

THE DUNGENESS CRAB SPORT FISHERY
IN WASHINGTON, OREGON, AND CALIFORNIA ^{1/}

Nelson E. Stewart

INTRODUCTION

A sport fishery for Dungeness crab exists in each state. For the most part, the fishery takes place in bays and estuaries north of central California. The magnitude of the sport harvest is not well known, but is minor compared to the commercial harvest.

Presented here is a summary of the existing data on Dungeness crab sport fishing in Washington, Oregon, and California excluding Puget Sound, Washington. An extensive sport fishery for crab exists in Puget Sound, but because the fishery is on an inland waterway within one state it is not of primary concern to the State/Federal Dungeness Crab Management Program.

SPORT FISHING REGULATIONS

A summary of sport fishing regulations for harvesting Dungeness crabs in Washington, Oregon, and California is presented in Table' 1. Only the basic regulations have been included. Before sport fishing for crab in a particular locality, inquiry should be made to the appropriate state fisheries department for information regarding location of public beaches and tidelands, public access to fishing areas, and location of closed areas.

SPORT FISHING AREAS

Washington

The sport fishery for Dungeness crab along the Washington coast takes place primarily in Willapa Bay, Grays Harbor, and along some ocean beaches. The following description of the types of crabbing done in each area was prepared by H.C. Tegelberg, Washington Department of Fisheries.

^{1/} Prepared for the State/Federal Dungeness Crab Management Program. June 1974.

Table 1. Summary of Sport Fishing Regulations for Harvesting Dungeness Crabs

Item	Regulations		
	Washington	Oregon	California
Open season	Entire year	Entire year in bays, estuaries, ocean beaches, and tide pool areas. December 1 through August 15 in Pacific Ocean.	December 1 through July 30 in Del Norte, Humboldt, and Mendocino counties. The second Tuesday in November through June 30 in all other counties.
Type of license required	None	None	Ocean sportfishing license.
Daily bag limit	6	12 ¹ / ₂	10
Sex restriction	Males only	Males only	None
Crab shell condition	Hardshells only	Hardshells or softshells	Hardshells or softshells
Minimum size (inches) ² / ₁	6	5 ³ / ₄	6 ¹ / ₄
Methods of harvest	Crabs may be taken by hand, dip nets, ring nets, shellfish pots, or any hand operated instrument that will not penetrate the shell; provided, it shall be lawful to operate one ring net or two shellfish pots, but not a combination of both at any one time. It is unlawful to leave any crab pot or ring net or other shellfish gear unattended unless it has the name and address of the owner on the marker buoy.	Crabs may be taken by hand, dip nets, baited lines with or without hooks, rakes, crab rings, and crab pots. However, the use by an individual of more than three crab rings or crab pots or a combination thereof, is prohibited.	Crabs may be taken by hand, baited hoop nets, and crab traps. Traps must be provided with two circular escape ports of at least four inches inside diameter.

Table 1. (Continued)

Item	Regulations		
	Washington	Oregon	California
Backing crab in the field	Unlawful to possess in the field any Dungeness crab or parts thereof without retaining the back shell.	Unlawful to back or disfigure crabs in any manner prior to landing.	None
Miscellaneous	Shellfish pots must be covered by water at all times.	Undersized or female crabs must be returned to water in a manner which will not cause injury.	Every person while taking crustaceans which have a minimum size limit shall carry a device which is capable of accurately measuring the size of the crustaceans being taken.

1/ It is unlawful to take more than 24 legal size male crabs in any seven consecutive days.

2/ The minimum size is measured by the shortest distance through the body of the crab from edge of shell to edge of shell directly in front of the tenth anterolateral spines.

Willapa Bay. Two types of sport crabbing are known to occur in Willapa Bay: wading and pot fishing. Crabs are taken in eel grass areas near Tokeland and Bay Center by waders in a spring and summer fishery, but peak utilization is estimated at less than 60 people. Success is reportedly well below what it was many years ago. Sport pot fishing is available to small boats operating out of Bay Center, Nahcotta, and Tokeland which have boat basins or launching facilities. Pot-fishing success is believed to be good most years. Peak sport-pot fishing probably does not exceed 30 pots. A small pot and ring net fishery occurs at the Tokeland and Nahcotta docks.

Grays Harbor. There reportedly has been a light-wading fishery for crab in northern Grays Harbor in past years. However, this appears to be insignificant at present. There is a pot fishery from small boats that operate out of Westport often in conjunction with salmon fishing trips. Most popular area seems to be along the Grays Harbor south jetty, but a small ocean fishery probably occurs. Some crabbing is done from the docks at the Westport boat basin by pot or ring net. Success varies, but is pretty good in years of high crab abundance.

Ocean Beaches. Approximately 55 miles of ocean beach area are readily accessible between the Columbia River and the Quinault Indian Reservation (Moclips), plus several miles of beach at Kalaloch north of the Quinault Reservation. Sport crabbing on these ocean beaches is dependent upon bar-lagoon formation, low surf conditions, fairly clear water, and minus tides. Crabbing is done by wading in lagoons and potholes. Conditions are seldom favorable and success is usually poor. Best opportunity appears to be during early morning minus tides in July and August. Estimated use is less than 50 people per day. Some crab are taken incidental to razor clam digging and beach exploring, and it has been noted that minimum size, sex, and condition has little meaning to these users. Crab are occasionally taken on hook and line by perch fishermen.

Oregon

Most sport fishing for Dungeness crab in Oregon takes place within estuaries. Relatively little crabbing is done along ocean beaches or in the ocean. Sport crabbing takes place in nearly all of the 16 principal estuaries in Oregon, even though many of them are relatively small and contain marginal habitat for Dungeness crabs (C.D. Snow, personal communication). The majority of sport crabbers fish with crab rings (ring nets) and a few use crab pots.

California

The sport fishery for Dungeness crab in California takes place in Monterey Bay, in the ocean off Bodega Bay, off piers in San Francisco Bay, off docks and in the ocean at Trinidad, in Humbolt Bay, and in Crescent City Harbor. Most sports crabbing is done with ring nets. A few fishermen will occasionally use collapsible crab traps.

SPORT HARVEST

Few records have been kept on numbers of crab harvested by sport fishermen along the coast. Even though catch statistics are not readily available, the sport fishery along the Washington coast is still considered to be minor compared to the Puget Sound sport fishery and the coastal commercial fishery and probably accounts for no more than 1 percent of the total number of crabs harvested annually in Washington (H.C. Tegelberg, personal communication). In California the estimated annual sport harvest of crab is less than 0.1 percent of the annual commercial harvest (W.A. Dahlstrom, personal communication).

The only available data on sport harvest of crab is that reported by Gotshall (1969) and Gotshall and Hardy (1969) for Crescent City, California during 1966-68 and by Gaumer, Demory, and Osis (1973a to 1973z, 1974a and 1974b) and Gaumer, Demory, Osis, and Walters (1974) for Oregon estuaries during 1971. Following are summaries of the results of those studies.

California-Oregon Border Area, 1966-68

The sport crab fishery at Crescent City, California was monitored periodically from February 1966 through March 1968. Sport fishermen were interviewed whenever possible for catch data and crabs were measured to determine average size. Southern Oregon ports of Brookings and Port Orford were also checked during the survey period, but no sport crab fishery was observed at these ports.

A total of 240 sport crabbers were interviewed at Crescent City during the sampling program. Their catch was 908 legal crabs with boat fishermen landing an average of 6.1 crabs per fisherman while pier fishermen landed 0.6 crab per fisherman (Table 2).

Oregon Estuaries, 1971

During 1971 the Oregon Fish Commission did a study of the recreational use of food fish, shellfish, and other marine invertebrates in 16 Oregon estuaries. Boat and shore anglers, tideflat users, and scuba divers were interviewed for catch, effort, and place of origin data.

During the period March 1 through October 31, 1971, sports fishermen caught an estimated 199,000 legal male crabs from 15 different estuaries (Table 3). The sport catch ranged from 50 crabs in the Columbia River Estuary to 40,000 crabs in Coos Bay. Nehalem Bay, Tillamook Bay, Netarts Bay, Yaquina Bay, Alsea River, and Coos Bay together accounted for 87 percent (173,500 crabs) of the sport harvest. The sport harvest from estuaries during the eight-month study exceeded the commercial harvest from estuaries during the entire 1970-71 season by 80,000 crabs ^{1/}. Assuming sport-caught crabs averaged 1.5 pounds per crab, an estimated 133,000 pounds of crab were caught by sportsmen, which was approximately 1 percent of the total commercial landings from the ocean and estuaries for the 1970-71 season.

SPORTS-COMMERCIAL USER CONFLICTS

In Oregon there has been some discord between sports and commercial fishermen particularly in the smaller estuaries where the two groups are in direct competition for a limited number of crabs. The problem has become more intense in the last few years because of the cyclic decline in crab abundance (C.D. Snow, personal communication).

^{1/} The reader is reminded that when comparing sport harvest with commercial harvest the sport fishery can take crab 5 3/4 inches in carapace width, whereas the commercial fishery can not take crab less than 6 1/4 inches in carapace width.

Table 2. Number of Dungeness Crabs Caught by Sport Fishermen at Crescent City during 1966-68.

Sampling Period	Number Fishermen Interviewed			Number Legal Crabs Caught		
	Pier Fishermen	Boat Fishermen	Total	Pier Fishermen	Boat Fishermen ^{1/}	Total
February - April 1966	54	60	114	42	421	463
December 1966 - March 1967	39	29	68	13	69	82
1967-68 Season ^{2/}	9	49	58	5	358	363
Totals	102	138	240	60	848	908

^{1/} Average size of crabs caught by boat fishermen in February, March, and April 1966, was 176, 168, and 166 mm in carapace width, respectively. Crabs caught by boat fishermen in December, January, and March 1967-68 averaged 171, 166, and 163 mm in carapace width, respectively.

^{2/} Gotshall and Hardy (1969) give measurements of crabs caught during December, January, and March 1967-68, but they do not state whether these were the only months that crabs were sampled.

Table 3. Number of Dungeness Crab Caught in Oregon Estuaries during 1971.

Estuary	Number Crabs Caught			Percent of Total Catch Caught by Sportsmen
	Sports ^{1/}	Commercial ^{2/}	Total	
Columbia River	51	44,914	44,965	< 1
Nehalem Bay	17,962	0	17,962	100
Tillamook Bay	32,731	44,383	77,114	42
Netarts Bay	19,092	10,444	29,536	65
Sand Lake	238	0	238	100
Nestucca Bay	1,663	0	1,663	100
Salmon River	876	0	876	100
Siletz River	8,731	0	8,731	100
Yaquina Bay	39,977	2,834	42,811	93
Alsea River	23,642	1,591	25,233	93
Siuslaw River	7,024	1,824	8,848	79
Umpqua River	3,671	1,160	4,831	76
Coos Bay	40,065	11,683	51,748	77
Coquille River	3,018	0	3,018	100
Rogue River	0	0	0	0
Chetco River	253	0	253	100
Totals	198,994	118,833	317,827	63

^{1/} Sport catch is for the period March 1 through October 31, 1971.

^{2/} Commercial catch is for the 1970-71 season. Data in original reports given in pounds. A conversion of 25 pounds per dozen was used to estimate number of crabs caught.

A common complaint of sportsmen is that commercial fishermen keep the crab populations harvested to such a low level that it is difficult for sportsmen to catch legal crab. On the other hand, some commercial fishermen contend that the minimum size limit for crab in the sport fishery should be the same as that for the commercial fishery, which is $6\frac{1}{4}$ inches in carapace width. The minimum size for sport-caught crab in Oregon is $5\frac{3}{4}$ inches in carapace width.

Early regulations governing the harvest of crabs from Oregon estuaries were based on the premise that bay crabs and ocean crabs represented two different populations. Bay and estuary populations usually were somewhat smaller than the ocean population in average size and therefore the minimum size for both commercial and sport-caught bay crabs was set at $5\frac{3}{4}$ inches. Tagging studies later demonstrated that bay and ocean crabs represent a single population and the commercial size limit for bay crab was increased to $6\frac{1}{4}$ inches to correspond with the commercial size limit for ocean crab, but the size limit for sport-caught crab was left at $5\frac{3}{4}$ inches. The minimum commercial size of $6\frac{1}{4}$ inches allows the male crabs to mate once or twice prior to reaching legal size. However, the minimum sport size limit of $5\frac{3}{4}$ inches may allow some male crabs to be harvested prior to mating (C.D. Snow, personal communication).

It appears there is no biological justification for having different minimum size limits for the sport and commercial crab fisheries in Oregon. However, even if the sport fishery does harvest some male crabs before they can mate there probably is little effect on total productivity of the crab population for the annual sport harvest in Oregon, based on catch statistics for 1971, amounts to only about 1-2 percent of the total annual crab harvest.

Apparently there has been little user conflict between sport and commercial crabbers in the coastal fisheries of Washington and California.

SUMMARY AND CONCLUSIONS

Data are not available to fully assess the magnitude of the Dungeness crab sport fishery on a coastwide basis. However, based on the 1971 resource use study of Oregon estuaries and on personal observations of shellfish biologists from Washington and California, the coastal sport fishery probably does not account for more than about 1 percent of the total crab landings annually.

There does not appear to be any significant amount of sports-commercial allocational conflict in the crab fishery (excluding Puget Sound). There has been some discord between sports and commercial fishermen in Oregon primarily with regard to who should harvest the resource and as to minimum size limits, but it has been restricted mainly to the smaller estuaries where the two groups are competing for a limited number of crabs. However, the sport fishery will probably increase in the future and conflicts between the two user groups will also increase. Therefore, it seems advisable for the respective state crab projects to consider implementing programs to monitor the sport fishery.

LITERATURE CITED

- Gaumer, T., D. Demory, and L. Osis. 1973a. 1971 Columbia River Estuary resource use study. Fish Comm. Oregon Process. Rept. 16 p.
- _____, _____, and _____. 1973b. 1971 Nehalem River Estuary resource use study. Fish Comm. Oregon Process. Rept. 27 p.
- _____, _____, and _____. 1973c. 1971 Tillamook Bay resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, and _____. 1973d. 1971 Sand Lake Estuary resource use study. Fish Comm. Oregon Process. Rept. 24 p.

- _____, _____, and _____. 1973e. 1971 Nestucca River Estuary resource use study. Fish Comm. Oregon Process. Rept. 24 p.
- _____, _____, and _____. 1973f. 1971 Salmon River Estuary resource use study. Fish Comm. Oregon Process. Rept. 24 p.
- _____, _____, and _____. 1973g. 1971 Siletz River Estuary resource use study. Fish Comm. Oregon Process. Rept. 27 p.
- _____, _____, and _____. 1973h. 1971 Alsea River Estuary resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, and _____. 1973i. 1971 Coquille River Estuary resource use study. Fish Comm. Oregon Process. Rept. 27 p.
- _____, _____, and _____. 1973j. 1971 Umpqua River Estuary resource use study. Fish Comm. Oregon Process. Rept. 27 p.
- _____, _____, and _____. 1973k. 1971 Coos Bay Resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, and _____. 1973l. 1971 Chetco and Rogue River Estuaries resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, and _____. 1974a. 1971 Netarts Bay Estuary resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, and _____. 1974b. 1971 Siuslaw River Estuary resource use study. Fish Comm. Oregon Process. Rept. 28 p.
- _____, _____, _____, and C. Walters. 1974. 1970-71 Yaquina Bay resource use study. Fish Comm. Oregon Process. Rept. 32 p.
- Gotshall, D.W. 1969. Port sampling at Crescent City-Brookings-Port Orford, November 1966 - October 1967. Pac. Mar. Fish. Comm., 20th Ann. Rept. for the Year 1967, pp. 50-51.
- Gotshall, D.W. and R. Hardy. 1969. Final Report of port sampling, January 1966 - November 1968. Pac. Mar. Fish. Comm., 21st Ann. Rept. for the year 1968, pp. 28-31.