2002 REVIEW OF GROUNDFISH FISHERIES IN THE PRINCE WILLIAM SOUND MANAGEMENT AREA

REPORT TO THE ALASKA BOARD OF FISHERIES

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Regional Information Report No. 2A02-33[1]

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Division of Commercial Fisheries
333 Raspberry Road
Anchorage, AK 99518

November 2002

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INTRODUCTION

This report describes the commercial groundfish fisheries managed by the Alaska Department of Fish and Game (ADF&G) in the Prince William Sound (PWS) Management Area through September 2002 and the outlook for the 2003 season. State managed fisheries for rockfish, pollock, Pacific cod, sablefish, lingcod, and miscellaneous groundfish species will be discussed. Because the state accepted management authority for black rockfish and lingcod in adjacent federal waters of the exclusive economic zone (EEZ) in 1998, harvests of these species are also included. Miscellaneous groundfish species, including sharks, skates, flatfish, sculpin, and greenling that are harvested as bycatch in other directed fisheries, are reported. Finally, other non-groundfish bycatch of significance, including salmon, octopus, and squid is summarized.

Boundaries of the PWS Area were adjusted several times since 1996; changes that primarily affected rockfish and lingcod management and are described in those sections. The PWS Area currently encompasses waters of Alaska from 144°00' W. longitude, near Cape Suckling, to the longitude of Cape Fairfield at 148°50.25' W. longitude (Figure 1). The area is divided into the Inside and Outside Districts. The Inside District is waters enclosed by lines from Point Whitshed to Point Bentinck, from Cape Hinchinbrook to Zaikof Point, and from Cape Cleare to Cape Puget. The Outside District, comprised of the Gulf of Alaska waters 0-3 miles from shore is divided into two sections, the Western and Eastern. The Western Section includes waters between Cape Fairfield and 147°00'W. longitude and the Eastern Section includes waters between 147°00' W. longitude and 144°00' W. longitude.

Area regulations restrict legal gear types for groundfish to longline, pelagic trawl, hand troll, seine, mechanical jigging machine, dinglebar troll gear, and pots. However, shrimp trawl vessels may retain groundfish bycatch not to exceed 10% of the gross weight of the landed shrimp. In addition, one bottom trawl vessel qualifies for the limited entry sablefish fishery.

In 2001, the Board of Fisheries (BOF) adopted closures to protect endangered Steller sea lions by closing two locations in the Outside District. The action complemented National Marine Fisheries Service (NMFS) closures. All groundfish fishing was closed within 3 nm of Seal Rocks in Hinchinbrook Entrance and Wooded Island along outer Montague Island (Figure 2).

ROCKFISH

Proposals

There are no proposals that directly address PWS rockfish.

Background

Rockfish (genera *Sebastes* and *Sebastolobus*) are categorized into pelagic shelf, demersal shelf, and slope species assemblages defined in regulation 5 AAC 39.975. Pelagic shelf rockfish are usually associated with near shore, rocky reef areas, may exhibit a midwater schooling behavior, and are often harvested in directed fisheries with mechanical and hand jig gear. Pelagic shelf species common to PWS include black, dusky, and yellowtail rockfishes (Bechtol 2000). Demersal shelf rockfish are also associated with rocky, reef areas, but tend to be bottom dwelling and often occur at greater depths than pelagic shelf species. Yelloweye and quillback rockfishes are common demersal shelf species in PWS and are most likely to be taken with longline gear. Slope rockfish include any rockfish not specified as either demersal shelf or pelagic shelf rockfish. Slope rockfish are typically found near the bottom in waters deeper than 200 meters and therefore are most likely to be taken with longline gear. Common slope species in PWS include rougheye, shortraker, and thornyhead rockfishes.

Rockfish were not actively managed in PWS prior to 1989 and seasons remained open all year. From 1989 through 1991, rockfish seasons were set by emergency order to coincide with NMFS inseason adjustments for the federal Central Gulf of Alaska Regulatory Area (CGOA). Favorable market conditions, in conjunction with lengthy seasons in adjacent federal waters, resulted in large annual harvests from PWS. Following dramatic increases in rockfish harvests, the BOF adopted the PWS Rockfish Management Plan in 1992. Original provisions of the management plan were:

1. 3,000 lb trip limit within a five-day period.
2. 150,000 lb guideline harvest levels (GHL) for all rockfish species to trigger a transition to a bycatch-only fishery
3. 20% bycatch limit once the directed fishery was closed.

The PWS rockfish directed season opening date remained January 1. At the time the management plan was adopted, PWS was defined to include only that area currently described as the Inside District, and the GHL was based on mean annual harvests (Bechtol 1992). The BOF redefined PWS in 1996 to include waters from Cape Fairfield to Cape Suckling for groundfish management. The BOF also amended the management plan to reduce overall rockfish harvests by making the 150,000 lb GHL a harvest cap. In 1997, the management area was further expanded to include waters from Cape Suckling to 140° W. longitude. For rockfish, the management area expanded further with the 1998 addition of black rockfish management authority in the EEZ (DiCosimo et al. 2000). Finally, in January 2000, the eastern boundary was

moved to the current location at 144° W. longitude. Despite the expansion in the size of the management area, the magnitude of the rockfish GHL remained unchanged.

Following adoption of the 150,000 lb rockfish harvest cap, the department managed the fishery by identifying a harvest level at which the directed fishery closed and the area reopened as a bycatch-only fishery. However, assignment of a directed fishery harvest level proved problematic due to the uncertainty in projecting bycatch needs for other directed fisheries. In setting a directed rockfish harvest level, the department was placed in the role of allocating rockfish harvest between directed and bycatch fisheries. In addition to the directed rockfish fishery, rockfish were taken incidentally in the parallel Pacific cod fishery opening January 1, the IFQ Pacific halibut fishery opening March 15, the PWS sablefish fishery opening May 1, and the lingcod fishery opening July 1. Beginning in 1997, the department used emergency orders to set rockfish bycatch at 10% of the gross round weight of all delivered groundfish species. Subsequently, the department increased the rockfish bycatch level to 20% for the 1998 and 1999 PWS sablefish fisheries to accommodate ambient bycatch levels in this fishery. In 1999, the board amended the Prince William Sound Rockfish Management Plan by adding provisions to: (1) close directed fishing and require the retention of all rockfish; (2) set rockfish bycatch allowances at 20% in the PWS sablefish fishery, 5% in the state waters Pacific cod fishery, and 10% in other groundfish and halibut fisheries; and (3) surrender proceeds from the sale of bycatch overages to the state.

Rockfish harvests from PWS since 1988 ranged from 70,738 lb in 1999 to 506,468 lb in 1990, and averaged 195,783 lb annually (Table 1). Historically, the majority of the harvest was comprised of slope rockfish harvested by longline gear from the Inside District (Tables 2 and 3). Pelagic shelf rockfish were the second largest harvest component and were typically harvested by jig gear from the Outside District.

Annual rockfish harvests in the Inside District during 1988-2001 ranged from 59,291 lb in 1999 to 489,154 lb in 1990, and averaged 137,991 lb (Table 1). The peak harvest in 1990 was attributed to market conditions that encouraged targeting of rockfish. Historically, slope species harvested by longline gear and dominated by rougheye and shortraker rockfishes, comprised 68% of the Inside District catch (Tables 2 and 3). Demersal shelf species, predominantly yelloweye rockfish, and pelagic shelf species, predominantly black rockfish, comprised 22% and 10% of the total harvest (Table 3).

Annual rockfish harvest in the Outside District during 1988-2001 ranged from 2,762 lb in 1991 to 313,489 lb in 1988, and averaged 57,792 lb (Table 1). Pelagic shelf species, primarily black rockfish taken by trawl gear, dominated the Outside District harvest in 1988 (Tables 2 and 4). However, catch composition varied by assemblage and gear type during 1989-1992. The predominant harvest component was pelagic shelf species during 1993-1997 and slope species during 1998-2001. The relatively high harvests during 1994–1996 were attributed to misreporting during periods when the directed state fishery was closed but adjacent federal waters remained open.

2002 Season Summary

The commercial harvest for all rockfish species through September 2002 was 72,549 lb from 182 landings by 85 vessels (Table 2). Rockfish harvest has decreased since elimination of the directed rockfish fishery in 2000; the fishery has been actively managed to not exceed 150,000 lb. The trawl harvest of 30,007 lb and longline harvest of 42,542 lb resulted from an increase in the incidental harvest of slope rockfish by the pollock trawl fishery and a reduction in yelloweye rockfish harvest reported by the halibut and Pacific cod longline fisheries. The 98% decline in Pacific cod harvest from 2000 harvest levels may explain a portion of the reduction in rockfish harvest. However, despite the regulatory requirement for full retention of rockfish, only half of the halibut landings from PWS reported any incidental rockfish catch.

The department sampled PWS rockfish dockside during 2002. Most rockfish were sampled during the PWS pollock fishery and immediately following the PWS sablefish fishery. Shortraker rockfish was the predominant rockfish species sampled in both the pollock (78%) and sablefish fisheries (70%). Rougheye rockfish comprised most of the remainder of the samples. Thornyhead rockfish totaled less than 1% of the rockfish sampled.

2003 Management Outlook

The department will continue to monitor rockfish harvest, conduct stock and habitat assessment projects, encourage full retention and reporting of rockfish bycatch, and attempt to achieve catch-sampling goals by maintaining close contact with the industry.

PACIFIC COD

Proposals 10 and 11

Proposal 10 would establish a stepped approach, similar to other areas, for calculating the PWS state waters Pacific cod GHL. Proposal 11 would relax the exclusive area registration requirement by allowing jig vessels to fish both PWS and Cook Inlet Areas during the state waters Pacific cod fishery.

Background

Pacific cod fisheries in the PWS Area are managed under the PWS Pacific Cod Management Plan (5AAC 28.267), which provides for two seasons, the parallel season and the state waters season.

Statewide regulations for groundfish pots specify a tunnel eye perimeter not to exceed 36 inches and a biodegradable escape panel in the pot wall. Area regulations specify a groundfish pot

closure area in waters of eastern PWS and in waters more than 75 fathoms deep in Hinchinbrook Entrance.

Parallel Fishery

The commercial Pacific cod fishery in state waters was historically regulated via emergency order to coincide with inseason adjustments for the adjacent federal CGOA fishery. The fishery was adopted into regulation in 1996 and termed a "parallel season." The season spanned January 1 to approximately mid-March and was open to longline, pot, and jig gear. During 1997-1999, NMFS reopened Pacific cod for a second directed fishing period in September or October. Beginning in 2001, a regulation restricted the parallel season to the initial fishing period unless the state waters GHL had been achieved. During those years when a fall season occurred, reopening of Pacific cod to longline gear depended on whether there was any remaining halibut bycatch allowance. A 20% bycatch allowance was in place during Pacific cod fishery closures.

Since 1988, annual catch and effort in the parallel Pacific cod fishery ranged from 73,600 lb from 47 landings by 23 vessels in 1989 to 2.2 million lb from 233 landings by 88 vessels in 1991 (Table 5). Peak harvest occurred during 1990–1995 and averaged 1.7 million lb annually. Since 1995, harvest declined to less than a 1.0 million lb in all years except 1999 when the harvest totaled 1.3 million lb. Prior to 1990, nearly all Pacific cod was harvested by longline gear. Following expansion of the pot fishery for Pacific cod in 1991, the proportion harvested by pot gear increased to a high of 83% in 1994. Overall harvest since 2000 has declined 98% with longline gear accounting for the majority of the parallel fishery Pacific cod harvest. The 2000 parallel season was open January 1 to March 4 and yielded a harvest of 735,928 lb from 180 landings by 58 vessels. The 2001 parallel season was open January 1 to March 4 and yielded 169,819 lb from 67 landings by 23 vessels. The decline in parallel season catch and effort is attributable to a shortened season, loss of yelloweye rockfish harvest opportunity due to restructuring of the PWS rockfish fishery from a directed to a bycatch-only fishery, and reduced cod abundance.

State Waters Fishery

The state waters Pacific cod season was adopted by the BOF in October 1996 to provide Pacific cod harvest opportunity with low halibut bycatch by local fleets following closure of the parallel season. Current elements of the PWS state waters Pacific cod fishery include:

1. Open by emergency order seven days following the closure of the federal season in the CGOA area by NMFS;
2. GHL calculated as 25 percent of the total allowable catch (TAC) of Pacific cod for the federal Eastern Gulf of Alaska Regulatory Area (EGOA);
3. Pot closure when 60 percent of the GHL is reached, or December 31;
4. State season applies only to the Inside District and the Western Section of the Outside District;
5. PWS is an exclusive registration area for Pacific cod;
6. Gear limits are 5 jigs or 60 pots with a pot buoy tag requirement; and

7. Rockfish bycatch limited to 5 percent when directed fishing for rockfish is closed.

Harvest and GHL have varied inversely in the PWS state waters Pacific cod fishery. For example, the fishery harvested 49% of a 0.9 million lb GHL in 1998 and declined to 228 lb or <0.01% of a 2.62 million lb GHL in 2001 (Table 5). The disparity between harvest and GHL is the result of a decline in Pacific cod fishing effort and an increase in Pacific cod TAC in the EGOA. Although the pot limit and exclusive area registration requirement were relaxed on October 31 each year, as stipulated in the management plan, these changes had no apparent effect on the fishery. Pot gear harvested 75% or more of the in early years, peaked at 385,817 lb in 1998 and declined to zero in 2001. Jig harvest peaked in 1999 at 79,147 lb.

2002 Season Summary

The 2002 parallel Pacific cod fishery was open January 1 to March 9. The harvest totaled 15,548 lb from 47 landings by 20 vessels fishing longline gear, the lowest parallel fishery harvest on record (Table 5). Due to the small harvest, opportunities for commercial catch sampling of Pacific cod were limited and sampling goals were not achieved.

The state waters fishery opened on March 16 with a GHL of 1.9 million lb. There was no harvest in the state waters fishery through September. The department will issue an emergency order on October 31 to remove gear limits and the exclusive area registration requirement.

2003 Management Outlook

The parallel Pacific cod fishery will open January 1 and is expected to close during mid-March. The GHL for the state waters fishery will be announced after the Pacific cod harvest allocation for the EGOA is established. The state waters Pacific cod fishery will open seven days following closure of the parallel fishery. Fishing effort for Pacific cod in PWS is expected to remain at a low level.

SABLEFISH

Proposals 1, 2, 3, 4, and 58

Alternative PWS sablefish fishery proposal components would: (1) establish an equal quota share (EQS) system that divides the GHL equally among permit holders; (2) establish a two week fishing season during early May; (3) divide the GHL into individual fishing quotas (IFQ) that are based on fishing history prior to 1999 and that vary with vessel size class; (4) establish a 60-day fishing season that opens March 15; (5) open the fishing season on the first Monday in May; (6) impose gear limits by vessel size class; and (7) prohibit tenders from carrying groundfish gear for catcher vessels.

Background

The PWS sablefish fishery developed in the late 1970's in response to increased sablefish value and a decline of shrimp and crab fisheries (Bechtol and Morrison 1997). Most sablefish harvests historically occurred in the Inside District. However, Outside District catches comprised almost 20% of the total harvest in some years (Table 6). Regulations have restricted the fishery to the Inside District since 1997. Most of the Inside District fishing effort has concentrated in a deepwater trench between Lone Island and the Naked Island group (Figure 3). Other harvest areas include Port Wells, Knight Island Passage, and the deeper waters of central PWS near the tanker traffic lane.

The fishery is managed for a GHL equal to the midpoint of a guideline harvest range (GHR). The GHR, derived from a yield per habitat model, was 88,200-308,600 lb during 1987-1992. In 1993, based on new data from improved bathymetric mapping, the GHR was increased to 97,000-385,900 lb with the GHL set at the midpoint of 242,000 lb (Bechtol and Morrison 1997).

In 1996, the Commercial Fisheries Entry Commission (CFEC) initiated limited entry for the PWS sablefish fishery (Muse et al. 1995). Based on the qualifying years 1991 to 1994, the program established a target of 49 permanent permits. These are divided into four vessel size classes (90, 60, 50, and 35 feet) and two gear classes, fixed (longline and pot) gear and trawl. The process of awarding permanent PWS sablefish permits is ongoing. Interim use permits are issued to individuals pending final adjudication. The 62 eligible permit holders in 2002 included 45 permanent permits and 17 interim use permits, comprised as 61 fixed gear permits and one trawl permit. The CFEC has advised the board that the target number of permits could be increased to 59.

Vessel size class	Permanent permits	Interim-use permits	Total
A – 90'	1	1	2
B – 60'	2	1	3
C – 50'	32	9	41
D – 35'	9	6	15
Trawl	1	0	1
Total	45	17	62

Regulations specify sablefish may be taken only in the Inside District from May 1 until closed by emergency order and only under the conditions of a permit issued by the department. Permit conditions include:

1. In the Inside District of (PWS), sablefish may not be possessed on board a vessel registered to participate in the PWS sablefish fishery within 24 hours prior to the opening of the PWS sablefish fishing season.
2. PWS sablefish logbooks must be completed and returned to ADF&G within five days of the closure of the sablefish fishing season.

Each year, department staff established the duration of the fishing period based on the GHL, the projected number of participants, and past fishery performance. Emergency orders were used to adjust fishing periods to provide for daylight openings and closures and restrict fishing with longline gear for 48 hours before and 24 hours after the sablefish fishery to facilitate fishery enforcement. The department monitored the fishery on the grounds aboard the *R/V Montague*. Working with Department of Public Safety, Division of Fish and Wildlife Protection (DPS/DFWP) staff, vessels were boarded prior to the fishery to verify the permit holder was aboard with all necessary licenses and permits. To the extent practical, fishholds were also inspected.

From 1987 to 1992, PWS sablefish seasons opened concurrently with sablefish seasons in federal waters of the CGOA and closed by emergency order when the PWS GHL was attained. As effort and efficiency of the PWS fleet increased, fishing seasons became more restrictive. Since 1993, seasons were comprised of one or two fishing periods with total fishery duration ranging from 24 to 96 hours; recent seasons were among the shortest on record.

In 1996, the department initiated an assessment program with a goal to develop a fishery-independent index of sablefish abundance (Bechtol and Vansant 1998; Bechtol 2001). Survey results will ultimately be used to model the PWS sablefish population and provide data to adjust annual harvest levels. Preliminary analysis indicates that sablefish catch rates generally increased from 1996 to 2000, then declined through 2002 (Table 7). Marketable species, excluding halibut, caught during the survey are sold under the department's program receipts authority and used to defray survey costs (Table 6 as "test fish").

Since 1988, annual sablefish catch and effort ranged from 188,788 lb by 25 vessels in 1989 to 577,314 lb by 126 vessels in 1995 (Table 6). The 1995 peak in catch and effort was attributed to speculation about qualifying for the limited entry program. Since implementation of the limited entry program in 1996, catch and effort averaged 265,000 lb and 50 vessels.

The type and amount of gear used within the longline fleet has varied with vessel size. For example, smaller vessels were more likely to fish snap-on gear where hooks are manually "snapped" onto the groundline while setting out. Alternatively, larger vessels were more likely to fish stuck gear where gangions with hooks are permanently attached to the groundline at a specified interval. The greatest difference between these gear types is the amount of hooks that can be practicably set and retrieved, particularly during a short duration fishery. Despite adoption of the limited entry program, increased competition has produced notable changes in fishing practices in recent years. The average number of hooks fished per vessel per hour of fishing season increased from 436 in 1998 to 668 in 2001 and some vessels began tendering additional gear to the grounds (Figure 4). Gear conflicts, typically related to tangled longlines and vessel crowding, resulted in lost gear when lines were parted. Another source of "lost" gear was from vessels that set more gear than could be effectively retrieved in the time allowed by the fishing period. Minimum estimates of lost gear ranged from 6,570 hooks in 1999 to 29,440 in 2001 (Table 8, Figure 5). Mortality attributable to lost gear is unknown.

2002 Season Summary

The 2002 sablefish fishery opened for a 26-hour fishing period at 12:00 noon May 1 with a GHL of 242,000 lb. Sixty-two individuals were eligible to receive PWS sablefish permits for the season. The department issued 49 commissioner's permits through offices in Anchorage, Homer, and Cordova. Thirty-seven vessels were boarded prior to the fishery by DPS/DFWP; good regulatory compliance was observed.

Fishery harvest totaled 320,694 lb from 51 landings by 49 vessels (Table 6). Gale force winds through half of the fishing period hindered gear setting and retrieval for some vessels. During the 2002 fishery, 23 vessels operating snap gear reported fishing 100,646 hooks whereas 24 vessels with stuck gear reported fishing 375,715 hooks (Table 8). Five vessels registered as tenders for the fishery; at least three of these carried additional gear for permitted vessels. Estimates of lost gear reached a high of 45,365 hooks in 2002 (Figure 5). Most of the loss was attributed to tangled gear.

Following the fishery, department staff sampled the catch dockside and collected length, weight and gonad maturity data, as well as age structures, from 759 sablefish. At 613 mm, average length was comparable to the 2001 average size of 617 mm. Average weight was 5.8 lb, the second highest observed since 1995 (Figure 6). Age structures were sent to the department's Age Determination Unit (ADU) in Juneau for processing. Resultant age estimates are expected to be available in 2003.

The department conducted its annual sablefish longline survey during September 2 to 23. Twenty-five stations were sampled in northwestern PWS and survey CPUE, expressed as fish per set, was 45.5, down from 76.1 in 2001 (Table 7). Survey results will be documented in a separate report. Survey harvest of sablefish totaled 7,924 lb, bringing the 2002 total sablefish harvest to 328,618 lb.

2003 Management Outlook

The PWS sablefish fishery will open May 1 at a time specified by emergency order. Fishing effort is expected to remain near the 2002 level. Due to concern for the current level of gear loss in the fishery, the department may utilize a reduced fishing period as a means to limit the amount of gear set.

POLLOCK

Proposals 5, 6, 7, 8 and 9

These proposals are directed at exploring management options to: (1) reduce squid bycatch; (2) seek limited entry for the PWS pollock fishery; and (3) establish a regulatory closure date for the fishery.

Background

The PWS pollock fishery historically consisted of incidental harvests by jig, longline, and trawl gears during other directed fisheries with total harvests ranging from 0 lb in most years to 7,335 lb in 1990 (Table 9; Bechtol 1995). The directed trawl fishery for pollock in state waters of PWS began in 1995 when Kodiak based trawlers and a Cordova processor combined efforts to establish the fishery. The department implemented a guideline harvest range of 2.1 to 4.4 million lb based on historical trawl survey data (Table 10; Haynes and Urban 1991). Several different approaches have been used in subsequent years to set the GHL, although all approaches relied on a basic assumption that pollock assessed in PWS during the summer are not sampled by the NMFS summer bottom trawl survey in adjacent federal waters (Bechtol 2002). Whereas winter acoustic surveys have documented substantial volumes of pollock in PWS, both during and after the close of the commercial fishery, the relationship between winter prespawning aggregations and the summer population is unknown (Thomas et al. 2001). Therefore, harvest levels for the PWS pollock fishery have been based on estimates of the PWS summer pollock population.

The 1996 fishery GHL was derived from a 1994 spring acoustic survey biomass estimate (Bechtol 1995). For the next several years, the GHL was calculated by either adjusting the previous year's GHL to mirror relative annual changes in harvest levels in federal waters of the Gulf of Alaska, or by applying 8–10% harvest rates to biomass estimates derived from department summer bottom trawl assessment surveys (Bechtol 1998*a*, 1998*b*, 1999). Beginning with the 2000 season, the department set the GHL by applying the Tier 5 approach similar to that used by the North Pacific Fishery Management Council to establish Acceptable Biological Catch (ABC) for some groundfish species. This method incorporates a biomass estimate, a factor of natural mortality of 0.30, and a precautionary factor of 0.75. The PWS pollock GHL increased from 3.1 million lb in 1996 to 4.6 million lb in 1999, and has since decreased as stock biomass estimates declined (Table 10; Bechtol 2002).

A pollock test fishery was conducted annually since 1996 under the department's program receipts authority. Revenues from the test fishery fund PWS commercial fishery management, catch sampling and analysis, and acoustic stock assessment surveys. The department also cooperated with the Prince William Sound Science Center and the fishing industry to conduct acoustic biomass assessments of prespawning pollock in PWS during the winters of 1995, 1997, 1998, 2000, and 2001 (Thomas and Stables 1995; Kirsch 1997; Kirsch and Thomas 1998; Thomas et al. 2001). These surveys found substantial variability in pollock distribution. From 1995 to 1999, the commercial trawl fishery primarily occurred in Port Bainbridge with occasional catches along the southern end of Knight Island. The 1998 acoustic survey observed a previously undetected aggregation of pollock, distributed from Hinchinbrook Entrance to near Knowles Head (Bechtol 1998*b*; Kirsch 1998), an area historically closed to all trawling. Subsequent action by the BOF opened some of this area to the use of midwater trawl gear for pollock only.

Emergency regulations adopted for the 1996 fishery included a January 13 registration deadline and a commissioner's permit requirement. For the 2000 season, an emergency regulation established the PWS Pollock Pelagic Trawl Management Plan, primarily as a means to increase

protection for Steller sea lions. The plan provided for the directed fishery to be apportioned among three sections of the Inside District, with no more than 40 percent of the GHL taken in any one section (Figure 7). The BOF subsequently adopted the plan. The commissioner's permit provided the department some annual flexibility to meet inseason management needs and was used to specify check-in and check-out requirements, catch reporting procedures, and logbooks. An emergency order opened the season at 12:00 noon January 20; concurrent with the opening of directed trawl fishing in federal waters. Department staff was on the grounds during most years to observe and manage the fishery. Department observers aboard fishing vessels and at dockside sampled pollock and associated bycatch. Sampling included collection of length, weight, and gonad maturity data as well as age structures.

The duration of the PWS pollock trawl fishery has generally increased over time (Table 10). From 1996 to 1998, the fishery averaged approximately 6.5 days in length. The fishery lasted 36 days in 1999, 70 days in 2000, and 64 days in 2001. The department has used a March 31 closure date by emergency order to avoid the potential for herring bycatch. Vessel operators reported that pollock aggregations tended to build as the season progressed. The increase in season length and corresponding declining trend in catch rates was attributed to shifts in pollock distribution and to natural mortality of strong year classes that supported the harvest for several years (Bechtol 2002).

The 2000 fishery opened under the new management plan with a 3.1 million lb GHL. The Hinchinbrook Section, which closed February 9, accounted for 1.0 million lb, or 31% of the GHL and the Port Bainbridge Section closed March 23 with 1.3 million lb, or 40% of the GHL. The Knight Island Section closed March 31 with the harvest accounting for only 1% of the GHL. The 2000 pollock fishery harvest totaled 2.3 million lb. The 2001 fishery harvested the entire 3.1 million lb GHL. The Hinchinbrook Section closed March 9 with 39% of the GHL harvested there; the Knight Island Section closed March 25 with 36% of the GHL; and the Port Bainbridge Section closed March 25 when the remaining 25% of the GHL was taken.

The directed fishery for pollock in PWS has typically experienced low bycatch rates relative to many other groundfish fisheries (Table 11). However, bycatch has increased through time. The most common species groups incidentally caught by midwater trawl are squid, sharks, rockfish, and salmon. Bycatch of squid *Beryteuthis majister* totaled 85,000 lb for the period 1997 to 2001, and ranged from 6,000 lb in 1999 to 31,000 lb in 2001. During the same period, bycatch of the other species totaled 29,000 lb of sharks, 6,400 lb of rockfish, and 3,500 lb of salmon.

2002 Season Summary

Prior to the 2002 registration deadline, department offices in Cordova and Kodiak issued ten commissioner's permits for PWS pollock. The directed trawl fishery opened January 20 with a GHL of 3.8 million lb. The Hinchinbrook Section closed March 9 with a harvest of 1.5 million lb, or 40% of the GHL. Three vessels made landings from the Hinchinbrook Section; CPUE and tow time averaged 2,660 lb/hr and 13 hours. Both the Port Bainbridge and Knight Island Sections remained open until March 31 when the fishery closed by emergency order. The Port Bainbridge Section harvest totaled 0.8 million lb, or 22% of the GHL, and the Knight Island Section harvest totaled 21,000 lb, or 0.6% of the GHL. Three vessels made landings from the

Port Bainbridge Section with an average tow time of 9 hours and CPUE of 5,709 lb/hr. Two vessels made landings from the Knight Island Section; the average tow time and CPUE was lower than other areas.

Department observers aboard fishing vessels and at dockside sampled pollock and associated bycatch. Sampling included collection of length, weight, and gonad maturity data as well as age structures. A total of 628 pollock were sampled from the 2002 commercial fishery. Average weight was 1264 grams and average length was 519 mm. These sizes were larger than the previous two years of catch samples but smaller than fish sampled from the 1996-1998 fisheries.

Relative to previous years, the 2002 pollock trawl fishery experienced a dramatic increase in bycatch (Table 11). As in previous years, bycatch was dominated by squid at 180,250 lb, followed by sharks at 52,486 lb, rockfish at 30,172 lb, and salmon at 1,274 lb. Squid bycatch was spread across the primary fishing areas and averaged 224 lb/hr. Rockfish bycatch was localized in the Hinchinbrook Section and averaged 47 lb/hr.

The pollock test fishery was conducted only in the Hinchinbrook Section. During mid March, after the close of the commercial fishery in this section, two tows totaling 5.1 hours harvested 177,000 lb of pollock. The test fishery CPUE of 34,700 lb/hr was higher than any commercial CPUE during the 2002 fishery. The test fishery bycatch rate was low for squid at 62 lb/hr, but was 232 lb/hr for rockfish, higher than at any time during the pollock fishery.

2003 Management Outlook

The 2003 PWS pollock fishery is expected to open at 12:00 noon January 20. The GHL will again be 3.8 million lb based upon the results of the department's 2001 bottom trawl survey. The department will issue a news release regarding the fishery in late December and will have registration packets available to the fleet on January 2, 2003.

LINGCOD

Proposal 12

Proposal 12 would provide the commissioner with emergency order authority to require that all lingcod be delivered head-on and with the vent and the external area one inch forward of the vent unmutilated, as evidence of gender.

Background

Since 1998, the department has managed lingcod harvest in both state and federal waters. A regulatory season of July 1 to December 31 exists to protect spawning and nest guarding lingcod during the first half of the year. A minimum size requirement of 35 inches overall, or 28 inches

measured from the front of the dorsal fin to the tip of the tail, is intended to allow at least one spawning opportunity prior to being susceptible to harvest. The PWS lingcod fishery has typically been a bycatch fishery composed of many small landings, primarily by longline vessels. In recent years, directed harvests have occurred by vessels using jig gear.

Beginning in 1996, the department established a lingcod fishery GHL calculated as 50% of the recent (1986-1995) ten-year harvest. In 2000, the department increased the GHL to 75% of the average for these years. Establishing the GHL at 75% of the historical harvest is consistent with the most conservative alternative used by the North Pacific Fishery Management Council when considering fisheries with little data on abundance or stock structure. This resulted in a 5,500 lb GHL for the Inside District and a 19,000 lb GHL for the Outside District and adjacent federal waters. No lingcod retention is allowed during the closed season and mortality of released lingcod is believed to be low.

Lingcod catch between 1988 and 2001 ranged from 9,344 lb by 16 vessels in 1999 to 65,896 lb by 27 vessels in 1995, and averaged 27,704 lb by 21 vessels (Table 12). Although most of the historical harvest was reported from adjacent federal waters of the EEZ, the majority of the harvest in 2000 and 2001 was reported from state waters of the Outside District.

2002 Season Summary

The 2002 lingcod season opened July 1 with a 5,500 lb GHL for the Inside District and a 19,000 lb GHL for the Outside District and federal waters. The Outside District, including adjacent federal waters, closed at 6:00 p.m. July 14 with a harvest of 18,945 lb. The groundfish closures around Steller sea lion rookeries at Seal Rocks and Wooded Islands displaced lingcod fishermen from traditional harvest areas and only 800 lb of the Outside District lingcod harvest was from state waters. The harvest in the Inside District totaled 1,000 lb and the fishery remained open through September 2002. Total lingcod harvest for all PWS waters, including federal waters, was 19,952 lb from 24 landings by 17 vessels (Table 12).

Although the department has opportunistically sampled commercial lingcod catches since the late 1980's, sample sizes were typically small and afforded relatively little insight to stock structure. No lingcod were sampled during the 2002 commercial fishery due to the small number of landings and lack of staff availability at landing ports. Even with adequate staff, catch sampling of lingcod would have been problematic this year as the majority of fish was delivered with the head and the vent removed, which prevented obtaining accurate length, age, and sex data. The proportion of lingcod harvest delivered with the head off has increased in recent years due to market preferences.

2003 Management Outlook.

The fishery will open on July 1 with the established GHL's. The department will continue to monitor the fishery and more aggressively pursue commercial catch sampling than in past years. In the absence of a lingcod stock assessment program, commercial catch samples allow the department to characterize stock structure of fishery removals and infer relative cohort strength.

MISCELLANEOUS GROUNDFISH

Proposals

There are no proposals that address miscellaneous groundfish species.

Background

Miscellaneous groundfish, including numerous species of flatfish, sharks, skates, as well as octopus and squid, have been landed incidental to PWS groundfish fisheries and targeted only sporadically (Table 13). Additionally, these species have been discarded at sea during other directed fisheries. Seasons for miscellaneous groundfish were typically set by emergency order to coincide with seasons set by NMFS in the adjacent federal waters of the EEZ. However, BOF action in 1998 and in 2000 made two significant changes to management of miscellaneous groundfish. The 1998 action closed directed fishing for sharks and established a permit requirement for targeting skates. These actions were consistent with the lack of information on stock size necessary to conduct a sustainable fishery. Shark bycatch, particularly Pacific sleeper shark *Somniosus pacificus* in longline and trawl fisheries, has been reported to be significant. Similarly, there is an incidental catch of salmon sharks *Lamna ditropis* during salmon seine fisheries. The 2000 board action established a Miscellaneous Groundfish Permit requirement. This is a commissioner's permit that provides a mechanism for developing fisheries while providing the department a flexible tool to insure adequate data collection and manageability. Most miscellaneous groundfish catch in commercial fisheries is discarded at sea, with discarded bycatch largely undocumented. Exceptions emerge from observer coverage in the pollock trawl and shrimp trawl fisheries as well as other agency stock assessment survey data. An indication of incidental catch in the longline fishery is also provided by the department longline survey (Table 7).

Octopus and squid, although considered shellfish under state regulation, fall under the "Other" groundfish category in federal regulation. Octopus harvested incidental to Pacific cod in the pot fishery were usually sold or kept for personal use as bait. A bycatch allowance of 20% was set for octopus. Squid harvest of any magnitude is a recent phenomenon in PWS. Squid landings, particularly in the pollock trawl fishery have varied widely among years. Harvest levels in 1997, 1998, and 2001 were the highest on record (Tables 11 and 13). Sharks, squid, skates, and flatfish dominated the historical harvest of landed or discarded miscellaneous groundfish.

2002 Season Summary

The department has not issued any Miscellaneous Groundfish Permits for the PWS area. Therefore, all reported miscellaneous groundfish was either landed as bycatch or discarded at sea. The reported harvest of miscellaneous groundfish species totaled 357,837 lb, consisting of 180,250 lb of squid, 165,469 lb of sharks, 1,274 lb of salmon, and 10,844 lb was comprised of skates, flatfish, and other groundfish (Table 13). All reported squid and flatfish landings, and the

majority of shark landings occurred incidentally to the directed pollock trawl fishery or ADF&G test-fishery and International Pacific Halibut Commission (IPHC) test-fishing efforts. For example, 29,700 lb of the reported shark discards were attributed to the pollock trawl fishery and the remaining 135,700 lb was attributed to the IPHC and ADF&G test-fisheries.

No octopus harvest was reported in 2002.

LITERATURE CITED

Bechtol, W.R. 1992. Review of the 1987-1992 Central Region rockfish fisheries: Report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A92-22, Anchorage, 29p.

Bechtol, W.R. 1995. Assessment and Management of Prince William Sound walleye pollock for 1996. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A95-45, Anchorage, 15p.

Bechtol, W.R. 1998*a*. Current assessment and 1998 management recommendations for walleye pollock in Prince William Sound. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A97-36, Anchorage.

Bechtol, W.R. 1998*b*. PrinceWilliam Sound pollock: Current assessment and 1999 management recommendations. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A98-41.

Bechtol, W.R. 1999. A bottom trawl survey for crabs and groundfish in the Prince William Sound Management Area, 16-26 August 1997. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-24, Anchorage.

Bechtol, W.R. 2000. Rockfish assessment in Prince William Sound, Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-34, Anchorage.

Bechtol, W.R. 2001. Relative abundance of sablefish and other groundfish caught on longline gear in Prince William Sound, 1998. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A01-15, Anchorage.

Bechtol, W.R. 2002. Prince William Sound walleye pollock: current assessment and 2003 management recommendations. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A02-28, Anchorage.

Bechtol, W.R., and R. Morrison. 1997. Development and management of the sablefish, *Anoplopoma fimbria*, fishery in Prince William Sound, Alaska. pp: 261-267 In: Proceedings of the International Sablefish Symposium, 1994, NOAA Technical Report, NMFS 130, Seattle.

Bechtol, W.R., and J. Vansant, III. 1998. Relative abundance of sablefish and other groundfish caught on longline gear in Prince William Sound, Alaska, 1997. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A98-27.

Berceli, R., C. Trowbridge, M. Lambdin, and W.R. Bechtol. 1999. Review of the groundfish fisheries in the Prince William Sound Management Area: Report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-30, Anchorage.

DiCosimo, J., B. Bechtol, S. Meyer, K. Brix, A. Smoker, and D. Stockel. 2000. Environmental Assessment/Regulatory Impact Review for Amendment 46 to the Fishery Management Plan for the groundfish fishery of the Gulf of Alaska to revise management authority of pelagic shelf rockfish. North Pacific Fisheries Management Council, 605 W. Fourth Ave., Suite 306, Anchorage, AK 99501.

Haynes, E. and D. Urban. 1991. Prince William Sound trawl assessment. State/Federal Natural Resource Damage Assessment, Fish/Shellfish Study Number 18. Final Report, 66 p.

Kirsch, J. 1997. Acoustic biomass estimate of adult walleye pollock in Prince William Sound, Alaska, in winter 1997. Prince William Sound Science Center. Cordova, Alaska

Kirsch, J. and Gary Thomas 1998. Acoustic biomass estimate of adult walleye pollock in Prince William Sound, Alaska, in winter 1998. Prince William Sound Science Center. Cordova, Alaska.

Muse, B. E. Dinneford, and K. Schelle. 199. Prince William Sound Sablefish Fishery Briefing Report 95-7C, Alaska Department of Fish and Game, Commercial Fisheries Entry Commission.

Muse, B., E. Dinneford, and K. Schelle 1995 Prince William Sound Sablefish Fishery Briefing Report 95-7C , Alaska Department of Fish and Game, Commercial Fisheries Entry Commission.

Thomas, G.L., and T.B. Stables. 1995. Winter 1995 estimate of the pre-spawning biomass of walleye pollock in Prince William Sound, Alaska. Prince William Sound Science Center. Cordova, Alaska.

Thomas, G.L., R.E. Thorne, and W.R. Bechtol 2001. Developing an effective monitoring program for pollock in Prince William Sound, Alaska. Electronic Proc. ACOUSTGEAR 2000, Internation Symposium on Advanced Techniques of Sampling Gear and Acoustical Surveys for Estimation of Fish Abundance and Behavior, Jakodate, Japan, October 20-21, 2000, 8 p.

Table 1. Commercial effort and harvest of rockfish from the Inside and Outside Districts and black rockfish from federal waters of the Prince William Sound Area, 1988-2002.

	Inside District			Outside District			Total
Year[a]	Vessels	Landings	Pounds	Vessels	Landings	Pounds	Pounds
1988	64	175	115,739	18	24	313,489	429,228
1989	35	99	93,307	7	8	25,124	118,431
1990	93	401	489,154	10	11	17,314	506,468
1991	88	244	153,616	6	6	2,762	156,378
1992	105	278	177,603	16	24	12,882	190,485
1993	67	185	81,095	20	33	27,478	108,573
1994	65	163	97,710	31	51	103,238	200,948
1995	122	222	153,107	35	63	156,839	309,946
1996	85	198	105,068	31	52	76,295	181,363
1997	89	240	136,238	26	36	29,245	165,483
1998	79	187	99,051	13	26	8,914	107,965
1999	81	195	59,291	21	38	11,447	70,738
2000	96	273	110,577	18	34	10,749	121,326
2001	91	199	60,313	17	44	13,310	73,623
2002	80	159	65,532	12	26	7,017	72,549
Average[b]	83	219	137,991	19	32	57,792	195,783
Percent of Total			70%			30%	

[a] Preliminary data through September 2002.

[b] Average through 2001.

Table 2. Annual rockfish harvest by gear, from waters of the Inside and Outside Districts of the Prince William Sound Area, 1988-2002.

			Harvest (lb)				
Year[a]	Vessels	Landings[b]	Troll/Jig	Trawl	Longline	Pots	Total
1988	80	195	54,097	228,490	146,640		429,228
1989	39	106	11,731	997	105,703		118,431
1990	96	405	30,088	20,238	455,789	353	506,468
1991	89	246	15,624	11,158	129,591		156,378
1992	113	299	9,246	28,335	152,802	102	190,485
1993	80	210	13,905	12,610	81,979	80	108,573
1994	90	212	94,588	2,867	103,379	114	200,948
1995	134	279	182,031	267	127,616	32	309,946
1996	98	247	57,103	183	124,076		181,363
1997	105	268	34,047	939	130,141	356	165,483
1998	87	211	2,903	10	104,889	164	107,965
1999	92	231	1,130	703	68,905		70,738
2000	99	296	2,401	1,468	117,210	247	121,326
2001	98	230	1,165	4,211	68,225	22	73,623
2002	85	182	0	30,007	42,542	0	72,549
Average[c]	93	245	36,433	22,320	136,925	163	195,782

[a] Preliminary data through September 2002.

[b] Total landings may be less than the total from Table 1 as vessels may fish both districts during a trip.

[c] Average through 2001.

Table 3. Annual commercial rockfish harvest by species assemblage from the Inside District of Prince William Sound, 1988-2002.

	Pelagic Shelf		Demersal Shelf		Slope		Total
Year[a]	Pounds	% of total	Pounds	% of total	Pounds	% of total	Pounds
1988	1,427	1%	24,781	21%	89,531	77%	115,739
1989	9,624	10%	4,296	5%	79,387	85%	93,307
1990	20,586	4%	24,256	5%	444,312	91%	489,154
1991	24,541	16%	31,618	21%	97,456	63%	153,615
1992	49,867	28%	35,289	20%	92,447	52%	177,603
1993	3,082	4%	12,180	15%	65,834	81%	81,096
1994	17,789	18%	22,323	23%	57,598	59%	97,710
1995	28,115	18%	29,929	20%	95,062	62%	153,106
1996	12,420	12%	38,760	37%	53,888	51%	105,068
1997	17,856	13%	34,760	26%	83,622	61%	136,238
1998	894	1%	53,127	54%	45,030	45%	99,051
1999	1,741	3%	34,380	58%	23,170	39%	59,291
2000	1,745	2%	64,763	59%	44,069	40%	110,577
2001	372	1%	21,202	35%	38,739	64%	60,313
2002	44	0%	7,696	12%	57,791	88%	65,531
Average[b]	13,576	10%	30,833	22%	93,582	68%	137,991

[a] Preliminary data through September 2002.

[b] Average through 2001.

Table 4. Annual commercial rockfish harvest by assemblage from the Outside District of the Prince William Sound Area, 1988-2002.

	Pelagic Shelf		Demersal Shelf		Slope		Total
Year[a]	Pounds	% of total	Pounds	% of total	Pounds	% of total	Pounds
1988	310,752	99%	2,715	1%	22	0%	313,489
1989	11,846	47%	13,278	53%	0	0%	25,124
1990	6,300	36%	0	0%	11,014	64%	17,314
1991	1,605	58%	52	2%	1,105	40%	2,762
1992	1,755	14%	7,512	58%	3,615	28%	12,882
1993	24,570	89%	2,077	8%	830	3%	27,477
1994	98,958	96%	925	1%	3,356	3%	103,239
1995	155,453	99%	530	0%	856	1%	156,839
1996	59,087	77%	14,959	20%	2,249	3%	76,295
1997	20,059	69%	6,644	23%	2,543	9%	29,246
1998	3,395	38%	3,821	43%	1,698	19%	8,914
1999	1,423	12%	9,014	79%	1,010	9%	11,447
2000	1,357	13%	7,979	74%	1,412	13%	10,748
2001	1,798	14%	9,860	74%	1,651	12%	13,309
2002	466	7%	6,248	89%	303	4%	7,017
Average[b]	49,883	86%	5,669	10%	2,240	4%	57,792

[a] Preliminary data through September 2002.

[b] Average through 2001.

Table 5. Annual effort and harvest by gear type from the Prince William Sound parallel and state waters Pacific cod fisheries, 1988-2002.

Parallel Season			Harvest (lb)				
Year[a]	Vessels	Landings	Other[b]	Longline	Pot	Jig[c]	Total
1988	39	87		330,718			330,718
1989	23	47	701	72,664		235	73,600
1990	84	307	7,716	1,203,118	6,641	2,504	1,219,979
1991	88	233	17,074	1,245,717	961,912	224	2,224,927
1992	140	527	16,229	1,359,176	594,531	2,823	1,972,759
1993	57	206	25,985	810,831	466,202	1,959	1,304,977
1994	45	196		316,450	1,584,722	1,064	1,902,236
1995	75	206	24,539	359,765	1,204,451	6,982	1,595,737
1996	50	134	218,020	214,021	420,183	1,663	853,887
1997	60	173	1,506	334,086	582,325	4,333	922,250
1998	50	152	5,879	534,553	138,243		678,675
1999	54	203	1,909	687,169	641,523	109	1,330,710
2000	58	180	423	403,195	332,310		735,928
2001	23	67	318	143,016	26,485		169,819
2002	20	47	131	15,417			15,548

State Waters Season				Harvest (lb)		
Year[a]	Vessels	Landings	GHL	Pots	Jigs[c]	Total
1997	9	36	880,000	192,142	8,378	200,520
1998	9	33	860,000	385,817	33,177	418,994
1999	7	27	930,000	314,987	79,147	394,134
2000	12	37	2,950,000	268,765	22,377	291,142
2001	3	3	2,620,000	0	228	228
2002	0	0	1,900,000	0	0	0

[a] Preliminary data through September 2002.

[b] "Other" includes trawl and gillnet.

[c] Includes mechanical jig and hand troll.

Table 6. Annual sablefish harvest, including testfish, from the Inside and Outside Districts of the Prince William Sound Area, 1988-2002.

Year[a]	Vessels	Landings	Annual Harvest (lb)			
			Inside	Outside	Testfish[b]	Total
1988	54	145	219,416	27,958		247,374
1989	25	98	188,042	746		188,788
1990	71	253	211,486	4,929		216,415
1991	78	159	326,235	24,398		350,633
1992	63	126	432,172	33,684		465,856
1993	60	99	316,602	74,943		391,545
1994	66	104	280,700	60,359		341,059
1995	126	142	565,547	11,767		577,314
1996	69	78	247,545	33,475	10,376	291,396
1997	51	84	196,370	2,689	9,311	208,370
1998	59	60	233,004	14	11,676	244,694
1999	42	45	206,142		7,765	213,907
2000	32	33	342,854	77	13,582	356,513
2001	47	49	310,217		13,692	323,909
2002	49	51	320,694		7,924	328,618
Average[c]	60	105	291,167	22,920	11,067	315,555

[a] Preliminary data through September 2002.

[b] Testfish not included in landings summaries.

[c] Average through 2001.

Table 7. Unweighted catch abundance and mean catch rates from the sablefish longline survey of Prince William Sound, 1996-2002.

	Sablefish	Pacific Cod	Pollock	Halibut	Arrowtooth Flounder	Demersal Rockfish	Slope Rockfish	Skates	Salmon Shark	Spiny Dogfish	Sleeper Shark	Other	Hooks Without Fish: Baited	Hooks Without Fish: Ineffective	Hooks Without Fish: Unbaited	Total Hooks
1996 - Northwest PWS (n = 31 stations)																
Abundance	1,652	239	129	841	70	4	109	451	1	27	35	9	15,674	369	1,360	20,970
% of Hooks	7.9%	1.1%	0.6%	4.0%	0.3%	<0.1%	0.5%	2.2%	<0.1%	0.1%	0.2%	<0.1%	74.7%	1.8%	6.5%	100.0%
% of Catch	46.3%	6.7%	3.6%	23.6%	2.0%	0.1%	3.1%	12.6%	<0.1%	0.8%	1.0%	0.3%				
Fish/Set	53.3	7.7	4.2	27.1	2.3	3.5	0.1	14.5	0.0	0.9	1.1	0.3				
1997 - Northwest and Southwest PWS (n = 34 stations)																
Abundance	1,559	260	138	945	104	3	92	339	0	91	59	32	17,275	536	1,517	22,950
% of Hooks	6.8%	1.1%	0.6%	4.1%	0.5%	<0.1%	0.4%	1.5%	0.0%	0.4%	0.3%	0.1%	75.3%	2.3%	6.6%	100.0%
% of Catch	43.0%	7.2%	3.8%	26.1%	2.9%	0.1%	2.5%	9.4%	0.0%	2.5%	1.6%	0.9%				
Fish/Set	45.9	7.6	4.1	27.8	3.1	2.7	0.1	10.0	0.0	2.7	1.7	0.9				
1998 - Northwest and Eastern PWS (n = 38 stations)																
Abundance	2,698	476	187	975	111	2	99	622	1	1,948	103	11	16,147	1,322	948	25,650
% of Hooks	10.5%	1.9%	0.7%	3.8%	0.4%	<0.1%	0.4%	2.4%	<0.1%	7.6%	0.4%	<0.1%	63.0%	5.2%	3.7%	100.0%
% of Catch	37.3%	6.6%	2.6%	13.5%	1.5%	0.0%	1.4%	8.6%	0.0%	26.9%	1.4%	0.2%				
Fish/Set	71.0	12.5	4.9	25.7	2.9	2.6	0.1	16.4	0.0	51.3	2.7	0.3				
1999 - Northwest and Southwest PWS (n = 30 stations)																
Abundance	1,833	169	107	668	83	0	64	179	0	51	128	7	14,735	1,092	1,134	20,250
% of Hooks	9.1%	0.8%	0.5%	3.3%	0.4%	0.0%	0.3%	0.9%	0.0%	0.3%	0.6%	<0.1%	72.8%	5.4%	5.6%	100.0%
% of Catch	55.7%	5.1%	3.3%	20.3%	2.5%	0.0%	1.9%	5.4%	0.0%	1.6%	3.9%	0.2%				
Fish/Set	61.1	5.6	3.6	22.3	2.8	2.1	0.0	6.0	0.0	1.7	4.3	0.2				

Table 7. (page 2 of 2)

	Sablefish	Pacific Cod	Pollock	Arrowtooth Halibut	Demersal Slope Rockfish Flounder			Skates	Salmon Shark	Spiny Dogfish	Sleeper Shark	Other	Hooks Without Fish Baited	Ineffective	Unbaited	Total Hooks
2000 - Northwest and Eastern PWS (n = 36 stations)																
Abundance	3,101	146	47	513	50	0	80	432	0	47	92	4	17,666	1,543	579	24,300
% of Hooks	12.8%	0.6%	0.2%	2.1%	0.2%	0.0%	0.3%	1.8%	0.0%	0.2%	0.4%	0.0%	72.7%	6.3%	2.4%	100.0%
% of Catch	68.7%	3.2%	1.0%	11.4%	1.1%	0.0%	1.8%	9.6%	0.0%	1.0%	2.0%	0.1%				
Fish/Set	86.1	4.1	1.3	14.3	1.4	0.0	2.2	12.0	0.0	1.3	2.6	0.1				
2001 - Northwest and Southwest PWS (n = 35 stations)																
Abundance	2,739	192	35	378	116	1	122	426	4	332	102	113	17,310	1,389	366	23,625
% of Hooks	11.6%	0.8%	0.1%	1.6%	0.5%	0.0%	0.5%	1.8%	0.0%	1.4%	0.4%	0.5%	73.3%	5.9%	1.5%	100.0%
% of Catch	60.1%	4.2%	0.8%	8.3%	2.5%	0.0%	2.7%	9.3%	0.1%	7.3%	2.2%	2.5%				
Fish/Set	76.1	5.3	1.0	10.5	3.2	0.0	3.4	11.8	0.1	9.2	2.8	3.1				
2002 - Northwest PWS (n = 27 stations)[a/]																
Abundance	1,228	262	36	326	65	0	66	182	0	13	77	12	14549	980	429	18,225
% of Hooks	6.7%	1.4%	0.2%	1.8%	0.4%	0.0%	0.4%	1.0%	0.0%	0.1%	0.4%	0.1%	79.8%	5.4%	2.4%	100.0%
% of Catch	54.2%	11.6%	1.6%	14.4%	2.9%	0.0%	2.9%	8.0%	0.0%	0.6%	3.4%	0.5%				
Fish/Set	45.5	9.7	1.3	12.1	2.4	0.0	2.4	6.7	0.0	0.5	2.9	0.4				
Means Among Years																
% of Hooks	9.5%	1.1%	0.4%	3.0%	0.4%	0.0%	0.4%	1.7%	0.0%	1.6%	0.4%	0.1%	72.7%	4.6%	4.1%	100.0%
% of Catch	51.0%	6.0%	2.3%	16.0%	2.1%	0.0%	2.2%	9.1%	0.0%	8.6%	2.1%	0.6%				
Fish/Set	64.1	7.5	2.9	20.1	2.6	0.0	2.7	11.4	0.0	10.9	2.6	0.8				

Table 8. Number of vessels and estimated number of hooks set and lost by gear type in the Prince William Sound sablefish fishery as derived from logbook data, 1998-2002.

		Hooks Set			Hooks Lost	
Year	Vessels	Snap Gear	Vessels	Stuck Gear	Snap Gear	Stuck Gear
1998	28	140,770	27	423,525		
1999	16	56,704	23	300,605	0	6,570
2000	11	50,412	16	484,875	0	12,600
2001	21	99,390	25	534,770	1,320	28,120
2002	23	100,646	24	375,715	1,620	43,745
Average		89,584		423,898	588	18,207

Table 9. Annual effort and harvest by gear type from the commercial pollock fishery in the Prince William Sound Area, 1987-2002.

			Harvest (lb)			
Year[a]	Vessels	Landings	Other Gear[b]	Trawl Gear	Testfish[c]	Total
1988	--	2	---	---		1,548
1989	6	9	639	919		1,558
1990	6	12	747	6,588		7,335
1991						0
1992	8	16	131	5,956		6,087
1993	--	6	---	---		5,627
1994	4	6	5,666			5,666
1995	19	55	8,277	6,299,575	215,025	6,522,877
1996[d]	13	28	1,296	3,270,083	421,137	3,692,516
1997	16	49	3,762	4,323,129	539,123	4,866,014
1998	17	51	2,680	4,013,725	631,751	4,648,156
1999	15	62	11,890	4,673,074	490,761	5,175,725
2000	16	49	4,039	2,260,312	366,724	2,631,075
2001	4	18	101	3,128,036	381,502	3,509,639
2002	3	21		2,364,143	177,003	2,541,146
Average	9	27	3,151	2,529,248	402,878	2,935,278

--- Confidential data.

[a] Preliminary data through September 2002.

[b] Includes jig, pot, and longline harvest from the Inside and Outside Districts.

[c] Testfish not included in vessels or landings.

[d] 1996 testfish includes 566 lb of longline harvest.

Table 10. Annual guideline harvest level (GHL), season length, tow hours, and harvest from the Prince William Sound pollock fishery, 1995-2002.

Year	GHL (million lb)	Season Days	Vessels	Bainbridge Tow hours	Bainbridge Harvest (lb)	Knight Island Tow hours	Knight Island Harvest (lb)	Hinchinbrook Tow hours	Hinchinbrook Harvest (lb)	Total Tow hours	Total Harvest (lb)
1995	2.1-4.4	26	9							n/a	6,514,600
1996	3.1	5	11							131	3,691,220
1997	3.9	8	10							346	4,862,252
1998	3.9	7	11							557	4,645,476
1999	4.6	36	6							1210	5,163,835
2000[a]	3.1	70	4	173	1,357,997	21	30,801	118	1,234,430	312	2,627,036
2001	3.1	64	2	23	---[b]	227	---	161	---	411	3,509,538
2002	3.8	70	3	121	827,869	19	---	665	1,692,188	805	2,541,146

[a] Harvest sections created in 2000.
[b] Confidential data.

Table 11. Bycatch by species or group in the Prince William Sound pollock fishery, 1997-2002.

Year	Reported Bycatch (lb) Pollock	Rockfish	Salmon	Shark	Squid	Total
1997	4,862,252	12	72	648	18,316	4,877,878
1998	4,645,476	10	371	8,026	23,577	4,677,460
1999	5,163,835	688	2,148	14,133	6,162	5,186,966
2000	2,627,036	1,461	535	2,042	5,880	2,633,146
2001	3,509,538	4,211	372	4,084	31,101	3,549,306
2002	2,541,146	30,172	1,274	52,486	180,250	2,805,328

Table 12. Annual effort and harvest in the commercial lingcod fishery from the Prince William Sound Area, and adjacent federal waters, 1988-2002.

			Harvest (lb) [a]			
Year[b]	Vessels	Landings	Inside	Outside	Federal	Total
1988	15	22	1,338	7,106	17,592	26,036
1989	10	14	1,279	5,335	8,793	15,407
1990	18	24	8,117	3,155	10,006	21,278
1991	10	23	19,358	4,928	2,143	26,429
1992	30	40	2,349	3,786	10,342	16,477
1993	15	35	246	7,462	42,886	50,594
1994	22	47	9,542	831	29,346	39,719
1995	27	44	138	2,751	63,007	65,896
1996	23	42	5,799	790	19,086	25,675
1997	34	63	22,890	2,933	3,676	29,499
1998	18	28	3,399	1,468	6,229	11,096
1999	16	19	1,483	5,352	2,509	9,344
2000	18	46	5,113	12,174	6,568	23,855
2001	31	54	4,100	18,796	3,657	26,553
2002	17	24	1,007	777	18,168	19,952
Average[c]	21	36	6,082	5,491	16,131	27,704

[a] Does not include harvest reported as area 640.

[b] Preliminary data through September 2002.

[c] Average through 2001.

Table 13. Annual reported harvest of miscellaneous groundfish species, including at-sea discards, from the Prince William Sound Area, 1988-2002.

Year[a]	Vessels	Landings	Flatfish[b]	Salmon	Sharks[c]	Skates	Other[d]	Octopus	Squid	Totals
1988	9	15	15,457		34	11,770	315			27,576
1989	5	8	56			614	848		1,467	2,985
1990	19	80	72,973				454		2,166	75,593
1991	26	47	5,742		175	10,890	1,129	15		17,950
1992	31	68	8,942		1,338	19,192	2,941	1,230	399	34,041
1993	17	68	664		1,080	1,565	2,776	5,625	317	12,026
1994	16	44	1,016		2,465	4,435	8	5,798		13,722
1995	32	85	10,421	105	1,368	9,668	799	3,814	1,367	27,541
1996	30	63	76,346	11	32,052	26,700	51	994	468	136,622
1997	25	80	320	90	4,840	37,256	1,596	3,547	18,316	65,966
1998	24	66	4,182	371	8,692	44,790	33	2,928	23,577	84,573
1999	9	44	462	2,148	14,233	858	149		6,162	24,011
2000	10	27	7,085	871	2,044	618	129		5,951	16,697
2001	7	25	733	655	7,149	3,743	457		31,101	43,838
2002	8	31	4,214	1,274	165,469	6,402	228		180,250	357,837

[a]Preliminary data through September 2002.

[b]Flatfish includes general flatfish, flounders, and sole.

[c]Sharks include spiny dogfish, salmon, Pacific sleeper and unspecified sharks.

[d]Other includes general groundfish, misc. unidentified fish, eel, greenling and sculpin.

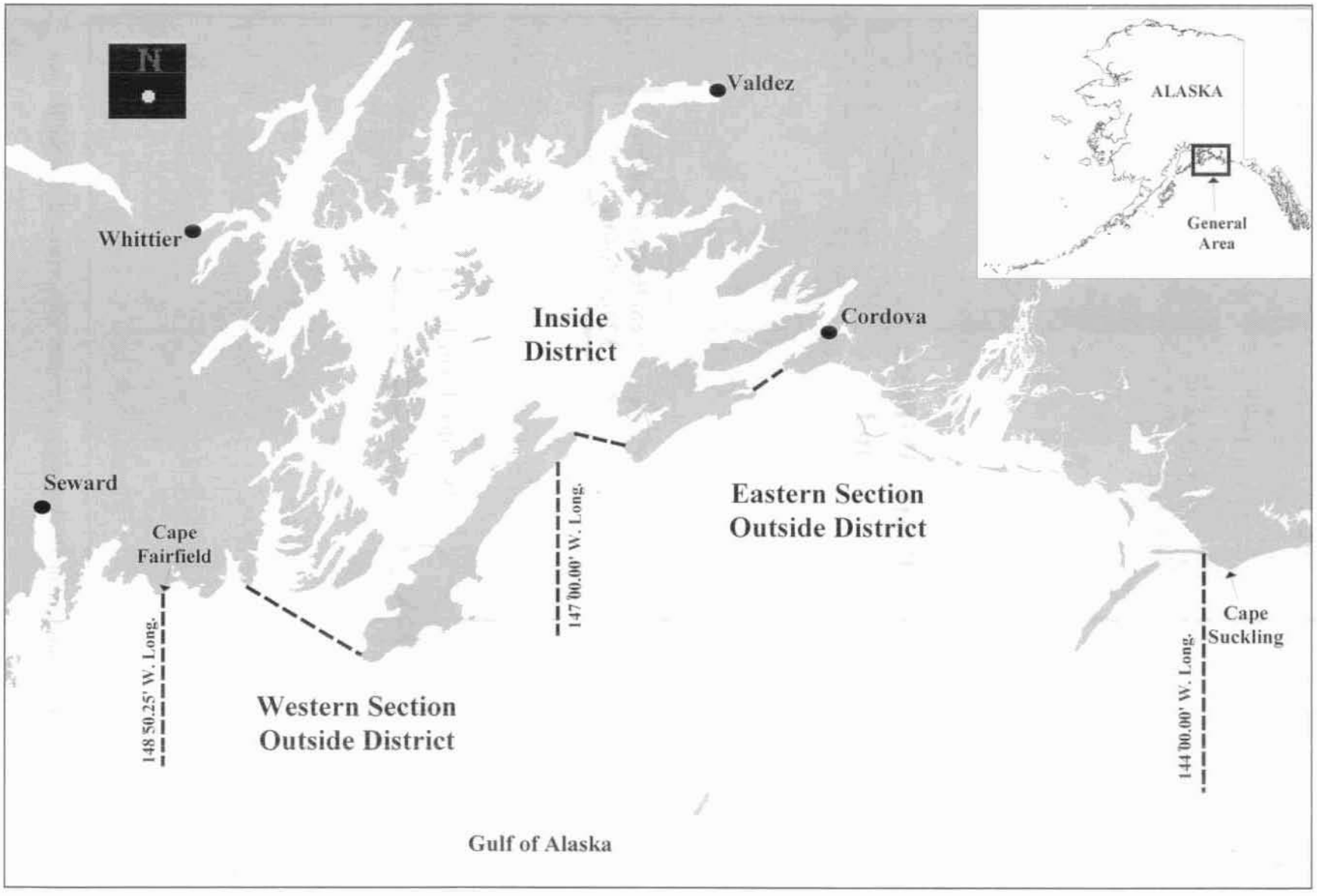

Figure 1. Groundfish fishing districts of the Prince William Sound Management Area, 2002.

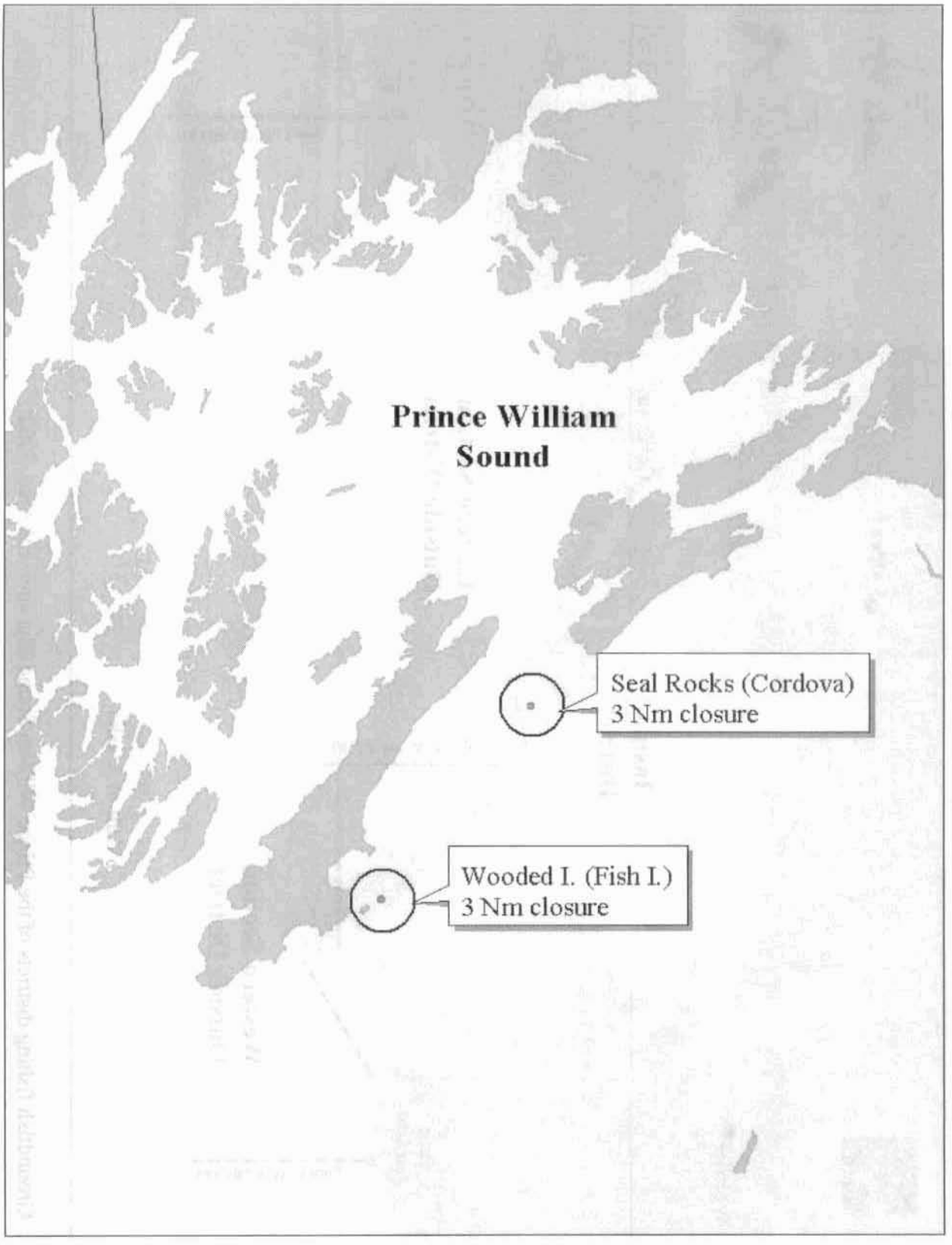

Figure 2. Prince William Sound groundfish fishing closures implemented for Steller sea lion protection.

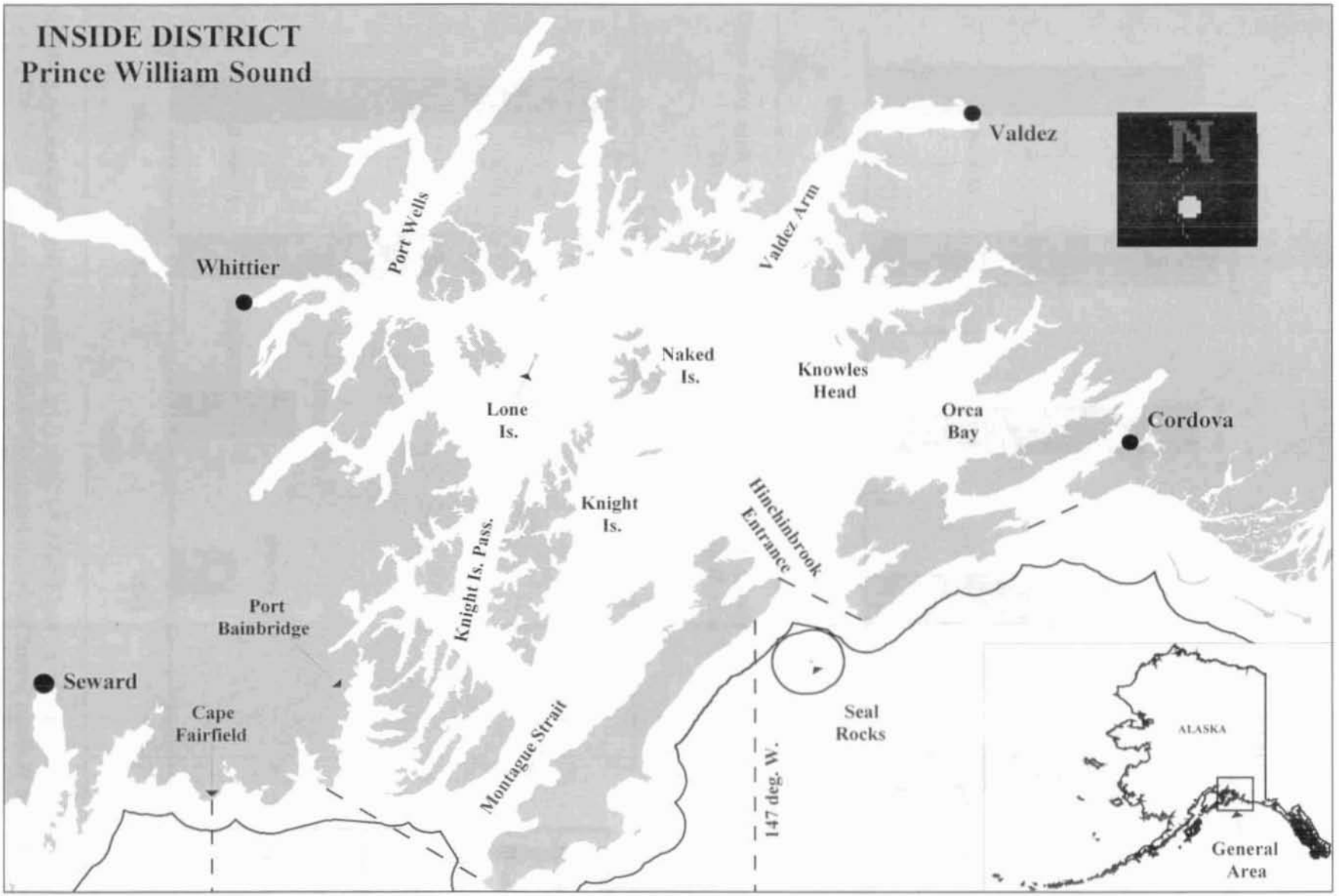

Figure 3. Selected sites of the Inside District, Prince William Sound Area.

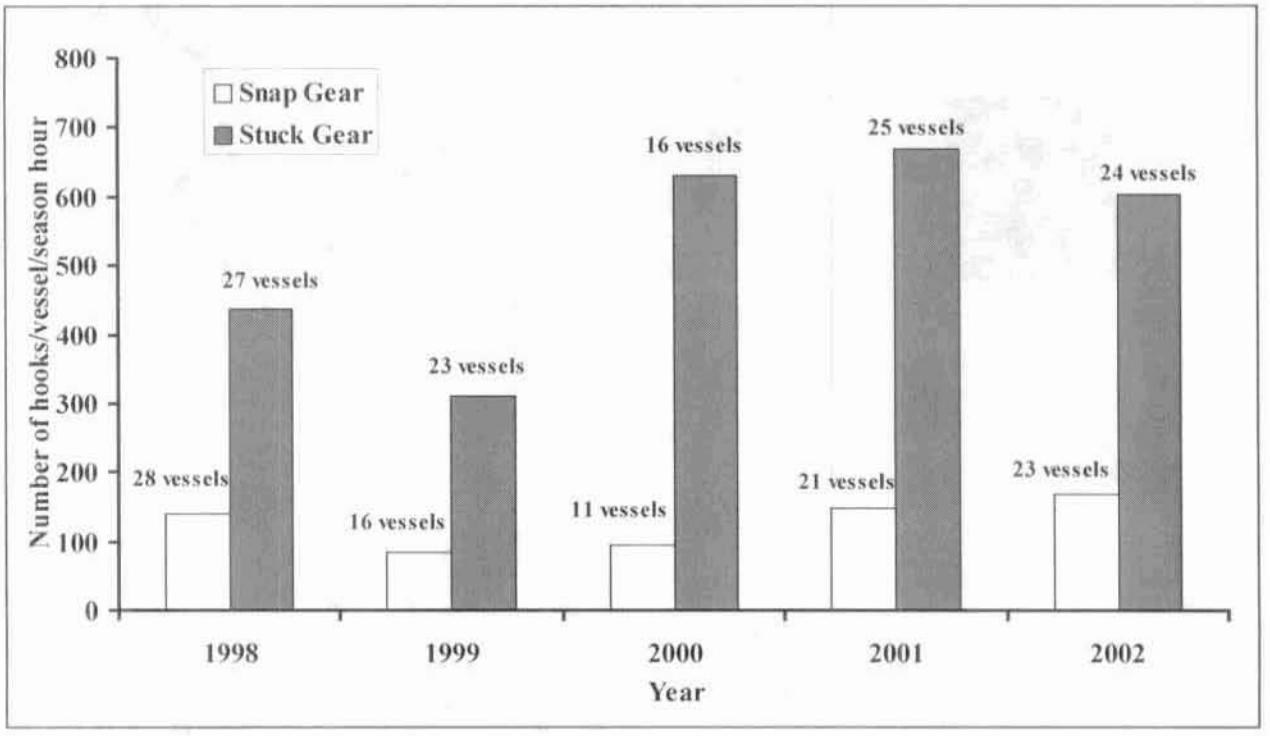

Figure 4. Estimated number of hooks fished by gear type, based on logbook data and vessel registrations for the Prince William Sound sablefish fishery, 1998-2002.

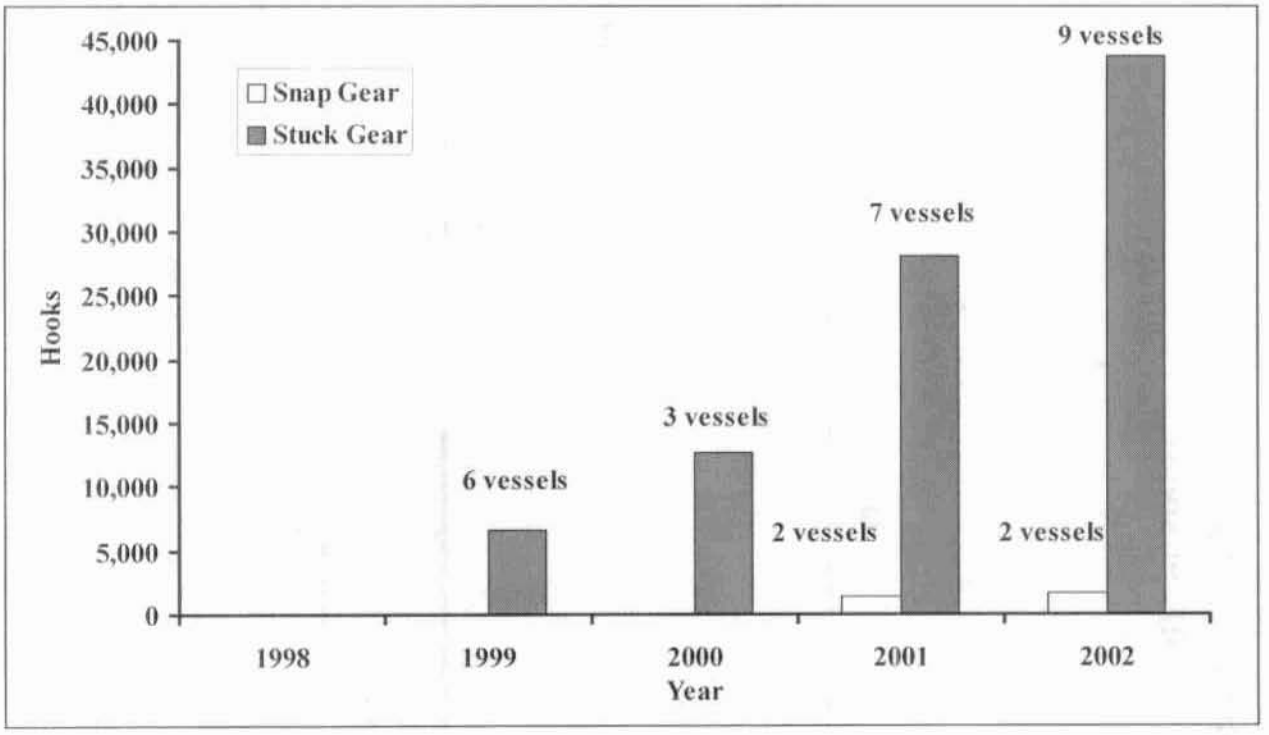

Figure 5. Estimated number of lost hooks by gear type, as derived from logbook data for the Prince William Sound sablefish fishery, 1998-2002.

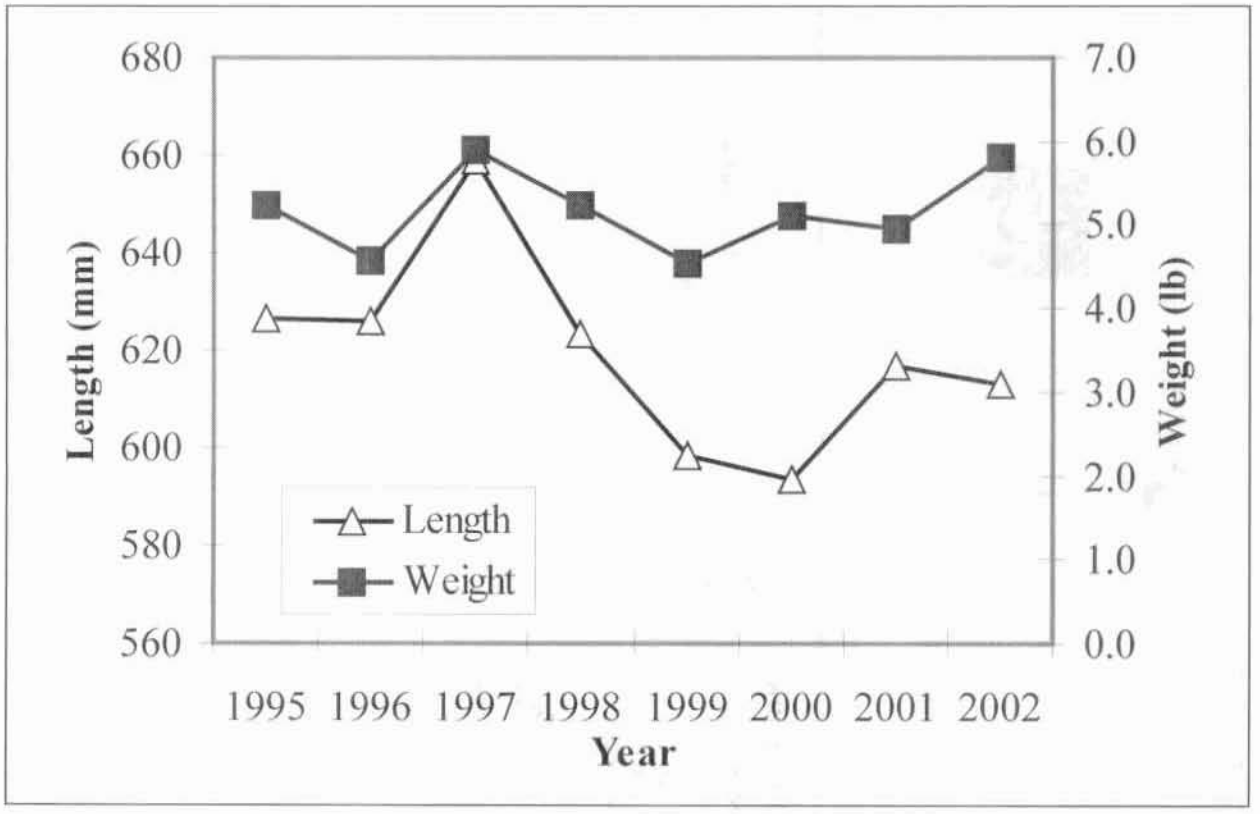

Figure 6. Average sablefish length and weight from the Prince William Sound commercial sablefish fishery, 1995-2002.

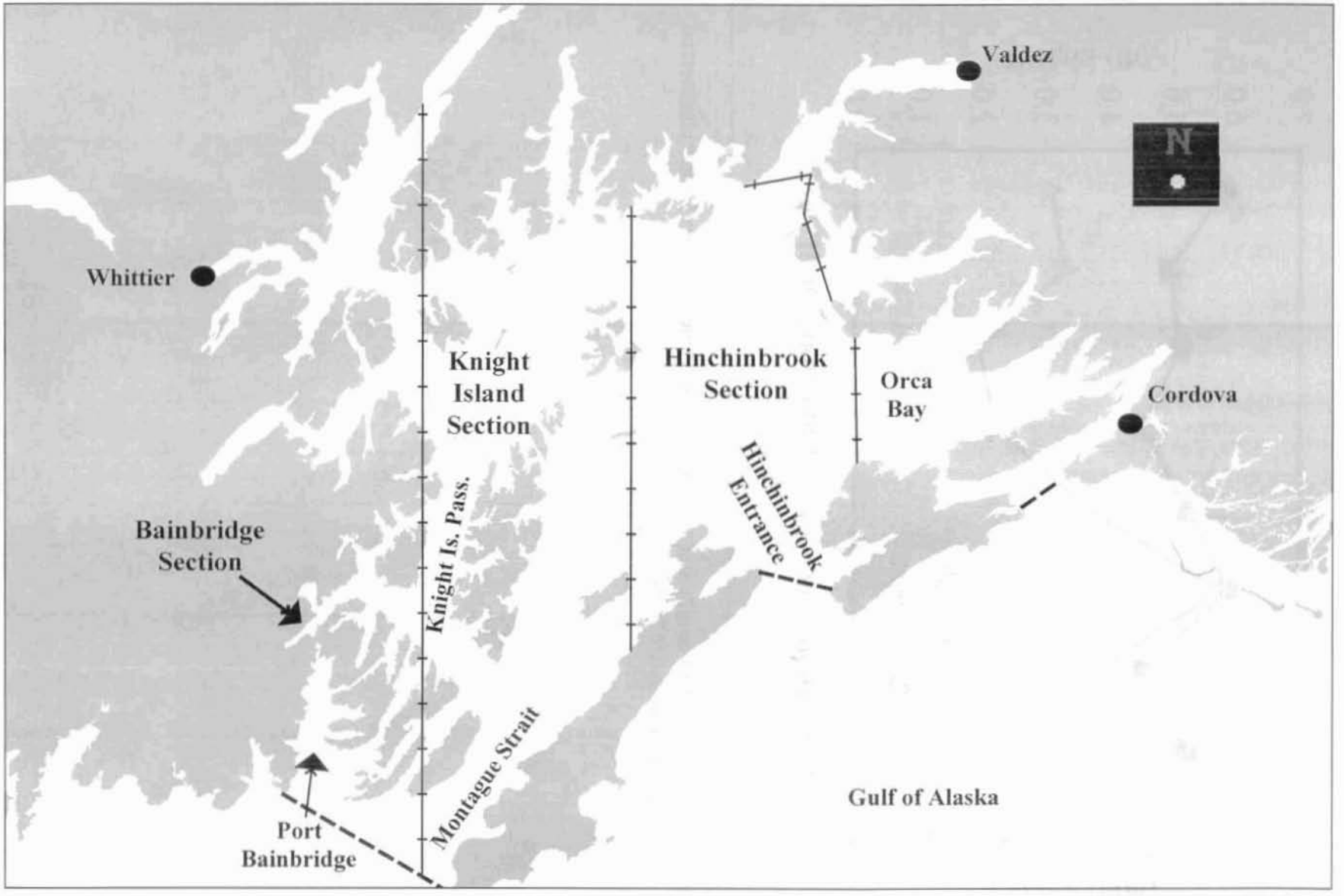

Figure 7. Pollock management sections established in 2000 in the Inside District of the Prince William Sound Area.