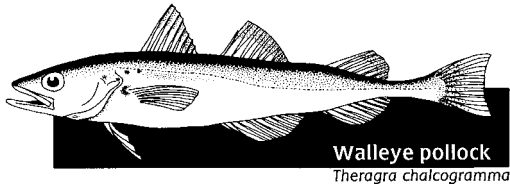


Alaska Groundfish Fisheries

INTRODUCTION

The groundfish complex off Alaska is the most abundant of all fisheries resources, not only for Alaska but for the entire United States as well. The resource base that total more than 20 million t of exploitable



biomass contributes almost 2.2 million t of catch each year, with another 1.3 million t of underutilized sustainable potential.

Prior to the implementation of the MFCMA in 1977, the only groundfish species of significant catch and value was Pacific halibut. All the rest of the groundfish species were virtually all utilized by foreign fisheries. The Act, that extended fisheries management jurisdiction to 200-nmi, brought into focus a vision and preference for domestic fisheries that led rapidly to the greatest success story of domestic fisheries participation and expansion for the country. The Alaska groundfish fishery is now a deeply rooted domestic industry. Much of the groundfish catches are exported, particularly to Japan, and such trade contributes prominently as a source of revenue to offset trade deficits for the nation.

SPECIES AND STATUS

Pacific Halibut

Pacific halibut is found from the Bering Sea to Oregon, with the center of abundance in the Gulf of Alaska. The resource is managed by treaty between the United States and Canada through recommendations of the International Pacific Halibut Commission. Pacific halibut is considered as one large interrelated biological stock; but is regulated by subareas through catch quotas, time-area closures, and (lately) by individual vessel quotas. The fishery has a long tradition that extends back to the late-1800s. There is a very active recreational fishery as well.

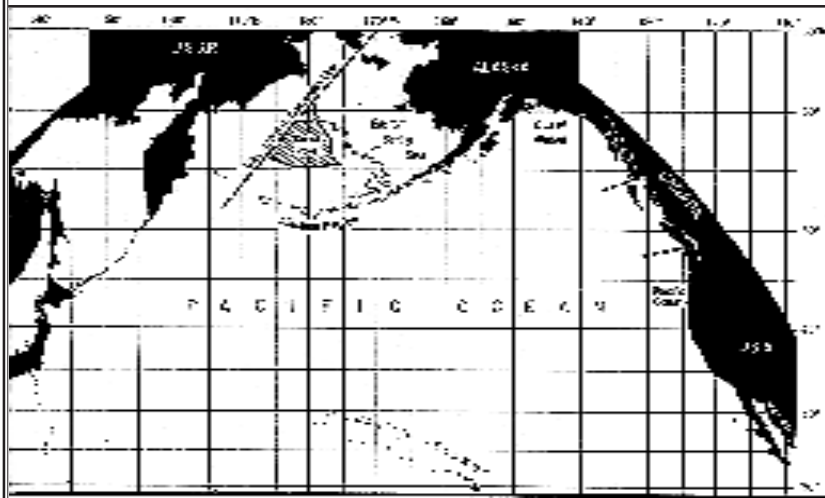
The 1993 Pacific halibut commercial catch was 35,435 t and worth \$86.7 million dockside. The commercial catch was lower (33,100 t) in 1994 (Fig. 19-1), but worth more (\$114.4 million). Other sources of catch were the recreational fishery (4,700 t), personal use (560 t), mortality due to fishing by lost gear and discards (1,700 t), and incidental catch by fishermen targeting on other species (9,700 t). About 4,630 vessels were licensed for the U.S. commercial fishery; but not all licensed vessels fished in 1994. The number of vessels licensed to fish in Canada was 435.

The exploitable portion of the Pacific halibut stocks apparently peaked at 270,000 in 1988-1990 (Fig. 19-1). The population has since declined at about 5% per year. Some decline is still expected, but halibut numbers are still fairly high by historical standards. The species is fully utilized.

Bering Sea-Aleutian Islands Groundfish

The average Eastern Bering Sea-Aleutian Islands groundfish catch during 1992-94 was about 1.9 million t (Table 19-2, Fig. 19-2). The total catch in 1994 was 1.86 million t, valued at \$332 million (ex-vessel). The dominant species harvested were walleye pollock (1.28 million t valued at \$210 million); Pacific cod (197,000 t valued at \$65 million), and yellowfin sole (145,000 t valued at \$18 million).

The North Pacific Ocean



Groundfish populations have been maintained at high levels since implementation of the MFCMA. Their LTPYs total about 3.52 million t. The CPY of 3.07 million t for 1994 is slightly below LTPY. This potential, however, has not been fully utilized because catch quotas cannot be set to exceed the FMP 2.0 million t OY limit.

Walleye Pollock: Pollock produce the largest catch of any single species inhabiting the U.S. EEZ. The three main stocks, in decreasing order of abundance, are: Eastern Bering Sea (EBS) stocks, Aleutian Basin (AB) stock, and the Aleutian Islands (AI) stock. The EBS stock, sustained by the strong 1989 and 1992 year classes, is moderately high (near the level that produces LTPY) and fully utilized. The AI stock is believed to be in roughly the same condition as the EBS stock.

Until 1992, another large fishery targeted the portion of the AB stock residing outside of the U.S. and Russian EEZs in the "donut hole" of the central Bering Sea. Historical catches from this stock were apparently too high (well over 1,000,000 t throughout the late-1980s) and not sustainable. The abundance of the AB stock was consequently greatly diminished, and all fishing ceased in 1993.

Pacific cod: Pacific cod abundance remained high and stable throughout the 1980s. Although a string of below-average year classes (those spawned in 1986-88) led to a downturn in abundance during the early-1990s, this trend has been reversed due to a subsequent string of above-average year classes (those spawned in 1989-91). The cod stock is now healthy, increasing in abundance, and underutilized.

Flatfishes: All flatfish species are underutilized and, with the exception of Greenland turbot, high in abundance. The underutilization of flatfish results from the FMP requirement to maintain overall groundfish catches within the 2 million t OY cap and a desire to prevent excessive incidental catches of Pacific halibut and king and Tanner crabs. Yellowfin sole is the most abundant of the flatfishes. Within the overall groundfish complex, yellowfin sole ranks second in terms of abundance, behind walleye pollock. In terms of harvest, yellowfin sole ranks third among the groundfish complex behind pollock and Pacific cod. Greenland turbot, the only depressed flatfish stock, is expected to decline further during the rest of the 1990s as a result of poor recruitment.

Among the other flatfish species, abundance continues to be high and increasing for

arrowtooth flounder and rock sole. It is high and stable for flathead sole, Alaska plaice, and other flatfishes. Rock sole is now the second most abundant of the flatfishes and the third most abundant of all groundfish species, having increased steadily from 1975.

Sablefish: Sablefish (or blackcod) is a valuable species caught mostly with longline and pot gear in depths greater than those fished by trawlers. Sablefish is considered to be a single stock from the Bering Sea-Aleutian Islands

Bering Sea/Aleutian Is. Groundfish Landings (t)	
1993	1,854,100
1994	1,859,700

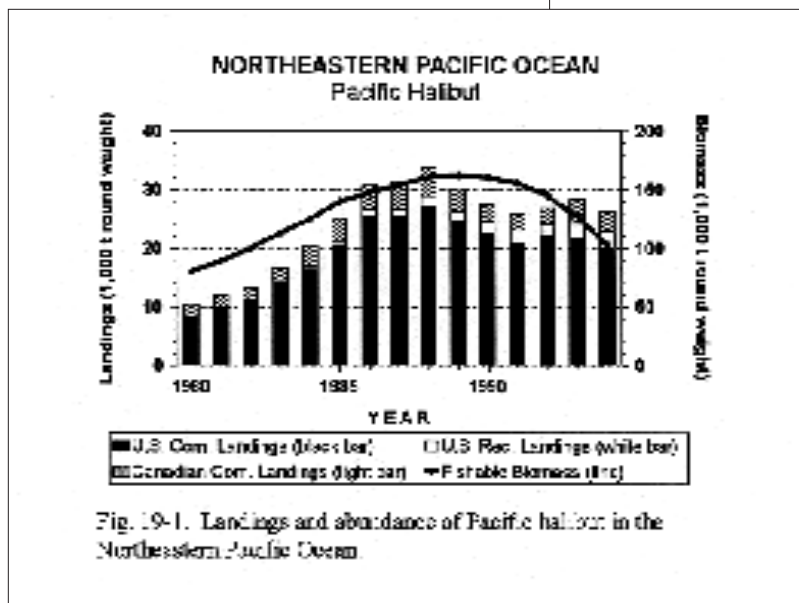


Fig. 19-1. Landings and abundance of Pacific halibut in the Northeastern Pacific Ocean

(BSAI) region to the Gulf of Alaska. The BSAI population declined substantially in 1990, perhaps due to some migration into the Gulf of Alaska, and has remained at low-to-average levels since. Recent recruitment has been relatively weak. Sablefish is fully utilized.

Rockfish: Rockfishes are assessed and managed as two major groups: Pacific ocean perch (POP) and "other rockfish." POP abundance dropped sharply due to intensive foreign fisheries in the 1960s and remained low into the early-1980s. In recent years, catch levels have been set well below CPY to help rebuild the stocks. The POP group is now recovering and is considered fully utilized.

Canadian Pacific Halibut Landings (t)	
1993	6,400
1994	6,000

U.S. Pacific Halibut Landings (t)	
1993	29,300
1994	27,100

Atka Mackerel: The Atka mackerel stock occurs mainly in the Aleutian Islands region. Previously, CPY for this species had been set conservatively low because of uncertainty regarding its abundance. However, trawl surveys conducted in 1986 and 1991 have confirmed a higher abundance than was previously realized, and a gradual increase in the rate of exploitation was phased-in from 1992. The stock is consid-

Gulf of Alaska Groundfish

Groundfish abundance in the Gulf of Alaska increased from 1977 and reached a peak of 5.3 million t in 1982. Abundance since then has remained relatively stable, fluctuating between 4.5 and 5.3 million t. The estimated LTPY for Gulf of Alaska groundfish is 451,440 t (Table 19-3). The CPY is 492,240 t which reflects the high abundance of some stocks relative to their LTPY. The RAY is 249,580 t. The wide disparity between the CPY and the RAY is intentional because the trawl fishery, particularly for flatfish, is restricted by the North Pacific FMC to reduce incidental catches of Pacific halibut.

Gulf of Alaska groundfish catches have ranged from a low of 135,400 t in 1978 to a high of 352,800 t in 1984 (Fig. 19-3). The catches are dominated by pollock, followed by Pacific cod, flatfish, and sablefish. Catches since 1989 have fluctuated around 200,000 t. The 1994 groundfish catch of 238,122 t was valued at \$114.5 million (ex-vessel value). Sablefish comprised about 54% (\$61.6 million). Other major revenue-producing species in 1994 were pollock (\$18.1 million), Pacific cod (\$16.9 million), and flatfishes (\$10.8 million).

Pollock: Pollock abundance has been declining in recent years due to poor recruitment trends. A conservative exploitation strategy is utilized for pollock to accommodate concerns about maintaining the pollock stock above threshold levels and ecosystem considerations, such as limiting forage fish removals (e.g. juvenile pollock) removals important to marine mammals and seabirds. Pollock are considered fully utilized.

Pacific Cod: Pacific cod are abundant and fully utilized, but are expected to decline due to a lack of significant recruitment. The last strong year class was the 1984 cohort. A conservative exploitation rate has been applied to Pacific cod in light of uncertainty about the magnitude of the population not sampled by the survey gear.

Flatfish: Flatfish are in general very abundant, largely due to great increases in arrowtooth flounder biomass. Flathead sole, rex sole and arrowtooth flounder are managed as separate categories, and the rest of the flatfish are managed as deepwater or shallow-water groups. Flatfish are underutilized due to halibut bycatch restrictions.

Sablefish: Sablefish are still considered to be abundant, although on a slow declining trend

Table 19-1.		Pacific Halibut			
<i>Productivity in metric tons and status of the fisheries resource</i>					
Area	Recent Average Yield (RAY) ¹	Current Potential Yield (CPY)	Long-Term Potential Yield (LTPY)	Fishery Utilization Level	Stock Level Relative to LTPY
Bering Sea	3,600	3,600	2,900	Full	Below
Gulf of Alaska	25,700	17,600	14,200	Full	Near
Off U.S. Pacific Coast	200	300	200	Full	Below
Off Canadian Pacific Coast	5,400	5,700	2,700	Full	Near
Total	34,900	27,200	20,000		
U.S. Subtotal	29,500	21,500	17,300		

¹ RAY does not include 1,600 t for sport catch, bycatch, and waste.

ered underutilized.

Other Species: In recent years, “other species” catches have represented 1% or less of the total groundfish catch. Sculpins and skates probably constitute most of this resource, but the abundance of pelagic squids, smelts, and sharks is largely unknown. The CPY has been set at the average catch level.

Table 19-2.		Bering Sea/Aleutian Islands Groundfish			
<i>Productivity in metric tons and status of fisheries resource</i>					
Species	Recent Average Yield (RAY) ¹	Current Potential Yield (CPY)	Long-Term Potential Yield (LTPY)	Fishery Utilization Level	Stock Level Relative to LTPY
Walleye pollock	1,359,912	1,421,600	1,880,000	Full	Near
Pacific cod	190,089	328,000	328,000	Under	Above
Yellowfin sole	132,433	277,000	277,000	Under	Near
Greenland turbot	7,186	15,800	18,500	Under	Below
Arrowtooth flounder	11,881	72,000	72,000	Under	Above
Rock sole	58,920	347,000	347,000	Under	Above
Other flatfish	31,154	255,000	255,000	Under	Above
Sablefish	2,432	3,800	3,800	Full	Near
Pacific ocean perch	16,571	20,640	20,640	Full	Near
Other rockfish	818	1,135	1,135	Under	Above
Atka mackerel	63,108	250,000	250,000	Under	Above
Other fish	27,898	30,710	30,710	Full	Near
Total	1,902,402	3,025,385	3,483,785		

¹ 1991-93 average.

due to a lack of strong recruitment. The resource is fully utilized. Sablefish became an Individual Fishing Quota (IFQ) fishery for the first time in the 1995 season. This will significantly change the dynamics of the fishery.

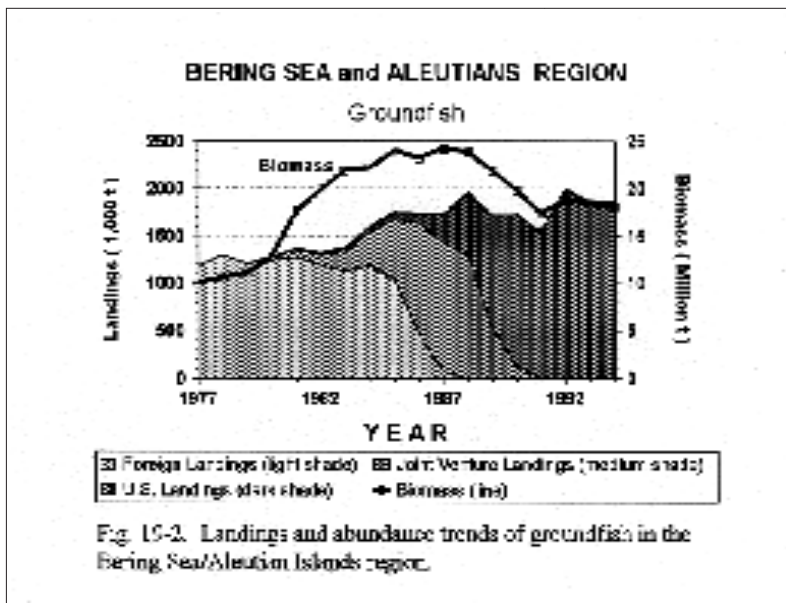
Rockfish: Slope rockfish are at low levels of abundance and fully utilized. Within the slope group, POP, shortraker and roughey rockfish, and northern rockfish are managed as separate categories. The principal species of the slope group, POP, and shortraker and roughey rockfish are highly valued. Rockfish, particularly POP, were intensively exploited by foreign fishing in the 1960s. Rockfish are long-lived, slow-growing fish that are only now showing signs of rebounding after heavy exploitation of three decades ago. A rebuilding plan is in effect specifically for POP. Thornyhead rockfish are also highly valued and believed to be at low abundance levels. They are conservatively managed due to their sensitivity to over-exploitation. The abundance of pelagic shelf rockfish is unknown due to problems assessing this species with current methodology. Demersal shelf rockfish assessment and management are focused on the target species, yelloweye rockfish. Traditional population assessment methods (e.g. trawl surveys) are not considered useful for surveying these fish because of their affinity to rough terrain. They are currently being assessed using a manned submersible.

Atka mackerel: The Atka mackerel stock occurs mainly in the Aleutian Islands region. Its abundance in the Gulf of Alaska has been lower and highly variable. The resource supported a large foreign fishery in the Gulf through the mid-1980s but almost disappeared thereafter. Targeting on the species resumed in the Gulf in 1990, as the population increased.

ISSUES

Transboundary Stocks and Jurisdiction

Large unregulated pollock fisheries in the donut hole of the Bering Sea was a major U.S. concern as migrating U.S. stocks outside the U.S. EEZ were targeted by foreign fishing vessels. Another concern was the lack of data to determine status of the stocks. Several international meetings were organized to develop cooperative research and management of the fishery. The user countries have now begun to cooperate on research and agreed to cease fishing in the donut hole area for 1993-95 due to



extreme low abundance of the Aleutian Basin pollock stock.

In addition to the interjurisdictional problems posed by the donut hole fishery, it appears that a large component of the pollock population found in the northern Bering Sea, within Russian waters, is a continuation of the U.S. eastern Bering Sea shelf stock. As pollock abundance in the western Bering Sea has been decreasing, some Russian fishing effort have shifted towards the U.S.-Russia Convention Line. Thus pollock fishing on the Russian side of the Convention Line could impact the EBS shelf stock within the U.S. EEZ.

Gulf of Alaska Groundfish Landings (t)	
1993	248,900
1994	238,100

Table 19-3.		Gulf of Alaska Groundfish			
<i>Productivity in metric tons and status of fisheries resource</i>					
Species	Recent Average Yield (RAY)	Current Potential Yield (CPY)	Long-Term Potential Yield (LTPY)	Fishery Utilization Level	Stock Level Relative to LTPY
Walleye pollock	104,507	65,360	169,000	Full	Below
Pacific cod	59,740	69,200	56,700	Full	Above
Flatfish	36,101	304,990	169,000	Under	Above
Sablefish	22,493	21,500	23,700	Full	Near
Atka mackerel	8,128	3,240	Unknown	Unknown	Unknown
Slope rockfish	13,390	20,280	Unknown	Full	Below
Thornyhead rockfish	1,413	1,900	3,750	Full	Below
Pelagic self rockfish	3,261	5,190	Unknown	Unknown	Unknown
Demersal shelf rockfish	549	580	Unknown	Full	Unknown
Total	249,582	492,240	451,440		

Bycatch and Multispecies Interactions

Incidental catch of Pacific halibut, king and Tanner (snow) crabs, salmon, and other low abundance species taken in groundfish fisheries have remained difficult problems to resolve off Alaska. The problems have curtailed expansion of the groundfish fisheries. When any bycatch limit is reached, the groundfish fisheries would get closed down, usually before harvesting of the entire groundfish quotas.

Marine mammal interactions with fish and fisheries are a growing concern to resource management. Fisheries compete for fish that marine mammal and other species may depend on for food in the natural ecosystem. The impact of fish removals on Steller sea lions feeding has

PROGRESS

To minimize impact of unregulated pollock fisheries in the "donut hole" of the central Bering Sea, the U.S. reached an agreement with five other countries (Japan, Russian Federation, Poland, Korea, and China) to manage pollock fisheries and signed a Convention to the effect. This Convention was ratified in late-1995 and should provide more stability to the fisheries and allow the two coastal states, Russia and the U.S., more control of pollock fishing outside their 200-mile EEZs.

As the domestic groundfish fisheries are now fully developed and rapidly becoming overcapitalized, allocation disputes between user groups have been exacerbated. Significant problems include inshore vs. offshore, fixed gear vs. trawler, and other multi-user conflict issues. The North Pacific FMC has been addressing the problems as they arise. Recent FMP amendments have been implemented that have made explicit allocations to inshore and offshore sectors of the industry as well as setting specific percentage allocation of target and bycatch amounts to specific gear types. NOAA Fisheries has also promulgated regulations to implement an Individual Fishing Quota (IFQ) program for sablefish and Pacific halibut in 1995. Under the IFQ program, vessel owners are allocated transferable quota shares of the species to use at their discretion. It is expected that more efficient use of the resources will result..

Bycatch of nontarget species and adverse interactions with marine mammal populations by the groundfish fisheries are continuing problems off Alaska. These have been mitigated via a combination of regulations establishing bycatch limits, time-area closures, and special sea lion rookery protection zones. The North Pacific FMC has also been testing an incentive program to control bycatch. This is an individual vessel incentive program whereby bycatch rates are established for the fleet and regulated by individual vessels. It is designed to give a vessel more control over its own fishing destiny by holding it directly accountable for its bycatch rates. The program has resulted in some success and is under review. □

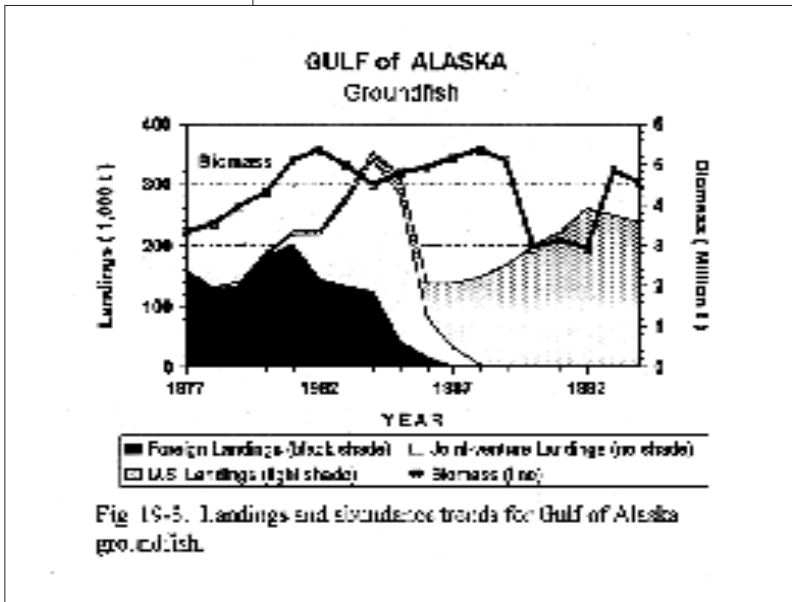


Fig 19-5. Landings and abundance trends for Gulf of Alaska groundfish.

been postulated as an important factor for declining sea lion populations. The Steller sea lion is listed as threatened under the ESA and continues to decline in abundance. Since sea lions feed on juvenile pollock and other fish species, groundfish fisheries are being modified to reduce impact on them. For example, 20-50 mile closures around critical sea lion islands have been placed on fishing vessels to minimize disturbance of sea lion rookeries.