

FISHERY INFORMATION PACKET FOR THE BRISTOL BAY RED KING CRAB
FISHERY, 2002

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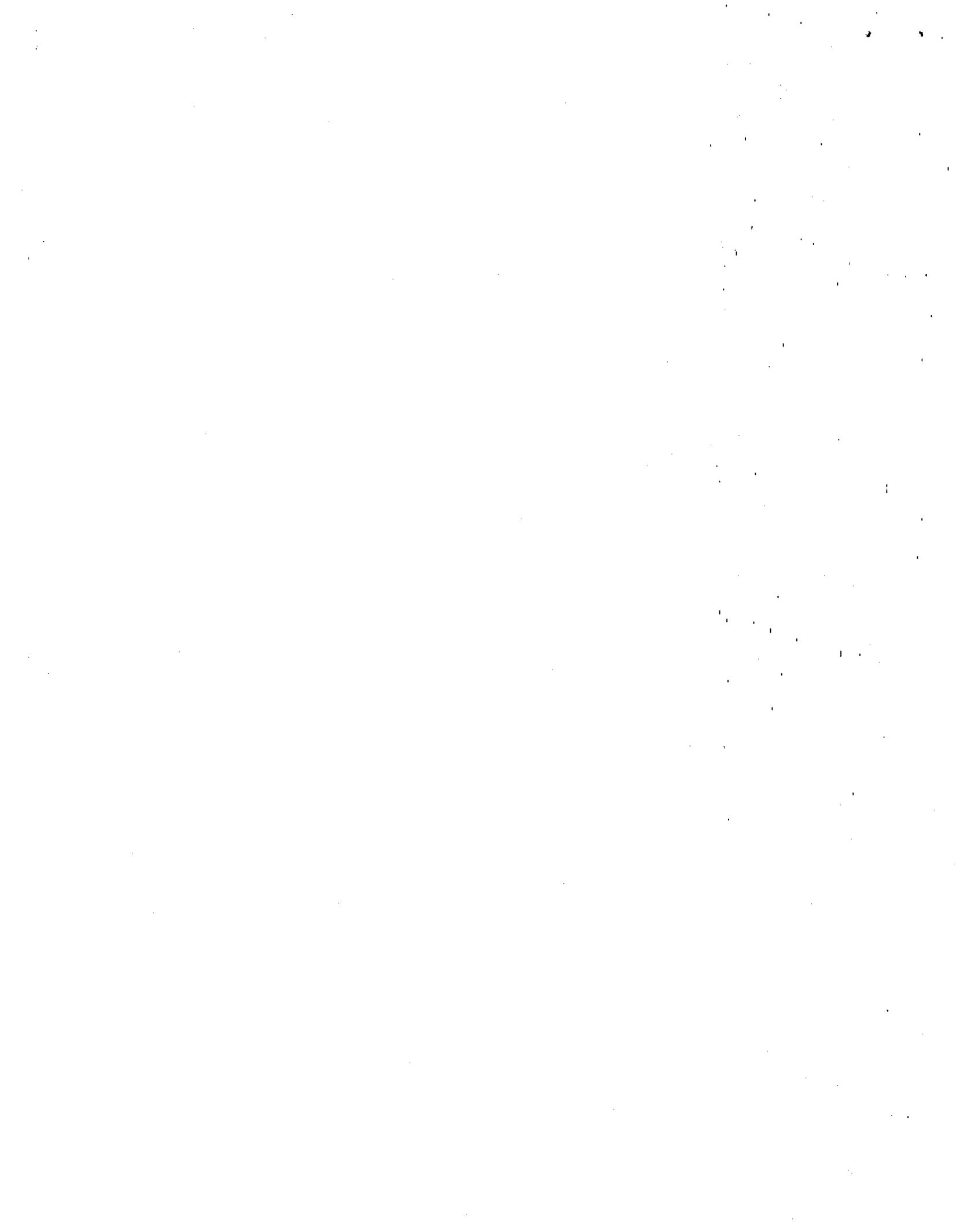
Karla L. Granath

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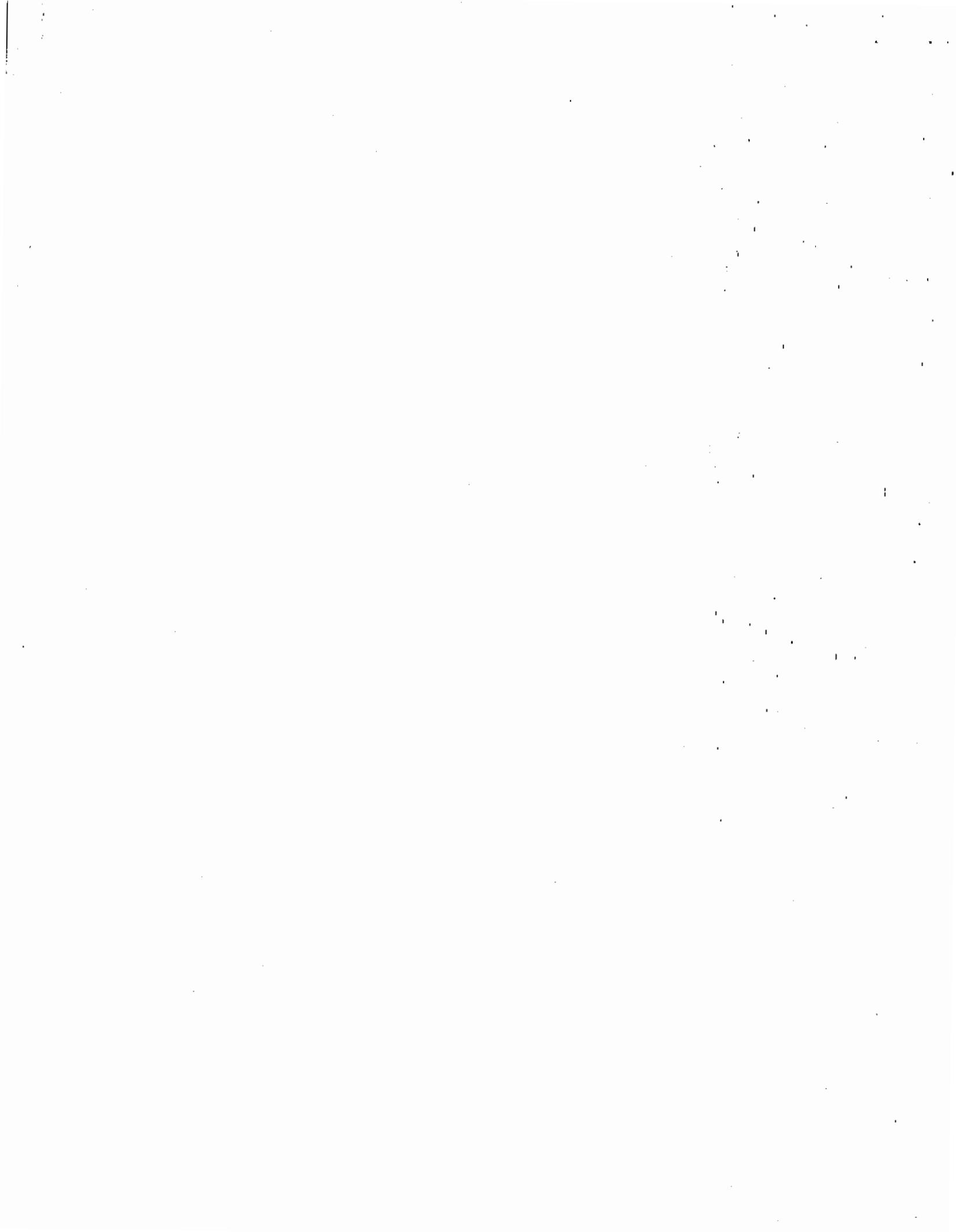
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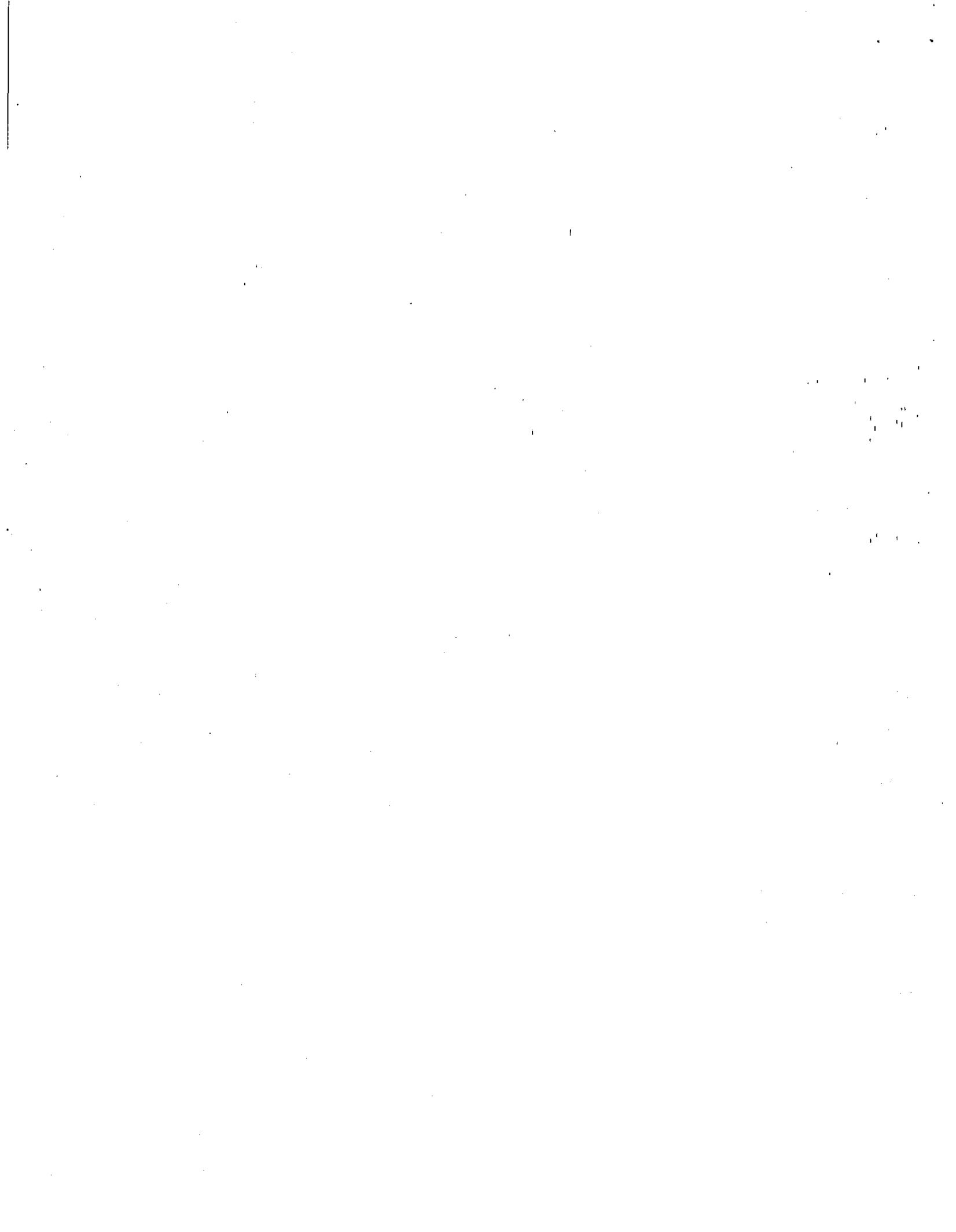
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ABSTRACT

This fishery information packet is intended to provide a brief overview of the red king crab *Paralithodes camtschaticus* fishery occurring in Alaska Department of Fish and Game (ADF&G) king crab Registration Area T (Bristol Bay). This packet provides information on area description, brief historic fishery review, and summary of current management practices and policies and provides fishers and members of industry a better understanding of how the department manages the red king crab fishery in this area. Supplemental information is provided on gear requirements, registration, stand down provisions, and American Fisheries Act vessel sideboards.

INTRODUCTION

The red king crab fishery in the eastern Bering Sea began with harvests by Japanese fishers in 1930. United States fishers entered the area with trawl gear in 1947. Effort and catches declined through the 1950s. A full-scale domestic pot fishery developed in the mid 1960s and harvest peaked in 1980 when 130 million pounds of red king crabs were landed. In that same year, the Alaska Board of Fisheries (BOF) established Bristol Bay as a separate registration area. Annual harvests have fluctuated dramatically over the course of this fishery, however, the area continues to sustain the largest red king crab fishery in Alaska.

Description of Registration Area T and Statistical Areas

Registration Area T is bounded on the north by the latitude of Cape Newenham (58° 39' N lat.), on the south by the latitude of Cape Sarichef (54° 36' N lat.), on the west by 168° W long., and includes all waters of Bristol Bay (Figure 1).

King crab Registration Area T has no district, subdistrict, or section subdivisions. For catch reporting purposes, the area is divided into ADF&G statistical areas, each encompassing one degree of longitude by one-half degree of latitude. All commercial removals of red king crabs, including deadloss, are reported to ADF&G in reference to these statistical areas (Figure 2).

Historical Fishery Perspective

Following the record harvest of red king crabs from Bristol Bay in 1980, the stock declined sharply and the area was closed to king crab fishing for the 1983 season due to low stock abundance. Area T reopened in 1984 and harvest reached 20 million pounds by 1990. In 1994, the stock once again fell to levels requiring a fishery closure. The fishery was not opened for the 1994 and 1995 seasons. In 1996, the BOF adopted a revised harvest strategy aimed at improving the probability for stock rebuilding. Details of this revised harvest strategy, which includes a reduction in the exploitation rate of mature male crabs, are described below in the *Harvest Strategy and Guideline Harvest Level* sections.

In 1992, the BOF adopted regulations restricting all participating vessels to a maximum of 250 pots, hoping to slow the pace of the fishery. To comply with federal law regarding application of pot limits in a nondiscriminatory manner, differential pot limits based on vessel length were implemented in 1993. Differential pot limits provide vessels less than or equal to 125 feet in overall length a maximum of 200 pots and vessels in excess of 125 feet a maximum of 250 pots.

In the fall of 1996, Area T reopened to commercial fishing for red king crabs with a guideline harvest level (GHL) of 5.0 million pounds. The fleet exceeded the GHL by 70% with a harvest of 8.4 million pounds. As a result of this excessive harvest, the BOF called a special meeting prior to the 1997 fishery and adopted interim management measures intended to provide the department with additional tools for management of the fishery at low GHLs. These measures include variable pot limits based on the GHL and number of participating vessels, preseason registration requirements, and a regulation allowing baited gear to remain on the fishing grounds if a closure announcement is made with less than 24 hour notification to the fleet.

The 1997 fishery with a GHL of 7.0 million pounds was prosecuted under reduced pot limits and because fishers were given only 20 hrs advanced notice of the closure; they were permitted to leave baited gear on the fishing grounds after the season closure. Despite these additional measures, harvest in the 1997 fishery was 8.7 million pounds. In 1998, the general fishery GHL was 15.8 million pounds; the actual harvest was 14.3 million pounds. In 1999, the BOF made permanent those interim management measures adopted prior to the 1997 season. In 1999, the general fishery GHL was 10.1 million pounds; the actual harvest was 11.1 million pounds taken by 257 vessels in 5 days. During the 2000 fishery, the GHL was set at 7.7 million pounds and 244 vessels harvested 7.55 million pounds in four days. The 2001 Area T red king crab general fishery GHL was set at 6.61 million pounds. A fleet of 237 vessels harvested 7.79 million pounds in 3.3 days.

REGULATIONS

Area T is an *exclusive* king crab registration area. Vessels that register and participate in this area, may not participate in any other *exclusive* or *superexclusive* king crab registration areas during the king crab registration year, which runs from June 28 to June 27.

Specific regulations governing commercial king crab fishing in Area T begin with 5 AAC 34.800 DESCRIPTION OF REGISTRATION AREA T, in the Commercial Shellfish Fishing Regulation booklet. Some of the regulations are summarized below. This section does not include all regulations pertaining to the Bristol Bay red king crab registration area. Fishers are urged to obtain the latest commercial shellfish regulation booklet from an ADF&G office. For additional information on regulations pertaining to this fishery, contact the ADF&G office in Dutch Harbor or Kodiak. ADF&G contacts are listed under the *Department Contacts* section of this document.

Fishing Seasons, Pot Limits, and Legal Gear

The Bristol Bay red king crab fishery opens annually at 4:00 PM on October 15, according to provisions of 5 AAC 34.810 (b) FISHING SEASONS FOR REGISTRATION AREA T. The area is closed by emergency order when the GHL is achieved or when indicators of stock condition, such as poor

fishery performance or excessive bycatch of small or female crabs, indicate a closure is necessary to protect the long term health of the stock.

Pot limits implemented by the BOF in 1997 range from 60-200 pots for vessels equal to or less than 125' length overall and 75-250 pots for vessels greater than 125' length overall, depending on the GHL and the number of vessels registered for the fishery. These pot limit regulations are outlined in 5 AAC 34.825(h)(1-8) **LAWFUL GEAR FOR REGISTRATION AREA T**. To ensure compliance with pot limit regulations, the main or trailer buoy on each pot must display one fishery-specific identification tag for the current year according to 5 AAC 34.051 (b) and (c) **KING CRAB GEAR MARKING REQUIREMENTS** and 5 AAC 34.826 (a) **KING CRAB POT MARKING REQUIREMENTS FOR REGISTRATION AREA T**. All pots must be tagged at the time of tank inspection and remain tagged throughout the fishery. It is the responsibility of each vessel operator to ensure that all gear is tagged and that tags are affixed to the gear in a way which minimizes tag loss.

Buoy tags are available at a cost of \$2.00 each from ADF&G offices in Dutch Harbor and Kodiak. Buoy tags for the Bristol Bay red king crab fishery are normally available beginning on the first business day following the preseason registration deadline. For the 2002 season, tags will be available beginning on September 25.

Buoy tags lost during the season may be replaced according to provisions of 5 AAC 34.826 (b) **KING CRAB GEAR MARKING REQUIREMENTS FOR REGISTRATION AREA T**. This regulation states that replacement of lost tags is permitted if the vessel operator and three crew members submit statements, in person, at the ADF&G office in Dutch Harbor, describing how tags were lost and listing the number of each lost tag.

Legal gear for the commercial red king crab fishery in Area T is limited to king crab pots that are no more than 10 feet long by 10 feet wide by 42 inches high with rigid tunnel eye openings that individually are no less than five inches in any one dimension with perimeters that are individually greater than 36 inches, or pots that are no more than 10 feet long by 10 feet wide by 42 inches high which taper inward from their base to a top consisting of one horizontal opening of any size. A complete description of legal gear for the Bristol Bay red king crab fishery is listed in 5 AAC 34.050 **LAWFUL GEAR FOR KING CRAB**. All gear must be marked and tagged according to 5 AAC 34.051 (a) **KING CRAB GEAR MARKING REQUIREMENTS**. In addition to these gear requirements, all pots fished for king crabs in Area T must have at least one-third of one vertical surface of the pot composed of not less than nine-inch stretched mesh webbing as required by 5 AAC 34.825(b) **LAWFUL GEAR FOR REGISTRATION AREA T**. All pots must also be equipped with a biodegradable escape mechanism as described in 5 AAC 39.145 **ESCAPE MECHANISM FOR SHELLFISH AND BOTTOMFISH POTS**.

Preseason Registration, Registration, and Tank Inspections

Preseason registration is required for all vessels wishing to participate in Bristol Bay red king crab fishery. The annual preseason registration deadline is 5:00 PM September 24 as outlined in 5 AAC 34.806(b) **AREA T REGISTRATION**.

In addition to vessel registration requirements with the Commercial Fisheries Entry Commission listed under 5 AAC 39.120 **REGISTRATION OF COMMERCIAL FISHING VESSELS**, a vessel used to take king crabs in Area T must first obtain a shellfish registration certificate from ADF&G according to provisions of 5 AAC 34.020 **KING CRAB AREA REGISTRATION**.

In order for the shellfish vessel registration to be valid, a catcher vessel must have all live tanks inspected by a department representative as specified in 5 AAC 34.030 INSPECTION REQUIREMENTS. In addition, catcher-processor vessels must have all freezers and live tanks inspected. Dry-tanked vessels do not require a tank inspection. Tank inspections are required to insure that vessels are not in possession of crabs prior to the start of a fishery. Vessels intending to participate in the Bristol Bay red king crab fishery are required to register and have their holds inspected in Dutch Harbor, Akutan, King Cove, or False Pass beginning 30 hours prior to the start of the season according to 5 AAC 34.840 REGISTRATION AREA T INSPECTION POINTS AND REQUIREMENTS.

To facilitate and speed the tank inspection and registration process, the department utilizes a "quick registration" procedure. Department staff in all tank inspection ports inspect live tanks and gear on vessels up to seven days prior to the 30-hour tank inspection period. If all gear on a vessel at the time of the tank inspection complies with registration area gear requirements and no live crabs are on board, an inspection certificate is issued to the operator of the vessel. Leaving port or placing gear on the vessel that is not in compliance with Area T gear requirements invalidates the inspection certificate and the vessel is required to receive another tank inspection during the 30-hour tank inspection window. At any time during the 30-hour tank inspection window, operators of vessels that have received a tank and gear inspection may proceed with certificate, vessel registration form and Area T king crab interim use permit card to pre-designated quick registration locations to have the registration validated. Quick registration signing locations are announced during tank inspections. Once a vessel registration has been validated, that vessel may proceed to the fishing grounds.

Operation of Other Gear and Stand Down Provisions

Regulations adopted by the BOF in 2000 and found in 5 AAC 34.828. OPERATION OF OTHER GEAR IN REGISTRATION AREA T, state that a person or vessel that operates commercial, subsistence, personal use, or sport pot, longline, or trawl gear in a non-pollock fishery, in that portion of Registration Area T, north of 55° 30' N lat., and east of 164° W long., during the 30 days immediately before the scheduled opening date of the commercial red king crab season, or operates trawl gear in a directed pollock fishery, in that portion of Registration Area T north of 55° 30' N lat., and east of 164° W long., during the 14 days immediately before the scheduled opening date of the commercial red king crab season, may not participate in the commercial red king crab fishery. Trawl catcher vessels delivering to the offshore sector and trawl catcher vessels that have 100 percent federal groundfish observer coverage in Registration Area T, north of 55° 30' N lat., and east of 164° W long., during the 14 days immediately before the scheduled opening date of the commercial red king crab season are exempt from this requirement. In addition, a person or vessel that participates in a commercial king crab season in Registration Area T may not operate commercial, subsistence, personal use, or sport pots in that registration area during the 30 days immediately following the closure of the commercial king crab season in that registration area, except that a person or vessel may operate pots other than king crab pots in that portion of Registration Area T south of 55° 30.00' N. lat. and west of 164° W. long. immediately following the closure of the commercial king crab season in that area after placing all king crab pots in storage as specified in 5 AAC 34.052 and contacting a representative of the department, in person, and receiving confirmation that the king crab registration has been invalidated.

Landing and Pot Storage Requirements

As outlined in 5 AAC 34.841 LANDING REQUIREMENTS FOR REGISTRATION AREA T, vessels that fished for red king crabs in Registration Area T must arrive at their chosen processing location within 30 hours following the season closure if delivery is made to processors in Dutch Harbor, Akutan, or King Cove. Vessels delivering to Adak, the Pribilof Islands, or ports east of King Cove may request additional running time to transit directly to the processing location by contacting ADF&G in Dutch Harbor within the 30 hours following the closure.

During a closed season, king crab pots must be removed from the water. However, according to 5 AAC 34.827 KING CRAB POT STORAGE REQUIREMENTS FOR REGISTRATION AREA T, king crab pots may be stored with doors secured fully open and bait containers removed in waters north of 57° N lat., south of 58° N lat., east of 166° W long., and west of 164° W long. In addition, pots with doors secured fully open and bait containers removed may be stored in Registration Area T for up to 10 days following the closure of the king crab fishery. Additional provisions of this section allow baited pots to be stored on the fishing grounds in Registration Area T for up to 10 days following a closure if the registration area is closed with less than 24 hours advance notice.

Legal Size Limits

The legal minimum size of red king crabs that may be harvested in Registration Area T is six and one-half inches (165 mm) carapace width as outlined in 5 AAC 34.820 SIZE LIMITS FOR REGISTRATION AREA T. Only male crabs can be legally harvested. All other animals taken incidentally must be immediately returned, unharmed, to the sea.

American Fisheries Act Vessel Management Sideboards

Vessels endorsed under the American Fisheries Act (AFA) for the Bristol Bay red king crab fishery will be managed under the AFA Management Plan outlined in 5 AAC 39.695. AMERICAN FISHERIES ACT MANAGEMENT PLAN FOR THE BERING SEA AND BRISTOL BAY CRAB FISHERIES. This management plan includes preseason vessel registration, observer coverage as required by the department, and other conditions the commissioner of ADF&G determines necessary for management of the fishery. This management plan also specifies that ADF&G will manage AFA vessels with a harvest cap of the general fishery GHL, either equally apportioned between all AFA qualified vessels or through a cooperative fishery when 100 percent of AFA qualified participants agree to the cooperative. Also as specified in the management plan, each AFA vessel will be required to be capable of reporting via radio or marine telex to the department as often as each 12 hours throughout the fishery. If the cooperative fishery is prosecuted, the AFA vessels will report directly to a fleet manager selected and employed by the cooperative group, who in turn will work with department personnel to insure that the AFA cap is not exceeded.

Onboard Observer Program

In addition to the pay-as-you-go mandatory observer coverage on at-sea processors, regulations implemented by the BOF in 1999 allow for placement of observers on catcher vessels. The department will be placing observers on approximately 10 percent of the catcher vessels in the

Bristol Bay red king crab fishery; the cost of these observers will be paid with funds generated by cost recovery fishing for Bristol Bay red king crabs. Vessels will be selected at random after the preseason registration deadline. Selected vessels will be notified within several days of the preseason registration deadline. Observers will not be placed on vessels less than 75 feet overall length. For additional information on the observer program, contact the observer program office in Dutch Harbor (Appendix A).

HARVEST STRATEGY

The harvest strategy developed for Bristol Bay red king crabs is outlined under 5 AAC 34.816 BRISTOL BAY RED KING CRAB HARVEST STRATEGY. The harvest strategy establishes a minimum abundance threshold of 8.4 million mature female crabs and an effective spawning biomass (ESB) of at least 14.5 million pounds of mature female crabs before a fishery is allowed. This harvest strategy also establishes an exploitation rate of 15% on mature male crabs if the ESB is above 55 million pounds. If the ESB falls below 55 million pounds the exploitation rate on mature male crabs is reduced to 10%. Effective spawning biomass is defined as the estimated biomass of mature female red king crabs that the population of mature male red king crabs can successfully mate in a given year.

The red king crab GHL for Registration Area T is calculated based on population estimates derived from a length based model (LBA) developed by ADF&G (Zheng et al. 1995). The LBA utilizes data collected during the National Marine Fisheries Service (NMFS) trawl survey of the eastern Bering Sea, length frequencies of retained catch at dockside and observer data. NMFS survey results are presented annually in an Alaska Fisheries Science Center report. The department's LBA analysis is provided in an annual executive summary. Determination of the red king crab GHL is normally complete and made available to the public by ADF&G news release prior to August 31. News releases are faxed or electronically mailed to all major processor and industry groups active in the Bering Sea crab fisheries and are available on the World Wide Web at www.cf.adfg.state.ak.us.

FISHERIES MANAGEMENT AND VOLUNTEER CATCH REPORTING

The Bristol Bay red king crab fishery has historically been managed inseason. However, if the GHL is unusually low and/or the number of vessels participating relatively high, a fishery closure could be determined based on the total number of participants and historic fishery performance. In these situations the closure would be announced to the fleet shortly after the fishery begins, once total effort could accurately be determined. A closure announcement would be broadcast to the fleet over single side band (SSB) radio frequency 4125 kHz, faxed and electronically mailed to all major processors and industry groups.

Inseason management is the preferred option, however and is accomplished by means of voluntary daily catch reports from participating vessel operators. These reports, sent by marine satellite telex (each 12 hours) or single side band radio (each 24 hours), are processed daily by department staff in Dutch Harbor. Vessel operators report number of pots hauled and number of legal crabs harvested for a predetermined 12- or 24-hour reporting period. Inseason management

allows fishery managers to base decisions on actual, real-time fishery performance and weather conditions. The operator of any registered vessel may participate in the voluntary inseason catch reporting program and all vessel operators are asked to participate at the time of tag purchase, registration and/or tank inspection. Inseason information is used to monitor the daily harvest and to calculate a daily catch rate used to project the date and time of the fishery closure. Once determined, the closure is announced to the fishing fleet over SSB radio frequency 4125 kHz, faxed and electronically mailed to all major processors and industry groups. Catch reporting is essential to successful management of this fishery and fishers are strongly encouraged to participate. All catch reports are maintained under the strictest confidentiality.

GUIDELINE HARVEST LEVEL AND OUTLOOK FOR THE 2002 FISHERY

The LBA analysis for 2002 indicates that the Bristol Bay red king crab population is above the minimum stock size threshold (MSST) of 44.8 million pounds of total mature biomass (TMB) at 129.9 million pounds TMB. Mature female abundance was estimated to be 18.6 million crabs, a slight decrease from the 2001 abundance of 21.2 million crabs. Effective spawning biomass (ESB) was estimated to 37.7 million pounds, a slight decrease from the 2001 ESB of 40.6 million pounds. Given an ESB of less than 55 million pounds, the exploitation rate was set at 10% of the mature male population. Mature male abundance was estimated to be nearly 14.3 million crabs, thus the total GHF was set at 9.27 million pounds, an increase from the 2001 total GHF of 7.15 million pounds. Of this total, 8,575,202 pounds are available to the general fishery and the remaining 695,287 pounds are set aside for the Community Development Quota (CDQ) fishery. The AFA fleet will be capped at 10.96% (939,842 pounds) of the general fishery GHF.

The 2002 Bristol Bay season begins at 4:00 PM on October 15. The fishery will open as scheduled provided that preseason consultations between the department, National Weather Service (NWS) and United States Coast Guard (USCG) indicate that weather conditions immediately preceding and during the early portion of the fishery will allow USCG personnel to successfully launch rescue aircraft. Given catch rates observed in recent seasons, the fishery is expected to be short, no longer than four to five days. Catch updates and the closure announcement will be provided to fishers via SSB radio on frequency 4125 kHz. Fishers should monitor that frequency while the fishery is open as updates could occur at any time and the time interval between the closure announcement and the fishery closure could be relatively short.

DEPARTMENT CONTACTS

Contacts for ADF&G in Dutch Harbor are Forrest R. Bowers, Area Management Biologist; Karla L. Granath, Assistant Area Management Biologist, Mike Cavin, Assistant Groundfish/CDQ Management Biologist and Mary Schwenzfeier, Shellfish Observer Program Coordinator. The ADF&G phone number in Dutch Harbor is (907) 581-1239, and the fax number is (907) 581-1572.

Department contacts in Kodiak are Wayne Donaldson, Regional Shellfish/Groundfish Management Biologist; Dave Jackson, Kodiak Island/Alaska Peninsula Area Shellfish/Groundfish Management Biologist; and Mike Ruccio, Assistant Area Shellfish/Groundfish

Biologist. The ADF&G phone number in Kodiak is (907) 486-1840, and the fax number is (907) 486-1824.

A complete listing of contact persons by agency and location is listed in Appendix A.

LITERATURE CITED

- Zheng, J., M.C. Murphy, and G.H. Kruse. 1995. A length-based population model and stock-recruitment relationships for red king crab, *Paralithodes camtschaticus*, in Bristol Bay, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 52: 1229-124

Table 1. Bristol Bay commercial red king crab catch data, 1966-2001.

Year	Number of		Harvest ^a (pounds)	Number of Pots		CPUE ^b	Deadloss (pounds)	
	Vessels	Landings Crabs ^a		Registered	Pulled			
1966	9	15	140,554		2,720	52		
1967	20	61	397,307		10,621	37		
1968	59	261	1,278,592		47,496	27		
1969	65	377	1,749,022		98,426	18		
1970	51	309	1,682,591		96,658	17		
1971	52	394	2,404,681		118,522	20		
1972	64	611	3,994,356		205,045	19		
1973	67	441	4,825,963		194,095	25	N/A	
1974	104	605	7,710,317		212,915	36	N/A	
1975	102	592	8,745,294		205,096	43	1,639,483	
1976	141	984	10,603,367		321,010	33	875,327	
1977	130	1,020	11,733,101		451,273	26	730,279	
1978	162	926	14,745,709		406,165	36	1,273,037	
1979	236	889	16,808,605		315,226	53	3,555,891	
1980	236	1,251	20,845,350	78,352	567,292	37	1,858,668	
1981	177	1,026	5,307,947	75,756	542,250	10	711,289	
1982	90	255	541,006	36,166	141,656	4	95,834	
1983		NO COMMERCIAL FISHERY						
1984	89	137	794,040	4,182,406	21,762	112,556	7	35,601
1985	128	130	796,181	4,174,953	30,117	85,003	9	6,436
1986	159	230	2,099,576	11,393,934	32,468	178,370	12	284,127
1987	236	311	2,122,402	12,289,067	63,000	220,871	10	120,388
1988	200	201	1,236,131	7,387,795	50,099	153,004	8	23,537
1989	211	287	1,684,706	10,264,791	55,000	208,684	8	81,334
1990	240	331	3,120,326	20,362,342	69,906	262,131	12	116,527
1991	302	324	2,630,446	17,177,894	89,068	227,555	12	119,670
1992	281	289	1,196,958	8,043,018	68,189	205,940	6	9,000
1993	292	361	2,261,287	14,628,639	58,881	253,794	9	133,442
1994		NO COMMERCIAL FISHERY						
1995		NO COMMERCIAL FISHERY						
1996	196	198	1,249,005	8,405,614	39,461	76,433	16	24,166
1997	256	265	1,315,969	8,756,490	27,499	90,510	15	13,771
1998	274	284	2,140,607	14,233,063	56,420	141,707	15	53,716
1999	257	268	1,812,403	11,090,930	42,403	146,997	12	44,132
2000	246	256	1,166,796	7,546,145	26,352	98,694	12	76,283
2001	232	237	1,196,040	7,786,420	24,571	63,237	19	57,294

^aGeneral fishery only. Deadloss included.

^bNumber of legal crabs per pot pull.

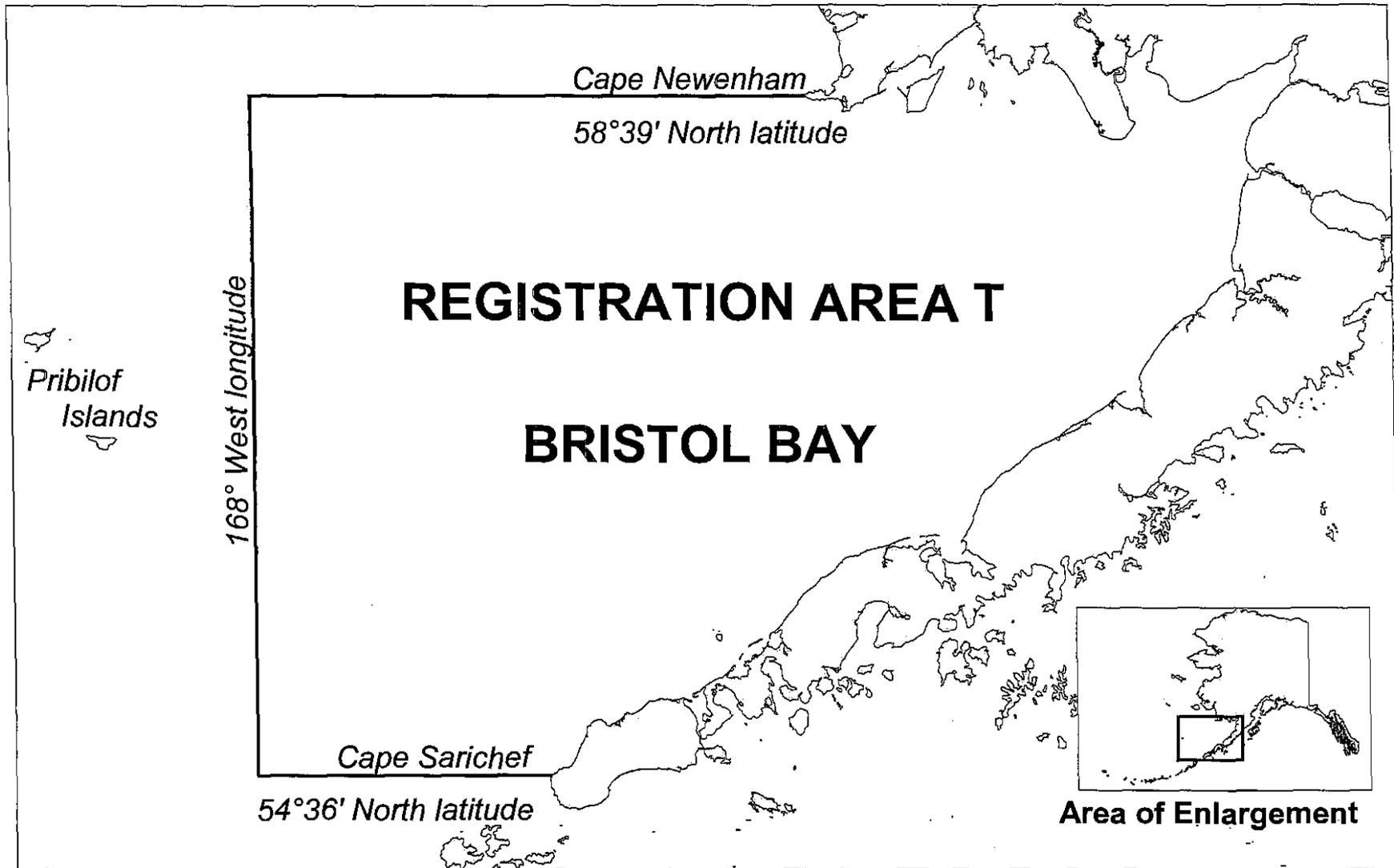


Figure 1. King crab Registration Area T.

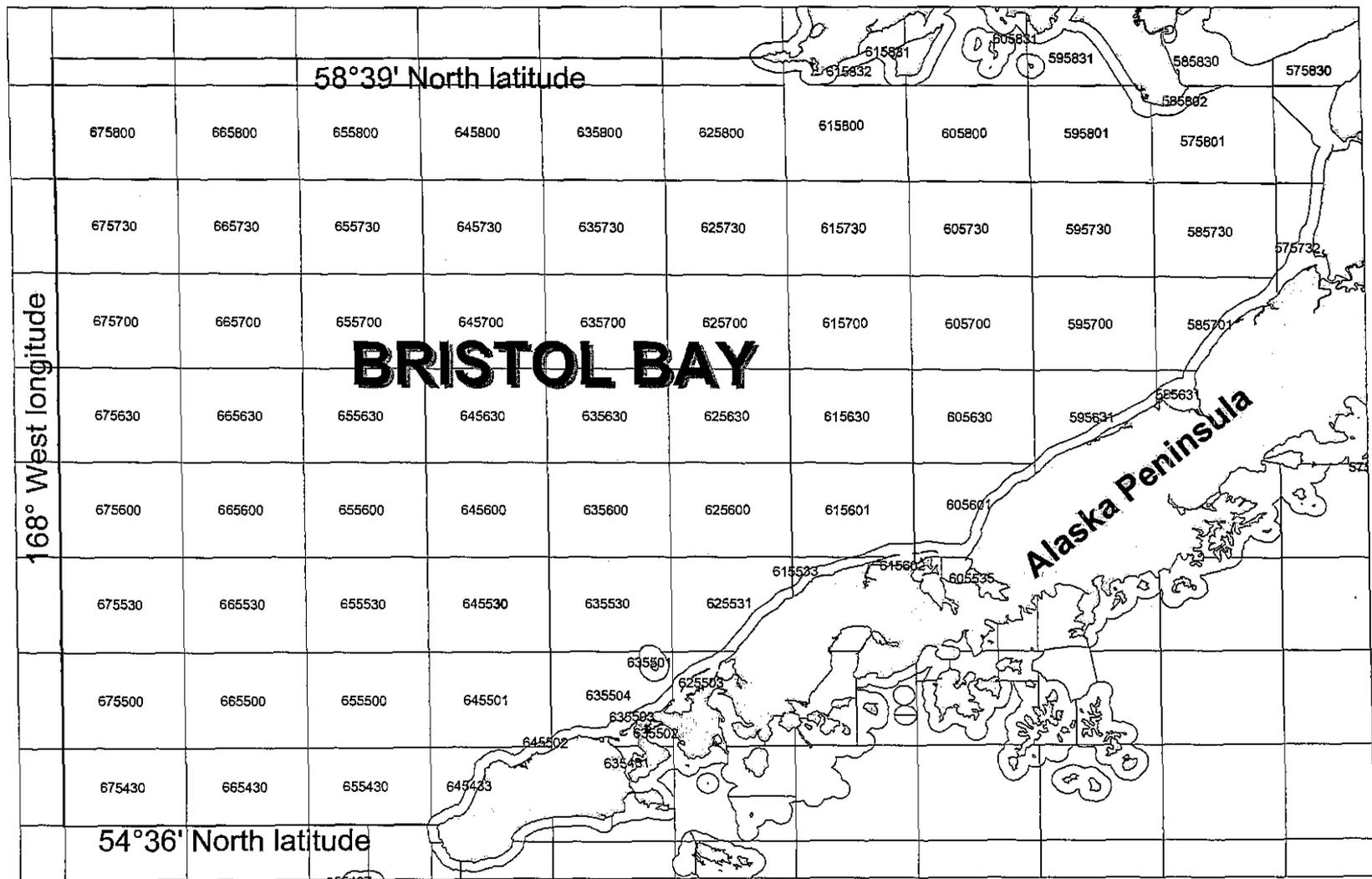
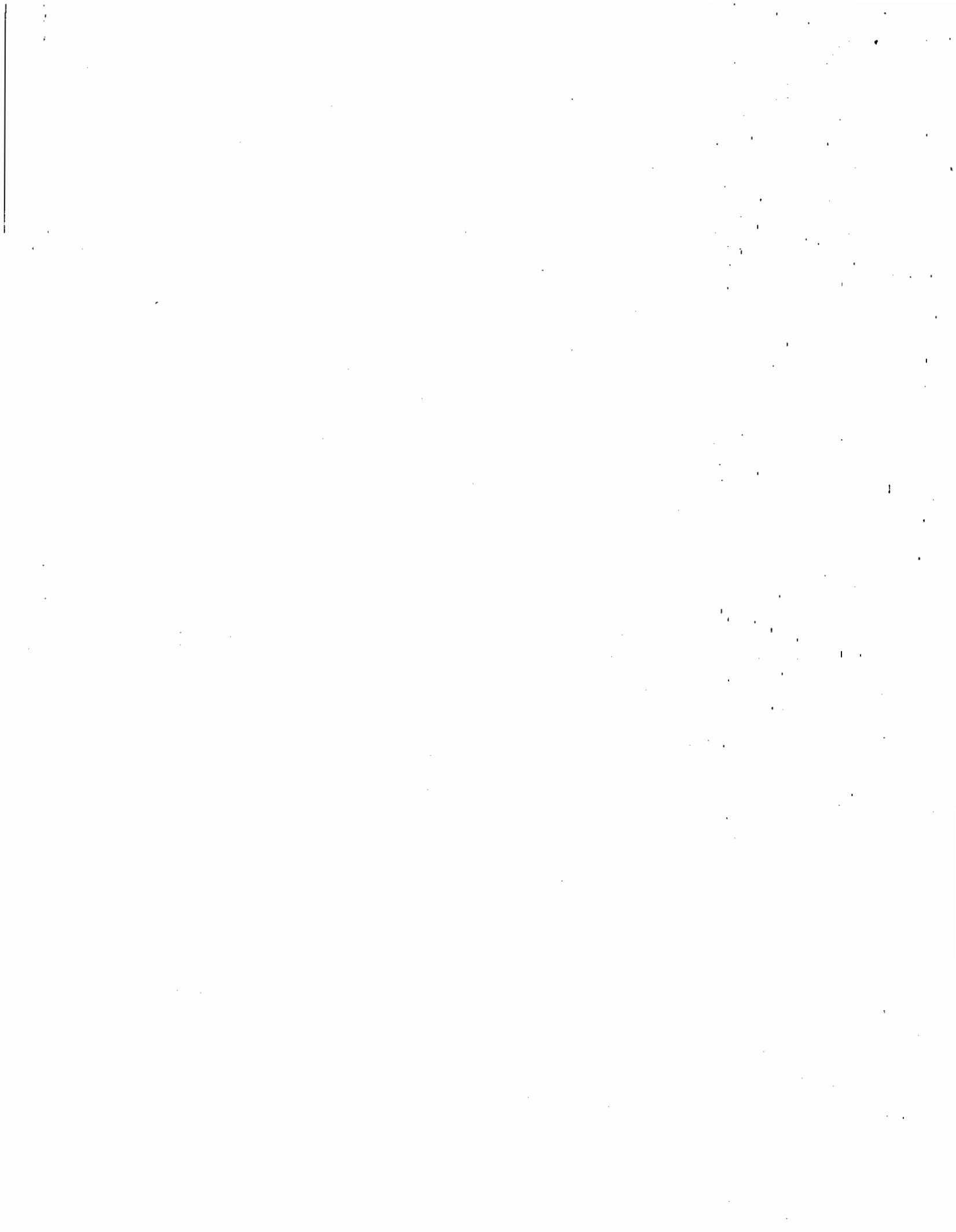


Figure 2. Statistical area map of King crab Registration Area T.

APPENDIX



Appendix A. List of contact persons, by agency and location.

Alaska Department of Fish and Game

Web site: <http://www.cf.adfg.state.ak.us/region4/finfish/grndfish/grndhom4.htm>

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Mike Ruccio	Kodiak, Chignik, Ak. Pen. Assistant Area Shellfish/Groundfish Biologist	mike_ruccio@fishgame.state.ak.us

Alaska State Troopers Division of Fish and Wildlife Protection

Web site: <http://www.dps.state.ak.us>

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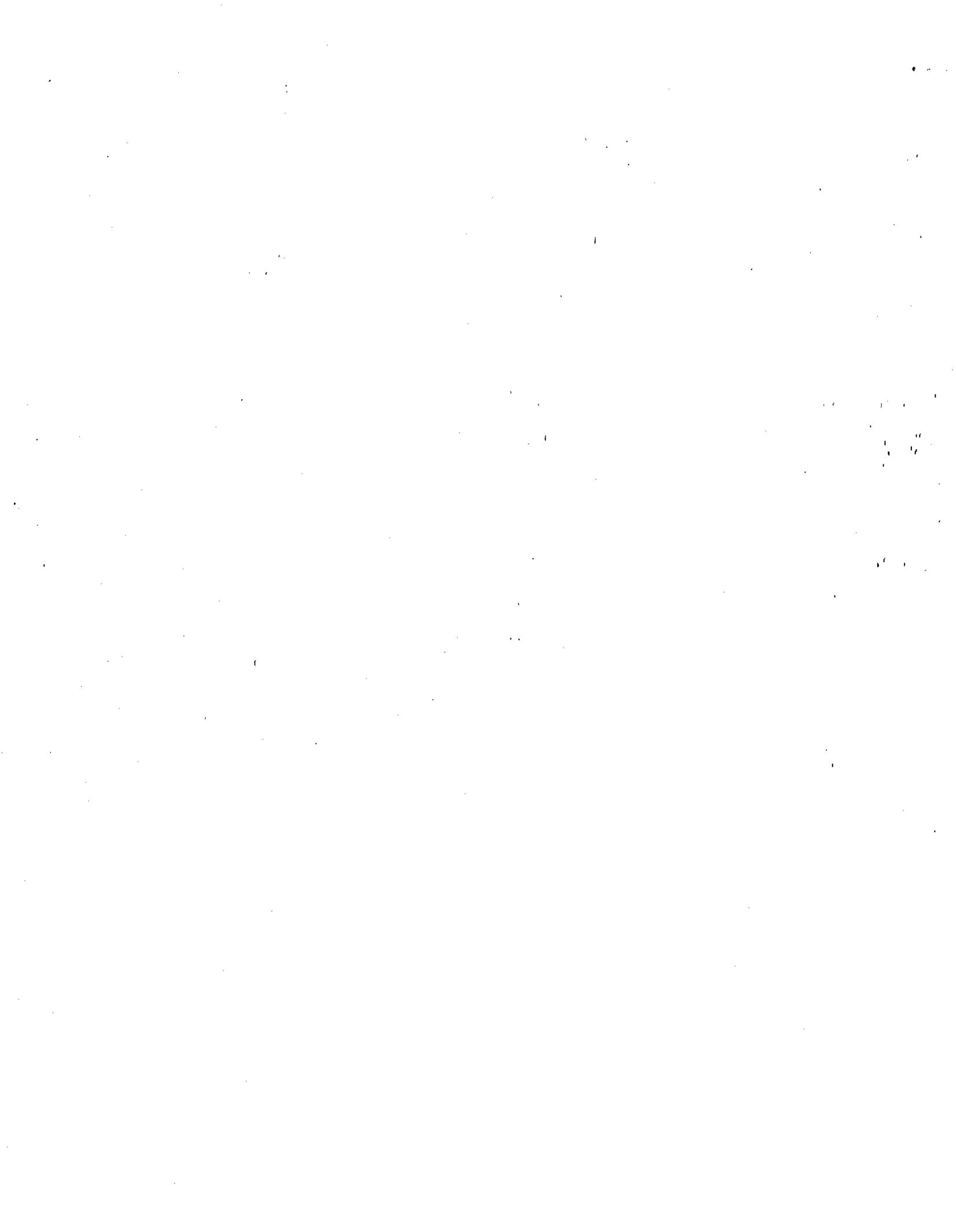
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RED SEA CUCUMBER AND GREEN SEA URCHIN
COMMERCIAL FISHERIES MANAGEMENT PLANS
FOR THE REGISTRATION AREA J (WESTWARD REGION), 2002/03

By

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and
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Regional Information Report¹ No. 4K02-44

Alaska Department of Fish and Game
Division of Commercial Fisheries
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Kodiak, Alaska 99615

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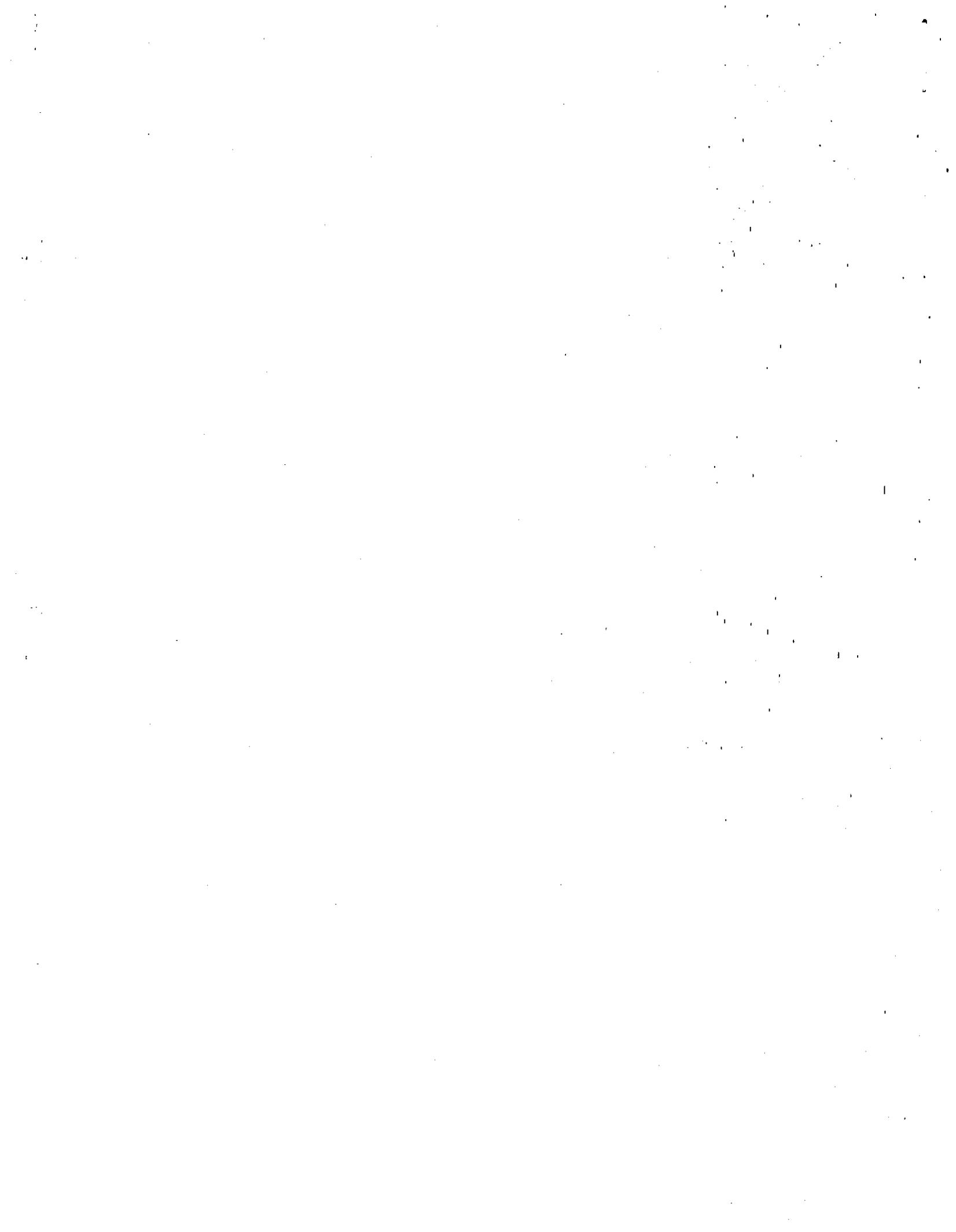
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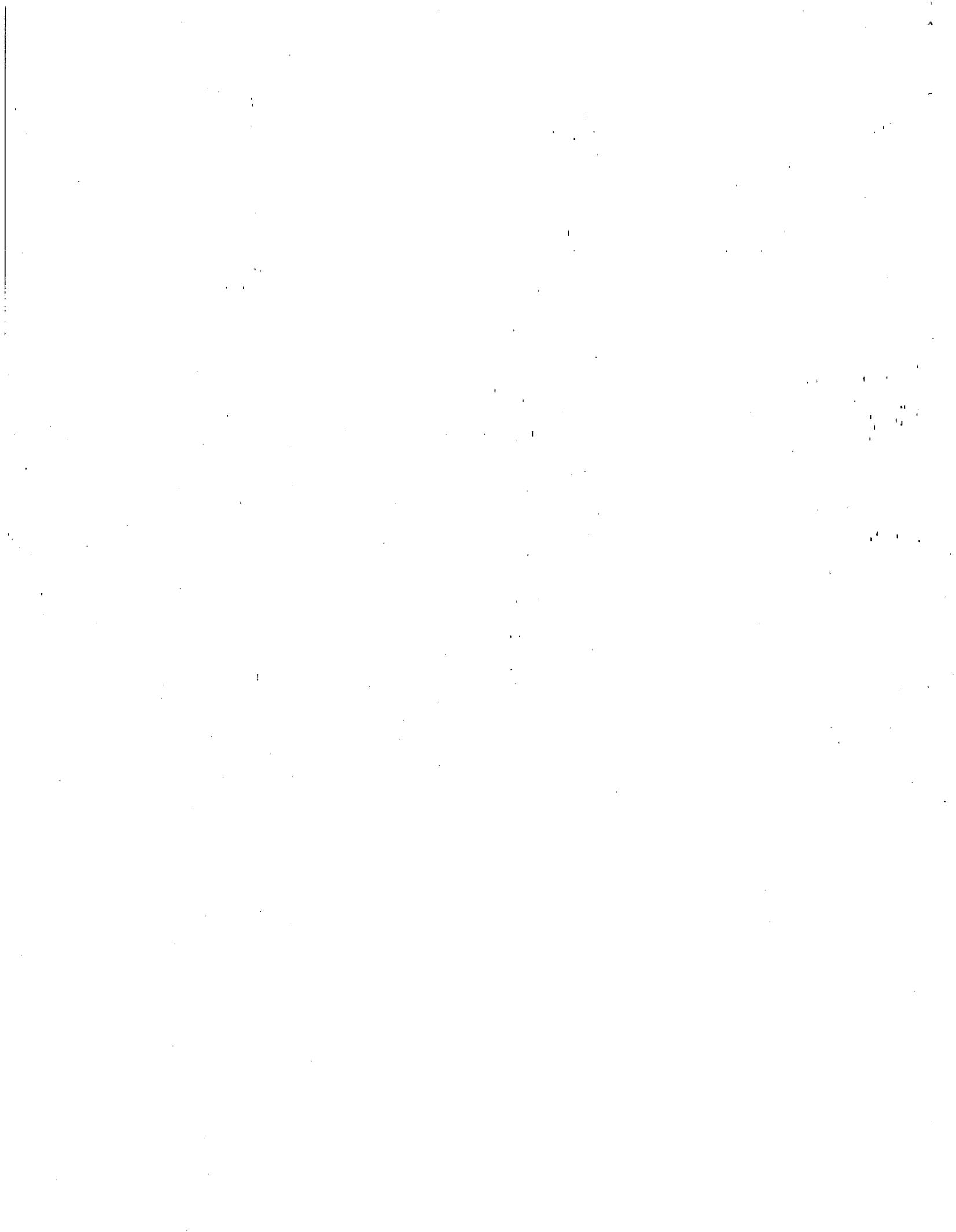
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ABSTRACT

The fishery management plan and regulations governing the open-access red sea cucumber *Parastichopus californicus* and green sea urchin *Strongylocentrotus droebachiensis* commercial dive fisheries in Registration Area J (Westward Region) are outlined within this report. Registration Area J encompasses the waters adjacent to communities in Kodiak, Chignik, Sand Point, King Cove, Akutan, and Dutch Harbor. Information on the commercial dive fisheries in the vicinity of Saint George Island in the Pribilof Island is not covered in this report.

This report briefly describes the history of the fisheries, participation and harvest data, guideline harvest levels (GHLs), fishing periods, and additional requirements for participation in these commercial fisheries. This fishery management plan serves as a supplement to the Alaska Statutes (AS) and Alaska Administrative Codes (AAC) found in the 2002/03 Alaska Department of Fish and Game (ADF&G) Commercial Shellfish Regulations. Contact persons and methods for obtaining fishery data and news releases are provided.

SEA CUCUMBER FISHERY MANAGEMENT PLAN

Fishery History

The red sea cucumber *Parastichopus californicus* commercial fishery in Registration Area J (Westward Region) began in the 1991/92 season. Processors recruited divers to gather small amounts of red sea cucumbers in the Kodiak and Chignik Districts to test marketability. Commercial production began in the spring of 1993. The fishery developed under the conditions of a permit authorized by 5 AAC 38.062 PERMITS FOR OCTOPI, SQUID, KOREAN HAIR CRAB, SEA URCHINS, SEA CUCUMBERS, SEA SNAILS, CORAL, AND OTHER MARINE INVERTEBRATES. ADF&G specified dive gear as the only legal gear type and required dive logs to be submitted to ADF&G at the time of landing with the ADF&G copy of the fish ticket. Each diver was required to have a Commercial Fisheries Entry Commission (CFEC) permit card and register with ADF&G prior to participating in the fishery. Harvests were monitored for relative distribution and density; this information would later serve as the basis for establishing initial GHLS. As the commercial effort and harvest levels increased, ADF&G implemented more restrictive management measures to help ensure continued viability of the stock. All fishing districts were closed in fall of 1993 until ADF&G could conduct more extensive research into the biology and distribution of red sea cucumbers throughout Registration Area J.

In 1994, ADF&G reopened the fishery and implemented several management measures to promote conservation of the resource. A seasonal closure from May 1 through September 30 was established to protect the spawning aggregations of red sea cucumbers. Commissioner's permit provisions included a weekly fishing period of five days. In addition, to prevent overharvest, GHLS were established for the Kodiak (200,000 pounds) and Chignik (50,000 pounds) Districts. Sea cucumbers are relatively immobile animals and vulnerable to localized depletion by harvesters using dive gear. In the Kodiak District management section boundaries previously established for Tanner crab fishing were used to delineate management sections for sea cucumbers. This was done to disperse the harvest around Kodiak Island, in hopes of reducing the potential for localized depletion. A GHLS was set for previously fished Kodiak Sections based on historic production and fisheries performance.

Effort in the Chignik and South Peninsula Districts has been minimal, and the potential for localized depletion has been considered low in these areas. Therefore, no additional subdivision of the Chignik and South Peninsula Districts has occurred. Prior to 1994, the South Peninsula District remained open, outside the biological closure period, without an established GHLS to allow for exploratory fishing.

In 1995, ADF&G reopened the Registration Area J to sea cucumber fishing on October 1. The total GHLS for the Kodiak and Chignik Districts was 225,000 pounds with fishing periods reduced to three days per week. The shortened fishing periods were set to allow ADF&G a better opportunity to assess inseason fishery performance and monitor progress towards established harvest levels. GHLS were quickly reached in the sections surrounding Kodiak Island and then closed by emergency order. The Mainland and Chignik Sections received little effort and remained open for the duration of the regulatory season, closing on April 30, 1996.

Since 1995, fishing periods have remained at three days per week. Minor adjustments to preseason section GHLs have occurred based on fishery performance data. Small GHLs have been developed for areas lacking historic harvest data in an effort to allow for commercial explorations and subsequently, evaluation of stock strength through fishery performance.

Historic commercial harvest statistics by year for the Kodiak and Chignik Districts are provided for the years 1991-2001 (Table 1). Harvest in the 2001/02 fishery totaled 152,613 pounds with catch reported from five sections (Table 2).

Guideline Harvest Levels (GHLs)

GHLs are determined on an annual basis by department staff consistent with 5 AAC 38.035 CLOSURE OF MISCELLANEOUS SHELLFISH REGISTRATION AREAS AND REOPENING PROCEDURES.

Data from the 1993 fishery on previously unexploited stocks has been used as a relative indication of red sea cucumber distribution and density. Since the establishment of GHLs in 1994, fishery performance has been assessed on a section by section basis using dockside interviews and fishery logbook data. Districts or sections exhibiting a stable or increasing CPUE over time or relatively dense numbers of animals per dive location have retained GHLs that were set at the initial 1994 season level. Minor increases in the GHL for individual sections has also occurred. Sections that have shown recent poor fishery performance, experienced marked decreases in CPUE, or gradual declines in CPUE over multiple seasons had their GHLs reduced from the levels initially established in 1994. The current sections used to delineate sea cucumber registration districts and sections can be found in Figure 1. The GHLs from 1998 through 2001, along with harvest by section, can be found in Figure 2. The 2002/03 GHLs will remain at the same levels established in the two previous fisheries (see table below). Areas lacking historic harvest information of sea cucumbers will be open under a commissioner’s permit with an initial small GHL of 5,000 pounds each. Additional harvest may be allowed in these sections pending evaluation of fishery performance and biological assessment of the initial GHL.

2002/03 Sea Cucumber Guideline Harvest Levels

<u>Section or District</u>	<u>GHL (pounds)</u>
Kodiak District	
Northeast Section	5,000
Eastside Section	40,000
Southeast Section	30,000
Southwest Section	20,000
Westside Section	30,000
North Mainland Section	5,000
South Mainland Section	5,000
<u>Semidi Island Section</u>	<u>5,000</u>
Kodiak District total	140,000
Chignik District	25,000
Alaska Peninsula District	5,000
Aleutian Islands District	5,000
<u>Bering Sea District</u>	<u>5,000</u>

Inseason Announcements

Following each three-day fishing period, all harvest information from fish tickets and logbooks are analyzed. ADF&G will determine the weekly harvest and announce the next fishing period based on the remaining GHJ and anticipated effort. All fishery announcements are published in news releases. News releases may be found at the following locations or obtained through the following methods:

- ◆ Available in the shellfish and groundfish management office, ADF&G office building, room 201, 211 Mission Road, Kodiak. ADF&G Dutch Harbor, F.T.S. building 2nd floor, Airport Beach Road, Dutch Harbor.
- ◆ Distributed to a list of recipients via e-mail.
- ◆ Posted on the ADF&G website at:
<http://www.cf.adfg.state.ak.us/region4/shellfish/shelhom4.htm#openings>
- ◆ Inseason closure announcements following the National Weather Service broadcast at 0800 and 1800 hrs on 4125 kHz SSB.
- ◆ Management biologists telephone or FAX processing facilities participating in the fishery each fishing period; these processors typically inform the fleet and post the releases in conspicuous places in their operational offices.
- ◆ Recorded on the commercial fisheries information message telephone at (907) 486-4559.

Individuals wishing to be placed on the distribution list or to request information on the latest news release should contact ADF&G in Kodiak at (907) 486-1840. Additional fisheries resource contacts are provided in Appendix A.

Legal Gear

Hand picking with assistance by dive gear is specified as the only legal gear under the conditions of the commissioner's permit issued for the taking of sea cucumbers in Registration Area J. There are no prohibitions on saturation diving or use of mixed gases to achieve greater dive depths in Registration Area J.

Registration

Prior to engaging in the commercial harvest of sea cucumbers in Registration Area J, all divers must obtain a Commercial Fisheries Entry Commission (CFEC) interim use permit and register with an ADF&G office within Registration Area J (statewide sea cucumber, excluding southeast Alaska a Q11B card). The Registration Area J sea cucumber fisheries are nonexclusive. Divers may only be registered for one dive species at a time in Registration Area J. To register for green sea urchins, divers must first void their existing sea cucumber registration *at an ADF&G office and register for urchins before resuming* fishing.

Onboard Observers

Onboard observers are not required under the commissioner's permit. However, ADF&G reserves the right to include observers as a stipulation of the commissioner's permit for operation. Vessels may be asked to carry ADF&G observers on a voluntary basis for the purposes of at sea-data collection. Divers and dive tenders are asked to allow ADF&G dockside sampling staff access to their catch and to answer a few confidential questions about fishing location, effort, and trip dates.

Landing Requirements

Fish tickets are required of processors, buyers, and fishermen as described in 5 AAC 39.130 REPORTS REQUIRED OF PROCESSORS, BUYERS, FISHERMEN, AND OPERATORS OF CERTAIN COMMERCIAL FISHING VESSELS; TRANSPORTING REQUIREMENTS. A completed dive/harvest logbook is also required for all sea cucumber fishing activities as stipulated in the commissioner's permit. Completed logbook pages are required to be submitted to ADF&G or the processor at the time the fishticket is completed and signed at the processing facility. Latitude and longitude positions of dive locations are required to be recorded in the 2002/03 dive logbooks. A copy of the 2002/03 dive logbook can be found in Appendix B.

Fishery Management Plan

The sea cucumber fishery is managed via the terms of a commissioner's permit 5 AAC 38.062 PERMITS FOR OCTOPI, SQUID, KOREAN HAIR CRAB, SEA URCHINS, SEA CUCUMBERS, SEA SNAILS, CORAL, AND OTHER MARINE INVERTEBRATES. The commissioner's permit may:

- ◆ Stipulate location and duration of harvest
- ◆ Limit gear and other methods of harvesting
- ◆ Require periodic and/or annual reporting
- ◆ Require application to be submitted prior to permit issuance
- ◆ Be denied or invalidated if terms of the permit have been violated or harvest operations jeopardize the sustained viability of the resource

The commercial fishery will be managed inseason. The first three-day opening will begin on Thursday, October 3 at 12:01 AM and remain open until Saturday, October 5 at 11:59 PM. This is a change from the traditional October 1 opening to facilitate management. This change was implemented to allow the department adequate time to analyze harvest data from fishtickets and logbooks after each three-day fishing period. ADF&G will determine how much, if any harvest remains to be taken from section or district GHLs. After each harvest period, harvest rate, historical harvest patterns exhibited by the fleet, number of divers participating, and to some extent, weather forecast will be evaluated to determine how long each section will reopen in the next fishing period. Efforts will be made to allow participants the opportunity to harvest, without exceeding, the entire GHL for sections and districts. However, should ADF&G have concerns

about the stock strength or localized depletion, sections or districts may be closed prior to reaching the established GHL.

A biological closure period from May 1 to September 30 has been established for red sea cucumbers to protect spawning aggregates. Under no circumstances will commercial fishing be allowed to extend beyond April 30, regardless of GHL remaining.

GREEN SEA URCHIN FISHERY MANAGEMENT PLAN

Fishery History

The green sea urchin *Strongylocentrotus droebachiensis* commercial fishery in Registration Area J began in 1980 when a small harvest occurred in the Kodiak District to test marketability. Interest in commercial harvest of green sea urchins in Kodiak remained low until 1985 when a small-scale fishery occurred. In 1986, the harvest increased with more divers participating. Peak catch occurred in 1988 when 190,500 pounds were harvested. In recent years, the Kodiak harvest has been minimal, with very few divers participating. Green sea urchins are typically shipped live to Japan and Korea for processing. The occurrence of red sea urchins *S. franciscanus*, the principal species harvested in Southeastern Alaska, has been documented within Registration Area J. However, sufficient quantities of red sea urchins to support a commercial fishery have not been located.

The fishing season in Registration Area J was established by the BOF as October 1 to January 31. While marketable roe may be available after January, the potential is high for increased sorting and handling mortality of unmarketable sea urchins. ADF&G in Dutch Harbor has issued special exploratory permits during the summer and early fall for the eastern Aleutians to check the quality of roe, but divers found little marketable product during these periods.

A table of historic harvest of green sea urchins in the Kodiak District can be found in Table 3. Complete information on the historical harvest of green sea urchins in Registration Area J is available in ADF&G Regional Information Report series. The sections used to delineate sea urchin registration districts and sections can be found in Figure 1.

Guideline Harvest Levels (GHLs)

Market conditions and availability of processors has led the sporadic nature of green sea urchin harvest in Registration Area J. The inconsistency of effort and subsequent harvest has made inferences on abundance, distribution, and recruitment difficult. Stock assessment surveys of green sea urchins have not been conducted in Registration Area J and, given current departmental budgetary constraints, are unlikely in the near future. Because of the lack of data regarding the green sea urchin populations in the region, ADF&G has established small GHLs which allow for further exploration and development of the commercial sea urchin fishery. Boundary lines established for Tanner crab and sea cucumber fisheries are used to delineate management sections for urchin fishing and are designed to distribute effort throughout the registration area.

Sections with a history of commercial harvest have GHLS set not to exceed 10,000 pounds of green sea urchins. Those are the Northeast, Eastside, Southeast, Southwest, and Westside Sections of the Kodiak District. Sections with no historic harvest information have GHLS set not to exceed 5,000 pounds of green sea urchins. These are the North Mainland, South Mainland, Semidi Sections of the Kodiak District and the Chignik, Alaska Peninsula, Aleutian Islands, and Bering Sea Districts. Additional harvest may be allowed in these data-poor sections if fishery performance demonstrates an available surplus. Revisions to the commissioner's permit may occur should harvest beyond the established GHLS be allowed.

2002/03 Green Sea Urchin Guideline Harvest Levels

<u>Section or District</u>	<u>GHLS (pounds)</u>
Northeast Section	10,000
Eastside Section	10,000
Southeast Section	10,000
Southwest Section	10,000
Westside Section	10,000
North Mainland Section	5,000
South Mainland Section	5,000
Semidi Island Section	5,000
Kodiak District Total	65,000
Chignik District	5,000
Alaska Peninsula District	5,000
Aleutian Islands District	5,000
Bering Sea District	5,000

--Bering Sea District excludes Saint George Island--

Inseason Announcements

All management activities concerning the commercial fishery are published in news releases. They may be found at the following locations or obtained through the following methods:

- ♦ Available in the shellfish and groundfish management offices, ADF&G office building 2nd floor, 211 Mission Road, Kodiak. ADF&G Dutch Harbor, F.T.S. building 2nd floor, Airport Beach Road, Dutch Harbor.
- ♦ Distributed to a list of recipients via e-mail.
- ♦ Posted on the ADF&G website at:
<http://www.cf.adfg.state.ak.us/region4/shellfish/shelhom4.htm#openings>
- ♦ Inseason closure announcements following the National Weather Service broadcasts at 0800 and 1800 hrs on 4125 kHz SSB.
- ♦ Management biologists also telephone or FAX processing facilities participating in the fishery after each fishing period; these processors typically inform the fleet and post the releases in conspicuous places in their operational offices.
- ♦ Recorded on the commercial fisheries information message telephone at (907) 486-4559.

Individuals wishing to be placed on the distribution list or to request information on the latest news release should contact the Alaska Department of Fish and Game in Kodiak at (907) 486-1840. Additional fisheries resource contacts are provided in Appendix A.

Legal Gear

Dive gear and hand picking are specified as the only legal gear specified under the conditions of the commissioner's permit for the taking of green sea urchins in Registration Area J. There are no prohibitions on saturation diving or use of mixed gases to achieve greater dive depths in Registration Area J. The use of 4-foot rakes to assist divers in the harvest of urchins is also permitted.

Registration

Prior to engaging in the commercial harvest of green sea urchins in Registration Area J, all divers must obtain a Commercial Fisheries Entry Commission (CFEC) interim use permit and register with an ADF&G office within Registration Area J (statewide sea urchin, excluding southeast Alaska a U11B card). The Registration Area J (Westward Region) sea urchin fisheries are nonexclusive. There are no preregistration requirements for the green sea urchin fishery in Registration Area J. Divers may only be registered for one dive species at a time in Registration Area J. To register for green sea urchins, divers must first void their existing sea cucumber registration *at an ADF&G office and register for urchins before resuming fishing.*

Onboard Observers

Onboard observers are not required under the commissioner's permit. However, ADF&G reserves the right to include observers as a stipulation of the commissioner's permit for operation. Vessels may be periodically asked to carry an ADF&G observer on a voluntary basis for the purposes of at-sea data collection. Divers and dive tenders are asked to allow ADF&G dockside sampling staff access to their catch and to answer a few confidential questions about fishing location, effort, and trip dates.

Landing Requirements

Fish tickets are required of processors, buyers, and fishermen as described in 5 AAC 39.130 REPORTS REQUIRED OF PROCESSORS, BUYERS, FISHERMEN, AND OPERATORS OF CERTAIN COMMERCIAL FISHING VESSELS; TRANSPORTING REQUIREMENTS. A completed dive/harvest logbook is required for all sea urchin fishing activities as stipulated in the commissioner's permit. Completed logbook pages are required to be submitted to ADF&G or the processor at the time the fishticket is completed and signed at the processing facility. Latitude and longitude positions of dive locations are required to be recorded in the 2002/03 dive logbooks. A copy of the 2002/03 dive logbook can be found in Appendix B.

Fishery Management Plan

The sea urchin fishery is managed under the authority of a commissioner's permit 5 AAC 38.062 PERMITS FOR OCTOPI, SQUID, KOREAN HAIR CRAB, SEA URCHINS, SEA CUCUMBERS, SEA SNAILS, CORAL, AND OTHER MARINE INVERTEBRATES. The commissioner's permit may:

- ♦ Stipulate location and duration of harvest
- ♦ Limit gear and other methods of harvesting
- ♦ Require periodic and/or annual reporting
- ♦ Require application to be submitted prior to permit issuance
- ♦ Be denied or invalidated if terms of the permit have been violated or harvest operations jeopardize the sustained viability of the resource

ADF&G will monitor the fishery inseason using fishtickets, logbook data, and dockside interviews to determine fishery performance. Conditions of the permits issued will be structured to allow ADF&G to gather additional information on green sea urchin stocks. CPUE will be compared to historical averages, when possible, to ensure that indications of localized depletion or decreases in stock size are not occurring. If indications from commercial fishery data suggests that harm may occur if harvest is allowed to continue, ADF&G may close sections or districts prior to attaining the established GHs.

A closure period of February 1 through September 30 has been established by the BOF to ensure optimal roe content occurs in green sea urchins during commercial fisheries. ADF&G has not established a minimum test diameter size limit, however industry has required divers to deliver animals of 2 to 2.5 inches in diameter. ADF&G would consider harvest of animals smaller than 53 mm (approximately 2.25") unacceptable as animals smaller than this size are often immature.

Table 1. Commercial harvest statistics of red sea cucumbers in the Kodiak and Chignik Districts, 1991-2001.

Year	Number of Dive Permits	Number of Landings	Pounds Harvested	Average Price Per Pound (Dollars)
1991		Confidential		
1992		Confidential		
1993	50	487	564,516	0.93
1994	86	269	413,576	1.20
1995	21	60	145,092	1.25
1996	31	93	162,451	1.25
1997	26	65	132,337	1.16
1998	16	55	142,313	1.20
1999	19	36	116,134	1.20
2000	20	56	116,152	1.50
2001	18	73	152,613	1.25

Table 2. Red sea cucumber commercial harvest by area, Kodiak and Chignik Districts, 2001/02.

Area		Guideline Harvest Level	Pounds Harvested
Chignik District	Chignik	25,000	0
Kodiak District	Northeast Section	5,000	4,642
	Eastside Section	40,000	43,750
	Southeast Section	30,000	47,046
	Southwest Section	20,000	17,658
	Westside Section	30,000	39,517
	North Mainland Section	5,000	0
	South Mainland Section	5,000	0
	Semidi Island Section	5,000	0
Totals		165,000	152,613

Table 3. Historic harvest of green sea urchins in the Kodiak District, 1980-2001.

Year	Number of Permits	Number of Landings	Pounds Harvested (Live Weight)	Average Price Per Pound
1980		Confidential		
1985		Confidential		
1986		Confidential		
1987	16	78	104,139	0.69
1988	28	260	190,509	0.80
1989	29	81	44,862	0.82
1990	25	83	84,004	0.84
1991	6	24	29,947	0.92
1992	9	22	Confidential ^a	Confidential ^a
1993	12	40	Confidential ^a	Confidential ^a
1994	9	32	Confidential ^a	Confidential ^a
1995	8	50	38,437	1.34
1996	7	31	36,147	1.10
1997-2001 ^b	11	21	23,758	1.01

^a Harvest and price information confidential because less than one processor participated.

^b Years combined because less than three divers and/or processors participated.

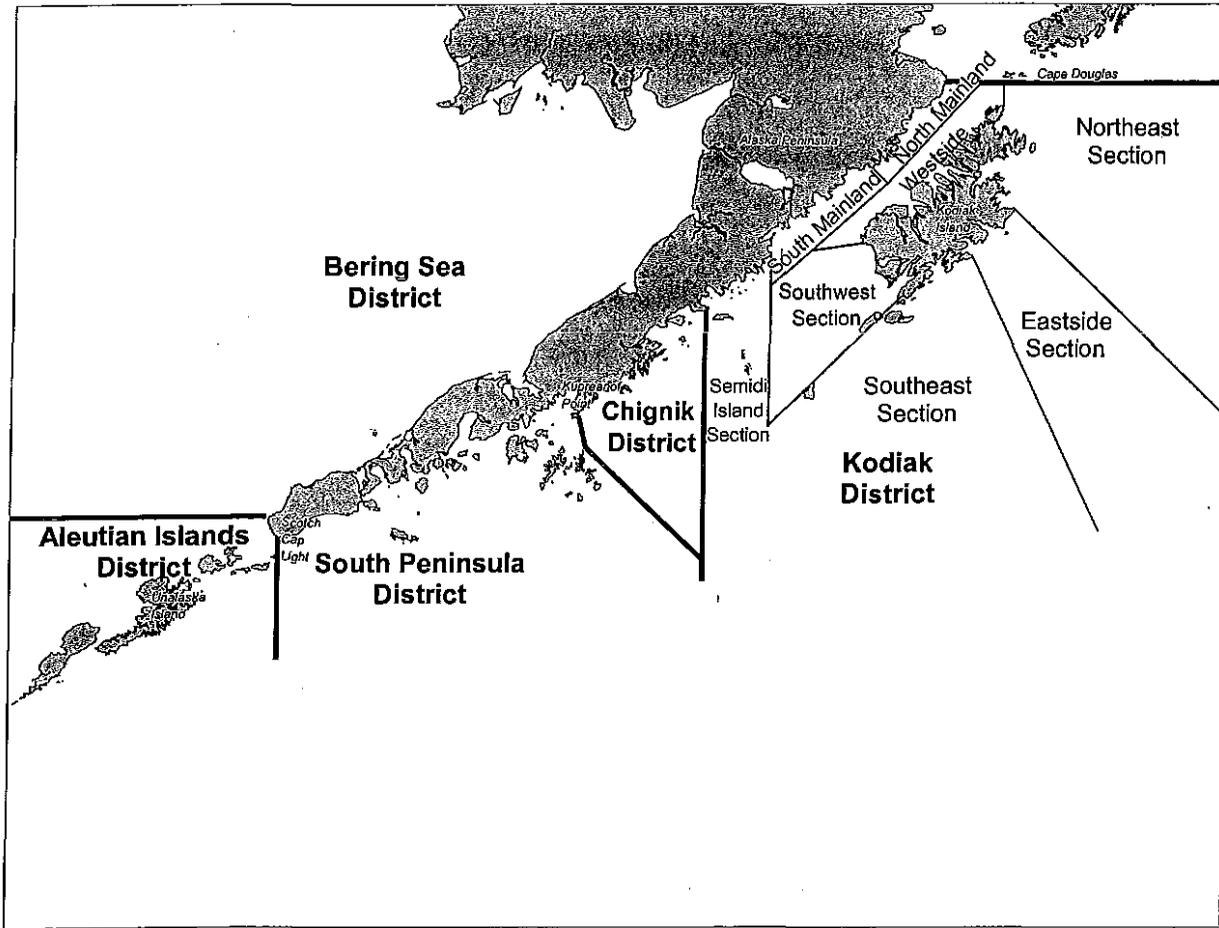


Figure 1. Fishing sections and districts for the 2002/03 Registration Area J (Westward Region) commercial sea cucumber and sea urchin fisheries.

Note--The Tanner crab management districts utilized for sea cucumbers are described in regulation 5 AAC 35.505 DESCRIPTION OF REGISTRATION AREA J DISTRICTS.

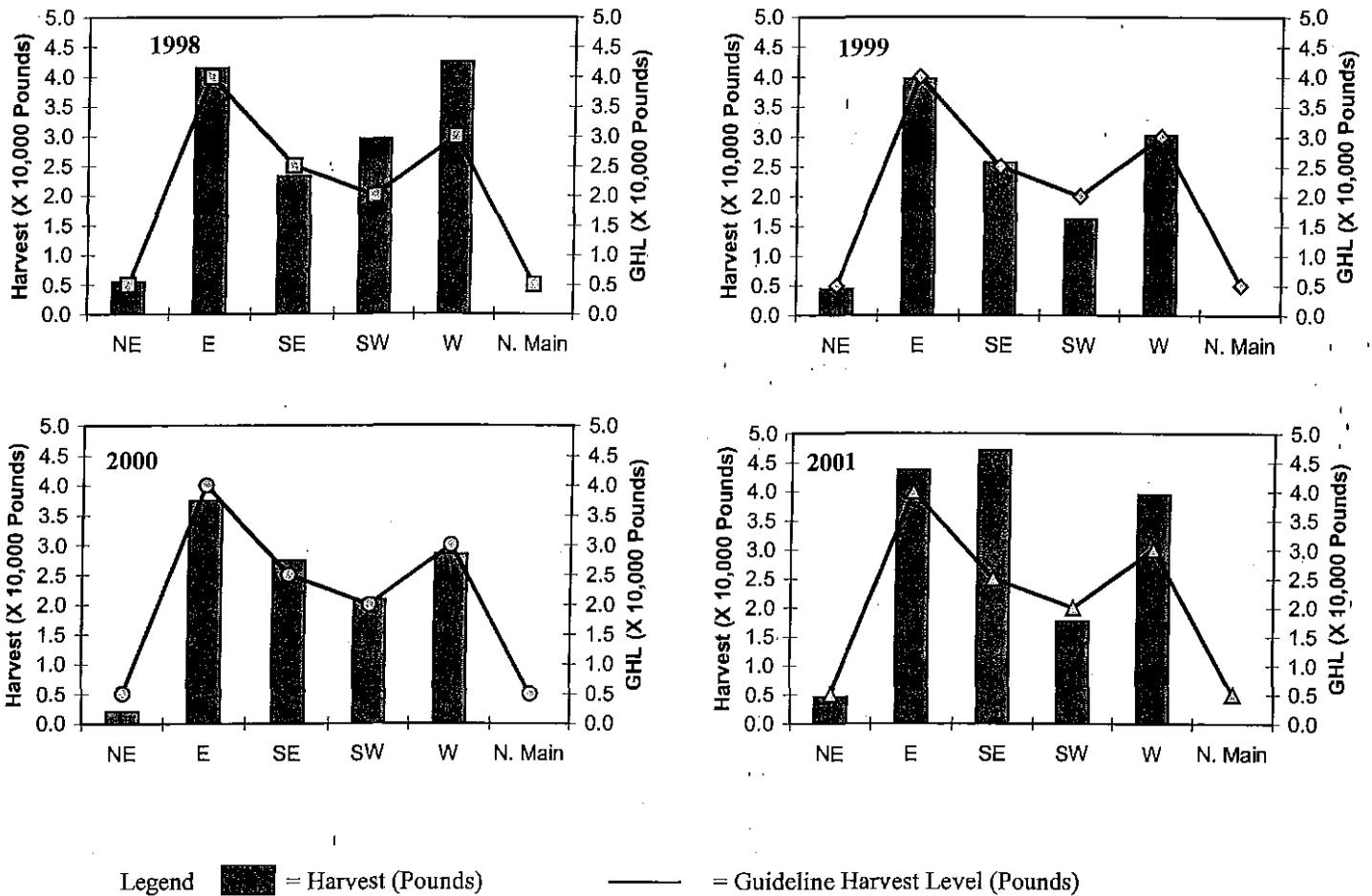
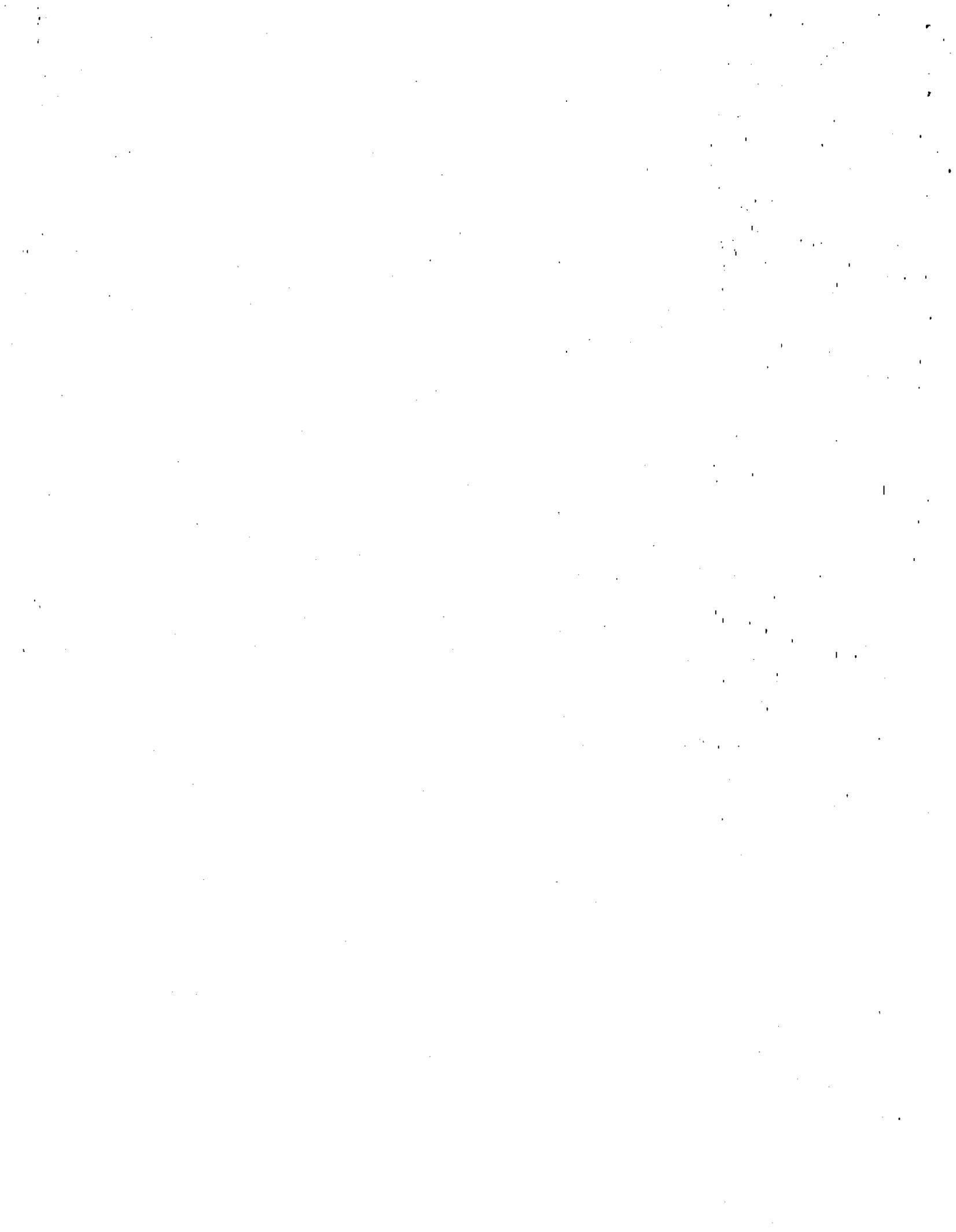
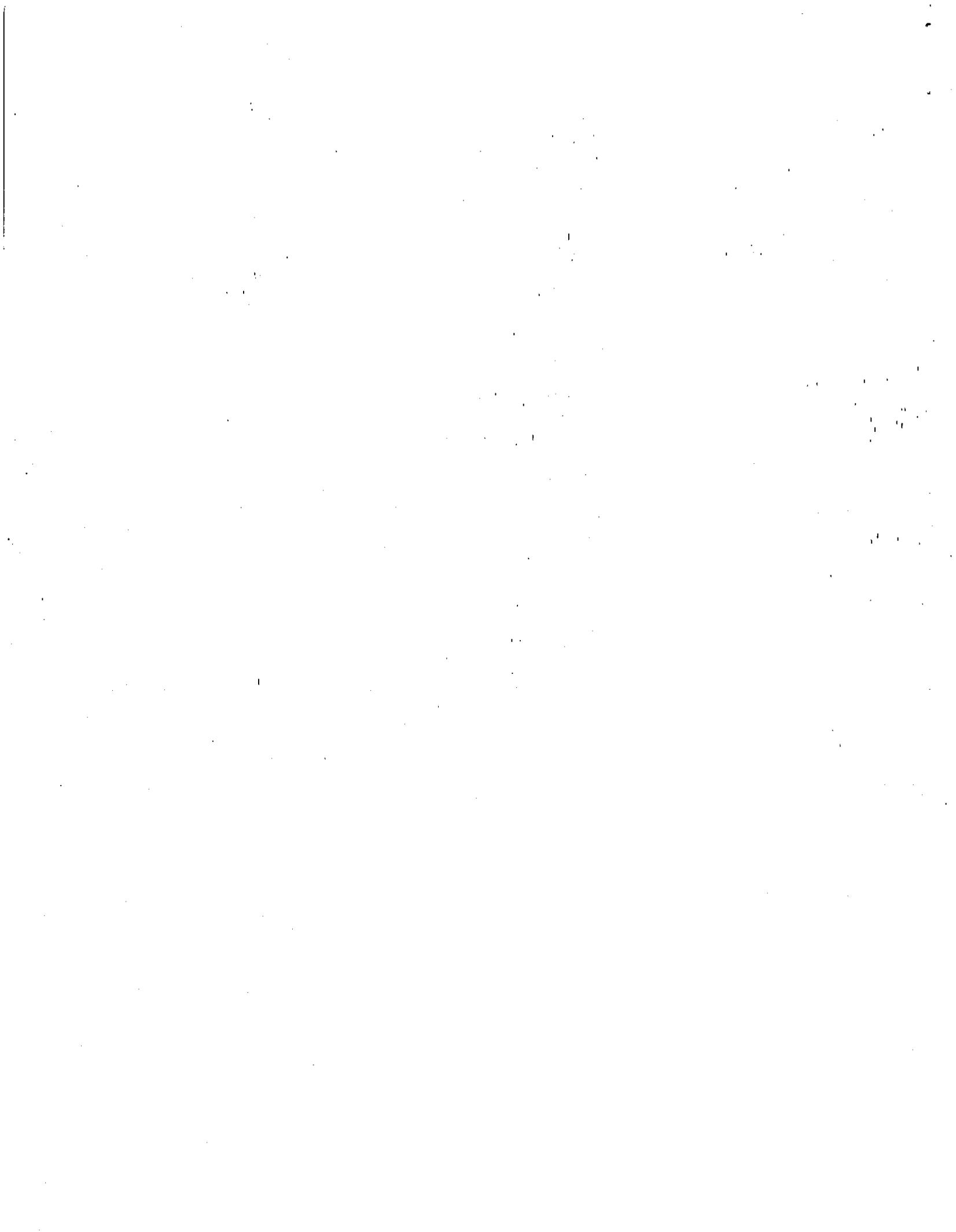


Figure 2. Kodiak District sea cucumber harvests and guideline harvest levels (GHLs) by section, 1998-2001.



APPENDIX



Appendix A. Listing of contact persons, by agency and location.

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