

SOUTHEAST ALASKA COMMERCIAL DUNGENESS CRAB

2001/2002 SEASON MANAGEMENT PLAN



by

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INTRODUCTION

Goals

1. To manage in a precautionary fashion in the absence of stock assessment data.
2. When stocks are low, to reduce the harvest of legal Dungeness crab in order to maintain brood stock.
3. Minimize the handling of soft-shell and non-legal portions of the stock.

CURRENT MANAGEMENT REGIME

Limited entry

A four-year Dungeness crab fishery permit moratorium in Southeast Alaska was established beginning in 1991 and limited entry was implemented in June, 1997, with a maximum number of permits set at 308. In implementing limited entry the Commercial Fisheries Entry Commission (CFEC) established four tier levels, 100%, 75%, 50%, and 25% of the pot limit.

Commercial Fishery Regulations

Southeast Alaska is a superexclusive registration area [5 AAC 32.106]. The minimum legal size is 6.5 inches shoulder (carapace) width [5 AAC 32.055] and only males may be taken [5 AAC 32.057]. Fishing periods in most of the region are from June 15 through August 15 and from October 1 through November 30 [5 AAC 32.110]. In Districts 1, 2, and a portion of Section 13-B, the fishing season is October 1 through February 28. Tunnel eye perimeters and escape rings are required statewide [5 AAC 32.050]. The pot limit is 300 pots per vessel with a maximum pot size of 50-inches in diameter and 18-inches high [5 AAC 32.125]. A management plan is in effect that compares predicted harvest to thresholds and determines season length based upon these predicted harvest levels. Goals of the plan are to minimize handling of soft-shell, light and non-legal crab, and to reduce the harvest of legal crab when stocks are assessed to be low in order to achieve a multi-year-class brood stock [5 AAC 32.146]. For perspective, regulations for Washington, Oregon, and California are summarized in Table 1.

Plan for the 2001/02 season

As required by regulation 5 AAC 32.146, we will predict the total Dungeness crab harvest for the 2001/2002 season based upon a multiple regression of landed harvest in pounds from the first week, number of permits fishing during the first week, and the percent of harvest which occurred in the first week of the season last year. If the harvest is predicted to be 1.5 million pounds or less, the summer fishery will close after 21 days and the fishery will not reopen in the fall. If the annual harvest is predicted to be 1.5 - 2.25 million pounds, the summer season will close after 28 days and the fall season will close after 30 days. If the annual harvest is predicted to be greater than 2.25 million pounds, the summer and fall seasons will generally proceed as normal as described in 5 AAC 32.110.

In addition to the above, the department will examine the fishery performance of each district during the first few weeks of the 2001/2002 season. Data to be examined will include: port sampling recruit composition data, number permits fishing, harvest in pounds, and other information. Multiple years of poor recruitment in a district will constitute the rationale for an early closure and shortened or no fall season for the district. This is consistent with the department's authority under 5 AAC 32.035 and with the Southeast Alaska Dungeness crab management plan [5 AAC 32.146] which directs the department to manage using a precautionary approach in the absence of stock assessment data.

CURRENT STATUS OF THE POPULATION

Lacking a long-term database of fishery-independent stock assessment data, the status of Southeast Alaska Dungeness crab populations is uncertain. However, stock status can be inferred from harvest and effort trends. In comparison to previous years, the region-wide harvest level in 2000/2001 was low to moderate (Figure 1). The proportion of legal crab that were new recruits was relatively high this past season. In fact, the percent of harvested crab that are new recruits has been less variable in recent years, and the long-term (since the 1970s) trend has been increasing. This indicates that fewer legal males are being left after the fishery and that the fishery is increasingly reliant on recruit crab. Dungeness crab recruitment events appear to occur on about a 4-6 year cycle in Southeast Alaska (Figure 1). We have observed peaks in harvest resulting from good recruitment (i.e. recruitment events) in the 1982/1983, 1988/1989, 1991/1992, 1996/1997, and 1999/2000 seasons (Figure 1).

Most of the Dungeness crab production in Southeast Alaska now comes from Districts 6, 8, 9, and 10 (Figure 2 is a map of districts, Figure 3 shows catches in each district). Harvest in Districts 1 and 2 have historically been at fairly low levels but in recent years, effort and harvest has increased in these districts (Figure 4). Harvest in District 3 has never been large in magnitude and since sea otter have been present in this location since 1975 (Jim Bodkin, USGS, Anchorage, personal communication) it is difficult to separate effects of predation and harvest (Figure 4). District 4 has very little sandy coastline and hence has never sustained a significant Dungeness crab fishery. While harvest in District 5 has doubled over the last 20 years, it appears to be somewhat depressed in recent seasons (Figure 5). District 6 continues to be a very important producer (Figure 5). District 7 is a small district with little sandy bottom habitat; while it has not historically sustained large Dungeness harvest there was a large harvest from here in the 1996/1997 season. Subsequent harvests in this district have been low (Figure 5).

District 8 has historically supported the highest harvests of the region (Figure 5). District 9 continues to support high harvests despite the re-establishment of sea otters in west Kuiu Island bays beginning in 1988 (Jim Bodkin, USGS, Anchorage, personal communication) (Figure 6). District 10 had an excellent year in the 1991/92 season and remains strong but more recent years have seen lower harvests (Figure 6). Districts 11, 12, 14, and 15 have seen decreasing harvests apparently due to weak recruitment (Figures 6 and 7). Formerly, district 14 was a major producer, but harvests there have declined due to the immigration of sea otters in the early 1980s (Jim Bodkin, USGS, Anchorage, personal communication) and closure of Glacier Bay in 1999 (Figure 6). District 13 harvest remains fairly strong despite sea otter presence in some portions of the district (Figure 7).

ACCEPTABLE BIOLOGICAL CATCH

It is not currently possible to set preseason guideline harvest levels (GHLs) for Dungeness crab as recruitment is highly variable and we do not have an estimate of population size.

DESCRIPTION OF THE FISHERY

Because of the tiered nature of the limited entry permits, vessels ranging in size from 20-foot skiffs to 50-foot limit seiners conduct the Dungeness crab fishery in Southeast Alaska. The pot limit is 300 and permit tier levels are set at 100%, 75%, 50%, and 25% of the pot limit. There are currently 52 300-pot permits, 47 225-pot permits, 87 150-pot permits, and 117 75-pot permits in the fishery which results in a potential 48,000 pots being fished to catch the average 3.1 million pounds of crab (Table 2).

For perspective, Washington, Oregon, and California used 220,000 pots to catch 27 million pounds of Dungeness crab during the 1989/1990 season. A Pacific Fishery Management Council (PFMC, 1978) study concluded that the maximum level of net economic benefit from Dungeness for these three states would be achieved at an effort level of 60,000 pots.

While these results cannot be directly applied to our fishery they nonetheless imply that we would need to reduce effort fairly drastically to maximize net economic benefit from this fishery. This partially explains why in the 2000/2001 season only 198 of 303 Dungeness crab permits were fished (Table 2). In addition, the number of permit transfers and price of Dungeness crab permits has approximately halved since 1997.

RESEARCH NEEDS

1. preseason stock assessment, by area
2. growth and timing of life history events, by area
3. soak time experiments
4. population fecundity
5. recruitment processes

LITERATURE CITED

Pacific Fisheries Management Council (PFMC). 1978. Dungeness crab project of the State/Federal Fisheries Management Program.

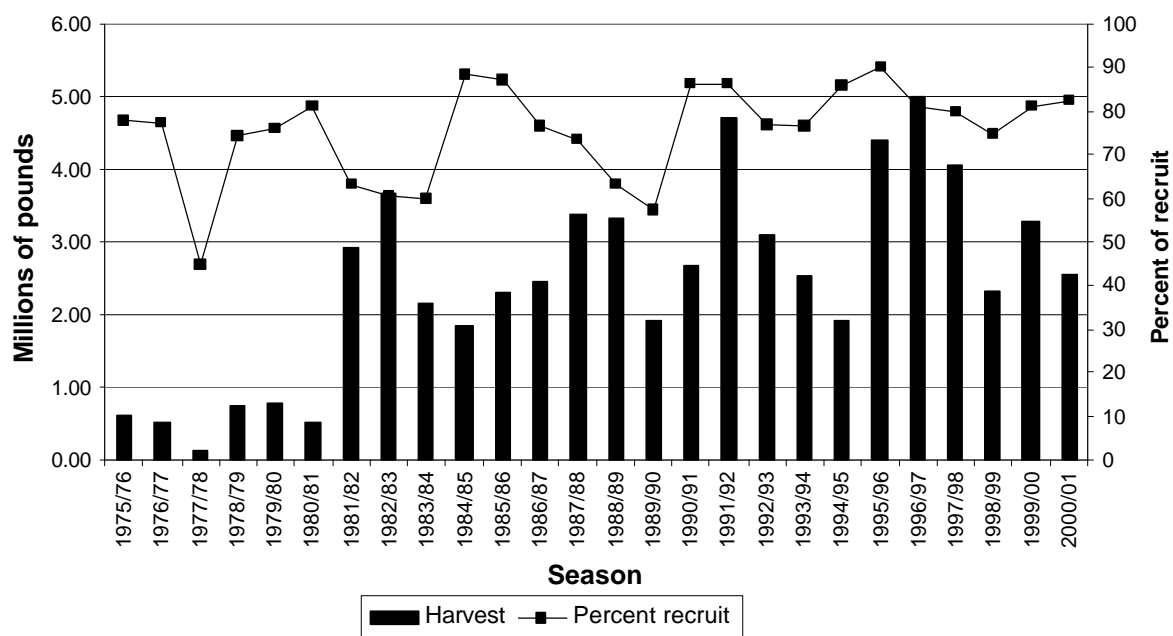


Figure 1. Harvest and percent recruitment of Dungeness crab in Southeast Alaska, Registration Area A, 1975/1976 through 2000/2001 commercial seasons.

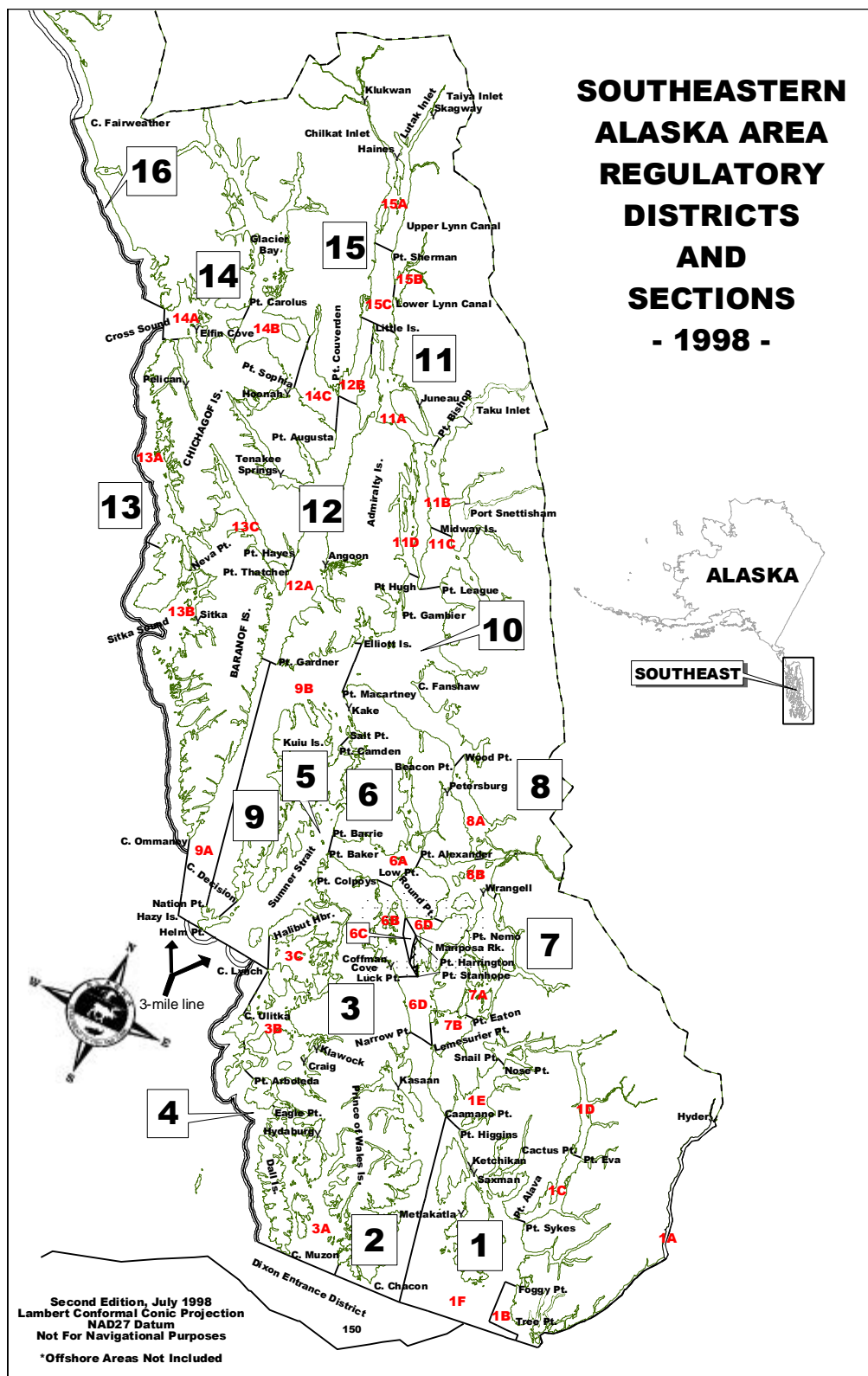


Figure 2. Southeast Alaska, registration area A, statistical area map.

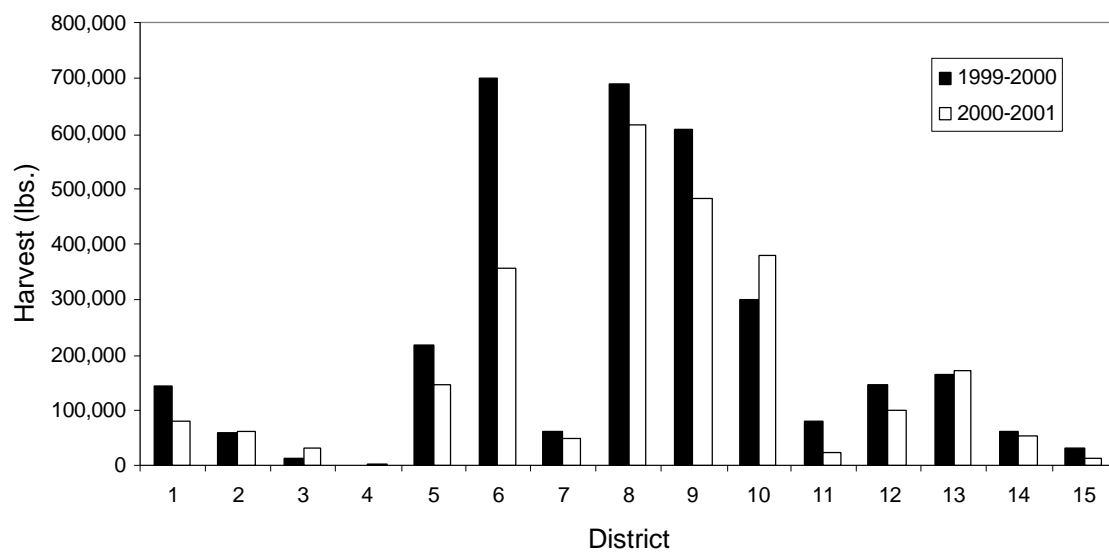


Figure 3. Dungeness harvest by district in Southeast Alaska, 1999/2000 and 2000/2001 seasons.

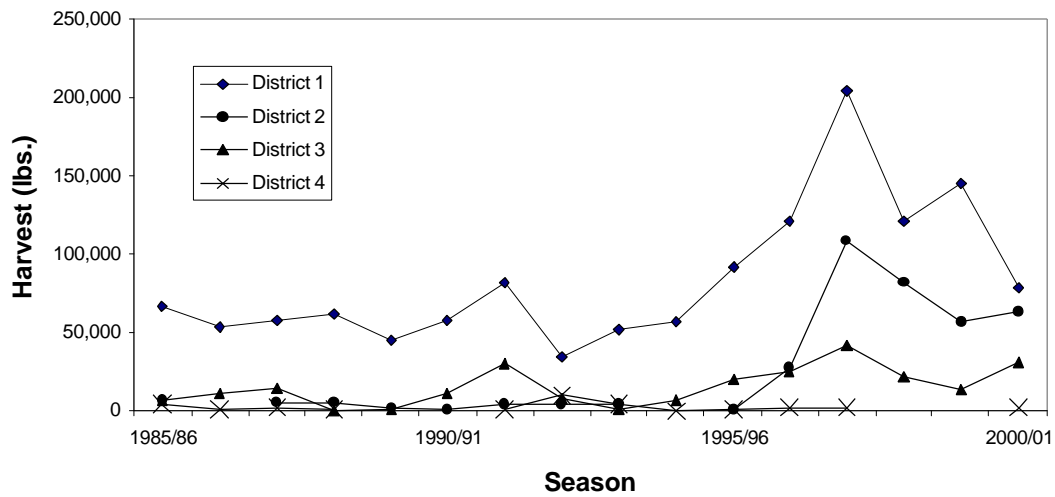


Figure 4. Dungeness harvest by season for Districts 1, 2, 3, and 4 in southern Southeast Alaska, 1985/1986 through 2000/2001 seasons.

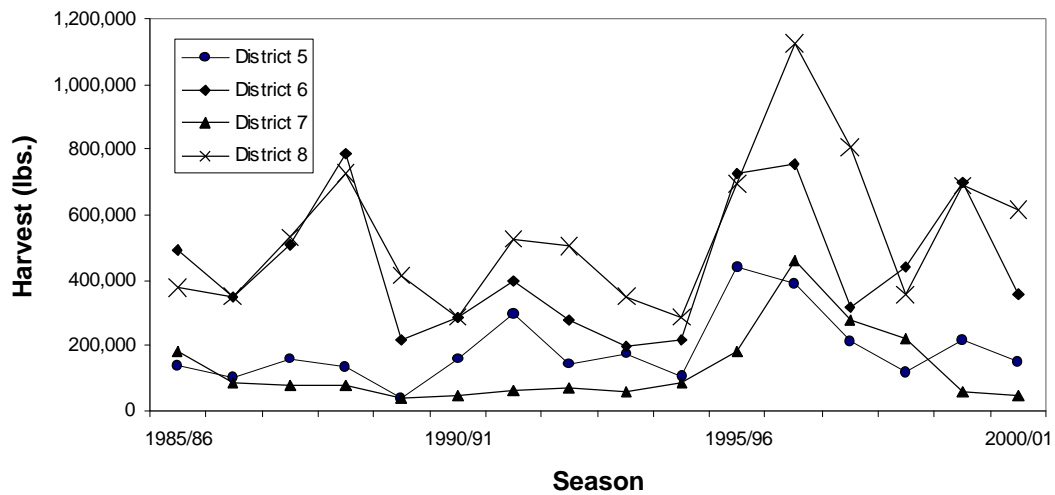


Figure 5. Dungeness harvest by season for Districts 5, 6, 7, and 8 in southern Southeast Alaska, 1985/1986 through 2000/2001 seasons.

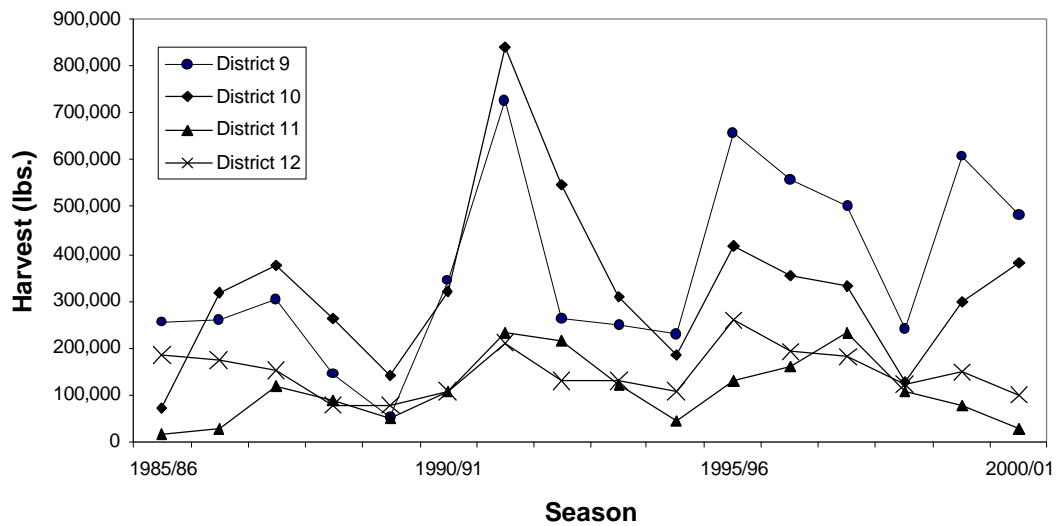


Figure 6. Dungeness harvest by season for Districts 9, 10, 11, and 12 in central Southeast Alaska, 1985/1986 through 2000/2001 seasons.

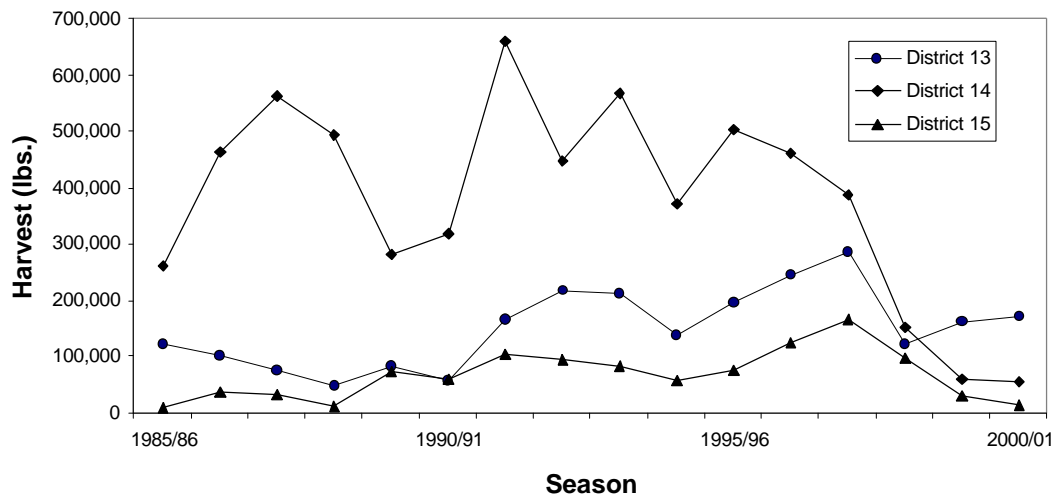


Figure 7. Dungeness harvest by season for Districts 13, 14, and 15 in northern Southeast Alaska, 1985/1986 through 2000/2001 seasons.

Table 1. Review of Dungeness crab commercial fisheries regulations in Alaska and in other areas.

Area	Biological	Season	Gear	Area	Soft-shell	Other
Alaska (SE)	6.5-inch minimum CW; males only	June 15 through August 15 and from October 1 through November 30. In Districts 1, 2, and a portion of Section 13-B, the fishing season is October 1 through February 28.	Pot limit of 300; pots, dive or ring nets; 50-inch maximum pot diameter, 18-inch height; tunnel eye perimeters, 4 3/8-inch diameter escape rings and bio web required; gear marking; buoy tags	Several areas closed to commercial harvest	N/A	Limited entry, superexclusive registration, Dungeness management plan, pot storage
Alaska (Kodiak)	6.5-inch minimum CW; males only	North, May 1 – January 1. In south Kodiak June 15 – January 1	No pot limit; pots or ring nets; tunnel eye perimeters, 4 3/8-inch diameter escape rings and bio web required; gear marking	Iliuliuk Bay closed to commercial harvest	N/A	Unlimited, non-exclusive registration, pot storage
Alaska (Prince William Sound)	6.5-inch minimum CW; males only	None	Pot limits of 250 outside and 100 inside; tunnel eye perimeters, 4 3/8-inch diameter escape rings and bio web required; gear marking	No closed areas	N/A	Unlimited, superexclusive registration, Dungeness management plan, pot storage
British Columbia	6.1-inch minimum CW; males only	Areas close at various times to permit fishing between January 1 – December 31	Trap limits 300 – 1200 traps, 100 – 110 mm diameter escape ring, , bio web required; buoy marking, trap tags,	District-specific licensing	Various soft-shell closures, open when the % soft-shelled in sampled pots is below threshold; retention of soft-shell prohibited	Limited but non-transferable (222 permits), logbooks, no helper boats, hauling restricted to daytime hours; maximum soak time 14 days

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Table 1. (page 2 of 2)

Area	Biological	Season	Gear	Area	Soft-shell	Other
Washington (Puget Sound)	6.25-inch minimum CW; males only	Various seasons, many closures due to tribal allocation and soft-shell issues	Pot limits 10 – 100, buoy marking requirements, pot tags required, escape rings, 4 ¼-inch inside diameter, bio web required	Various closed areas to Indian treaty fishing only, various non-commercial areas	Unlawful to possess soft-shell crab, various soft-shell closures	Limited entry licensing, Vessel inspection required, daylight fishing hours
Washington (outside waters)	6.25-inch minimum CW; males only	December 1 – September 15; 64-hour presoak	No pot limits, pot tags required, escape rings, 4 ¼-inch inside diameter buoy marking, bio web required,	Time and area used to allocate crab to tribes	Unlawful to possess soft-shell crab, various soft-shell closures	Limited entry licensing, net fishing boats shall not have crab aboard, prohibit take of crab by trawl gear, pre-season hold inspections
Oregon	6.25-inch minimum CW; males only	December 1 – August 14 (close prior if catch after June 1 greater than 10% of catch during December 1 – May 31 i.e. if crabs molt early); 64-hour presoak	No pot limits, escape rings, 4 ¼-inch inside diameter, buoy marks and bio web required			Limited entry, prohibit take of crab by trawl gear, pre-season hold inspections
California	6.25-inch minimum CW; males only	December 1 – July 15, or November 15 – June 30; variable presoak	Escape rings, 4 ¼-inch inside diameter, buoy marking and bio web required			Limited entry, prohibit take of crab by trawl gear

Table 2. Dungeness crab permit activity for the 2000/2001 season in Southeast Alaska, registration area A.

	D9AA (300)	D9BA (225)	D9CA (150)	D9DA (75)	Total
Available permits, 2000	52	47	87	117	303
Transferred permits, 2000	7	3	6	11	27
Registered, 2000/01 season	48	39	62	71	220
Fished, 2000/01 season	43	33	55	67	198
Average price, 2000	\$54,571	N/A	\$22,000	\$14,605	N/A

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