

Kodiak and Alaska Peninsula Commercial Dungeness Crab Fisheries, 1999

Report to the Alaska Board of Fisheries

By

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and

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## INTRODUCTION

The Westward Region for Dungeness crab *Cancer magister*, Area J, consists of all Pacific Ocean waters south of Cape Douglas (58° 52' N) and west of the longitude of Cape Fairfield (148° 50' W) and all Bering Sea and Pacific Ocean waters east of the U.S.-Russian Convention line of 1867. Area J is subdivided into four districts: the Kodiak District consists of waters from the latitude of Cape Douglas to Kilokak Rocks (157°27' W), the Alaska Peninsula District includes waters from Kilokak Rocks to Scotch Cap Light (164° 44' W), the North Peninsula District includes waters north of the latitude of Cape Sarichef (54° 36' N), and the Aleutian District includes waters west of Scotch Cap Light and south of the latitude of Cape Sarichef (Figure 1).

Vessel registration is nonexclusive for all districts except the Alaska Peninsula. In 1985, the Alaska Peninsula was designated as a superexclusive registration area for Dungeness crabs.

Dungeness crabs may be harvested from May 1 to October 18 in the North Peninsula District. The season in the Alaska Peninsula District, Aleutian District and that portion of the Kodiak District north of the latitude of Boot Point and Cape Ikolik are open from May 1 to January 1. The Kodiak District south of the latitude of Boot Point and Cape Ikolik is open from June 15 to January 1.

Dungeness crabs in the Westward Region are managed through restrictions on size, sex, and seasons. Harvests are restricted to male Dungeness crabs greater than 6.5" (165 mm) carapace width (CW). Seasons have been prescribed for times when Dungeness crabs occupy shallow nearshore habitat and are not buried. This occurs in mid to late summer and affords harvest opportunities to smaller vessels that would otherwise be unable to participate due to inclement weather. The summer months also correspond to the known mating and molting season for Dungeness crab. Economics, safety, and harvest opportunity have been cited as the justifications for allowing fishing during this potential biologically sensitive period. No fishery independent assessment of Dungeness crab stocks is conducted in the Westward Region.

## HISTORIC BACKGROUND

Dungeness crabs were first harvested commercially in the Westward Region in 1962 when 1.9 million pounds were harvested from the Kodiak District (Table 1 and Figure 2). Over the next decade, harvest continued to increase in the Kodiak District, reaching the record harvest of 6.7 and 6.8 million pounds in 1968 and 1969. Harvest was first recorded in the Alaska Peninsula in 1968 when 1.3 million pounds were taken (Table 2). Harvest declined through the 1970s as both stock levels and market value for Dungeness crabs decreased (Jackson 1997). Minor increases in recruitment led to slight increases in harvest in the Kodiak District during the late 1970's.

Prior to 1977, the Dungeness fishery was open year round. Closures were then implemented from January 1 to April 15 when fishermen were unable to operate effectively due to winter storms. This change in season was aimed at reducing the amount of gear fishing with extremely long soak times. The April 15 date was set for the south end of Kodiak to avoid high incidences of female red king crab bycatch in Dungeness gear (Jackson 1997).

During the mid to late 1970s few if any vessels participated in the Alaska Peninsula Dungeness fishery. Although two vessels participated in the 1979, their catch data is confidential. These were the first participants in the fishery since 1973.

During the early 1980s, declines in abundance of other commercially harvested Alaskan shellfish occurred and created a void in markets that still demanded crab. This led to an increase in both effort and harvest of Dungeness crabs in Kodiak and to some extent in the Alaska Peninsula District. In the 1981/82 Kodiak fishery, a harvest of 5.6 million pounds occurred. This was the highest harvest in the 1980s. Effort peaked in 1985 when 125 vessels participated in the Kodiak Dungeness fishery. High amounts of post-recruit crabs were removed from the Kodiak District, resulting in a lower yielding fishery through the middle of the 1980s (Jackson 1997). In 1987, stocks experienced a small increase in recruitment that provided the bulk of the harvest through 1990.

In the Alaska Peninsula District, 18 vessels harvested 1.2 million pounds during the 1983/84 season. Effort, and consequently, harvest declined sharply over the rest of the 1980s. The district was designated as a superexclusive registration area for Dungeness crabs in 1985. This designation, paired with apparent fluctuations in stock levels, resulted in sporadic effort and low harvests in the Alaska Peninsula over the course of the 1990s. The highest harvest of the 1990s was 240 thousand pounds harvested by seven vessels in 1997.

The Kodiak District exhibited a continuous decline in harvest rates over the course of the 1990s. The fishery has been prosecuted primarily on recruit crabs, new-shell or soft-shell male Dungeness crabs from 165mm –193 mm (Figure 3 and 4). The fishery has experienced years of lower harvests corresponding to fluctuations in recruitment. Decreased fishery production has also been a product of reduced effort. Participation decreased from 64 vessels in 1990 to only 11 in 1998.

Another significant factor limiting interest and effort in the Kodiak District Dungeness crab fishery during the 1990s was the documentation of the toxin causing paralytic shellfish poisoning (PSP) in the viscera of Dungeness crabs. The Alaska Department of Environmental Conservation (ADEC) placed restrictions on the sale of live or whole cooked crabs beginning in 1992. Prices paid for Kodiak Dungeness crabs dropped from \$1.37 per pound in 1991 to \$0.86 per pound in 1992 after the ADEC restrictions took place. Prices have fluctuated widely since. Price per pound reached a high of \$2.05 in 1997, although Kodiak fishermen have received lower than average exvessel value when compared to other areas in Alaska or on the west coast of the lower 48 states. This trend has been dissipating in recent years as prices paid for Kodiak Dungeness crab have been within \$0.10 per pound of the west coast average (PSMFC 1998).

## **1999 KODIAK FISHERY**

The 1999 fishery opened on May 1 in all areas except Kodiak's south end, which opened on June 15. Eighteen vessels operated in the 1999 Kodiak fishery harvesting 550,568 pounds from 70 landings (Table 1). The 1999 harvest and effort in the Kodiak District are the third lowest in the fishery's history. A wide range of vessel sizes participated in the 1999 fishery, with 9 vessels between 40-60' overall length comprising half the fleet (Table 3).

Very little effort occurred in the Kodiak District during May. One operator made a landing and many fishermen began placing gear on the fishing grounds. The largest amount of effort and harvest occurred in August, followed by September, July, and October (Figure 5). Harvest was minimal during November as the majority of the vessel operators participating had quit or were winding down operations for the year. No landings occurred in December.

An average of 4.2 legal crabs per pot were landed for the 1999 fishery, an increase over the past two seasons. Catch per unit effort (CPUE) is typically highest in the late summer months. The 1999 CPUE was highest in August and October with an average of 5.5 crabs per pot (Figure 6). This compares to highs of 4.5 crabs per pot in November 1998 and of 3.1 crabs per pot in July 1997.

Exvessel price was slightly higher in 1999 than in 1998. Price paid per pound in 1999 was \$1.57 up from \$1.41 in 1998. This resulted in a fishery value of \$862,000. Though this represents a 50% increase from 1998, it ranks among the lowest fishery values recorded since the early 1970s.

### **KODIAK DISTRICT STOCK STATUS**

Mean carapace width for Dungeness crabs harvested in the Kodiak District were 175mm, 173mm, and 173mm for the 1997-1999 seasons. Recruitment to the fishery has been sufficient to hold stocks at stable levels for the past few years. Dockside data also suggest that recruit class failure in any give year would have significant impact on the commercial fishery.

During the course of interviews conducted with fishermen, many remarked that sublegal males and females laden with full egg clutches have constituted a large portion of the catch. Additionally, many of the crabs harvested in the months of October and November, when CPUE was at its highest, were described by fishermen as recent recruits to the fishery. This anecdotal evidence suggests adequate recruitment in the foreseeable future.

### **1998 AND 1999 ALASKA PENINSULA FISHERY**

Less than three vessels participated in the 1999 Alaska Peninsula commercial Dungeness crab fishery; confidentiality standards require that the 1999 and 1998 fishery data be combined for reporting purposes. In these two seasons, three unique vessels participated in the Alaska Peninsula fishery. Harvest from 10 landings over the two seasons was 152,314 pounds (Figure 7). The average CPUE for 1998 and 1999 was 4.8 and 19,400 pots were lifted (Table 2).

Fishermen were paid an average price of \$ 1.64 per pound although prices varied from \$1.40 to \$2.10 over the two seasons. Fishery value for the two seasons was \$217,000 dollars. Unsafe levels of paralytic shellfish poisoning have not been documented along the Alaska Peninsula, and sale of live and whole cooked crabs has occurred, producing higher exvessel prices.

## **ALASKA PENINSULA STOCK STATUS**

No stock assessments have been conducted on Dungeness crabs in the Alaska Peninsula District. Department activity has been limited to sampling commercial fishery deliveries made to Kodiak and Dutch Harbor, where shellfish dockside samplers are available. In 1998 and 1999, ADF&G staff sampled four out of ten deliveries. Average carapace width of Dungeness crab sampled from the Alaska Peninsula was 175 mm. The catch was composed of 35% recruits and 53% post recruits with the remaining composition of the catch being prerecruit-1 crabs, smaller than 165mm (Figure 8). Given the few deliveries available for sampling and the limited number of interviews conducted with Alaska Peninsula fishermen, no conclusions can be drawn concerning the status of the Alaska Peninsula Dungeness crab stock.

## **PROPOSAL 386 INFORMATION**

Proposal 386 would create a new superexclusive Chignik registration area for Dungeness crabs. This area would include part of the current nonexclusive Kodiak District, that area between Cape Kumlik and Kilokak Rocks, and part of the current superexclusive Alaska Peninsula District, that area between Kupreanof Point and Cape Kumlik (Figure 9). Superexclusive areas prohibit persons from fishing in any other Dungeness crab area in Alaska within the same calendar year.

The Kodiak District portion has been fished 3 years since 1985 and approximately 12,000 pounds were harvested. During that time period, the annual Kodiak district harvest has averaged 197,000 pounds. Harvest from the Alaska Peninsula has averaged 296,000 pounds per year since the district was designated as superexclusive in 1985. Approximately 48% of that catch has come from the proposed Chignik Area portion of the Alaska Peninsula district with landings occurring every year.

## LITERATURE CITED

Jackson, David R. 1997. Westward Region Commercial Dungeness Crab and Shrimp Fisheries: A Report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 4K97-9, Kodiak.

PSMFC Pacific States Marine Fisheries Commission, 1998. 51<sup>st</sup> Annual Report of the Pacific States Marine Fisheries Commission for the year 1998 to the congress of the United States and to the Governors and Legislatures of Washington, Oregon, California, Idaho, and Alaska.

Table 1. Dungeness crab commercial catch and effort by fishing year for the Kodiak Management District, 1962-1999.

Year	Landings	Vessels	Number of Crab	Number of Pounds	Pots Lifted	Average Lbs Per Landing	CPUE	Average Price/Pound	Exvessel Value
1962 <sup>a</sup>	149	-	-	1,904,567	-	12,782	-	\$0.09	171,000
1963	354	-	-	2,487,512	-	7,026	-	0.09	224,000
1964	395	29	-	4,254,565	-	10,537	-	0.09	375,000
1965	351	25	-	3,311,571	-	9,434	-	0.12	397,000
1966	144	12	-	1,416,174	-	7,976	-	0.13	149,000
1967	439	18	-	6,663,668	-	15,179	-	0.13	866,000
1968	536	43	-	6,829,061	-	12,741	-	0.14	956,000
1969	455	29	-	5,834,628	190,967	12,823	12	0.16	934,000
1970	318	33	-	5,741,438	249,800	18,005	9	0.14	804,000
1971	173	24	515,653	1,445,864	90,913	8,358	6	0.18	260,000
1972	316	34	766,960	2,059,536	140,921	6,517	6	0.40	824,000
1973	487	42	879,484	2,000,526	251,467	4,108	3	0.50	1,000,000
1974	172	23	337,839	750,057	104,062	4,361	3	0.47	353,000
1975	154	15	307,272	639,813	76,411	4,154	4	0.61	390,000
1976	6	4	38,072	87,110	4,410	14,518	9	0.15	13,000
1977 <sup>b</sup>			Confidential						
1978	173	20	618,357	1,362,306	93,633	7,875	6	0.75	1,022,000
1979	237	28	595,850	1,311,275	137,951	5,543	4	0.75	943,000
1980	197	21	968,829	2,011,736	107,261	10,212	9	0.45	905,000
1981/82 <sup>c</sup>	466	50	2,614,545	5,566,463	295,138	11,945	9	0.70	3,897,000
1982/83 <sup>d</sup>	991	111	2,004,075	4,546,311	481,542	4,588	4	0.75	3,410,000
1983/84	1,079	103	2,044,505	4,752,148	503,464	4,408	4	1.05	4,989,000
1984/85 <sup>e</sup>	1,163	106	2,393,974	5,303,052	627,441	4,564	4	1.45	7,689,000
1985 <sup>e</sup>	1,243	125	1,791,446	4,160,435	599,291	3,347	3	1.20	4,992,522
1986	577	81	439,738	967,423	199,881	1,667	2	1.15	1,112,500
1987	379	45	747,117	1,450,983	150,067	3,828	5	1.26	1,828,000

-Continued-

Table 1. (page 2 of 2)

Year	Landings	Vessels	Number of Crab	Number of Pounds	Pots Lifted	Average Lbs Per Landing	CPUE	Average Price/Pound	Exvessel Value
1988	363	50	1,064,387	2,125,114	203,217	5,854	5	1.06	2,253,000
1989	359	47	1,428,973	3,077,937	185,242	8,574	8	1.10	3,385,730
1990	519	62	1,294,241	2,937,306	296,168	5,660	5	1.54	4,435,000
1991	732	62	695,470	1,414,499	279,872	1,932	1	1.37	1,938,000
1992	501	46	805,215	1,656,793	218,602	3,306	3	0.86	1,425,000
1993	263	42	647,736	1,369,889	180,534	5,209	5	0.92	1,260,000
1994	162	31	426,848	948,461	151,888	5,855	5	1.20	1,138,000
1995	106	24	257,677	527,434	107,506	4,976	4	1.72	907,000
1996	113	21	334,237	668,772	88,682	4,223	4	1.01	675,460
1997	123	21	257,692	529,601	95,067	4,296	3	2.05	1,085,682
1998	58	11	185,087	370,836	63,837	6,394	3	1.41	518,606
1999	70	18	269,244	550,568	64,552	7,865	4	1.57	861,919

<sup>a</sup>Season open year round 1962 - 1976

<sup>b</sup>Open May 1 through December 31, 1977 - 1980

<sup>c</sup>Open February 27, 1981 through February 1, 1982

<sup>d</sup>Open May 1, 1982 through February 1, 1983

<sup>e</sup>Open May 1, 1985 through December 31, 1985

Table 2. Dungeness crab commercial catch and effort by fishing year for the Alaska Peninsula Management District, 1968-1999.

Year	Vessels	Landings	Number of Crabs <sup>a</sup>	Number of Pounds <sup>a</sup>	Pots Lifted	CPUE	Average Weight	Price Per Pound
1968	N/A	N/A	434,142	1,259,013	N/A	N/A	2.9	N/A
1969	N/A	N/A	411,000	1,056,000	N/A	N/A	N/A	N/A
1970	N/A	N/A	4,200	13,000	N/A	N/A	N/A	N/A
1971	N/A	N/A	3,900	11,000	N/A	N/A	N/A	N/A
1972	N/A	N/A	29,400	65,000	N/A	N/A	N/A	N/A
1973			Confidential					
1974			No Effort					
1975			No Effort					
1976			No Effort					
1977			No Effort					
1978			No Effort					
1979			Confidential					
1980			No Effort					
1981/82			Confidential					
1982/83	16	79	357,955	779,600	59,265	6	2.2	0.75
1983/84	18	132	565,430	1,207,128	113,061	5	2.1	0.97
1984/85	13	99	294,191	647,497	106,056	3	2.1	1.38
1985/86	7	31	239,202	488,107	52,117	5	2.0	1.26
1986/87	6	28	87,925	180,261	30,280	3	2.0	1.05
1988			Confidential					
1989			Confidential					
1990	4	10	31,074	65,806	5,225	6	2.1	1.53
1991	7	18	39,069	80,248	12,813	3	2.1	1.24
1992			Confidential					
1993	3	15	127,979	273,811	15,675	8	2.1	0.79
1994	4	24	134,429	277,639	27,950	5	2.1	1.01
1995			Confidential					
1996	4	9	47,824	112,388	15,306	4	2.3	1.01
1997	7	17	120,935	240,128	42,324	3	2.0	2.06
1998/99	3	10	31,732	152,314	19,400	5	2.0	1.64

Fishery information confidential when less than three vessels participated.

<sup>a</sup>Includes deadloss.

Table 3. Keel length frequencies of Kodiak District vessels that made landings during the 1999 Dungeness crab fishing season.

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Vessel Keel Length (feet)	Number of Vessels
<20-29	2
30-39	3
40-49	5
50-59	4
60-69	1
70-79	1
80-89	2
Greater than or equal to 90	0

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TOTAL VESSELS: 18

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Figure 1. Not available.

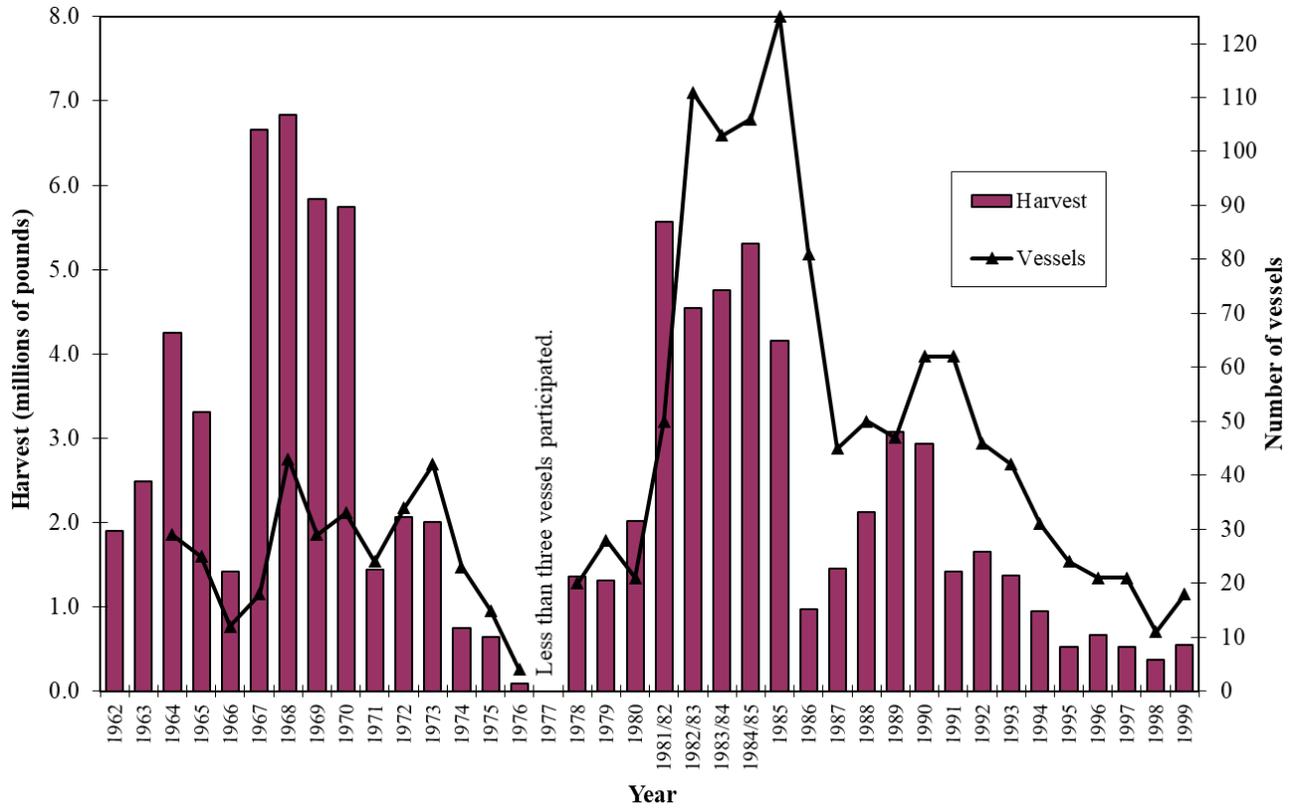


Figure 2. Kodiak District commercial Dungeness harvest and vessels participating by year, 1962-1999.

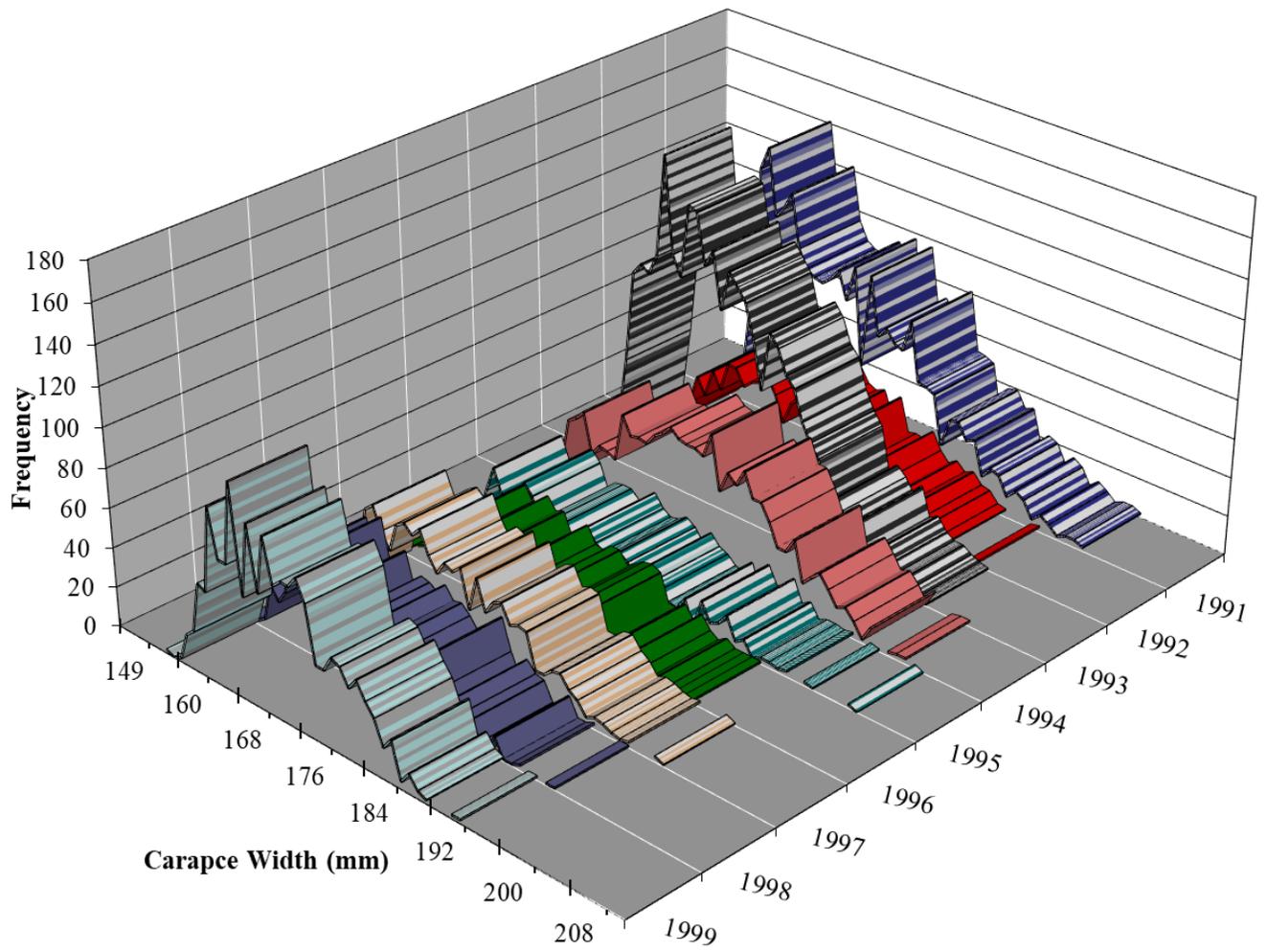


Figure 3. Kodiak commercial Dungeness fishery width frequencies, 1991-1999.

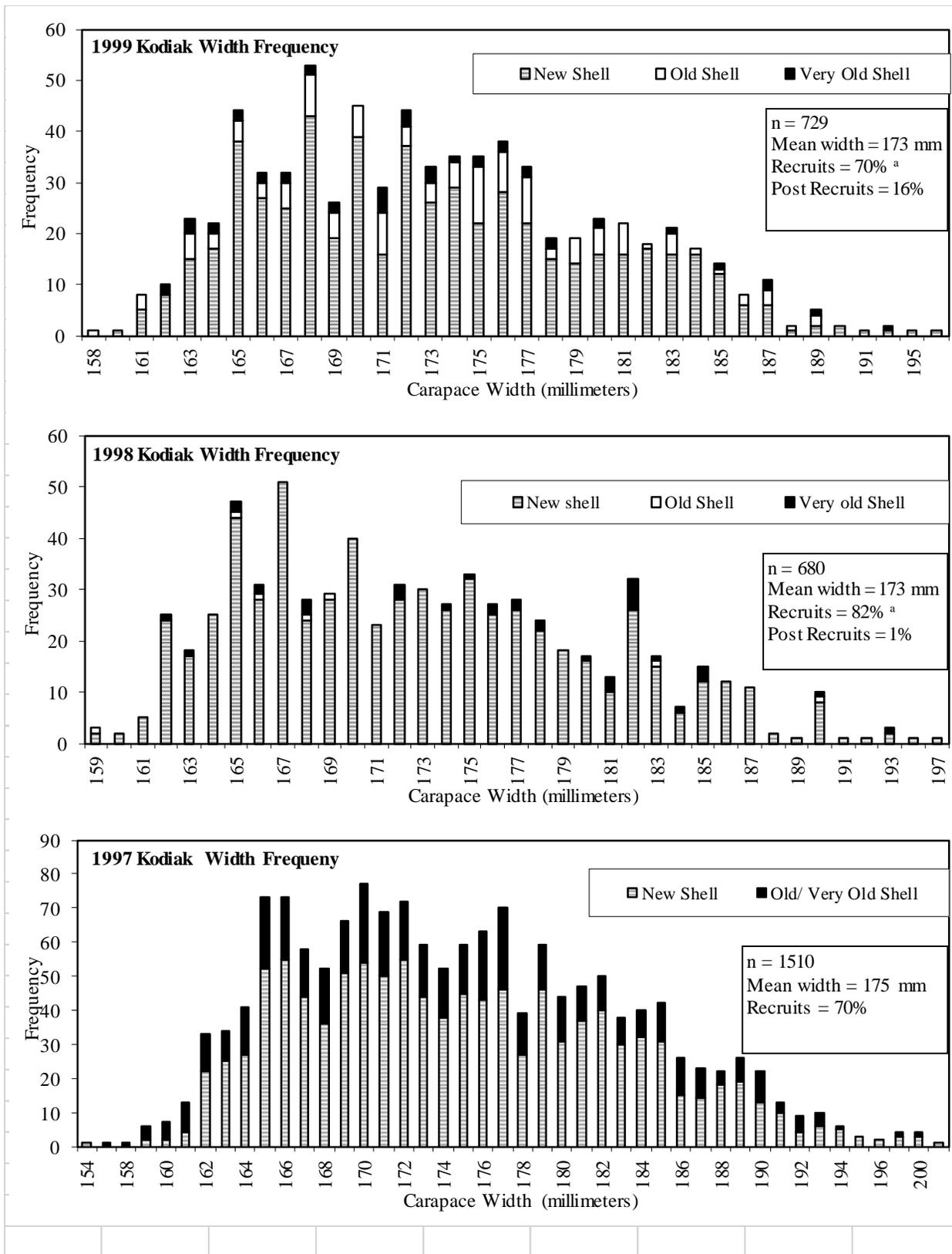


Figure 4. Kodiak District commercial Dungeness width frequencies and shell conditions 1997-1999.

<sup>a</sup> Remaining catch composition percentage = prerecruit 1 crabs, new shelled less than 165 mm CW.

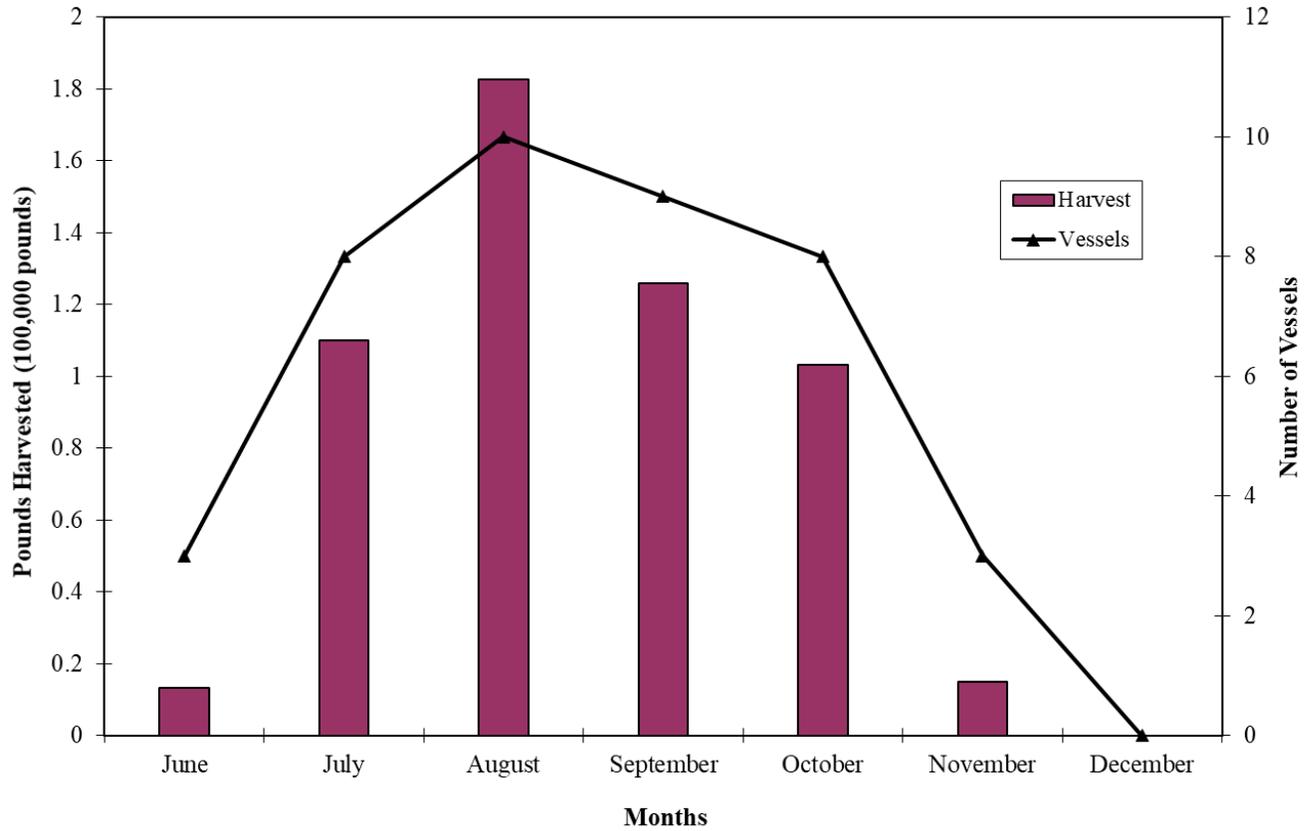


Figure 5. Kodiak District commercial Dungeness harvest and vessels participating by month, 1999. Harvest from May not shown because less than three vessels participated.

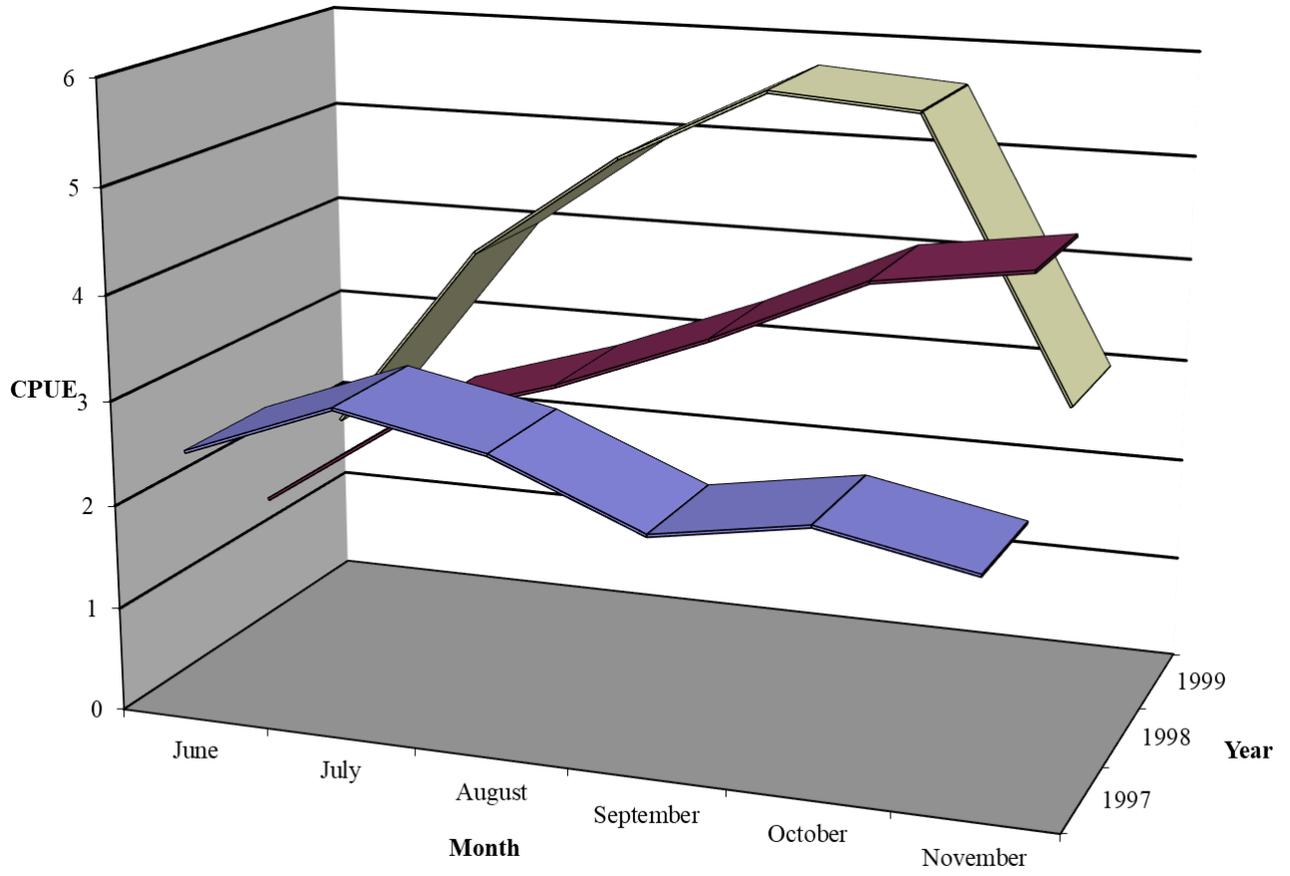


Figure 6. Kodiak District commercial Dungeness catch per unit effort, by month, 1997-1999.

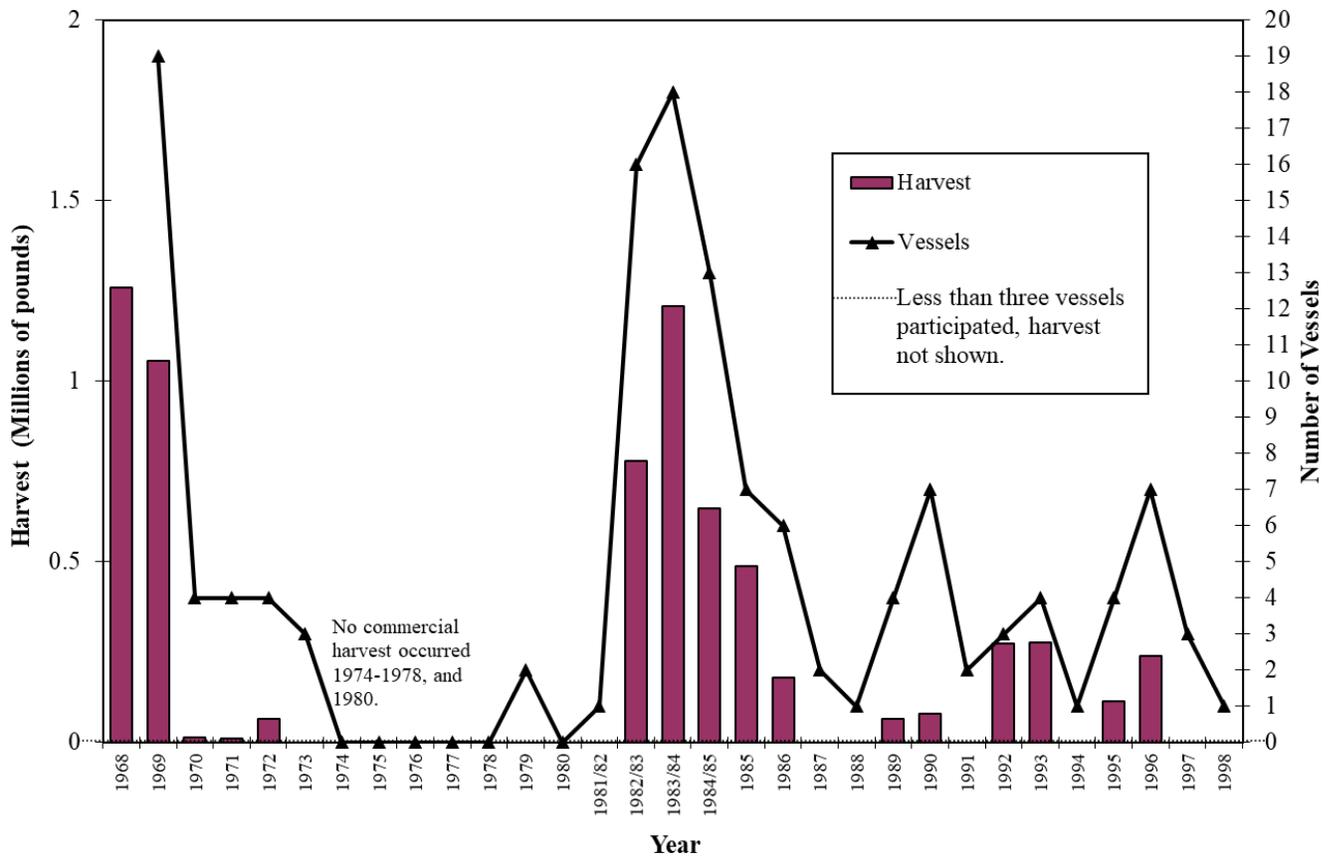


Figure 7. Alaska Peninsula District commercial Dungeness harvest and vessels participating by year, 1968-1999.

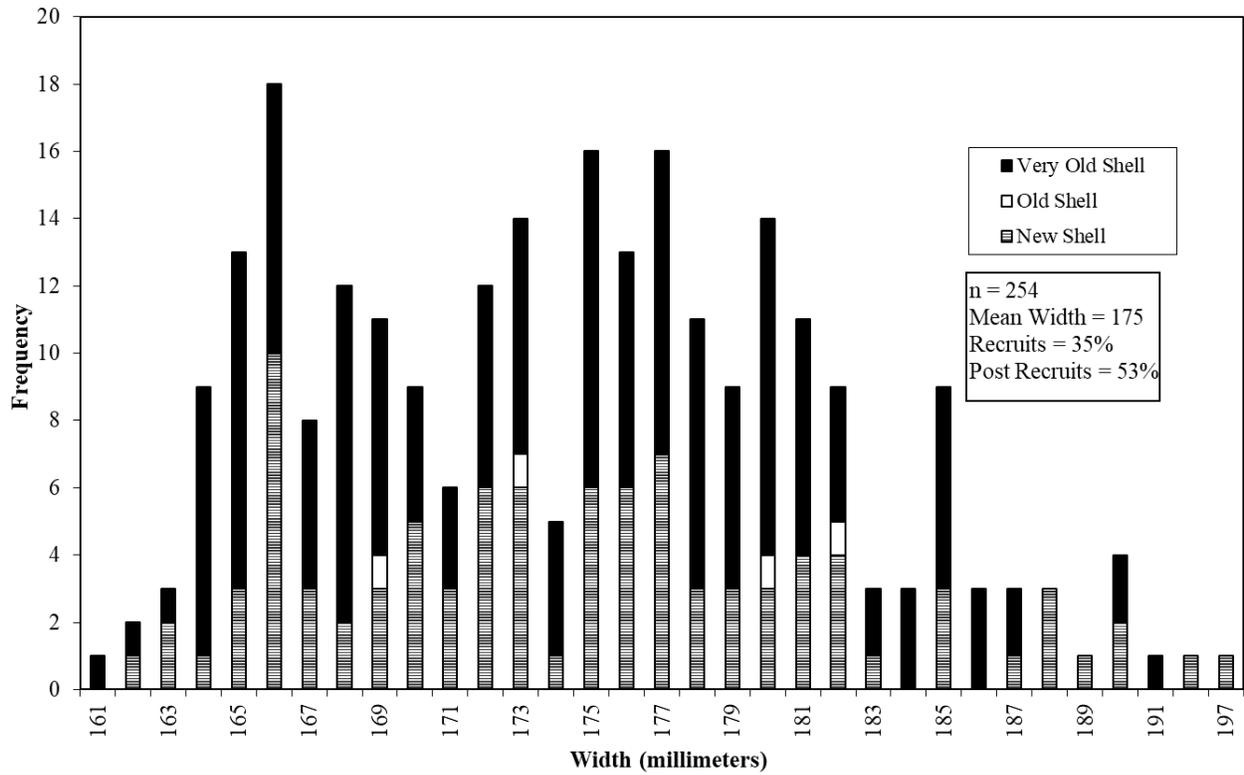


Figure 8. Alaska Peninsula District commercial Dungeness width frequencies, including shell condition 1998/99.