


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke  
Executive Director 

DATE: April 7, 1997

SUBJECT: Scallop Fishery Management Plan

ESTIMATED TIME  
1 HOUR

ACTION REQUIRED

- (a) Review final SAFE report and approve TAC and PSC specifications.
- (b) Review Board of Fisheries actions.

BACKGROUND

Scallop SAFE and Specifications

The stock assessment and fishery evaluation (SAFE) is a requirement of the North Pacific Fishery Management Council's *Fishery Management Plan for the Scallop Fishery off Alaska*. The SAFE details the current biological and economic status of fisheries, total allowable catch levels (TACs), and support for different management decisions or changes in harvest strategies. The 1997 SAFE report was assembled by the scallop plan team with contributions from the State of Alaska Department of Fish and Game and the National Marine Fisheries Service. A copy of the SAFE was distributed to the Council family on April 2, and will be distributed to the public at this meeting.

The Council must approve scallop TACs and crab bycatch limits (CBLs) for the July 1, 1997 through June 30, 1998 scallop fishing year. The total annual TAC for scallops off Alaska will be established within the OY range of 0 to 1.8 million lb (0 to 815.5 mt) of shucked scallop meat. The State has established scallop guideline harvest levels (same as TACs) in regulation, and the State recommends that scallop TACs remain unchanged from the previous fishing year. These TACs are displayed in Table 1. A summary of the 1996 fishery is attached as Item D-3(a).

CBLs for the scallop fishery will vary from the 1996-97 fishing year because CBLs are based on a percentage of the crab abundance in each area as determined by the most recent crab survey in each area. In Area Q (Bering Sea) the Council has established

Table 1. Scallop TAC amounts for the period July 1, 1997, through June 30, 1998, in pounds and kilograms of shucked scallop meat by scallop registration area and district.

Scallop Registration Area	TAC	
	lb	kg
Area A (Southeastern)	zero	zero
Area D (Yakutat)		
District 16	35,000	15,880
All other districts	250,000	113,430
Area E (Prince William Sound)	17,400	7,893
Area H (Cook Inlet)		
Kamishak District	20,000	9,074
Area K (Kodiak)	400,000	181,488
Area M (Alaska Peninsula)	200,000	90,718
Area O (Dutch Harbor)	170,000	77,132
Area Q (Bering Sea)	600,000	272,155
Area R (Adak)	75,000	43,019
<b>TOTAL</b>	<b>1,767,400</b>	<b>810,789</b>

CBLs according to specific formulas in regulation (*C. bairdi* at 0.13542%, *C. opilio* at 0.003176%). The CBL for red king crab in the Bering Sea must be specified within the range of 500 to 3,000 crabs. In all other areas where CBLs are necessary, the State has traditionally established CBLs at 1 percent or 0.5 percent of the most recent crab population estimate depending upon whether or not crab populations are sufficiently healthy to support a directed fishery in that area. The 1997-1998 CBLs have been updated with the most recent crab survey results, as shown in Table 2.

Table 2. Crab bycatch limits for the period August 1, 1997, through June 30, 1998, in numbers of crabs by scallop registration area and district.

Scallop Registration Area	Crab Bycatch Limits		
	Red king	<i>C. bairdi</i>	<i>C. opilio</i>
Area A (Southeastern)	-	-	-
Area D (Yakutat)	-	-	-
Area E (Prince William Sound)	-	630	-
Area H (Cook Inlet)			
Kamishak District	60	29,000	-
Outer/Eastern Districts	98	2,170	-
Area K (Kodiak)			
Shelikof District	35	51,000	-
Northeast District	50	91,600	-
Area M (Alaska Peninsula)	79	45,300	-
Area O (Dutch Harbor)	10	10,700	-
Area Q (Bering Sea)	500	238,000	172,000
Area R (Adak)	50	10,000	-
Total	882	478,400	172,000

Board of Fisheries Actions

At their March meeting, the Alaska Board of Fisheries approved a change in the opening dates for the Yakutat/District 16 and Prince William Sound scallop fisheries from January 10 to July 1 with a biological closure of February 15. This change allows scallop fisheries in all areas to open simultaneously on July 1, with the exception of Cook Inlet that opens on August 15. Other changes included a requirement for vessels to obtain an ADF&G permit to commercially fish scallops in Cook Inlet, as well as closing waters to scalloping east of 162° W Longitude and around the Pribilof Islands to match trawl closures in the Bering Sea area. A proposal requiring a maximum 6-foot dredge size in state waters was not approved.



## Scallops

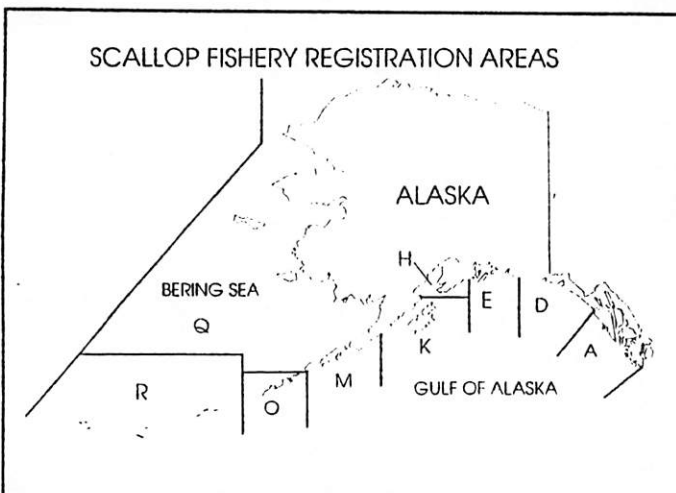
**Biology:** Weathervane scallops (*Patinopectin caurinus*), are distributed from Point Reyes, California, to the Pribilof Islands, Alaska. The highest known densities in Alaska have been found to occur in the Bering Sea, off Kodiak Island, and along the eastern gulf coast from Cape Spencer to Cape St. Elias. Weathervane scallops are found from intertidal waters to depths of 300 m, but abundance tends to be greatest between depths of 40-130 m on beds of mud, clay, sand, and gravel. Sexes are separate and mature male and female scallops are distinguishable based on gonad color. Although spawning time varies with latitude and depth, weathervane scallops in Alaska spawn in May to July depending on location. Eggs and spermatozoa are released into the water, where the eggs become fertilized. After a few days, eggs hatch, and larvae rise into the water column and drift with ocean currents. Larvae are pelagic and drift for about one month until metamorphosis to the juvenile stage when they settle to the bottom. Weathervane scallops begin to mature by age 3 at about 7.6 cm (3 inches) in shell height (SH), and virtually all scallops are mature by age 4. Growth, maximum size, and size at maturity vary significantly within and between beds and geographic areas. Weathervane scallops are long-lived; individuals may live 28 years old or more. The natural mortality rate is thought to be about 15% annually ( $M = 0.16$ ). Scallops are likely prey to various fish and invertebrates during the early part of their life cycle. Flounders are known to prey on juvenile weathervane scallops, and seastars may also be important predators.

Several other species of scallop found in the EEZ off Alaska have commercial potential. These scallops grow to smaller sizes than weathervanes, and thus have not been extensively exploited in Alaska. Pink scallops, *Chlamys rubida*, range from California to the Pribilof Islands. Pink scallops are found in deep waters (to 200 m) in areas with soft bottom, whereas spiny scallop occur in shallower (to 150 m) areas characterized by hard bottom and strong currents. Pink scallops mature at age 2, and spawn in the winter (January-March). Maximum age for this species is 6 years. Spiny scallops, *Chlamys hastata*, are found in coastal regions from California to the Gulf of Alaska. Spiny scallops grow to slightly larger sizes (75 mm) than pink scallops (60 mm). Spiny scallops also mature at age 2 (35 mm) and spawn in the autumn (August-October). Rock scallops, *Crassadoma gigantea*, range from Mexico to Unalaska Island. Rock scallops are found in relatively shallower water (0-80 m) with strong currents. Apparently, distribution of these animals is discontinuous, and the abundance in most areas is low. These scallops attach themselves to rocks, attain a large size (to 250 mm), and exhibit fast growth rates. Rock scallops are thought to spawn during two distinct periods, one in the autumn (October-January), and one in the spring-summer (March-August).

**Management:** The weathervane scallop resource consists of multiple, discrete, self sustaining populations that are managed as separate stock units. Scallop stocks in Alaska have been managed under a federal fishery management plan (FMP) since 1995. The FMP controls the fishery through permits, registration areas and districts, seasons, closed waters, gear restrictions, efficiency limits, crab bycatch limits, scallop catch limits, inseason adjustments, and observer monitoring. Most of these regulations were developed by the State prior to 1995. Dredge size is limited to a maximum width of 15 feet, and only 2 dredges may be used at any one time. In the Kamishak District of Cook Inlet, only 1 dredge with a 6' maximum width is allowed. Dredges are required to have rings with a 4" minimum inside diameter. To reduce incentives to harvest small scallops, crew size on scallop vessels is limited to 12 persons and all scallops must be manually shucked. Dredging is prohibited in areas designated as crab habitat protection areas, similar to the groundfish FMPs. The

**Management measures established under Amendment 1 to the federal scallop FMP.**

- Gear restrictions
- Efficiency limits
- Registration areas and districts
- Harvest limits
- Crab bycatch limits
- Closed areas
- Inseason adjustments
- Seasons
- Observer requirements



Council announced a control date of January 20, 1993, to place the industry on notice that a moratorium for this fishery may be implemented. In June 1995, the Council adopted a 3-year vessel moratorium to restrict new entry into the scallop fishery while a more comprehensive plan was being developed. The moratorium was submitted for Secretarial review as Amendment 2 in November 1996. To qualify under the proposed moratorium, a vessel must have made at least one landing in 1991, 1992, or 1993, or must have participated for at least 4 years between 1980 and 1993. The proposed moratorium also limits reconstruction and replacement of vessels to a 20% maximum increase in original qualifying length overall.

**Weathervane scallop registration areas, seasons, GHL's (pounds, shucked), and crab bycatch limits established for the 1996 scallop fishery, by area.**

<u>Area</u>	<u>GHL</u> <u>(pounds)</u>	<u>Fishing</u> <u>Season</u>	<u>Crab Bycatch Limits</u>		
			<u>king</u> <u>crab</u>	<u>Tanner</u> <u>crab</u>	<u>Snow</u> <u>crab</u>
A - Southeast	0 - 27,000	Jan 10 - Dec 31	n/a	n/a	n/a
D - Yakutat	0 - 195,000	Jan 10 - Dec 31	n/a	n/a	n/a
E - Eastern PWS	0 - 50,000	Jan 10 - Dec 31	n/a	500	n/a
Western PWS	combined	Jan 10 - Dec 31	n/a	130	n/a
H - Cook Inlet (Kamishak)	0 - 28,000	Aug 15 - Oct 31	60	29,000	n/a
Cook Inlet (Outer area)	combined	Jan 1 - Dec 31	98	2,170	n/a
K - Kodiak (Shelikof)	0 - 400,000	July 1 - Feb 15	22	16,100	n/a
Kodiak (Northeast)	combined	July 1 - Feb 15	66	130,000	n/a
M - AK Peninsula	0 - 200,000	July 1 - Feb 15	435	22,000	n/a
O - Dutch Harbor	0 - 170,000	July 1 - Feb 15	10	10,700	n/a
Q - Bering Sea	0 - 600,000	July 1 - Feb 15	500	257,000	275,000
R - Adak	0 - 75,000	July 1 - Feb 15	50	10,000	n/a

**Fishery:** In 1996, a total of 9 vessels participated in the scallop fishery statewide. Scallop vessels average 90-110 ft long. Scallops are harvested using dredges of standard design. Weathervane scallops are processed at sea by manual shucking, with only the meats (adductor muscles) retained. Scallops harvested in Cook Inlet are bagged and iced, whereas scallops harvested from other areas are generally block frozen at sea. The fishery has occurred almost exclusively in the EEZ in recent years, but some fishing in State waters occurs off Yakutat, Dutch Harbor, and Adak.

**Catch History:** Since 1967, when the first landings were made, fishing effort and total scallop harvest (weight of shucked meats) have varied annually. Total commercial harvest of weathervane scallops has fluctuated from a high of 157 landings totaling 1,850,187 pounds of shucked meats by 19 vessels in 1969 to no landings in 1978. Prices and demand for scallop have remained high since fishery inception. Prior to 1990, about two-thirds of the scallop harvest has been taken off Kodiak Island and about one-third has come from the Yakutat area; other areas had made minor contributions to overall landings. Harvests in 1990 and 1991 were the highest on record since the early 1970's. The 1992 scallop harvest was even higher at 1,810,788 pounds. The increased harvests in the 1990's occurred with new exploitation in the Bering Sea. The reduced 1995 catch was due to implementation of an interim closure in the EEZ from 2/23/96 to 8/1/96.

Only 1 vessel has made commercial landings of scallops other than weathervanes. In 1991 and 1992 this vessel fished for pink scallops in the Dutch Harbor and Adak registration areas. These landings remain confidential.

**Landings and effort in the Alaska weathervane scallop fishery, 1980 - 1996. The 1996 data are preliminary through October.**

<u>Year</u>	<u># of</u> <u>Vessels</u>	<u>Landings</u> <u>(pounds)</u>	<u>Price</u> <u>(\$/lb)</u>
1980	8	633,000	4.32
1981	18	924,000	4.05
1982	13	914,000	3.77
1983	6	194,000	4.88
1984	10	390,000	4.47
1985	8	648,000	3.12
1986	9	683,000	3.66
1987	4	583,000	3.38
1988	4	341,000	3.49
1989	7	526,000	3.68
1990	9	1,489,000	3.37
1991	7	1,191,000	3.76
1992	7	1,811,000	3.88
1993	15	1,429,000	5.00
1994	16	1,235,000	6.00
1995	10	283,000	n/a
1996	9	733,427	7.00