

REPORT TO THE ALASKA BOARD OF FISHERIES ON THE
1996 BERING SEA KOREAN HAIR CRAB FISHERY

by

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	i
LIST OF FIGURES	i
BERING SEA KOREAN HAIR CRAB	1
Area Description	1
Historic Background.....	1
1996 Fishery	1
Status of Stocks	3
TABLES	4
FIGURES	6

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Historic Korean hair crab catch statistics, by season, for the Bering Sea	4
2. Historic Bering Sea Korean hair crab economic performance, 1978/79-1995.....	5

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Map of the Bering Sea and Aleutian Islands crab management area	6
2. Historic harvest and vessel participation in the hair crab fishery 1978/79-1996.....	7

BERING SEA KOREAN HAIR CRAB

Area Description

The Bering Sea hair crab registration district, includes all waters north of 54° 36' North latitude, south of 58° 39' North latitude, and east of the U.S.-Russian Convention Line of 1867 (Figure 1). This region is divided into the Pribilof Islands Area (west of 168° West longitude), and the Bristol Bay Area (east of 168° West longitude).

Historic Background

Korean hair crab, *Erimacrus isenbeckii*, sold commercially as "kegani" by the Japanese, were fished commercially for the first time by the U.S. fleet in 1978/79 (Figure 2). Most fishing effort has been concentrated in waters adjacent to the Pribilof Islands. When interest in hair crab was first expressed by fishermen and processors the season was opened by emergency order and ran concurrently with the Bering Sea Tanner crab fishery. During the 1980 Board of Fisheries meeting, a year long season was established under the terms of a permit issued by the Alaska Department of Fish and Game. Between 1979 and 1991, the majority of hair crab landed were reported as incidental catch in the Bering Sea Tanner crab fisheries. Beginning with the 1993 Bering Sea hair crab fishery, terms of the special permit issued by the commissioner of ADF&G included 100% observer coverage on all hair crab vessels for the purposes of collecting data on the targeted species and to monitor bycatch. At their Spring 1994 meeting in Anchorage, the Alaska Board of Fisheries defined hair crab pots as a pot with a rigid tunnel opening located in the top of the pot, with a tunnel perimeter not exceed 26 inches, and a base that does not exceed 48 inches in any one direction.

As a result of a steady increase in the number of vessels participating in this fishery, the Alaska Legislature, during it's 1996 session, passed House Bill 538 authorizing the Commercial Fisheries Commission (CFEC) to regulate vessel licenses in the Bering Sea hair crab fishery. Vessel qualification was based on participation in at least one of the qualifying years (1992-1995). Licenses were issued to 23 vessels for those waters beyond 5 nautical miles of St. George and St. Paul Islands (Pribilof Islands). Also included in this legislation were provisions which allow any vessel 58 feet and under to fish within 5 nautical miles of St. George and St. Paul Islands proper. While House Bill 538 specifically requires 100% observer coverage on all vessels participating in the Bering Sea hair crab fishery, the Alaska Department of Fish and Game (ADF&G) exempted vessels under 44 feet in length from mandatory observer coverage for observer safety considerations.

1996 Fishery

The 1996 National Marine Fisheries Service (NMFS) summer trawl survey of the Bering Sea indicated the abundance of hair crab in the Bering Sea decreased in 1996 from levels observed in 1995 (Robert Otto, National Marine Fisheries Service, Kodiak, personal communication).

Estimates of abundance are considered somewhat imprecise, as these crab are known to bury themselves in the substrate and live in rocky in-shore areas not well suited to trawling. Based on the 1996 survey, the abundance of large (3.25" and larger) male hair crab was estimated at 3.19 million crabs. This is a 50% decrease from the 1995 estimate of 6.54 million large male crabs.

Calculations of total allowable harvest based on a exploitation rate of 20% and an average weight of 1.4 pounds per crab yielded a 900,000 pound guideline harvest level (GHL) for the 1996 season. This is a reduction from the 1.8 and 1.1 million pound harvest guidelines established for the 1995 and 1994 seasons respectively.

The majority of large male hair crab were once again observed in the vicinity of the Pribilof Islands west of 168° West Longitude. Very few large male crab were observed in survey tows conducted in the Bristol Bay area east of 168° West Longitude. As a result, fishing was once again confined to areas west of 168° North Latitude. A small increase in legal male abundance was observed in that portion of the Bering Sea north of the Pribilof Islands. To provide vessels an opportunity to explore this area of increased abundance, the area normally open to fishing was extended north from Cape Newenham, at 58° 39' 00" , north to 60° North Latitude.

The 1996 Bering Sea Korean hair crab fishery opened at 12:00 noon on November 1. A total of 21 vessels registered and obtained the special commissioner's permit required for this fishery. Of those vessels which registered, 19 actually participated and delivered. This year's fishery, which closed by emergency order at 12:00 noon on December 2, was confined to that portion of the Bering Sea south of 60° North Latitude and west of 168° West Longitude. The total harvest from 99 landings was 745,804 pounds (Figure 2), approximately 155,000 pounds short of the preseason GHL. From the total harvest 32,495 pounds were reported as deadloss (Table 1).

Of the 19 vessels which participated in 1996, 18 were in excess of 44 feet and therefore carried an observer. Observers were required to report, via single side band radio, to ADF&G in Dutch Harbor each Monday, Wednesday and Friday. Observers reported the number of crab retained, pots pulled and number of pots sampled.

Based on observer reports, fishery performance fell from 2.24 legal crabs per pot during the first week of the fishery to a low of 0.72 legal crabs per pot by the end of the fourth week. In the fifth and final week, performance improved to 1.37 legal crabs per pot. This increase in fishery performance was the result of fishermen retaining barnacle-covered crab, which until then, had made up as much as 50% of the catch and were being discarded at sea. Overall fishery performance for 1996 was 1.2 legal crabs retained per pot pulled. This compares to an average of three legal crabs per pot pull for the preceding three seasons (Table 1).

Total catch per week in the 1996 fishery ranged from over 138,000 pounds, in the first full week of fishing, to over 170,000 pounds in the second full week. By the third week, the harvest had dropped to just over 146,000 pounds. In the final week of fishing the catch rebounded to almost 155,000 pounds. The number of pots pulled per week ranged from over 65,000 in the first full week of fishing to over 107,000 during the final full week. Pots pulled for the 1996 fishery totaled 410,548. This compares to a total of 441,494 pot pulls for the 1995 fishery (Table 1).

Weight of crab caught during the 1996 fishery averaged 1.5 pounds. This is an increase over the 1.4, 1.3 and 1.2 pound average weights observed during the three prior seasons. This season's higher average weight is largely due to higher weights of barnacle-covered crab in the landed catch. The average weight observed in the 1996 fishery is far below the historical high of 2.2 pounds per crab observed in the 1980/81 fishery (Table 1).

Hair crab harvested in 1996 were purchased by shore processors and live crab shippers in the Pribilof Islands and Dutch Harbor. Approximately 80% of the total harvest was delivered to the port of St. Paul with the remaining 20% going to processors and shippers in Dutch Harbor. Due to strict grading standards, most processors refused to purchase loads which contained high percentages of barnacle-covered crabs. Unless scraped, these crab were purchased as graded number three and were worth only \$.50 per pound. Clean number one crabs were purchased in St. Paul for \$3.50 per pound. In Dutch Harbor, clean number one crabs brought \$3.70 per pound. Number two grade crabs brought \$2.25 and \$2.50 at shore plants in the Pribilofs and Dutch Harbor respectively. Live buyers in the Pribilofs paid \$4.00 per pound for number one grade crabs, while in Dutch Harbor, live buyers paid \$3.70. Average price for all grades and delivery locations yielded an estimated exvessel value of \$2.65 per pound. The total estimated value of the 1996 fishery is \$1.8 million. This compares to an exvessel value of \$2.87 per pound and a fishery value of \$5.7 million for the 1995 fishery (Table 2).

At 31 days, the 1996 fishery was only six days longer than the 1995 season, which at 25 days, was the shortest on record (Table 2). High discard rates of barnacle-covered legal-sized crab, concentrated over the relatively small area in which this fishery occurs, resulted in the repeated capture and release of many legal and non-legal crab. The 1996 fishery was closed prior to achieving the 900,000 pound season GHL due to concerns about handling mortality of crabs continuously recaptured.

The majority of the 1996 harvest came from the four statistical areas immediately surrounding the St. Paul Island. This is the same area from which the harvest has occurred in prior seasons.

Status of Stocks

While the abundance of hair crab appears to have decreased from levels observed in 1995, the 1996 population index is comparable to those of the past 3-4 years, indicating the stock is stable (Robert Otto, National Marine Fisheries Service, Kodiak, personal communication) .

Table 1. Historic Korean hair crab catch statistics, by season, for the Bering Sea.

Year	Number of			Harvest ^{a,b}	Pots Pulled	CPUE ^c	Average		Deadloss ^b
	Vessels	Landings	Crab ^a				Weight ^b	Length	
1978/79	11	16	2,457	5,213	9,908	<1	2.1	111.8	0
1979/80	9	17	25,417	53,914	14,506	2	2.1	114.5	0
1980/81	67	192	1,127,309	2,439,483	172,695	7	2.2	104.8	265,369
1981/82	48	159	466,560	932,584	117,518	4	2.0	103.1	29,749
1982/83	52	161	575,453	1,211,420	84,346	7	2.1	103.2	122,456
1983/84	19	48	200,670	406,538	20,414	10	2.0	-	28,062
1984 ^e	7	26	197,209	396,630	22,392	9	2.0	-	19,436
1985 ^e	3	9	34,410	66,042	3,905	9	2.0	-	593
1986 ^e	3	7	7,289	14,835	4,720	2	2.0	-	500
1987 ^e				C O N F I D E N T I A L					
1988 ^e				N O F I S H I N G					
1989 ^e				N O F I S H I N G					
1990 ^e				N O F I S H I N G					
1991 ^e	7	42	441,533	377,708	44,444	10	0.9	-	0
1992 ^{e,i}	9	20	203,758	240,767	38,808	5	1.2	-	11,495
1992 ^{e,g}	10	47	1,127,948	1,198,590	125,943	9	1.1	83.1	65,674
1993 ^{e,i}	4	5	2,347	3,038	9,345	<1	1.3	84.4	0
1993/94 ^{e,g,h,i}	19	129	1,936,795	2,331,686	585,913	3	1.2	88.0	124,596
1994 ^{e,g}	10	55	897,070	1,199,246	287,954	3	1.3	91.0	49,275
1995 ^{e,g}	21	81	1,485,097	2,059,988	441,494	3	1.4		73,882
1996 ^{e,g}	19	99	485,722	745,804	410,548	1	1.5		32,495

^aDeadloss included.

^bIn pounds.

^cDefined as catch per pot pull.

^dIn millimeters.

^ePermit fishery.

^fSpring fishery.

^gFall fishery.

^hFishery opened Nov. 1, 1993 and closed April 20, 1994.

ⁱIncludes 7 vessels which landed hair crab incidental to *C. bairdi*.

Table 2. Historic Bering Sea Korean hair crab economic performance, 1978/79-1995.

Year	GHL ^{a,b}	Season Total ^b	Number of		Number of Pots		Value		Season Length	
			Vessels	Landings	Registered	Pulled	Exvessel	Total ^c	(Days)	Dates
1978/79		0.01	11	16		9,908	\$0.52-	\$0.01	(257)	04/19-12/31
							\$0.55			
1979/80		0.1	9	17		14,506	\$0.75	\$0.04	(244)	01/01-08/30
1980/81 ^{d,e}		2.2	67	192		172,695	\$0.80	\$1.7	(242)	11/01-06/30
1981/82		0.9	48	159		117,518	\$0.55	\$0.05	(288)	11/01-08/15
1982/83		1.1	52	161		84,346	\$0.65	\$0.7	(297)	10/08-08/01
1983/84		0.4	19	48		20,414	\$1.20	\$0.5	(335)	08/01-06/30
1984 ^f		0.4	7	26		22,392	\$1.60	\$0.6	(184)	07/01-12/31
1985 ^f		0.1	3	9		3,905	\$1.60	\$0.1	(365)	01/01-12/31
1986 ^f		0.01	3	7		4,720	\$1.15	\$0.02	(365)	01/01-12/31
1987 ^f					C O N F I D E N T I A L				(365)	01/01-12/31
1988 ^f					N O F I S H I N G					
1989 ^f					N O F I S H I N G					
1990 ^f					N O F I S H I N G					
1991 ^f		0.4	7	42		44,444	\$3.08	\$1.2	(365)	01/01-12/31
1992 ^{f,g}		0.2	9	20		38,808	\$2.25	\$0.5	(32)	01/01-06/04
1992 ^{f,h}		1.1	10	47		125,943	\$2.46	\$2.8	(156)	10/01-11/01
1993 ^{f,g}		0.01	4	5		9,345	NA	NA	(45)	04/01-05/15
1993/94 ^{f,h,i}	3.0 ^j	2.2	19	129	14,345	585,913	\$2.42	\$5.3	(171)	11/01-04/20
1994 ^{f,h}	1.1	1.1	10	55	13,350	287,954	\$3.55	\$4.0	(41)	11/01-12/12
1995 ^{f,h}	1.8	2.1	21	81	25,750	441,494	\$2.87	\$5.7	(25)	11/01-11/26
1996 ^{f,h}	.9	.7	19	99	21,554	410,548	\$2.65	\$1.8	(31)	11/01-12/02

^a Guideline harvest level, prior to 1993 the fishery was managed to historical harvest levels.

^b Millions of pounds.

^c Millions of dollars.

^d Season opened within three miles year round.

^e Emergency Order reopened within three miles.

^f Permit fishery.

^g Spring fishery.

^h Fall fishery.

ⁱ Includes 7 vessels which landed hair crab incidental to *C. bairdi*.

^j GHL was 2.5 and 0.5 million pounds West and East of 168° W. long., respectively.

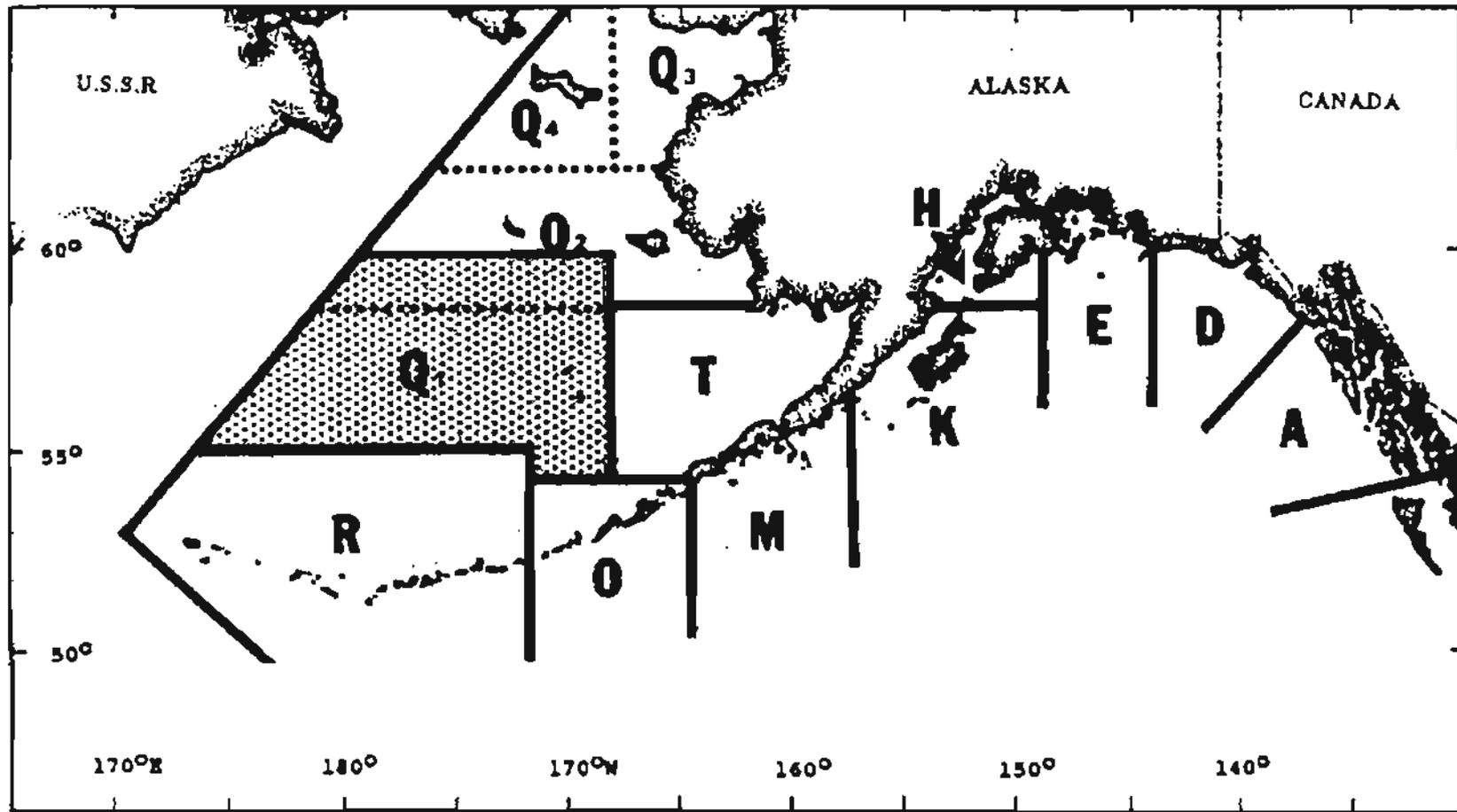


Figure 1. Map of the Bering Sea and Aleutian Islands crab management area.

 Area of the 1996 Bering Sea Korean hair crab fishery.

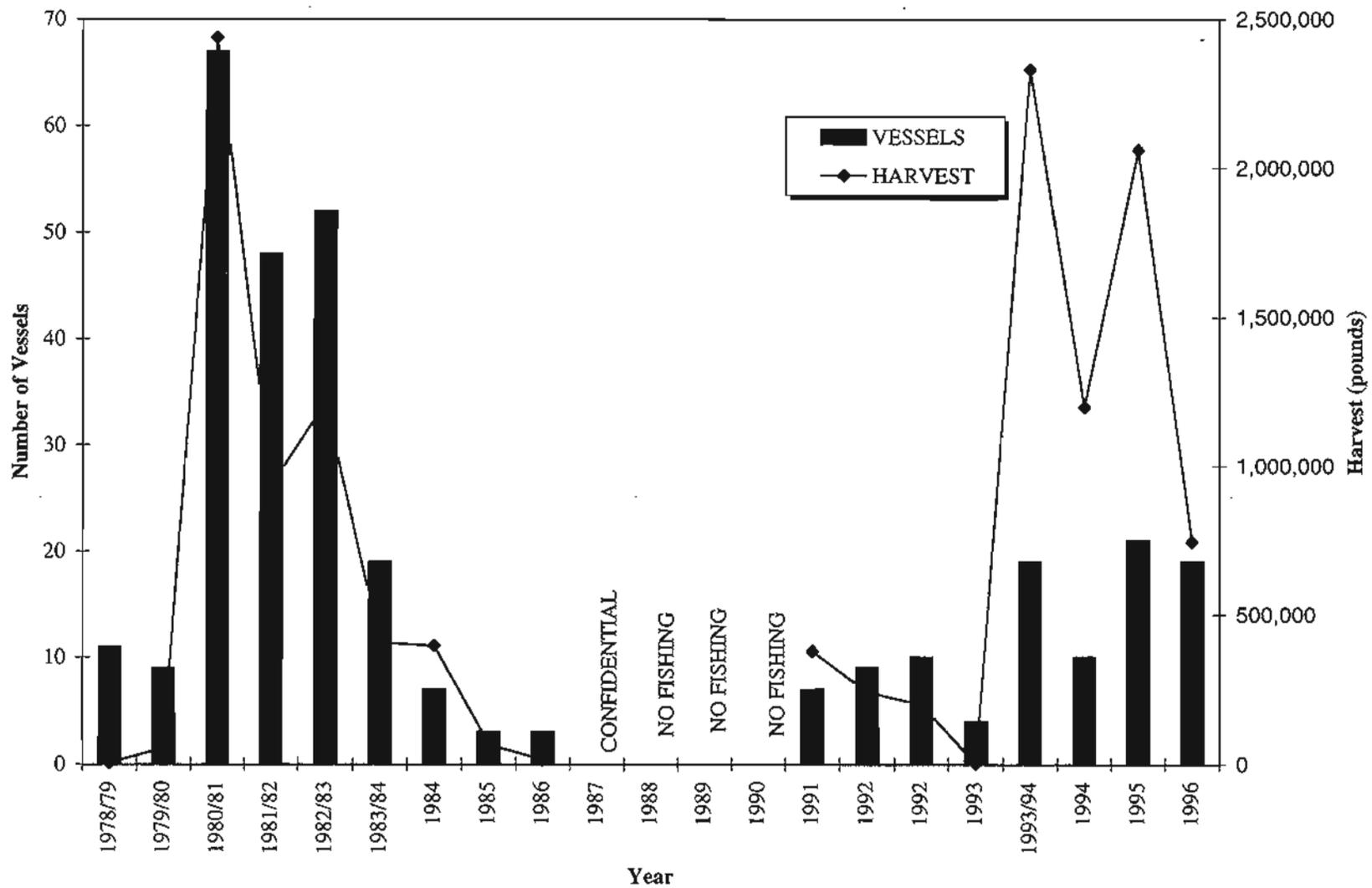


Figure 2. Historic harvest and vessel participation in the hair crab fishery 1978/79 - 1996.

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