

2.0 HISTORY OF THE WEST COAST GROUND FISH TRAWL FISHERY

The Pacific groundfish FMP was first approved in 1982, establishing management measures for over 90 species caught off the United States (U.S.) West Coast from California to Washington. Since its inception in 1982, the FMP has been amended 33 times, moving from a fishery characterized by high discards and expanding catches and capacity through various initiatives aimed at reducing fishing capacity, and, finally, through the transition to catch shares. This section reviews the historical management changes that have coincided with rebuilding stocks, bycatch reduction, and increasing net economic benefits to fishermen and fishing communities in a fishery that was declared an economic disaster less than two decades ago.

Expanding Industry Capacity and Scientific Understanding

Groundfish landings increased rapidly throughout the 1970s due to growing market demand, improved whiting processing technologies, and policies designed to encourage expansion of domestic fisheries (e.g., vessel construction funds). Large-scale harvesting and at-sea processing of Pacific whiting by foreign vessels became federally managed after the signing of the Fishery Conservation and Management Act in 1976. However, foreign fishing was supplanted by joint-venture agreements by 1989, which was further and wholly replaced by domestic processing by 1991, with the first shorebased whiting processing plant opening in 1992 (Larkins and Vacura 2012; PFMC 2016a). When the FMP was established, the fishery was facing declining biomass estimates and catches because stocks were being fished down to what were believed to be maximum sustained yield biomass levels (B_{msy}). The management philosophy of fishing a stock to B_{msy} , combined with overestimation of stock productivity, led to what are retrospectively recognized as unsustainable harvest levels. As a result, several non-whiting groundfish species were declared overfished starting in 1999. Over the same period, relative spawning biomass of Pacific whiting dropped from 96 percent to 29 percent of unfished biomass from 1983 to 2000 largely due to low stock recruitment (Berger et al. 2017). Non-whiting groundfish landings reached a peak of approximately 250 million pounds in 1982, amounting to more than \$50 million in ex-vessel revenue (PFMC and NMFS 2010b). By 2000, landings had decreased by two-thirds, and revenue had decreased by half (PFMC 1999). The fleet was overcapitalized, with two to three times the number of vessels that would be needed to fully harvest landings limits for the trawl sector (Hastie 2001).

At the inception of the FMP, the trawl fishery was managed by trip limits primarily for sablefish and widow rockfish and continued evolving into a complex system with limits varying depending on species,

species complex, and gear type. In 1985, trip limits shifted to biweekly landings limits, and then again to monthly limits in 1994, and bimonthly limits for most species in 1996. The lengthening of the cumulative limit periods was intended to reduce discarding. This complex set of regulations was critical to preventing short derby seasons for most species, but was laborious for managers and participants to track. It may not have reduced bycatch because landings were limited per vessel, but there was no limit on total fleetwide catch. The result was an incentive to discard lower value fish or constraining species until the trip limits of all species were reached (Gillis, Peterman and Pikitch 1995; Pikitch, Erickson, and Wallace 1988).

Limited Entry Program

To address overcapacity, improve efficiency, and meet other economic and biological goals of the FMP, the Council approved a license limitation plan through FMP Amendment 6 in 1994. Under the limited entry program, the vast majority of the fish was allocated to the limited entry sector for vessels that qualified for groundfish trawl, longline, or pot gear permits. The remainder of the fish was allocated to an “open access” component for vessels without permits using any gear except groundfish trawl. Vessels qualified for a limited entry permit if they made a specific number of landings of at least a certain weight, depending on gear type, from 1984 to 1988. Based on these requirements, 629 permits were initially issued (384 endorsed for trawl gear and 245 for fixed gear) (PFMC 2000a).

Catcher-processors had primarily been targeting Alaska pollock during the qualifying window, and they were, therefore, only able to enter the fishery by purchasing and combining enough permits appropriate for the length of their vessel based on a system of capacity rating points. This process largely accounted for the notable decline in the number of trawl-endorsed permits from 384 to 289 in 1994 (PFMC 2000a). Motherships could participate in the fishery without a limited entry permit because the program was designed specifically to license harvesting, not processing.

Persistent Overcapitalization and Economic Failure

The Amendment 6 license limitation measure was implemented with the understanding that it was a stopgap measure and that additional action would be required to reduce capacity. In the late 1990s, the fleet remained overcapitalized and fish stocks continued to decline, with non-whiting landings falling by 65 percent and revenues by 54 percent from 1983 to 1999 (PFMC 2000a). Despite an increase in the volume of whiting landings in this same period, overall revenues declined by almost 50 percent due to the lower landings of more valuable non-whiting species (PFMC 2000a). It was estimated that capital utilization rates in 1999 ranged from 27 percent to 41 percent for shoreside trawl vessels (PFMC 2000a).

In 1997, the Council adopted management measures for the Pacific whiting fishery, including sector-specific quota allocations (42 percent to the shorebased sector, 24 percent to motherships, and 34 percent to catcher-processors), effectively eliminating competition between the sectors, but the race to fish within sectors remained. One exception to this, however, was the formation of a voluntary harvesting cooperative among catcher-processors in 1997, known as the Pacific Whiting Conservation Cooperative. This agreement allowed vessel operators to divide the sector allocation amongst themselves, thereby removing the race-to-fish incentive and benefiting from improved economic efficiency, higher product recovery rates, and operational flexibility (Sylvia et al. 2008). However, there were no sector-specific allocations for bycatch species, resulting in a race to bycatch.

In 2000, the Secretary of Commerce declared the West Coast groundfish fishery a failure under section 312(a) of the MSA. The conditions in the fishery were estimated to have cost fishermen \$11 million in lost revenue (NOAA 2000). This official disaster determination enabled the appropriation of \$5 million in disaster relief funds to assess the economic and social effects of the commercial fishery failure and to conduct activities to restore the fishery. These funds were apportioned to the states proportional to the impacts of the disaster and were to be used to create relief programs, including access to social services, payment to impacted individuals, and cooperative fisheries research (Shaw and Conway 2007).

In the meantime, the Council and the NMFS continued to implement measures designed to help rebuild overfished stocks and improve the overall outlook for the fishery. Trip limits were further reduced to comply with rebuilding plans and certain coastal areas were closed to trawling. In 2002, the Council and NMFS established what are known as “Rockfish Conservation Areas,” designed to minimize the catch of overfished rockfish by closing specific areas and depths where those species are known to co-occur with other target species. These measures were further developed and finalized in 2006 when the Council established essential fish habitat for Pacific groundfish through FMP Amendment 19 (PFMC 2016a).

Buyback Program

Discussions about the implementation of an IFQ program dated back to the 1980s, but it was not adopted at the time Amendment 6 was considered primarily due to the inability (at the time) to track landings and quota trading in a coastwide multispecies fishery prosecuted using diverse fishing strategies. In the early 2000s, renewed discussions about the possibility of an IFQ program for the trawl fishery were forestalled by the nationwide moratorium on new IFQ programs from 1996 to 2002. However, the need to reduce capacity and fishing effort in the interim remained for both whiting and non-whiting sectors. Overall, this was a period of considerable insecurity within the fishery, with shrinking catch limits contributing to

continued uncertainty about the degree to which the fleet should consolidate to maximize efficiency and capital utilization rates.

To reduce capacity in the limited entry trawl fishery, a buyback program was implemented in 2003 (NMFS 2003), resulting in the permanent removal of 91 vessels and associated permits (in addition to 121 state permits for crab and shrimp associated with those vessels). It was funded through a \$10 million appropriation and a \$36 million loan to be repaid over 30 years with a 5 percent landings fee on trawl-caught groundfish. Estimates based on 2002 data projected that revenue per permit for both whiting and non-whiting groundfish would increase by more than 50 percent after the buyback (NMFS 2004). However, the anticipated benefits of the buyback may have been diluted by the fact that many permits that were latent at the time of the buyback were later purchased and used to fish in the groundfish fishery.

Rationalization through the Catch Share Program

After years of discussion and development, rationalization for the Pacific groundfish trawl fishery was implemented in 2011 through a catch share program established by FMP Amendments 20 and 21. For the shoreside sector, the program includes individual fishing quota allocations for 30 species and other provisions including the requirement for 100 percent observer coverage, allowance for gear-switching, and an adaptive management program to set aside quota in support of activities such as cooperative research. In addition to these changes, some management measures remained in place, such as trip limits for non-IFQ species, size limits, and area restrictions.

During the development of the program, the Council considered 26 program elements and four primary alternatives for implementing IFQs or cooperatives based on target species operation (whiting versus non-whiting) or based on shoreside versus at-sea operations. The need for greater flexibility for various fishing strategies to target the heterogeneity of quota species and minimize bycatch influenced the decision to ultimately implement IFQs (as opposed to co-ops) for the shorebased non-whiting fishery. For the shorebased whiting fishery, anticipated complexities in designing effective linkages between vessels and processors that would be necessary for the co-op option influenced the decision to implement IFQs (PFMC and NMFS 2010). Separation of the at-sea and shoreside programs was intended to avoid the elimination of one sector by another, which might result from market imbalances (PFMC and NMFS 2010).

Shorebased sector

The IFQ program represented a significant shift for the shoreside sector, establishing target and bycatch species quota allocations for participants based on historical participation. The program allocated

90 percent of the non-whiting quota shares (QS) to limited entry permit holders based on permit history and equal allocation⁸ and 10 percent to the Adaptive Management Program (AMP). For whiting, 80 percent of QS was allocated to limited entry permit holders and 20 percent to qualified processors. The allocation to processors was an effort to maintain existing bargaining arrangements and to compensate for potential “stranded” capital and consolidation or redistribution of fishing effort and deliveries (PFMC and NMFS 2010).

The program also established QS control limits (restricting the amount of QS an entity can own) and QP limits (restricting the amount of quota a vessel can use). At the start of the program, some entities received amounts exceeding the QS control limits. Once QS trading started in 2014, they were required to divest down to the QS control limits by November 30, 2015.⁹ Quota allocations must be moved from a participant’s quota share account into quota pounds, where they can be used, traded, sold, or leased to match and count against what participants actually catch throughout the season. A vessel must cover all its catch of IFQ species with QP and must stop participating in the fishery until any deficit is resolved. At the end of each year, QP deficits and surpluses of up to 10 percent may be rolled over to the following year (subject to annual determinations). The new observer and catch monitoring requirements created the incentive to fish selectively and co-operate to avoid exceeding individual catch limits. The capacity reduction measures beginning with the license limitation program in the mid-1990s through the implementation of the catch share program are evident in the number of vessels participating in the catch share program: declining from approximately 200 to less than 140 after the buyback program, to around 100 since 2011 (Steiner et al. 2016a).

At-Sea sectors

The mothership sector was rationalized through a limited entry system and catcher vessel co-op program, where whiting catch history assignments (quota or catch history assignment [CHA]) were made to qualified catcher vessel permits. These CHAs can be transferred in non-divisible blocks separate from the limited entry permit for which they were issued. Each year, harvester co-ops are allocated whiting and bycatch species in proportion to the CHAs of the limited entry permits that join the co-op. Catcher vessels with limited entry permits for the mothership sector are not required to join co-ops but, thus far, all have chosen to do so, and they have organized themselves into a single co-op, where permit owners joining a

⁸ The allocation formula for overfished species was indirectly influenced by these factors, but it directly considered likely bycatch needs based on permit fishing locations.

⁹ This deadline applied to all species except widow rockfish, which continues to be under a QS trading moratorium while it is undergoing reallocation.

co-op must commit their CHA allocations for the year to a particular mothership. Similar to the IFQ allocations, there are limits on the amounts of allocation a single entity can control, harvest, or process.

The at-sea catcher-processor co-op was issued a Federal permit, and the limitation was continued on new entrants previously implemented as a stopgap measure in 2009 (Amendment 15). Essentially, provisions for catcher-processors allowed the existing co-op to continue operating, and the sector was, therefore, expected to experience fewer operational changes compared to the others. One of the most significant changes for the at-sea sectors occurred in 2009 with the Council-recommended implementation of sector-specific bycatch quota allocations for overfished species through the biennial specifications process, effectively eliminating the race-to-bycatch incentive between the two sectors. Each year, four bycatch species (canary rockfish, darkblotched rockfish, Pacific Ocean perch [POP], widow rockfish) are allocated between the at-sea sectors and among the mothership catcher vessel permits, in proportion to whiting allocations.

Mothership processor participation in the whiting fishery largely depends on market demand, ex-vessel prices, and the annual total allowable catch (TAC). From 1995 to 2008, nine vessels participated in at least one year, though only six participated consistently (PFMC and NMFS 2010). Since the implementation of catch shares, five motherships participated from 2011 to 2014, and three in 2015 when catch attainment was low (Steiner et al. 2016b). At most, nine catcher-processor vessels actively fished in the fishery throughout the early 2000s, which dropped to six vessels in 2009 and 2010, corresponding with low TAC, and then again rose to nine vessels in 2011 (PFMC and NMFS 2010; Warlick et al. 2016). An alternative way of gauging participation in the catch share program for these sectors is their days at sea, which peaked in 2013 for motherships, and increased steadily from 2009 to 2015 (with the exception of 2012) for catcher-processors.

As can be expected with this significant transition to catch shares, there were numerous further “trailing actions,” including implementing the collection of cost recovery fees, implementing certification requirements for West Coast observer providers, and providing quota share control limit flexibility for lenders. To date, many have been completed, while a few remain under consideration, highlighting the continually evolving and complex nature of the fishery. Management measures have continued to respond to rebuilding successes, such as widow rockfish, petrale sole, and canary rockfish being declared rebuilt and, therefore, allowing future increased fishing opportunities.