based model describing the impact on the biological and ecosystem components of the environment resulting from changes in fishing behavior and catch

To illustrate the benefits of the TIQ program, a model projecting the expected amount of fleet consolidation in the shoreside non-whiting fishery was developed. It incorporates the model that illustrates the potential for the fleet to reduce bycatch and potentially increase the amount of target species harvested. This later model is based primarily on bycatch reduction experiences in the Pacific whiting fishery and as carried out in the arrowtooth flounder fishery under an exempted fishing permit. The major conclusions associated with both these models are provided below.

Consolidation under the alternatives will be a key impact mechanism. This model provides projections of consolidation in the fishery and the effects of that consolidation. The model is based on work published by Weninger and Waters (2003).

Ex ante benefit estimates (estimates prior to the action) are obtained by using a two-step methodology. The first step predicts the harvesting practices expected to prevail under an IFQ system. This first step will predict post-QS allocation equilibrium harvesting practices including the folloiwng:

- Groundfish harvest per vessel
- Number of vessels needed to harvest limited entry trawl groundfish catch
- Which vessels remain in the groundfish fishery and which vessels exit
- Nongroundfish harvest per vessel

The model is designed to address the fact that trawlers harvest many species (multiple outputs). It uses fish ticket data and the data from the recently completed West Coast Limited Entry Cost Earnings Survey sponsored by the NMFS Northwest Fisheries Science Center.

Estimates of potential economic benefits are generated based on the predicted harvesting practices from the first step analysis. Because the west coast nonwhiting groundfish fishery is not a derby fishery, it is expected that economic benefits will come through cost reductions and increased access to target species that arise from modifications in fishing behavior (overfished species avoidance). The key output of this analysis is an estimate of post-rationalization equilibrium harvesting cost.

Changes in harvesting costs can arise from three sources. First, the total fixed costs incurred by the groundfish trawl fleet change as the size of the fleet changes. Since many limited entry trawlers incur annual fixed costs of at least $100,000, reductions in fleet size can result in substantial cost savings. In other words, fewer vessels in the fishery will lead to decreased costs through a decrease in annual fixed costs. Second, costs may change as fishery participation changes and participants no longer incur diseconomies of scope (such as the costs of frequently switching gear for participating in multiple fisheries). Third, costs may change as vessels are able to buy and sell quota to take advantage of economies of scale and operate at the minimum point on their long-run average cost curve (i.e., the strategy that minimizes the cost of harvesting).

Using the model developed through this project, it is possible to compare the following:

- Harvesting costs under the current regulatory system
- Harvesting costs under an "unconstrained" IFQ system
- Harvesting costs under an IFQ system where fleet rationalization is constrained through program design features such as quota accumulation caps

The major finding associated with this model and the cost-earnings survey is the following:

> Net revenues for nonwhiting trawl vessels were estimated by Lian, Singh, and Weninger in 2008 (Lian et al. 2008). Estimates of net revenues were generated using a cost earnings survey conducted by the Northwest Fisheries Science Center that collected cost data from trawlers operating in 2004. These cost earnings data were matched with PacFIN fish ticket data to derive estimates of net revenue generated by vessels active in the fishery during 2004.

The major conclusions of Lian, Singh, and Weininger are the following:

> Our results suggest that (with landings held at 2004 levels), the current groundfish fleet (non-whiting component) which consisted of 117 vessels in 2004, will be reduced by roughly 50% to 66% to 40-60 vessels under an IFQ program. The reduction in fleet size implies cost savings of $18- $22 million for the year 2004 (most recent year of the data). Vessels that remain active will, on average, be more cost efficient and will benefit from economies of scale that are currently unexploited under controlled access regulations in the fishery. The cost savings estimates are significant, amounting to 60% of the costs incurred currently, suggesting that IFQ management may be an attractive option for the Pacific Coast

Groundfish Fishery. We find that mid-sized boats, 60—70 feet in length , are relatively cost efficient and therefore most likely to remain active under the IFQ management of the program; smaller (40-50 feet) and larger vessels (80 feet and above) are likely to leave the fishery. ….(Liann, et al, 2008 page 330)

Our analysis reveals, however, that projected cost savings are sensitive to the design elements of the IFQ program. In particular, we show that restrictions on the total quota that can be harvested by individual vessels, or restrictions on quota trading across vessel length classes, can significantly reduce estimated benefits (cost savings) of switching to IFQs. Our estimates suggest that benefits decline by roughly $3.8 million (18.4%) per year if a 1% cap on quota ownership at the vessel level is imposed, and by as much as $2.14 million (10.4%) per year under restrictions on harvest permit trading across vessel classes. (page 330).

Further calculations provide additional insights on the economic conditions under controlled access regulations. Assuming a 10% annual return to the vessel capital investment, estimates indicate that the 2004 groundfish fleet incurred a total cost of $38.789 million. The PacFIN data indicate fleetwide revenue at roughly $36.275 million in 2004, and, therefore, fleet wide losses of $2.514 million. Based on a lower 5% return to vessel capital, the results suffets that the groundfish fleet merely broke even in 2004; i.e., dockside revenues were offset by the fleet wide harvesting costs….(page 337).

The results suggest a switch from the current controlled access management program to IFQs could yield a significant increase in resource rents in the Pacific Coast Groundfish fishery. For instance, our analysis finds that the 2004 groundfish catch generated zero resource rent. Instead, it could have yielded a substantial positive rent at $13.574 million (page 340).

The Council's analysis draws upon the conclusions of Lian et al., presented below:

These estimates indicate that the average nonwhiting trawl vessel makes zero economic profit. Simply put, zero economic profit means that there are no profits being generated in the fishery above what would be considered a normal wage plus the costs of operating and maintaining a vessel. While the average vessel makes close to zero economic profit, some vessels do make profits while others may actually lose money and would be better off (financially speaking) leaving the fishery (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS,page 128 FEIS*).

Indeed, research by Lian, et al. (2008), indicates the nonwhiting trawl fleet may be overcapitalized by more than 50 percent (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*), page 273 FEIS.

Based on results from Lian et al. (2008), harvesters in the nonwhiting sector generate no economic profit from harvest activity. While it is unclear whether

processors generate any economic profit from processing of nonwhiting groundfish, it is clear that if profits exist in the industry, harvesters are not realizing those profits. This suggests that, if profits exist in the harvesting and processing of nonwhiting groundfish, harvesters lack much bargaining power in negotiations over ex-vessel prices with processors (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS, page 276*).

In addition to increased revenue being generated in the fishery, the consolidation likely to occur in the nonwhiting sector is expected to lead to substantial cost savings. Cost savings occur because of less capital, but also because the fleet is expected to consolidate toward the most efficient vessels. The fleet reduction and cost efficiency model shows the consolidation that may occur could diminish the number of vessels by 50 to 66 percent, or to a nonwhiting fleet size that is somewhere on the order of 40 to 60 vessels. This predicted cost savings is fairly sensitive to the design elements of the program and is also dependent on the quantity of species harvested. This consolidation is predicted to decrease costs of harvesting nonwhiting groundfish by as much as 60 percent annually (before incorporating the cost of at-sea monitoring). Using information from recent years, this may mean a cost savings of approximately $13.8 million. Imposing accumulation limits can restrict the amount of expected cost savings substantially. Retaining the vessel length endorsement may restrict cost savings by 10 percent, though this may be lower since harvesters can bundle permits and change the length endorsement. If a 1 percent accumulation limit is placed on vessels, cost reductions may be restricted by approximately 20 percent.[2] At-sea monitoring costs add an additional cost burden to vessels that is not currently incurred. If at-sea monitors cost vessels $350 per day, this may tend to reduce the size of the fleet from the 40 to 60 vessels expected and increase the average size of vessels remaining. This is because additional costs of fishing will mean the optimal fleet size is smaller. The average size of vessels in the fleet is increased with a daily observer cost because such costs comprise a larger portion of small vessels costs than that of larger vessels. At-sea observers will also reduce fleet-wide profits. The fleet reduction and cost efficiency model illustrates that at-sea observers may cost the nonwhiting fleet $2.2 million if all vessels in the fishery operate near capacity (*Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS, page 290*).

Section 4.6.2.1, *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS,* describes the major benefits of the trawl rationalization for shorebased non-whiting fishery, excerpted below:

Trawl harvesters in the nonwhiting sector may be substantially affected by the rationalization of the west coast trawl fishery. The individual accountability measures and harvesting privileges associated with the rationalization alternatives are likely to induce substantial changes in the

2 The lowest accumulation limit in the alternatives of 3 percent is not expected to impose cost inefficiencies on the nonwhiting trawl sector so long as prices and available harvest volumes do not decrease.

way vessels prosecute fishing activities. In the nonwhiting trawl fishery, substantial impacts are likely to occur because of the constraining nature of overfished species and the perceived reward that is associated with avoiding those stocks that may come in the form of increased catch of target species, which are currently underutilized because of weak stock management. The bycatch rate change model is used to show the amount of additional target species that can be leveraged as the nonwhiting trawl fleet reduces encounters with overfished species. The output of this model indicates that the fleet may generate severalmillion dollars in additional ex-vessel revenue under a rationalization program compared to Alternative 1 activity if ex-vessel prices remain constant.

Increased profits and fleet consolidation

Some of the expected increase in ex-vessel revenue is likely to occur almost immediately after the fishery is rationalized. However, the fleetwide estimates are best perceived as a longer-term outcome of rationalization that will occur as the fleet modifies gears and fishing location, the flow of quota through the market occurs in a way so that it reaches the more successful vessels, and processing companies find buyers for the potential increase in product quantity. This is likely to be a gradual effect where ex-vessel revenue increases over time before reaching full potential. The length of time it takes for the increased harvest volume to be absorbed by the processing sector may also depend on the number of processing entities harvesters have the opportunity to sell their catch to. The requirement that the entire catch be off-loaded at a single processor restricts—to some degree—the number of processing companies that harvesters deliver to. By relaxing this requirement, harvesters may be able to sell their catch to more than one buyer at a time, and if these buyers have relatively different access to markets, being able to sell catch to more than one buyer will make it more likely that an increase in catch can be absorbed by the market more quickly.

Figure 4-7 illustrates the potential range of ex-vessel revenues in the nonwhiting trawl fishery generated under a rationalization program compared to Alternative 1 if ex-vessel prices remain unchanged. The range of values presented is meant to bracket the range of uncertainty within the model while still providing realistic estimates. The uncertainty presented in this figure does not capture the risk posed by thin market conditions that may be present in an IFQ program because of species with low trawl allocations.

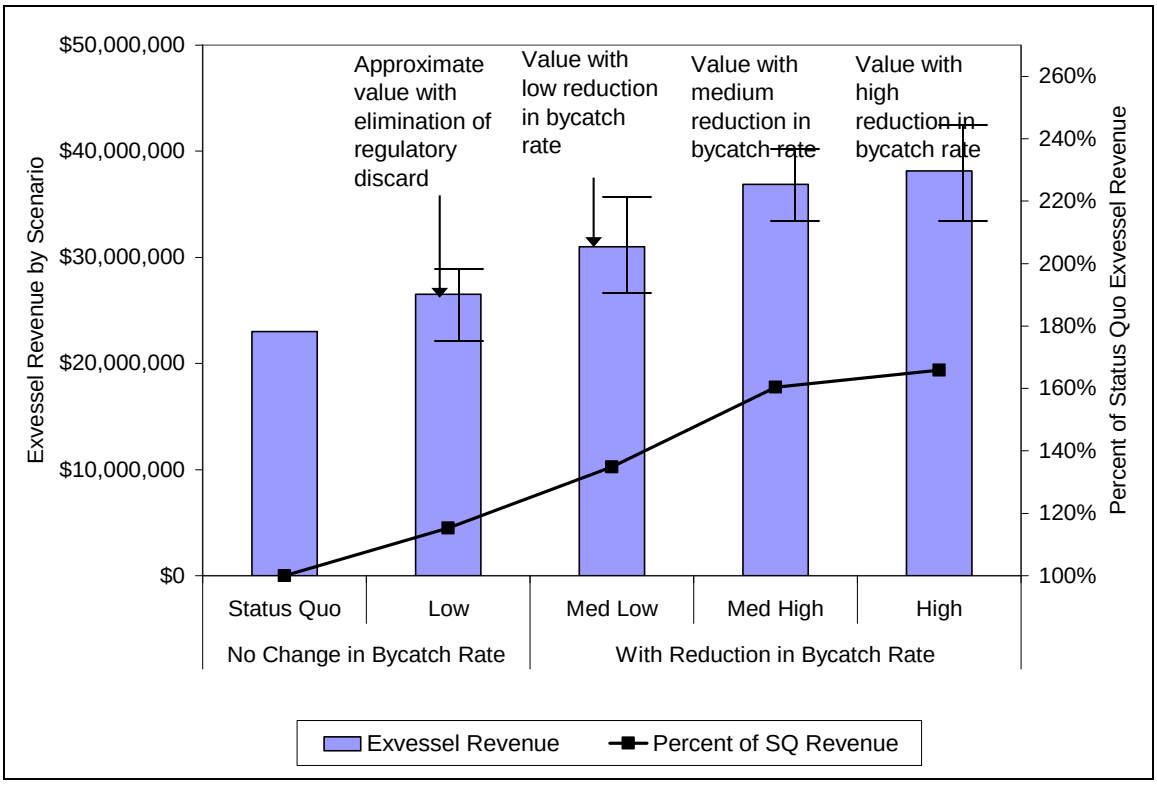


Figure 4.7. Potential ex-vessel revenue in the nonwhiting trawl fishery under rationalization.
Note: Bars are intended to represent uncertainty due to potential variations in ABCs and OYs.

In addition to increased revenue being generated in the fishery, the consolidation likely to occur in the nonwhiting sector is expected to lead to substantial cost savings. Cost savings occur because of less capital, but also because the fleet is expected to consolidate toward the most efficient vessels. The fleet reduction and cost efficiency model shows the consolidation that may occur could diminish the number of vessels by 50 to 66 percent, or to a nonwhiting fleet size that is somewhere on the order of 40 to 60 vessels. This predicted cost savings is fairly sensitive to the design elements of the program and is also dependent on the quantity of species harvested. This consolidation is predicted to decrease costs of harvesting nonwhiting groundfish by as much as 60 percent annually (before incorporating the cost of at-sea monitoring). Using information from recent years, this may mean a cost savings of approximately $13.8 million. Imposing accumulation limits can restrict the amount of expected cost savings substantially. Retaining the vessel length endorsement may restrict cost savings by 10 percent, though this may be lower since harvesters can bundle permits and change the length endorsement. If a 1 percent accumulation limit is placed on vessels, cost reductions may be restricted by approximately 20 percent.3 At-sea monitoring costs add an additional cost burden to vessels that is not currently incurred. If at-sea monitors cost vessels $350 per day, this may tend to reduce the size of the fleet from the 40 to 60 vessels expected and increase the average size of vessels

3 The lowest accumulation limit in the alternatives of three percent is not expected to impose cost inefficiencies on the nonwhiting trawl sector so long as prices and available harvest volumes do not decrease.

remaining. This is because additional costs of fishing will mean the optimal fleet size is smaller. The average size of vessels in the fleet is increased with a daily observer cost because such costs comprise a larger portion of small vessels costs than that of larger vessels. At-sea observers will also reduce fleet-wide profits. The fleet reduction and cost efficiency model illustrates that at-sea observers may cost the nonwhiting fleet $2.2 million if all vessels in the fishery operate near capacity. If some relatively marginal producers remain in the fishery, the cost will be higher. Table 2 illustrates the effect of various factors on profitability.

Table 2. Factors affecting profitability.

Effect of Consolidation	Improves harvesting cost efficiency. May allow the fleet to realize profits of ~$14 to $23 million compared to $0 or less under Alternative 1.
Effect of Accumulation Limits	No effect unless vessel limit is smaller than ~2.5 percent. A 1 percent vessel limit restricts potential cost efficiency by ~20 percent
Effect of Permit Length Endorsement	Restricts cost efficiency by ~10 percent, or imposes costs of ~$1.5 to $3 million[a]
Effect of At-Sea Observers	Increases average vessel size slightly. Decreases fleet size slightly. May reduce profits by ~$2.2 million depending on fee structure.

a) This estimate was modeled based on the idea that QS would be restricted from trading across vessel size classes. That restriction is not part of the options contained in the existing alternatives. Therefore, this estimate does not apply to the existing alternatives for rationalization of the trawl fishery.

Figure 4-8 shows potential fleet-wide profit if all vessels are operating at their most cost effective point. The results in this figure use the fleet-wide revenue estimates shown above in conjunction with the cost-savings and consolidation model. The results show profit under unconstrained cost conditions, profit with a vessel length restriction (i.e., retaining the permit length endorsement), and profit with a vessel length restriction and at-sea observers. Although not shown in the figure, for reference purposes Alternative 1 profits in the fleet are estimated to be between zero and a loss of approximately $2 million annually.

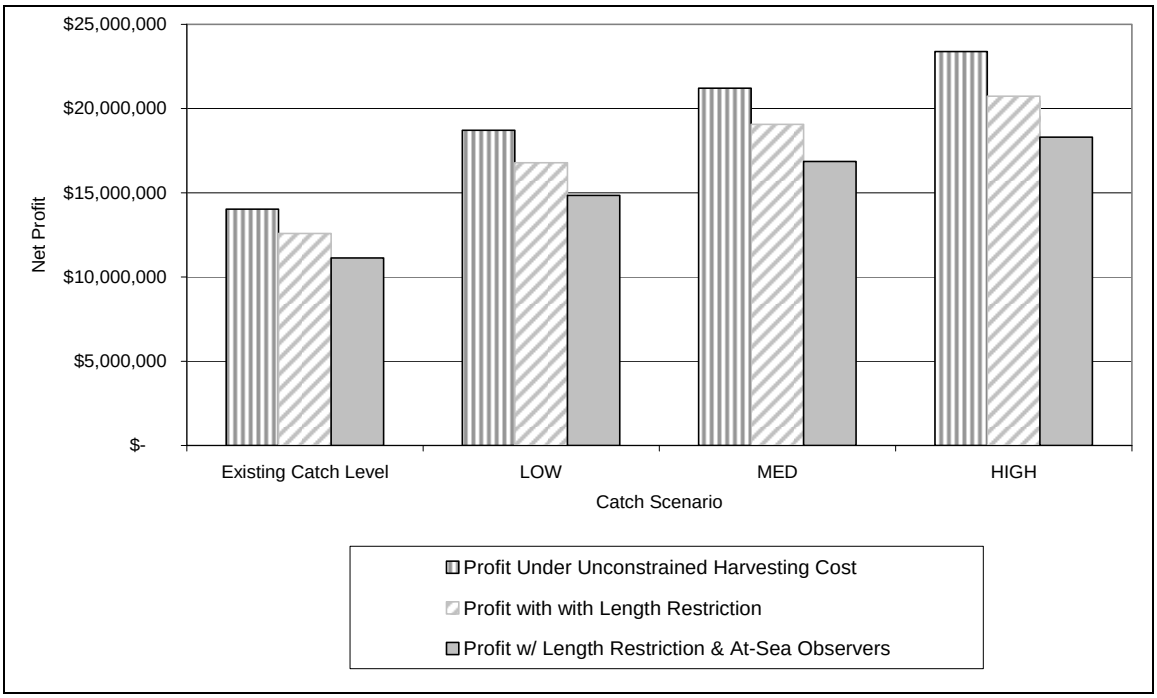


Figure 4-8. Estimated fleetwide profit in a rationalized nonwhiting trawl fishery.

The above information shows that when potential cost savings are combined with the projected increase in gross revenue displayed in Figure 4-7, actual revenues to catcher-vessels and permit holders may increase by several million. Empirical evidence from other programs suggests that consolidation and the associated cost savings could occur quite rapidly after the fishery is rationalized.

The consolidation and cost efficiency model shows that the most efficient vessels for harvesting nonwhiting trawl groundfish are approximately 60 to 70 feet in length. Smaller vessels tend to be limited by the effectiveness of harvest capacity per vessel size while larger vessels tend to operate in an area where costs are increasing more rapidly per scale compared to harvest effectiveness. Vessels that are larger or smaller may find it more profitable to sell QS and leave the fishery rather than remain in the fishery.

Current Status of the Fishery—Changes Since 2004

This discussion is in addition to the information provided in the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. As the "Consolidation" model is based on the fishery, it may be useful to provide current trends in the fishery. [The indicators below are landings, ex-vessel prices, and revenues from PacFIN, fuel prices collected by PSMFC, and U.S. export prices for whiting and sablefish shipped from the Seattle Customs District. PacFIN data include tribal harvests and revenues.]

In 2004, the shorebased non-whiting trawl fishery generated about $30 million in ex-vessel revenues. But according to NWFSC cost estimates, this fishery was at best breaking even or perhaps suffering a loss of up to $2 million.

Since 2004, shorebased non-whiting trawl fisheries have increased their revenues to about $40 million

The increases in shorebased revenues have come from increased landings of flatfish and sablefish and significant increase in sablefish ex-vessel prices. Sablefish now accounts for almost half of the trawl fleet's revenues.

While revenues were increasing so were fuel prices. Fuel costs are about 30 to 40% of the vessels revenues (Table 4-43 DEIS). The average 2005-2009 revenues were about $28 million—22 percent greater than of 2004. The average 2005-2009 fuel price was about $2.81—70% greater than that of 2004. Therefore, it appears that 2009 fishery may not be that much improved over that of 2004.

The indicators below also show the growth in whiting revenues due to increased landings and ex-vessel prices stimulated by high export prices. Note that after reaching a peak in 2008 of $0.11 per lb in 2008, the 2009 price for whiting has fallen to $0.05 per lb in 2009.

Recent Indicators of Fishery Trends

Revenues ($1000)

	All Groundfish	All Whiting	At-Sea Whiting
2004	44,526	21,680	14,199
2005	52,640	28,786	16,671
2006	58,673	34,425	18,523
2007	59,401	32,602	18,595
2008	91,517	58,495	43,333
2009	46,146	14,104	7,790

	Shoreside Total	Shoreside Whiting	Shoreside Non-Whiting
2004	30,327	7,481	22,846
2005	35,969	12,115	23,854
2006	40,150	15,902	24,248
2007	40,806	14,007	26,799
2008	48,184	15,162	33,022
2009	38,356	6,314	32,042

Landings (Tons)

	All Groundfish	All Whiting	At-Sea Whiting
2004	237,779	216,557	120,074
2005	281,352	259,499	150,448
2006	284,133	264,728	137,564
2007	238,852	216,583	125,142
2008	274,104	248,221	180,461
2009	149,241	121,465	72,242

	Shoreside Total	Shoreside Whiting	Shoreside Non-Whiting
2004	117705	96,483	21,222
2005	130904	109,051	21,853
2006	146569	127,164	19,405
2007	113710	91,441	22,269
2008	93643	67,760	25,883
2009	76999	49,223	27,776

Shoreside Trawl Revenues ($1000)

Flatfish	Rockfish	Sablefish
12,259	3,358	5,355
13,384	3,045	5,916
12,771	3,006	7,387
14,362	3,322	8,126
15,673	4,625	11,457
14,042	4,430	12,449

Shoreside Trawl Landings (Tons)

	Flatfish	Rockfish	Sablefish
2004	13,329	2,949	2,435
2005	14,012	2,675	2,407
2006	12,606	2,352	2,537
2007	15,417	2,768	2,489
2008	17,250	3,733	2,891
2009	18,655	4,077	3,061

Ex-Vessel Trawl Prices, Fuel Prices and Export Prices ($/gallon, $/lb)

	Dover Sole	Petrale Sole	Whiting	Sablefish
2004	$0.36	$1.03	$0.05	$1.00
2005	$0.37	$0.91	$0.05	$1.12
2006	$0.37	$1.01	$0.06	$1.32
2007	$0.37	$1.00	$0.07	$1.48
2008	$0.37	$1.01	$0.11	$1.80
2009	$0.33	$0.91	$0.05	$1.85

	June Fuel Prices Newport Oregon	Export Prices Seattle Customs District H&G Whiting	Sablefish
2004	$1.65	$0.54	$2.82
2005	$2.00	$0.54	$2.55
2006	$2.70	$0.74	$3.61
2007	$2.50	$0.74	$4.12
2008	$2.98	$0.90	$4.38
2009	$2.21	$0.88	$4.59

Non-whiting Trawl Sector: In summary, ex-vessel revenues for the non-whiting sector of the limited entry trawl fishery are estimated to be approximately $30 to 50 million per year under the preferred alternative compared to $22 to 25 million under the no action alternative. This revenue increase is expected to occur in a rationalized fishery because target species quotas can be more fully utilized. Currently, in the non-whiting sector, cumulative landing limits for target species have to be set lower because the bycatch of overfished species cannot be directly controlled. Introducing accountability at the individual vessel level by means of IFQs provides a strong incentive for bycatch avoidance (because of the actual or implicit cost of quota needed to cover bycatch species) and prevents the bycatch of any one vessel from affecting the harvest opportunity of others. In addition, under the preferred alternative, the non-whiting sector would have control over harvest timing for the whole calendar year. Under the no action alternative, the non-whiting sector would continue to operate under two-month cumulative landing limits, which reduce flexibility within a two-month period (because any difference between actual limits and the period limit cannot be carried over to the next period). Finally, the ability for vessels managed under IFQs to use other types of legal groundfish gear could allow some increases in revenue by targeting higher-value line- or pot-gear-caught fish. This opportunity would mainly relate to sablefish, which are caught in deeper water, rather than nearshore species where state level regulatory constraints apply.

The preferred alternative may also increase ex-vessel revenues of non-whiting trawl harvesters by changing their bargaining power with processors over ex-vessel prices. Under the preferred alternative, the current two-month cumulative limits structure of the non-whiting trawl fishery would be replaced with QS that is available for a year, thereby extending the time horizon harvesters have to negotiate prices with processors without losing available fishing opportunity. The extended period would give harvesters greater latitude to hold out for better prices compared to the no action alternative. However, it should also be noted that these negotiations will also be affected by the availability of target species, as well the availability of bycatch.

Costs for the non-whiting sector of the limited entry trawl fishery are expected to decrease under the preferred alternative because of productivity gains related to fleet consolidation. Productivity gains would be achieved through lower capital requirements and a move to more efficient vessels. Operating costs for the non-whiting sector are predicted to decrease by as much as 60 percent annually. Based on estimates of current costs, this percentage decrease represents a $13.8 million cost reduction relative to the no action alternative.

The accumulation limits considered under the preferred alternative are not expected to introduce cost inefficiencies in the non-whiting sector, provided that current prices and harvest volumes do not decrease. However, the preferred alternative would impose new costs on the non-whiting sector that would not be incurred under the no action alternative. First, a landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed under the preferred alternative to recover management costs, such as maintenance of the system of QS accounts. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $500 a day if independent contractors are hired. The daily observer cost could place a disproportionate adverse economic burden on small businesses because such costs would comprise a larger portion of small vessels costs than that of larger vessels.

The increase in profits that commercial harvesters are expected to experience under the preferred alternative may render them better able to sustain the costs of complying with the new reporting and monitoring requirements. The improved harvesting cost efficiency under the preferred alternative may allow the non-whiting sector to realize profits of $14 million to $23 million compared to zero or less under the no action alternative. In addition, a provision that allows vessels managed under the IFQ program to use other legal gear (gear switching) would allow sablefish allocated to the trawl sector to be sold at a higher price per pound, possibly contributing to increased profits. The imposition of accumulation limits could reduce the expected increase in the profitability of the non-whiting sector by restricting the amount of expected cost savings, and the costs of at-sea observers may reduce profits by about $2.2 million depending on the fee structure. However, the profits earned by the non-whiting sector would still be substantially higher under the preferred alternative than under the no action alternative.

New entrants are likely to face a barrier to entry in the Pacific Coast groundfish limited entry trawl fishery in the form of the cost of acquiring QS (or a co-op share in the case of the at-sea whiting sector). This disadvantages them compared to those entities that receive an initial allocation of harvest privileges. Small entities may be particularly disadvantaged to the degree that they may find it more difficult to finance such quota purchases than larger-scale harvesters. Among the goals the Council identified for the adaptive management program was using the reserved non-whiting QS to facilitate new entry into the fishery. In addition, as a trailing action, the Council identified a framework to allow the establishment and implementation of community fishing associations as part of the adaptive management program. These entities could facilitate entry into the fishery by leasing QS at below market rates, thereby leveling the playing field in terms of costs between initial recipients of QS and new entrants.

Whiting Sector. While the effect of the preferred alternative on revenues and costs in the whiting sector of the limited entry trawl fishery is more difficult to estimate, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery compared to the no action alternative. Under the preferred alternative, some consolidation may occur in the shoreside and mothership sectors of the Pacific whiting fishery, though the magnitude of consolidation is expected to be less than in the non-whiting sector. The existing catcher-processor co-op would continue under the preferred alternative, with effects on the catcher-processor sector that look similar, or identical, to those of the no action alternative. However, the change from a vessel-restriction under Amendment 15 to the permit-based limit of Amendment 21 will provide additional flexibility that currently does not exist in the whiting fishery.

Trawl Groundfish Processors. The incremental effects of the preferred alternative on buyers and processors of trawl-caught groundfish are detailed Sections 4.9 and 4.10 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Even though processors may have to pay fishermen higher ex-vessel prices, processors may see cost savings under the preferred alternative to the degree that rationalization allows greater control over the

timing and location of landings. Processors could use current plant capacity more efficiently, because available information suggests that processing facilities are currently underutilized. Fleet consolidation in the non-whiting sector could also provide cost savings for processors if landings occur in fewer locations, thereby reducing the need for facilities and/or transport. The preferred alternative would also impose new costs on processors that would not be incurred under the no action alternative. Processors would be required to pay some or all of the costs of plant monitors, who would verify landings. Similar to at-sea observers, these monitors would be independent contractors rather than direct employees of the processing firm.

In the non-whiting processing industry, harvest volumes may increase because of a decrease in constraining species bycatch and a subsequent increase in underutilized target species catch. This boost in target species catch may increase utilization of processing capital and processing activity. [It should be noted that if bycatch has been underreported under the current system, with 100 percent observer coverage under the new system, the gains in increased target catches may be less than expected.] Consequently, the possibility of capital consolidation in the non-whiting shoreside sector may be lower than in the shoreside whiting sector. However, shifts in the distribution of landings across ports as a result of fleet consolidation, industry agglomeration, and the comparative advantage of ports (a function of bycatch rates in the waters constituting the operational area for the port, differences in infrastructure, and other factors) could lead to consolidation in processing activity at a localized or regional scale and an expansion in processing activity elsewhere. To mitigate harm to adversely impacted shoreside non-whiting processors, the adaptive management provision provides a mechanism to distribute non-whiting QS to processors, thereby ensuring that some processors receive greater landings of groundfish than would otherwise be the case.

As noted above, the preferred alternative may reduce the power of shoreside non-whiting processors to negotiate ex-vessel prices with harvesters. The larger harvest volume due to bycatch avoidance may lower processor average costs, which could offset the negative effects on shoreside non-whiting processors of a shift in bargaining power. In addition, QS could be purchased by processors over the long term, thereby increasing processor's negotiation power. However, the accumulation limits included in the preferred alternative would limit the ability of processors to purchase substantial quantities of QS. Alternatively, the adaptive management provision could be used to allocate QS to shoreside non-whiting processors, thereby providing them additional leverage when negotiating terms with harvesters.

The allocation of 20 percent of the initial shoreside whiting QS to the shoreside processing portion of the whiting fishery would give these processors more influence in negotiations over ex-vessel prices and would tend to offset the gains in bargaining power for harvesters. For example, a processor could use QS to induce a harvester that is short of QP for a Pacific whiting to make deliveries under specified conditions and prices. However, because of a reduction in peak harvest volume, fewer processing companies and/or facilities may be necessary to handle harvest volumes of Pacific whiting, meaning some companies may find themselves without enough product to continue justifying processing operations of Pacific whiting.

The annual co-op declarations under the preferred alternative are expected to give motherships some certainty over delivery volumes from catcher vessels in the upcoming year, but little

leverage in negotiations over prices or profit sharing.

Captains and Crew. The incremental effects of the preferred alternative on the employment and safety of the captains and crew of limited entry trawl vessels are detailed in Section 4.7 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. The fleet consolidation expected to occur under the preferred alternative would result in a decrease in the number of captain and crew jobs; however, those who retain jobs in the fishery are expected to receive higher wages due to higher vessel profit margins. The increased financial ability of vessel owners to invest in safety equipment and conduct vessel maintenance, together with increased vessel operational flexibility, are anticipated to improve safety conditions on board trawl vessels.

Nontrawl Commercial Harvesters and Processors. The incremental effects of the preferred alternative on nontrawl commercial harvesters and processors are detailed in Section 4.8 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Nontrawl harvesters include those targeting groundfish with other gear types and those that do not target groundfish. Since groundfish are an important part of Pacific coast landings, relatively few processors specialize exclusively in nongroundfish species. The preferred alternative may have a number of spillover effects on these harvesters and processors, including the following:

- Fleet consolidation and increased harvest timing flexibility may allow vessels in the non-whiting sector of the limited entry trawl fishery to be made available for use in nontrawl fisheries, increasing participation in those fisheries and adversely affecting the economic performance of nontrawl harvesters.
- Reduction in trawl catch of Pacific halibut (a prohibited species) allows more catch opportunity in target fisheries, thereby increasing ex-vessel revenues in the directed halibut fisheries.
- Gear switching to target sablefish with fixed gear under trawl quotas could increase competition on fishing grounds, a potential cost increase for nontrawl harvesters.
- If the fleet consolidation expected in the non-whiting sector under rationalization concentrates trawl landings in fewer ports, the loss of fishing-related port infrastructure could increase costs for nontrawl harvesters and processors in those ports.

Recreational Harvesters. The incremental effects of the preferred alternative on recreational harvesters are detailed in Section 4.5.3 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Fleet consolidation in the non-whiting sector that is expected to occur under the preferred alternative could reduce the availability of fishing-related infrastructure in specific ports. It is, however, unlikely that this reduction would substantially affect the types of services and amenities upon which recreational harvesters depend (e.g., charter operations, boat ramps, bait suppliers, tackle shops) or the quality of the recreational fishing experience.

Fishing Communities. The FEIS describes the status quo of fishing communities as the following :

A summary of major themes presented in public testimony during the 2007-08 groundfish

specification process (PFMC 2006) includes comments on the following:

- The negative cumulative effects of both Federal regulations (such as closed areas, fathom restrictions, season restrictions, and VMS) and nonfederal actions (cable crossings, proposed state restrictions) on fisheries, businesses, and communities
- Crumbling infrastructure (processors, buyers, ice plants, and businesses that support processors closing or consolidating, docks and harbors not being maintained; market infrastructure collapsing);
- Recreational and commercial fishing vessels going out of business or being forced to diversify;
- Fishing-related businesses, such as gear stores, boat repair shops, tackle shops, and fishing equipment manufacturers, and nonfishing-related businesses, such as hotels, restaurants, and car dealerships, feeling the impacts of reduced fishing income, including laying off employees or closing
- Decreasing tax bases due to business closures
- Increasing social tensions in communities, such as psychological impacts, marital tension, divorce and suicide
- Difficulty in making business decisions and planning for the future
- Further dependence on groundfish due to salmon cutbacks

The fleet consolidation that is expected to occur under the preferred alternative, particularly in the non-whiting sector, could have a negative economic effect on some coastal communities where groundfish trawlers are an important component of the local fishing fleet (in terms of local purchases, not necessarily number of vessels). As the fleet size shrinks, the remaining vessels would concentrate in a few major ports. Income and employment in those communities that experience a decline in local fleet size could be adversely affected. Fishery-related businesses in the community may cease operations because of lost business. Smaller, specialized retailers (e.g., ice suppliers, ship chandlers, cold storage facilities, fuel docks) would be especially vulnerable to a decreased demand for fishing-related goods and services inputs. Businesses unrelated to fishing may also feel the impacts of reduced fishing income in the community. Some of these effects would be mitigated by the higher profits expected to be earned by trawl harvesters under the preferred alternative. However, because fleet consolidation is expected, the benefits of increased vessel profitability are likely to be unevenly distributed among coastal communities. Tracking and monitoring costs may affect ports with low landings or intermittent landings, as there may be logistical issues with deploying catch monitors and observers.

The table below summarizes the comparative advantage of non-whiting communities under the preferred alternative. Ports at a disadvantage from consolidation and geographic shift have a relatively inefficient fleet (vessels with a relatively long travel time to fishing grounds, those with relatively unsuccessful operators, costly vessels, and inefficiently sized vessels contribute to the "fleet efficiency" score in the table below), insufficient infrastructure, and are adjacent to fishing grounds with high constraining overfished species abundance ("bycatch dependence" in the table below). The table also includes a positive or negative score for "initial allocation of groundfish," as determined by the initial allocation estimates.

Table 3. Comparative advantage of non-whiting trawl communities under the preferred alternative.

Port	Fleet Efficiency Score	Bycatch Dependent Area Score	Shore-based Infrastructure	Initial Allocation of Groundfish	Score
Bellingham†	?	- -	+ +	+	
Neah Bay*†	-	- -	- -	-	-
Westport*†	-	+	+	-	
Astoria*†	+	+	+ +	+ +	+
Newport*†	+	-	+ +	+	
Charleston (Coos Bay) *†	+	+	+ +	+	+
Brookings*	+	+	-	+	
Crescent City*†	-	+	+	-	
Eureka*†	+	+	+	+	+
Fort Bragg*†	-	+	+	+	
San Francisco	-	-	+ +	+	
Moss Landing*†	-	- -	+	+	
Princeton/Half Moon Bay*	-	- -	+	+	
Morro Bay*†	?	+	-	-	

*Small governmental jurisdiction based on Small Business Administration standard. No small governmental jurisdictions would be directly regulated by the proposed actions.

†Community that is "vulnerable" due to a high dependence on fishing activity and/or a relatively low resilience to change.

The adaptive management provision could be used to mitigate adverse impacts to communities, particularly ports with non-whiting processors. Directing the adaptive management quota to specific communities that have demonstrated harm, or a likely harm, could maintain fishing activity in a community that may otherwise stand to lose that activity. In addition, the preferred alternative includes other mechanisms that could mitigate adverse impacts to communities, such as a two-year moratorium on QS transfers, a five-year review that includes a community advisory committee, accumulation limits and a two-year review of some of the limits, the opportunity for communities to receive an initial QS allocation by acquiring a trawl permit, and a trailing action to establish community fishing associations.

The allocation of 20 percent of the initial shoreside whiting QS to the shoreside processing portion of the whiting fishery would give these processors more influence over the location of landings by enticing or directing harvests to existing plants even if the harvesters prefer to fish in other areas. However, consolidation in the processing sector is still expected to occur, and this consolidation of shoreside whiting processors will have an effect on communities.

Communities have been evaluated according to whether they are "dependent," "engaged," "resilient," or "vulnerable." Most studies use the term "dependence" to mean a community's use of a particular resource (for example, whiting or flatfish). "Engagement" is used to describe a community's use of a more general resource (for example, fisheries). The term "resilience" is

used to describe a community's ability to adapt to change. "Vulnerable" areas are communities that are either highly engaged or highly dependent and that have relatively low resilience.

This information is useful for considering impacts to communities in cases where changes in fishing activity have different degrees of impact on a community. In such cases, a moderate change in fishing activity occurring in a vulnerable community may be considered a substantial impact, while a moderate change in fishing activity in a less vulnerable community may be considered relatively inconsequential. The projected effects of the trawl rationalization program on the communities is described in Table 4 (Table 4-71 of the FEIS):

Table 4. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Bellingham	Benefits from initial allocation, allocation of IFQ to processors; but close to high bycatch area.	Vulnerable. Medium dependence and medium resilience.	Long-term decline in natural resources employment, but diversified economy. Population has grown 14% since 2000. Increasing gentrification. Young population.
Anacortes	Not strongly affected by rationalization due to nature of fishery (at-sea catcher-processors)	Not vulnerable.	Long-term decline in natural resources employment. Increasing tourism and retiree destination. Population has grown 14% since 2000. Should benefit from whiting amendments (10 & 15).
Seattle	Not strongly affected by rationalization due to nature of fishery (at-sea whiting), diversity and size of community	Not vulnerable.	Diversified economy with strong fishing infrastructure. Population has grown 5% since 2000. Should benefit from whiting amendments (10 & 15). Increasing gentrification.
Neah Bay	At risk of losing trawl fleet. Receives less than average in initial allocation. May experience reduction in landings if processors are allocated quota.	Extremely vulnerable.	Relatively heavy reliance on natural resource jobs. Impacted by 2008 salmon closures. Near marine sanctuary and wave energy site. Older-than-average population.
Westport	Would receive less than average initial allocation. Processor could benefit from processor QS. Consolidation could remove nonwhiting activity from port.	Vulnerable. Fairly dependent on groundfish fishery, but fairly resilient.	Tourism and natural resources both historically important to economy. Impacted by salmon closure. Luxury boatbuilding, important to economy, could be affected be economic downturn.
Ilwaco	Primarily a whiting port. Receives less than average initial allocation of nonwhiting. Processor could benefit from QS.	Vulnerable. Low dependence on groundfish, but low resilience.	Increasing population (5%). Older-than-average population. Impacted by 2008 salmon closure. Should benefit from whiting amendments (10 & 15).

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Astoria/Warrenton	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Astoria is vulnerable; Warrenton is not. Medium to high resilience.	General long-term decline in natural resources employment. Astoria population stable; Warrenton population increasing. Slightly older-than-average population. Impacted by 2008 salmon closures. Should benefit from whiting amendments (10 & 15). Increasing tourism (with accompanying low-paying jobs) and increasing gentrification, especially in Astoria. Some population leaving to find higher-paying jobs.
Newport	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Vulnerable. Very dependent on groundfish fisheries, but also fairly resilient.	General long-term decline in natural resources employment. Active tourist industry and increasing gentrification. Older-than-average population. Slightly increasing population. Impacted by salmon closure. Should benefit from whiting amendments (10 & 15). Wave energy projects have been proposed for nearby waters.
Coos Bay/ Charleston	Expected to benefit from rationalization, with large initial allocation and possibly increased harvesting and processing activity.	Somewhat vulnerable. Dependent on groundfish with medium resilience.	Heavily dependent on natural resource economy. Impacted by salmon closure. Should benefit from whiting amendments (10 & 15). Slight population increase since 2000. Older-than-average population. Large wave energy project proposed for nearby waters.
Brookings	Would benefit slightly from initial allocation. Currently no processors of trawl groundfish; processing could be less likely to move to Brookings under rationalization.	Not vulnerable. Dependent on groundfish, but high resilience.	General long-term decline in natural resources employment. Greatly increasing population (23.8% between 1990-2000, 15.9% between 2000-2007), many retirees. Much older-than-average population. Heavily reliant on recreational fishing. Impacted by 2008 salmon closures.
Crescent City	Would receive lower-than-average initial allocation. Relatively inefficient fleet; however, scores well on bycatch dependency, which could mitigate other factors.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment. Many large rent-paying vessels removed by 2003 trawl buyback. Reliant on tourism. Slightly increasing population. Impacted by salmon closure.

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Eureka	Would receive higher-than-average initial allocation. Located in low-bycatch area.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment; reliant on tourism, timber, and fishing. Sixteen groundfish vessels retired through trawl buyback. Decreasing population (3%). Impacted by salmon closure. Four wave energy projects are proposed for nearby state and Federal waters.
Fort Bragg	Would receive higher-than-average initial allocation. Located in low-bycatch area. However, a relatively inefficient fleet.	Vulnerable; relatively dependent on groundfish, with medium resilience.	General long-term decline in natural resources employment (large mill closed in 2002). Decreasing population (3%). Older-than-average population. Impacted by 2008 salmon closure. Increasing gentrification. Three wave energy projects are proposed for nearby state and Federal waters. Several marine protected areas located in nearby waters.
San Francisco	Would receive higher-than-average initial allocation. Strong infrastructure. However, located in a high-bycatch area. May lose some of its relatively inefficient fleet.	Not vulnerable.	Decreasing population (2%). Ongoing gentrification of fishing facilities. Wave energy projects proposed for nearby waters (mainly bay). Impacted by 2008 salmon closure.
Princeton/ Half Moon Bay	Initial allocation may be higher or lower than average, depending on allocation formula. Located near high bycatch area. Relatively inefficient fleet (some vessels may be lost), but strong infrastructure may mitigate these factors.	Not vulnerable.	Historically dependent on tourism; active tourist industry. Slightly increasing population; older-than-average population. Increasing gentrification. Near Monterey Bay Sanctuary and newly designated California MPAs.
Moss Landing	Would receive higher-than-average initial allocation. May experience reduction in landings if processors are allocated quota. Inefficient fleet near high bycatch area.	Vulnerable; somewhat dependent on groundfish, with low resilience.	Historically reliant on sardine and other fisheries. Near Monterey Bay Sanctuary and newly designated MPAs. Affected by 2008 salmon closure.

Table 4 cont. Summary of the impacts of rationalization on communities.

Community	General Impacts	Vulnerability	Cumulative Impact Notes
Morro Bay	Currently no trawlers are trawling out of Morro Bay. Permits bought out by Nature Conservancy. Impossible to predict how efficient fleet may be in future. Would receive less than average initial allocation of QS.	Vulnerable. Medium dependence on groundfish, but highly resilient.	Active tourist industry. Slightly decreasing population. Increasing gentrification. Impacted by salmon closure. Five groundfish vessels participated in buyout. New MPAs located in nearby waters. One wave energy project currently proposed for nearby waters.

One of the key indicators of community health is the unemployment rate. Unfortunately, because many of these communities are small, current unemployment rates cannot be found. However, there are current estimates for the counties in which these communities reside. [The data below are taken from the Local Area Unemployment Statistics, U.S. Department of Labor, Bureau of Labor Statistics Databases –see www.bls.gov .]

These trends show that, relative to 2004, unemployment rates were declining but then increased significantly in 2009, mirroring the general trend in the overall U.S. economy. The implication is that vulnerable communities are becoming more vulnerable.

Trends in Unemployment Rates By County of Home Port
(% Unemployed)

Washington					
	Clallam	**Grays Harbor**	**Pacific**	**Whatcom**	
	Neah Bay	**West Port**	**Ilwaco**	**Bellingham**	**State**
2004	7.1	8.3	7.7	5.8	6.2
2005	6.5	7.5	7.1	5.0	5.5
2006	5.8	6.9	6.4	4.5	4.9
2007	5.7	6.9	6.9	4.1	4.6
2008	6.8	7.4	6.6	4.9	5.4
2009	9.6	12.6	12.2	8.0	8.9
Oregon					
	Clatsop	**Lincoln**	**Coos**	**Curry**	
	Astoria	**Newport**	**Coos Bay**	**Brookings**	**State**
2004	6.8	8.1	9.0	7.5	7.3
2005	5.8	8.1	7.6	7.0	6.2
2006	5.0	6.0	6.7	6.8	5.3
2007	4.7	5.5	6.6	6.5	5.1
2008	5.1	6.5	8.1	7.8	6.5
2009	8.9	10.4	12.0	13.1	10.7
California					
	Del Norte	**Humboldt**	**Mendocino**	**Monterey**	
	Cresent City	**Eureka**	**Fort Bragg**	**Moss Landing**	**State**
2004	8.1	6.5	6.4	8.3	6.2
2005	7.5	6.1	5.8	7.3	5.4
2006	6.9	6.5	5.2	6.9	4.9
2007	7.5	5.9	5.5	7.1	5.2
2008	8.7	7.2	6.8	8.4	7.2
2009	12.2	11	10.5	11.9	11.4

Tribal Fisheries. The incremental effects of the preferred alternative on treaty tribe harvesters are detailed in Section 4.15 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Under the preferred alternative, tribal groundfish fisheries are expected to generate at least the same level of ex-vessel revenues and personal income as generated under the no action alternative. Loss of port infrastructure due to harvester and processor consolidation could affect tribal fisheries disproportionately. As shown in Table 4-69 of the FEIS, the port of Neah Bay appears to be at a particular disadvantage under the preferred alternative because of its lack of fleet efficiency, lack of shore-based infrastructure, and the high degree of dependence that vessels in this port have on areas defined as "high bycatch."

Seafood Consumers. The incremental effects on seafood consumers are considered in Section 4.5.4 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Under the preferred alternative, consumers of groundfish products could benefit from greater availability of target species and new product forms. Given that the current management strategy is focused on a year-round fishery via bimonthly trip limits, there may be little change in the seasonal availability of groundfish products. However, due either to the high bycatches of rockfish species or to high catches of petrale sole preseason, the traditional winter petrale sole fishery has been greatly restricted or closed down as occurred in 2007. These closures affect the availability of petrale sole to the consumer. Under the preferred alternative, closures of major fisheries are unlikely to happen. The major product form for whiting in recent years has been H&G whiting. This product is mainly for the Eastern European markets. The other groundfish products generally have close substitutes available from elsewhere in the global supply chain. For example, seafood processors have testified to the competition from imported tilapia. Therefore, for most consumers of fresh and frozen seafood products, there is probably little difference between the preferred alternative and no action alternative.

Nonconsumptive and Nonuse Values. The incremental effects on nonconsumptive and nonuse values are considered in Section 4.5.5 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery DEIS*. The preferred alternative may reduce bycatch of overfished stocks, which could enhance the value of wildlife viewing experience for nonconsumptive users. Nonuse values are affected by the impact of harvest on the status of fish stocks. To the degree that the preferred alternative is more effective than the no action alternative in constraining trawl sector harvests to levels expected to improve stock status, nonuse values would be enhanced. It was not practicable to monetize theses changes in nonconsumptive and non-market values; however, they are treated qualitatively in order to provide a complete accounting of costs and benefits attributable to the preferred alternative.

Management Agencies. The incremental effects on management agencies were detailed in Section 4.16 of the *Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery FEIS*. Public expenditures for monitoring and enforcement are expected to increase under the preferred alternative compared to the no action alternative. Some of these costs would be covered by industry directly (at-sea observer and plant monitor costs) or indirectly through a landings fee. At the state and Federal level, the total expenditure is estimated to range from approximately $2.8 million to $5.6 for startup of the program based on fiscal years 2010 and

2011 first quarter expenditures. After a period of transition, annual program costs are expected to be in the neighborhood of about $5.0 million annually.

4.5.2 Summary of Net Benefits to the Nation

Table 5 summarizes the net benefits to the nation under the preferred alternative based on a qualitative and quantitative assessment. Improvements in the economic performance of harvesters in the Pacific Coast groundfish limited entry trawl fishery may be substantial as a result of expected cost efficiencies created by fleet consolidation, increased flexibility in harvest timing, and increase in the harvest of underutilized target species due to incentives to reduce bycatch. Those harvesters who choose to exit the fishery would receive financial compensation from selling their permit or share of the resource. The improvement in the economic performance of processors in the fishery may also be substantial due to increased processing of target species, increased season length and processor consolidation. An initial allocation of QS to shoreside whiting processors is expected to replace the lost capital value potentially occurring among these processors due to a decline in processing demand.

The preferred alternative may also result in a shift in the balance of bargaining strength between harvesters and processors. This shift, in turn, can affect the distribution of efficiency gains. By providing harvesters with a guaranteed harvest opportunity over a longer period compared to the no action alternative, the preferred alternative may change the relative bargaining power between processors and harvesters by giving harvesters greater latitude to hold out for better ex-vessel prices. On the other hand, an initial allocation of whiting QS to whiting processors will tend to enhance their negotiation power with harvesters over prices. In addition, the adaptive management provision provides a mechanism to distribute non-whiting QS to processors, thereby mitigating harm to adversely impacted shoreside non-whiting processors.

Fleet consolidation would result in a decrease in the number of captain and crew jobs; however, those who retain jobs are expected to receive higher wages due to higher vessel profit margins. Increased vessel profits and operational flexibility are anticipated to improve safety conditions onboard trawl vessels. Fleet consolidation may lead to the spillover of excess vessels into nontrawl commercial fisheries that are operationally similar, thereby increasing competition in those fisheries. Fishing communities will be affected differentially, depending on whether fleet and processor consolidation results in a concentration or loss of vessels and commercial infrastructure.

The main socioeconomic impact of the long-term, formal allocations of specified groundfish stocks and stock complexes among sectors of the Pacific Coast groundfish fishery is increased stability for the limited entry trawl fishery. While the allocations under the preferred alternative do not differ significantly from status quo allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery.

Table 5. Summary of net social benefits of the preferred alternative relative to the no action alternative.

	Qualitative Assessment	Quantitative Assessment
Trawl Harvesters and Processors		
Change in Costs	+/-	~$13.8 million decrease for non-whiting sector due to productivity gains related to fleet consolidation, but at-sea observe requirements will increase costs by ~$2.2 million
Change in Revenues	+	$5-22 million increase in ex-vessel revenues for non-whiting sector
Change in Profitability	+	$14-23 million increase in profits for non-whiting sector, not including at-sea observer costs
Captains and Crew		
Change in Employment and Wages	+/-	
Change in Fishing Vessel Safety	+	
Nontrawl Commercial Harvesters and Processors		
Change in Costs	+	
Change in Revenues	+/-	
Recreational Harvesters		
Change in Value of Recreational Fishing Experience	0	
Tribal Fisheries		
Change in Revenues and Costs	0	
Fishing Communities		
Change in Concentration of Vessels and Commercial Infrastructure	+/-	
Seafood Consumers		
Change in Prices	0	
Change in Quantity/Quality of Seafood Products	+	
Nonconsumptive and Nonuse Values		
Change in Values Associated with Healthy Fish Stocks	+	
Management Agencies		
Monitoring and Enforcement Costs	+	$5.0 million for startup of the program, $6.5 million for the first few years of the program, and perhaps falling to $4.0 to $4.5 million

4.6 Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Proposed Rules

The preferred alternative has reporting, recordkeeping, and other compliance requirements. A tracking and monitoring program would be necessary to ensure that the total catch (including discards) is accurately documented and matched against QP. All vessels in the shoreside non-whiting and whiting sectors would be required to carry at-sea observers to monitor sorting and discarding of the catch and shoreside landings. There would also have to be an electronic system to report bycatch and landings, which may be integrated with the current state fish ticket

(landings reporting) system. Plant monitors would be required to ensure that the electronic fish tickets are accurate.

A new reporting requirement related to the tracking of quota shares and QP in the shoreside sector. Current requirements for motherships, mothership catcher vessels, and catcher-processors would continue to be in effect. However, a new program for the mandatory submission of economic data by both the shoreside and at-sea whiting sectors would be implemented to facilitate monitoring IFQ and co-op program performance.

In addition to the catch reporting and monitoring requirement, the preferred alternative would impose other compliance requirements. A landings fee of up to 3 percent of the ex-vessel value of fish harvested would be assessed to recover costs of management, data collection and analysis, and enforcement activities. Second, new at-sea observer requirements would be introduced, and vessels would have to pay the costs of complying with these requirements, estimated at $350 to $500 a day.

4.7 Identification of Relevant Federal Rules that may Duplicate, Overlap, or Conflict with the Proposed Rules

There are no relevant Federal rules that may duplicate, overlap, or conflict with this action.

4.8 Description of Significant Alternatives to the Proposed Rules

Each IRFA shall also contain a description of any significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and that minimize any significant economic impact of the proposed rule on small entities.

There are no significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and that minimize any of the significant economic impact of the proposed rule on small entities.

The proposed action includes provisions that would have a beneficial impact on small entities. It would create a management program under which most recent participants in the Pacific Coast groundfish limited entry trawl fishery (many of which are small entities) would be eligible to continue participating in the fishery and under which the fishery itself would experience an increase in economic profitability. Small entities choosing to exit the fishery should receive financial compensation from selling their permit or share of the resource. To prevent a particular individual, corporation, or other entity from acquiring an excessive share of the total harvest privileges in the program, accumulation limits would restrict the amount of harvest privileges that can be held, acquired, or used by individuals and vessels. In addition, for the shoreside sector of the fishery, an adaptive management program would be allocated an amount of harvest privileges that could be used to mitigate any adverse impacts, including impacts on small entities, that might result from the proposed action.

The following is excerpted from "Analysis of Components, Elements, and Options for the Individual Fishing Quota Alternative Trawl Individual Components Analysis, Appendix A to the Pacific Coast Groundfish Limited entry Trawl Fishery Environmental Impact Statement."

Under the MSA, the Council is required to consider entry-level fishermen, small vessel owners, and crewmembers, and in particular the possible allocation of a portion of the annual harvest to individuals falling in those categories. No special provisions have been identified for analysis given that new entry is addressed indirectly by allowing crew, captains and others to acquire QS in small increments.

Section 303A(c)(5)(C) of the MSA requires that in developing a LAPP, the Council do the following:

> Include measures to assist, when necessary and appropriate, entry level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set asides or allocations of harvesting privileges, or economic assistance in the purchase of quota.[4]

The MSA requires that the Council consider, and, **if appropriate**, provide additional measures to benefit the named groups. The Council has considered these groups and certain other elements of the program have been designed with impacts on these groups in mind, including the following:

1. Allocating based on the history of the permit, allowing new entrants to receive a greater initial allocation than they would if the allocation were based just on their personal history in the fishery (Section A-2.1.1).
2. Including an equal allocation component as part of the initial allocation formula for permits, this will benefit historically smaller producers (Section A-2.1.3).
3. Not including a minimum holding requirement provision, this might be more difficult for smaller vessels to comply with than larger vessels (A-2.2.1).
4. Specifying a broad class of eligible owners, that includes crews and fishing communities (Section A-2.2.3.a).
5. Specifying that the QS/QP be highly divisible so as to facilitate the acquisition of QS/QP in small increments by crewmembers, those that have just entered the fishery, and operators of small vessels (Section A-2.2.3.d).
6. Including provisions for a set-aside, as needed to support an adaptive management program that may be used at some future time to address community concerns or create other incentives to benefit the groups listed in 303A(c)(5)(C) or for other purposes (Section A-3).

The TIQC also debated and reported to the Council options for a loan program and a provision that would allocate shares forfeited through a use-or-lose provision to new entrants. The TIQC did not recommend that the Council adopt the loan program because the rationalization program already has high costs and the program would act as a subsidy that might drive up QS prices.

4 An **Assisted Purchase Program** may be developed to aid in financing quota purchase by small vessel fishermen and first time purchase by entry-level fishermen (MSA – 303A(g)(1)).

The use-or-lose provision was not included as part of the package because of implementation obstacles. The TIQC also noted that providing a central lien registry would facilitate obtaining financing by increasing security in the collateral, reducing risk and therefore lower interest rates. This would benefit new entrants. Such a registry, while required by the MSA, has not been implemented.

Much of the focus in developing the program is on the impacts of those who are currently in the industry and who will benefit from receiving an initial allocation of QS. Those individuals will be in an economically stronger situation. The value of the QS they receive will be a stream of resource-related rents (additional profits). Because of the infusion of wealth provided by the QS, they will likely be in an economically better position to bear the brunt of increasing fuel prices, program costs, and, if it should occur, declines in the available harvest. As holders of the QS, they will also accrue the benefits that occur from factors that increase the value in the fishery.

However, over the long term, the constituents of the commercial fishery who come before the Council will be those who at one time or another have been new entrants. New entrants who choose to own QS will have paid an amount for their QS based on the best projections of future profits after taking into account expected fuel prices and other production costs, including observer costs, expected ex-vessel prices for raw fish, expected harvest levels, and, significantly, the cost of the QS. If it turns out that costs are greater than expected or revenue is less than expected, they will not have the same revenue buffer initial QS recipients have. Under such circumstances, a new entrant may experience below-normal levels of profit, possibly even similar to those seen in the status quo fishery. At the same time, if costs are lower or revenues higher, they will experience a higher than expected return that will not be dissipated by increased competition. Thus, the IFQ program provides some expectation of more stable profits even for second-generation participants that choose to own QS. However, second-generation participants need not necessarily take on the risk of QS ownership.

The need to acquire quota will add to costs for second-generation owners, as compared to those who came before. In addition to paying for the physical capital (vessel, etc.) they will have to acquire QP each year and may choose to do so by making a capital investment in QS (by acquiring QS). By owning their own QS they would control their risk with respect to changing QP prices. However, by holding their own QS they will bear risk and reward from the changing value of the QS asset (increases, if there is a trend toward higher vessel costs or lower revenue, or decreases if conditions move in the other direction). If there were not an IFQ program, entering the fishery would require less of an investment but revenues would likely be lower. Assuming that all extra profits (resource rents) under status quo are dissipated, the fishery would have similar downside risks but less upside potential as compared to a fishery managed with IFQs. Upside potential would be lower under status quo because higher than expected profits would likely be dissipated by increased competition. If a harvester enters the fishery and chooses not to acquire QS, but rather to lease QP, the capital investment will be lower, they will not risk the potential decline in value of the asset they purchase, they will have a more limited benefit from any long-term improvement in economic conditions in the fishery, and, if they are able to be competitive, will fish at a normal profit level through QP they buy during the season or are provided by processors. [Note: a normal profit implies zero economic profit but sufficient profit to compensate for their investment.]

4.9 RIR Significance Questions

The RIR Guidelines require a review of the following four questions. Responses to those issues are provided.

1) Will the rule have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities?

The proposed action is expected to have a positive effect on the national economy, although it is unlikely to exceed $100 million annually. Economic profit from the non-whiting sector of the Pacific Coast groundfish limited entry trawl fishery is estimated at about $14 million to $23 million, although various proposed measures (accumulation limits, at-sea observers) would reduce this profit somewhat. While similar estimates of changes in profits are not available for the whiting sector, the lower motivation to "race for fish" due to co-op harvest privileges is expected to result in improved product quality, slower-paced harvest activity, increased yield (which should increase ex-vessel prices), and enhanced flexibility and ability for business planning. The overall effect of these changes would be higher revenues and profits for harvesters in the shoreside and mothership portions of the whiting fishery.

Improvements in the economic performance of processors in the Pacific Coast groundfish limited entry trawl fishery may also be substantial due to increased processing of target species, increased season length, and processor consolidation. An initial allocation of QS to shoreside whiting processors is expected to replace the lost capital value potentially occurring among these processors due to a decline in processing demand.

Fleet consolidation would result in a decrease in the number of captain and crew jobs; however, those who retain jobs are expected to receive higher wages due to higher vessel profit margins. Increased vessel profits and operational flexibility are anticipated to improve safety conditions on board trawl vessels. Fleet consolidation may lead to spillover of excess vessels into nontrawl commercial fisheries that are operationally similar, thereby increasing competition in those fisheries. Fishing communities will be affected differentially, depending on whether or not fleet and processor consolidation results in a concentration or loss of vessels and commercial infrastructure.

The main socioeconomic impact of the long-term, formal allocations of specified groundfish stocks and stock complexes between sectors of the Pacific Coast groundfish fishery is increased stability for the limited entry trawl fishery. While the allocations under the proposed action do not differ significantly from status quo allocations made biennially, there is more certainty in future trawl harvest opportunities, which enables better business planning for participants in the rationalized fishery.

The proposed action does not present a risk to long-term productivity. As discussed above, productivity is expected to increase through fleet consolidation and other factors. The gains are expected to continue over the long term.

2) Will the rule create a serious inconsistency or otherwise interfere with action taken or planned by another agency?

No inconsistencies or conflicts with the activities of other agencies have been identified.

3) Will the rule materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof?

The MSA (§303A(e) and §304(d)(2) provides that up to 3 percent of the ex-vessel value of fish harvested under a limited access privilege program may be assessed to recover costs of management, data collection and analysis, and enforcement activities. The assessment of such a fee is included as part of the proposed action in order to cover management costs, such as maintenance of the system of quota share accounts. In 2006, the Federal government established a loan program to purchase groundfish limited entry trawl permits and associated vessels and retire them from the fishery to reduce capacity. This buyback program is based on both a grant to subsidize the cost and a loan program whereby remaining fishery participants pay a landings-based fee to retire the upfront cost. The proposed action will not alter this obligation and fishery participants will continue to pay the landings fee.

4) Will the rule raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the EO?

The Council considered various arrangements for obligating catcher vessels participating in co-ops to deliver to certain processors. In particular, the co-op proposal for shoreside whiting vessels included provisions for obligating deliveries that were found to be outside NMFS's legal authority. However, this proposal was not included in the preferred alternative. The co-op program proposed for the mothership sector, which was included in the preferred alternative, was structured in a way to avoid potential legal issues. Otherwise, the proposed action is consistent with the President's priorities as reflected in the NOAA Administrator's emphasis on the use of catch share programs in fishery management.

Attachment 1

Update to the Tracking and Monitoring Costs of the Program

Tracking and Monitoring Program

A key feature of the trawl rationalization program would be a shift from the current catch accounting system for the shoreside sector that uses fleetwide estimates of discards based on an observer sampling system that has 20 percent coverage to an 'individual accountability' system where all catch by shoreside vessels would count against participants' shares, including both retained and discarded catch based on 100 percent observer coverage on vessels and 100 percent compliance monitoring in the plants. Under the current management system, shorebased fishermen fish against bimonthly trip limits and annual fleetwide quotas and have no direct accountability for discards. Under the proposed system, shorebased fishermen would fish against "individual" quotas against which their discards would count. Within the whiting fishery, there will be two major changes. Shoreside whiting vessels will no longer be monitored by cameras as they will be required to have observers. Catcher-vessels that deliver to motherships are currently unmonitored; these vessels, too, will be required to carry observers.

Amendment 20 would include a tracking and monitoring program to ensure that all catch (including discards) would be documented. For shoreside vessels, catch would be matched against QP; for the at-sea co-ops, catch would be matched against sector amounts. The Council specified that observers would be required on all vessels, and shoreside monitoring (catch monitors) would be required during all off-loading (100 percent coverage). Compared to status quo monitoring, this would be a monitoring and observer coverage level increase for a large portion of the trawl fleet, particularly nonwhiting shoreside vessels.

The Council recommended providing NMFS with the flexibility to develop a monitoring program that would achieve the objectives of the QP program. NMFS is working closely with the states and the Council to develop the details of the tracking and monitoring program, as reported by Pacific States Marine Fisheries Commission (PSMFC) at the April 2010 Council meeting. The details of the program will be proposed in the upcoming program components rule. As reported by PSMFC, the following tracking and monitoring components will be addressed.

Amendment 20 would require NMFS-certified, at-sea observers on each vessel. This requirement includes shoreside catcher vessels, mothership catcher vessels, mothership processors, and catcher-processors. Because this is a new program, ensuring adequate observer coverage would be particularly important for monitoring the complex suite of allocations. Observers aboard vessels would be required to adequately account for catch and bycatch in the fishery. Among his or her duties, the observer would record fishing effort and estimate total, retained, and discarded catch weight by species or species group; determine species composition

of retained and discarded catch (non-whiting vessels), and document the reasons for discard; record interactions and sightings of protected species; take biological samples from tagged fish and discards; and estimate viability of Pacific halibut. Observers would be essential to monitor IBQ in the fishery, including IBQ weighing and discarding.

An increase in observer and catch-monitoring coverage requirements would result in increased costs over the status quo observer program costs. There would be a combined status quo, pay-as-you-go industry funding and agency-funded observer and catch monitoring system, as required for each sector. The agency has announced its intent, subject to available Federal funding, that participants initially be responsible for 10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors will be increased every year so that, by 2014, once the fishery has transitioned to the rationalization program, the industry will be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry-funding will enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

Amendment 20 would require that first receivers—shorebased processors or other entities that receive groundfish from IFQ harvesters[spf1] sort, weigh, and report all landings of IFQ species under a catch monitoring plan. First receivers will be required to hire NMFS-certified catch monitors to verify all shoreside deliveries of IFQ species, ensure that species are sorted into Federal species groups, ensure that the fish are weighed on state-certified scales that are tested periodically and record and submit catch data daily[spf2].

To ensure that the QP program goals are met, and landings are tracked, first receivers will be required to submit electronic fish tickets using software provided by the Pacific States Marine Fisheries Commission. Further, vessels will be required to use VMS to indicate vessel locations and to make declarations. In addition, there are plans to develop and require an electronic vessel logbook, but this component will not be immediately implemented.

To ensure that program goals are met to track transferrable QS and QP, NMFS is also developing an online accounting system for the tracking and trading of QS by owner and for the tracking, trading, and use of the QP that result from these quota shares by vessels.

The agency will collect fees to cover the administrative costs of issuing the quota shares, permit endorsements (one-time fee and annual renewal), and first receiver site licenses (annual). Amendment 20 would allow for assessing cost recovery fees of up to 3 percent of ex-vessel value, consistent with 303A(e) of the MSA. The costs to be recovered would be the agency's costs of management, data collection, analysis, and enforcement activities. The Council will develop the methodology required by 303(A)(e) in a trailing action.

NMFS plans to propose additional program details in a future proposed rule. Such additional details would include program components applicable to IFQ gear switching, observer programs, retention requirements, equipment requirements, catch monitors, catch weighing requirements, coop permits/agreements, first receiver site licenses, quota share accounts, vessel quota pound accounts, further tracking and monitoring components, and economic data collection requirements. In order to encourage more informed public comment, this proposed rule includes a general description of these additional program requirements. NMFS is also planning a future cost-recovery rule based on a recommended methodology yet to be developed by the Pacific Fishery Management Council.

Tracking and Monitoring Costs

The costs of the program can be broken into three categories:

Agency Implementation Costs (one-time costs to develop the tracking and monitoring programs)

Agency Annual Costs (state and Federal costs associated with running the Program when fully implemented)

Direct Observer and Monitoring Costs (daily costs associated with hiring observers and plant monitors)

These costs are shown in the table below. They are based on converting quarterly estimates developed for the Federal fiscal year budget process. While funds may be received in one quarter, they may not be expended in that quarter. Estimates of agency implementation costs were based on funds received during FY 2010 and first quarter of FY 2011. As programs develop, in some cases using this approach to estimate implementation cost may yield estimates that are too high and in other cases too low. As the fishery progresses and programs adapt, new features will have to be developed, while others will be corrected or phased out. For example, the quota share trading system, while initially developed for 2011, will not be tested until 2013 because the trading in quota shares is prohibited for the first two years. There may also be implementation costs associated with the Adaptive Management Programs or the Community Fshery Association Program. As programs develop, agency costs may increase because of the transition from old programs to new programs where, for a period of time, both programs have to be maintained (see attached figure).

<u>Agency Implementation Costs</u>

These are one-time additional costs to NMFS and the states to implement the program. For managing the program, these include developing the initial issuance processes (historical database development, initial application forms, the appeals processes), permitting processes and development of the shorebased total catch accounts (electronic fish tickets, compliance monitor

reports, and observer discard estimates) and shorebased, vessel accounting systems). Based on review of NMFS Alaska and Northeast Region programs, NMFS estimates that there may be over 100 appeals. States will also incur some implementation costs for upgrading their catch tracking systems to meet the new electronic reporting requirements. The federal enforcement program will have to train new officers and staff and pay their salaries while in training. State enforcement programs will also have to train new officers and staff, but these costs[spf3] are included in annual costs. Both the NWR and NWFSC will have to expand their monitoring programs and develop the necessary infrastructure (IT, equipment, training, and office space. It may cost more than $12,000 to equip an observer with a laptop, motion-compensated scale, safety gear, and raingear. It costs about $2000 to equip a compliance monitor with gear and a computer. Approximately 100 observers and 60 to 80 plant monitors will have to be equipped and trained for the first year of implementation.

Agency Annual Costs

These are recurring state and federal costs associated with running the program when fully implemented. For the NMFS NWR Management Office, these costs include five positions for managing the permitting processes, quota share accounts, vessel accounts, catch monitoring program, and cost-recovery program. PSMFC and NMFS NWR will continue to expend about $200,000 annually to maintain the IT aspects of electronic fish ticket, total catch databases, quota share, and vessel accounts. States will continue to receive $200,000 each for managing state fish ticket system and for increased port sampling needs. For the Federal enforcement office, these costs fund four positions. For state enforcement, $800,000 is planned to be provided to the three states because of increased enforcement levels. The trawl rationalization program is complex, and there will be a initial need for high enforcement presence. These costs may decline once the program matures, and participants develop better understanding and acceptance of the regulations. These enforcement costs may also decline as a result of the expected consolidation of the fleet. Other costs may change as a better understanding of the roles of compliance monitors, port samplers, and enforcement agents develops, and the roles are revised to avoid duplication or to better complement each other. With respect to the Observer and Economic Data Collection Programs, the Northwest Fisheries Science Center will expend funds associated with about five positions. PSMFC will continue to receive grants for debriefing positions and gear. In addition, contracts for collecting economic data will be developed. The total cost is expected to be approximately $5.0 million by FY 2013. [Note that inflationary effects are taken into consideration.]

Direct Observer and Compliance Monitor Costs—Estimates by Fleet

Observer-Shoreside Non-whiting: In 2008, there were 2,166 actual non-EFP trawl trips. The number of trips has ranged from a high of 3,486 to a low of 2,088 between 2002 and 2008. Therefore, for purposes of analysis, we will assume 2,300 trips. The average trip length has been 3.3 days (trips are usually no longer than five days but range from one to eight days in length).

This yields about 7,600 sea days. The cost of an observer is estimated to be $500 a day based on conversations with the observer providers. Due to the logistical complexities of the west coast groundfish fleet and the high number of unknowns, there is considerable risk for the providers, and they estimate that the cost per sea day at $500 per day. This is higher than in the North Pacific but lower than the $510 estimates associated with the Northeast Region's industry-funded scallop observer program. This estimate leads to a direct annual cost for the shorebased non-whiting fishery of about $3.8 million. Unit costs of observers are a function of the ability to work with the observer providers and make arrangements to lower costs. At the September 2009 Pacific Fishery Management Council meeting, the NWFSC provided information suggesting that if an observer is placed on a monthly stipend under which the observer is expected and guaranteed to work 20 days, the average daily rate of the observer could be lower (Agenda Item E.6.B Supplemental NWFSC Powerpoint September 2009 "Thoughts on Costs").

Observer-Shoreside Hake: In 2008, 590 trips were taken. Using this value and $500 as the daily observer cost, the total cost is $295,000.

Observer-Mothership Catcher Vessel: It is estimated that they will fish for 30 sea days. Using 15 participants and 30 sea days each yields 450 total sea days. At $500 per day, this would yield an observer cost of $225,000. If the season were 60 days with
20 participants, at $500 per day for an observer, the total cost would be $600,000

Mothership Processors and Catcher-Processors: The NWFSC estimates the current at-sea costs of observers for both the Mothership and Catcher-Processor fleets is about $600,000.

Catch monitors: For the non-whiting fishery, if there are 7,600 sea days, and the average trip is 3.3 days, then a projected 2,300 trips that will have to be monitored. This implies that if a catch monitor can monitor one trip per day the direct annual compliance monitor cost would be about $800,000 at $350 per day. For the whiting fishery, if there are 14 processors and a 60-day season, there will be 840 processing days and potential cost of $300,000. If the season is 30 days, then the costs would be about $150,000. For approximation purposes, these estimates were rounded up to a total of $1.3 million.

The total of the direct cost observers and compliance monitors for the shoreside component is $5.4 million (observers, shoreside non-whiting, $3.8 million; observer shoreside hake, $300,000; and catch monitors, $1.3 million). The total costs for the observers in the mothership and catcher-processor fishery is about $1.2 million (observer-mothership catcher vessel, $600,000 and mothership processors and catcher-processors, $600,000). The initial grand total of the direct costs of observing and monitoring this fishery is about $6.6 million.

The agency has announced its intent, subject to available Federal funding, that participants would initially be responsible for
10 percent of the cost of hiring observers and catch monitors. The industry proportion of the costs of hiring observers and catch monitors would increase every year so that, by 2014, once the

fishery has transitioned to the rationalization program, the industry would be responsible for 100 percent of the cost of hiring the observers and catch monitors. NMFS believes that an incrementally reduced subsidy to industry funding would enhance the observer and catch monitor program's stability, ensure 100 percent observer and catch monitor coverage, and facilitate the industries' successful transition to the new quota system.

The initial observer and catch monitoring costs projections (shoreside, $5.4 million and at-sea whiting, $1.2 million) do not reflect two cost lowering effects: the effects of consolidation and as the industry increasingly bears the burden of paying for the observer and catch monitors and the ability of the industry to work with observer and compliance monitor providers to reduce costs. It is not unreasonable to expect a 25 percent reduction in costs to a level of $5.0 million annually as a result of these effects.

West Coast Trawl Rationalization program Implementation costs and funding											
Funds Required											
	FY2010 Q2	FY201 Q3	FY2010 Q4	FY2010 Total	FY2011 Q1	FY2011 Q2	FY2011 Q3	FY2011 Q4	FY2011 Total	FY2012 Total	FY2013 Total
Regs Dev./Permitting/ Issuance - NWR salaries	50,000	0	100,000	150,000	225,000	125,000	125,000	125,000	600,000	600,000	600,000
Appeals	0	0	0	0	170,000	20,000	20,000	20,000	80,000	0	0
Total Catch Databases and Quota Share/Vessel Accounts	1,100,000	0	0	1,100,000	200,000	0	500,000	0	700,000	700,000	700,000
State and Federal Enforcement	700,000	0	0	700,000	450,000	0	0	0	450,000	1,182,000	1,150,000
Catch Monitor Program	300,000	0	0	300,000	300,000	0	0	0	300,000	300,000	300,000
Observer and Economic Data Collection Program	519,000	0	0	519,000	1,488,500	720,500	720,500	720,500	3,650,000	3,650,000	2,050,000
Total Agency Costs	2,669,000	0	100,000	2,769,000	2,833,500	865,500	1,365,500	865,500	5,780,000	6,432,000	4,800,000

Observer Program Transition to TRat