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DEVELOPMENT OF THE FISHERY FOR WEATHERVANE SCALLOPS, *PATINOPECTEN CAURINUS* (GOULD, 1850), IN ALASKA

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ABSTRACT The Alaska scallop fishery harvests weathervane scallops, *Patinopecten caurinus* (Gould 1850), in the Gulf of Alaska and Bering Sea, although small quantities of *Chlamys* spp. were harvested in recent years. The fishery began in 1967 and evolved from a sporadic, low-intensity fishery to one characterized by a highly specialized fleet by 1993. An influx of larger, more efficient vessels from 1990 through 1993 increased harvests and altered the character of the fishery. Vessel length increased 85% from a mean (± 1 standard error) of 18.5 ± 2.9 m in 1983 to 34.3 ± 4.5 m in 1991, and crew sizes doubled. The number of scallop landings increased significantly from 65.9 ± 8.3 y^{-1} during 1980 through 1989 to 140.7 ± 3.3 y^{-1} during 1990 through 1993, although the mean number of vessels did not change significantly between the two periods. Scallop harvests averaged 667.1 ± 54.8 mt of shucked meats from 1990 through 1993, three times the average harvest of 216.7 ± 30.3 mt from 1983 through 1989. The percentage of the fleet's total Alaskan fishing income derived from the scallop fishery increased from 57.7% in 1983 to 100% by 1990. The decreased diversification of scallop vessels into other fisheries represented a shift from a part-time fleet to a dedicated, full-time scallop fleet with greater harvesting efficiency. New management measures were adopted to address the changing nature of the fishery and included altered fishing seasons, observer coverage, area harvest limits, ceilings on catch of incidental species, restrictions on crew size and a moratorium on vessels fishing in the exclusive economic zone.

KEY WORDS: Scallops, fishery, *Patinopecten caurinus*, Alaska

INTRODUCTION

The commercial fishery in Alaska for weathervane scallops, *Patinopecten caurinus* (Gould 1850), is a relatively small fishery occurring primarily in the Gulf of Alaska and the Bering Sea in the northeastern Pacific Ocean. Although other scallop species (*Chlamys pseudoislandica* and *C. rubida*) were harvested in 1991 and 1992 in small directed fisheries in the Aleutian Islands or caught incidentally in the fishery for weathervane scallops, their contributions to the total harvest were minimal.

Interest in the Alaskan fishery developed in the late 1960s at the time catch-per-unit-effort (CPUE) was declining in the U.S. and Canadian scallop fisheries on Georges Bank (Orensanz 1986). The decreasing supply of Georges Bank scallops to U.S. markets and increased prices encouraged development of new fisheries and expansion of existing fisheries worldwide to meet the demand for scallops (Caddy and Lord 1971).

The contribution of the Alaskan fishery to the total U.S. harvest of scallops is small, but has grown in recent years. Landings for Alaska and U.S. are commonly reported as shucked meat weight (e.g., U.S. Dept. Commerce 1993). The Alaskan percentage of the U.S. harvest increased from an average of 1.7% from 1980 through 1985, to 2% from 1986 through 1990, to 4% in 1991 through 1992 (U.S. Dept. Commerce 1982–1993). The larger percentage resulted from declining harvest in other U.S. fisheries and increased harvest in the Alaskan fishery. Worldwide scallop landings are commonly reported as live whole weight (e.g., Anonymous 1991). Shucked weight of weathervane scallops averages 11.5% of whole weight (Haynes and Powell 1968). Thus, in 1991 the Alaskan harvest of 536 mt shucked weight was approximately 4,661 mt (0.57%) of the world scallop harvest of 816,000 mt whole weight (Anonymous 1991).

Because the Alaskan scallop fishery was relatively minor until recently, it was passively managed and data collection was minimal. Without a time series of routine abundance and catch sampling data, historical description of stock dynamics is not possible. Standardized CPUE data are unavailable. In any case, CPUE data may not be indicative of relative abundance due to the spatial distribution of scallop beds and the pattern of vessel movement among beds to sustain high CPUE (Orensanz et al. 1991). On the other hand, good records on landings, vessels, and participants have been maintained since the inception of the fishery.

In this paper, we review the geographic distribution of weathervane scallops in Alaska and chronicle the development and management of the commercial fishery, with particular emphasis on the evolution of the scallop fleet from a part-time, diversified, small-vessel fleet to a full-time, large-vessel fleet fishing almost exclusively for scallops.

MATERIALS AND METHODS

We analyzed databases of commercial vessel license applications, commercial fishing permit applications, and fish tickets which are maintained by the Alaska Department of Fish and Game (ADF&G) and Commercial Fisheries Entry Commission. Vessel license applications contain data on fishing vessels such as length, whereas fishing permit applications include information on permit holders such as residency, age, fishery and type of fishing gear.

Fish tickets are sales receipts which include information such as the date of landing, species, number and weight of fish caught, and area of harvest. In Alaska, scallop landings data are generally considered to be accurate, because there have been fewer than 20 vessels to monitor and overall compliance with fish ticket requirements is excellent. The scallop harvests reported herein include all

species, and represent weights of shucked meats without roe. Alaska state statutes protect the confidentiality of individual fishers' harvests and earnings. To maintain the confidentiality of this information, we omitted scallop harvest and earnings data when the number of persons or number of vessels participating in the fishery was less than four. For this reason, data were considered confidential in 1976, 1977 and 1979.

The Weathervane Scallop

The weathervane scallop, *P. caurinus*, is a large, long-lived species. The largest specimen recorded in Alaska was 250 mm shell height (SH), and had an adductor meat weight of 340 g (Hennick 1973). Bourne (1991) reported weathervane scallops over 20 years of age from the Strait of Georgia, British Columbia, and scallops up to age 28 have been found in Alaska (Hennick 1973).

Weathervane scallops are distributed along the western coast of North America from California northward to the Bering Sea and westward as far as the Aleutian Islands in depths to 300 m (Grau 1959, Bernard 1983). Commercial quantities of weathervane scallops in Alaska are located primarily in the relatively shallow waters of the submerged continental shelf (Kaiser 1986, Fig. 1). From 1973 through 1976, 68 to 100% of the calculated scallop biomass in Alaska was reported at depths of 0 to 100 m, and commercially harvestable quantities were identified at depths of 46 to 128 m (Ronholt et al. 1977). *P. caurinus* in the northeastern Gulf of Alaska comprised 31% to 37% of the benthic biomass, at depths of 100 m or less (Feder et al. 1981). Unfortunately, scallop assessment surveys were conducted in only a few years and their geographic coverage was limited.

Locations of commercially important beds of *Placopecten magellanicus* on the Atlantic coast were characterized in areas with oceanographic features, including persistent tidal gyres, which contribute to retention of pelagic larvae in the area during the larval period (Sinclair et al. 1985, Caddy 1989). The dominant oceanographic feature of the Gulf of Alaska is a permanent, counterclockwise gyre of the Alaska Current which generally parallels the continental slope at velocities of 30 to 100 cm s^{-1}. The velocities are relatively slow, but as the current narrows into the Alaskan Stream from Kodiak Island westward, velocities increase to a maximum of 100 cm s^{-1} (Hood 1986). Shoreward of the shelf break, the Alaska Coastal Current borders the Gulf of Alaska from the southeastern panhandle to beyond Kodiak Island and into the Bering Sea. The Alaska Coastal Current flows counterclockwise and is driven by wind and freshwater discharge (Royer 1983).

The largest commercial scallop harvests in Alaska were produced from the coastal margin of the Gulf of Alaska near Kodiak and Yakutat (Fig. 1). Smaller harvests occurred in Southeast Alaska, Prince William Sound, Cook Inlet, Dutch Harbor and the Bering Sea. Analyses have not been completed to determine if scallops in these areas are genetically distinct populations, although larvae could conceivably be transported by currents between some of the closer areas.

Weathervane scallops are found in aggregations which tend to form elongated beds, oriented along the direction of current flow as described for other scallop species (Orensanz 1986, Caddy 1989), on substrates of sand, mud, clay and gravel (Hennick 1973). Growth and size at maturity of weathervane scallops may vary spatially within beds in the same area or between beds in geographically different areas (Haynes and Hitz 1971, Orensanz

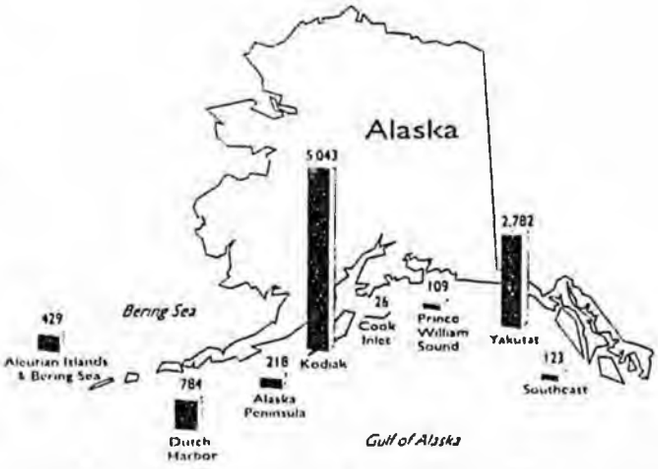

Figure 1. Distribution of total commercial scallop harvest in the Gulf of Alaska and Bering Sea from 1967 through 1993. Cumulative harvests in metric tons of shucked meats are indicated above the bar for each area; bar height is proportional to the area harvest.

1986, MacDonald and Bourne 1987, Caddy 1989). Based on von Bertalanffy growth estimates, weathervane scallops sampled in 1975 from Marmot Flats off the northeast side of Kodiak Island grew faster (131 mm SH at age 4) and achieved larger asymptotic sizes (L_∞ = 190 mm SH) than those sampled in 1980 from Cape St. Elias to Cape Fairweather in the eastern Gulf of Alaska (91 mm SH at age 4; L_∞ = 144 mm SH) (Kaiser 1986). Growth and mortality rates may be density dependent (Orensanz 1986) or may vary with spatial differences in temperature or feeding conditions (MacDonald and Thompson 1985).

Annual survival of long-lived species, such as the weathervane scallop, tends to be high. Kruse (1994) estimated the instantaneous natural mortality (M) of *P. caurinus* between 0.04 and 0.25, corresponding to annual mortality rates of 4 to 22%. A median estimate of M = 0.16, corresponding to 15% annual mortality, was obtained using Hoenig's (1983) method based on a Hennick's (1973) maximum scallop age of 28 (Kruse 1994).

The level of fishing mortality for weathervane scallops in Alaska is unknown. For other species of commercially important scallops, direct and indirect mortalities have been identified in association with fishing activities. Direct mortality includes damage or crushing within scallop dredges, and handling and exposure of undersized scallops that are later returned to the sea (Naidu 1988, Medcof and Bourne 1964). Indirect mortality results when scallops in the path of a dredge are not caught but are lethally damaged or exposed to increased predation as predators are attracted to dredge tracks (Caddy 1968, Elner and Jamieson 1979, Caddy 1973). Indirect fishing mortality of Iceland scallops, *Chlamys islandica*, was estimated to range up to 17% or 31%, depending on the type of dredge used (Naidu 1988).

The vulnerability of scallops to fishing mortality may be increased by commensal or parasitic organisms. Scallops in the Cape Yakataga/Cape Yakutat region of Alaska were reported to be infested by the burrowing, spionid polychaetes *Pygospio elegans* and *Polydora ciliata* in the mid- and late-1970s (Feder et al. 1981). The polychaetes weakened the valves and increased the susceptibility of scallops to breakage in trawls or dredges.

The Fishery

The commercial scallop fishery progressed through several developmental phases along the Alaskan coast. In the initial phase

from 1967 through 1977, previously unexploited scallop beds were explored and harvested. Scallop landings were greatest in the years 1968 and 1969 (Fig. 2). Harvest effort decreased from 1970 to 1978, and a smaller, more stable fishery followed from 1979 through 1989. Beginning in 1990, the fishery for weathervane scallops in Alaska expanded with an influx of new, more efficient vessels. New state and federal management regimes were implemented in 1993 and 1994 to address concerns in the growing fishery.

The first commercial landings of weathervane scallops in the Alaskan fishery were made in 1967 in the western Gulf of Alaska near Kodiak Island. The fishery consisted of two vessels which delivered scallops alive and in the shell to processors on shore for an ex-vessel price of \$0.15 kg^{-1} (Kaiser 1986). The fishery expanded rapidly in 1968 and 1969 when 19 vessels entered the fishery in the Kodiak area and the eastern Gulf of Alaska near Yakutat. A record harvest for the Alaskan fishery of 839.2 mt was produced in 1969. The costly process of shucking scallops by shore-based processors was soon abandoned, and scallopers began delivering shucked meats to processors for freezing and packaging (Kaiser 1986). The weighted average ex-vessel price for shucked meats in 1969 was \$1.89 kg^{-1}. Unsuccessful attempts were made to extract scallop mantles and gonads for sale as frozen food (ADF&G 1968). To this date, a market for "roe-on" scallops has not developed, and shucked meats continue to be the only product of the Alaskan scallop industry.

During the years 1970 through 1978, the scallop fishery entered a phase of declining effort and harvest. Harvest levels of 1968 and 1969 were not sustained. More restrictive management measures, such as closed areas to limit bycatch, may have contributed to a reduction in the fishery. A catch sampling program conducted during 1968–1972 showed that the largest scallops were fished from previously unexploited populations. Hennick (1973) estimated catch age composition by enumerating annuli on the left valves of scallops. In the early years of the fishery the majority of scallops sampled from commercial harvests were at least 7 years old, but by the early 1970s, the percentage of scallops 2 to 6 years old had increased (Hennick 1973, Fig. 3). Scallopers continued to explore for new beds in attempts to boost their harvests in response to the decreasing abundance of large scallops.

The number of vessels in the fishery dropped from 19 in 1969 to 7 in 1970, but because the most efficient scallop vessels remained in the fishery (Kaiser 1986), the relatively high harvests continued from 1970 through 1973 and mean (±1 standard error

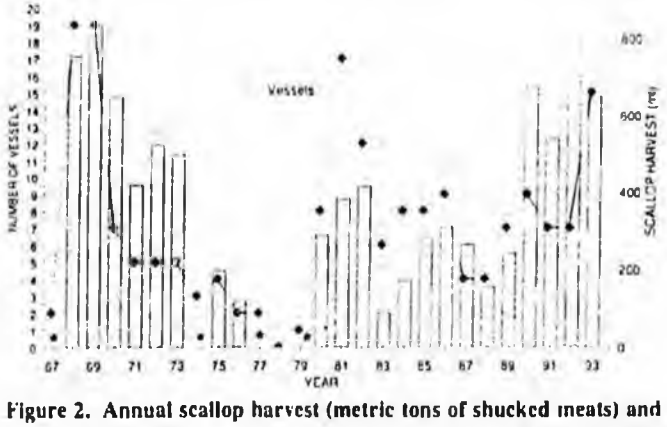

Figure 2. Annual scallop harvest (metric tons of shucked meats) and number of vessels fished in the Alaskan scallop fishery. Confidential harvests are indicated by an asterisk (*).

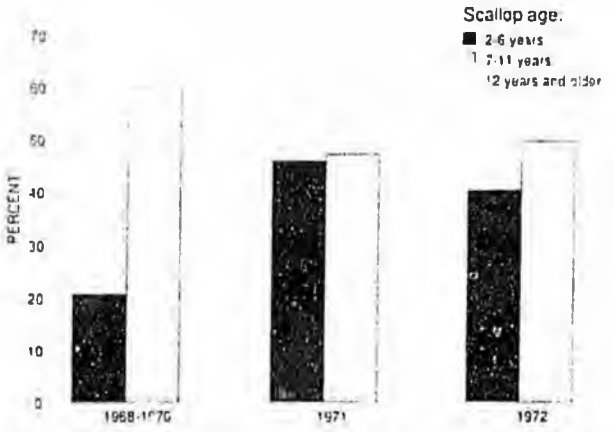

Figure 3. Age composition of scallops sampled from 1968 through 1972 commercial harvests from the Kodiak and Yakutat areas combined (Hennick 1973).

landings were 522.9 ± 94.9 mt y^{-1}. By 1977, the number of vessels had dwindled to two. The fishery was opened in 1978, but no vessels participated and commercial harvest of scallops ceased.

The scallop fishery emerged again in 1979 with one vessel fishing off Kodiak Island. Marked increases in ex-vessel prices from an average of \$3.49 kg^{-1} in 1976 and 1977 to \$6.11 kg^{-1} in 1979 to \$9.23 kg^{-1} in 1981 stimulated more interest in the fishery, and the number of vessels increased to 17 by 1981. Kaiser (1986) attributed much of the growth in the Alaskan fishery to an influx of vessels from the east coast of the U.S. A five-fold increase in the number of vessels in the Atlantic sea scallop fishery from 1975 through 1979 and a 22% decrease in the sea scallop harvest from 1978 through 1981 (NEFMC 1982) caused scallopers to move to the west coast in search of more productive scallop fisheries. This search led to an intense fishery for weathervane scallops off the Oregon coast in 1981 in which 532 mt (shucked weight) was harvested by 118 vessels (Starr and McCrae 1983). Subsequent landings in Oregon have been small (Bourne 1991).

Vessels began harvesting scallops from new areas of Alaska in the 1980s. Whereas previous fisheries occurred entirely in the Kodiak and Yakutat regions of the Gulf of Alaska, an increasing percentage of the harvest in the 1980s was from less traditional areas. Scallops were harvested from Southeast Alaska along the Alexander Archipelago south of Yakutat, for the first time in 1980. The first scallop harvest from the Alaska Peninsula in the western Gulf of Alaska south of Kodiak was recorded in 1982. Harvests were reported from the Dutch Harbor area of the Aleutian Islands beginning in 1982, and the first harvest from Cook Inlet was produced in 1983. Expansion of the scallop fishery continued into the Bering Sea in 1986. From 1983 through 1989, effort in the Alaskan fishery varied from 4 to 9 vessels. The harvest level fluctuated during that period, and averaged 216.7 ± 30.3 mt y^{-1}.

Expansion of the fishery continued as scallopers explored and exploited new scallop grounds further west along the Aleutian Islands chain to Adak in 1991. In 1992, scallops were harvested from Prince William Sound in the north central Gulf of Alaska for the first time.

The period from 1990 through 1993 represented the most recent growth phase in the fishery. The average harvest more than tripled from an average of 216.7 ± 30.3 mt y^{-1} during 1983 through 1989 to 667.1 ± 54.8 mt y^{-1} from 1990 through 1993. The 1992 harvest of 806.9 mt, with an ex-vessel value of \$6.9

million, was the second largest recorded in the Alaskan scallop fishery. Although scallop harvests were much larger, effort was similar to that of recent years. Nine vessels fished in 1990 and 7 vessels in 1991 and 1992.

The number of vessels in the scallop fishery doubled to 15 in 1993. As in the early years of the fishery, many of the new vessels entering the fishery from 1990 through 1993 were east coast scallopers. A proposed moratorium in the Atlantic sea scallop fishery (NEFMC 1993) caused some vessels, which would be excluded from the east coast fishery by the moratorium, to move into west coast scallop fisheries.

In 1993, the North Pacific Fishery Management Council (NPFMC) considered a vessel moratorium for the Alaska fishery within the exclusive economic zone (3–200 miles) and gave notice to scallopers that new participants in the fishery after January 20, 1993 may not qualify to fish during a moratorium (NPFMC 1993). Effort escalated in anticipation of a moratorium in the Alaska scallop fishery as vessel owners established their eligibility by harvesting scallops in Alaska prior to January 20, 1993. State management agencies also considered a moratorium on new entrants within territorial (0–3 miles) waters (Kruse et al. 1992).

Vessel Length

Vessel size in the Alaskan scallop fishery increased substantially from the onset of the fishery in 1967. During the developmental period of the Alaskan fishery, scallop vessels consisted of a variety of converted crab, halibut and shrimp vessels, as well as scallop vessels from the east coast of the U.S. The east coast vessels averaged 24 to 28 m keel length and were capable of fishing two scallop dredges 3 to 5 m wide. These were the most efficient harvesters in the fleet (Kaiser 1986). Other vessels were fishing modified beam and otter trawls and an assortment of scallop dredges of various sizes.

Kaiser (1986) summarized vessel lengths in the scallop fishery from ADF&G data for 1967 through 1981. Vessels that fished in the Kodiak area were reported separately from vessels in Yakutat, although some vessels fished in both areas. Vessels that fished near Yakutat varied in length from 12 to 16 m to 24 to 28 m from 1967 through 1977. The largest number of vessels each year is 24 to 28 m in length. Similarly, most scallop vessels that fished in the Kodiak area were 24 to 28 m, although the size range for Kodiak vessels was greater than the range for Yakutat vessels in the early years of the fishery. Kodiak vessels varied from a 6 to 10 m length class to 48 to 52 m in length.

Vessel lengths after 1977 are shown in Figure 4 for all fishing areas combined. The largest component of the fleet in most years was the 18 to 31 m vessel class (Fig. 4A). Registered vessel length averaged 25.1 ± 0.8 m from 1980 through 1982 (Fig. 4B). An influx of vessels smaller than 18 m was evident beginning in 1982 and was associated with initiation of a scallop fishery in the Cook Inlet area where vessels tended to be smaller than vessels fishing in other areas. The mean vessel length reached a minimum of 18.5 ± 2.9 m in 1983 as a result of the increase in small vessels.

By 1988 all scallop vessels in the Alaskan fleet were larger than 18 m. Mean vessel length increased as the number of vessels over 31 m began to rise. Vessel size was largest during the years 1990 through 1992, when the percentage of vessels over 31 m varied from 30 to 57% of the fleet (Fig. 5). Mean length in 1991, 34.3 ± 4.5 m, was 85% larger than the mean length of 18.5 ± 2.9 m in 1983. The mean vessel length dropped to 26.8 ± 1.7 m as more vessels under 31 m in length entered the fishery.

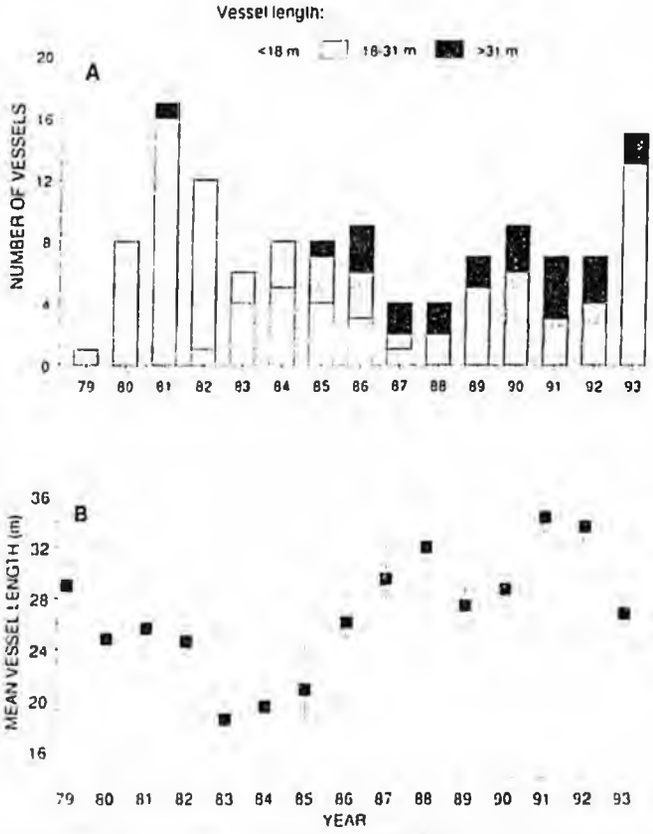

Figure 4. (A) Annual number of vessels in the Alaska scallop fishery from 1979 through 1993, by vessel length class. (B) Annual mean vessel lengths ±1 standard error.

Fishing Capacity

One of the more important changes in the scallop fishery was the change in fishing capacity of the fleet. Fishing capacity was measured as the mean number of scallop landings (deliveries) per year and the mean size of landings.

In a previous study, we reported an escalation in the number of landings in the Alaskan scallop fishery in recent years (Kruse and Shirley 1994). A Student's *t*-test (SAS 1989) revealed that the mean number of landings of 140.7 ± 3.3 in 1990 through 1993 was significantly larger ($p \leq 0.01$) than the mean of 65.9 ± 8.3 landings in 1980 through 1989. The number of landings increased although the mean number of vessels fished per year from 1990 through 1993, 7.7 ± 0.7, was not significantly different from the number of vessels fished in the earlier period, 8.3 ± 1.2. The mean landing size (in mt) was not significantly different between the two time periods.

Diversification of Fishing Income

The proportion of Alaska fishing income derived from the scallop fishery was used as an indicator of the economic dependence of vessels on the scallop fishery and the extent of effort exerted in the fishery by these vessels. All ex-vessel earnings (gross receipts paid to fishers) from Alaskan fisheries were compiled annually for vessels that made scallop landings each year. Scallop earnings were calculated as a percentage of the scallop fleet's total earnings to estimate the degree of diversification from 1975 through 1992. The fleet was considered to be more diversified in years when the percentage of fishing income derived from scallops was low and

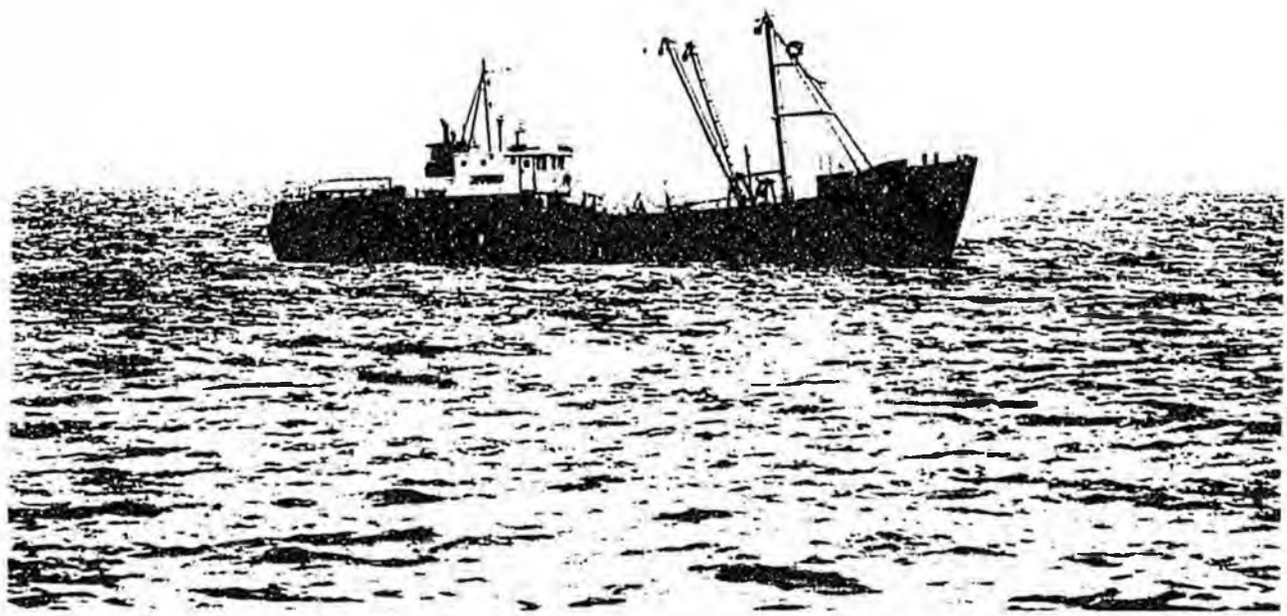

Figure 5. The commercial scallop vessel F/V PROVIDER which is an example of the type of vessel which has been used in the Alaskan scallop fishery since 1990. (Photo by Augustine Delahay)

less diversified in years when scallops contributed larger percentages to the fishing income.

The percentage of fishing income derived from the scallop fishery varied over time from a low of 57.7% in 1983 to 100% in 1979, 1990 and 1991 (Fig. 6). In 1975 through 1979, effort and harvests were reduced, and almost all fishing income for the few vessels during that period was generated from the scallop fishery.

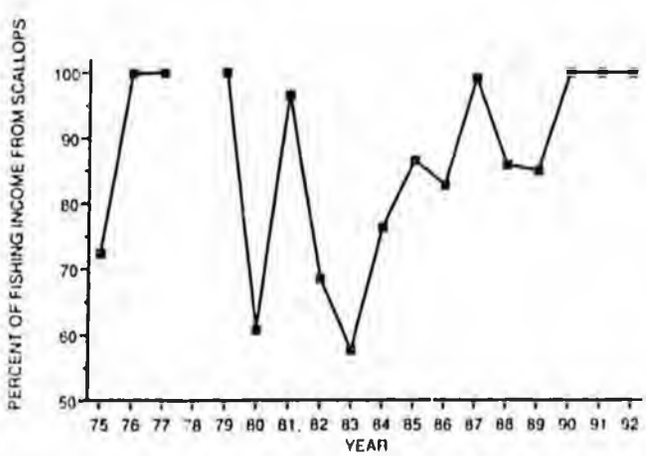

Figure 6. Percent of total ex-vessel fishing income derived from the scallop fishery for vessels participating in the fishery from 1975 through 1992. Total fishing income does not include any income generated from fisheries outside of Alaska.

Small percentages of non-scallop income were produced from king crab, halibut and salmon fisheries.

The contribution of scallops to total fishing income generally decreased after 1979 to the lowest level in 1983, suggesting an increased diversification of the fleet into fisheries other than scallops. Scallop vessels were also used in king crab, Tanner crab, shrimp, salmon, halibut and herring fisheries during that period.

Diversification of the scallop fleet began to change in 1983. The percentage of fishing income produced from the scallop fishery increased from 1983 to 1990. By 1990, scallops contributed 100% of the fishing income for the first time since 1979. All of the fishing income for the scallop vessels from 1990 through 1992 was produced from the scallop fishery. The change in fishing income represented a shift from a diversified fleet in the 1980s to a fleet concentrating almost entirely on scallops. The number of landings and the total harvest increased concurrently.

The contribution of the scallop fishery to total fishing income was not directly related to ex-vessel price of scallops or to the total scallop harvest. Ex-vessel prices remained relatively stable from 1982 through 1992, although when corrected for inflation, the price of scallops decreased over time (Kruse and Shirley 1994).

Harvesting Efficiency

The harvesting efficiency of the scallop fleet improved during the 1980s and 1990s. As vessels became larger and more specialized, crew sizes expanded and mechanical shuckers came into use. The average crew size for scallop vessels during 1980 through

1984 was estimated to be 5 persons per-vessel in the Yakutat area, 6 per-vessel in Prince William Sound, 6.3 per-vessel in Cook Inlet, the Alaska Peninsula, Aleutian Islands and Bristol Bay, and 8 per-vessel in Kodiak (Alaska Department of Labor, unpublished). By 1993, all vessels except the smallest in the fleet carried 12-person crews (NPFMC 1993). The Alaska Board of Fisheries limited the crew size on scallop vessels to 12 persons in 1993.

The use of mechanical shucking devices in Alaskan scallop fisheries was first reported in the 1991 fishery (Griffin and Ward 1992). Automatic shucking machines were employed to make harvest of smaller scallops more economical (Kruse and Shirley, in press). Although shucking machines were used primarily on vessels exploiting *Chlamys* spp., their use in processing weathervane scallops was banned in Alaska in 1993.

DISCUSSION

Alaska's commercial fishery for scallops evolved from a sporadic, low-intensity fishery to a fishery characterized by a highly specialized fleet capable of harvesting with greater efficiency. This growth and specialization within the fishery created conservation concerns for the scallop resource. Recent anecdotal reports indicated that the proportion of smaller scallops harvested in the commercial fishery may be increasing (NPFMC 1993). Additional concern has arisen over the increased threat to species caught incidentally in non-selective scallop dredges. Particularly vulnerable are benthic migratory species, such as crab, which move into shallower depths during their molting and mating periods (Haynes and Powell 1968, Hennick 1973, Stone et al. 1992). Protection of non-targeted species is especially critical in some areas of Alaska where depressed populations of commercially valuable king and Tanner crabs are rebuilding.

The rapid growth, specialization and over-capitalization of the scallop fishery may have jeopardized the economic viability of the fishery. Larger vessels and crews and mandatory observer coverage have increased operating costs for scallop vessels. Shorter fishing seasons and harvest limits have constrained the earning potential in the scallop fishery.

With increased competition, over-capitalization and decreased ex-vessel value, the tendency for some fisheries in Alaska has been for vessels to become more diversified by participating in more fisheries in order to maintain the level of income necessary to support their operations (Shirley 1993). More restrictive measures (e.g., harvest limits, seasons, crab bycatch caps) recently adopted by state and federal management agencies may also cause some scallop vessels to diversify their fishing activities.

Management changes have been made to address some of these problems in the fishery and to provide more scientific data to analyze the impact of the fishery on Alaskan scallop populations. For many years, the small scallop fishery prompted few conservation or management concerns, and was managed using gear restrictions, fishing seasons and closed areas (Kruse and Shirley, in press). The Alaska scallop fishery recently shifted from a passive management mode to more active management and monitoring of the fishery in response to expanded effort and increased harvest levels in the 1990s.

A management plan adopted in 1994 established a more comprehensive management regime for the scallop fishery (Kruse 1994). Scallop gear in Alaska was restricted to two New England-style dredges (Bourne 1964) per vessel, with a maximum dredge width of 4.57 m and a minimum ring size of 10.16 cm. Dredges used in Cook Inlet cannot exceed 1.83 m in width. Alaskan waters were divided into 9 registration areas, and vessels are now required to register with ADF&G before harvesting scallops in an area. Annual harvest limits were established for each registration area. All scallop vessels are required to have, and pay for, observers on board to monitor incidental catch of crab and collect biological data on scallops. Restrictions on scallop crew size and prohibition of automatic shucking machines on vessels fishing for weathervane scallops were implemented to control harvesting efficiency. Fishing seasons were amended in the new plan to protect molting and mating crabs from incidental harvest by scallop dredges. The regulatory season extends from July 1 in most areas (August 15 in Cook Inlet) through February 15. In the Yakutat and Prince William Sound areas, the season opens on January 10. The fishing season ends when the harvest limit has been met, when the incidental catch limit has been met, or on the regulatory closing date, whichever comes first.

The NPFMC adopted a federal management plan for scallops in 1994 which included a moratorium on vessels fishing in the exclusive economic zone (NPFMC 1993). Vessels fishing scallops outside of territorial waters were previously managed by ADF&G in the absence of a federal management plan. Management changes provided by the new ADF&G and NPFMC management plans should help to curtail rapid expansion of the scallop fishery.

Because the weathervane scallop is a long-lived, slow-growing species with low natural mortality, it may be vulnerable to overfishing (Adams 1980). Historically, an overall depletion of scallop populations may have been avoided because of the widespread distribution of scallops in the Gulf of Alaska and the Bering Sea and the small fleet's motivation to move to new areas to maintain catch rates or to other fisheries. However, some local populations may have been overfished. As a fishery begins on virgin stocks it is normal for age composition to shift toward younger ages. However, the magnitude of the age shift during the early years of the fishery, coupled to subsequent fishery performance, suggests to us that high harvests during the early years of the fishery off Kodiak and Yakutat may not have been sustainable over the long term. Unfortunately, fishery-independent data are unavailable to verify whether overfishing occurred.

Oceanographic features similar to those described by Sinclair et al. (1985) and Caddy (1989) for self-sustaining scallop populations also may have contributed to the apparent resiliency of weathervane scallop populations in Alaska. Nonetheless, recent expansion of fishing capacity by the fleet concerned fishery managers who sought to conserve and sustain natural populations, and thereby avoid stock collapses that have often occurred in many other scallop fisheries after periods of intense fishing (Orensanz 1986, Bourne 1991, Gwyther et al. 1991, Orensanz et al. 1991, Piquimil et al. 1991). As biological data are collected from the new observer program, our knowledge of the sustainability of exploited weathervane scallop populations in Alaska should improve markedly with the estimation of recruitment, growth and mortality parameters.

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LITERATURE CITED

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SENATE COMMITTEE REPORT

DATE: 4/14/97

FURTHER:

DATE TURNED IN TO OFFICE: 5/8/97

Resources Committee considered CS FOR HOUSE BILL NO. 141(RES) am

"An Act relating to a vessel permit moratorium for the Alaska weathervane scallop fishery; relating to management of the scallop fisheries; and providing for an effective date."

and recommends:

[X] be **replaced** with S CS HB 141 (RES)

[ ] adopt **previous** ____ CS _____ (____)

[ ] attached amendment(s)

[ ] adopt Letter of Intent by _____ Committee

[ ] further referral to the _____ Committee

Senate Bill:
[ ] same title
[ ] new title

House Bill:
[X] same title
[ ] technical change
[ ] new: SCR#____

SIGNING DO PASS	*DP*	*OTHER RECOMMENDATIONS*	*NR*	*DNP*	*AM*
	✓		✓		
	✓		✓		
CHAIR:		*CHAIR:*	✓		

NEW FISCAL NOTE(S):

Department	Date	Zero	Fiscal

PREVIOUS FISCAL NOTE(S):* APPLIES TO SCS

Department	Date	Zero	Fiscal
CFEC	2/24	X	

[ ] **APPROPRIATION -- no fiscal note**

***Include fiscal notes accompanying Governor's bill**

FISCAL NOTE

No. 1
Bill Version: CSHB 141(FSH)
(H) Publish Date: 2/27/97

STATE OF ALASKA
199 / LEGISLATIVE SESSION

Revision Date:
Dept. Affected: Fish and Game
Title: An Act relating to a vessel permit moratorium for the Alaska weathervane scallop fishery; relating to management of scallop fisher
BRU: Commercial Fisheries (Limited) Entry Commission
Component: Limited Entry Program Administration
Sponsor: Rep. Austerman
Requester: Rep. Austerman
COMPONENT SERIAL NO. 0471

Expenditures/Revenues (Thousands of Dollars)

OPERATING EXPENDITURES	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts	0.0	0.0	0.0	0.0	0.0	0.0
1006 GF/MHTIA						
Other						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY97) cost: $ 0.0

POSITIONS

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary.)

No fiscal impact.

Prepared By: Roger Kolden
Phone: 789-6160
Agency: Commercial Fisheries (Limited) Entry Commission
Date: 2/24/97

Approved by Commissioner: Dale Anderson
Agency: Commercial Fisheries (Limited) Entry Commission
Date: 2/24/97

COMMITTEE COPY

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE

0-LS0112\TA.1
Utermohle
5/6/97

AMENDMENT

OFFERED IN THE SENATE

TO: CSHB 141(RES) am

Page 3, lines 15 - 19:

Delete all material.

Insert "unless

(1) the vessel has landed at least 1,000 pounds of weathervane scallops that were legally taken in the statewide Alaska weathervane scallop fishery registration area

(A) during calendar year 1995 or 1996; and

(B) during each of at least four calendar years between 1984 and 1996, inclusive; or

(2) the vessel qualifies for a vessel permit for the area H weathervane scallop fishery registration area under (e) of this section."

0-LS0112\TA.2
Utermohle
5/6/97

AMENDMENT

OFFERED IN THE SENATE

TO: CSHB 141(RES) am

Page 4, following line 6:

Insert a new subsection to read:

"(g) Notwithstanding (d) - (f) of this section, the commission shall reissue a vessel permit upon request of a person who is the owner of a vessel for which a vessel permit has been issued under this section to another vessel owned by the person if the vessel to which the vessel permit is to be reissued does not have an overall length or horsepower rating exceeding the length or horsepower rating of the vessel for which the vessel permit was initially issued. The vessel from which the vessel permit was transferred may no longer be used in the fishery for which the vessel permit was issued unless another vessel permit is reissued to the vessel. This subsection does not authorize the issuance of more vessel permits than are authorized under (d) - (f) of this section."

Reletter the following subsections accordingly.

Page 4, line 10:

Delete "(d) - (g)"

Insert "(d) - (h)"

Page 4, line 26, following "section":

Insert "or that is issued a vessel permit under this section"

0-LS0112\TA.4
Utermohle
5/7/97

AMENDMENT

OFFERED IN THE SENATE

TO: CSHB 141(RES) am

Page 5, following line 2:

Insert a new subsection to read:

"(l) The commission shall, in cooperation with the Department of Fish and Game, conduct investigations to determine whether an alternative form of nontransferrable vessel or limited entry permit system or other management program is appropriate for weathervane scallop fisheries in the state."

Reletter the following subsections accordingly.

ALASKA STATE LEGISLATURE

House of Representatives
Special Committee on Fisheries

SPONSOR STATEMENT

HB 141

A VESSEL PERMIT MORATORIUM FOR THE ALASKA WEATHERVANE SCALLOP FISHERY

I have introduced HB 141 to implement a moratorium within the state waters off Alaska similar to the moratorium being implemented by the North Pacific Fisheries Management Council affecting the federal waters off Alaska. Without a moratorium implemented in state waters, it is probable that there would be an increase in effort on our state water scallop stocks, as well as on the associated marine habitat, and create an unmanageable fishery.

World wide scallops have proven to be susceptible to overfishing and boom/bust cycles. Scallops are long lived shellfish. The large scallop meats which bring premium prices come from scallops eight years or older.

The Alaska scallop fishery started in 1968. Nineteen east coast scallop vessels came to Alaska and took 1.7 million pounds of scallop meats. The fishery continued at a harvest level of 1.3 million pounds of meats annually until 1973. Catches dropped off sharply after 1973 and fishing ceased in 1978 when scallop beds were depleted. This boom and bust cycle was repeated in the 1980's and appeared to be repeating for a third time in the 1990's until the state developed a fishery management plan for scallops in 1993. All scallop fishing was stopped in February 1995 in order to prevent an east coast scalloper, Mr. Big, from fishing in unregulated federal waters. The fishery reopened in late 1996 under a federal management plan.

At present weathervane scallops are managed jointly by the federal government and the State of Alaska. There is a federal fishery management plan to delegate management authority of scallops to the state "in process" which has not been finalized. The management plan includes mandatory 100% observer coverage, caps on the amount of crab bycatch which can be

Room 434, State Capitol, Juneau, Alaska 99801-1182 (907) 465-4230 or 465-2487 Fax 465-4956

taken and area specific quotas. Under new language in the Magnuson-Stevens Fisheries Conservation and Management Act, the State of Alaska could exercise management authority out to 200 miles under delegated authority.

It is also in the State of Alaska's best interest that both the State and federal water scallop fisheries have a similar management plans and be managed by the State of Alaska. My goal is delegation of management authority by the U.S. Department of Commerce to the State of Alaska with a more restricted moratorium base. It should be noted that the North Pacific Fishery Management Council's Environmental Assessment and Regulatory Impact Review found that far fewer vessels than established by the federal moratorium could efficiently harvest the Alaska scallop quotas.

Within this legislation, I have separated out the weathervane scallop fishery conducted in Area H, Cook Inlet. The Area H scallop fishery is unique in that it is managed as an entirely separate fishery, has different gear specifications, and has more recently been developed.

HB 141 is needed to ensure careful conservation of the scallop stocks, as well as the marine habitat in which the scallops live, and to ensure that the bycatch of other marine animals, such as crabs, are properly controlled and managed. It is imperative to implement a moratorium on new entrants into the weathervane scallop fishery now.

Effective January 1, 1996, all commercial pots were required to be partly covered by rigid mesh, which must have 7/8ths inch minimum diameter openings. This regulation was designed to reduce handling of small non-marketable shrimp thereby decreasing avoidable fishing mortality. Similar regulations are utilized in the Prince William Sound Management Area, Southeast Region, and State of Washington.

AREA H

SCALLOP FISHERY

Introduction

The commercial scallop fishery in the Cook Inlet Management Area (H) began in 1983. The target species for the fishery is the Pacific weathervane scallop (Patinopecten caurinus). In 1983 and 1984 the Alaska Board of Fisheries responded to a public proposal by directing the department to allow restricted exploratory fisheries for scallops. These initial fisheries were characterized by low effort due to severe permit restrictions when compared with traditional scallop fisheries both inside and outside Alaska. The most important restrictions were:

1) Legal gear limited to a 6 foot wide dredge with minimum ring size of 4 inches inside diameter.

2) Only 1 unit of gear allowed on board at any one time.

3) Mandatory log book completion.

4) Contact with the Homer office prior to and at the completion of each trip.

5) An agreement to carry department observers on board if requested.

Except for some brief exploratory fishing elsewhere in the Kamishak District in 1984 and in the Outer District in 1987, a single bed of scallops near Augustine Island in the Kamishak District has sustained almost the entire harvest since the fishery began in 1983 (Figure 1). Using the state research vessel Pandalus, the department conducted an assessment survey in August, 1984 to define the extent of this particular bed and to aid in establishing appropriate harvest levels.

Based on information from the 1984 survey as well as data from the initial fisheries, the 1985 Board of Fisheries adopted regulations for scallops in Cook Inlet. These regulations included a season in the Kamishak District from August 15 through October 31, a guideline harvest level of 10,000 to 20,000 lb (changed to 0 to 20,000 lb in 1994) of shucked meats, and the restrictions mentioned previously (except for the single unit of gear provision). Commercial fishery performance has been used inseason to adjust guideline harvest levels. Historic harvest and effort peaked fishery during 1994 when 4 vessels took 20,431 lb of shucked meats (Figure 12 and Appendix K).

By regulation the Southern District was not open to scallop fishing in order to protect crab stocks, while the Outer and Eastern Districts were opened year round to encourage exploratory fishing.

In 1987 review of inseason fishery performance data clearly demonstrated that the Kamishak District stock had taken an unexpected decline. Substantial undocumented information indicated that the Kamishak scallop bed had been fished illegally between the 1986 and 1987 seasons. Regardless of the reason for the sharp decline in abundance, the department closed the fishery.

No commercial effort occurred in Cook Inlet from 1988 through 1992. Although some local fishermen expressed interest in fishing during these years, the potential of a fishery closure after 1 trip did not warrant the investment in time and effort because the department told fishermen that their catch data would be used to justify continuance of the fishery. Fishermen speculated that the probability of good catches were low. Information required from the fishermen would have included logbooks, shell samples, interviews, and a potential for observers.

In 1993 the fishery was essentially redeveloped when a single fishermen took a chance and began fishing the Kamishak District scallops. After his initial trip it was apparent that the stock had recovered to near historic levels. Two other boats joined the fishery before the season was over. The resultant catch was 20,115 lb. Logbooks and shell samples indicated a small but healthy stock of weathervane scallops once again existed near Augustine Island.

1995 Season Summary

In early 1995 a single vessel commercially fished scallops in a venture that was illegal by state law. This occurred in federal waters off Kayak Island (adjacent to the Prince William Sound Management Area) and resulted in the closure of all commercial scallop fisheries in federal waters. Virtually the entire stock of scallops in the Kamishak District resides in federal waters. Although state waters opened by regulation on August 15, 1995, no one fished as fishermen did not want to waste their time in an area where few scallops existed.

1996 Management Outlook

It appears that the state and federal regulatory problems, that provided a loophole for illegal fishing, have been resolved. The Kamishak District fishery, in both state and federal waters, will likely open by regulation on August 15, 1996. It appears that management of the fishery will be by the state with consent from the federal government. The harvest guideline, however, will be set based on the results of a department dredge survey that will occur in July 1996. It seems likely that the data should justify a harvest guideline of 20,000 lb or more because of the size and age structure of the stock coupled with no fishing mortality in 1995.

The scallop fishery in the Outer and Eastern Districts will be managed by regulation, which includes a requirement for an observer. The department does not anticipate significant effort or catch from these districts because exploratory fishing by 2 large commercial scallopers in 1994 yielded a catch of 11 scallops.

Appendix K. Pacific weathervane scallop catches, Cook Inlet Management Area., 1983-95.

Year	District	Number of vessels	Catch in pounds of shucked meats
1983	Kamishak	1	2,346
1984	Kamishak	3	6,305
1985[a]	Kamishak	1	11,810
1986	Kamishak	3	15,364
1987	Outer	1	1,128
	Kamishak[b]	2	360
	'87 Total	2	1,488
1988		NO EFFORT	
1989		NO EFFORT	
1990		NO EFFORT	
1991		NO EFFORT	
1992		NO EFFORT	
1993	Kamishak	3	20,115
1994	Kamishak	4	20,431
1995[c]	Kamishak	0	0

a/ Season and harvest guideline set by regulation.

b/ Season closed by E.O. on August 21, 1987, one week after opening, due to low cpue.

c/ State waters open only.

1996	Kamishak	5	28,228

Number of vessels fished during the eligibility periods for the federal scallop vessel moratorium	
Time Period	**Number of Vessels with Landings**
1991	7
1992	7
1993	15
Fished in 4 years during Jan. 1, 1980-Jan. 20, 1993	7
Total Unique Vessels	18

Prepared by:
Commercial Fisheries Entry Commission
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October 4, 1996

North Pacific Fishery Management Council

Richard B. Lauber, Chairman
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#3-95 **NEWSLETTER** 6/28/95

Dutch Harbor/Unalaska Rolls Out Red Carpet

From the first plane carrying meeting attendees to the last one to leave, participants in the NPFMC's June meeting in Dutch Harbor were greeted with enthusiasm and treated like royalty during their week-long stay. Several after-meeting social activities were provided by Dutch Harbor and Unalaska businesses and associations throughout the week, including a BBQ and recreational evening. Other opportunities for after-meeting sightseeing, plant tours, and fishing were abundant through the careful planning of the NPFMC Organizing Committee, composed of Mayor Frank Kelty, Doug Bagnell and Jane Schroeder (Grand Aleutian), Stephanie Madsen (Aleutian Logistics-ASPA), Shirley Marquardt (Freight Mgmt Services), Annemarie McElroy (Convention & Visitors Bureau), Herb Callaham (Arctic Alaska/Tyson Seafoods), and Emil Berikoff (Unalaska Fishermen's Assn). It seemed that every citizen of Unalaska and Dutch Harbor was in some way involved in ensuring a pleasant visit and worry-free meeting. Meeting participants and attendees alike commented on the extraordinary hospitality provided. An impromptu activity room provided by Grand Aleutian employees, equipped with a TV, VCR, loads of movies and games, was a life-saver when weather prevented many participants from leaving on Sunday.

The hospitality of Dutch Harbor/Unalaska is much appreciated!

Though a variety of issues were addressed during the meeting, the centerpiece of this meeting was final action on a license limitation program for the groundfish and crab fisheries off Alaska (details inside). The Council also took final action to recommend to the Secretary of Commerce that the inshore-offshore processing allocations established under Amendment 18/23 be extended for an additional three years. This action includes an extension of the pollock CDQ program.

The Council, Advisory Panel, and Scientific and Statistical Committee will meet next the week of September 25 at the Radisson Hotel/Quality Inn at the Sea-Tac Airport. Specific starting times and a draft agenda should be available by mid-August. **[PLEASE NOTE: The original meeting date was delayed by one week because of meeting space availability.]**

Major issues scheduled for the September meeting will include:

- Discussion of full utilization and waste reduction initiatives.
- Various amendments to the halibut/sablefish IFQ program.

IN THE NEWSLETTER

DUTCH HARBOR/UNALASKA ROLLS OUT RED CARPET . 1
COUNCIL BIDS FAREWELL TO LONG-TERM MEMBERS . . 2
INCIDENTAL TAKINGS OF MARINE MAMMALS 2
SCALLOP MANAGEMENT 2
CRAB BYCATCH 3
HALIBUT DISCARD MORTALITY RATES 3
ELECTRONIC REPORTING 3
HALIBUT/SABLEFISH IFQs 4
OBSERVER PROGRAM 4
INSHORE-OFFSHORE REAUTHORIZATION 5
COUNCIL TAKES FINAL ACTION ON LICENSE LIMITATION 6
GROUNDFISH 8
CRAB 12
CALL FOR GROUNDFISH PROPOSALS 6
OTHER ISSUES AT A GLANCE 6
BYCATCH WORKSHOP REGISTRATION INFORMATION . . 7

- The domestic Observer Program and the North Pacific Fisheries Research Plan (fee collection program).
- Long-term crab management and rebuilding programs.
- Next steps in Comprehensive Rationalization, including development of a BSAI pollock ITQ proposal.
- A review of Magnuson Act Reauthorization, and
- Initial specifications of groundfish TACs and PSC allowances for the 1996 fisheries.

Council Bids Farewell to Two Members

The June 1995 meeting marked the end of six years of service on the Council for Mr. Ron Hegge of Anchorage. His direct presence on the Council will be missed, but given his keen interest in fisheries management issues, we don't expect to see him disappear into the sunset. We all look forward to his continued participation in the Council process.

Another member of the Council, Rear Admiral Roger Rufe Jr., will be moving on to warmer climates in the southern U.S. Admiral Rufe served for three years as the Coast Guard representative on the Council. He is replaced by Rear Admiral Ray Riutta, to whom the Council extends a warm welcome.

Incidental Taking of Marine Mammals

NMFS has published a proposed rule to implement new marine mammal takings requirements in commercial fishing operations. This proposed rule, published on June 16, 1995, responds to changes made to the Marine Mammal Protection Act as amended in 1994. There still are three categories of fisheries in terms of marine mammal takings, each having different registration and reporting requirements. Category I is for fisheries with frequent incidental mortality and serious injury of marine mammals. No Alaska fisheries are in this category. Category II is for occasional incidental mortality and serious injury of marine mammals. Alaska fisheries in this category include most drift gillnet and setnet salmon fisheries, Southeast salmon purse seiners, BSAI groundfish trawlers, pair trawlers, and southern BSAI and Western Gulf of Alaska sablefish longliners in federal waters. Category III has fisheries with remote likelihood or no known incidental mortality or serious injury of marine mammals. They include most other commercial fisheries off Alaska.

Comments on the proposed regulations must be submitted to Chief, Marine Mammal Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910, by July 31, 1995. Comments on the listing of fisheries by category are due by September 14. Contact for the Alaska Region of NMFS is Dr. Steve Zimmerman at (907) 586-7235. We have limited copies of the federal register notice available upon request.

Scallop Management

In June, the Council adopted Amendment 1 to the scallop fishery management plan which will allow a federally regulated scallop fishery to occur outside 3 miles in the Exclusive Economic Zone. The management program is based on the State of Alaska's management regime with additional measures previously adopted by the Council. Management measures include permit requirements, limited access, regulatory and reporting areas, districts and sections, scallop catch limits, inseason adjustments, reporting requirements, observer requirements, fishing seasons, closed waters, gear restrictions, efficiency limits, and prohibited species bycatch limits. A vessel moratorium, based on previously adopted criteria, was approved as a limited access measure for three years. If approved, the vessel moratorium would qualify vessels which participated (made at least one landing) in 1991, 1992 or 1993, or which participated for at least four years between January 1, 1980 and January 20, 1993. Areas to be closed to scallop fishing include those federal areas of the EEZ currently closed to bottom trawling to protect crabs and crab habitat. The Council also urged NMFS to require 100% observer coverage on all scallop vessels. NMFS and ADF&G will work together to develop a real-time monitoring system to monitor scallop

vessel locations relative to State water boundaries. If approved by the Secretary, a scallop fishery may be prosecuted under federal regulations by mid-1996, or earlier if opened by emergency rule. However, if the Magnuson Act is amended this year to allow extension of state jurisdiction into federal waters under certain conditions, the Council may revise the scallop FMP to defer management to the state. Staff contact is David Witherell.

Crab Bycatch

The Council reviewed an analysis of area closures to trawling that would protect red king crabs in Bristol Bay. The Council released the document for public review contingent upon completion of an economic analysis by late July and approval by the scientific and statistical committee. Please contact the NPFMC office if you wish to receive a copy of the analysis. Final action on this plan amendment is scheduled for September. If approved, an area closure would be implemented in early 1996, likely along the same lines as the 1995 closed area. NOAA General Counsel will examine the possibility of implementing this by emergency rule in January 1996. In September, the Council will also be receiving a report from the Crab Rebuilding Committee chaired by Dr. Fluharty, and perhaps initiating other, long-range crab management programs.

The Council also directed staff to analyze a proposal to combine the Zone 1 and Zone 2 Tanner crab PSC cap for the Pacific cod trawl and other fisheries. It was felt that the Bristol Bay closure may have increased bycatch rates of Tanner crab, causing an early closure of Zone 1. In turn, vessels fished in Zone 2 which may have increased halibut bycatch to the extent that the trawl fishery was unable to harvest its apportionment of the cod TAC. A draft analysis of this plan amendment proposal will be ready in December. Staff contact is David Witherell.

Halibut Discard Mortality Rates

At the December 1994 meeting, the Council recommended to NMFS the halibut discard mortality rates to be used for managing the Bering Sea/Aleutian Island and Gulf of Alaska 1995 groundfish fisheries. The Council recommended an assumed rate of 12.5 percent for the Pacific cod hook and line fishery for the first half of 1995 with a review of observed rates at the June 1995 Council meeting. The International Pacific Halibut Commission staff reevaluated the halibut discard mortality rate for BSAI Pacific cod hook and line fishery using in-season observer data and reported the fishery is exhibiting a rate of 11.5 percent. The Council recommended that NMFS apply this new rate for the remainder of the 1995 BSAI Pacific cod hook and line season, and to adjust the discard mortalities for this fishery for the first half of 1995. Staff contact is Jane DiCosimo.

Electronic Reporting

The Council approved a regulatory amendment to implement hardware requirements for electronic reporting. The amendment requires all processor vessels that process groundfish to have satellite communication equipment and the necessary hardware and software for electronic transmission of observer data and requires all shoreside processors that process groundfish to have the necessary computer hardware and software to send data electronically via a modem. It will become effective January 1, 1996. The objective is to facilitate electronic reporting of fisheries data. Use of this equipment by observers should reduce both the time and expense of collecting fishery information by providing real-time data and reducing the workload of the Observer Program. Currently, most industry reports are submitted by FAX and all logbooks are kept on paper.

historical fishing practices in, and dependence on, the fishery, (3) the economics of the fishery, (4) the capability of fishing vessels used in the fishery to engage in other fisheries; (5) the cultural and social framework relevant to the fishery, and (6) any other relevant considerations (16 U.S.C. 1853).

Scallop Management Background

Management of scallops in the EEZ off Alaska was conducted by the Alaska State Department of Fish and Game (ADF&G) from 1988 until the implementation of the Federal FMP and an interim closure of the EEZ to fishing for scallops in 1995. In 1992, ADF&G developed an Interim Fishery Management Plan (IFMP) for scallops, as fishing effort was rapidly increasing and maximum sustainable yield may have been exceeded. The IFMP specified three major management measures: (1) Setting area-specific guideline harvest levels and gear restrictions to prevent localized overharvesting, (2) creating an observer program to monitor the fishery and obtain biological information, and (3) limiting effort via gear restrictions, seasons, minimum size limits, and other measures. Consistent with scallop management actions taken on the east coast, the State of Alaska (State) promulgated regulations that limit crew size to a total of 12, and mandated that weathervane scallops only be shucked manually to control effort. In 1993, the Commissioner of ADF&G declared scallops a High Impact Emerging Fishery (5 AAC 39.210) because of mounting resource concerns. A fishery may be regulated as a high impact emerging commercial fishery if the Commissioner determines that any of the following conditions apply to a species or species group in an area or region: (1) Harvesting effort has recently increased beyond a low sporadic level; (2) interest has been expressed in harvesting the resource by more than a single user group; (3) the level of harvest might be approaching a level that might not be sustainable on a local or regional level; and (4) comprehensive regulations to address issues of conservation, allocation, and conduct of an orderly fishery have not been developed.

In 1993, the Council also began to address the issues of overexploitation and overcapitalization in the scallop fishery. At the January 1993 meeting, the Council determined that the scallop fishery may require Federal management to protect the fishery from overexploitation and further overcapitalization. The Council set a control date of January 20, 1993, to notify the industry that a moratorium for this fishery may be implemented. This control date, which was published in the Council's newsletter, meant that fishermen and/or vessels not participating in the fishery by that date may not be guaranteed future access to the fishery.

The Council was presented with information indicating that the stocks of weathervane scallops were fully exploited and any increase in effort would be detrimental to the stocks and the Nation. Information indicated that dramatic changes in age composition had occurred after the fishing-up period (1980–90), with commensurate declines in harvest. In recent years, many fishermen abandoned historical fishing areas and searched for new areas to maintain catch levels. Increased numbers of small scallops were reported. Additionally, scallops are highly susceptible to overfishing and boom/bust cycles worldwide.

The need to limit access was the primary motivation for the Council to prepare the FMP in lieu of State management of the scallop fishery. As anticipated, effort in the scallop fishery increased in 1993 when 32 scallop permits, representing 21 vessels, were issued by the State. Fifteen of these vessels had made landings by the end of 1993. Even without additional vessels entering the fishery, the Council believed that the 1993 fishery was overcapitalized, meaning that too much capital was invested relative to the fleet size necessary to conduct the fishery. In 1992, seven vessels harvested 1.8 million lb (816 mt), for an average of 257,143 lb (116.6 mt) harvested per vessel. The 1993 quota was set at 890,000 lb (403.7 mt) for areas with specified guideline harvest levels, or about one-half of the 1992 landings. This quota could have been harvested by three or four vessels. In 1993, landings from areas without guideline harvest levels totaled 524,000 lb (237.7 mt), which could have been taken by an additional two vessels. Yet, 15 vessels participated in the 1993 fishery. In 1994, the growth trend in the fishery continued with 16 vessels harvesting 1,235,269 lb (560.3 mt) of scallops.

At its January 1993 meeting, the Council directed staff to proceed with an analysis to evaluate potential Federal management of Alaskan scallops. A vessel moratorium was proposed as an essential element of a Federal management regime to stabilize the size and capitalization of the scallop fleet during the time that the Council considers limited entry alternatives for this fishery.

At its June 1993 meeting, the Council and its advisory panels reviewed a draft EA/RIR/IRFA analysis of management alternatives for the scallop fishery. Also at that meeting, the Council reaffirmed the control date of January 20, 1993, and recommended several revisions to the draft analysis, which was subsequently released for public review on August 9, 1993. At the September 1993 Council meeting, public testimony was received on scallop management, particularly on the qualifying criteria for a moratorium. At that meeting, the Council tentatively identified its preferred alternative of a separate FMP for the scallop fishery, with shared management authority with the State. The preferred alternative also included a vessel moratorium option. However, the Council requested additional analysis to assist with determining appropriate qualifying criteria. Additional analysis was incorporated into the revised draft FMP, including a draft EA/RIR/IRFA, and was released for public review on November 30, 1993.

At its April 1994 meeting, the Council and its advisory bodies reviewed the draft FMP, took public testimony, and voted to adopt a separate FMP for the scallop fishery. Eighteen vessels would qualify under the criteria adopted by the Council in April 1994. The 1994 draft FMP, which deferred most management measures to the State, was based on the premise that all vessels fishing for scallops in the Federal waters off Alaska would also be registered with the State.

While regulations were being drafted to implement the FMP, a vessel that had nullified its registration with the State began fishing for scallops in the Federal waters of the Prince William Sound Registration Area, which the State had already closed after the guideline harvest level of 50,000 lb (22,686 kg) was taken on January 26, 1995. The State did not have authority to stop the vessel from fishing, because it was no longer registered with the State and was fishing in the EEZ. On February 17, 1995, the Council met by emergency teleconference and recommended that NMFS implement an emergency rule to close the EEZ off Alaska to scallop fishing to prevent further uncontrolled harvests in Federal waters. The emergency rule went into effect on February 23, 1995 and was published on March 1, 1995 (60 FR 11054).

At its April 1995 meeting, the Council took additional steps to prevent unregulated and uncontrolled harvests after the emergency rule expired. On April 19, 1995, the Council adopted an FMP, which continued the closure of the EEZ to fishing for scallops for a 1-year period. The FMP was approved by