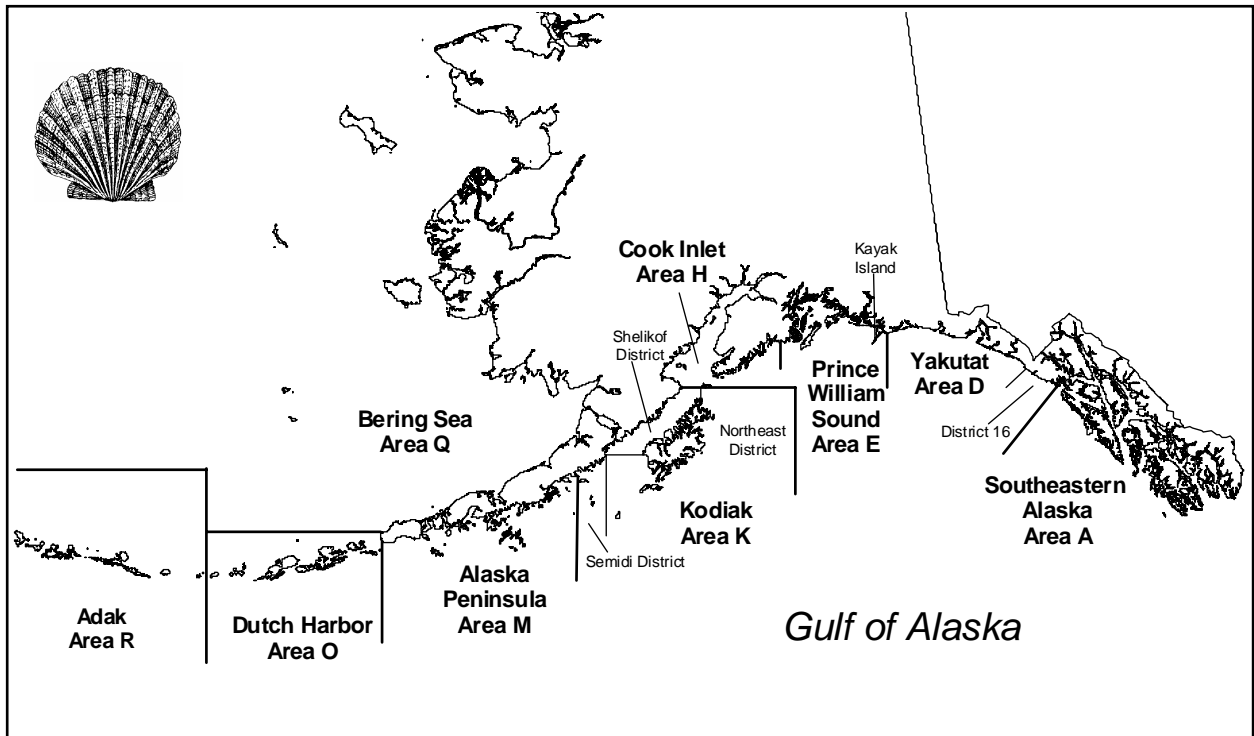


STOCK ASSESSMENT AND FISHERY EVALUATION REPORT
FOR THE WEATHERVANE SCALLOP
FISHERY OFF ALASKA



Compiled by

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1 Introduction

The *National Standard Guidelines for Fishery Management Plans* published by the National Marine Fisheries Service (NMFS) require that a stock assessment and fishery evaluation (SAFE) report is prepared and reviewed annually for each fishery management plan (FMP). The SAFE report summarizes the current biological and economic status of the fishery and analytical information used in fishery management such as guideline harvest ranges (GHRs) and harvest strategies. The report is assembled by the scallop plan team with contributions from the State of Alaska Department of Fish and Game (ADF&G), the National Marine Fisheries Service (NMFS), and the North Pacific Fishery Management Council (NPFMC). The SAFE report is presented to the Council on an annual basis and is also available to the public.

The Scallop Plan Team met in Anchorage on February 21-22, 2008 to review the status of the weathervane scallop stocks, to discuss additional issues of importance in scallop management and to compile the annual SAFE report. The Plan Team review was based on presentations by staff of the NPFMC, NMFS and ADF&G with opportunity for public comment and input. Members of the Plan Team who compiled the report were Gregg Rosenkranz, Diana Stram, Gretchen Harrington, Scott Miller, Jie Zheng and Herman Savikko.

The scallop fishery in Alaska's Exclusive Economic Zone (EEZ; 3-200 miles offshore) is jointly managed by the state and federal government under the FMP. Most aspects of scallop fishery management are delegated to the State of Alaska, while limited access and other federal requirements are under jurisdiction of the federal government. The FMP was developed by the NPFMC under the Magnuson Stevens Act and approved by NMFS on July 26, 1995. The NPFMC updated and adopted a revised FMP in 2006.

Although the FMP covers all scallop stocks off the coast of Alaska including weathervane scallops (*Patinopecten caurinus*), pink or reddish scallops (*Chlamys rubida*), spiny scallops (*Chlamys hastata*), and rock scallops (*Crassadoma gigantea*), the weathervane scallop is the only commercially exploited stock at this time. Commercial fishing for weathervane scallops occurs in the Gulf of Alaska, Bering Sea, and Aleutian Islands. Scallop registration areas used by ADF&G in management of the fishery are shown in Figure 1, and general fishing locations are shown in Figure 2.

In 1996, optimum yield (OY) was established as 0 to 1.8 million pounds of shucked scallop meats. A more conservative approach was taken in 1998, when OY was defined as 0 to 1.24 million pounds of shucked scallop meats. Statewide scallop harvest has not exceeded OY, and scallop stocks are not overfished.

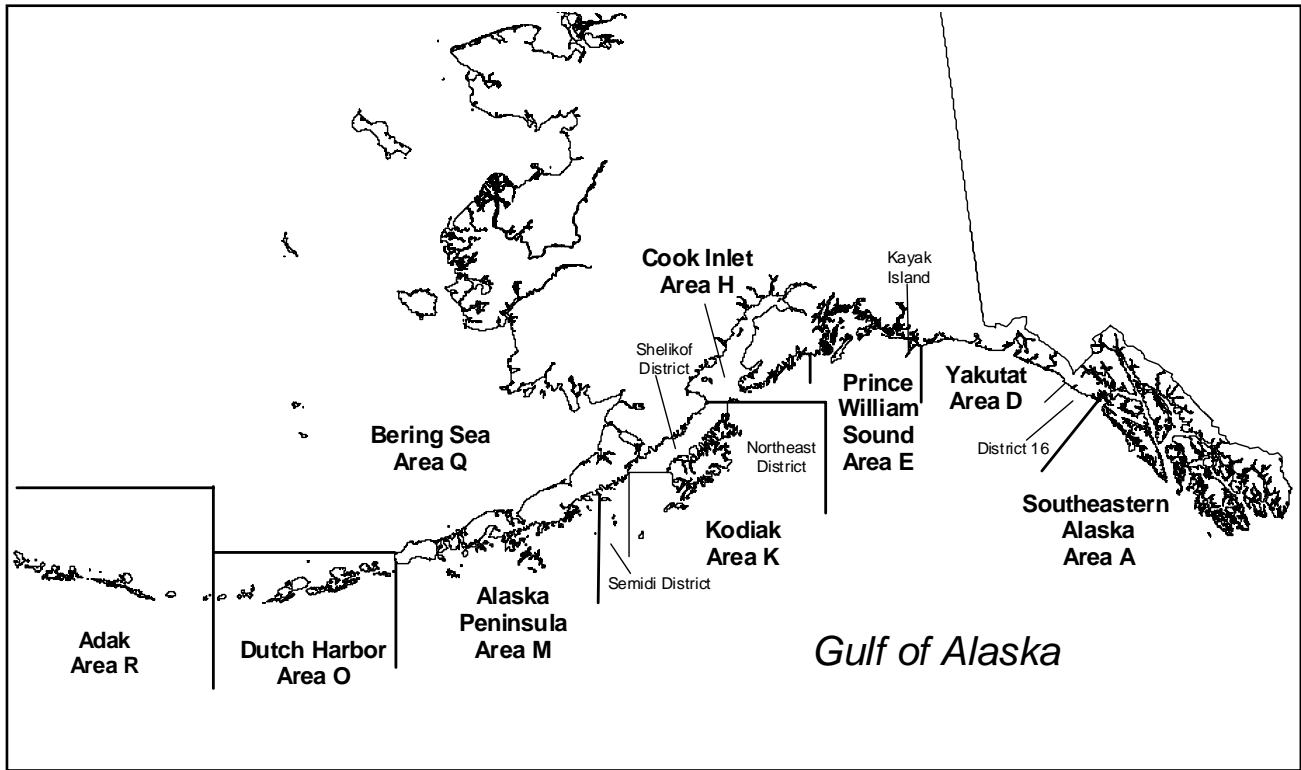


Figure 1 Alaska weathervane scallop fishing registration areas.

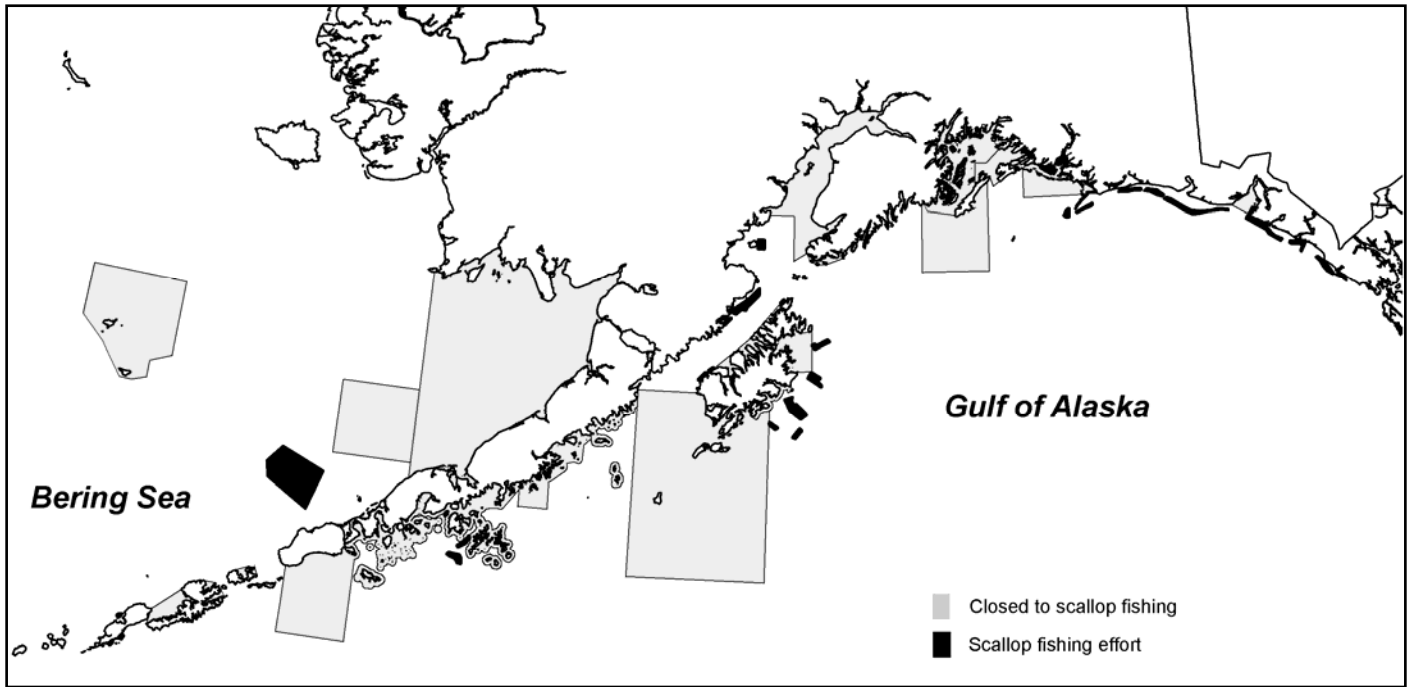


Figure 2 Scallop fishing locations (dark polygons) outside Cook Inlet during the 2003/04 season.

1.1 Summary of New Information Included in the SAFE Report

This SAFE Report includes updated information through the 2006/2007 fishing season. New information which is included in this report since the previous report (NPFMC 2006) includes the following:

- 1) Response to SSC comments section added;
- 2) Updated observer program summary data through 2006/2007 fishing season;
- 3) Overview section on fishery management added;
- 4) Economic overview section updated;
- 5) Clarification regarding definition of GHRs and GHGs;
- 6) Updated information on recent regulatory actions with respect to the scallop fishery;
- 7) Many sections moved, reorganized, and rewritten for greater clarity.

1.2 Response to SSC comments

- 1) *In describing the state's future approach to managing scallops, it would be useful to add the conceptual framework explaining why the state is moving towards visual assessment techniques and population modeling so the reader understands the direction managers want to go.*
Response: Additional explanation was added to section 2.1 regarding this.
- 2) *Including a specific section for responses to SSC comments in the SAFE document itself will enhance communication between the state and the council.*
Response: section added.
- 3) *There are several issues in interpreting CPUE indices as a management tool or as a fishery performance statistic. Part of the rationale for moving to a visually-based survey is that CPUE is not reliable as a management tool or an index of population abundance. Therefore, should the CPUE be removed from the SAFE document entirely? At a minimum the SAFE should contain a paragraph describing the limitations of CPUE information and caveats about its use in the SAFE.*
Response: Additional explanation was added to section 2.1 regarding the limitations of the use of CPUE data. However, until such a time as survey data is available for all areas we still feel that it is important to report CPUE data in the SAFE report, particularly for those areas where survey data is absent or limited information exists historically.
- 4) *For clarity, and information synthesis among areas, a "summary of stock status" section would be helpful in comparing information among areas, understanding overall fishery performance, and integrating survey information for the entire managed range.*
Response: A section (3.1) was added this year.
- 5) *The SAFE document would also be enhanced if information was included on natural history characteristics, such as age, growth, reproduction, and other biological information to provide biological background and to be used as population models are developed. In addition, a discussion of factors influencing size-based discard and discard mortality would be helpful in the document and would be important in developing a population model. This information would also help to identify and direct future research efforts.*
Response: A section (1.4) was added on this as a placeholder until such a time as additional staff time allows for an expansion of this information.
- 6) *The SSC is pleased at the addition of an ecosystem considerations section. As this section is developed, it should include more information on predator-prey relationships, crab bycatch impacts, and habitat impacts. The National Academy of Sciences report on trawling impacts recommended three mechanisms for habitat impacts to be minimized (creating areas closed to trawling, reducing fishing effort, and modifications to fishing gear). The scallop fishery has already taken measurable steps in these three areas and these could be described in the ecosystem considerations section. Further, the visual survey data can be used to index habitat or other biological features, such as*

invertebrates, and provides an opportunity for future study as resources allow. In developing the ecosystem considerations section, it may be useful to consult the format used in the ecosystem considerations sections of the groundfish SAFE documents.

Response: The ecosystems considerations section was reorganized this year and the SPT continues to work to improve this section. However this section should in no way be intended to replace information contained in the comprehensive Ecosystem Considerations Chapter of the annual groundfish SAFE Reports, but rather to complement information contained within it. As such we have specifically referenced the reader to that document.

1.3 Historical Overview of the Scallop Fishery

Alaska weathervane scallop *Patinopecten caurinus* populations were first evaluated for commercial potential in the early 1950s by government and private sector investigators. Interest in the Alaska fishery increased in the late 1960s as catches from U.S. and Canadian sea scallop *Placopecten magellanicus* fisheries on Georges Bank declined. Commercial fishing effort first took place in Alaska during 1967 when two vessels harvested weathervane scallops from fishing grounds east of Kodiak Island. By the following year, 19 vessels including New England scallopers, converted Alaskan crab boats, salmon seiners, halibut longliners, and shrimp trawlers, entered the fishery.

From the inception of the fishery in 1967 through mid May 1993, the scallop fishery was passively managed with minimal management measures. Closed waters and seasons were established to protect crabs and crab habitat. When catches declined in one bed, vessels moved to new areas. While this may have been acceptable for a sporadic, low intensity fishery, increased participation inevitably led to boom and bust cycles (Barnhart 2003).

In the early 1990s, the Alaska weathervane scallop fishery expanded rapidly with an influx of boats from the East Coast of the United States. Concerns about overharvest of scallops and bycatch of other commercially important species such as crabs prompted the ADF&G Commissioner to designate the weathervane scallop fishery a high-impact emerging fishery on May 21, 1993. This action required ADF&G to close the fishery and implement an interim management plan prior to reopening. The interim management plan contained provisions for king and Tanner crab bycatch limits (CBLs) for most areas within the Westward Region. Since then, crab bycatch limits have been established for the Kamishak District of the Cook Inlet Registration Area and for the Prince William Sound Registration Area. The commissioner adopted the regulations and opened the fishery on June 17, 1993, consistent with the measures identified in the interim management plan. The interim management plan included a provision for 100% onboard observer coverage to monitor crab bycatch and to collect biological and fishery data. In March 1994, the Alaska Board of Fisheries (BOF) adopted the interim regulations identified as the Alaska Scallop Fishery Management Plan, 5 AAC 38.076.

From 1967 until early 1995, all vessels participating in the Alaska scallop fishery were registered under the laws of the State of Alaska. Scallop fishing in both state and federal waters was managed under state jurisdiction. In January 1995, the captain of a scallop fishing vessel returned his 1995 scallop interim use permit card to the State of Alaska Commercial Fisheries Entry Commission in Juneau and proceeded to fish scallops in the EEZ with total disregard to harvest limits, observer coverage, and other management measures and regulations. In response to this unanticipated event, federal waters in the EEZ were closed to scallop fishing by emergency rule on February 23, 1995. The initial emergency rule was in effect through May 30, 1995, and was extended for an additional 90 days through August 28, 1995. The intent of the emergency rule was to control the unregulated scallop fishery in federal waters until an FMP could be implemented to close the fishery. Prior to August 28, NPFMC submitted a proposed FMP which closed scallop fishing in the EEZ for a maximum of one year with an expiration date of August 28, 1996. The final rule implementing Amendment 1 to the FMP was filed July 18, 1996 and published in the Federal Register on July 23, 1996. It

became effective August 1, 1996, allowing the weathervane scallop fishery to reopen in the EEZ. Scallop fishing in state waters of the Westward Region was delayed until August 1, 1996 to coincide with the opening of the EEZ. The state continued as the active manager of the fishery with in-season actions duplicated by the federal system (Barnhart 2003).

In March 1997, NPFMC approved Amendment 2, a vessel moratorium under which 18 vessels qualified for federal moratorium permits to fish weathervane scallops in federal waters off Alaska. By February 1999, the Council recommended replacing the federal moratorium program with an LLP, which became Amendment 4 to the FMP. The Council's goal was to reduce capacity to approach a sustainable fishery with maximum net benefits to the Nation, as required by the Magnuson-Stevens Act. NPFMC's preferred alternative created a total of nine licenses with no area endorsements; each vessel is permitted to fish statewide. However, vessels that fished exclusively in the Cook Inlet Registration Area where a single 6-foot dredge was the legal gear type during the qualifying period were also limited to fishing a single 6-foot dredge in federal waters outside Cook Inlet. The NPFMC later modified the gear restriction in Amendment 10 to allow these vessels to fish 2 dredges with a combined maximum width of 20 feet. Amendment 10 was approved on June 22, 2005. NMFS published final regulations on July 11, 2005, which were effective August 10, 2005. NMFS implemented Amendment 10 by reissuing the two LLP licenses with the larger gear restriction.

1.4 Weathervane Scallop Biology

This section is currently a placeholder; the SPT hopes to expand it with input from the new ADF&G scallop biologist after the position is filled. The goal will be to summarize what is known about weathervane scallop biology and to delineate the most important directions for future research.

Alaska weathervane scallops spawn between May and early July. Spermatozoa and eggs are released directly into the water where fertilization occurs. Fertilized eggs settle to the bottom and hatch into larvae within several days; they then rise in the water column and drift with prevailing currents for about a month while undergoing metamorphosis. Scallops then settle to the bottom as juveniles and may attach to the substrate with byssal threads. A combination of large-scale (overall spawning population size and oceanographic conditions) and small-scale (site suitability for settlement) processes influence recruitment of scallops.

1.5 Economic Overview of the Scallop Fishery

An overview of historic Alaska weathervane scallop harvest and wholesale revenue is presented in Table 1. This data is reprinted from Kruse et al. (2005) and updated with information from annual scallop harvest information (Barnhart, 2006). Vessel participation and numbers of landings in this fishery have varied considerably over time. Participation increased rapidly from an historic low of 2 vessels in 1967 to 19 in both 1968 and 1969. Similarly, only 6 landings occurred in 1967 but by 1969, 157 landings were made and that year is the historical peak in participation, landings, and catch and among the years with highest first wholesale gross revenue.

Following 1969, participation, landing, and catch trended downward through 1976. In 1977, 1978, and 1979 the fishery was open but fishermen opted not to fish. In 1980 there were 8 participants making 56 landings totaling more than 600,000 pounds of scallop meats. In the following years, participation, landings, and catch trended upwards until 1983 before cycling downward. There followed an upward trend in landings and catch through the mid 1990s. Since the mid 1990s, participation, landings, and catch stabilized somewhat with catch consistently between 500,000 and 850,000 pounds each year; however, the 2004/05 catch of 431,596 pounds is the lowest level in nearly a decade. Vessel participation has been limited in recent years by the formation of the voluntary cooperative in May 2000, and by the implementation of the LLP in 2001. The Federal LLP

limits the participation to 9 permit holders. Since 2000, no more than 8 vessels have participated and in recent years there have been as few as 3 participants.

Table 1 also provides historical statewide average price per pound of landed scallop meats. It is important to note that presently most landed scallop meats have been processed (shucked) and frozen at sea. Prior to 1996 almost all scallop meats were placed in muslin bags and iced (not frozen) at sea and this is still the method used to deliver Cook Inlet scallops fresh to market. Thus, although landed price is often referred to as an ex-vessel price, since 1996 it has actually been reported as an average first wholesale price in that the majority of landed product is a primary processed product. Thus, in most years gross revenue is identified as first wholesale value here. The exception is that in the past two seasons, number of landings and first wholesale prices have not been available due to staffing constraints. Thus, the price that is used for 2005/06 and 2006/07 has been estimated by the Alaska Commercial Fisheries Entry Commission (CFEC) and are based a weighted average of ex-vessel fresh product delivery price and limited first wholesale price from voluntary Commercial Operators Annual Reports that some catcher processors prepare.

Price generally trended upwards during the late 1960s and through the 1970s. However, catch and value began to decline in the late 1970s. Following the three years of no effort, prices rose dramatically to nearly \$3.6 per pound, possibly in response to shortage of weathervane scallops caused by the closures but also likely due to closures and shortages in other areas. Historic prices peaked in 1983 at \$5 per pound before trending downward through the mid 1990s, upward during the late 1990s and then back downward from 1999 through 2002-03 when wholesale prices averaged \$5.25 per pound. This trend may be directly related to U.S. east coast scallop stock conditions and related market prices as well as import prices. The dependence of market prices in the Alaska scallop fishery on east coast and import markets is a topic for further research.

First wholesale revenue in this fishery has varied considerably over the years as both price and landings have varied. The peak value in the fishery occurred in 1992 when more than \$7 million was earned. Since that time, total first wholesale revenue in the fishery has trended downward along with landings, catch, and prices. In 2002-03, the fishery yielded about \$2.7 million in total first wholesale revenue. The downward trend continued with the 2003-04 and 2004-05 seasons yielding \$2.7 million and \$2.6 million respectively. The 2004-05 season revenue of \$2.4 million was the lowest return in the Alaska scallop fishery since 1988. With higher prices, revenue has rebounded to \$4.3 million and \$3.8 million in the past two seasons. However; the considerably higher prices recorded in these two seasons are based on a combination of ex-vessel and limited first wholesale value data and may not be an accurate representation of either. These price discrepancies between CFEC and ADF&G data will be a topic for further research and resolution pending upcoming staffing changes at ADF&G.

Scallop vessel operators have reported difficulty, in the most recently concluded season, with marketing scallops harvested from the Yakutat District 16 area. There are two primary problems with marketing scallops from this area (Kandianis, 2008). The first is that the scallops from this area tend to have small meats that are not as valuable as larger meat scallops taken elsewhere in Alaska. This means that these scallops must compete with large volumes of imported aquaculture scallops in this size range from countries such as China (Coulter, 2008). In 2006, for example, China exported more than 30 million pounds of frozen scallops to the United States with an average wholesale value of about \$2.85 per pound.

The second primary problem with Yakutat District 16 scallops has been a tendency toward lower quality. This has occurred as off color and/or “weak” meats that have high water content and are lacking in firmness and texture. Scallops in this condition do not prepare well in primary food service applications and are utilized in secondary processed food products (e.g. breaded or frittered). Some past buyers of these scallops have refused to purchase scallops from this area this year and have substituted imported aquaculture scallops that are of similar size, slightly better quality, and are offered a lower first wholesale prices (Coulter, 2008).

The cause of reduced quality of scallops from this area is not known and there have been reports of similar problems with some scallops taken from the Kamishak Bay area this season (Goldman, 2008).

Market and quality conditions are having an operational impact on the Yakutat District 16 fishery. The district 16 scallop harvest was 13,445 lbs in 2006/07, which did not achieve the 21,000 lb harvest ceiling. Scallop vessel operators have indicated that with high fuel costs their breakeven price was around \$6 per pound, which is well above the less than prevailing market price of \$3 per pound that Chinese frozen scallop imports averaged. They have also tried to move harvest in this district to late in the season in hopes of better quality; however, their catch rates were reportedly cut in half. (Mineo, 2008) Thus, the harvest that did occur in Yakutat District 16 was reportedly a financial loss and was done more to maintain harvesting history in the voluntarily rationalized fishery (Kandianis, 2008. Mineo, 2008.).

Table 1 Historic Statewide Commercial Weathervane Scallop Revenue Statistics, 1967-2006/07

Year	Vessels	Landings ^a	Catch (lbs meats) ^b	Average Price/Lb.	Wholesale Value
1967	2	6	778 ^c	\$0.70	\$545
1968	19	125	1,677,268	\$0.85	\$1,425,678
1969	19	157	1,849,947	\$0.85	\$1,572,455
1970	7	137	1,440,338	\$1.00	\$1,440,338
1971	5	60	931,151	\$1.05	\$977,709
1972	5	65	1,167,034	\$1.15	\$1,342,089
1973	5	45	1,109,405	\$1.20	\$1,331,286
1974	3	29	504,438	\$1.30	\$655,769
1975	4	56	435,672	\$1.40	\$609,941
1976	7	21	264,788	\$1.59	\$421,013
1977-79 No Fishery					
1980	8	56	616,717 ^c	\$3.60	\$2,220,181
1981	18	101	924,441	\$4.00	\$3,697,764
1982	13	120	913,996	\$3.25	\$2,970,487
1983	5	30	192,310	\$5.00	\$961,550
1984	6	52	383,512	\$4.00	\$1,534,048
1985	7	47	615,564	\$4.00	\$2,462,256
1986	8	74	667,258	\$4.25	\$2,835,847
1987	4	54	599,947 ^d	\$3.45	\$2,069,817
1988	4	47	341,070	\$3.68	\$1,255,138
1989	7	55	534,763	\$3.87	\$2,069,533
1990	9	144	1,481,136	\$3.43	\$5,080,296
1991	6	136	1,136,649	\$3.82	\$4,341,999
1992	8	136	1,785,673	\$3.96	\$7,071,265
1993 ^e	7	51	568,077	\$5.15	\$2,925,597
1993/94	15	111	984,583	\$5.15	\$5,070,602
1994/95	15	104	1,240,775	\$5.79	\$7,184,087
1995/96	10	29	410,743 ^d	\$6.05	\$2,484,995
1996/97	9	30	732,424	\$6.30	\$4,614,271
1997/98	9	31	818,913	\$6.50	\$5,322,935
1998/99	8	35	822,096	\$6.40	\$5,261,414
1999/00	10	22	837,971	\$6.25	\$5,237,319
2000/01	8	20	750,617	\$5.50	\$4,128,394
2001/02	6	26	572,838	\$5.25	\$3,007,400
2002/03	6	28	509,455	\$5.25	\$2,674,639
2003/04	4	32	500,379	\$5.25	\$2,626,990
2004/05	5	22	431,594	\$5.50	\$2,373,767
2005/06	3	f	532,741	\$8.02 ^g	\$4,272,583
2006/07	3	f	486,564	\$7.78 ^g	\$3,785,468

a Prior to and including 1995, number of landings equals number of fish tickets. After 1995, the number of landings equals number of deliveries (off-loads). A delivery typically includes multiple tickets, normally one per week.

b Pounds of shucked scallop meats.

c Unshucked scallop deliveries were converted to shucked meats using a 10% conversion factor.

d Includes illegal harvest.

e January 1 through June 30

f data presently unavailable.

g estimated by fresh product ex-vessel price and limited first wholesale product value data.

2 Overview of Scallop Fishery and Management

The scallop fishery is managed jointly by NMFS and ADF&G under the Federal Fishery Management Plan (FMP) for the Scallop Fishery off Alaska. Most management measures under the FMP are delegated to the State for management under Federal oversight. ADF&G management of the weathervane scallop fishery covers both state and federal waters off Alaska. The following sections provide background on the fishery and its management, including registration areas, season, guideline harvest ranges (GHRs), the observer program, crab bycatch limits (CBLs), and the LLP.

2.1 Management

Registration Areas. The State of Alaska Scallop Fishery Management Plan established 9 scallop registration areas in Alaska for vessels commercially fishing scallops (Figure 1). These include the Southeastern Alaska Registration Area (Area A); Yakutat Registration Area (Area D and District 16); Prince William Sound Registration Area (Area E); Cook Inlet Registration Area (Area H); Kodiak Registration Area (Area K), which is subdivided into the Northeast, Shelikof and Semidi Districts; Alaska Peninsula Registration Area (Area M); Dutch Harbor Registration Area (Area O); Bering Sea Registration Area (Area Q); and Adak Registration Area (Area R). Scallop seasons have never been opened in Area A, and effort occurred in Area R during 1995 only.

Seasons. The regulatory fishing season for weathervane scallops in Alaska is July 1 through February 15 except in the Cook Inlet Registration Area. In the Kamishak District of Cook Inlet, the season is August 15 through October 31, and in all other districts of Cook Inlet, the season is from January 1 through December 31 under conditions of an exploratory permit. Scallop fishing in any registration area in the state may be closed by emergency order prior to the end of the regulatory season. Scallop GHRs and CBLs are typically announced by ADF&G approximately one month prior to the season opening date.

Guideline Harvest Ranges. Although the FMP overfishing definition (2.7) is based on the statewide scallop stock, statewide estimates of stock size are not available, and ADF&G manages the fishery by registration areas and districts. To add to the confusion, two types of GHRs have been used by the State of Alaska: regulatory GHRs written into Alaska state law, and seasonal GHRs set annually by ADF&G. To reduce confusion, ADF&G will henceforth use the term GHL (guideline harvest level) to refer to seasonal harvest targets that are set annually for each fishing area.

Regulatory GHRs for traditional scallop fishing areas were first established by the State of Alaska in 1993 under the Interim Management Plan for Commercial Scallop Fisheries in Alaska. Regulatory GHRs (lbs of shucked scallop meats) were set at 0–250,000 lbs for Yakutat, 0–50,000 lbs for Prince William Sound, 0–20,000 lbs for the Kamishak District of Cook Inlet, 0–400,000 lbs for Kodiak, and 0–170,000 lbs for Dutch Harbor. These area GHR ceilings were determined by averaging historic catches from 1969 to 1992 excluding years when there was no fishing or a “fishing-up effect” occurred (Barnhart 2003).

Prior to the August 1, 1996 re-opening of the weathervane scallop fishery, the State of Alaska established GHRs for non-traditional registration areas, including 0–200,000 lbs for the Alaska Peninsula, 0–600,000 lbs for the Bering Sea, 0–35,000 lbs for District 16, and 0–75,000 lbs for Adak. The combined total of the upper limits from traditional and non-traditional areas was 1.8 million lbs, which was defined as maximum sustainable yield (MSY) in Amendment 1 to the federal FMP.

In 1998, the scallop plan team recommended a more conservative definition of MSY. Based on average landings from 1990–1997 excluding 1995 when the fishery was closed for most of the year, MSY was

subsequently established in Amendment 6 of the FMP at 1.24 million lbs, with optimum yield (OY) defined as the range 0–1.24 million pounds. To accommodate the new definition, regulatory GHR ceilings were reduced by the State of Alaska from 400,000 to 300,000 lbs for Kodiak, from 170,000 to 110,000 for Dutch Harbor, and from 600,000 to 400,000 lbs for the Bering Sea. Hence, MSY and the regulatory GHR ceiling written into Alaska law are both 1.24 million lbs.

Stock Assessments and Seasonal GHLs. ADF&G manages the scallop fishery conservatively, with scallop fishing prohibited in large areas known to contain scallops (4.3), and onboard observers required on all vessels operating outside Cook Inlet. Onboard observers transmit summary data to fishery managers thrice weekly or more frequently, and fishing areas may be closed before the GHL is reached due to concerns about localized depletion, trends in CPUE, or bycatch rates. Methods and data used in setting seasonal GHLs vary by region.

ADF&G has conducted biennial dredge surveys in the Kamishak District of the Cook Inlet Registration Area and near Kayak Island in the Prince William Sound Registration Area since the late 1990s. Data from these surveys are used to set GHLs, and some age-structured population modeling work has been performed. In the Kamishak District fishery, observers are not required, but vessels are limited to a single 6 ft dredge, and ADF&G staff have regularly been deployed on scallop vessels to observe fishing and sample the catch.

In registration areas not assessed by dredge surveys, data from the scallop observer program are the primary source of information used to set GHLs. These data consist of time series of scallop harvest and fishing effort, including catch per unit effort (CPUE), fishing locations, size structure of the catch, discard of scallops, and crab bycatch. Spatially explicit catch and effort data that cannot be displayed in the SAFE report due to State of Alaska confidentiality requirements are examined by ADF&G staff each year when GHLs are set.

ADF&G and the SPT recognize inherent weaknesses in using fishery data for management purposes. CPUE may be an unreliable index of scallop abundance due to factors such as market conditions, weather on the grounds, tides, gear efficiency, captain and crew performance, etc. Industry have noted that the time of year when fishing occurs can drastically affect CPUE due to differences in weather and sea state between summer and winter. Size composition data from the commercial catch are affected by choice of fishing locations and gear selectivity and hence may not be representative of the true size composition of any scallop population.

Concerns such as these led ADF&G to begin exploring underwater video techniques for scallop stock assessment in 2000. A new camera sled system recently constructed records high resolution images of the bottom on computer hard drives while towing 3–5 knots (Rosenkranz et al., *in review*). ADF&G is currently working on a comparative study of imaging and sample dredge survey data, imaging survey methodology, computerized image data review (cooperative project with HabCam from Wood's Hole Oceanographic Institution), manual image data review, and ways to incorporate image data into fishery management. Age- or size-structured models that combine image survey data with observer data will likely be developed as research using this new tool progresses.

2.2 Fishery

Scallop vessels in the Alaska fishery are 58–124 feet length overall, with maximum 1,200 horsepower. Standard New Bedford style scallop dredges are used in the fishery. On average, a 15-foot dredge weighs a minimum of 2,600 pounds and a 6-foot dredge weighs about 900 pounds. The frame design provides a rigid, fixed dredge opening. Attached to and directly behind the frame is a steel ring bag consisting of 4-inch (inside diameter) rings connected with steel links; 4 inch or larger rings are required by state law. A sweep chain footrope is attached to the bottom of the mesh bag. The top of the bag consists of 6-inch stretched mesh polypropylene netting which helps hold the bag open while the dredge is towed along the ocean floor. A club

stick attached to the end of the bag helps maintain the shape of the bag and provides for an attachment point to dump the dredge contents on deck. Steel dredge shoes that are welded onto the lower corners of the frame bear most of the dredge's weight and act as runners, permitting the dredge to move easily along the substrate. Each dredge is attached to the boat by a single steel wire cable operated from a deck winch.

Scallop fishing operations involve the following steps: (a) dredge deployment; (b) dredge towed for 50 to 60 minutes on the bottom at an average speed of 4.7 knots; (c) dredge retrieved; (d) dredge contents emptied on deck; (e) retained scallops sorted from the catch and bycatch discarded overboard; (f) baskets of retained scallops moved from the deck to the shucking area; (g) gear prepared for the next set; (h) gear deployed; and (i) shuck, wash, grade, package and freeze scallop meats. The scallop meat is the single adductor muscle that is removed from the scallop by crew members using specialized hand-held scallop knives. Scallop meats represent approximately 8-12% of the round weight depending on area and season (Barnhart and Rosenkranz 2003). Scallop meats are graded by size and sold primarily to domestic seafood markets, with a smaller amount going to foreign markets (Kruse et al. 2005).

2.3 Observer Program

The primary purposes of the onboard scallop observer program are to collect biological and fishery data and to monitor bycatch. ADF&G requires observers on all trips of all vessels fishing scallops outside Cook Inlet in both state and federal waters. Observers are briefed and debriefed by ADF&G staff in each management area where fishing occurs prior to and after deployment.

Dredge hauls are sampled to collect data on retained scallop catch, crab and halibut bycatch, scallop discards, and catch composition. Detailed logbooks completed by vessel operators are checked by observers and submitted to ADF&G along with other observer data forms. Observers send summary reports to ADF&G fishery managers thrice weekly or more frequently during the season by radio or email. Data are entered, stored, and maintained by ADF&G staff in Kodiak. Observer data are used for inseason management and in setting seasonal GHLs. Scallop observer data are released to the public in reports prepared by ADF&G (e.g., Barnhart and Rosenkranz 2003).

Onboard observer coverage is funded by industry through direct payments to independent contracting agents. Scallop observers are trained at the University of Alaska North Pacific Fisheries Observer Training Center in Anchorage. Observer training manuals (e.g., Banhart 2003) are prepared by ADF&G staff.

Observer cost for vessels limited to a single 6-ft dredge in federal waters was addressed in Amendment 10, section 6.8 of the Scallop FMP. The Council determined that given existing observer requirements and their associated costs, the single 6-ft dredge restriction created a disproportionate economic hardship when fishing in federal waters (NPFMC 2004). Amendment 10 allows two vessels to fish with two 10-ft dredges to capture a larger share of the total catch, thus allowing them to offset observer costs and perhaps enhance their economic viability.

2.4 Crab Bycatch Limits

Bycatch of crabs in the scallop fishery is controlled through the use of Crab Bycatch Limits (CBLs) based on individual crab stock abundance. CBLs were first instituted by the state in July 1993. Methods used to determine CBLs in 1993 and 1994 were approved by the BOF and the NPFMC and, with few exceptions, remain unchanged. Annual CBLs are established preseason by ADF&G based on the most current crab resource abundance information. However, in some registration areas or districts, the CBL is a fixed number of crabs and is not adjusted seasonally.

In the Kodiak, Alaska Peninsula, and Dutch Harbor Registration Areas, the CBLs are set at 0.5% or 1.0% of the total crab stock abundance estimate based on the most recent survey data (Table 2). In registration areas or districts where red king crab or Tanner crab abundance is sufficient to support a commercial crab fishery, the cap is set at 1.0% of the most recent red king crab or Tanner crab abundance estimate. In registration areas or districts where the red king crab or Tanner crab abundance is insufficient to support a commercial fishery, the CBL is set at 0.5% of the most recent red king crab or Tanner crab abundance estimate. Bycatch caps are expressed in numbers of crabs and include all sizes of crabs caught in the scallop fishery.

In the Kamishak District of the Cook Inlet Registration Area, the Tanner crab bycatch limit is set at 0.5% of the total crab stock abundance and the red king crab limit is fixed at 60 crabs. In 2001, ADF&G set Tanner crab bycatch caps in the Prince William Sound Registration Area at 0.5% of the Tanner crab population estimate from the 2000 scallop survey. This resulted in bycatch limits of 2,700 and 8,700 for the east and west harvest areas. These levels have remained in place for all subsequent years.

CBLs in the Bering Sea (registration Area Q) have evolved from fixed numbers in 1993 to a three tier approach used in the current fishery. In 1993, Bering Sea CBLs were set by ADF&G to allow the fleet adequate opportunity to explore and harvest scallop stocks while protecting the crab resource. CBLs were established at 260,000 *Chionoecetes* spp. and 17,000 red king crabs. In 1995, ADF&G recommended that CBLs be established at 0.003176 percent of the best available estimate of *C. opilio* (snow crab) and 0.13542 percent of the best available estimate of Tanner crab abundance in Registration Area Q. That equated to about 300,000 snow and 260,000 Tanner crabs based on 1994 crab abundance estimates in Registration area Q. In Amendment 1 of the federal scallop FMP, the NPFMC approved the CBLs established by ADF&G. The NPFMC also recommended that king crab bycatch limits be set within a range of 500 to 3,000 annually. Beginning with the 1996/97 fishing season ADF&G took a conservative approach and set the red king crab limit in Registration Area Q at 500 red king crabs annually.

From the 1996/97 through 1998/99 fishing seasons the CBL for *Chionoecetes* sp. in the Bering Sea was established annually by applying the percentages established for snow and Tanner crab limits in Amendment 1 of the FMP. In 1998, consistent with the Tanner crab rebuilding plan in the Bering Sea, crab bycatch limits were modified.

The current three-tier approach was established utilizing the bycatch limits established in Amendment 1 of the FMP, 300,000 snow crab and 260,000 Tanner crab. The three tiers include (1) Tanner crab spawning biomass above minimum stock size threshold (MSST); bycatch limit is set at 260,000 crabs, (2) Tanner crab spawning biomass below MSST; bycatch limit is set at 130,000 crabs, and (3) Tanner crab spawning biomass is below MSST and the commercial fishing season is closed; Tanner crab limit is set at 65,000 crabs. A similar three tier approach was taken with the snow crab bycatch caps. The three tiers include (1) snow crab spawning biomass above the MSST; bycatch limit is set at 300,000 crabs, (2) snow crab spawning biomass below MSST; bycatch limit is set at 150,000 crabs, and (3) snow crab spawning biomass below MSST and the commercial fishing season is closed; the snow crab limit is set at 75,000 crabs.

Table 2 Statewide crab bycatch limits, in percent of the crab abundance estimate or number of crab.

Scallop Registration Areas	Red King Crab	<i>C. bairdi</i>	<i>C. opilio</i>
Yakutat (D)			
District 16	NA	NA	NA
Remainder of Area D	NA	NA	NA
Prince William Sound (E)			
Eastern Section of outside District	NA	0.5% ^a	NA
Cook Inlet (H)			
Kamishak District	0.5% ^a	60 crabs ^a	NA
Outer/Easter/Barren Island Districts	NA	NA	NA
Kodiak (K)			
Shelikof District	0.5% or 1.0%	0.5% or 1.0%	NA
Northeast District	0.5% or 1.0%	0.5% or 1.0%	NA
Semidi District	Regulated inseason	Regulated inseason	NA
Alaska Peninsula (M)	0.5% or 1.0%	0.5% or 1.0%	NA
Bering Sea (Q)	500 crabs ^a	Three Tier Approach	Three Tier Approach
Dutch Harbor (O)	0.5% or 1.0%	0.5% or 1.0%	NA
Adak (R)	50 ^b	10,000 ^b	NA

NA= Not applicable

^aFixed CBL

^bBycatch limit set to allow scallop fleet adequate opportunity to explore and harvest scallop stocks while protecting the crab resource.

Bycatch of snow crab, Bairdi Tanner crab and Bristol Bay red king crab by scallop fisheries in comparison with groundfish and directed crab fisheries are shown in Tables 3–5. Bycatch of snow, king, and Tanner crabs in the Bering Sea scallop fishery is much lower than in other Bering Sea fisheries. Scallop fishery closures due to attainment of CBLs have decreased over the years, in part due to decreased crab abundance (Barnhart and Rosenkranz 2003). ADF&G closely monitors bycatch rates during scallop seasons and has used a rate of one crab per pound of scallop meats as a benchmark since 1993. Bycatch may affect harvest and CPUE in the Bering Sea scallop fishery as vessel operators move or cease fishing when bycatch rates meet or exceed this benchmark.

Table 3 Bycatch of *C. opilio* crabs (numbers of crab) in Bering Sea fisheries, 1995-2006.

Year	Directed crab pot	Groundfish Trawl	Groundfish fixed gear	Scallop dredge	Total
1995	48,734,000	5,165,555	230,233	0	54,129,788
1996	56,570,785	3,643,612	267,395	104,836	60,586,628
1997	75,005,446	5,276,208	554,103	195,345	81,031,102
1998	51,591,453	4,122,648	549,139	232,911	56,496,151
1999	47,093,200	1,544,747	269,778	150,421	49,058,146
2000	5,020,800	2,207,279	270,000	105,602	7,603,681
2001	6,123,100	1,293,143	215,000	68,458	7,699,701
2002	15,823,300	882,967	n/a	70,795	n/a
2003	22,140,336	615,012	86,313	16,206	22,857,867
2004	4,800,043	1,693,101	140,428	3,843	6,637,415
2005 ¹	4,966,178	3,292,520	124,171	5,211	8,388,080
2005 ²	9,141,057	-----	-----	-----	17,529,137 ³
2006/07	16,690,724	1,028,969	236,970	8,543	17,965,206

Table 4 Bycatch of Bristol Bay red king crabs (numbers of crab) in Bering Sea fisheries, 1995-2006.

Year	Directed crab pot	Groundfish Trawl	Groundfish fixed gear	Scallop dredge	Total
1995	0	44,934	3,257	0	48,191
1996	605,000	30,967	75,675	0	711,642
1997	985,000	50,711	25,579	0	1,061,290
1998	4,593,800	42,003	7,017	146	4,642,966
1999	957,800	84,709	8,968	1	1,026,178
2000	1,701,000	70,787	39,754	2	1,653,542
2001	2,419,100	58,552	19,000	0	2,496,652
2002	1,677,800	89,955	27,477	2	1,795,234
2003	5,808,200	91,937	13,531	0	5,913,668
2004	2,470,868	78,742	15,014	0	2,564,624
2005 ⁴	5,724,919	111,249	19,723	2	5,855,893
2006/07	2,003,970	101,546	14,434	10	2,119,960

1 This estimate is from the 2005 pre-rationalized opilio fishery (January 15, 2005-May 2005) and the 2005/2006 rationalized Bristol Bay red king crab seasons; does not include some bycatch during the 2005/2006 EBS snow and Tanner crab fisheries

2 This estimate is from the 2005/06 rationalized opilio fishery October 15, 2005-May 2006. Note 97% of the effort during the 15 Oct 2005 to May 2006 opilio fishery occurred after 1 January 2006

3 Total reflects sum of both 2005 and 2005/06 bycatch numbers as listed

4 From the 2005/2006 rationalized BB red king crab fishery (Oct 15 2005 to January 15 2006) but little or no catch or effort from January 1-15. This does not include any bycatch from the rationalized 2005/2006 Tanner crab fishery.

Table 5 Bycatch of *C. bairdi* crabs (numbers of crab) in Bering Sea fisheries, 1995-2006.

Year	Directed crab pot	Groundfish Trawl	Groundfish fixed gear	Scallop dredge	Total
1995	15,897,300	2,212,181	87,674	0	18,197,155
1996	4,588,000	1,836,031	279,560	17,000	6,930,591
1997	4,865,900	1,917,736	50,218	28,000	6,861,854
1998	4,293,800	1,477,816	46,552	36,000	5,854,168
1999	1,995,100	901,619	43,220	n/a	n/a
2000	491,000	1,002,074	140,453	53,614	1,539,141
2001	626,400	950,331	80,000	48,718	1,705,449
2002	1,282,600	1,086,286	98,848	48,053	2,515,787
2003	626,000	897,340	105,094	31,316	1,659,750
2004	334,593	800,794	38,592	15,303	2,849,032
20055	708,290	1,569,613	122,167	15,529	2,415,599
2006/07	10,000,443	921,267	402,377	45,204	11,369,291

2.5 Scallop License Limitation Program

Commercial weathervane scallop fishing in federal waters off Alaska is limited by a federal license limitation program (LLP), while participation in state waters (0-3 nautical miles) is limited by a vessel-based limited entry program. The LLP limits participation in the statewide scallop fishery in Federal waters to nine vessels.

The Federal Scallop License Limitation Program (LLP) became effective in 2001. The NPFMC created the scallop LLP under Amendment 4 to the FMP to limit the number of participants and reduce fishing capacity. The LLP license is required on board any vessel deployed in the weathervane scallop fishery in federal waters off Alaska. NMFS granted 7 vessel owners licenses to fish statewide outside Cook Inlet. Originally, NMFS granted two vessel owners licenses to fish statewide utilizing a single 6-foot dredge. In August, 2005, NMFS implemented Amendment 10 to the FMP, which modified the gear restriction to allow these two licenses to be used on vessels with up to two 10-foot dredges statewide. All 9 licenses allow vessel owners to fish inside Cook Inlet with a single 6-foot dredge. Vessel length is limited to that of the qualifying period.

All vessels fishing inside the Cook Inlet Registration Area are limited by state regulation to a single dredge not more than 6 feet in width. Unless otherwise restricted by the LLP, vessels fishing in the remainder of the state may simultaneously operate a maximum of 2 dredges that are 15 feet or less in width.

In 1997, the Alaska legislature approved legislation (AS 16.43.906) establishing a scallop vessel moratorium in state waters. In 2001, the legislature authorized a 3-year extension of the moratorium set to expire July 1, 2004. During the 2002 legislative session, passage of CSHB206 resulted in significant changes to the state's limited entry statutes. The changes authorized use of a vessel-based limited entry program in the weathervane scallop and hair crab fisheries. However, the program has a sunset provision. The vessel entry permits issued for the statewide weathervane scallop fishery will expire on December 30, 2008 unless statutory authority is extended. Eight vessel owners received permits to fish for weathervane scallops in state waters.

5 This is from the pre-rationalized opilio fishery and the rationalized 2005/2006 BB red king crab fishery. This does not include bycatch during 2005 from the 2005/2006 EBS snow crab or directed Tanner crab fishery.

Two vessels with multiple LLP permits as well as state vessel-based limited entry permits have harvested most of the scallop catch outside Cook Inlet over the past several seasons. Three vessels 80 feet or less LOA typically participate in the Cook Inlet Registration Area fishery. Occasionally, one or more of these vessels participate in the scallop fishery outside of Cook Inlet.

More information on the scallop LLP can be found on the NMFS Alaska Region web page at <http://www.fakr.noaa.gov/ram/smp.htm>.

2.6 Voluntary Scallop Cooperative

In May 2000, six of the nine LLP owners formed the North Pacific Scallop Cooperative under authority of the Fishermen's Cooperative Marketing Act, 48 Stat. 1213 (1934), 15 U.S.C. Sec. 521. The cooperative is self-regulated and is neither endorsed nor managed by ADF&G or NMFS. The cooperative regulates individual vessel allocations within the GHR and crab bycatch caps under the terms of their cooperative contract. Non-coop vessels are not bound by any contract provisions. The cooperative does not receive an exclusive allocation of the scallop harvest. Some owners opted to remove their boats from the fishery and arranged for their shares to be caught by other members of the cooperative. Since formation of the cooperative, harvest rates have slowed and fishing effort occurs over a longer time period each season

Vessel owners within the cooperative have taken an active role in reducing crab bycatch. Vessel operators provide confidential in-season fishing information to an independent consulting company contracted by the cooperative. This firm reviews crab bycatch data, fishing locations, and scallop harvest, which allows for real time identification of high crab bycatch areas. When these areas are identified, the fleet is provided with the information and directed to avoid the area.

More information on the voluntary scallop cooperative can be found in the EA/RIR/IRFA for Amendment 10 to the Scallop FMP available on the Council website at: <http://www.fakr.noaa.gov/npfmc/analyses/analyses.htm>

2.7 Overfishing Definition

Overfishing is a level of fishing mortality that jeopardizes the long-term capacity of a stock or stock complex to produce MSY on a continuing basis. MSY is defined as the largest long-term average catch that can be taken from a stock under prevailing ecological and environmental conditions. Amendment 6 to the scallop FMP established MSY for weathervane scallops at 1.24 million lbs of shucked meats based on the average catch from 1990-1997 excluding 1995. Optimum Yield (OY) was defined as 0-1.24 million lbs, and the overfishing control rule was defined as a fishing rate in excess of the natural mortality rate, which has been estimated as $F_{\text{overfishing}} = M = 0.13$ (12% per year) statewide. At this time, abundance is estimated for only two of the nine registration areas and a determination of MSST cannot be made. The fishery is managed conservatively with harvest levels well below MSY. Figure 3 shows statewide scallop catch and MSY levels both prior to amendment 6 and following inception of the new MSY level in 1996. Since 1996, catches have averaged between 39% to 66% of MSY (Table 6, Figure 3,). Control rules for other Alaskan scallop species have not been developed as no commercial harvests occurs.

Table 6 Alaska weathervane scallop harvest and Maximum Sustainable Yield from FMP, 1993/94–2006/07 seasons.

Season	Harvest		
	(lbs meat)	MSY	% MSY
1993/94	984,583	1,800,000	55
1994/95	1,240,775	1,800,000	69
1995/96	410,743	1,800,000	23
1996/97	732,424	1,800,000	41
1997/98	818,913	1,800,000	45
1998/99	822,096	1,240,000	66
1999/2000	837,971	1,240,000	68
2000/01	750,617	1,240,000	61
2001/02	572,838	1,240,000	46
2002/03	509,455	1,240,000	41
2003/04	492,000	1,240,000	40
2004/05	425,477	1,240,000	34
2005/06	525,357	1,240,000	42
2006/07	485,561	1,240,000	39

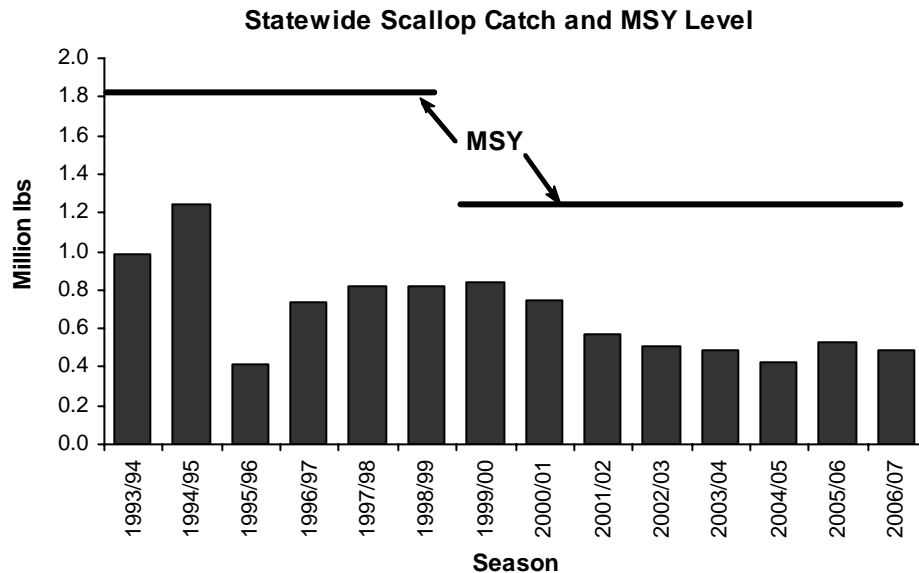


Figure 3 Statewide scallop harvest (pounds shucked scallop meats) and MSY levels from the FMP.

3 Stock Status

The following sections provide summaries of recent scallop fishery performance overall for the statewide stock and individually for each registration area.

3.1 Summary of statewide stock status

ADF&G Central Region staff conducts biennial dredge surveys in the Kamishak District of the Cook Inlet Registration Area and near Kayak Island in the Prince William Sound Registration Area. Harvest limits (GHLs) in these areas are set based on survey data. For registration areas without surveys, the fishery is managed conservatively based on data sets collected by the on-board scallop observer program. Appendix 1 contains the summary of observer data from the 2003/04 through 2004/05 scallop fisheries (Appendix 1, Barnhart and Rosenkranz 2007). These data consist of scallop harvest and fishing effort, including catch per unit effort (CPUE), fishing locations, size structure of the catch, discarded scallop catch, retained scallop catch, scallop meat weight recovery, and crab bycatch. Spatially explicit observer data that cannot be displayed in the SAFE report due to State of Alaska confidentiality regulations are examined in detail by ADF&G staff each year when GHLs are set. The observer program also provides management personnel with in-season summary reports. A fishing area may be closed prior to attainment of the upper end of the GHR due to concerns about localized depletion, overall trends in CPUE, or high crab bycatch.

ADF&G research personnel in Kodiak have developed methodology for fishery-independent video surveys of scallop stocks in the highest-producing beds and expect to survey the Yakutat area in spring of 2006. While camera sled image data have been collected in several management areas, to date, these data have not been used in fishery management. The video survey method is also being compared to the dredge survey conducted by Central Region staff. An experimental survey design was developed by Central Region research staff to provide a comparison between the systematic dredge survey, a systematic video survey and a line transect video survey. This comparison is essential for enabling Central Region to move forward in an attempt to replace the dredge survey with a video survey. It is also laying the groundwork for assessing all scallop beds in the state via fishery independent surveys using the video sled. Even if the video assessment method is adopted by Central Region for scallop assessment, Central Region staff still plan to conduct some dredging in order to maintain knowledge of the age structure of the population, which is critical for using an age structured model. It is also important to maintain knowledge of meat weights from Central Region scallop beds.

As described in section 2.7, overall statewide harvest levels remain well below MSY for the statewide stock. Harvests by region are constrained by individual GHLs. Areas where either the entire GHL was taken or catches were approximately equal to the GHL in the 2006/07 season include: Yakutat (Area D), Prince William Sound (Area E), Kodiak-Shelikof district and the Bering Sea (Area Q). Regions where the catch was below the GHL are Yakutat District 16, Cook Inlet, and Kodiak-Northeast District. Areas where limited or no effort occurred (despite the areas being available for fishing) are: Kodiak-Semidi District, Alaska Peninsula and Adak. The Dutch Harbor registration area (Area O) remains closed to scallop fishing.

Catch and survey information (where available) for each region are summarized in the sections below.

3.2 Yakutat Registration Area

By state regulation, total harvest in Yakutat Area D and District 16 is limited to 250,000 lbs scallop meats per season. Prior to the 2006/07 season, GHLS were set at 0–150,000 lbs for Area D and 0–21,000 lbs for District 16 (Tables 7–8).

Two co-op vessels participated in the 2006/07 fishery and harvested 151,223 lbs scallop meats from Area D and 13,500 lbs scallop meats from District 16. Fishery data from recent seasons are presented in Tables 7–8 and Figures 3–5. Reports from the scallop industry indicated that Yakutat scallop meat quality was better in 2006/07 than in recent seasons, when poor recovery rates, off-color meats, and ‘weak meats’ were problematic in parts of the Yakutat fishing area.

Table 7 Yakutat Area D scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993	7 ^b	250,000	1,999	139,057	70
1994	10 ^b	250,000	4,130	246,862	60
1995	8 ^c	250,000	4,730	237,417	50
1996	4	250,000	4,438	238,736	54
1997	4	250,000	3,956	243,810	62
1998/99	8	250,000	4,154	242,929	58
1999/00	3	250,000	3,840	249,681	65
2000/01	3	250,000	4,241	195,699	46
2001/02	2	200,000	2,406	103,800	43
2002/03	2	200,000	2,439	122,718	50
2003/04	2	200,000	3,360	160,918	48
2004/05	2	200,000	2,132	86,950	41
2005/06	2	200,000	5,089	199,351	39
2006/07	2	150,000	2,817	150,950	53

^aConfidential data released by vessel operators.

^bOne additional vessel fished by waiver without an observer; data not included.

^cTwo additional vessels fished by waiver without observers; data not included.

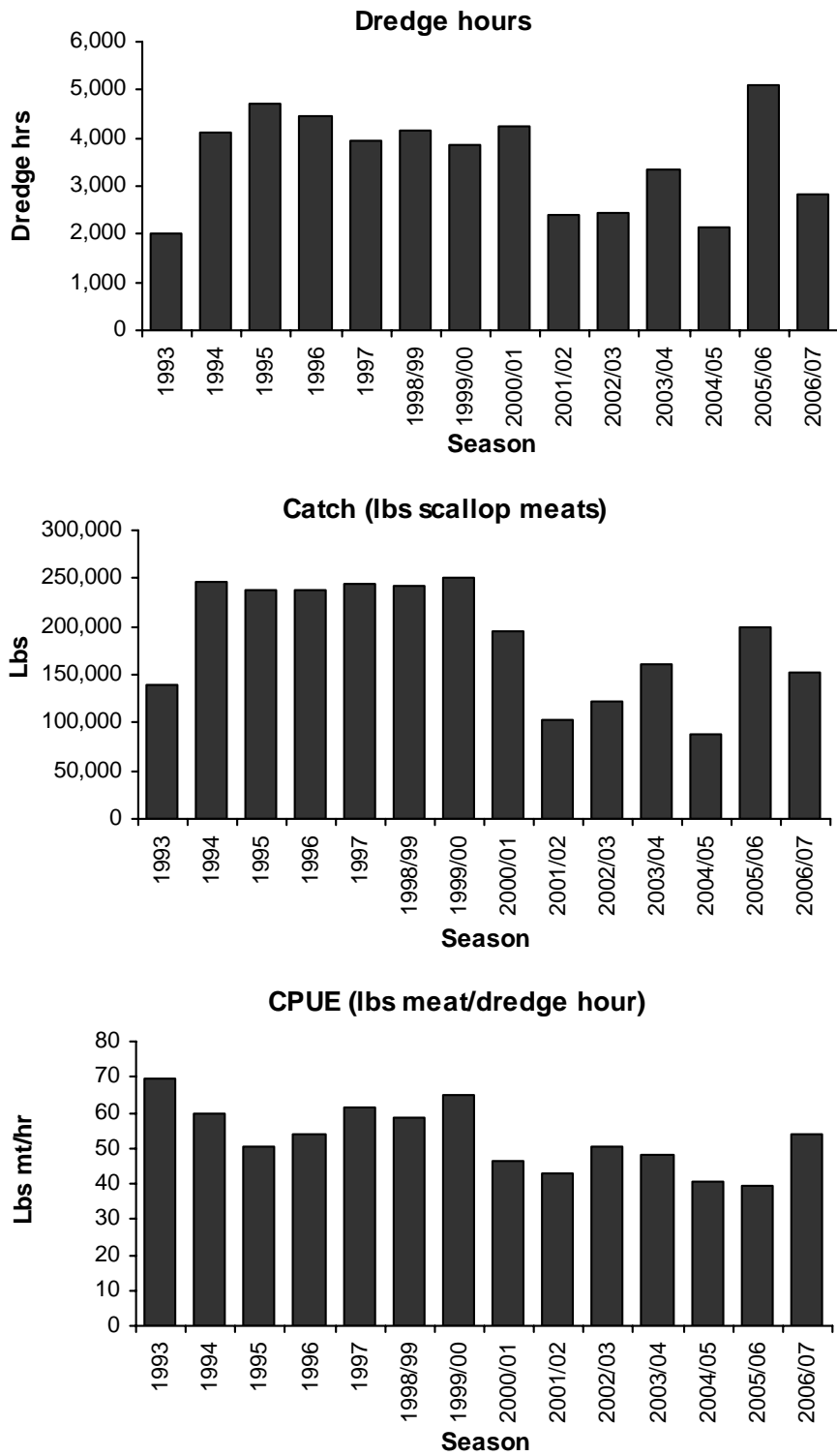


Figure 4 Barplots of Yakutat Area D scallop fishery statistics.

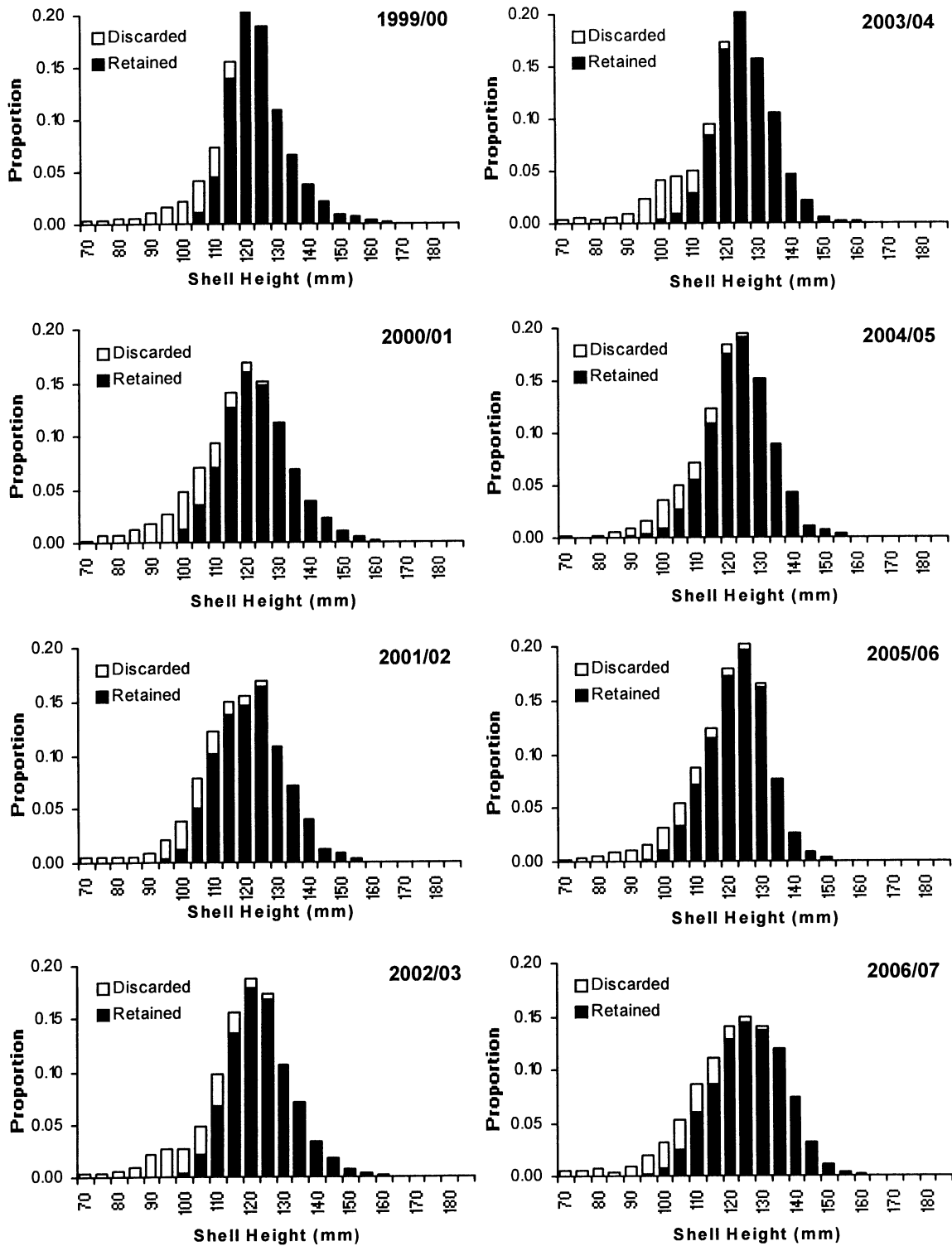


Figure 5 Shell height histograms from resampling Yakutat Area D observer data, 1998/99–2006/07 seasons.

Table 8 Yakutat District 16 scallop fishery summary statistics.

Season	Number vessels	GHL ceiling (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993	1	35,000		confidential	
1994	7 ^b	35,000	408	22,226	54
1995	6 ^b	35,000	1,095	33,302	30
1996	2	35,000	917	34,060	37
1997	4	35,000	561	22,020	39
1998/99	2	35,000	702	34,153	49
1999/00	2	35,000	674	34,624	51
2000/01	3	35,000	476	30,904	65
2001/02	2	35,000	417	20,398	49
2002/03	2	35,000	100	3,685	37
2003/04	2	35,000	18	1,072	59
2004/05	2	35,000	419	24,430	58
2005/06	2	35,000	407	13,650	34
2006/07	2	21,000	309	13,445	44

^aConfidential data released by vessel operators.

^bOne additional vessel fished by waiver without an observer; data not included.

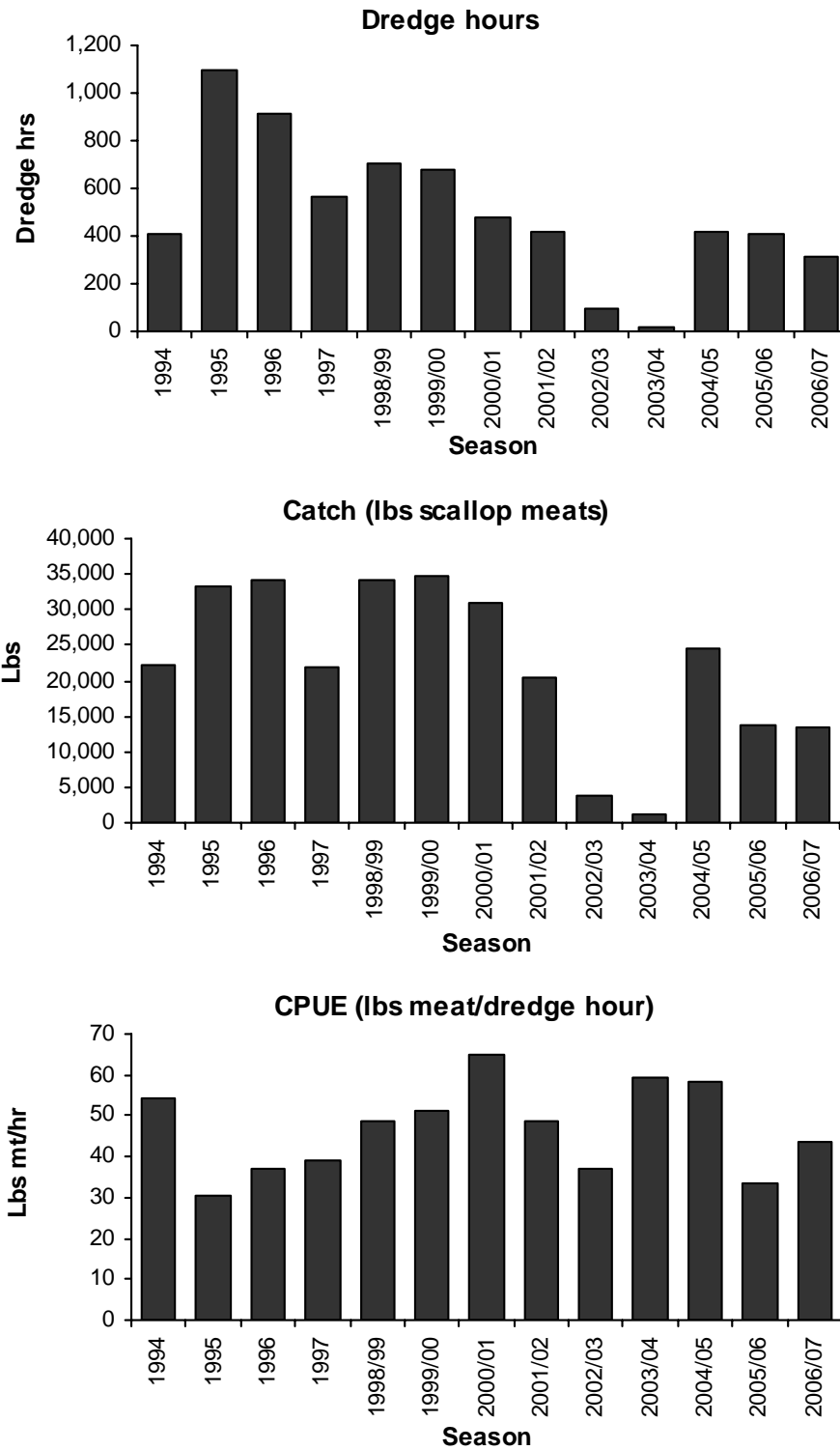


Figure 6 Barplots of Yakutat District 16 scallop fishery statistics.

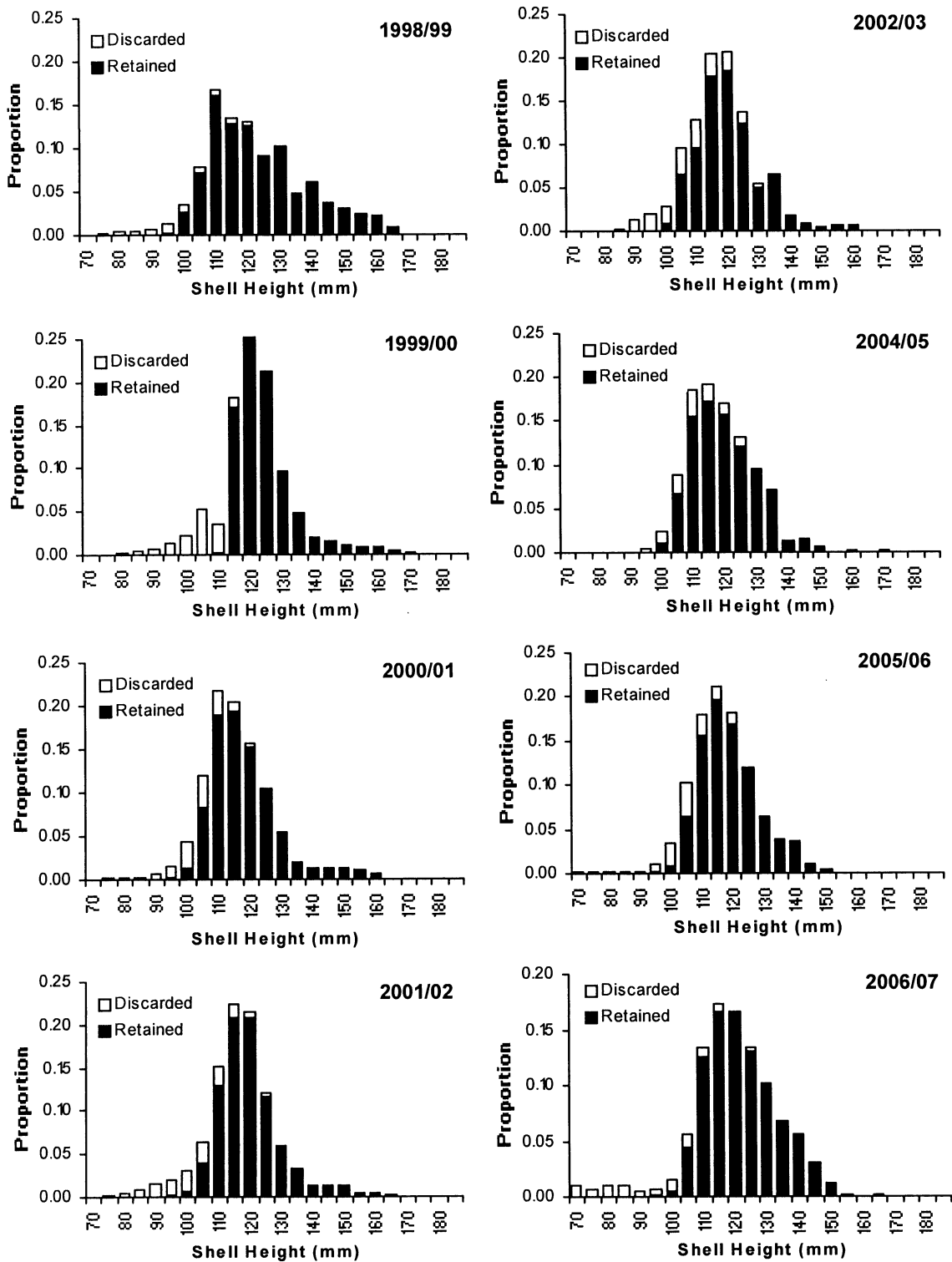


Figure 7 Shell height histograms from resampling Yakutat District 16 observer data, 1998–2006/07 seasons. Insufficient data were collected to produce a plot for the 2003/04 season.

3.3 Prince William Sound Registration Area

Scallop dredge surveys have been conducted biennially in the Prince William Sound Registration Area (Area E) near Kayak Island (Figure 1 and Figure 2) since 1996. Survey catches have varied considerably (Table 9), The 2006 survey produced a meat weight biomass estimate of 657,683 lbs (Table 9). The most recent published survey report (Bechtol 2003) contains information on survey methodology as well as catch rates and size and age structure of the stock from previous surveys. The survey area will be standardized for the upcoming 2008 survey, and a dredge video comparison will be conducted. Area E GHs are established by ADF&G Central Region staff based on survey data.

Two catcher processors participated in the 2005/06 Area E fishery and harvested approximately 49,000 lbs of scallop meats (Table 10). Area E CPUE was 100 lbs meat/dredge hr for the 2005/06 season (Table 10, Figure 8), an increase over the two previous seasons. Area E CPUE remains the highest in the state.

Illegal fishing in the area by a single vessel outside the jurisdiction of the state of Alaska occurred in 1995 and led to a statewide scallop fishing closure in federal waters. While catch data are available for the illegal fishing incident, data on effort are not (Table 10).

Plots of Prince William Sound SH distributions from the commercial fishery (Figure 9) show a cohort of small scallops that began to appear in catches during the 2003/04 season and indications of future recruitment in 2005/06.

Table 9 Kayak Island dredge survey summary.

East Bed							
Survey Year	Number stations sampled	Area Swept by dredge (km²)	Total Area surveyed (km²)	Total scallops caught	Scallop Density (scal/10m²)	Average weight (g/scal)	Estimated biomass (lbs meat)
1996	43	0.194	281	5,049	2.68	228	298,093
1998	21	0.095	144	2,278	2.47	251	145,928
2000	25	0.113	171	5,104	4.66	238	298,822
2002	9	0.041	62	668	1.69	254	40,678
2004	26	0.117	178	9,097	7.98	261	521,921
2006	23	0.104	171	5,020	4.98	279	367,265
West Bed							
1998	13	0.059	89	2,844	4.99	246	178,472
2000	16	0.072	110	9,577	13.65	196	460,488
2002	13	0.059	89	2,784	4.88	242	161,752
2004	15	0.068	110	9,257	14.07	228	419,632
2006	13	0.059	96	5,290	9.28	227	290,418

Table 10 Prince William Sound Area E scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours^a	Catch^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993	7	50,000	638	63,068	99
1994		Closed			
1995	3	50,000		108,000 ^b	
1996		Closed			
1997	1	17,200	171	18,000	105
1998/99	2	20,000	179	19,650	110
1999/00	2	20,000	149	20,410	137
2000/01	3	30,000	221	30,266	137
2001/02	1	30,000	263	30,090	114
2002/03	2	20,000	122	15,641	121
2003/04	1	20,000	216	19,980	93
2004/05	2	50,000	614	49,320	80
2005/06	3	50,000	491	49,205	100
2006/07	2	37,000	334	36,990	111

^aConfidential data released by vessel operators.

^bPoundage includes illegal fishing by one vessel; effort data not available.

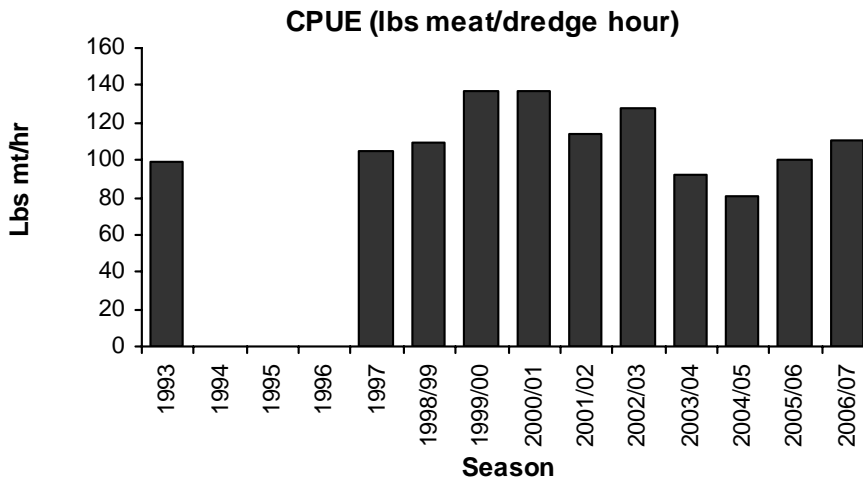
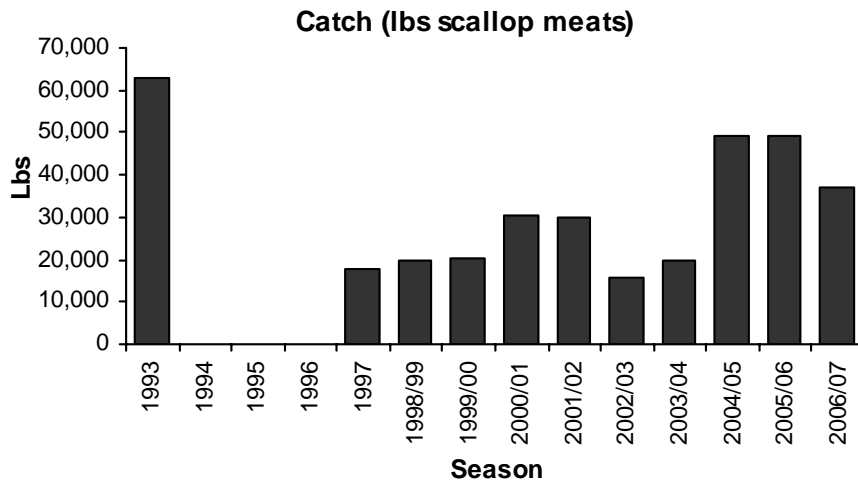
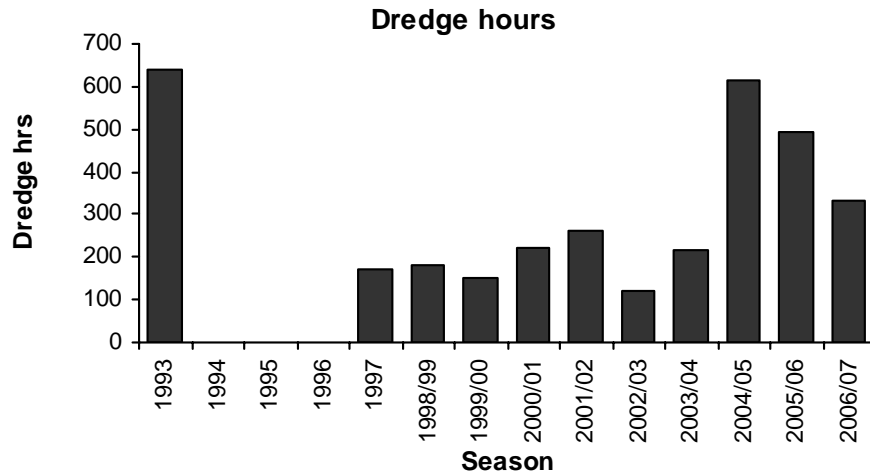


Figure 8 Barplots of Area E scallop fishery statistics.

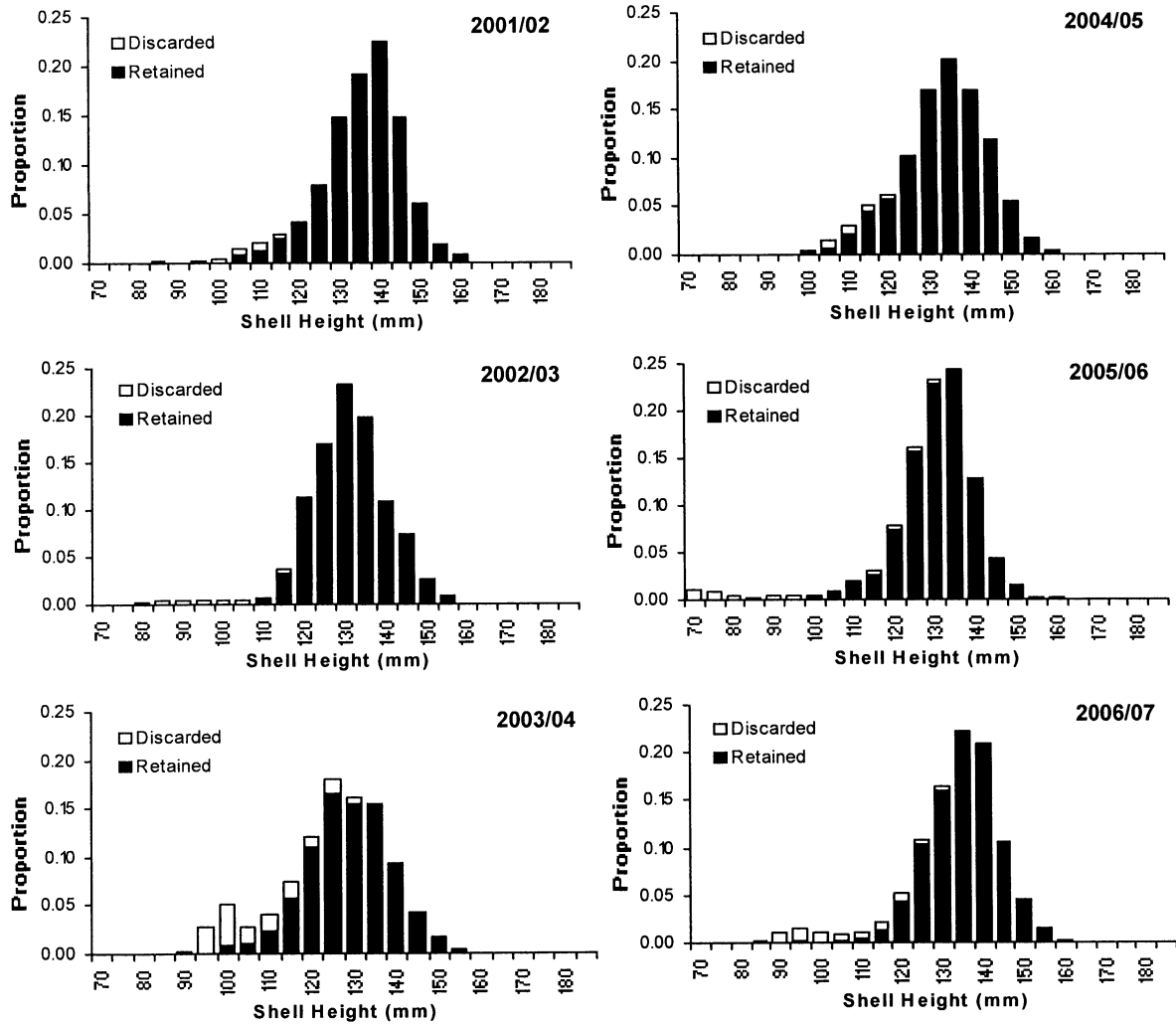


Figure 9 Shell height histograms from resampling Area E observer data, 2000/01–2006/07. Insufficient data were available to produce plots for earlier seasons.

3.4 Cook Inlet Registration Area, Kamishak District

The Cook Inlet scallop fishery is prosecuted in the Kamishak District by vessels that are limited to one 6-foot dredge. The third-party contract observer requirement is waived by the ADF&G fishery manager provided that participants accommodate an ADF&G observer when requested. Other areas of Cook Inlet were explored briefly by fishermen, and beginning in 2003 a smaller scallop bed adjacent to the main scallop bed began to be surveyed and commercially fished. Much of Cook Inlet, including all of Upper Cook Inlet and the Southern District, is closed to scallop dredging (Figure 2).

ADF&G conducted a dredge survey of the Kamishak District scallop population in 1984; however, it was not until 1996 that biennial surveys began. Biomass estimates from these surveys (Table 11) have been relatively stable until a die-off occurred in the main scallop bed in 2002. Information on survey methodology, catch rates and size and age structure of the stock from earlier surveys are available in published reports (e.g., Bechtol and Gustafson 2002). In 2006, the survey area was standardized and work was begun to compare the dredge survey to a video survey (see main stock status section above).

The GHR specified by state regulation for the Kamishak District is 10,000 to 20,000 pounds of shucked meats. During the 2004/05 season, 3 vessels participated in the fishery harvesting 6,117 lbs of scallop meats (Table 12). Since the adoption of the LLP program participation has ranged from one to three vessels (Table 12, Figure 10). Catch per unit effort in the fishery increased steadily from 1993 to 2000, but was heavily affected by the 2002 die-off.

Table 11 Kamishak Dredge Survey Summary.

North Bed							
Survey	Number	Area Swept	Total Area	Total scallop	Scallop	Average	Estimated
Year	stations sampled	by dredge (km ²)	surveyed (km ²)	s caught	Density (scal/10m ²)	weight (g/scal)	biomass (lbs meat)
1984	47	0.206	192	3,664	1.78	361	209,305
1996	26	0.114	178	6,064	5.32	270	467,500
1998	14	0.061	199	2,531	4.12	352	438,290
1999	28	0.123	192	7,306	5.95	382	611,175
2001	25	0.110	178	5,297	4.83	435	510,701
2003	20	0.088	137	1,755	2.00	448	178,407
2005	23	0.101	158	1,802	1.79	448	185,291
South Bed							
2003	22	0.096	151	4,873	5.05	336	371,972
2005	13	0.057	89	1,360	2.39	302	94,524

Table 12 Cook Inlet, Kamishak District scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993	3		529	20,115	38
1994	4		454	20,431	45
1995		closed			
1996	5		534	28,228	53
1997	3	20,000	394	20,336	52
1998	1	20,000	390	confidential	
1999	3	20,000	333	20,315	61
2000	3	20,000	276	20,516	74
2001	2	20,000	406	confidential	
2002	3	20,000	311	8,591	28
2003	2	20,000	862	confidential	
2004	3	20,000	364	6,117	17
2005	2	7,000	199	confidential	
2006	1	7,000	10	confidential	

^aIncludes estimated dead loss.

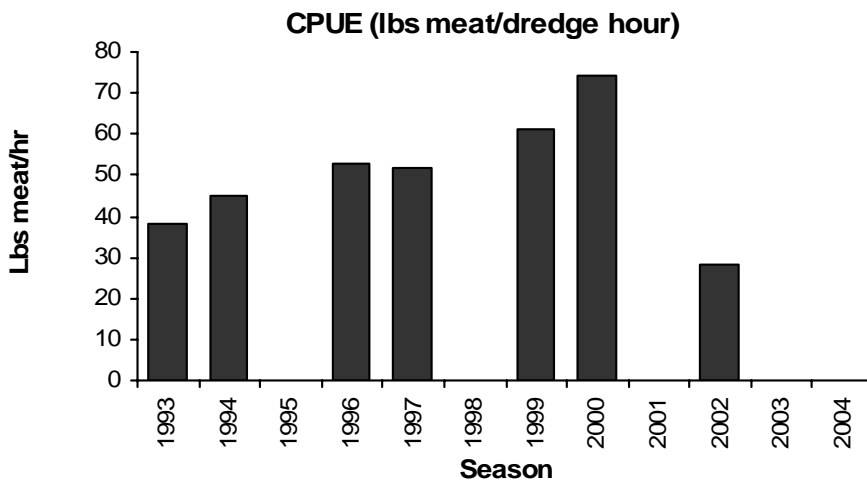
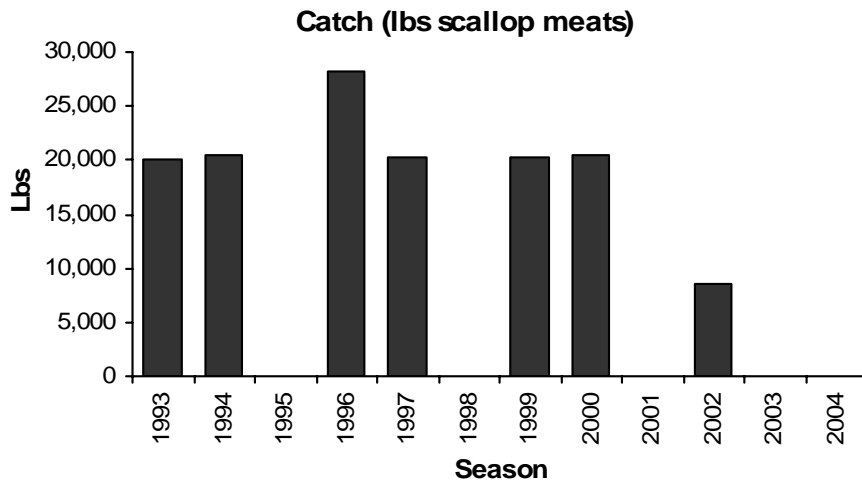
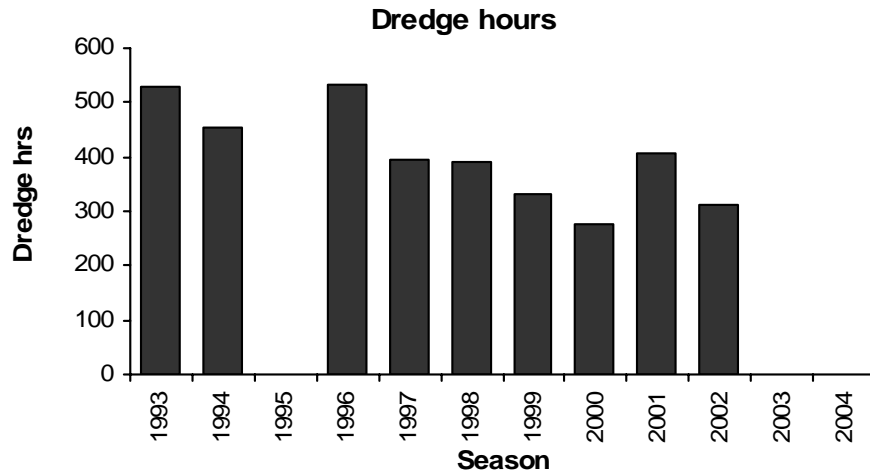


Figure 10 Barplots of Area H scallop fishery statistics.

3.5 Kodiak Registration Area, Northeast District

Two cooperative vessels harvested 75,000 lbs of scallop meats from the Northeast District of the Kodiak Management Area during the 2006/07 season. Summary statistics from recent fishery data are presented in Table 13 and Figures 11–12.

Large portions of the district known to contain scallops are closed to scallop dredging (Figure 2). These closures were recommended by ADF&G and adopted by the Alaska BOF over 30 years ago due to concerns about red king crab bycatch and conflict with other gear types.

The weathervane scallop population in the Northeast District of the Kodiak Registration Area has never been surveyed and no abundance estimates are available.

Table 13 Kodiak Northeast District scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	10	NA	6,940	155,187	22
1994/95	7	NA	1,773	35,207	20
1995/96		closed			
1996/97	3	NA	581	11,430	20
1997/98	3	NA	2,604	95,858	37
1998/99	4	NA	2,749	120,010	44
1999/00	3	75,000	1,384	77,119	56
2000/01	4	80,000	1,101	79,965	73
2001/02	3	80,000	1,142	80,470	70
2002/03	2	80,000	1,350	80,000	59
2003/04	2	80,000	1,248	79,965	64
2004/05	2	80,000	1,227	80,105	65
2005/06	3	80,000	1,759	79,990	45
2006/07	2	90,000	1,168	75,150	64

^aConfidential data released by vessel operators.

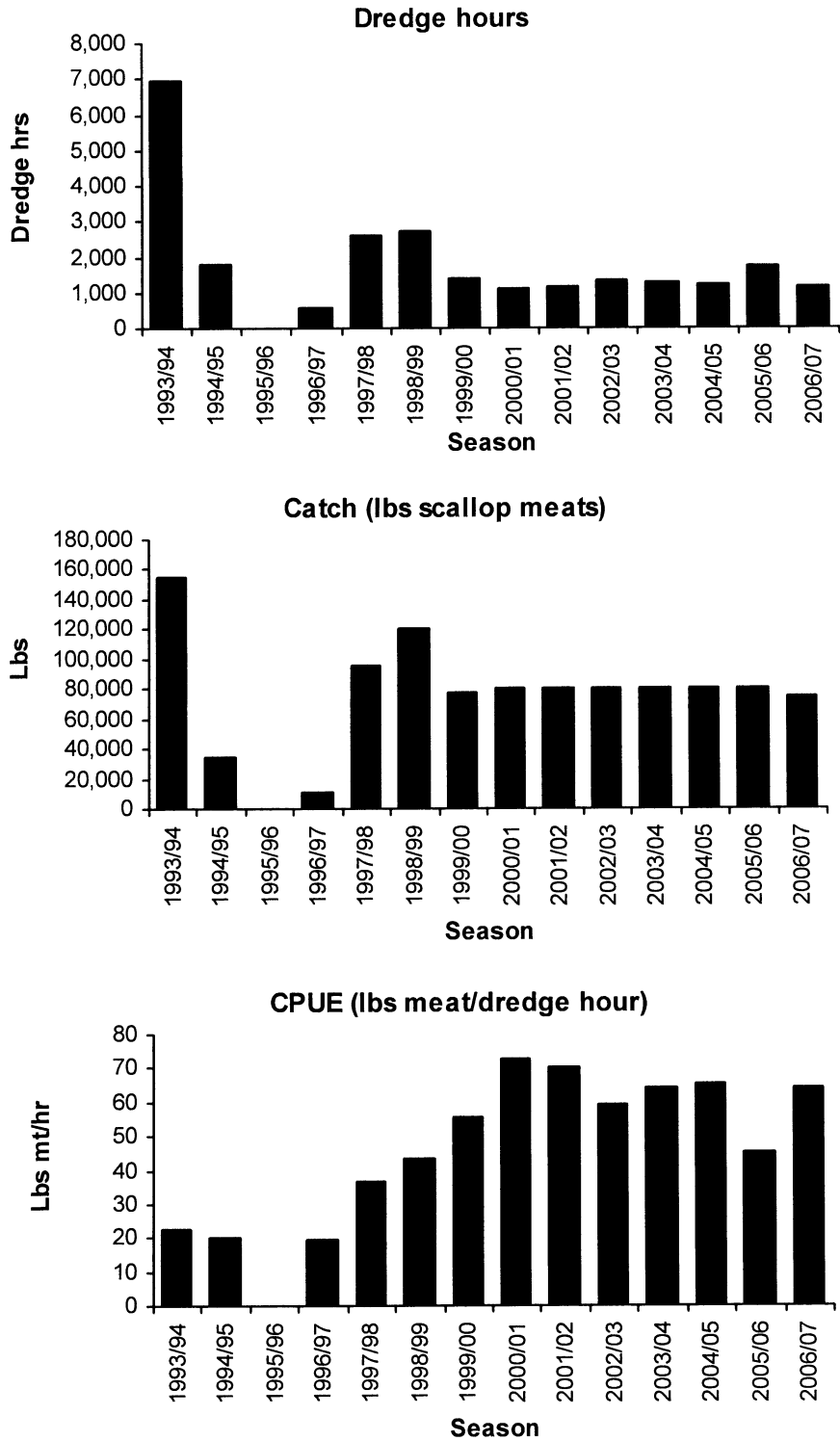


Figure 11 Barplots of Kodiak Northeast District scallop fishery statistics.

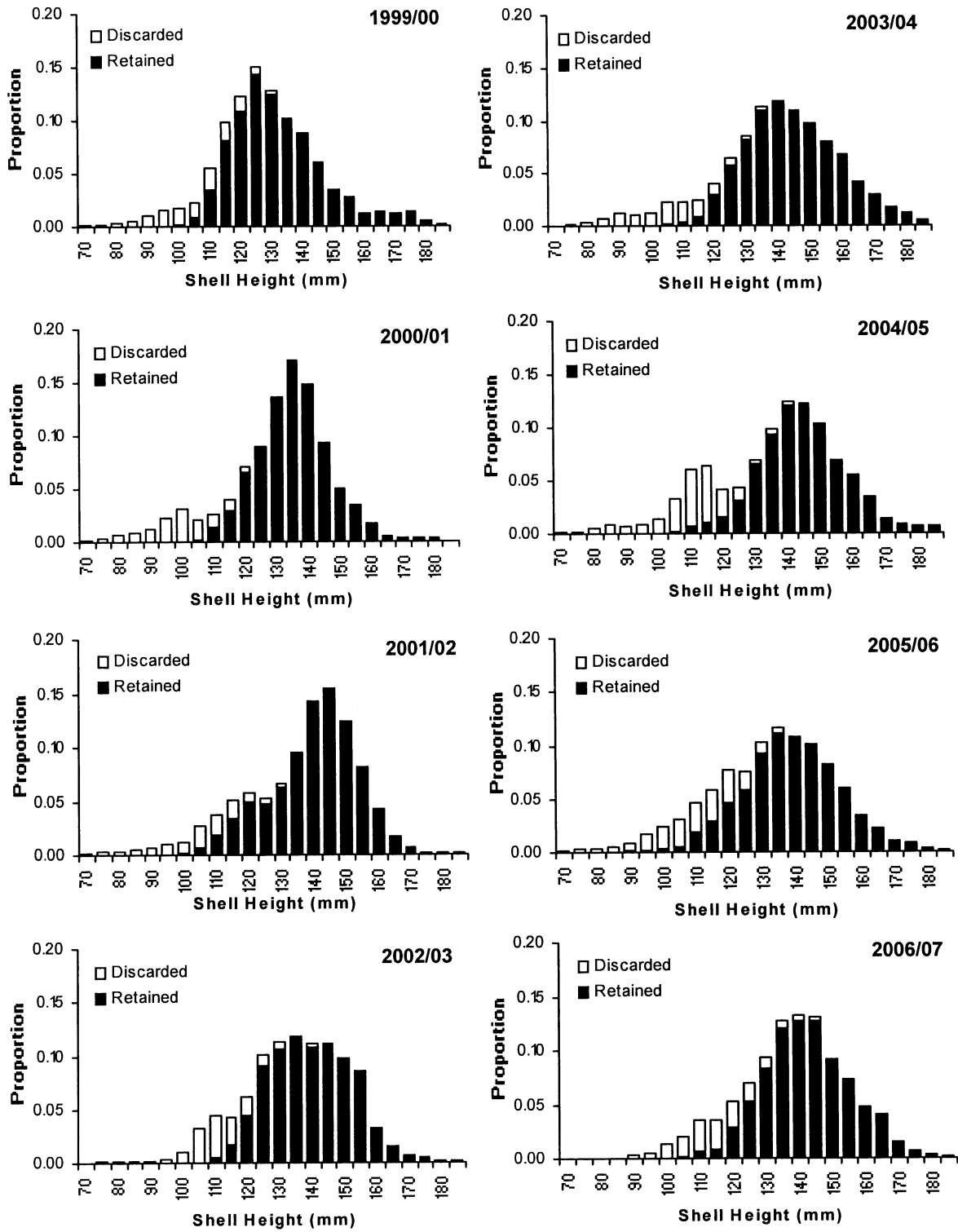


Figure 12 Shell height histograms from resampling Kodiak Northeast District scallop observer data, 1999/2000–2006/07.

3.6 Kodiak Registration Area, Shelikof District

Three vessels participated in the 2006/07 Shelikof District scallop season. Summary statistics from recent fishery data area presented in Table 14 and Figures 13–14.

To protect depressed red king crab and Tanner crab populations, the BOF closed Kodiak’s westside bays to scallop fishing in 1990; weathervane scallops are known to inhabit these closed waters (Figure 2).

Table 14 Kodiak Shelikof District scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	5	NA	2,491	105,017	42
1994/95	11	NA	8,662	314,051	36
1995/96		closed			
1996/97	3 ^b	NA	3,491	219,305	63
1997/98	4	NA	5,492	258,346	47
1998/99	8	NA	4,081	179,870	44
1999/00	6	180,000	4,304	187,963	44
2000/01	5	180,000	2,907	180,087	62
2001/02	4	180,000	3,398	177,112	52
2002/03	3	180,000	3,799	180,580	48
2003/04	2	180,000	3,258	180,011	55
2004/05	2	180,000	3,467	174,622	50
2005/06	2	160,000	2,280	159,941	70
2006/07	3	160,000	2,183	162,537	74

^aConfidential data released by vessel operators.

^bOne additional vessel fished but data were not available.

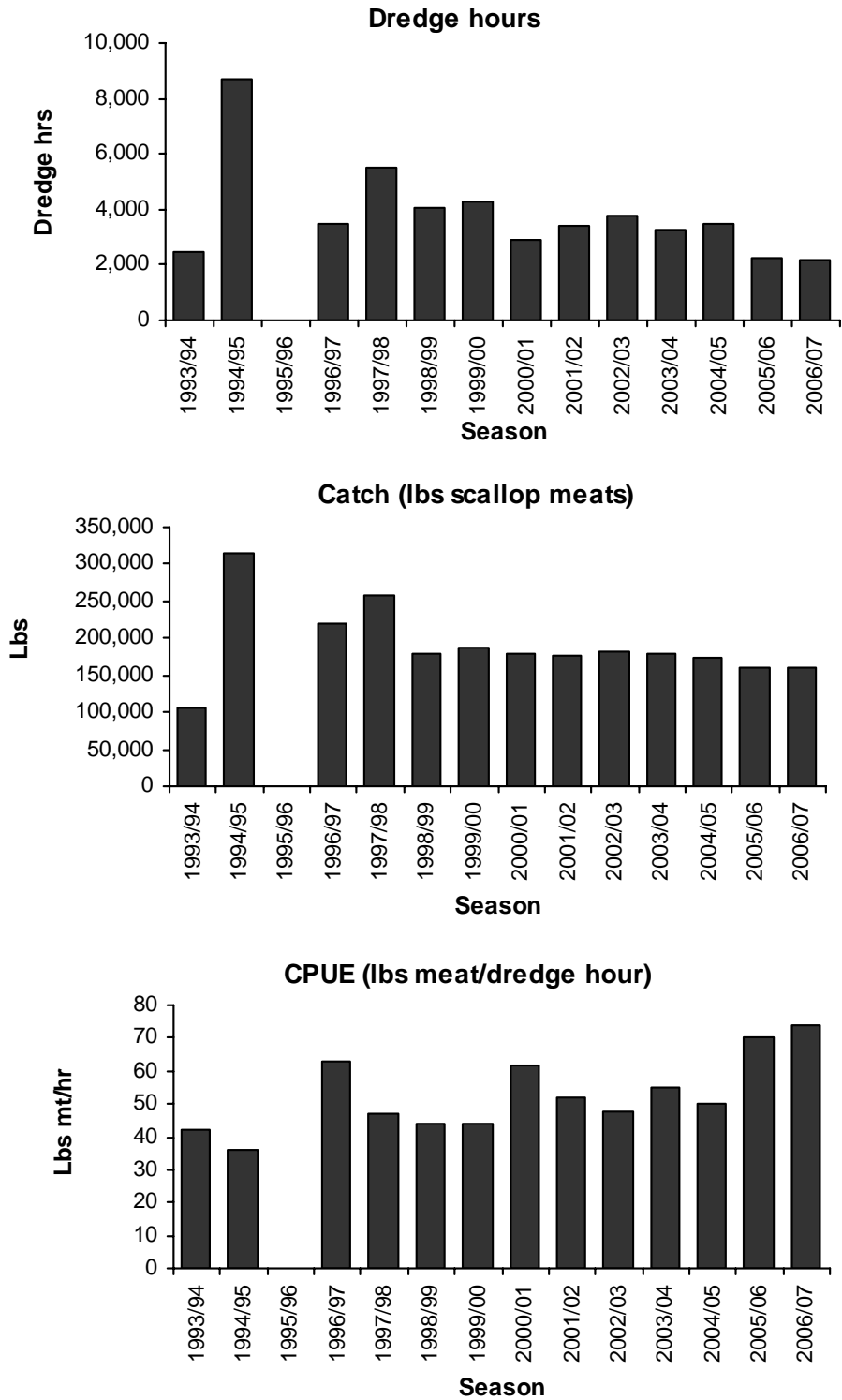


Figure 13 Barplots of Kodiak Shelikof District scallop fishery statistics.

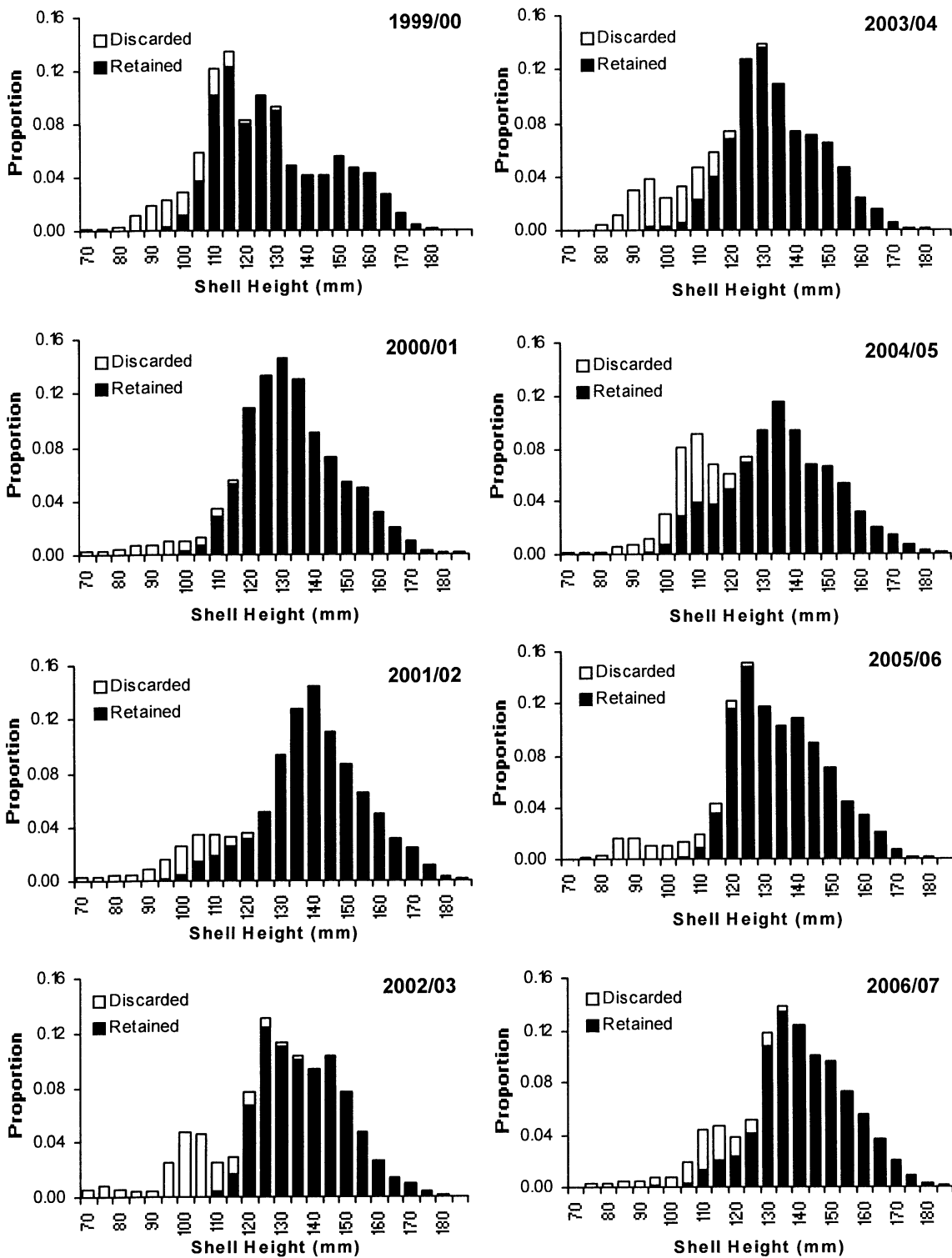


Figure 14 Shell height histograms from resampling Kodiak Shelikof District scallop observer data, 19992000–2006/07.

3.7 Kodiak Registration Area, Semidi District

Traditional scallop fishing areas of the Semidi District are located in state waters that were closed to scallop dredging by the BOF in 2000 (Figure 2). Other parts of the district remain open to fishing, but no effort has occurred since the 1999/00 season (Table 15).

Table 15 Kodiak Semidi District scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	6 ^b	NA	1,819	55,487	32
1994/95	2	NA	272	confidential	
1995/96		closed			
1996/97	3	NA	1,017	37,810	37
1997/98	1	NA	349	6,315	18
1998/99	2	NA	106	1,720	16
1999/00	1	NA	45	930	21
2000/01		NA	0		
2001/02		NA	0		
2002/03		NA	0		
2003/04		NA	0		
2004/05		NA	0		
2005/06		NA	0		
2006/07		NA	0		

^aConfidential data released by vessel operators.

^bTwo additional vessel fished but data are not available.

3.8 Alaska Peninsula Registration Area

Scallop fishing in the Alaska Peninsula Registration Area (Area M) was traditionally concentrated in a small region near the Shumagin Islands between 160° and 161° W. longitude. Area M was closed for the 2001/2002 and 2002/03 seasons due to concerns about potential localized depletion (Table 16, Figure 15).

For the 2003/04 and 2004/05 seasons, the area between 160° and 161° W. longitude remained closed for stock conservation, while the remainder of the area was opened with a 10,000 pound GHL. For the 2005/06 season, the area between 160° and 161° W. longitude opened with a GHL of 10,000 lbs, plus the remainder of the area was opened with a GHL of 10,000 lbs. No effort occurred. During the 2006/07 season, two cooperative vessels fished traditional areas and adjacent waters on an experimental basis and found poor scalloping; this was in the area closed for 4 years to allow for stock rebuilding.

Table 16 Alaska Peninsula Area scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	8	NA	1,847	112,152	61
1994/95	7	NA	1,664	65,282	39
1995/96		closed			
1996/97	2	200,000	327	12,560	38
1997/98	4	200,000	1,752	51,616	29
1998/99	4	200,000	1,612	63,290	39
1999/00	5	200,000	2,025	75,535	37
2000/01	3	33,000	320	7,660	24
2001/02		closed			
2002/03		closed			
2003/04		10,000			
2004/05		10,000			
2005/06		20,000			
2006/07	2	25,000	64	155	2

^aConfidential data released by vessel operators.

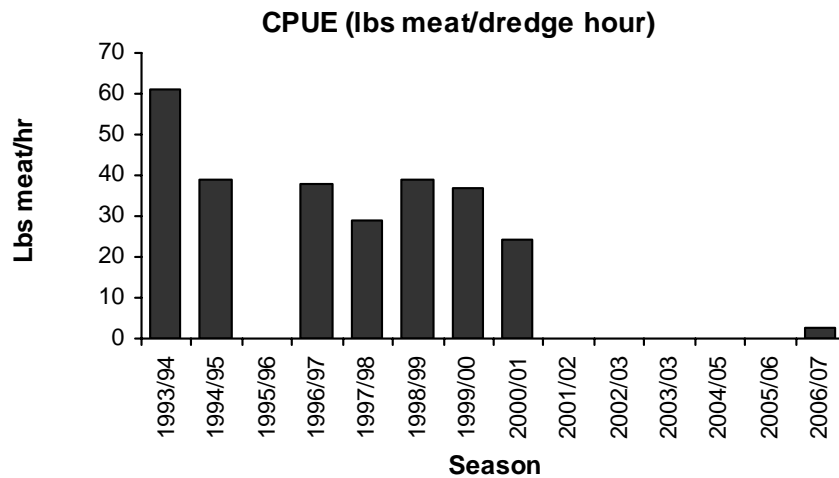
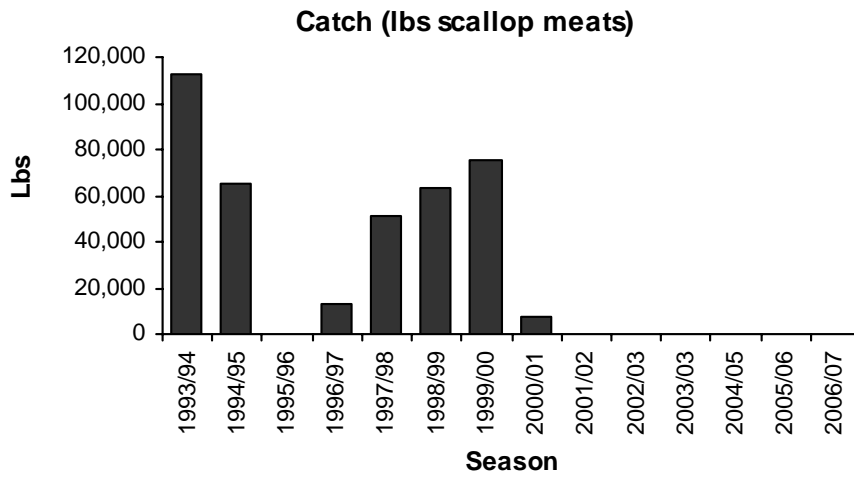
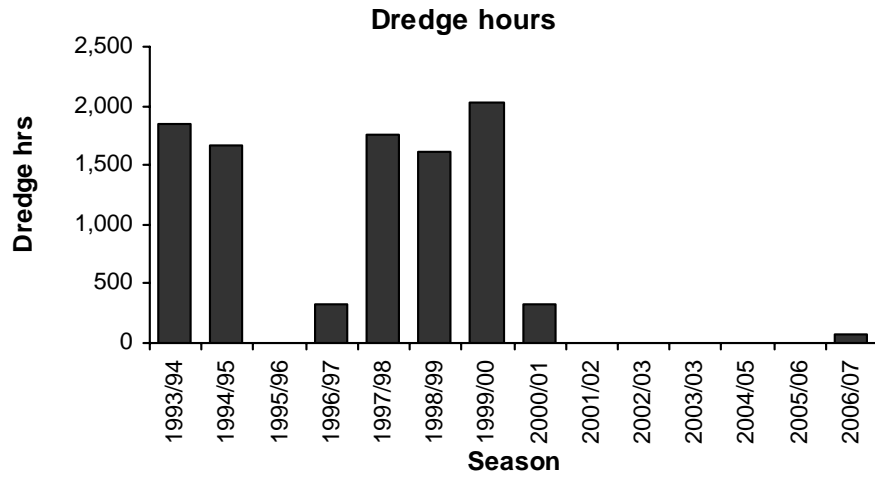


Figure 15 Barplots of Alaska Peninsula scallop fishery statistics.

3.9 Bering Sea Registration Area

Scallop fishing in the Bering Sea Registration Area (Area Q) occurs north of Unimak Island (Figure 1 and Figure 2). One vessel participated in the 2006/07 fishery and harvested 48,774 lbs of shucked scallop meats (Table 17, Figures 16–17). Large catches landed during the early 1990s do not appear to be sustainable.

Although incidental catches of *Chionoecetes* crabs in the Bering Sea scallop fishery have remained below CBLs in recent years, concerns about *Chionoecetes* bycatch rates often alter fleet behavior in the fishery. Scallop vessels frequently move to avoid high crab bycatch areas, which may in turn reduce CPUE and profitability. Dredging operations create feeding opportunities for crabs and juvenile flatfish, so when a profitable scalloping area is found, bycatch rates tend to increase over time and may force the vessel to move. Industry attributes harvests that have fallen below the upper end of the GHR in recent seasons to bycatch avoidance.

Large portions of the eastern Bering Sea shelf and the Pribilof Islands Habitat Conservation Area are closed to scallop fishing to protect red and blue king crab habitat and to provide for habitat conservation (Figure 2).

Experimental scallop video research was conducted in the Bering Sea Registration Area in 2003. Results from the survey showed that the stock is distributed over a wide, poorly defined portion of the Bering Sea shelf at low densities.

Table 17 Bering Sea Area scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	9	NA	5,764	284,414	49
1994/95	8	NA	11,113	505,439	45
1995/96		closed			
1996/97	1	600,000	2,313	150,295	65
1997/98	2	600,000	2,246	97,002	43
1998/99	4	400,000	2,319	96,795	42
1999/00	2	400,000	3,294	164,929	50
2000/01	3	200,000	3,355	205,520	61
2001/02	3	200,000	3,072	140,871	46
2002/03	2	105,000	2,038	92,240	45
2003/04	2	105,000	1,020	42,590	42
2004/05	1	105,000	275	10,050	37
2005/06	1	50,000	602	23,220	39
2006/07	1	50,000	1,138	48,246	43

^aConfidential data released by vessel operators.

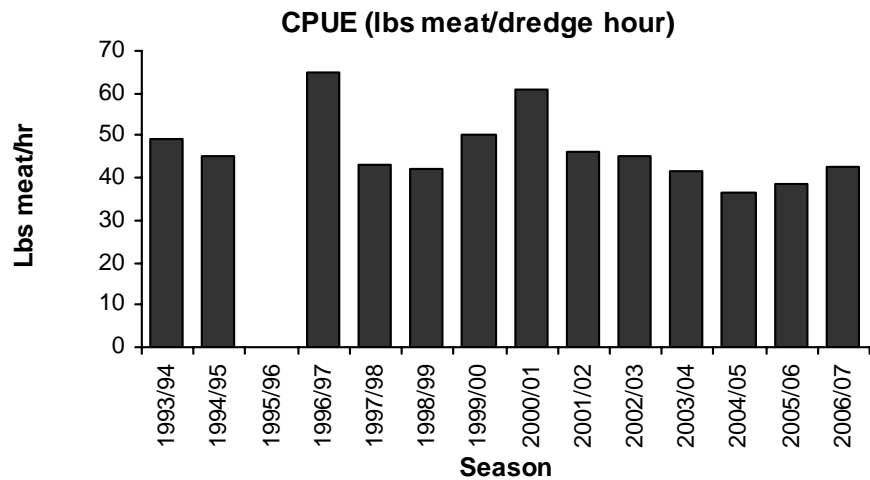
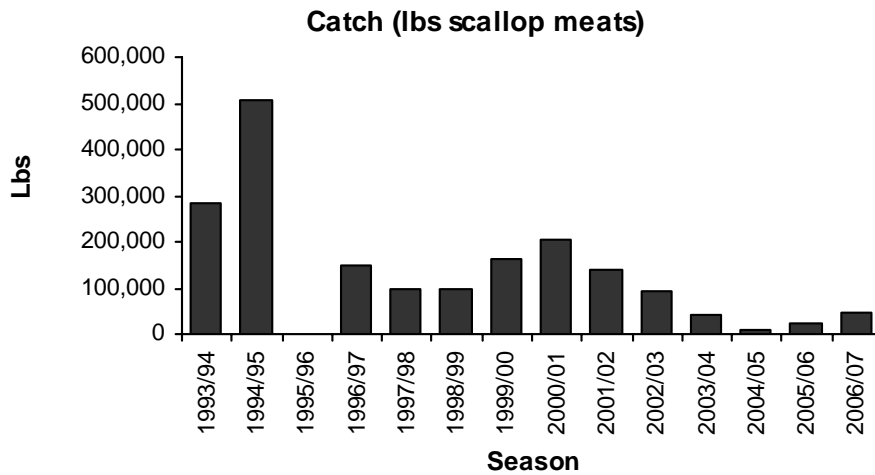
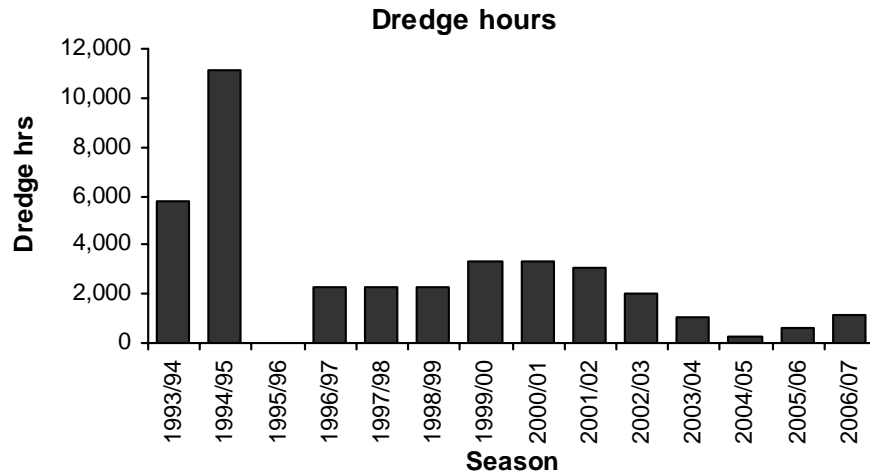


Figure 16 Barplots of Bering Sea scallop fishery statistics.

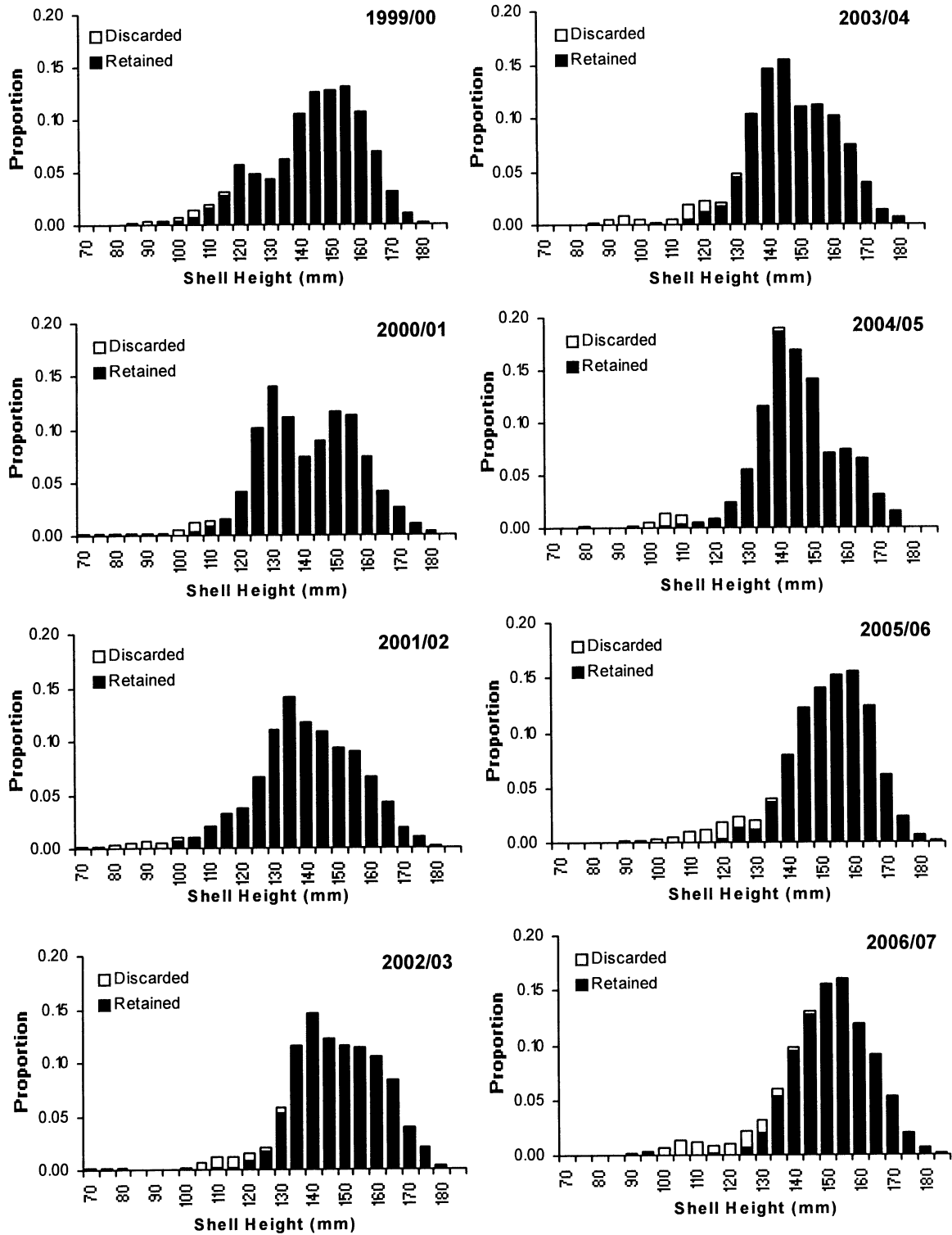


Figure 17 Shell height histograms from resampling Bering Sea scallop observer data, 1999/2000–2006/07.

3.10 Dutch Harbor Registration Area

The Dutch Harbor Registration Area (Area O) was opened during 2002/03 for the first time since the 1999/00 season. One vessel fished briefly and harvested about 6,000 lbs of scallop meats, with CPUE that was low but comparable to CPUE from earlier seasons (Table 18). Managers decided in 2003 to close the area for at least 3 additional years to allow for stock rebuilding. Productive scallop grounds that contributed significantly to the overall harvest were closed to scallop fishing before 1986, primarily as a protective measure for crab nursery areas (Figure 2).

The weathervane scallop population in the Dutch Harbor Registration Area is not surveyed and no estimate of abundance has been made. There are currently no plans to survey this population.

Table 18 Dutch Harbor Area scallop fishery summary statistics.

Season	Number vessels	GHL (lbs meat)	Dredge hours ^a	Catch ^a (lbs meat)	CPUE (lbs meat per dredge hr)
1993/94	2	170,000	838	confidential	46
1994/95	3	170,000	81	1,931	24
1995/96	1	170,000	1,047	26,950	26
1996/97		170,000			
1997/98	1	170,000	171	5,790	34
1998/99	4	110,000	1,025	46,432	45
1999/00	1	110,000	273	6,465	24
2000/01		closed			
2001/02		closed			
2002/03	1	10,000	184	6,000	33
2003/04		closed			
2004/05		closed			
2005/06		closed			
2006/07		closed			

^aConfidential data released by vessel operators.

3.11 Adak Area

ADF&G records indicate that scallops were harvested from the Adak Registration Area in 1979, 1992, and 1995. Few vessels participated, so catch and effort data are confidential. Little is known about scallop populations in this area. The Petrel Bank between 51°30' N. latitude and 54°30' N. latitude, west of 179° W. longitude and east of 179° East longitude was closed in 1991 due to concerns about king crab bycatch during the *Chlamys* (pink scallop) fishery. ADF&G opens the area each season with a GHL of 0–75,000 pounds, but no vessels have participated since 1995.

The weathervane scallop population in the Adak Registration Area is not surveyed and no estimate of

abundance has been made. There are currently no plans to survey this population. The continental shelf adjacent to the Aleutian Islands is narrow, providing limited weathervane scallop habitat.

4 Ecosystem Considerations

The Ecosystem Considerations section was added to the SAFE in 2006. The SPT is continuing to organize and improve the section. A wealth of information on climate effects on ecosystems and ecosystem trends contained in the GOA Groundfish Plan Team Ecosystems Considerations document is equally relevant to the scallop fishery and may be accessed at <http://www.fakr.noaa.gov/npfmc/SAFE/SAFE.htm>

4.1 Habitat

The Alaska weathervane scallop fishery occurs in continental shelf waters at depths 40–150 m in three main areas: the eastern Gulf of Alaska between Prince William Sound and Cape Spencer, around Kodiak Island, and in the eastern Bering Sea (Figure 2). Because the fishery footprint is confined to these areas and many areas of similar habitat are closed to scallop dredging, we expect the effects of the fishery on the GOA and Bering Sea ecosystems to be minor.

Commercial concentrations of weathervane scallops occur along the Alaska coast in elongated beds oriented in the same direction as prevailing currents. Image data from ADF&G camera sled tows show that benthic habitats where scallop fishing occurs in the Bering Sea, eastern GOA, and Shelikof Strait, consist predominately of fine sediments (silt, mud, and sand), with sediments regularly suspended by tidal currents. Areas of harder bottom with larger sediment sizes are found alongside scallop fishing areas, particularly inshore from where fishing occurs. ADF&G is beginning to use camera sled data to document and map habitat in the vicinity of scallop fishing areas. ADF&G hopes to study habitat in closed areas inhabited by scallops in the future as well.

Essential Fish Habitat (EFH) descriptions for weathervane scallops are being revised under Amendment 9 to the Scallop FMP. There is no available life history information for other scallop species (pink, spiny and rock scallops). More information on EFH designations may be found at: <http://www.fakr.noaa.gov/habitat/efh.htm>.

4.2 Bycatch

Scallop fishery bycatch is closely monitored by the onboard observer program (2.3). Bycatch in the scallop fishery includes prohibited species such as red king crab, Tanner crab, snow crab, and Pacific Halibut, other commercially important species of fish and invertebrates, miscellaneous non-commercial species, and natural and man-made debris. Although a variety of marine vertebrates, invertebrates, and debris are caught incidentally in scallop dredges, weathervane scallops predominate catches.

During the 1996/97–2004/05 seasons, the five most frequently caught species or items, statewide, by percent weight, from haul composition sampling were: weathervane scallops 77%, numerous species of starfish 5%, natural debris (kelp, wood, etc.) 5%, empty bivalve shells 4%, and several species of skates 2%. Gorgonian (hard) corals are infrequently encountered by scallop observers; since 1996, corals have been observed in only 11 of the 15,836 tows sampled for catch composition and bycatch. Summaries of haul composition sampling are presented in observer reports prepared by ADF&G (e.g., Barnhart and Rosenkranz 2003).

4.3 Trawl Survey Information on Scallop Stocks

Trawl surveys for fisheries stock assessment are conducted annually in the Gulf of Alaska and the Bering Sea by NMFS and ADF&G. Although these surveys target crab and groundfish and the gear is not designed to efficiently capture scallops, weathervane scallops are caught in some areas and survey data provide information on the range of the species.

In the eastern GOA (Figure 18), weathervane scallops have been captured during trawl surveys offshore from traditional scallop fishing grounds and in closed waters adjacent to Prince William Sound. Around Kodiak Island (Figure 19), trawl surveys have captured scallops in closed waters south of the island and in many bays and inlets. Along the south side of the Alaska Peninsula, trawl survey data indicate that most scallop habitat lies in coastal waters that are closed to scallop fishing, while scallops have been captured during trawl surveys over a large swath of the eastern Bering Sea shelf (Figure 20).

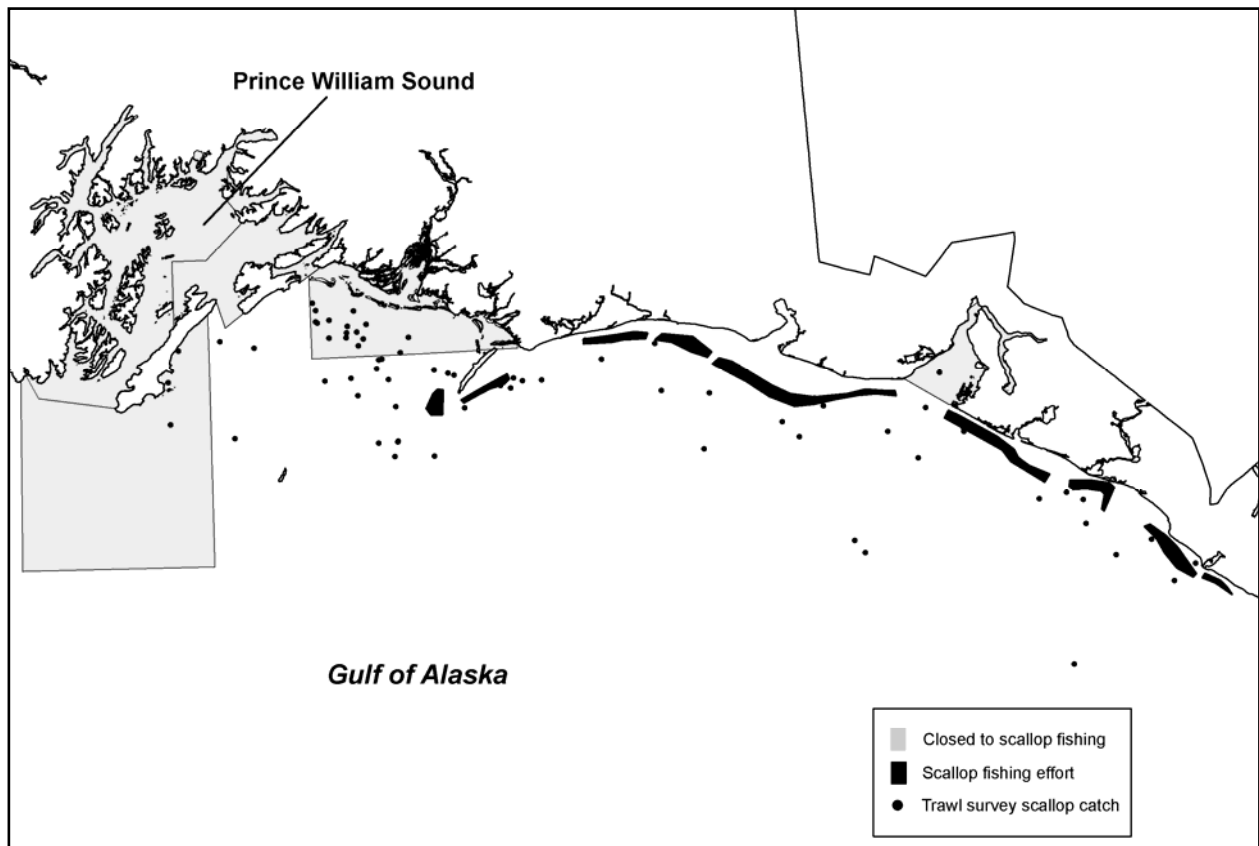


Figure 18 Map showing scallop fishing areas, areas closed to scallop fishing by regulation, and locations where weathervane scallops were captured during NMFS trawl surveys in the eastern Gulf of Alaska

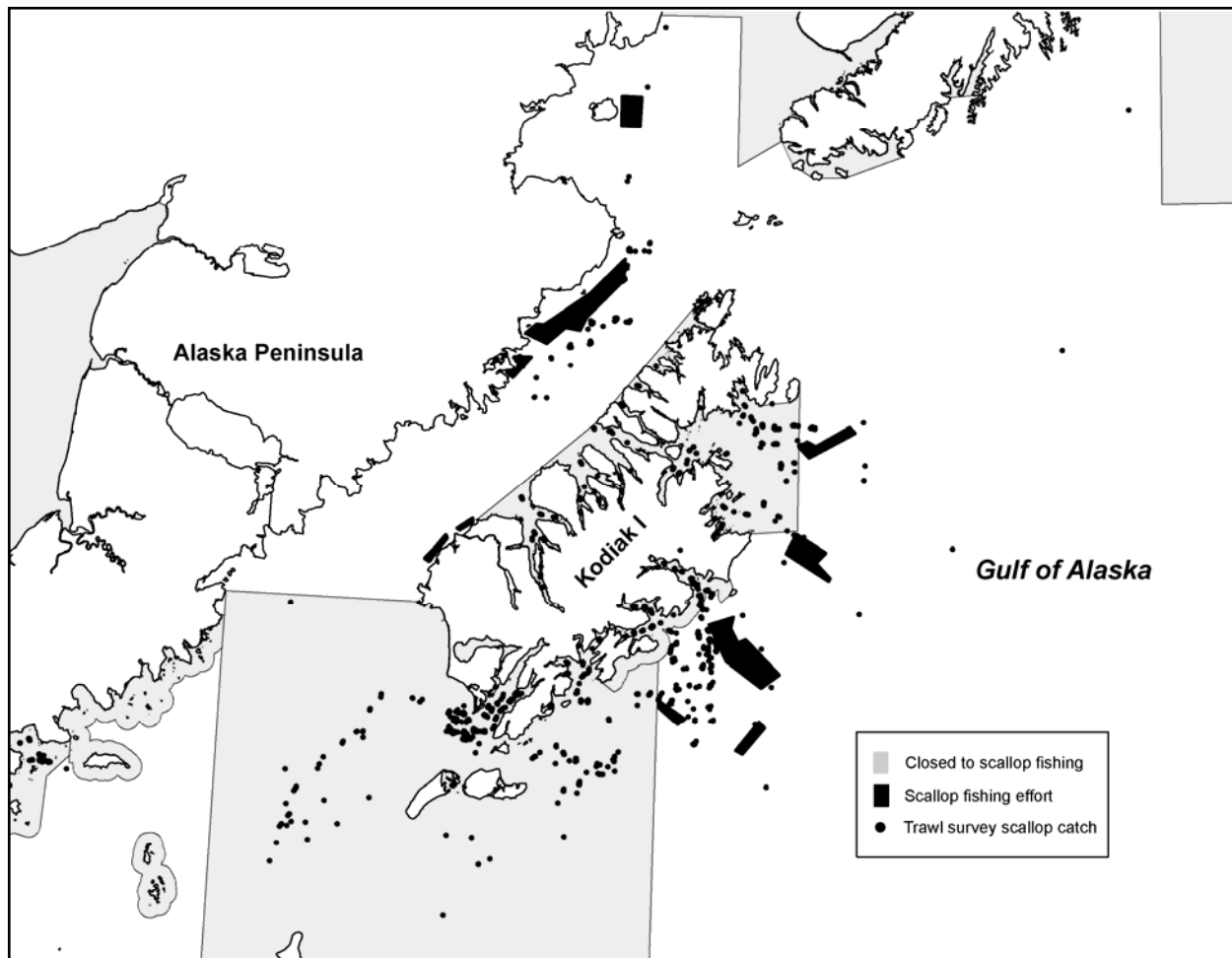


Figure 19 Map showing scallop fishing areas, areas closed to scallop fishing by regulation, and locations where weathervane scallops were captured during NMFS and ADF&G trawl surveys in the Kodiak Area.

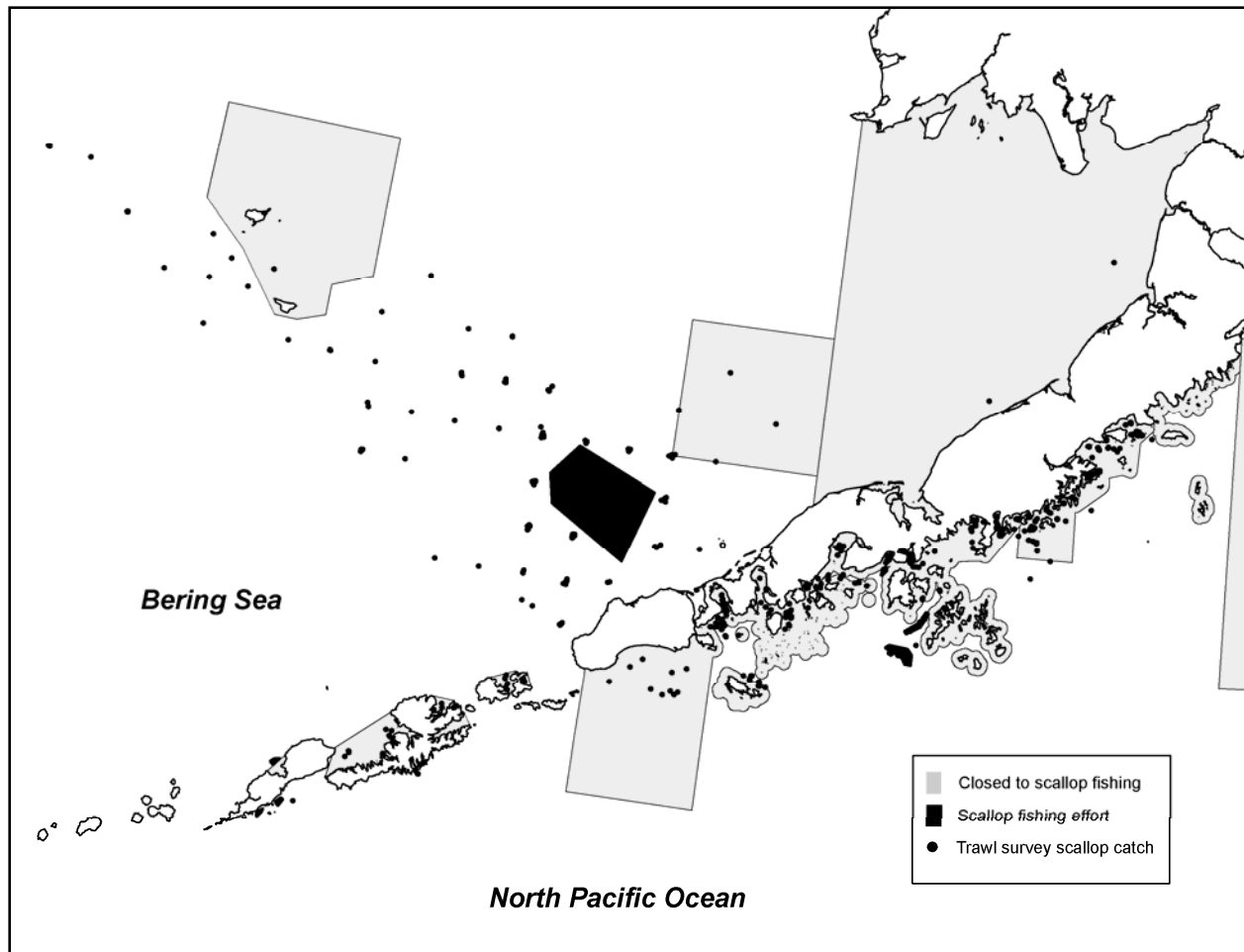


Figure 20 Map showing scallop fishing areas, areas closed to scallop fishing by regulation, and locations where weathervane scallops were captured during NMFS and ADF&G trawl

5 Recent Regulatory Actions

Recent Alaska Legislative action and Alaska Board of Fisheries Proposal 402

Passage of the vessel permit bill during the 2002 legislative session resulted in significant changes to the state's limited entry statutes. In the hair crab and weathervane scallop fisheries, for the very first time in state history, permits were issued to vessels rather than real persons. This was done for conservation and management purposes to more effectively limit effort targeting these resources. Vessel entry permits will expire at the end of December 2008 unless this legislature approves an extension.

House Bill 16, filed by Representative Paul Seaton delays the repeal of CFEC's authority to maintain the vessel-based limited entry systems for Bering Sea Hair Crab & weathervane scallop fisheries. The delay would last through 2013. This bill was referred to the Fisheries and Resource Committees, and it was heard and held by the Fisheries Committee April 4, 2007, May 4, 2007, and January 30, 2008. It is being held in committee and is not expected to move. A parallel bill was introduced in Senate Resources by Senator Donny Olson in January 2008. Senate Bill 251 passed out of Senate Resources February 13, 2008. It goes now to the floor for a vote.

In the event that neither bill succeeds in extending the sunset, there is a problem in managing scallops because the state-federal boundary crosses several of the commercial scallop beds. Scallops are currently managed without regard to this boundary. The existing federal LLP fishery from 3-200 miles will continue to be managed by the state. The state will create an open access scallop fishery in waters from 0-3 miles of shore. The Department of Fish and Game has submitted a proposal (number 402) that will develop new management measures to prevent overharvest and ensure accurate accounting, biological sampling and enforcement of state-waters scallop harvest. The Alaska Board of Fisheries will take action on this proposal during their March 3-9, 2008 meeting in Anchorage.

Vessel Monitoring Systems (VMS) requirements

Federal regulations require scallop vessels to use vessel monitoring systems (VMS) while fishing in Federal waters in the Aleutian Islands and Gulf of Alaska. These VMS requirements were adopted in conjunction with enforcing the Essential Fish Habitat and Habitat Areas of Particular Concern restrictions. In the Aleutian Islands, regulations prohibit operation of a federally permitted vessel without using VMS. In the Gulf of Alaska, regulations require mobile bottom contact gear vessels to use VMS. The regulations define scallop dredges as a mobile bottom contact gear. Additional information on Federal VMS regulations be found at: <http://www.fakr.noaa.gov/habitat/efhvmsrequirements.pdf>

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**Appendix 1 Summary and Analysis of Onboard Observer-
Collected Data from the 2003/04 to 2005/06 Statewide
Commercial Weathervane Scallop Fisheries**

**Appendix 2 Annual Management Report for the
Commercial Weathervane Fisheries in Alaska, 2005/06**