

THE 1997 AND 1998 SOUTHEAST ALASKA
TANNER CRAB STOCK ASSESSMENT SURVEYS



By

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INTRODUCTION

The Tanner crab *Chionoecetes bairdi* fishery in Southeast Alaska (Figure 1) has been one of the most valuable and consistent wintertime fisheries since the mid-1980s. The directed fishery began in the 1960s, with catches peaking in the 1981/1982 season at over 3 million pounds, much of which came from District 114 (Figure 2). Following this peak in harvest, catches averaged around 1.25 million pounds for the next 6 years. Since then catches have increased to an average of around 2 million pounds (the upper guideline harvest range) from the 1989/1990 season through the 1997/1998 season, generating an exvessel value of around 5 million dollars. Management measures imposed since the 1981/1992 season, such as limited entry for pot gear, guideline harvest levels, and limited number of pots per permit, together with suspected reductions in Tanner crab abundance, served to reduce the rate of increasing catches after the 1982/1983 season. The majority of catch is harvested by pot gear (97% of catch) with the remainder taken by ring net gear.

Policy relevant to management of Tanner crab stocks is set forth in the Policy on King and Tanner Crab Resource Management Goal and Benefits (ADF&G 1993). Currently there are two important factors concerning the Tanner crab fishery which make it difficult to fulfill these management goals. The first factor is the precipitous increase in daily catches in recent years and a corresponding decrease in season length (Figure 3). Since limitations on entry into the pot fishery were established in the mid-1980s, average daily catches by the fleet have increased from under 30,000 pounds per day in the mid 1980s to over 300,000 pounds per day in the 1997/1998 season. As a result, the number of days opened to commercial fishing has decreased from 47 days in the 1984/1985 season to 8 days in the 1997/1998 season. These extremely short seasons effectively exclude any inseason assessment and management action.

The other factor which concerns Tanner crab managers is the high harvest rates estimated for the fishery. These high harvest rates are evidenced by a large percent of recruit crab in both dockside samples, in red king crab survey catches (Figure 4), and by a significant decline in catch rates throughout the season. These data indicate that from 60 to 80% of the legal male Tanner crab are removed by the fishery each year. This means the fishery and continued health of the resource is dependent on a continuing annual replenishment of large legal male Tanner crab. Without some means to evaluate the relative abundance and size composition of Tanner crab stocks, the overall concern is that an unforeseen recruitment failure could result in unexpected disruption to the fishing industry and irreparable harm to the reproductive segment of the population.

There are four sources of Tanner crab stock assessment data that are used to monitor and manage the fishery. Tanner crab catch per pot day information is collected each year during the red king crab survey. Although sampling effort and pot placement are directed towards providing accurate estimates of red king crab abundance in 8 distinct areas, Tanner crab are also caught in significant numbers and biological data are collected on these crab. A second source of information on the status of Tanner crab stocks is the dockside sampling program. As crab are landed on shorebased processors and several floating tenders, crab are randomly selected and measured for carapace width and shell condition. This information is used to monitor the relative abundance of new recruits and post-recruits in the catch. A third source of information is the catch and effort data reported on fish tickets. The fourth source of information is the logbook program. In 1994 logbooks became mandatory and together with fish ticket information provided management with estimates of daily catch and pot lifts for each day in the fishery for each area and each boat fishing (ring nets are not included in the log book program). The logbook information combined with the corresponding fish ticket information provides for more accurate estimates of daily catch and effort.

In 1997 a Tanner crab stock assessment survey was initiated to monitor the relative abundance and stock composition of important Tanner crab stocks. This survey is expected to continue and provide an annual index of recruits and overall Tanner crab abundance in the surveyed areas. Methods are also being developed to estimate the true abundance of both prerecruit and legal crab abundance. These data will provide a preseason assessment of stock strength which will be of informational value to the industry and essential for effective management.

This report presents the results of the 1997 and 1998 Tanner crab survey. Statistical analyses are limited to simple summary statistics. However, these data will soon be integrated into a more comprehensive model which applies a Leslie depletion analysis, a catch-age analysis, and a catch-survey analysis to estimate total abundance by recruit class. Finally, recommendations are made to improve the survey and collect data which will significantly benefit management of the Tanner crab resource.

METHODS

A limited survey directed towards evaluating the feasibility of establishing an annual Tanner crab stock assessment survey to measure the relative abundance and stock composition of Tanner crab stocks in important production areas was conducted in Statistical Areas 111-40 and 111-41 (west Douglas Island) and 114-23 (Pleasant Island) in the fall of 1997 (Figure 5). In 1998, Holkham Bay (Statistical Area 111-21) was added to the survey. Table 1 shows the average historical catch distribution over areas (either subdistricts or groups of subdistricts). Most of the catch comes from the Glacier Bay area, which is adjacent to the Pleasant Island survey site. The Tanner crab survey was conducted in three areas which totaled an average of 25% of the commercial catch from the 1983/1984 season through the 1997/1998 season and 30% of the commercial catch for the last three seasons. When areas surveyed in the red king crab survey are included, approximately half of the commercial catch is harvested from the surveyed areas.

Pot locations were randomly chosen by first randomly choosing an initial pot location within a survey area stratum. Subsequent pots were located on a grid so that all pots were a fixed distance from adjacent pots. This systematic selection of pot locations provided a more uniform coverage of the survey area. There were two sample strata designated for the Pleasant Island area and west Douglas Island area; a high abundance stratum which was indicated to be the highest catch areas by fishers with knowledge of the area and a marginal stratum which were waters in the stratum but not in the high catch locations. For the Pleasant Island area, the high abundance stratum was the area directly west of Pleasant Island. For the west Douglas Island area, the two high abundance areas were waters south of the southeast corner of Douglas Island and waters in and directly north of Youngs Bay. The spacing between pots was greater in the marginal areas. Holkham Bay was considered as a single stratum. The number of pots and spacing between pots is provided in Table 2 and locations of pots are shown in Figures 6–10.

Conical, top-loading commercial Tanner crab pots were used to catch crabs. These pots are 7 feet in diameter, weigh 350 pounds, and have body webbing of 3.5 inches and purse webbing of 4.5 inches. Pots were generally pulled in the same order as set, unless tide and weather conditions preclude adherence to pick order. This resulted in soak times being comparable across all pots. The vessel remained on station until all crabs had been processed and returned to the water. When each pot was retrieved the catch was separated by species, sex, and size. If there were large numbers of Tanner crab in the pot, crab were subsampled for biological data. Subsampling was minimized for legal and prerecruit-one male Tanner crab. A 25 cm stainless vernier caliper graduated in 0.02 millimeter increments was used to measure crab to the nearest millimeter. Carapace width measurement was utilized for Tanner crab, and this measurement

was the greatest straight-line distance (excluding lateral spines) across the carapace at a right angle to a line midway between the eyes to the midpoint of the posterior margin of the carapace.

Shell condition, a relative and subjective index of post-molt shell age, was determined on all crab. This determination was based on a combination of factors which include the accumulation of epifauna, scratches, discoloration, and spine sharpness. A "new" shell crab exhibits a clean carapace and coxae, (first appendages attached to the body), few scratches, sharp spines, and sharp dactyls (claws). An "old" shell crab has a relatively clean carapace and coxae, with some scratches, may be ventrally discolored, with blunt spines and dactyls, and can have some epifauna (e.g., barnacles), or epiflora (e.g. kelp) on the exoskeleton. "Very old" exoskeletons exhibit extreme scratches, often with significant epifauna or epiflora growth, well worn spines and dactylus, and exoskeleton necrosis (localized death of living tissue). In recent years, the classification of "new soft" has been utilized to designate recently molted crab, exhibiting an exoskeleton that is flexible under moderate pressure. In addition to carapace width and shell condition, presence of black mat condition, and any miscellaneous observations were also recorded. A subset of sampled crab were weighted to develop a size-weight relationship. The clutch fullness, egg development, and egg condition of female Tanner crab were also recorded. Similar data are recorded for other commercial crab species (Dungeness and king crab) and presence of other incidental species in the catch is noted. Data associated with the pot are depth of pot, time that gear is set and lifted, exact latitude and longitude of gear when launched from boat, any unusual conditions associated with ability of pot to fish (no bait containers, broken webbing, etc), substrate type if known, any debris on pot, and any other observation of note. Data is entered into historical crab survey database for subsequent summary and analysis.

Male Tanner crab were assigned to a recruit class based on the carapace length and shell condition. Donaldson et al. (1981) estimated the premolt carapace width (PreM CW) to postmolt carapace width (PostM CW) relationship to be $PostM\ CW = 15.75 + 1.07\ PreM\ CW$ for PreM CW crab greater than 90 mm in the Kodiak and Prince William Sound areas. Using this relationship, male Tanner crab were assigned to recruit classes as follows:

Carapace Width	Shell Condition	Recruit Class
< 116 mm	All Shell Types	Prerecruit 2+
116 – 139 mm	All Shell Types	Prerecruit 1
140 – 165 mm	Soft/New Shell	Recruit
140 – 165 mm	Old Shell	Postrecruit 1
140 – 165 mm	Very Old Shell	Postrecruit 2+
166 – 192 mm	Soft/New Shell	Postrecruit 1
166 – 192 mm	Old/Very Old Shell	Postrecruit 2+
> 192 mm	All Shell Types	Postrecruit 2+

The 140 mm carapace width is the size at which crab are fully recruited into the fishery, as indicated by the dockside sampling measurements. There is an obvious non-linear relationship between weight and length. Ricker (1975) suggests an appropriate model for length/weight relationships is $Wt = a(\text{Width})^b$ where a and b are parameters. This model lends itself to a logarithmic transformation of the data. Thus all comparisons and parameter values were calculated using linear regression techniques with natural log transformed data (i.e. $\text{Ln}(\text{Weight}) = a + b\ \text{Ln}(\text{Carapace Width})$). Regression coefficients and associated statistics were calculated using standard linear regression techniques available in Excel. Comparison of regression lines was conducted by using a general linear test approach (Neter and Wasserman 1974).

RESULTS

Statistics relating to the time and area of pot placement are detailed in Appendix 1 and summarized in Tables 2 and 3. In 1997, a total of 38 pots were set in the Pleasant Island area and 48 pots were set in the west Douglas Island area. Pots in the marginal area were slightly deeper (maximum depth of 81 fathoms compared to 62 fathom maximum depth for the high abundance stratum) in the Pleasant Island area. Soak times were comparable, ranging from less than 12 hours to almost 24 hours. In 1998, only 6 of 21 pots were set in the marginal area. The depths at which the pots were set were similar to 1997. However, soak times were shorter in 1998 (0.6 days in 1998 compared to almost 0.8 days in 1997) and the survey was conducted in late July, compared to the October survey in 1997. Marginal area pots were also slightly deeper on average in the west Douglas Island area in 1997. Soak times were also comparable between marginal and high abundance areas, averaging about 0.1 day higher in the high abundance area. In 1998, pots were only set in the high abundance area. Soak times were slightly longer in 1998, averaging 1.0 day and the survey was conducted in July, as opposed to October in 1997. The 1998 survey in Holkham Bay only targeted high abundance areas (unless the department decides to re-stratify at a later date). Depths of pot placements averaged deeper than Pleasant Island and west Douglas Island areas. Soak times were fairly consistent, ranging from 0.73 to 0.83 days.

Catches by pot are detailed in Appendix 2 and summarized in Tables 4–6. The largest catches of legal Tanner crab were obtained in the Pleasant Island high abundance area. Catch rates were higher in 1998 compared to 1997 in the Pleasant Island area, with over 40 recruit crab per pot day being caught in both the high abundance and marginal areas. The west Douglas Island high abundance and marginal areas had comparable catches, with the 1998 high abundance area having almost twice the catch rate of legal Tanner crab than the same area in 1997 (24.6 legal crab per pot day compared to 12.9 legal crab per pot day). The percent of the legal size catch that was comprised of recruit was very high in the Pleasant Island area, ranging from 72 to 84%. The percentage of legal size crab catch which was recruit crab was lower in the west Douglas Island and Holkham Bay areas (53.5 to 65.1%).

One important observation from the survey was the limited distribution of Tanner crab stocks. In both 1997 and 1998, Tanner crab were only caught in the waters directly west of Pleasant Island (Figure 11). In the west Douglas Island area, Tanner crab were caught in moderate to large numbers in the waters of north Youngs Bay and waters in the eastern part of the survey area, but very few crab were caught in the waters between these areas (Figure 12).

Catches of female Tanner crab were much smaller than male crab. The majority of female crab were ovigerous female crab. Catch ranged from 12 to 13 female Tanner crab per pot day in the 1998 Pleasant Island area to around 2 crab per pot day in Holkham Bay and no female crab were caught in the marginal stratum in the 1997 Pleasant Island area.

There were also moderate catches of red king crab in the west Douglas Island area in both the high abundance and marginal areas in 1997 and 1998. Catches in the west Douglas Island area ranged from 2 male red king crab per pot day to over 10 male red king crab per pot day. Catch rates of female red king crab were smaller, but still ranged up to 4.5 female red king crab per pot day in the high abundance area in the west Douglas Island area in 1997. Holkham Bay also had moderate catches of female (1.3 crab per pot day) and male (2.2 crab per pot day) red king crab. Very few red king crab were caught in the Pleasant Island area. A total of 10 Dungeness crab were caught.

Paired length-weight measurements were studied to determine if significant differences existed between shell types and areas. Table 7 presents the intercept and slope estimates of the line between natural log of carapace width in millimeters and the natural log of weight in grams. Table 8 presents the results of the tests of significance between the regression lines between shell conditions by area and between areas.

Only Holkham Bay had a significant difference between the linear relationship of old shell and new shell crab. However, there was a very significant difference between the lines of new shell crab when the different areas were compared. These differences are also shown graphically in Figure 13. Old shell crab did not have the large differences in carapace width-weight relationship found in new shell crab.

DISCUSSION

Because inseason management of the Tanner crab commercial fishery in Southeast Alaska is not feasible due to the short season length and because the fishery is essentially a recruit fishery relying on recruit crab to contribute 70% or more to the commercial catch, a comprehensive preseason assessment of Tanner crab abundance and recruit class composition is essential for effective management of this resource. At a minimum, preseason assessments will provide an early indication of unexpected changes in legal abundance and provide management with the ability to take advantage of higher than expected abundance or protect stocks in times of low abundance. A comprehensive and continuing program of Tanner crab stock assessment surveys could provide the means to manage on an area-specific basis and more accurately set seasons and quotas to maximize fishery catches.

The results of the 1997 and 1998 Tanner crab stock assessment surveys provided some very interesting and useful information. One conclusion is the distribution of Tanner crab in the survey areas is very defined and limited. Another observation is the size-weight relationships between Tanner crab is very different between areas. Finally, the similarity between the magnitude and recruit composition of the survey catches in 1997 and 1998 in the Pleasant Island and west Douglas Island areas indicate the 1998 abundance in these areas should be similar to the 1997 abundance.

The results of the 1997 and 1998 surveys give rise to a number of recommendations. One recommendation is to redefine the strata to better determine the boundaries of high Tanner crab abundance. This would help concentrate survey effort on these areas, increasing the precision of abundance estimates. Another recommendation is to expand the survey to other areas of high Tanner crab production. These areas would include Glacier Bay, Seymour Canal, and Keku Strait. Additional survey effort is also required for Holkham Bay to better define the area of Tanner crab abundance. Meristic data need to be collected from all areas. The large difference in carapace width-weight relationship suggests stock specific differences may be found, providing another tool for area specific management. Finally, consistent and objective data on female fecundity need to be collected to evaluate the effect of high harvest pressure on the reproductive capacity of the stocks.

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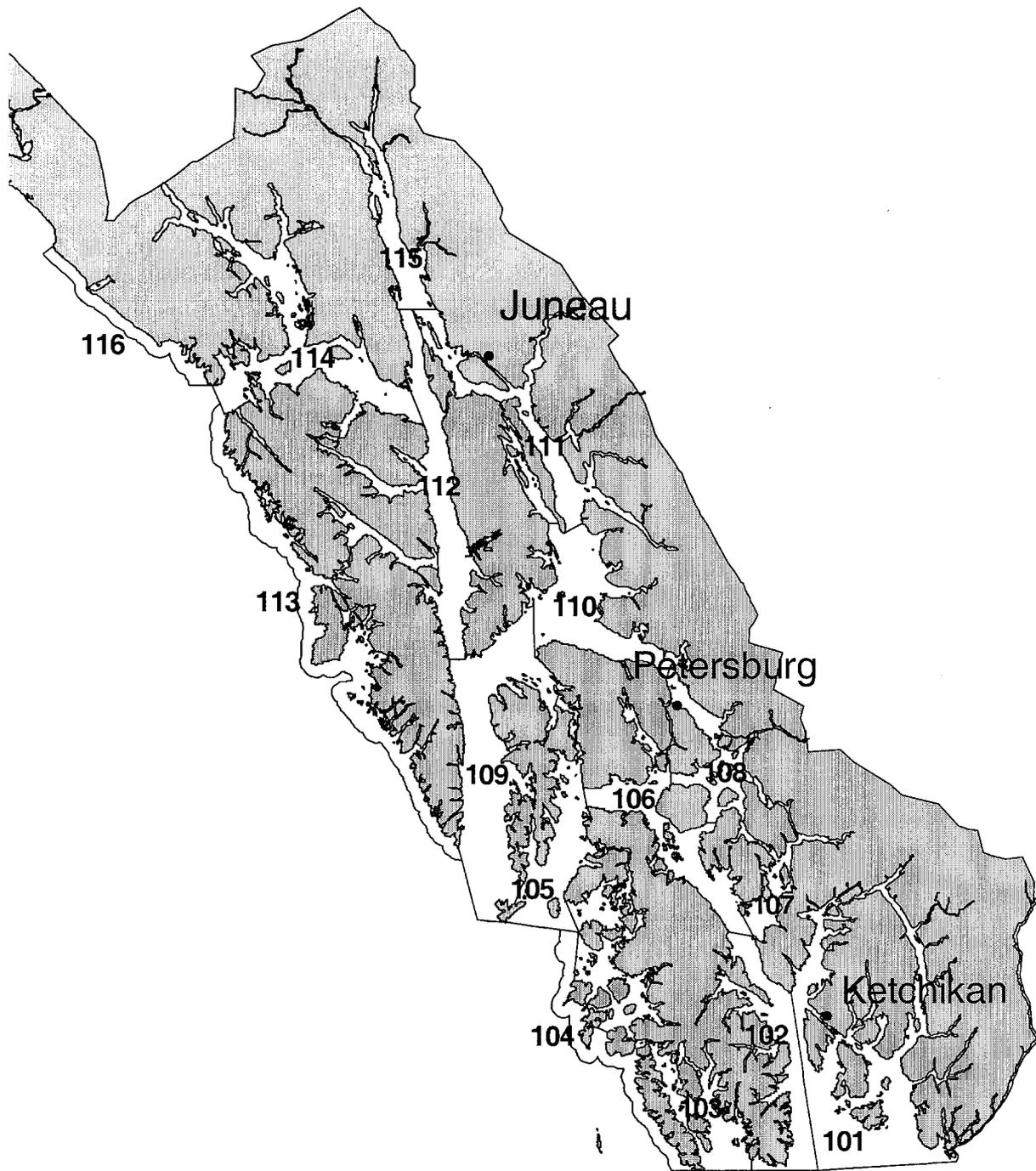


Figure 1. Statistical districts of Southeast Alaska (Area A) which consists of all waters from the International Boundary at Dixon Entrance to Cape Fairweather.

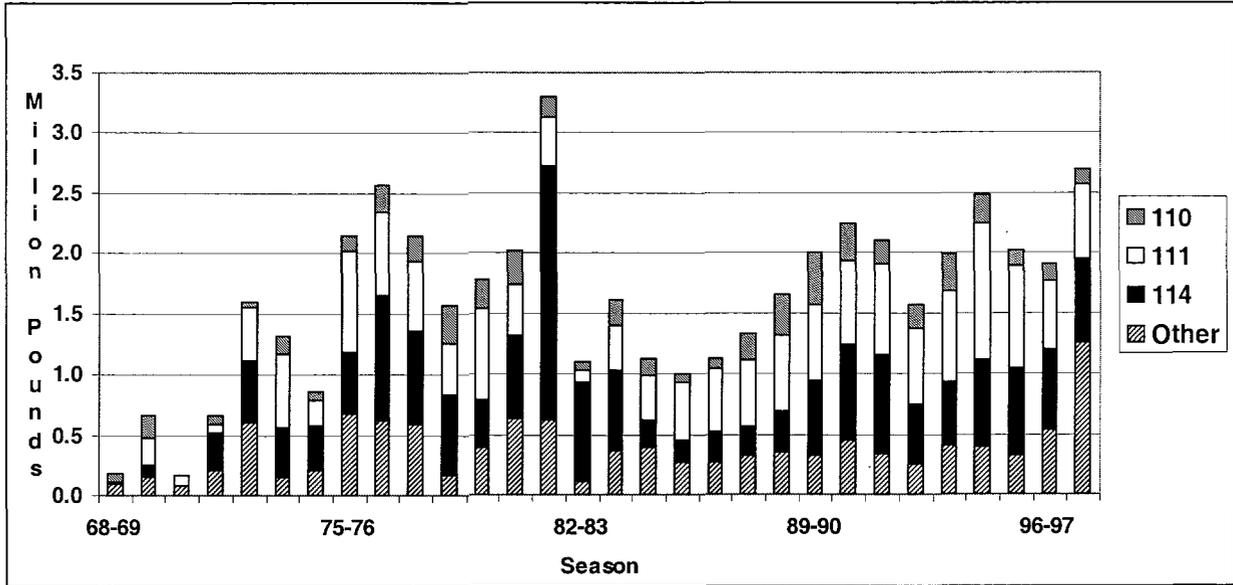


Figure 2. Southeast Alaska (Area A) commercial Tanner crab catch for Districts 110, 111, 114, and all other districts by season. Catches are for all types of commercial gear (pots and ring nets) and for all types of commercial landings (traditional, experimental, confiscated catch). There was an unknown season for a total catch of 36,114 pounds.

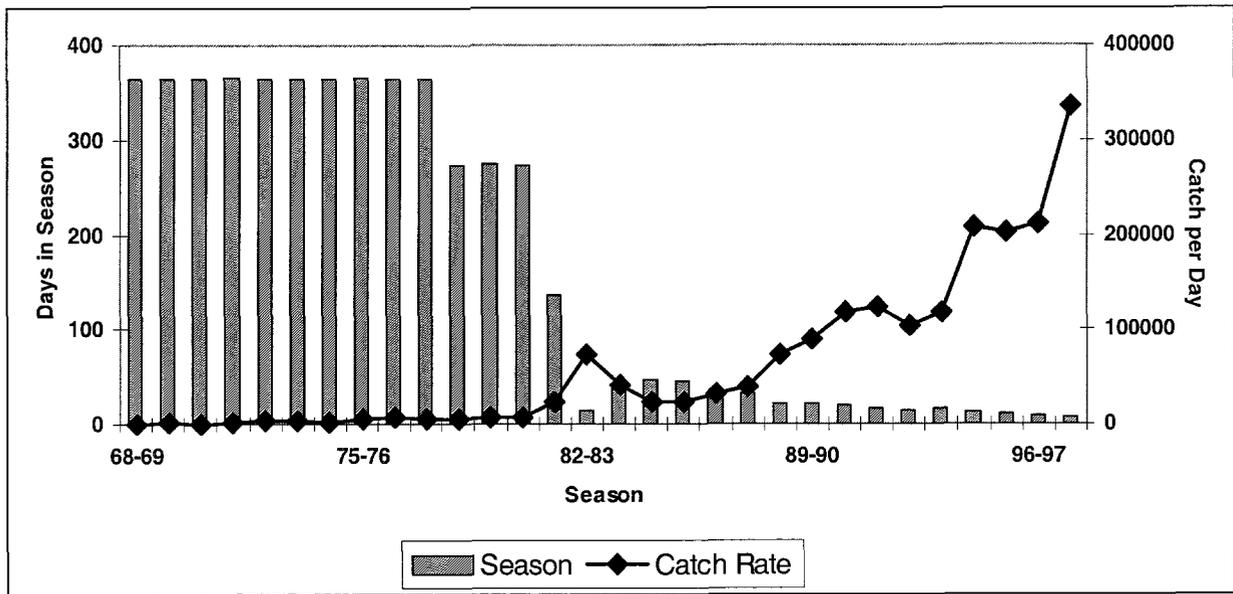


Figure 3. Seasonal length of the commercial Tanner crab fishery in Southeast Alaska (Area A) and the average catch per day (total catch divided by seasonal length).

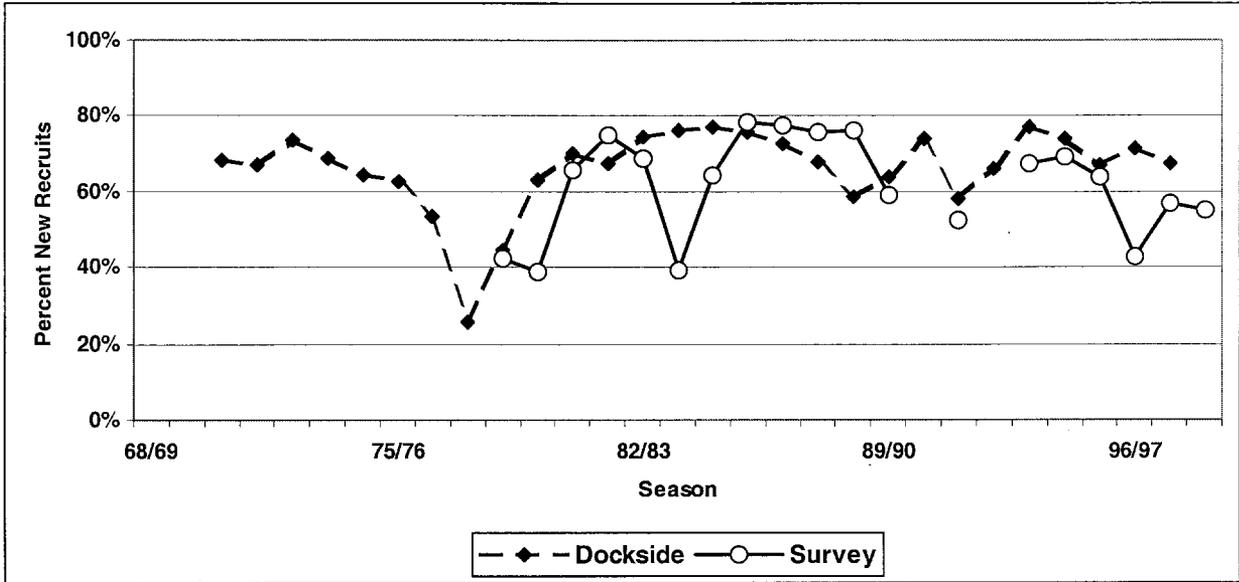


Figure 4. Percent of Southeast Alaska (Area A) commercial Tanner crab fishery dockside samples and legal male Tanner crab caught in the red king crab survey which are classified as new recruits (new shell male Tanner crab from 140 mm to 165 mm carapace width).

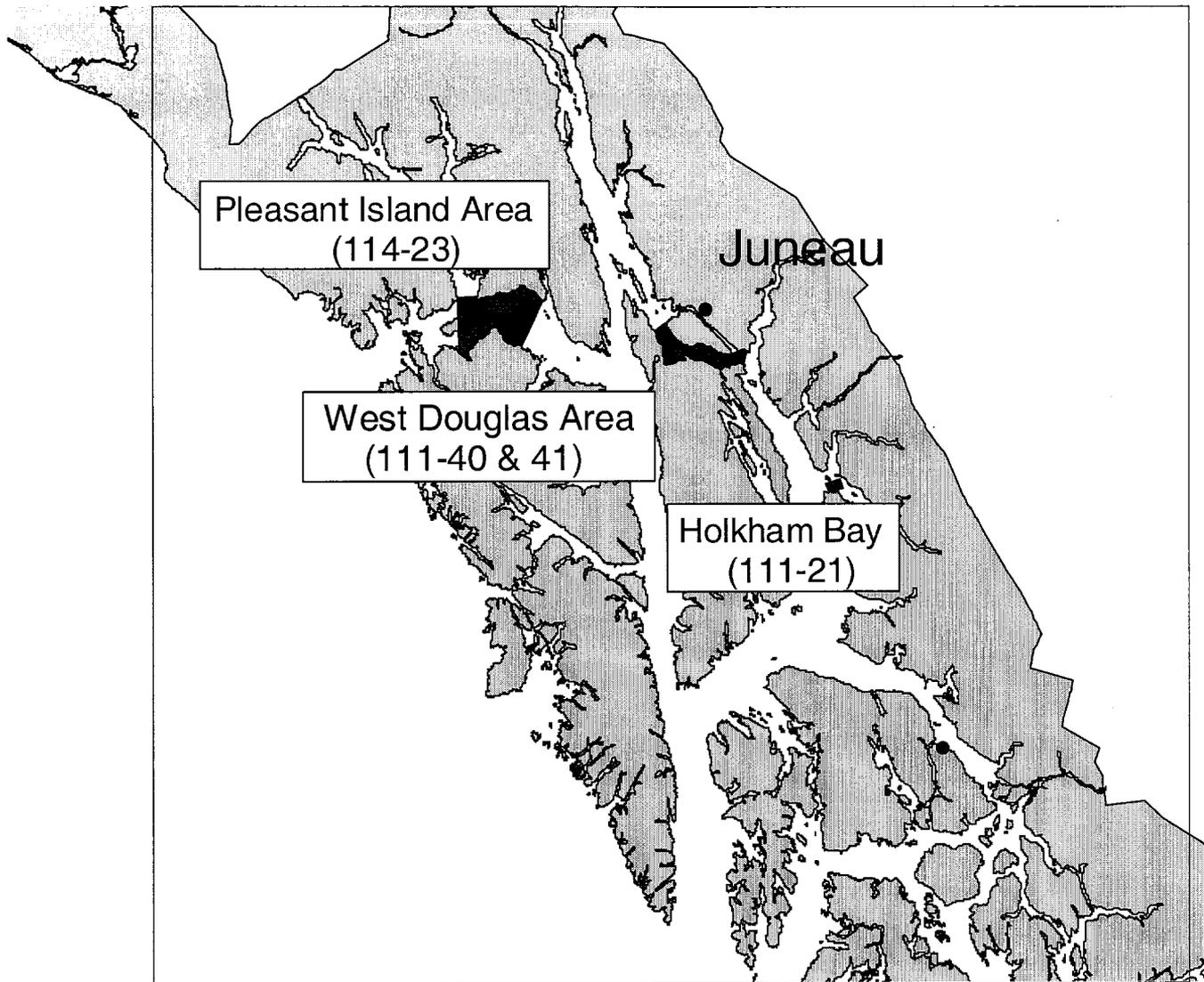


Figure 5. Tanner crab stock assessment areas.

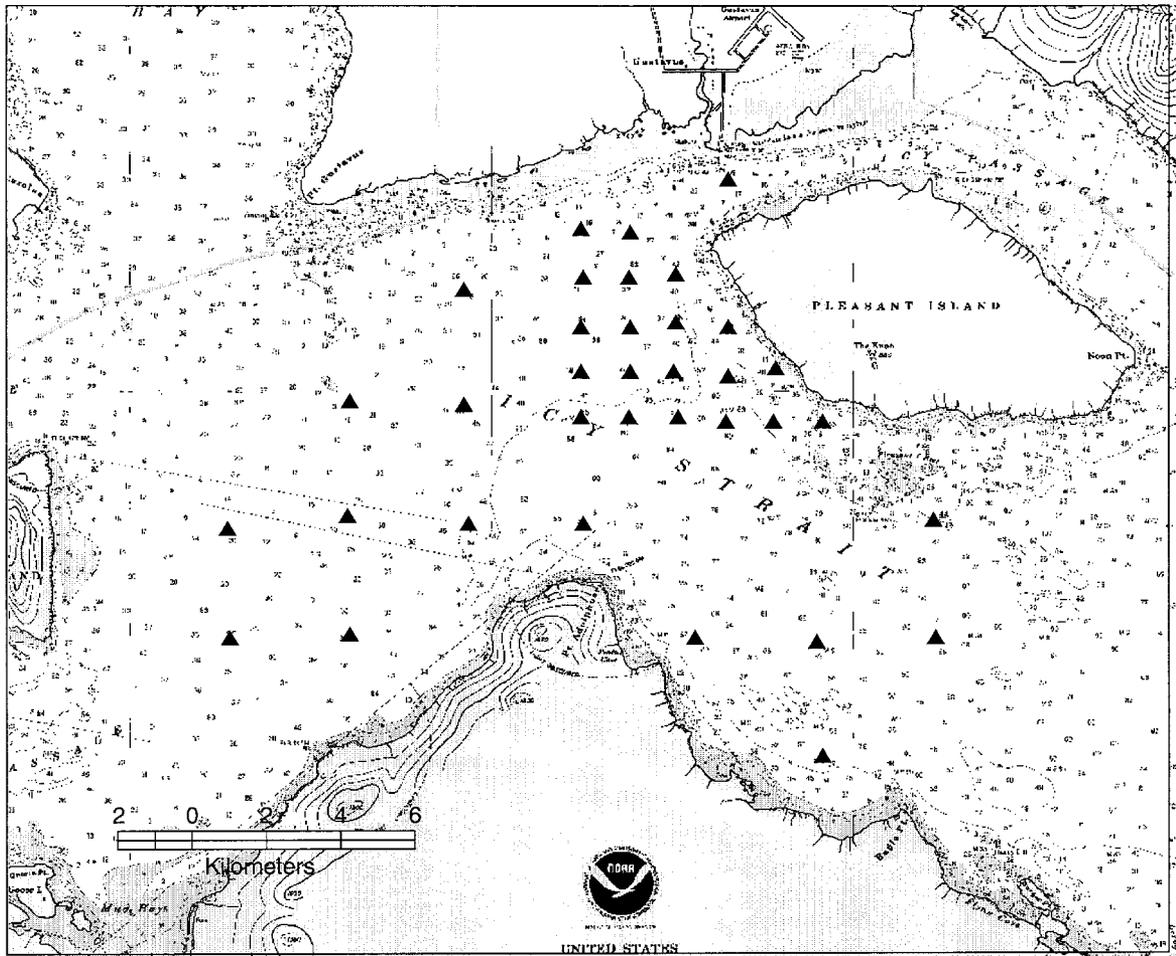


Figure 6. Pot locations in the Pleasant Island area in 1997. The stratum west of Pleasant Island had pot locations spaced 0.67 nautical miles apart. The larger stratum south and west of the smaller stratum pot locations were spaced 2.0 nautical miles apart.

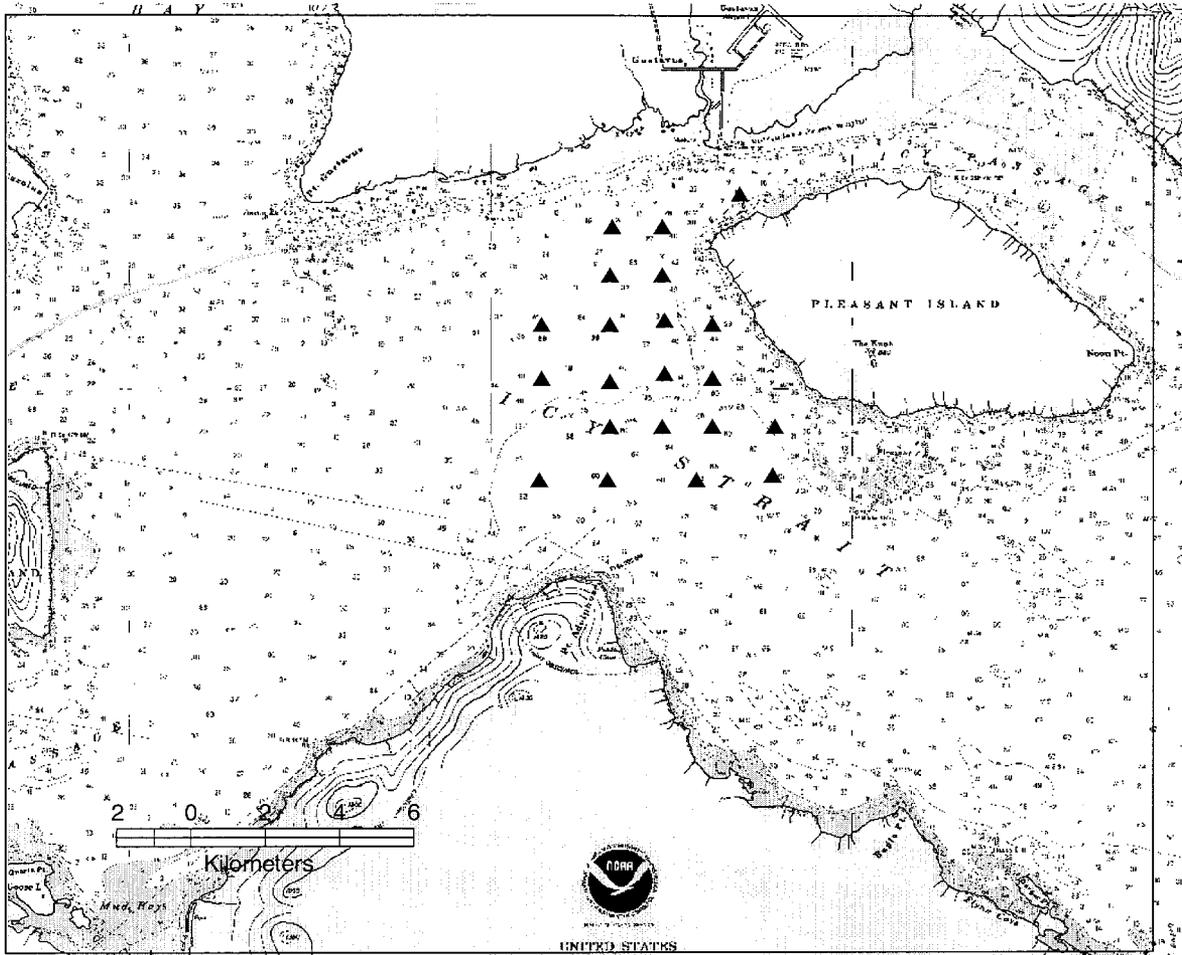


Figure 7. Pot locations in the Pleasant Island area in 1998. The stratum west of Pleasant Island had pot locations spaced 0.67 nautical miles a part.

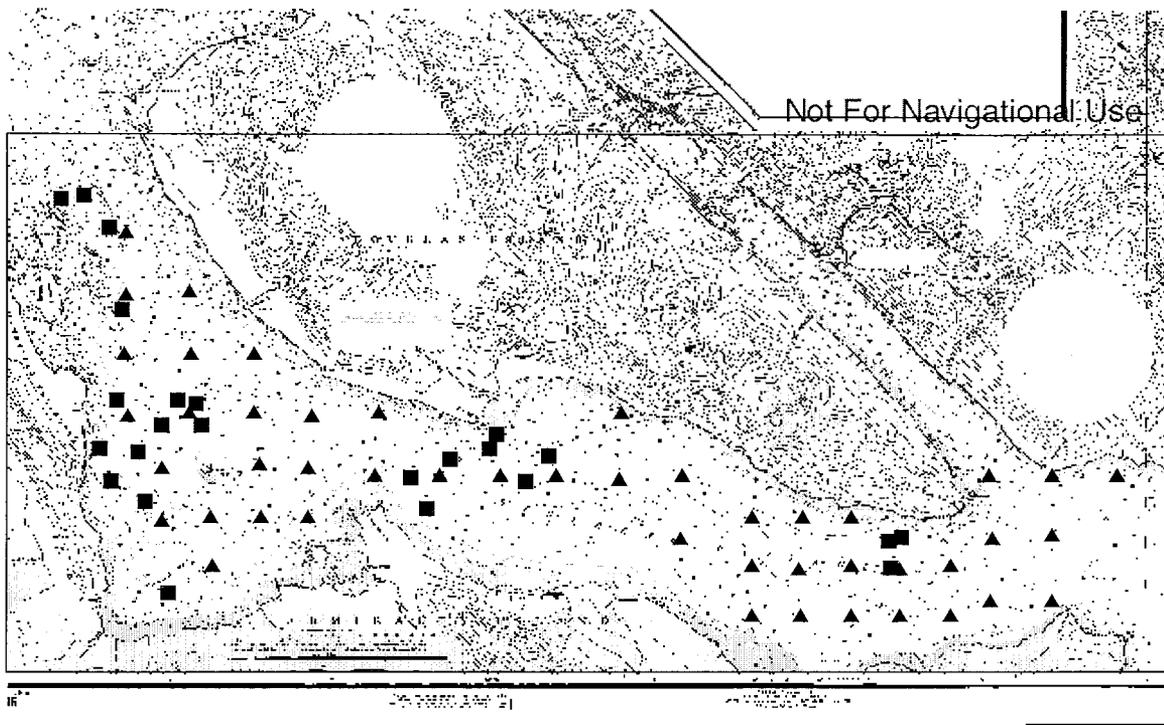


Figure 8. Pot locations in the west Douglas Island area in 1997. Square symbols are red king crab survey pot locations and triangles are Tanner crab survey pot locations. All red king crab pot locations are randomly chosen. Tanner crab pot locations are spaced either 1.0 nautical mile or 0.4 nautical miles apart.

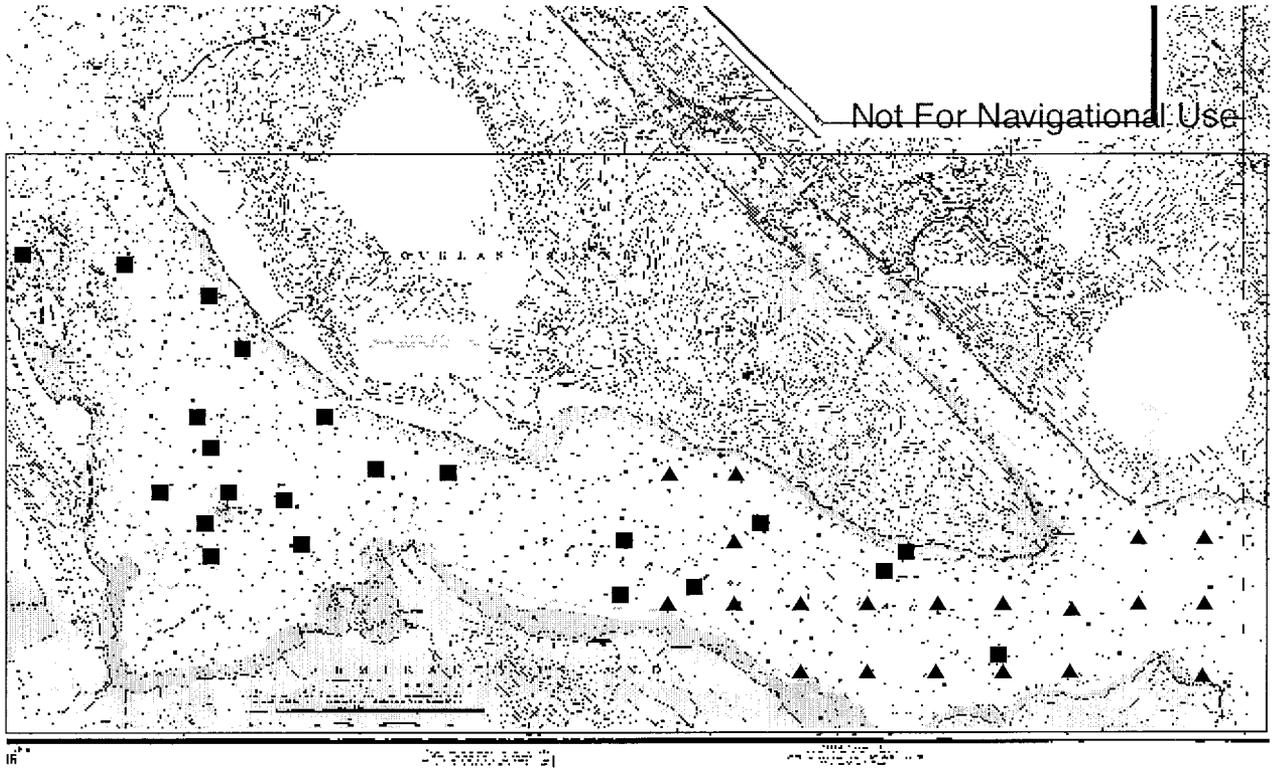


Figure 9. Pot locations in the west Douglas Island area in 1998. Square symbols are red king crab survey pot locations and triangles are Tanner crab survey pot locations. All red king crab pot locations are randomly chosen. Tanner crab pot locations are spaced 1 nautical mile apart.

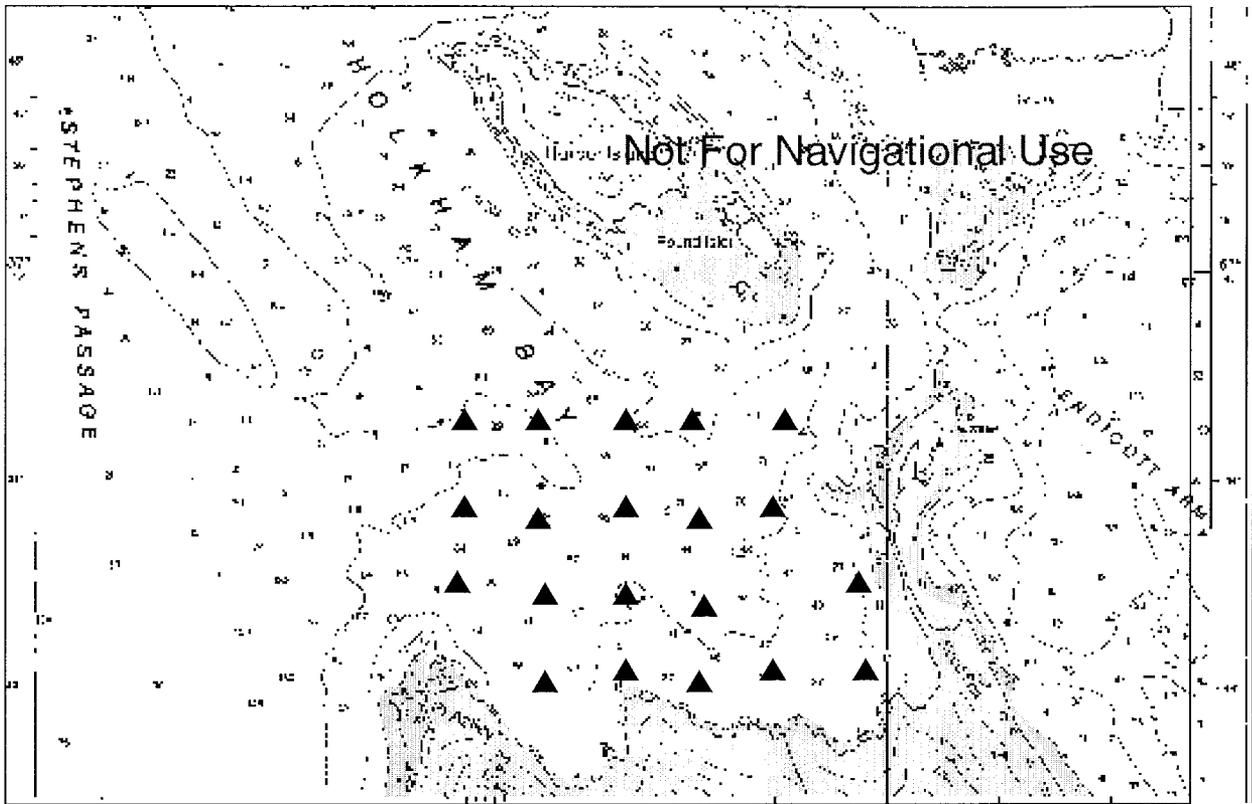


Figure 10. Pot locations in Holkham Bay in 1998. Pot locations are spaced 0.4 nautical miles apart.

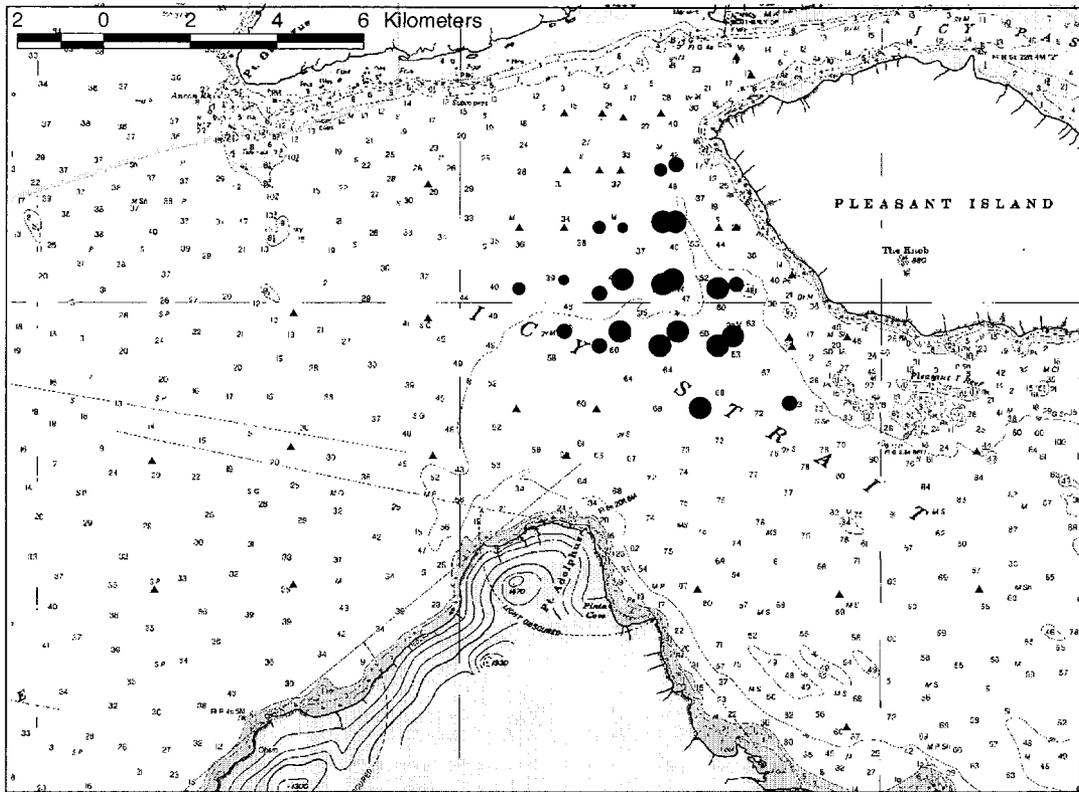


Figure 11. Catch per pot of male Tanner crab greater than 116 mm carapace width. Large circles are catches greater than 80 crab, intermediate size circles are catches from 41 to 80 crab in a pot, small circles are catches from 1 to 40 crab in a pot, and small triangles are pots in which no crab were caught.

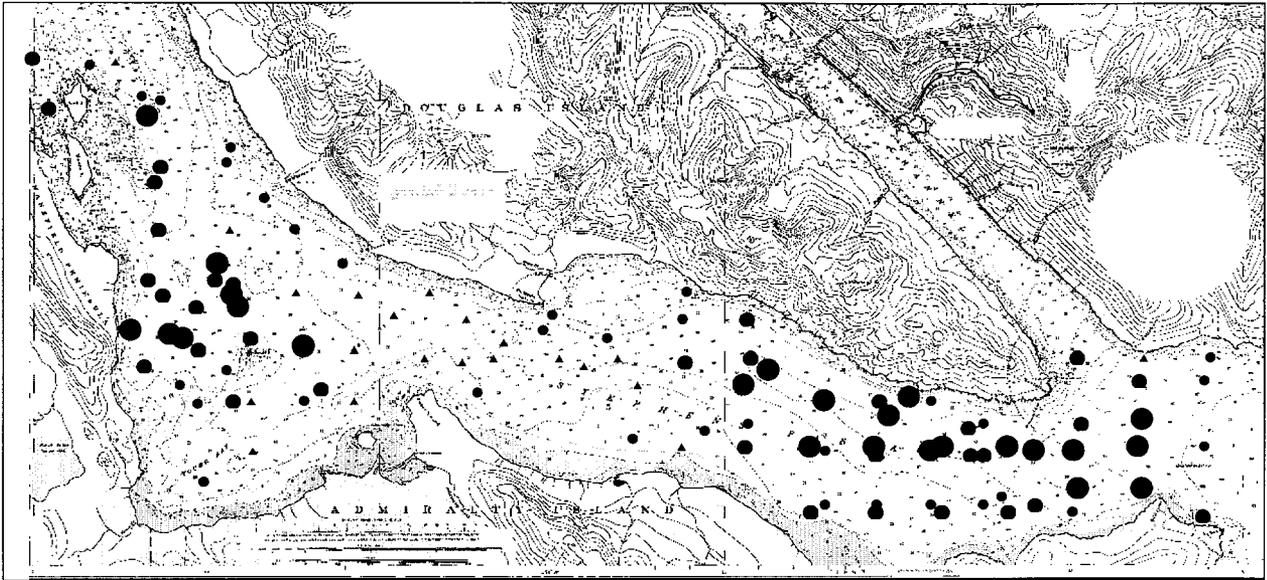


Figure 12. Catch per pot of male Tanner crab greater than 116 mm carapace width. Large circles are catches greater than 40 crab, intermediate-size circles are catches from 21 to 40 crab in a pot, small circles are catches from 1 to 20 crab in a pot, and small triangles are pots in which no crab were caught.

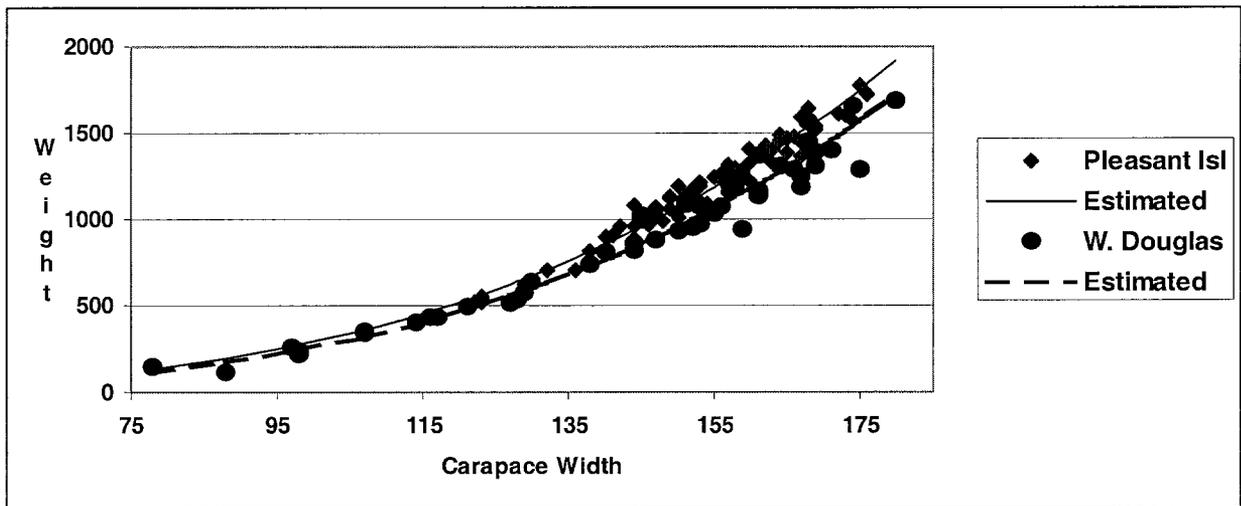


Figure 13. Carapace width-weight relationship of new shell Tanner crab from Pleasant Island and west Douglas Island areas.

Table 1. Catch in the commercial Tanner crab pot fishery in Southeast Alaska. Other includes catches from areas which averaged less than 1% of the total catch for both the 1983/1984 - 1997/1998 seasons average and 1995/1996 - 1997/1998 seasons average.

Area Name	Sub-districts	1983/1984-1997/1998		1995/1996-1997/1998		Survey Status
		Average Percent of Total Catch	Average Catch	Average Percent of Total Catch	Average Catch	
Glacier Bay	114-70 to 114-78	9.63%	172,135	13.83%	287,167	Adjacent to Surveyed Area
Holkham Bay	111-21	9.45%	175,242	11.85%	238,518	In Tanner Crab Survey
west Douglas Is.	111-40, 41	8.04%	133,888	7.06%	152,443	In Tanner Crab Survey
Pleasant Is.	114-23	7.23%	166,073	11.49%	240,241	In Tanner Crab Survey
Seymour Canal	111-11 to 111-17	6.87%	119,458	6.55%	137,711	In Red King Crab Survey
North Juneau	111-50	4.73%	73,334	2.76%	58,800	In Red King Crab Survey
Excursion Inlet	114-80, 25	3.86%	68,901	3.79%	80,456	In Red King Crab Survey
Keku Strait	109-42	3.59%	71,479	7.11%	149,448	
Stephens Passage	111-31	3.02%	49,334	1.56%	33,410	
Gambier Bay	110-23	2.63%	51,282	1.83%	40,036	In Red King Crab Survey
Pybus Bay	110-22	2.62%	45,165	0.86%	18,282	In Red King Crab Survey
Thomas Bay	110-12	2.57%	45,399	2.21%	44,154	
Idaho Inlet	114-40	2.06%	43,805	0.96%	19,008	
Port Snettisham	111-33, 34, 35	2.01%	40,339	2.38%	47,784	
East Sumner St.	106-42	1.95%	47,480	5.58%	134,492	
S.E. Icy Strait	114-27	1.85%	31,655	1.72%	36,855	Adjacent to Surveyed Area
N.W. Icy Strait	114-21	1.83%	31,989	0.16%	5,234	Adjacent to Surveyed Area
Lynn Canal	112-15 & 115-10	1.83%	26,410	0.79%	15,803	In Red King Crab Survey
Taku Inlet	111-32	1.61%	36,435	0.11%	6,602	Adjacent to Surveyed Area
Tenakee Inlet	112-41 to 112-48	1.58%	26,252	0.67%	18,978	
Chilkoot Inlet	115-33, 34, & 35	1.57%	29,119	0.42%	13,981	
Frederick Sound	110-15, 16, 17, 21, 31	1.57%	30,347	0.01%	699	
Port Frederick	114-30	1.43%	21,983	0.49%	9,492	In Red King Crab Survey
Deadman's Reach	113-55, 56	1.34%	22,852	0.45%	16,198	In Red King Crab Survey
N. Lynn Canal	115-31	1.10%	19,767	0.21%	6,986	Adjacent to Surveyed Area
Stikine Strait	108-40	1.02%	17,825	0.58%	14,165	
Port Camden	109-43	0.84%	30,294	1.47%	36,184	
Others	79 Other Subdistricts	12.15%	282,551	13.12%	313,289	

Table 2. Number of pots and placement of pots in the 1997 and 1998 Tanner crab stock assessment survey.

Survey Area	Stratum	Year	Number of Pots	Spacing of Pots
Pleasant Island area	high abundance	1997	22	0.67 nmi
Pleasant Island area	marginal	1997	16	2.0 nmi
Pleasant Island area	high abundance	1998	15	0.67 nmi
Pleasant Island area	marginal	1998	6	1.0 nmi
west Douglas Island area	high abundance	1997	21	0.4 nmi
west Douglas Island area	marginal	1997	26	1.0 nmi
west Douglas Island area	high abundance	1998	20	1.0 nmi
west Douglas Island area	marginal	1998	0	
Holkham Bay	outer bay	1998	20	0.4 nmi

Table 3a. Summary of statistics relating to Tanner crab pot setting and retrieval in the Tanner crab stock assessment survey in Southeast Alaska.

Survey Area	Stratum	Year	Number of Pots	Depth in Fathoms of Pots		
				Average	Minimum	Maximum
Pleasant Island Area	High Abundance	1997	22	39.9	18	62
Pleasant Island Area	Marginal	1997	16	49.6	17	81
Pleasant Island Area	High Abundance	1998	15	41.9	16	64
Pleasant Island Area	Marginal	1998	6	57.0	35	74
west Douglas Island Area	High Abundance	1997	21	34.4	24	55
west Douglas Island Area	Marginal	1997	26	42.0	23	84
west Douglas Island Area	High Abundance	1998	20	46.5	13	110
Holkham Bay	Outer Bay	1998	20	60.8	20	113

Table 3b. Summary of statistics relating to Tanner crab pot setting and retrieval in the Tanner crab stock assessment survey in Southeast Alaska.

Survey Area	Stratum	Year	Date of Survey		Soak Times		
			First Day	Last Day	Average	Minimum	Maximum
Pleasant Island area	high abundance	1997	09-Oct-97	10-Oct-97	0.78	0.64	0.91
Pleasant Island area	marginal	1997	10-Oct-97	11-Oct-97	0.78	0.43	0.97
Pleasant Island area	high abundance	1998	29-Jul-98	30-Jul-98	0.59	0.45	0.64
Pleasant Island area	marginal	1998	29-Jul-98	30-Jul-98	0.65	0.58	0.68
west Douglas Island area	high abundance	1997	06-Oct-97	08-Oct-97	0.92	0.67	1.17
west Douglas Island area	marginal	1997	06-Oct-97	08-Oct-97	0.83	0.66	1.26
west Douglas Island area	high abundance	1998	06-Jul-98	07-Jul-98	1.00	0.77	1.25
Holkham Bay	outer bay	1998	08-Jul-98	09-Jul-98	0.78	0.74	0.83

Table 4a. Summary of Tanner crab catches by recruit class in the 1997 and 1998 Southeast Alaska Tanner crab stock assessment survey and percent of legal crab that are recruit crab.

Survey Area	Stratum	Year	Number of Pots	Total Catch of Male Tanner Crab					Percent
				Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	
Pleasant Island area	high abundance	1997	22	45	255	419	134	0	75.8%
Pleasant Island area	marginal	1997	16	0	0	0	0	0	na
Pleasant Island area	high abundance	1998	15	27	191	354	127	7	72.5%
Pleasant Island area	marginal	1998	6	11	20	160	28	2	84.2%
west Douglas Island area	high abundance	1997	21	15	109	172	68	9	69.1%
west Douglas Island area	marginal	1997	26	26	168	174	79	18	64.2%
west Douglas Island area	high abundance	1998	20	23	145	272	198	20	55.5%
Holkham Bay	outer bay	1998	20	25	131	48	34	3	56.5%

Table 4b. Summary of Tanner crab catch rates (catch per pot day) by recruit class in the 1997 and 1998 Southeast Alaska Tanner crab stock assessment survey.

Survey Area	Stratum	Year	Soak Days	Total Catch of Male Tanner Crab					Total Legal
				Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	
Pleasant Island area	high abundance	1997	17.17	2.62	14.85	24.40	7.80	0.00	32.21
Pleasant Island area	marginal	1997	12.54	0.00	0.00	0.00	0.00	0.00	0.00
Pleasant Island area	high abundance	1998	8.78	3.07	21.74	40.30	14.46	0.80	55.56
Pleasant Island area	marginal	1998	3.87	2.84	5.17	41.33	7.23	0.52	49.09
west Douglas Island area	high abundance	1997	19.30	0.78	5.65	8.91	3.52	0.47	12.90
west Douglas Island area	marginal	1997	21.65	1.20	7.76	8.04	3.65	0.83	12.51
west Douglas Island area	high abundance	1998	19.93	1.15	7.28	13.65	9.94	1.00	24.59
Holkham Bay	outer bay	1998	15.61	1.60	8.39	3.07	2.18	0.19	5.44

Table 5. Summary of catches of other crab species and catch per pot day in the 1997 and 1998 Southeast Alaska Tanner crab stock assessment surveys.

Survey Area	Stratum	Year	Soak Days	Mature Female Crab			Juvenile Female Crab		Barren Female Crab	
				Catch	Catch/Pot Day	Clutch Full.	Catch	Catch/Pot Day	Catch	Catch/Pot Day
Pleasant Island area	high abundance	1997	17.17	117	6.81	90.9%	0	0.00	7	0.41
Pleasant Island area	marginal	1997	12.54	0	0.00		0	0.00	0	0.00
Pleasant Island area	high abundance	1998	8.78	117	13.32	89.3%	0	0.00	0	0.00
Pleasant Island area	marginal	1998	3.87	45	11.63	84.0%	0	0.00	0	0.00
west Douglas Island area	high abundance	1997	19.30	56	2.90	80.7%	1	0.05	1	0.05
west Douglas Island area	marginal	1997	21.65	67	3.09	78.8%	1	0.05	3	0.14
west Douglas Island area	high abundance	1998	19.93	115	5.77	83.6%	3	0.15	2	0.10
Holkham Bay	outer bay	1998	15.61	28	1.79	72.9%	1	0.06	4	0.26

Table 6. Summary of catches of other crab species and catch per pot day in the 1997 and 1998 Southeast Alaska Tanner crab stock assessment surveys.

Survey Area	Stratum	Year	Soak Days	Red King Crab Females			Red King Crab Males		All Dungeness	
				Catch	Catch/Pot Day	Clutch Full.	Catch	Catch/Pot Day	Catch	Catch/Pot Day
Pleasant Island area	high abundance	1997	17.17	9	0.52	97.8%	3	0.17	3	0.17
Pleasant Island area	marginal	1997	12.54	0	0.00		0	0.00	0	0.00
Pleasant Island area	high abundance	1998	8.78	0	0.00		1	0.11	4	0.46
Pleasant Island area	marginal	1998	3.87	0	0.00		6	1.55	0	0.00
west Douglas Island area	high abundance	1997	19.30	86	4.46	81.0%	164	8.50	1	0.05
west Douglas Island area	marginal	1997	21.65	9	0.42	87.5%	47	2.17	1	0.05
west Douglas Island area	high abundance	1998	19.93	38	1.91	99.4%	218	10.94	1	0.05
Holkham Bay	outer bay	1998	15.61	20	1.28	92.9%	35	2.24	0	0.00

Table 7. Estimated relationship between carapace width (mm) and weight (gms) by area and shell condition. Relationship is assumed to be linear between natural log transformed measurements.

Area	Shell Condition	Number of Samples	Intercept Estimate	Slope Estimate	R-Square Value
west Douglas Island	new shell	49	-9.3506	3.2352	0.976
	old/very old shell	17	-9.4723	3.2736	0.872
	all shell types	66	-9.3060	3.2297	0.965
Pleasant Island	new shell	75	-9.1364	3.2148	0.963
	old/very old shell	27	-9.9826	3.3870	0.951
	all shell types	102	-9.4402	3.2754	0.970
Holkham Bay	new shell	16	-7.2643	2.8252	0.930
	old/very old shell	32	-9.8321	3.3596	0.968
	all shell types	48	-8.6848	3.1218	0.943

Table 8. Comparison of linear regression statistics to determine if there is a significant difference between the carapace width-weight relationship.

Comparison of Differences Between Area and Shell Conditions			Probability that Relationship is Same
west Douglas Island new shell	with	west Douglas Island old shell	8.924%
Pleasant Island new shell	with	Pleasant Island old shell	45.283%
Holkham Bay new shell	with	Holkham Bay old shell	0.877%
west Douglas Island new shell	with	Pleasant Island new shell	<0.0001%
west Douglas Island new shell	with	Holkham Bay new shell	0.948%
Pleasant Island new shell	with	Holkham Bay new shell	0.258%
west Douglas Island old shell	with	Pleasant Island old shell	35.734%
west Douglas Island old shell	with	Holkham Bay old shell	6.433%
Pleasant Island old shell	with	Holkham Bay old shell	74.108%

APPENDIX

Appendix 1. Detailed status of individual pots in the Tanner crab survey by bay and year.

Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
west Douglas Island	1997	1	marginal strata	33	October 6, 1997	1.26	normal
west Douglas Island	1997	2	marginal strata	27	October 6, 1997	1.24	normal
west Douglas Island	1997	3	marginal strata	42	October 6, 1997	1.22	normal
west Douglas Island	1997	4	marginal strata	41	October 6, 1997	1.21	normal
west Douglas Island	1997	5	marginal strata	23	October 6, 1997	1.19	normal
west Douglas Island	1997	6	high abundance	25	October 6, 1997	1.17	normal
west Douglas Island	1997	7	high abundance	29	October 6, 1997	1.14	normal
west Douglas Island	1997	8	high abundance	42	October 6, 1997	1.13	normal
west Douglas Island	1997	9	high abundance	39	October 6, 1997	1.12	normal
west Douglas Island	1997	10	high abundance	36	October 6, 1997	1.10	normal
west Douglas Island	1997	11	high abundance	25	October 6, 1997	1.09	normal
west Douglas Island	1997	12	high abundance	24	October 6, 1997	1.07	normal
west Douglas Island	1997	13	high abundance	43	October 6, 1997	1.06	normal
west Douglas Island	1997	14	high abundance	32	October 6, 1997	1.04	normal
west Douglas Island	1997	15	high abundance	49	October 6, 1997	1.02	normal
west Douglas Island	1997	16	high abundance	30	October 6, 1997	0.97	normal
west Douglas Island	1997	17	high abundance	41	October 6, 1997	0.96	normal
west Douglas Island	1997	18	high abundance	55	October 6, 1997	0.91	normal
west Douglas Island	1997	19	marginal strata	56	October 6, 1997	0.90	normal
west Douglas Island	1997	20	marginal strata	54	October 6, 1997	0.88	normal
west Douglas Island	1997	21	marginal strata	70	October 6, 1997	0.86	normal
west Douglas Island	1997	22	marginal strata	81	October 6, 1997	0.84	normal
west Douglas Island	1997	23	marginal strata	84	October 6, 1997	0.82	normal
west Douglas Island	1997	24	marginal strata	59	October 6, 1997	0.80	normal

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Appendix 1. (page 2 of 6)

Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
west Douglas Island	1997	25	marginal strata	36	October 6, 1997	0.77	normal
west Douglas Island	1997	26	marginal strata	35	October 7, 1997	0.66	normal
west Douglas Island	1997	27	marginal strata	29	October 7, 1997	0.66	normal
west Douglas Island	1997	28	marginal strata	23	October 7, 1997	0.66	normal
west Douglas Island	1997	29	marginal strata	24	October 7, 1997	0.66	normal
west Douglas Island	1997	30	marginal strata	27	October 7, 1997	0.67	normal
west Douglas Island	1997	31	high abundance	34	October 7, 1997	0.67	normal
west Douglas Island	1997	32	high abundance	24	October 7, 1997	0.67	normal
west Douglas Island	1997	33	high abundance	33	October 7, 1997	0.67	normal
west Douglas Island	1997	34	high abundance	35	October 7, 1997	0.68	normal
west Douglas Island	1997	35	marginal strata	33	October 7, 1997	0.68	normal
west Douglas Island	1997	36	marginal strata	32	October 7, 1997	0.69	normal
west Douglas Island	1997	37	marginal strata	29	October 7, 1997	0.70	normal
west Douglas Island	1997	38	marginal strata	33	October 7, 1997	0.70	normal
west Douglas Island	1997	39	marginal strata	38	October 7, 1997	0.71	normal
west Douglas Island	1997	40	high abundance	32	October 7, 1997	0.72	normal
west Douglas Island	1997	41	high abundance	28	October 7, 1997	0.70	normal
west Douglas Island	1997	42	high abundance	29	October 7, 1997	0.70	normal
west Douglas Island	1997	43	high abundance	37	October 7, 1997	0.70	normal
west Douglas Island	1997	44	marginal strata	41	October 7, 1997	0.71	normal
west Douglas Island	1997	45	marginal strata	42	October 7, 1997	0.72	normal
west Douglas Island	1997	46	marginal strata	53	October 7, 1997	0.72	normal
west Douglas Island	1997	47	marginal strata	47	October 7, 1997	0.72	normal
Pleasant Island	1997	1	high abundance	18	October 9, 1997	0.91	normal
Pleasant Island	1997	2	high abundance	28	October 9, 1997	0.90	normal

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Appendix 1. (page 3 of 6)

Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
Pleasant Island	1997	3	high abundance	35	October 9, 1997	0.89	normal
Pleasant Island	1997	4	high abundance	39	October 9, 1997	0.88	normal
Pleasant Island	1997	5	high abundance	56	October 9, 1997	0.87	normal
Pleasant Island	1997	6	high abundance	57	October 9, 1997	0.85	normal
Pleasant Island	1997	7	high abundance	42	October 9, 1997	0.84	normal
Pleasant Island	1997	8	high abundance	35	October 9, 1997	0.83	normal
Pleasant Island	1997	9	high abundance	31	October 9, 1997	0.82	normal
Pleasant Island	1997	10	high abundance	28	October 9, 1997	0.81	normal
Pleasant Island	1997	11	high abundance	32	October 9, 1997	0.80	upside down
Pleasant Island	1997	12	high abundance	44	October 9, 1997	0.77	normal
Pleasant Island	1997	13	high abundance	46	October 9, 1997	0.76	normal
Pleasant Island	1997	14	high abundance	45	October 9, 1997	0.74	normal
Pleasant Island	1997	15	high abundance	59	October 9, 1997	0.73	normal
Pleasant Island	1997	16	high abundance	62	October 9, 1997	0.72	normal
Pleasant Island	1997	17	high abundance	35	October 9, 1997	0.71	normal
Pleasant Island	1997	18	high abundance	49	October 9, 1997	0.70	normal
Pleasant Island	1997	19	high abundance	28	October 9, 1997	0.68	normal
Pleasant Island	1997	20	high abundance	54	October 9, 1997	0.67	normal
Pleasant Island	1997	21	high abundance	27	October 9, 1997	0.66	normal
Pleasant Island	1997	22	high abundance	27	October 9, 1997	0.64	normal
Pleasant Island	1997	23	marginal strata	52	October 10, 1997	0.97	normal
Pleasant Island	1997	24	marginal strata	67	October 10, 1997	0.95	normal
Pleasant Island	1997	25	marginal strata	64	October 10, 1997	0.93	normal
Pleasant Island	1997	26	marginal strata	64	October 10, 1997	0.91	normal
Pleasant Island	1997	27	marginal strata	81	October 10, 1997	0.43	lost

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Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
Pleasant Island	1997	28	marginal strata	74	October 10, 1997	0.86	upside down
Pleasant Island	1997	29	marginal strata	78	October 10, 1997	0.84	normal
Pleasant Island	1997	30	marginal strata	61	October 10, 1997	0.82	normal
Pleasant Island	1997	31	marginal strata	50	October 10, 1997	0.80	normal
Pleasant Island	1997	32	marginal strata	42	October 10, 1997	0.78	normal
Pleasant Island	1997	33	marginal strata	28	October 10, 1997	0.76	normal
Pleasant Island	1997	34	marginal strata	17	October 10, 1997	0.74	normal
Pleasant Island	1997	35	marginal strata	24	October 10, 1997	0.71	normal
Pleasant Island	1997	36	marginal strata	35	October 10, 1997	0.70	normal
Pleasant Island	1997	37	marginal strata	36	October 10, 1997	0.68	normal
Pleasant Island	1997	38	marginal strata	21	October 10, 1997	0.65	normal
west Douglas Island	1998	1	high abundance	55	July 6, 1998	1.25	normal
west Douglas Island	1998	2	high abundance	39	July 6, 1998	1.21	normal
west Douglas Island	1998	3	high abundance	35	July 6, 1998	1.19	normal
west Douglas Island	1998	4	high abundance	25	July 6, 1998	1.17	normal
west Douglas Island	1998	5	high abundance	26	July 6, 1998	1.15	normal
west Douglas Island	1998	6	high abundance	24	July 6, 1998	1.10	normal
west Douglas Island	1998	7	high abundance	29	July 6, 1998	1.08	normal
west Douglas Island	1998	8	high abundance	24	July 6, 1998	1.06	normal
west Douglas Island	1998	9	high abundance	13	July 6, 1998	1.04	normal
west Douglas Island	1998	10	high abundance	35	July 6, 1998	1.01	normal
west Douglas Island	1998	11	high abundance	32	July 6, 1998	0.99	normal
west Douglas Island	1998	12	high abundance	39	July 6, 1998	0.97	normal
west Douglas Island	1998	13	high abundance	38	July 6, 1998	0.91	normal
west Douglas Island	1998	14	high abundance	45	July 6, 1998	0.89	normal

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Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
west Douglas Island	1998	15	high abundance	52	July 6, 1998	0.86	normal
west Douglas Island	1998	16	high abundance	60	July 6, 1998	0.85	normal
west Douglas Island	1998	17	high abundance	84	July 6, 1998	0.83	normal
west Douglas Island	1998	18	high abundance	110	July 6, 1998	0.81	normal
west Douglas Island	1998	19	high abundance	90	July 6, 1998	0.79	normal
west Douglas Island	1998	20	high abundance	75	July 6, 1998	0.77	normal
Holkham Bay	1998	1	high abundance	32	July 8, 1998	0.74	normal
Holkham Bay	1998	2	high abundance	25	July 8, 1998	0.74	normal
Holkham Bay	1998	3	high abundance	20	July 8, 1998	0.75	normal
Holkham Bay	1998	4	high abundance	57	July 8, 1998	0.75	normal
Holkham Bay	1998	5	high abundance	67	July 8, 1998	0.76	normal
Holkham Bay	1998	6	high abundance	41	July 8, 1998	0.76	normal
Holkham Bay	1998	7	high abundance	81	July 8, 1998	0.76	normal
Holkham Bay	1998	8	high abundance	72	July 8, 1998	0.77	normal
Holkham Bay	1998	9	high abundance	33	July 8, 1998	0.77	normal
Holkham Bay	1998	10	high abundance	28	July 8, 1998	0.78	normal
Holkham Bay	1998	11	high abundance	51	July 8, 1998	0.78	normal
Holkham Bay	1998	12	high abundance	95	July 8, 1998	0.79	normal
Holkham Bay	1998	13	high abundance	56	July 8, 1998	0.79	normal
Holkham Bay	1998	14	high abundance	99	July 8, 1998	0.80	normal
Holkham Bay	1998	15	high abundance	53	July 8, 1998	0.80	normal
Holkham Bay	1998	16	high abundance	68	July 8, 1998	0.80	normal
Holkham Bay	1998	17	high abundance	63	July 8, 1998	0.81	normal
Holkham Bay	1998	18	high abundance	83	July 8, 1998	0.82	normal
Holkham Bay	1998	19	high abundance	79	July 8, 1998	0.83	normal

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Appendix 1. (page 6 of 6)

Area	Year	Pot Number	Strata	Depth (fathoms)	Day Set	Soak Time (Days)	Pot Condition
Holkham Bay	1998	20	high abundance	113	July 8, 1998	0.83	normal
Pleasant Island	1998	1	high abundance	16	July 29, 1998	0.58	normal
Pleasant Island	1998	2	high abundance	32	July 29, 1998	0.55	normal
Pleasant Island	1998	3	high abundance	39	July 29, 1998	0.56	normal
Pleasant Island	1998	4	high abundance	40	July 29, 1998	0.56	normal
Pleasant Island	1998	5	high abundance	60	July 29, 1998	0.56	normal
Pleasant Island	1998	6	high abundance	64	July 29, 1998	0.57	normal
Pleasant Island	1998	7	high abundance	41	July 29, 1998	0.58	normal
Pleasant Island	1998	8	marginal strata	74	July 29, 1998	0.58	normal
Pleasant Island	1998	9	marginal strata	70	July 29, 1998	0.59	normal
Pleasant Island	1998	10	high abundance	62	July 29, 1998	0.60	normal
Pleasant Island	1998	11	high abundance	46	July 29, 1998	0.61	normal
Pleasant Island	1998	12	high abundance	39	July 29, 1998	0.62	normal
Pleasant Island	1998	13	high abundance	31	July 29, 1998	0.63	normal
Pleasant Island	1998	14	high abundance	36	July 29, 1998	0.63	normal
Pleasant Island	1998	15	high abundance	43	July 29, 1998	0.63	normal
Pleasant Island	1998	16	high abundance	59	July 29, 1998	0.64	normal
Pleasant Island	1998	17	marginal strata	64	July 29, 1998	0.67	normal
Pleasant Island	1998	18	marginal strata	56	July 29, 1998	0.67	normal
Pleasant Island	1998	19	marginal strata	43	July 29, 1998	0.68	normal
Pleasant Island	1998	20	marginal strata	35	July 29, 1998	0.68	normal
Pleasant Island	1998	21	high abundance	20	July 29, 1998	0.45	normal

Appendix 2. Catch by pot by species, sex, and recruitment status in the Tanner crab stock assessment survey in Southeast Alaska, 1997 and 1998.

Area	Year	Pot Number	<u>Total Catch of Male Tanner Crab</u>					<u>Female Tanner Crab and Other Crab</u>			
			Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	Total	Female Tanner Crab	Red King Crab	Dungeness Crab
west Douglas Island	1997	1	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	2	6	7	4	4	0	21	16	1	1
west Douglas Island	1997	3	0	18	4	8	0	30	0	4	0
west Douglas Island	1997	4	0	6	12	12	0	30	0	0	0
west Douglas Island	1997	5	1	1	0	0	0	2	6	0	0
west Douglas Island	1997	6	1	2	3	0	0	6	14	64	1
west Douglas Island	1997	7	2	12	2	2	0	18	5	10	0
west Douglas Island	1997	8	0	15	24	3	0	42	0	7	0
west Douglas Island	1997	9	2	11	22	2	2	39	0	0	0
west Douglas Island	1997	10	0	4	12	5	2	23	0	16	0
west Douglas Island	1997	11	0	10	4	1	0	15	10	0	0
west Douglas Island	1997	12	0	1	0	2	0	3	2	0	0
west Douglas Island	1997	13	0	9	20	10	2	41	0	50	0
west Douglas Island	1997	14	4	6	0	3	0	13	8	1	0
west Douglas Island	1997	15	2	11	10	8	0	31	2	18	0
west Douglas Island	1997	16	4	2	14	2	0	22	3	2	0
west Douglas Island	1997	17	0	3	24	2	0	29	4	2	0
west Douglas Island	1997	18	0	14	26	18	2	60	0	9	0
west Douglas Island	1997	19	2	13	12	6	0	33	0	6	0
west Douglas Island	1997	20	4	16	26	2	0	48	2	3	0
west Douglas Island	1997	21	2	22	28	8	0	60	1	1	0
west Douglas Island	1997	22	0	16	32	17	6	71	0	5	0

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Appendix 2. (page 2 of 7)

Area	Year	Pot Number	Total Catch of Male Tanner Crab					Female Tanner Crab and Other Crab			
			Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	Total	Female Tanner Crab	Red King Crab	Dungeness Crab
west Douglas Island	1997	23	0	0	6	1	1	8	0	0	0
west Douglas Island	1997	24	1	0	0	0	0	1	0	0	0
west Douglas Island	1997	25	3	15	11	4	5	38	26	4	0
west Douglas Island	1997	26	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	27	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	28	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	29	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	30	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	31	0	0	0	0	0	0	0	1	0
west Douglas Island	1997	32	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	33	0	0	2	0	0	2	0	20	0
west Douglas Island	1997	34	0	0	0	1	0	1	0	36	0
west Douglas Island	1997	35	0	0	0	0	0	0	0	1	0
west Douglas Island	1997	36	0	0	0	0	1	1	0	1	0
west Douglas Island	1997	37	0	0	4	0	0	4	0	0	0
west Douglas Island	1997	38	0	0	0	0	0	0	0	0	0
west Douglas Island	1997	39	0	6	2	0	1	9	12	17	0
west Douglas Island	1997	40	0	0	0	0	0	0	1	1	0
west Douglas Island	1997	41	0	0	0	0	0	0	0	1	0
west Douglas Island	1997	42	0	0	0	1	0	1	0	5	0
west Douglas Island	1997	43	0	9	9	8	1	27	9	7	0

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Appendix 2. (page 3 of 7)

Area	Year	Pot Number	Total Catch of Male Tanner Crab					Female Tanner Crab and Other Crab			
			Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	Total	Female Tanner Crab	Red King Crab	Dungeness Crab
west Douglas Island	1997	44	2	13	11	4	1	31	7	0	0
west Douglas Island	1997	45	4	17	12	2	1	36	1	1	0
west Douglas Island	1997	46	1	18	6	11	0	36	0	9	0
west Douglas Island	1997	47	0	0	4	0	2	6	0	3	0
Pleasant Island	1997	1	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	2	0	0	0	0	0	0	0	55	0
Pleasant Island	1997	3	0	0	0	0	0	0	0	25	0
Pleasant Island	1997	4	10	19	10	4	0	43	7	39	0
Pleasant Island	1997	5	2	6	23	21	0	52	21	10	0
Pleasant Island	1997	6	0	33	54	10	0	97	14	22	1
Pleasant Island	1997	7	0	21	73	16	0	110	20	12	0
Pleasant Island	1997	8	1	2	0	1	0	4	15	53	0
Pleasant Island	1997	9	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	10	0	0	0	0	0	0	0	4	0
Pleasant Island	1997	11	0	0	0	0	0	0	35	14	0
Pleasant Island	1997	12	0	18	31	2	0	51	6	4	0
Pleasant Island	1997	13	4	58	34	9	0	105	0	2	0
Pleasant Island	1997	14	9	42	41	12	0	104	0	3	0
Pleasant Island	1997	15	4	17	75	25	0	121	0	2	0
Pleasant Island	1997	16	12	35	39	9	0	95	1	9	0

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Area	Year	Pot Number	<u>Total Catch of Male Tanner Crab</u>					<u>Female Tanner Crab and Other Crab</u>			
			Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	Total	Female Tanner Crab	Red King Crab	Dungeness Crab
Pleasant Island	1997	17	0	0	0	0	0	0	0	1	0
Pleasant Island	1997	18	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	19	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	20	3	4	39	25	0	71	1	1	0
Pleasant Island	1997	21	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	22	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	23	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	24	0	0	0	0	0	0	24	0	0
Pleasant Island	1997	25	0	0	0	0	0	0	32	12	0
Pleasant Island	1997	26	0	0	0	0	0	0	60	0	0
Pleasant Island	1997	27	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	28	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	29	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	30	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	31	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	32	0	0	0	0	0	0	0	0	1
Pleasant Island	1997	33	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	34	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	35	0	0	0	0	0	0	7	0	0
Pleasant Island	1997	36	0	0	0	0	0	0	1	0	0
Pleasant Island	1997	37	0	0	0	0	0	0	0	0	0
Pleasant Island	1997	38	0	0	0	0	0	0	0	0	0

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Area	Year	Pot Number	<u>Total Catch of Male Tanner Crab</u>					<u>Female Tanner Crab and Other Crab</u>			
			Prerecruit 2+	Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+	Total	Female Tanner Crab	Red King Crab	Dungeness Crab
west Douglas Island	1998	1	3	8	16	11	0	38	0	0	0
west Douglas Island	1998	2	0	5	4	2	2	13	0	0	2
west Douglas Island	1998	3	0	4	15	8	1	28	0	0	0
west Douglas Island	1998	4	0	12	2	10	0	24	0	0	0
west Douglas Island	1998	5	2	13	10	7	5	37	0	0	0
west Douglas Island	1998	6	0	5	12	5	0	22	0	0	0
west Douglas Island	1998	7	0	17	16	17	0	50	0	0	0
west Douglas Island	1998	8	3	12	9	4	2	30	0	0	0
west Douglas Island	1998	9	2	2	0	0	0	4	0	0	0
west Douglas Island	1998	10	0	2	0	2	0	4	0	0	0
west Douglas Island	1998	11	5	17	16	5	0	43	0	0	0
west Douglas Island	1998	12	6	8	14	18	1	47	0	0	0
west Douglas Island	1998	13	0	4	29	8	0	41	0	0	0
west Douglas Island	1998	14	0	5	29	17	1	52	0	0	0
west Douglas Island	1998	15	0	4	24	21	4	53	0	0	0
west Douglas Island	1998	16	0	12	15	15	2	44	0	0	0
west Douglas Island	1998	17	0	0	22	32	0	54	0	0	0
west Douglas Island	1998	18	0	3	9	6	0	18	0	0	0
west Douglas Island	1998	19	0	4	11	2	1	18	0	0	0
west Douglas Island	1998	20	2	8	19	8	1	38	0	0	0

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Area	Year	Pot Number	Prerecruit 2+	Total Catch of Male Tanner Crab				Total	Female Tanner Crab and Other Crab		
				Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+		Female Tanner Crab	Red King Crab	Dungeness Crab
Holkham Bay	1998	1	0	0	0	0	0	0	0	0	
Holkham Bay	1998	2	3	6	0	6	0	15	0	0	2
Holkham Bay	1998	3	1	7	2	3	0	13	0	0	1
Holkham Bay	1998	4	0	14	12	9	0	35	0	0	0
Holkham Bay	1998	5	0	0	0	0	0	0	0	0	0
Holkham Bay	1998	6	1	1	0	0	0	2	1	0	0
Holkham Bay	1998	7	4	3	1	1	0	9	0	0	0
Holkham Bay	1998	8	2	7	2	0	0	11	0	1	0
Holkham Bay	1998	9	1	16	9	5	1	32	1	0	0
Holkham Bay	1998	10	0	8	0	0	1	9	25	0	0
Holkham Bay	1998	11	0	15	2	3	0	20	0	0	0
Holkham Bay	1998	12	1	7	3	1	0	12	0	0	1
Holkham Bay	1998	13	0	1	0	0	0	1	0	0	0
Holkham Bay	1998	14	0	0	0	0	0	0	0	0	0
Holkham Bay	1998	15	0	0	0	0	0	0	60	0	0
Holkham Bay	1998	16	6	22	6	1	0	35	31	1	0
Holkham Bay	1998	17	6	12	5	3	0	26	0	0	0
Holkham Bay	1998	18	0	5	4	1	1	11	0	0	0
Holkham Bay	1998	19	0	5	2	0	0	7	44	5	0
Holkham Bay	1998	20	0	2	0	1	0	3	0	0	0

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Appendix 2. (page 7 of 7)

Area	Year	Pot Number	Prerecruit 2+	Total Catch of Male Tanner Crab				Total	Female Tanner Crab and Other Crab		
				Prerecruit 1	Recruit	Postrecruit 1	Postrecruit 2+		Female Tanner Crab	Red King Crab	Dungeness Crab
Pleasant Island	1998	1	0	0	0	0	0	0	0	0	
Pleasant Island	1998	2	0	0	0	0	0	0	0	0	
Pleasant Island	1998	3	4	4	19	8	0	35	12	16	0
Pleasant Island	1998	4	0	0	0	0	0	0	10	0	0
Pleasant Island	1998	5	20	31	49	20	0	120	0	0	0
Pleasant Island	1998	6	0	2	95	10	0	107	0	1	0
Pleasant Island	1998	7	0	0	0	0	0	0	0	0	0
Pleasant Island	1998	8	0	0	42	2	0	44	0	4	0
Pleasant Island	1998	9	1	6	117	26	2	152	2	9	0
Pleasant Island	1998	10	0	22	53	24	1	100	7	2	0
Pleasant Island	1998	11	0	65	27	32	0	124	0	0	0
Pleasant Island	1998	12	0	36	54	0	0	90	0	0	0
Pleasant Island	1998	13	0	0	0	0	0	0	1	5	0
Pleasant Island	1998	14	1	3	0	0	0	4	0	0	0
Pleasant Island	1998	15	1	22	29	6	0	58	0	1	0
Pleasant Island	1998	16	1	6	28	27	6	68	0	0	0
Pleasant Island	1998	17	0	0	0	0	0	0	1	0	0
Pleasant Island	1998	18	0	0	0	0	0	0	0	0	0
Pleasant Island	1998	19	10	14	1	0	0	25	0	1	0
Pleasant Island	1998	20	0	0	0	0	0	0	0	0	0
Pleasant Island	1998	21	0	0	0	0	0	0	0	16	0

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