

REPORT TO THE BOARD OF FISHERIES,  
YAKUTAT SHRIMP POT FISHERY



By

Timothy Koeneman  
and  
Catherine A. Botelho

Regional Information Report<sup>1</sup> No. 1J99-47

Alaska Department of Fish and Game  
Division of Commercial Fisheries  
Juneau, Alaska

January 2000

---

<sup>1</sup> The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data, this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION .....	8.3
FISHERY DEVELOPMENT AND HISTORY .....	8.3
REGULATION DEVELOPMENT .....	8.4
FISHING SEASONS .....	8.4
SIZE RESTRICTION .....	8.5
GEAR RESTRICTION .....	8.5
QUOTAS AND GUIDELINE HARVEST LEVELS .....	8.5
1998/99 SEASON SYNOPSIS .....	8.6
1999/00 SEASON OUTLOOK .....	8.6

## LIST OF TABLES

	<u>Page</u>
Table 8.1. Registration area D (Yakutat) shrimp pot fishery harvest, number of landings, and cpue, 1968/89 to present. ....	8.7
Table 8.2. Registration area D (Yakutat) shrimp pot harvests in pounds (landings) by district and month, 1998/99. ....	8.8

## INTRODUCTION

The fishery targets spot prawns *Pandalus platycerous*, and harvests significant quantities of coonstripe shrimp *P. hypsinotus*. Life history information concerning these species is limited. Canadian reports suggest the maximum age of the spot prawn is three to five years, while Alaskan tagging data suggests eight to ten years. All pandalid shrimp are protandric hermaphrodites, which means they first mature and spawn as males, transition to females, and spawn as females for the remainder of their lives. Spot prawns are functional males for one to three seasons (in their fourth year), then change sex and spawn as females for four or more years. The fecundity of a large female spot prawn has been estimated at about 4,600 eggs per year. Literature reports that eggs hatch in late winter and early spring, followed by a growth molt for females. The transition from male to female occurs during the summer months. Females undergo another molt into "breeding dress" in the fall, after which they extrude their mature eggs from the internal ovaries. Eggs are fertilized externally when they are extruded. Developing embryos are carried on the external pleopods until they are fully developed. Hatching occurs during late spring through early summer.

Both spots and coonstripes are primarily harvested from rocky habitat located in Yakutat Bay by fishers using baited pot gear, which is either longlined or fished singly from vessels ranging in length from small skiffs up to about 40 feet. In a longline system each pot is attached to the groundline with a snap, similar to that used on longline snap-on groundfish gear. Pot construction is extremely varied in size, shape, weight and configuration, so it is difficult to describe a "standard" pot. Gear designs have rapidly changed to increase fishing efficiency. One of the most commonly available pots today is a "cone style." This pot is constructed using two stainless steel rings, the top ring smaller than the bottom, with vertical bars welded between the rings forming six sides, at least three of which contain tunnels. This pot type has webbing tightly drawn in on the top with a permanent closure. The bottom web is drawn in with a "pucker string" which is opened during baiting operations and to empty the pot of its harvest.

## FISHERY DEVELOPMENT AND HISTORY

The first reported landings occurred in the Yakutat Area during the 1969/70 fishing season. For the next ten seasons, landings occurred during only two seasons. Participation and landings have been fairly consistent since the 1982/83 fishing season, with a peak landing of 29,830 pounds occurring during that season. The peak effort level of 15 permits occurred during the 1995/96 season when 13,418 pounds were landed. Average landings have totaled 7,539 pounds by eight vessels per season since 1982/83. Usually, only the tails are sold by the shrimper to private individuals, restaurants, or other specialty markets without passing through traditional processors. This is a low volume fishery with a relatively high exvessel value. The average price paid for tails has been about \$5.00 per pound during recent seasons.

Peak effort and harvests normally occur during May and June. However, activity in this fishery can be highly variable. For example, the peak harvest during the 1982/83 season occurred during the month of September.

## **REGULATION DEVELOPMENT**

Management of the commercial pot shrimp fishery in the Yakutat Area is largely passive, focusing on Yakutat Bay. Regulations specific to Yakutat Bay are limited to a closed season to prevent fishing during the egg-hatch period, a minimum mesh size to retain the larger female segment of the stock, a maximum number of pots per participant to limit effort, and prohibition of trawling in productive areas heavily utilized by the pot fishery. Fish ticket data assists tracking major trends or changes in stock status. The Yakutat Area has had a separate section in the regulatory code since 1985.

A guideline harvest level (GHL) of 10,000 pounds for the May through September period was established for Yakutat Bay in 1996, in response to increasing effort and higher harvest rates. The GHL was based on historical harvest data, and not on information describing stock abundance or stock condition. In 1997, the BOF adopted separate monthly GHLs for two portions of Yakutat Bay for each month the fishery is open. By doing so, the total seasonal harvest potential was effectively doubled to 20,000 pounds.

### ***Fishing Seasons***

Prior to 1985, the Yakutat Area was open throughout the year. In 1985, a May 1 through February 28 season was established for Yakutat Bay. The closed period coincided with the major egg-hatch period, which was assumed to be similar to that of Southeast Alaska for the spot prawn. In 1997, separate fishing periods were adopted for portions of Yakutat Bay. In the waters running east of a line from the northernmost point of Khantaak Island to Logan Bluff and east of a line from the northernmost point of Khantakk Island to the northernmost point of Doggie Island, the season runs from October 1 through February 28. The remaining waters of Yakutat Bay east of a line from the westernmost tip of Ocean Cape to the westernmost tip of Point Manby are open May 1 through February 28. The remainder of the Yakutat Area outside the bay remains open throughout the year.

### *Size Restriction*

The Alaska Board of Fisheries policy on small shrimp discourages harvest of shrimp less than two years of age. A mesh size restriction is used in lieu of specific regulations for a minimum legal size to reduce the harvests of small shrimp. The mesh size assumes passive sorting through minimum mesh webbing minimizes the retention of smaller male, transitional, and female prawns and coonstripe shrimp.

### *Gear Restriction*

A mesh restriction specifying 1 1/2" stretch measure was established in 1986 for all pots used in Yakutat Bay to reduce the potential for recruitment over-fishing in this area. This regulation provided some protection to approximately one or two-year classes of small shrimp. Prior to 1997, only a portion of the pot was required to have the minimum mesh panels. Current regulations require that the pot be entirely covered with net webbing or rigid mesh with at least two opposing sides of the pot having a webbed panel of minimum stretch mesh of the 1 1/2 inch stretch mesh if a permit holder is fishing inside Yakutat Bay. The 1-1/2 inch minimum mesh size allows the retention of smaller shrimp, compared to the Southeast Alaska fishery. The potential impacts on future stock condition will not be understood until size and sex data is collected and analyzed. The smaller mesh risks unintended harvest of smaller spot prawns than are considered appropriate.

A pot limit of 75 pots per vessel was established in 1985 for Yakutat Bay. Even with the relative stability with regard to the number of permit holders up until the 1995/96 season, fleet members considered the number of allowable pots to be more than the fishery could withstand. Current regulations allow for a limit of 30 pots per vessel inside Yakutat Bay. Along with the pot reduction adopted in 1997, trawling is prohibited within all waters of Yakutat Bay.

There are no pot limits, mesh restrictions, or other harvest-limiting gear regulations for all waters in the Yakutat Registration Area outside of Yakutat Bay. Additional regulatory requirements for commercial shrimp pot gear include maximum tunnel perimeters (15"), buoy markings, and escape mechanisms.

### *Quotas and Guideline Harvest Levels*

In the mid-1990s, several larger southeast pot shrimp vessels and a floating processor entered the fishery in Yakutat Bay. Although their presence was transitory, it did lead to closure of the commercial fishery in the bay, changing in-season starting and ending dates and implementation of a GHIL for the commercial harvest.

During the 1996/97 season, a GHL of 10,000 pounds was set for Yakutat Bay, north and east of a line from Ocean Cape to Point Manby, for the period between May through September. The harvest level for the winter fishery from October 1 through February 28 was unrestricted because potential effort was less in winter than in summer. The GHL capped the harvest at a level commensurate with those historically reported for this fishery and provided some protection against possible local depletion. The summer GHL represented a higher harvest than the prior ten-year seasonal average but was lower than the maximum historical harvests in the early 1980s.

While there had not been a consistent trawl shrimp fishery in Yakutat Bay, surveys in the early 1980s demonstrated harvestable stocks capable of supporting a fishery with a monthly quota of 30,000 pounds. In 1997, the BOF prohibited continuation of trawl shrimping inside Yakutat Bay. This prohibition to trawl gear may maximize availability of coonstripe shrimp to pot gear, but does eliminate harvest of pink and sidestripe shrimp. Coupled with this trawl prohibition, separate monthly GHLs were established for two portions of Yakutat Bay. In waters of Yakutat Bay east of a line running from the northernmost point of Khantaak Island to Logan Bluff and the waters east of line running from the northernmost point of Khantaak Island to the northernmost point of Doggie Island, the monthly GHL is 2,000 pounds for each month the fishery is open. This provides a potential season total of about 10,000 pounds. For the remaining waters of Yakutat Bay that are east of a line running from the westernmost tip of Ocean Cape to the westernmost tip of Point Manby, the monthly GHL is 1,000 pounds for a potential seasonal total of 10,000 pounds.

### **1998/99 SEASON SYNOPSIS**

A harvest of 5,288 pounds was reported in 1998/99 by 9 permit holders making 104 landings (Table 8.1). Most of the harvest occurred during the months of May through August, although landings were also reported through the entire open season, except in September (Table 8.2). The majority of the harvest was reported taken in Yakutat Bay, District 83 (Table 8.2). The harvest level, number of participants, and the number of landings were much higher than average and the highest since the record setting seasons in the early 1980s (Table 8.1). No dockside sampling or skipper interviews were conducted and no fish ticket size data are available to assist managers.

### **1999/00 SEASON OUTLOOK**

Recent effort levels are generally increasing above historical levels. Effort and harvests so far this season are confidential, but significant. It is likely that a maximum sustainable yield has not yet been reached for the Yakutat Bay stocks of spot and coonstripe shrimp, and the current GHL of 10,000 pounds per season will constrain the harvest at a reasonably conservative level. The major unforeseeable factors are the intensity of the summer segment of the fishery and the overall season length if GHRs are achieved and fisheries are closed prematurely by emergency order.

Table 8.1. Registration Area D (Yakutat) shrimp pot fishery harvest, number of landings, and CPUE, 1968/69 to present.

Season <sup>a</sup>	Harvest in pounds	Number of Permits Fished	Number of Landings	Pounds Per Landing	Pounds Per Permit
1968/69	0	0	0		
1969/70	*				
1970/71	0	0	0		
1971/72	0	0	0		
1972/73	0	0	0		
1973/74	0	0	0		
1974/75	*				
1975/76	0	0	0		
1976/77	0	0	0		
1977/78	0	0	0		
1978/79	0	0	0		
1979/80	*				
1980/81	*				
1981/82	*				
1982/83	29,830	4	63	473	7,458
1983/84	13,938	8	33	422	1,742
1984/85	2,475	6	35	70	413
1985/86	6,910	5	33	209	1,382
1986/87	2,421	5	10	242	484
1987/88	2,945	8	45	65	368
1988/89	2,995	6	16	187	499
1989/90	7,148	5	72	99	1,430
1990/91	10,711	7	70	153	1,530
1991/92	7,316	12	78	93	610
1992/93	2,999	4	40	74	750
1993/94	5,916	6	55	107	986
1994/95	5,738	6	64	89	956
1995/96	13,418	15	103	123	848
1996/97	20,862	14	218	96	1,490
1997/98	9,546	10	135	71	955
1998/99 <sup>b</sup>	5,288	9	104	51	588

<sup>a</sup> Pot shrimp seasons are October through September.

<sup>b</sup> Most recent year's data should be considered preliminary.

\* Where number of vessels participating is less than three, information is confidential.

Table 8.2. Registration Area D (Yakutat) shrimp pot harvests in pounds (landings) by district and month, 1998/99.<sup>a</sup>

Month	District	
	181	183
October	0	2,311 (37)
November	0	964 (19)
December	0	*
January	0	454 (9)
February	0	*
March	0	Closed
April	0	Closed
May	0	785 (17)
June	0	*
July	0	0
August	0	0
September	0	0
<b>Total</b>	<b>0</b>	<b>5,288</b>

<sup>a</sup> Most recent year's data should be considered preliminary.

\* Where number of vessels participating is less than three, information is confidential.