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**PRINCE WILLIAM SOUND 1994
SHELLFISH REPORT TO THE ALASKA BOARD OF FISHERIES**

**COMMERCIAL FISHERIES MANAGEMENT
AND DEVELOPMENT DIVISION**



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INTRODUCTION

This report documents the most recently completed Dungeness crab, shrimp, weathervane scallop, and miscellaneous shellfish fisheries in the Prince William Sound Management Area (Area E). The Area is comprised of all waters of Prince William Sound and the Gulf of Alaska from Cape Suckling to the east and Cape Fairfield to the west.

The directed fisheries were the 1993-94 sidestripe shrimp *Pandalopsis dispar* trawl fishery and 1993 weathervane scallop *Patinopecten caurinus* dredge fishery. Squid and octopus were harvested as bycatch in shrimp trawl and groundfish fisheries. The Dungeness crab *Cancer magister* and spot shrimp *Pandalus platyceros* fisheries remained closed during 1993. No commercial effort occurred during 1993 for razor clams although the season was open. No harvest of sea cucumbers or urchins occurred in 1993. Five sea cucumber harvest permits were issued in 1992, however, all reported low abundance and no harvest occurred.

Shellfish harvests from the aforementioned directed fisheries in Area E during the past year included 246,190 pounds of trawl shrimp and 63,068 pounds of weathervane scallops (meat weight). The estimated ex-vessel value by fishery was \$502,000 for trawl shrimp and \$282,000 for weathervane scallops.

A department policy on confidentiality generally states that any time a fishery or statistical area has fewer than three participants, catch information may not be made public.

DUNGENESS CRAB FISHERY

Introduction

The Dungeness crab fishery in Area E is classified as "superexclusive". This designation means that a vessel validly registered to fish in the PWS registration area may not participate in any other Dungeness crab fishery within the state during that registration year. Conversely, a vessel validly registered to fish in another registration area may not fish in PWS during that registration year.

Historically, the major Dungeness crab harvests have come from two areas of Prince William Sound: (1) Orca Inlet District and (2) Copper River District (Figure 1). Dungeness crabs are also harvested from the Orca Bay portion of the Northern District and from small populations in western Prince William Sound. However, these harvests have been proportionately small (Table 1).

Northern District

The Northern District harvest has been taken either incidental to the Tanner crab fishery or by one or two vessels targeting on Dungeness crabs. The district has limited Dungeness crab habitat and a history of low production; for example the recent 10 year average harvest (1984 - 1993) was 684 pounds with effort never exceeding two vessels (Table 1). These figures include seven years when there was no harvest. The Northern District is open year-round. The eastern portion of Orca Bay, which adjoins Orca Inlet, provides Dungeness crab for both the Orca Inlet and Northern districts. Movement generally occurs from Orca Bay into Orca Inlet during the summer with a return to the deeper waters of Orca Bay in the winter.

Orca Inlet

Orca Inlet, which is immediately adjacent to the community of Cordova, once provided a fishery that allowed participation by small vessels in an area protected from adverse sea conditions. The largest vessels fishing this area were in the 40-foot seiner class. Most vessels made one day trips and delivered each fishing day. Harvests ranged from over a million pounds in the early 1960's to 35,000 pounds in 1976. The limited data available on effort in this district indicates that for the period 1976 to 1979 the number of vessels ranged from 3 to 34 and averaged 23. This district has a 100 pot limit.

The department has conducted an annual survey in the Orca Inlet district since 1977. The district opens September 1 by emergency order only and closes on May 31. The district has remained closed via regulation since 1980. The September opening occurs only if the department survey indicates both an adequate abundance of Dungeness crabs and completion of the annual molt.

The major reason for the continued suppression of the Dungeness crab population in Orca Inlet is predation by the sea otter. The otter arrived in large numbers during 1980 and immediately impacted the Dungeness crab stock. A sea otter predator/prey relationship study conducted in the late 1970's showed that when Dungeness crabs are available, an otter is capable of eating 10 crabs per day.

Copper River District

The Copper River District fishery, which has a 250-pot limit, is a spring and fall fishery due to a regulatory closure for soft shell crabs during the summer months. For the ten year period 1984-1993 the average catch and effort were approximately 550,000 pounds and 10 vessels. These figures include 1.5 years when no harvest occurred. The Copper River District is not sheltered from the Gulf of Alaska and the longer running distance to market generally requires larger vessels. Beginning in 1987, split regulatory seasons were implemented in the Copper

River District with open seasons from March 20 to May 20 and July 25 to December 31. The regulatory closure extends from May 20 to July 25 and is designed to protect the stock from handling mortality during the softshell period following the annual molt. Additionally, the Controller Bay area closes on October 15. This early closure is designed to reduce gear loss from storms in this area of shallow water and soft substrate.

The department conducts an annual Dungeness softshell survey prior to the July 25 opening date. If ten percent or greater of the crabs are in a softshell condition the fishery is delayed and another survey is conducted in mid-August. The July 25 opening was delayed via emergency order in 1987, 1988, 1990 and 1991 until the crabs had attained an acceptable shell hardness. The opening date in 1987 was August 20, in 1988 September 15, in 1990 August 19 and in 1991 the district opened on August 28.

The 1992 spring season harvest is confidential due to the participation of a single vessel, however, it was well below the previous historical low of 70,259 pounds seen in 1991. Catch per unit effort of legal crabs averaged 1 for both of the department's 1992 soft shell surveys (July and August) indicating that the stock was depressed. This condition coupled with relatively poor recruitment resulted in the closure of the fall season fishery.

1993 Season Summary

Northern District

No effort occurred in the Northern District in 1993. The district was open for the entire year.

Orca Inlet District

The season was not opened in 1993. The annual Orca Inlet survey yielded no Dungeness crabs. Pot bycatch was dominated by yellowfin sole and sea stars. The abundance of male crabs is not expected to increase in the near future.

Emergency order closures have been in effect for the subsistence fishery since September 1981, and the personal use fishery since 1988.

Copper River District

The Copper River District remained closed during 1993. Department surveys in July and August indicated slight increases in CPUE of both the legal and sublegal segments of the stock. The average number of legal males per pot increased from 1.2 in 1992 to 2.6 in 1993 (Table 2). Although the increase is encouraging, the CPUE of legal crabs is comparable to that seen in the department's 1991 season when only 70,259 pounds were harvested. The 1991 harvest was approximately 13% of the recent 10 year (1984-1993) average of 550,000 pounds. In 1993 the sublegal catch increased to 13.3 from a level of 10.9 in 1992.

1994 Management Outlook

The Northern District will remain open year-round.

Orca Inlet will continue to be surveyed; however, a recovery is not anticipated as the sea otter population does not appear to be declining. The department's annual survey in the Inlet also indicated that a fishery in the near term is not likely.

The department plans to monitor the summer molt in the Copper River District by conducting a soft shell survey prior to the July 25 regulatory opening date. If the molting period is prolonged, an emergency order will be issued to delay the fishery opening and the department will conduct an additional survey. If department surveys detect another weak recruitment event and survey CPUE remains low, the fishery will likely remain closed.

POT SHRIMP FISHERY

Introduction

The Prince William Sound pot shrimp fishery targets on spot shrimp and to a limited extent coonstripe shrimp. Commercial landings were first documented in 1960 when 4,100 pounds were harvested. From 1960 until 1977, catch varied from no reported harvest in 1962 and 1966 to a high of 20,000 pounds in 1974 (Table 3).

The pot shrimp fishery expanded rapidly after 1978 with increases in both catch and participants. Growth of the fishery was greatest from 1978 through 1982. During this period local markets were established and the major harvesting areas located. Landings increased from 12,000 pounds in 1978 to 178,000 pounds in 1982. Similarly, effort increased from 9 to 57 vessels during this period. Harvests were stable from 1982 through 1984 due to a management strategy which employed the following:

- 1) Elimination of year-round fishing, and seasons set to avoid fishing during peak egg bearing periods.
- 2) Establishment of a guideline harvest range based upon historical harvests.

In September of 1984 the Alaska Board of Fisheries adopted a management plan which established three fishing areas. These areas were the Traditional Harvest Area (THA),

Montague Strait Experimental Harvest Area (MSEHA), and the Eastern Harvest Area. The department has since managed the pot shrimp fishery in PWS under the plan established by the Board of Fisheries in 1984.

In 1990 the Board of Fisheries eliminated the MSEHA and incorporated these waters into the Traditional Harvest Area. The MSEHA was originally established as an experiment to determine if continuous fishing would depress the shrimp stock. Subsequently, due to continuous fishing from 1985 - 1988, a stock conservation problem developed. Catches declined in the MSEHA from approximately 46,500 pounds in 1986 to 2,000 pounds in 1988. The department closed this area in October 1988.

Historically the majority of pot shrimp were caught in the northern and western portions of Prince William Sound (THA) which are characterized by numerous steeply cut glacial fjords and passages. The harvest area encompasses the northern shore from Port Valdez to Whittier and all of western and southwestern PWS including Montague Strait (Figure 2). Market access is through the ports of Whittier, Valdez and Seward, which have direct transportation ties with the Anchorage metropolitan area. This accessibility has been the key to development of fresh markets for unprocessed spot shrimp because the product can be utilized shortly after capture. The Prince William Sound pot shrimp fishery is unique in that participants vary from full-time to seasonal and weekend fishermen. This heterogeneous mix has split the industry as to the desired season of harvest.

Two regulatory fishing seasons occur per calendar year in the THA. The spring season opening date was changed by the Board of Fisheries during the 1990 Board meeting; the spring season now opens on May 1 rather than March 15. The justification for delaying the season opening was to avoid harvest during the egg release period. The spring season closes on June 30. The fall season begins on August 15 and continues until December 15. The annual guideline harvest range is 150,000 - 200,000 pounds split evenly between the two seasons. Either season may be closed earlier by emergency order if the harvest level is achieved. When excessive harvest occurs during the spring season, the poundage is deducted from the fall season.

The Board of Fisheries also adopted two new gear related proposals during the March 1990 Board meeting. The first regulation placed a limit of 150 pots per vessel. The second regulation was intended to provide protection to small, nonsalable size shrimp by requiring rigid 7/8" mesh which would allow these shrimp to escape. Pots with a definable side must have at least two adjacent sides completely composed of the rigid mesh. Round pots must have rigid mesh covering a minimum of 50% of the vertical surface area of the pot.

The Eastern District has a very low production history and is designated as a year-round fishery. Harvests in this District have averaged less than 1,000 pounds. Catches are held confidential due to the participation of less than 3 fishermen. A Commissioner's permit is required for this area to allow the monitoring of effort and catch via mandatory logbooks and department contact.

In 1989 the department began a survey of spot shrimp in the THA to assess the spot shrimp stocks. Pots were set in the northern, western, and southwestern portions of PWS. Six stations have been surveyed annually since 1989 with two experimental stations added in 1991. Data from the survey, specifically CPUE and sex ratios, are used in making management decisions regarding the fishery.

The total annual harvest from Prince William Sound declined rapidly from 290,632 pounds in 1988 to 29,315 pounds in 1989 and 36,737 in 1990 when the fishery was closed by emergency order (Table 3). Although the subsequent survey continued to indicate a depressed stock, the department wanted to further validate the survey data via a limited commercial fishery. The 1991 fall spot shrimp fishery in the Traditional Harvest Area provided this opportunity. The fishery opened September 10, by emergency order.

A reduced preseason guideline harvest range (GHR) of 10,000 to 40,000 pounds whole shrimp weight was set by the department. The reduction was in response to recent fishery performance as well as the department's 1990 survey data which indicated that the stock was depressed and the number of spawning females low. The survey, however, also showed a moderate year class of males which had the potential to recruit into the fishery in 1991.

The 1991 commercial harvest of pot shrimp in the Prince William Sound Management Area was 17,580 pounds (whole shrimp weight). The harvest by species was 17,302 pounds of spot shrimp and 278 pounds of coonstripe shrimp (Table 3). The harvest was taken by 15 vessels which made 45 landings. All but a very small percentage of the catch was taken in the THA. Catch and effort data from the Eastern District are confidential due to the participation of a single fisherman.

The department initiated a voluntary logbook program to aid in data collection during the 1991 fishery. Participation was high at 65%. Logbook data coupled with fish ticket data indicated that the harvest was indicative of stock condition because fishing effort was distributed throughout the THA. These data also indicated no improvement in CPUE since the spring 1990 fishery. Furthermore, the overall CPUE from the 1991 fishery and the department's fall 1990 survey were comparable at 0.83 and 0.86 pounds of whole shrimp per pot (Tables 3 and 4). Therefore, although the relative numbers of females appeared to have increased indicating that some of the growth potential between year classes was realized, the overall weight of the per-pot catch remained low. The fishery closed by emergency order on October 25, 1991.

The commercial spot shrimp season remained closed in the THA through 1992 due to low abundance. Fishery performance data from the 1991 fishery indicated that the stock remained in a depressed condition. These data were also supported by the department's November 1991 spot shrimp survey in which CPUE averaged 1.3 of whole shrimp per pot. Although this figure indicates some improvement in the depressed condition of the stock, catches of females and shrimp in the salable size range remained low.

1993 Season Summary

The Eastern District remained open to harvest through 1993, however, no harvest occurred.

Commercial fishing in the THA was closed in 1993 due to continued low abundance. The October 1992 spot shrimp survey showed a decline in the abundance of adult spot shrimp with a CPUE of 0.8 pounds of whole shrimp per pot (Table 4). Survey catches of spot shrimp at experimental stations in southwestern PWS declined as well with CPUE dropping from 1.2 in 1991 to 0.6 in 1992 (Table 5).

1994 Management Outlook

Traditional Harvest Area

The 1993 annual spot shrimp survey within the THA indicated further decline in the overall stock of spot shrimp with CPUE declining at all survey stations but one. Catches at this location remained the same. Catch per pot in the 1993 survey averaged 0.4 pounds of whole shrimp per pot. Based upon these data, the department intends to close the fishery for 1994. The October 1994 spot shrimp survey will occur after the period of summer growth. This survey will provide the basis for a management decision regarding the 1995 fishery.

It is apparent that a conservative approach to pot shrimp fishery management is warranted for the following reasons:

- 1) The number of female and large male shrimp is low. If a fishery is permitted, these shrimp will be targeted as salable and the abundance of this size range will decline further thereby reducing the brood stock and increasing the risk of future recruitment failure.
- 2) Spot shrimp are long lived and slow growing further emphasizing the need to keep fishing mortalities low.

Eastern Prince William Sound

The department plans to allow year-round fishing in this area during 1994. Production remains low and it appears that no significant quantities of spot shrimp exist. All shrimp harvests in this district have occurred within PWS. The Gulf of Alaska portion of this area does not provide the habitat required for spot shrimp.

TRAWL SHRIMP FISHERY

Introduction

Emphasis in the trawl shrimp fishery has shifted from the harvest of pink shrimp in southwestern Prince William Sound to sidestripe shrimp in northwestern PWS (Figure 3). Large Kodiak based vessels that harvested pink shrimp in southwestern PWS constituted the main effort during the early 1980's. The fishery for pink shrimp declined due to the low ex-vessel value of pink shrimp, limited processing capabilities and poor pink shrimp stock conditions.

The first documented harvests of sidestripe shrimp occurred in 1983 around the Icy Bay area, however, recent activity has focused on northwestern PWS. Increased harvests of sidestripe shrimp began in 1985. The reason for the sudden expansion was the development of markets and gear by fishermen with small vessels, targeting on stocks which were previously unfished. Sidestripe tails are marketed fresh in Anchorage while markets for whole, fresh and frozen sidestripes exist in both Anchorage and Japan.

After the trawl fishery for pink shrimp was fully developed catches ranged from 171,000 pounds to 1.3 million pounds and effort ranged from 3 to 14 vessels. Since sidestripe shrimp became the predominant species of harvest in 1987, catch and effort have ranged from 96,000 pounds

to 246,000 pounds and 2 to 7 vessels respectively (Table 6). The incidental harvest of pink shrimp during this same period ranged from 275 to 3,500 pounds.

At the spring 1986 shellfish meeting the Board of Fisheries established a fishing season of March 1 through November 30 for sidestripe shrimp fishing in northwestern Prince William Sound. Subsequently in 1990, the Board adopted a split season of April 1 through August 15 and September 15 through December 31 (Figure 3). The spring opening date was delayed to allow for completion of the egg release. The August 16 through September 14 closure was proposed by a fisherman who indicated to the Board that soft-shell shrimp were prevalent in the catch during that time. The season was extended to December 31 to enable fishermen to provide shrimp for holiday markets.

As catch and effort increased, the department became concerned for the conservation of the sidestripe shrimp resource in Port Wells. In April 1990 the department initiated a program utilizing onboard observer data to calculate an area-swept estimate of trawlable shrimp abundance for the Port Wells area. A 20% harvest rate was applied to the estimate. In 1990, 1991, and 1992 this method yielded harvest levels of 65,000 and 80,000, and 65,000 pounds respectively. Fishery closures for 1990 through 1992 were August 15, June 23, and June 3 due to attainment of the respective harvest levels.

In summary the regulatory measures for trawl shrimp are:

- 1) April 1 - August 15 and September 15 - December 31 season dates Northwestern area
- 2) Cod end mesh restriction during the entire season in the Northwestern area. Cod ends must be at least 15 feet in length with at least 12 feet composed of $1 \frac{7}{8}$ inch stretched mesh hung horizontal and perpendicular to the mouth of the trawl.
- 3) No more than 10% by weight of the shrimp in possession may be pink shrimp in the Northwestern area.
- 4) A year-round closure in the eastern Prince William Sound (Port Fidalgo, Orca Bay and Hinchinbrook Entrance) to minimize non directed fishing

mortality on king crab and Tanner crab stocks in these key production areas.

- 5) A May 1 - February 28 season in both the Icy Bay district and the central/southwest portions of PWS.
- 6) A 250,000 - 600,000 pound guideline harvest range for the Icy Bay District, which is in southwestern PWS.
- 7) A June through August season in the Northern Herring Fishing District to avoid conflict with herring season closures.

1993 Season Summary

The sidestripe shrimp season in northwestern PWS opened by regulation on April 1, 1993. The central and southwest portions of PWS opened on May 1 and the Valdez Arm area opened June 1.

The department continued to collect onboard observer data in 1993 during the commercial fishery in Port Wells. A biomass estimate, using area-swept data collected from a commercial vessel, was established for all *Pandalid* shrimp in the Port Wells area and a 20% harvest rate was applied to this estimate yielding a 46,000 pound quota. The quota was taken by May 20, 1993 and the season in Port Wells was subsequently closed for the remainder of the year. The balance of the northwestern area remained open through the first half of the regulatory season. Commercial catch samples indicated that the catch in the Port Wells area was composed of 32% juveniles, 47% males, 8% females, and 13% transitionals.

As the trawl fishery for sidestripe shrimp expanded into the remainder of the management area, staff became concerned about overharvest of the resource. Concurrently, catches in more established fishing areas had declined. In order to begin to address this potential problem, the

1993 harvest guideline for the entire management area was set at 246,000 pounds which was the historical high catch of sidestripes in PWS.

The trawl shrimp harvest for 1993 was 246,190 pounds of whole shrimp by 7 vessels in 72 landings including Port Wells. This is the second year at the historical high harvest level since the fishery began targeting sidestripes in 1985. Sidestripe shrimp dominated the landings at 190,976 pounds (Table 6). Incidental landings of pink shrimp and other miscellaneous shrimp equalled 74 pounds. Approximately 55,140 pounds of deadloss (pink shrimp, crushed or small sidestripes) were reported on fish tickets, however, reporting of deadloss is incomplete. The entire management area closed by emergency order on September 20, 1993 due to attainment of the harvest level.

Trawl shrimp landings occurred April through September. Six of the 7 vessels participating in the fishery operated otter trawls; the other was a beam trawl. Vessel length ranged from 32' to 90'. The average ex-vessel value for trawl-caught shrimp was \$2.17 per pound, whole shrimp weight. The ex-vessel fishery value was approximately \$414,000.

1994 Management Outlook

The department will continue to manage the sidestripe trawl fishery in the Port Wells area via a 20% harvest rate applied to a population estimate generated from commercial vessel trawl data. Fishery performance data indicate that the sidestripe stock in the Port Wells portion of the Northwest area has declined from earlier years. Catch per hour towed declined by approximately 50% from 1991 to 1992. Catch rates in 1993 declined slightly from 1992 levels. As a result there is a strong likelihood of a reduced harvest level in 1994. Effort in the fishery is expected to continue to increase. With increasing effort, the guideline harvest level will be attained early, prompting an early closure similar to the past two seasons. As seen in 1993, an

early closure of the Port Wells area will likely disperse effort resulting in development of new harvest areas.

The central portion of PWS which accounted for approximately 60% of the 1993 harvest is expected to continue be a significant contributor to the catch. The preseason guideline harvest level for this area will be set at 155,000 pounds which is equal to the 1993 harvest. The department plans to continue monitoring the catch from this area for significant changes in CPUE via logbooks and may establish a harvest level using a methodology similar to that used in the Port Wells area.

Due to low ex-vessel value and limited abundance no fishery targeting on pink shrimp is expected in southwestern PWS in 1992.

RAZOR CLAM FISHERY

Introduction

Beginning in 1916 and continuing into the mid 1950's, Cordova was known as the "razor clam capital of the world". Historical fishery statistics are imprecise, however, it appears that the majority of razor clams were harvested from Orca Inlet and the western Copper River Delta (Figure 4). The eastern Copper River Delta, which includes Kanak Island, was not a substantial contributor to the early harvests. Catches during this time ranged from a frequent harvest of over one million pounds to 3.6 million pounds in 1917. Most of the product was canned and ultimately used for human consumption.

The razor clam industry began to decline in the 1950's for a number of reasons:

- 1) economic - the east coast clam fishery gained economic dominance
- 2) biological - substrate change caused largely by alteration in the Copper River outflow which severely affected juvenile survival.

The "Good Friday Earthquake" in 1964 caused significant uplift in prime razor clam habitat in Orca Inlet. Loss of habitat resulted in record low harvests in the 70's and early 80's (Table 7). The majority of the production since the mid-70's has come from the eastern Copper River Delta which includes Kanak Island.

In the late 50's and early 60's, commercial demand for razor clams shifted from human consumption to Dungeness crab bait. The demand for razor clams for human consumption increased again in 1983. A decline in clam abundance in Washington led to an expanded fishery in Prince William Sound. Since 1983 the majority of the clam harvest has been taken at Kanak Island beach with minor amounts coming from Softuk and Katalla beaches on the eastern Delta. Yearly harvests during the 1980's attained a maximum of 170,000 pounds with a recent ten year (1981 - 1990) average annual harvest of 45,000 pounds and an average of 16 diggers.

The department monitors commercial razor clam harvests via fish ticket information. The non-commercial harvest is monitored through a permit system which requires a harvest report. The minimum legal size of clams is 114mm. (4.5 in.) in length.

A guideline harvest range of 100,000 to 150,000 pounds is in effect for the combined commercial and sport/subsistence harvests from Kanak Island. By regulation, clams harvested from Kanak Island must be used for human consumption as food. Kanak beach receives annual certification by the Alaska Department of Environmental Conservation (ADEC). Certification allows bivalves to be sold for human consumption. Kanak beach was inspected and certified in June of 1993.

Although Kanak Island is designated for human consumption, the department has had difficulty enforcing this regulation. Sand bars near Kanak, that are exposed at low or minus tides, have been the source of bait clams. For enforcement purposes, the department has defined Kanak Island as all tidelands that have a physical land connection with Kanak Island during any tide stage.

1993 Season Summary

There was no commercial harvest in 1993. The last year of documented commercial harvest was 1989. Reports from non-commercial diggers indicate that the number of legal size animals is low at all beaches in the area.

The preliminary non-commercial harvest (subsistence, sport and personal use) during 1993 was 1,131 pounds by 37 diggers. The department issued 84 permits for the Copper River Delta. Harvest from Kanak Island was 308 pounds, Katalla beach 640 pounds, Softuk bar 168 pounds, and Egg Island 15 pounds.

1994 Management Outlook

Ex-vessel value of razor clams has not substantially increased for several years. Bait and food clams command a similar price per pound. The local bait clam market has been poor since 1991 due to the depressed Dungeness stocks on the Copper River Delta. Unless an increased demand for food clams occurs, the harvest will remain well below the guideline harvest range of 100,000 to 150,000 pounds set for the beach at Kanak Island. If effort increases at Kanak Island the department will monitor the beach via catch per unit of effort data.

Although the department does not conduct population estimates, reports from non-commercial diggers indicate that razor clam abundance has declined over the previous five years on the eastern delta. Non-commercial diggers with many years experience on the Delta have reported a lack of razor clams on Katalla Beach as well. There is public speculation that since Kanak Island was designated as a food only beach in 1985, effort subsequently increased for bait clams at Katalla Beach contributing to the low abundance.

WEATHERVANE SCALLOP FISHERY

Introduction

A fishery for weathervane scallops developed in the PWS management area in 1992. Although landings have occurred from the Yakutat area to the east since the late 1960's, the 1992 harvest constitutes the first documented commercial scallop landings from Area E.

The 1992 harvest of weathervane scallops in the PWS management area totalled 208,836 pounds of meats taken by 4 boats. This poundage equates to approximately 2.1 million pounds whole scallop weight. A commissioner's permit was a management tool used to require fishermen to submit logbooks and weekly catch reports. Harvest occurred from two statistical areas (202-09 and 202-10) in the Kayak Island vicinity. Fishing began in late February and closed by emergency order on April 23. The closure was based upon an allowable harvest of 64,000 pounds meat weight established by developing an area swept scallop biomass estimate using fishery performance data and applying a 10% harvest rate. This harvest rate is identical to that specified by the Board of Fisheries for the Cook Inlet scallop fishery.

Vessels ranged from 74' to 147' in length and towed two 15' New Bedford style dredges. Participants delivered both fresh and frozen product. The average price was \$3.98 per pound making the fishery worth approximately \$831,000.

The discrepancy between allowable (64,000lbs) and actual harvest (208,836lbs) is directly attributable to a lack of timely and accurate catch reporting and information on scallop stocks in Area E. As the fishery progressed, both effort and the geographic area fished increased. Information gathering was difficult because the majority of landings occurred at a port with no department staffing. Collection of data inseason was accomplished by weekly radio reports of estimated catch, however, actual catch by each vessel was not ascertained until the time of landing. Errors in radio reports of estimated catch were not evident in some cases for up to 2 weeks. The time delay was attributable to fishing trip length and the time necessary for a fish ticket to arrive via mail. By the time that a picture had emerged of scallop stock distribution and density, the harvest had progressed to an estimated 150,000 pounds. When the fishery closed three days later the harvest was approximately 209,000 pounds meat weight.

After the eastern Gulf portion of the management area closed, participants expressed an interest in exploratory fishing in the western Gulf portion of the area. This area is delineated on the east by 147°00' W. longitude, on the north by the latitude of Cape Clear (59°45'45" N latitude.) and on the west by the longitude of Cape Fairfield (148°50' W long.). Waters of PWS and nearshore Gulf waters remained closed to scallop dredging due to department bycatch concerns for depressed Tanner and Dungeness crab stocks. Effort in the western Gulf portion of the management area was low with only two participants and no reported harvest.

1993 Season Summary

In response to the increases in scallop harvests statewide, the department initiated the development of an interim fisheries management plan under 5 AAC 39.210. Management Plan for High Impact and Emerging Fisheries. This interim management plan was formulated and implemented prior to the July opening date in PWS.

Key features of the PWS portion of the plan include:

1. Area registration.
2. Gear requirements including 4" ring size and maximum of two 15' dredges.
3. 50,000 pound meat weight GHL.
4. Bycatch caps of 500 and 130 Tanner crabs east and west of 147° W. longitude.
5. Seasons set by emergency order.
6. Industry-funded Observer Program.
7. Crew size limit of 12.

The 1993 scallop fishery in the PWS management area opened on July 15 at 12:00 noon. Prior to fishing each vessel was required to register and each observer briefed. Radio contacts were made twice daily with each observer reporting fishing area, number of tows, sampling intensity, crab bycatch, and scallop catch.

Two fishing areas were established:

1. Eastern area - waters east of 147°00' W. longitude and south of 60°00' N. latitude.
2. Western area - waters west of 147°00' W. longitude and south of 59°45' N. latitude.

The Eastern area comprised the area of primary harvest with a quota of 50,000 pounds meat weight. The Western area opened to provide an opportunity for exploratory fishing with an initial quota of 5,000 pounds (Figure 5).

Seven vessels ranging in length from 81' to 145' participated in the fishery. The scallop harvest from the Eastern area totalled 63,068 pounds meat weight. Catch per tow and tow length averaged 231 lbs. meat weight and 51 minutes respectively. The fishery closed in the eastern area by emergency order on July 18, 1993 at 7:00am resulting in a fishery duration of 67 hours (2.8 days).

Four vessels made tows in the western area after the Eastern area closed. No catch was reported from this area.

1994 Management Outlook

Fishing in 1992 and 1993 indicated that the PWS area scallop stock is confined to two relatively small areas. Experimental fishing in both 1992 and 1993 in the western Gulf of Alaska portion of the management area yielded no indication of a commercial scallop resource. The harvest level for the PWS management area will likely be close to the 50,000 pound allowable harvest calculated for 1993. Effort for scallops appears to be increasing statewide, therefore, it is reasonable to expect the PWS fishery to experience some increase. Given the current allowable harvest level, any increase in effort will likely result in a fishery of shorter duration.

MISCELLANEOUS SHELLFISH

Squid and Octopus

Small quantities of squid were landed during commercial shrimp trawl fisheries. Due to the small number of participants (2) the harvest information is confidential. Octopus were harvested incidentally to the longline and pot groundfish fisheries. In 1992 the harvest of octopus totalled 5,191 pounds by 26 vessels. Although permits have been issued for directed fishing for octopus, no catch has been reported.

Table 1. Prince William Sound Area Dungeness crab catch, 1960 – 1993.

Year	Copper River			# Crab	Avg. Wt.	Percent Recruits	Orca Inlet		Northern District			Total Pounds
	Pounds	Lndgs.	Vessels				Pounds	Vessels	Pounds	Lndgs.	Vessels	
1960	---	---	---	---	---	---	1,524,326	---	---	---	---	1,524,326
1961	---	---	---	---	---	---	990,242	---	---	---	---	990,242
1962	---	---	---	---	---	---	1,353,190	---	---	---	---	1,353,190
1963	---	---	---	---	---	---	1,216,846	---	---	---	---	1,216,846
1964	---	---	---	---	---	---	1,290,929	---	---	---	---	1,290,929
1965	---	---	---	---	---	---	1,240,372	---	---	---	---	1,240,372
1966	---	---	---	---	---	---	999,341	---	---	---	---	999,341
1967	---	---	---	---	---	---	NO DATA AVAILABLE	---	---	---	---	NO DATA AVAILABLE
1968	---	---	---	---	---	---	579,279	---	---	---	---	579,279
1969	336,696	---	---	---	---	---	541,822	---	---	---	---	878,518
1970	78,223	---	---	---	---	---	660,411	---	---	---	---	738,634
1971	78,848	---	---	---	---	---	430,976	---	---	---	---	509,824
1972	437,865	---	---	---	---	---	286,808	---	---	---	---	724,673
1973	458,613	---	---	---	---	---	347,764	---	---	---	---	806,377
1974	290,149	---	---	---	---	---	269,015	---	---	---	---	559,164
1975	654,410	---	---	---	---	---	163,631	---	---	---	---	818,041
1976	254,933	---	4	---	---	---	35,399	---	3	---	---	290,332
1977	506,751	---	4	---	---	---	228,858	---	23	---	---	735,609
1978	1,319,451	---	12	---	---	---	648,439	34	49,571	---	17	2,053,461
1979	504,770	---	19	---	---	---	123,245	32	20,924	---	16	652,924
1980	659,667	---	10	---	---	---	CLOSED	---	31,152	---	5	690,819
1981	1,503,574	202	18	---	---	25	CLOSED	---	5,683	11	5	1,509,257
1982	757,911	139	16	332,417	2.2	26	CLOSED	---	4,221	4	2	762,182
1983	379,094	86	9	184,026	2.1	49	CLOSED	---	511	14	2	379,605
1984	826,778	88	10	413,394	2.0	92	CLOSED	---	150	2	2	826,938
1985	1,006,196	124	17	483,748	2.1	63	CLOSED	---	1,233	5	1	1,007,429
1986	1,090,477	105	16	531,940	2.1	58	CLOSED	---	0	---	---	1,090,477
1987	887,713	92	13	438,974	2.0	34	CLOSED	---	5,461	2	2	893,174
1988	602,969	48	8	298,569	2.0	52	CLOSED	---	0	---	---	602,969
1989	635,976	43	9	326,226	2.0	25	CLOSED	---	0	---	---	635,976
1990	397,913	63	17	196,266	2.0	36	CLOSED	---	0	---	---	397,913
1991	70,259	32	14	39,033	1.8	62	CLOSED	---	0	---	---	70,259
1992 (1)	*	*	1	*	*	*	CLOSED	---	0	---	---	*
1993	S E A S O N C L O S E D											

(1) Spring season only.

* Harvest data is confidential due to the limited number of participants.

Table 2. Copper River District Dungeness crab survey average catch per pot of legal, sublegal and female crabs, 1985 – 1993.

Year	Number of Pots	Legal Crabs	True Recruits	Sublegal Crabs	Newshell Sublegal	Female Crabs
1985	65	9.4	8.3 (88%)	5.4	3.3 (61%)	0.0
1986	80	9.1	7.3 (80%)	9.7	2.2 (23%)	5.3
1987	80	9.7	5.6 (58%)	10.5	4.4 (42%)	9.8
1988	80	10.7	7.4 (69%)	12.1	3.7 (31%)	12.0
1989	80	12.1	1.0 (8%)	5.4	0.4 (7%)	6.8
1990	80	7.7	2.6 (34%)	9.8	2.0 (20%)	8.5
1991	80	2.6	1.4 (54%)	9.6	1.9 (20%)	12.8
1992	80	1.2	0.6 (50%)	10.9	3.2 (29%)	1.1
1993	80	2.6	1.3 (50%)	13.3	5.3 (40%)	0.6

Table 3. Pot shrimp harvest, Prince William Sound Management Area 1960 – 93.

Year	Vessels	Landings	Spot	Coonstripe	Other	Total ¹ Whole Wt.
1960						4,988
1961						---
1962						3,576
1963						1,101
1964						4,248
1965						4,356
1966						---
1967						749
1968						6,866
1969						5,146
1970						19,776
1971						13,073
1972						6,949
1973						6,370
1974						24,978
1975						4,150
1976						2,410
1977						7,516
1978	9	17	N/A	N/A	N/A	15,466
1979	17	98	N/A	N/A	N/A	52,208
1980	23	155	84,787	5,174	67	90,028
1981	51	509	153,017	20,055	465	173,537
1982	57	397	205,746	7,250	784	213,781
1983	71	646	198,719	14,119	583	213,420
1984	79	513	198,729	7,911	640	207,280
1985	78	528	271,928	3,919	860	276,707
1986	80	540	286,105	3,715	812	290,632
1987	86	498	265,707	3,795	151	269,653
1988	76	433	191,630	764	48	192,442
1989	33	69	28,884	431	0	29,315
1990	23	59	36,378	358	0	36,737
1991	15	45	17,302	278	0	17,580
1992	C L O S E D					
1993	C L O S E D					

¹ Catches converted from tail weight to whole weight using a conversion factor of 2.

Table 4. Traditional station catch statistics from the PWS spot shrimp surveys, 1989 – 1993.

Year	1989	1990	1991	1992	1993
Number of pots	132	197	194	261	250
Number of pounds	170	176.8	259.8	202.1	104.7
Mean weight per pot (lb)	1.3	0.9	1.3	0.8	0.4
Number of shrimp	5192	4283	5964	3750	2075
Mean # shrimp per pot	39	22	31	14	8.3
Number of males	4958 (95.5%)	3910 (91.3%)	5535 (92.8%)	3263 (87%)	1654 (79.7%)
Number of females	234 (4.5%)	373 (8.7%)	429 (7.2%)	488 (13%)	421 (20.3%)
Number of ovigerous females	213	343	324	408	471
Mean size males (mm)	27.7	29.3	30.5	31.7	28.1
Mean size females (mm)	41.3	41.9	41.3	41.9	42.5

Table 5. Experimental station catch statistics from the PWS spot shrimp surveys, 1991 – 1993.

Year	1991	1992	1993
Number of pots	11	110	86
Number of pounds	1.2	70.4	19
Mean weight per pot (lb)	0.1	0.6	0.2
Number of shrimp	25	1233	432
Mean # shrimp per pot	2	11	5
Number of males	24 (96%)	1085 (88%)	371 (85.9%)
Number of females	1 (4%)	148 (12%)	61 (14.1%)
Number of ovigerous females	1	147	58
Mean size males (mm)	31.4	33.0	27.5
Mean size females (mm)	40.4	43.0	43.3

Table 6. Trawl shrimp harvest, Prince William Sound Management Area 1972 – 1993.

Year	Vessels	Pounds
1972		5,153
1973		4,243
1974		1,345
1975		26,961
1976		134,115
1977		170,757
1978	8	440,684
1979	4	634,518
1980	6	557,328
1981	4	70,560
1982	9	346,517

Year	Vessels	Landings	Pink	Sidestripes	Other	Deadloss	Total
1983	13	46	420,275	1,058	2,345	—	423,678
1984	14	55	1,292,643	8,842	1,155	—	1,302,640
1985	6	44	432,514	15,696	440	—	448,650
1986	3	44	218,156	27,701	13	—	245,870
1987	2	109	275	95,043	440	—	95,758
1988	4	99	497	111,898	52	—	112,447
1989	*	*	*	*	*	—	*
1990	4	89	3,348	105,795	15	18,303	127,461
1991	5	67	3,453	84,483	193	51,429	139,558
1992	5	70	651	196,467	28	49,097	246,243
1993	7	72	23	190,976	51	55,140	246,190

(*) Catch data is confidential due to the small number of participants.

Table 7. Razor clam harvest in pounds, Prince William Sound Area, 1960 – 1993.

Year	COMMERCIAL		NON – COMMERCIAL	
	Diggers	Pounds	Diggers	Pounds
1960		433,930		
1961		261,628		
1962		208,698		
1963		86,340		
1964		39,275		
1965		86,477		
1966		27,063		
1967		98,446		
1968		72,806		
1969		26,887		
1970		27,909		
1971		37,972		
1972		30,326		
1973		30,318		
1974		29,747		
1975		15,443		
1976		1,516		
1977	11	2,160		
1978	54	29,865		
1979	26	12,904		
1980	21	5,881		
1981	7	28,970		
1982	12	15,275		
1983	41	124,835		
1984	41	168,426		
1985	25	60,274	37	4,930
1986	17	13,122	38	4,831
1987	12	40,954	83	6,225
1988	4	6,766	52	2,768
1989	No Effort	0	50	2,903
1990	"	0	50	2,641
1991	"	0	77	1,484
1992	"	0	92	2,403
1993	"	0	37	1,131

1. A permit is required to harvest razor clams from the Copper River Delta for personal use, sport, or subsistence.

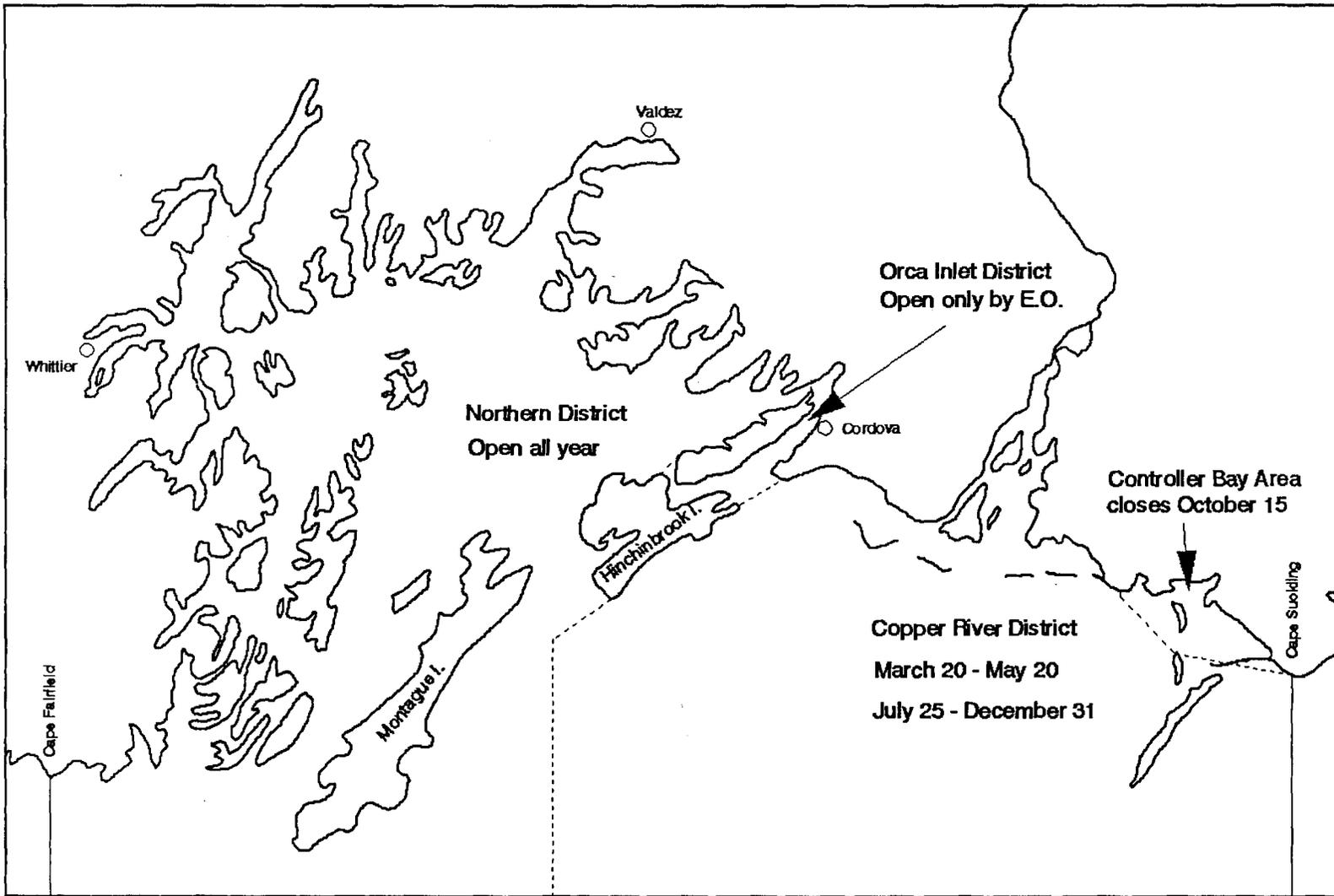


Figure 1. Prince William Sound Dungeness fishing seasons and districts.

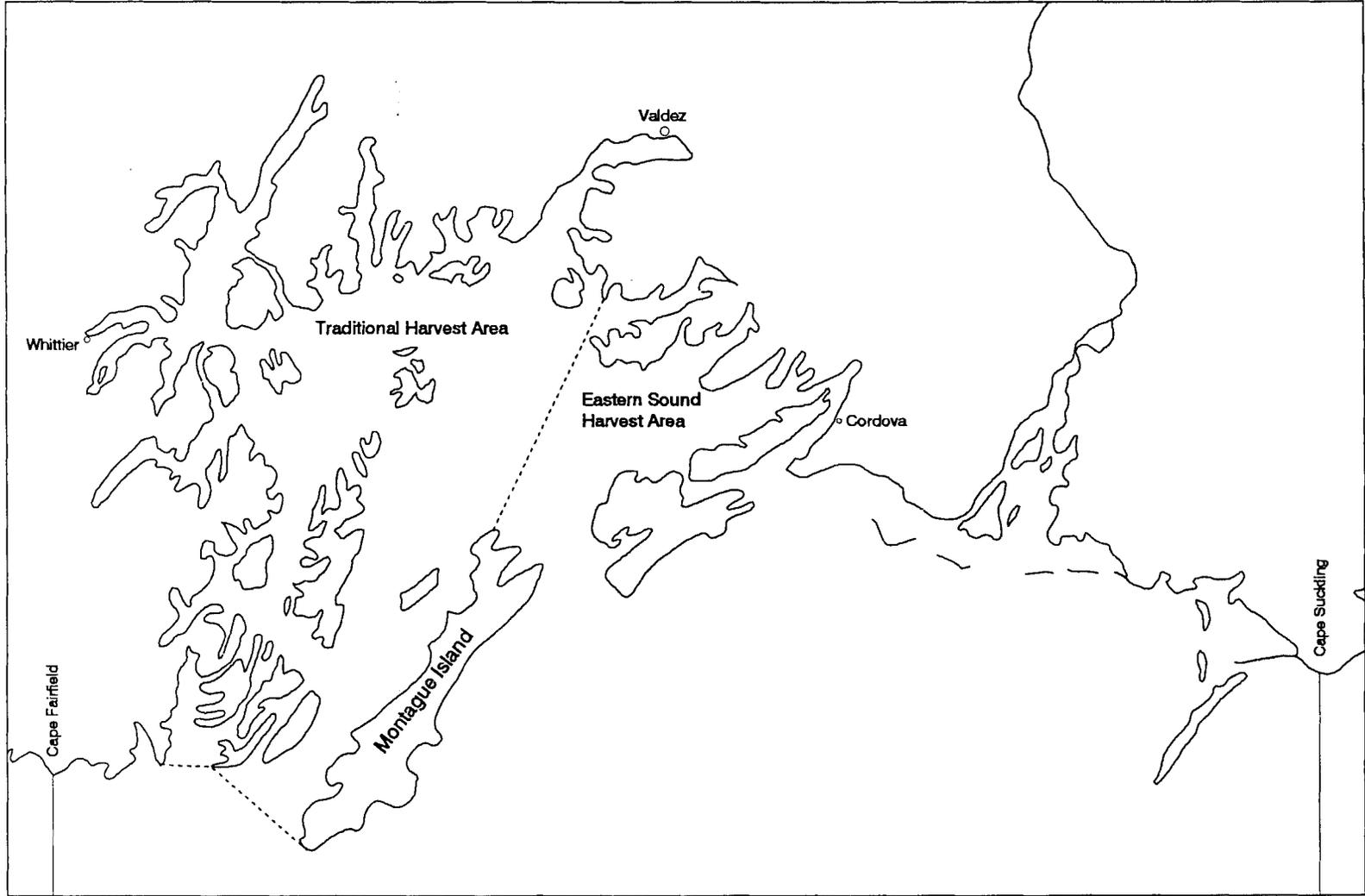


Figure 2. Prince William Sound pot shrimp management areas.

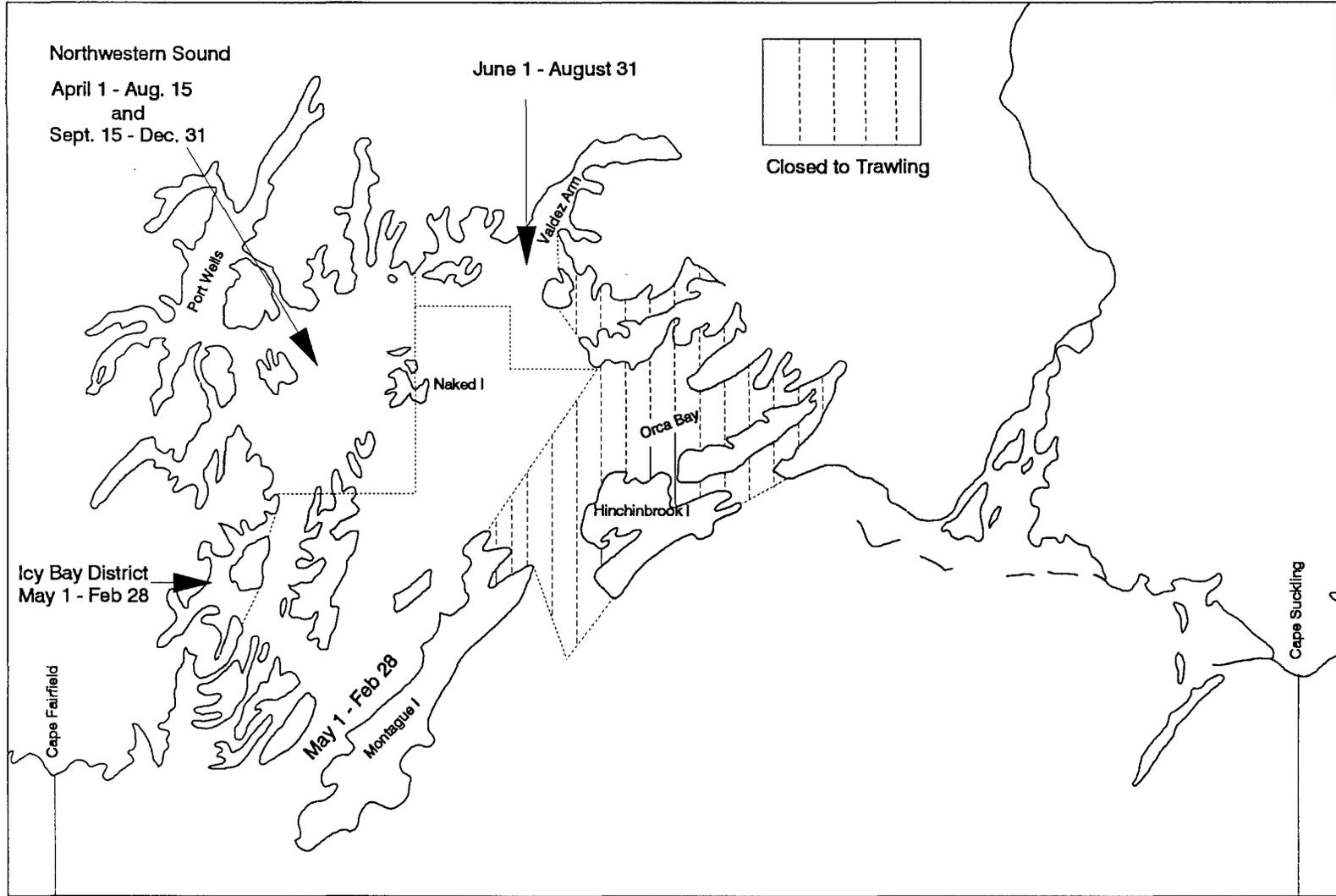


Figure 3. Prince William Sound trawl shrimp fishing areas and seasons.

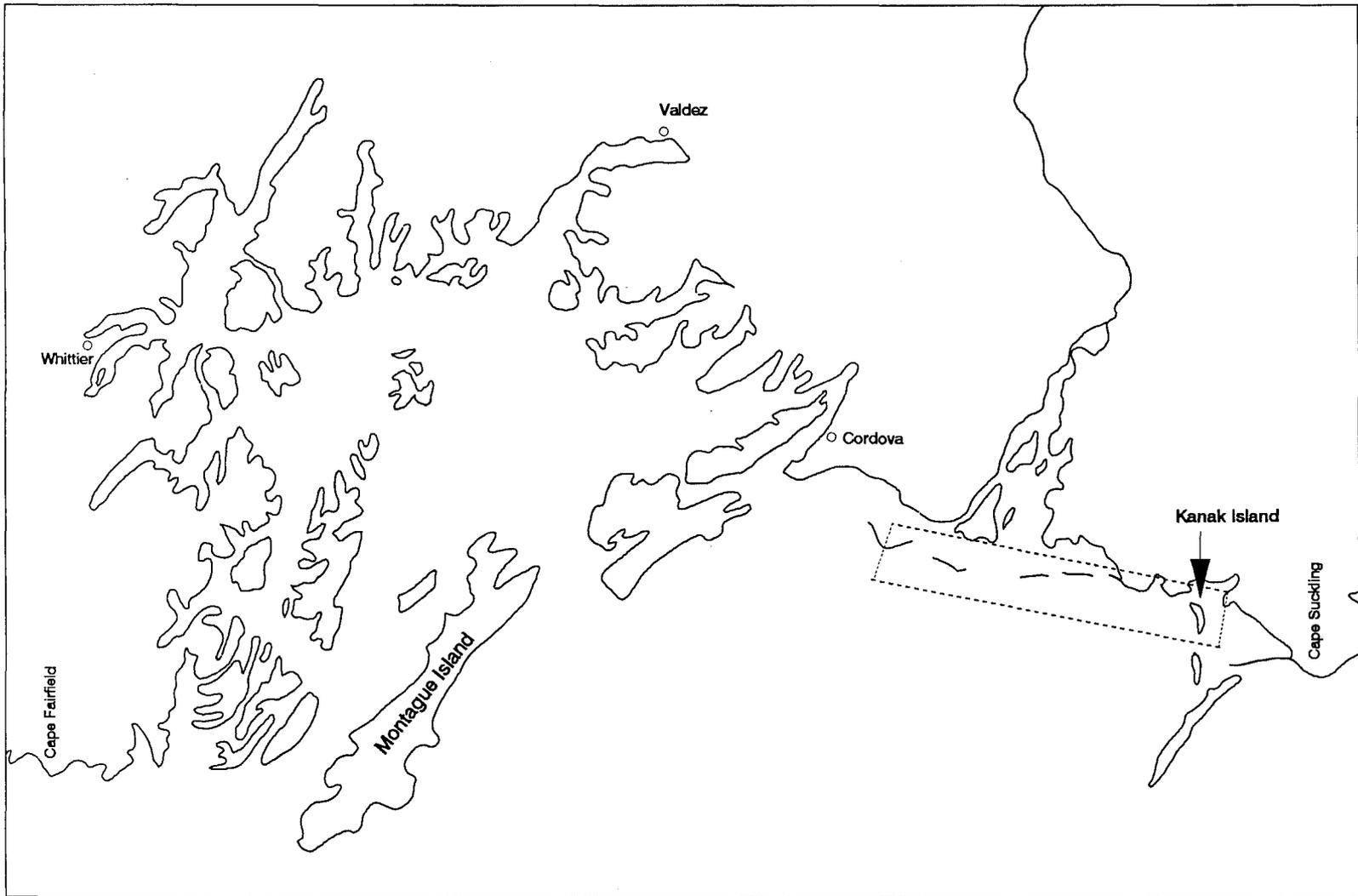


Figure 4. Copper River Delta razor clam harvest area.

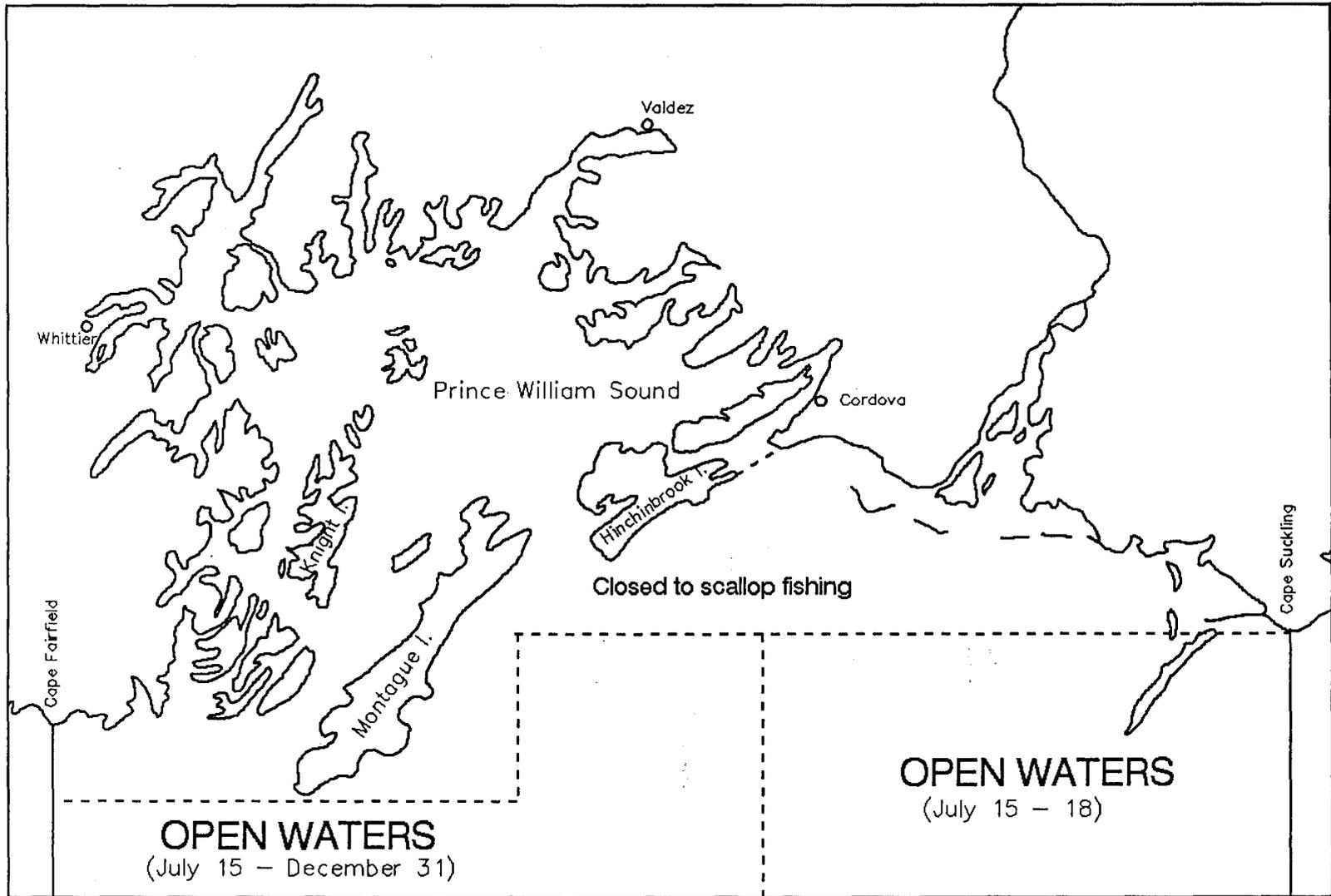


Figure 5. Prince William Sound scallop fishing areas in 1993.

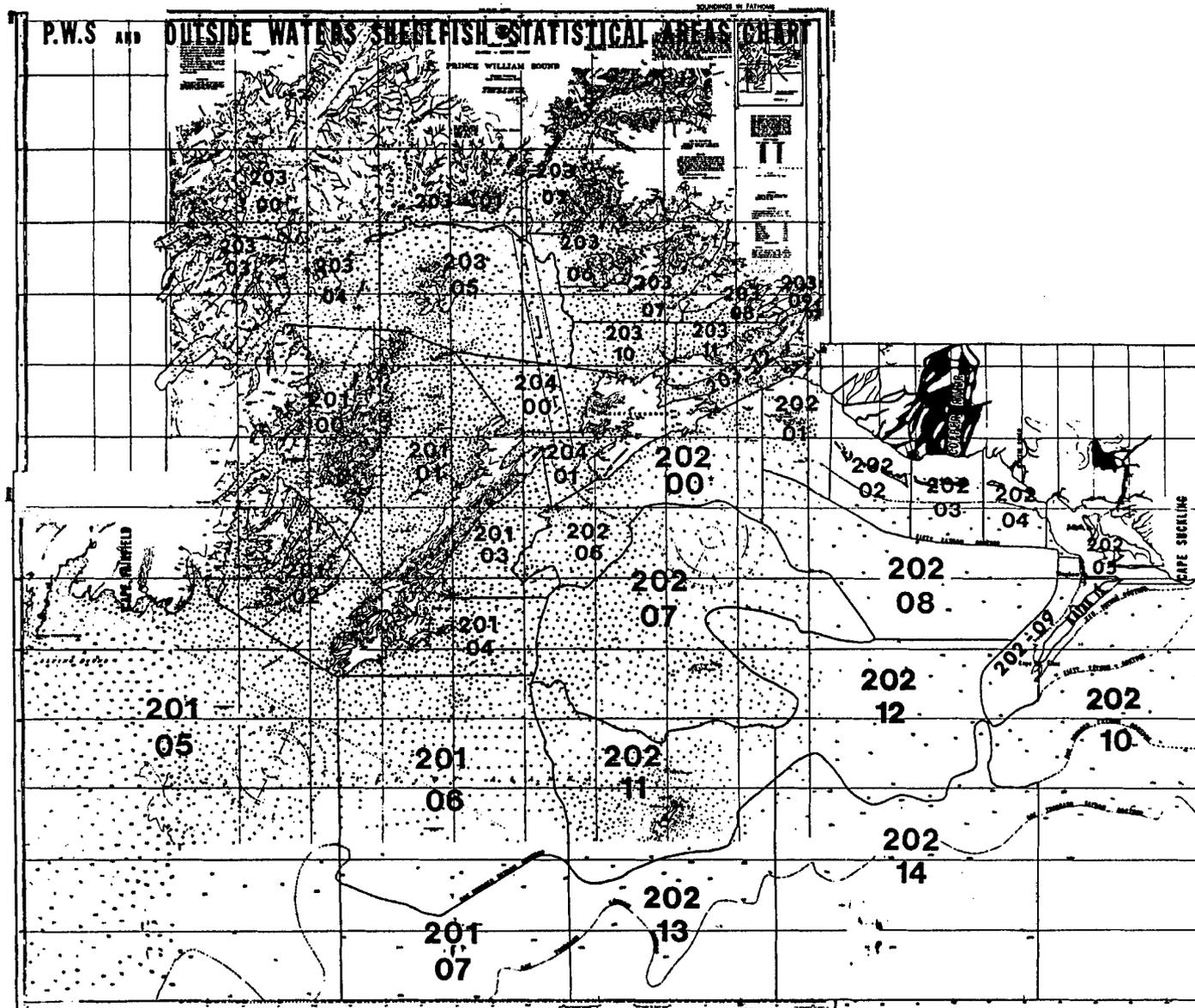


Figure 6. Prince William Sound Shellfish Statistical Area Chart.

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