

**LIBRARY COPY**

**A Synopsis of Studies on the Bait and Sport Fisheries  
for Marine Fish in Oregon Bays  
July 1, 1969, to December 31, 1970**

**Charles K. Walters**

**Fish Commission of Oregon  
Division of Research**

**February 1971**

A Synopsis of Studies on the Bait and Sport Fisheries  
for Marine Fish in Oregon Bays  
July 1, 1969, to December 31, 1970

Introduction

The 1969 legislature approved a new Fish Commission program to investigate the bait and sport fisheries for marine fish. Concern had been expressed that herring stocks might be overfished by the bait fishery in Oregon bays and, if so, this might have a detrimental effect on salmon availability. Also, information was desired concerning the sport fishery for marine foodfish (all marine fish taken by anglers except salmon, trout, shad, striped bass, and sturgeon) in Oregon bays and along the ocean beaches.

Studies were established to (1) determine if herring were being excessively harvested in Oregon bays, and (2) investigate the extent of marine sport fishing, where it occurred, and what species were taken.

This report summarizes progress from the program's inception on July 1, 1969, to December 31, 1970.

Bait Fishery

Most commercial herring landings are made in Tillamook, Yaquina, and Winchester bays in order of increasing importance. Landing records indicated that 1929 was the peak herring year with a catch of 151,000 pounds (Figure 1). Subsequent peaks occurred in 1948 (118,000 pounds) and 1966 (93,600 pounds).

The 1969 catch of 60,400 pounds and the 1970 catch (through August) of 41,500 pounds were substantially below the peak years and were determined by market demand rather than availability of herring. Sampling commercial operations during 1969 and 1970 showed that the major fishing effort occurred from April through August, but surveys indicated that

herring were in the bays from February through November. The number of herring caught and held for sale usually exceeds the number reported as sold. Logbooks were distributed to commercial bait fishermen during 1969-70 to obtain information not required in poundage reports such as date of catch, numbers of fish caught and gear used, etc. Analysis of these data has not been completed.

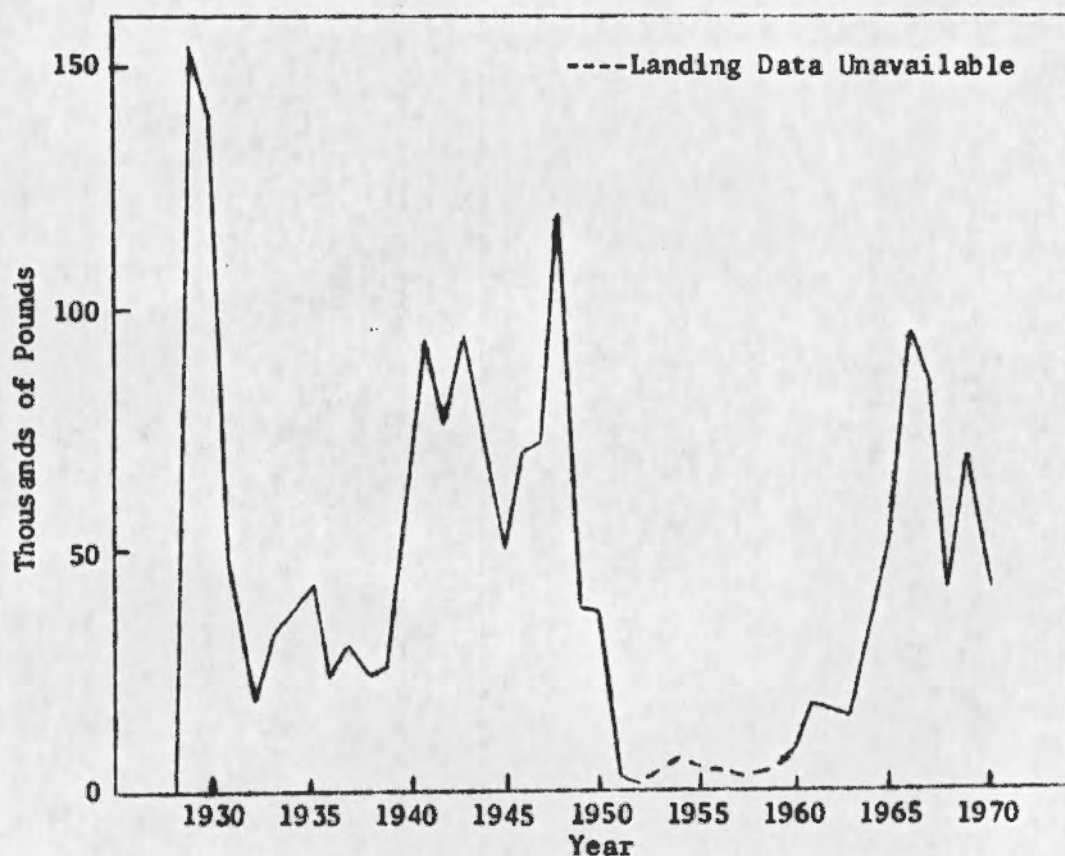


Figure 1. Oregon Commercial Herring Landings, 1928-70

Biological studies indicated that herring spawn in Oregon estuaries and deposit adhesive eggs on eel grass, piling, and rocks. There is no evidence that herring spawn in the ocean along the Oregon Coast. Juvenile herring rear in the estuaries and migrate to the ocean primarily

in November, although laboratory tests show that juvenile and adult herring can survive severe winter conditions in Yaquina Bay. Tagging and growth studies have shown that the majority of gravid herring are 2 to 6 years of age. Sampling studies reveal that herring enter Oregon estuaries in January to spawn. A few of the 1-year-old herring spawn with the older fish, but most of the yearlings do not mingle with the adults until the following summer.

The fishing pressure that Oregon bay herring stocks can stand is dependent on their origin. Fish populations restricted to small areas, such as bays, could be overfished if no outside exchange of young occurred. Canadian biologists have identified both offshore populations and bay populations of herring in western Canada by examining spawning time, spawning location, and by tagging spawning populations. Offshore populations spawned near bay mouths, while bay populations spawned near heads of bays. Herring spawning studies in Yaquina Bay during 1970 revealed similar patterns to those observed in Canada, suggesting the existence of both bay and offshore populations in Oregon. Further study is necessary to substantiate population differences.

The potential of the anchovy fishery in Oregon was recognized during bait-fish sampling. Large numbers of anchovy were observed in most Oregon estuaries during 1969 and 1970. A limited fishery for tuna bait existed but was of undetermined size because landing reports were not required unless fish were sold. Tuna bait-boat operators catch their own anchovy for bait.

#### Marine Sport Fishery

The initial studies were conducted in Yaquina Bay because of its current recreational importance, manpower limitations, and proximity to the Fish Commission Laboratory at the Marine Science Center, Newport.

Four distinct sport fisheries exist in Yaquina Bay: shore fishing, small-boat fishing, charter-boat fishing (most fish are caught offshore, but landed in Yaquina Bay), and skin diving. Interview data obtained during 1970 demonstrated that for May and June small-boat fishermen caught more fish and spent the most time fishing (Table 1). For the remainder of the sampling period shore fishermen catch and effort (in man hours) were highest, followed by charter-boat fishing and diving. The highest success, expressed as fish per man hour, was experienced by shore anglers during September and October (Table 1). A total of 36 species was observed in sport fish samples. The most frequent species caught was herring followed by black rockfish and lingcod. The total Yaquina Bay sport fish estimate was 53,232 fish for 72,541 man hours, representing a catch to the angler of 0.7 fish per man hour. The success rate for marine sport fish is the highest of any Oregon recreational fishery. For example, the Oregon Game Commission estimated their Siuslaw tidewater cutthroat sport fishery success to be 0.14 fish per man hour (Giger, 1969), their offshore salmon catch to be 0.12 fish per man hour (Rousseau, 1968), and their steelhead success to be 0.07 fish per man hour (Campbell and Locke, 1968).

The importance of marine sport fishing is increasing in Oregon due to higher income, more leisure time, population increase, and improved access. The U. S. Fish and Wildlife Service in 1962 reported that national salt-water angling is increasing at the rate of 7% per year. Comparable or greater increases are reasonable for Oregon because of unrestricted fishing, no required license, and free public access.

Establishing the size of the marine sport fishery, both in terms of fish taken and time spent, is important for each bay in Oregon. Successful survey methods developed in Yaquina Bay are being incorporated

Table 1. Preliminary Yaquina Bay Marine Sport Fishery Catch and Effort Data for 1970

Fishing Method	Month	Man Hours	Fish Caught	Fish Per Man Hour	Common Species Ranked by Importance			
					1st	2nd	3rd	4th
<u>Divers</u>	February	35	5	0.1	Black Rockfish	Lingcod Cabezon Skate <u>1/</u>		
	March	60	24	0.4	Black Rockfish	Lingcod	Cabezon	Starry Flounder
	April	51	8	0.2	Black Rockfish	Lingcod Cabezon Copper Rockfish		
	May	249	151	0.6	Black Rockfish	Lingcod	Cabezon	Perch <u>1/</u>
	June	90	88	1.0	Black Rockfish	Lingcod	Sculpin <u>1/</u>	Perch <u>1/</u>
	July	310	197	0.6	Black Rockfish	Lingcod	Cabezon	Sculpin <u>1/</u>
	August	272	292	1.1	Black Rockfish	Cabezon	Lingcod	
	September	122	106	0.9	Black Rockfish	Sculpin <u>1/</u>	Greenling <u>1/</u>	Perch <u>2/</u>
	October	86	100	1.2	Black Rockfish	Perch <u>1/</u>	Copper Rockfish	Lingcod
	Subtotal		1,275	971	0.8			
<u>Shore Anglers</u>	May-June	11,921	6,727	0.6	Herring	Sculpin <u>1/</u>	Walleye Perch	Starry Flounder
	July	7,075	8,862	1.1	Herring	Sculpin <u>1/</u>	Pile Perch	Starry Flounder
	August	5,472	5,660	1.0	Herring	Walleye Perch	Sculpin <u>1/</u>	Pile Perch
	September	4,260	8,306	2.0	Herring	Sculpin <u>1/</u>	Shiner Perch	Greenling <u>1/</u>
	October	1,078	2,321	2.2	Herring	Buffalo Sculpin	Shiner Perch	Greenling <u>1/</u>
	Subtotal		29,806	31,876	1.1			
<u>Charter Boat Anglers</u>	May	1,490	946	0.6	Black Rockfish	Lingcod	Red Rockfish <u>1/</u>	Cabezon
	June	1,886	310	0.2	Lingcod	Black Rockfish	Red Rockfish <u>1/</u>	Cabezon
	July	2,473	701	0.3	Black Rockfish	Red Rockfish <u>1/</u>	Lingcod	Greenling <u>1/</u>
	August	1,420	192	0.1	Black Rockfish	Lingcod	Hake	Blue Shark
	September	1,206	344	0.3	Lingcod	Black Rockfish	Red Rockfish <u>1/</u>	Bocaccio
Subtotal		8,475	2,493	0.3				
<u>Small Boat Anglers</u>	May-June	32,985	17,892	0.5	Black Rockfish	Starry Flounder	Striped Perch	Herring
	Subtotal	32,985	17,892					
<u>Grand Total</u>		72,541	53,232	0.7				

1/ Several species combined.

into sampling plans for all areas which afford a high potential to recreational fishermen in Oregon.

#### Literature Cited

Campbell, C. J. and F. E. Locke. 1968. Oregon State Game Commission Annual Report, Page 119.

Giger, R. D. 1969. Federal Aid Completion Report Fisheries. Oregon State Game Commission. Section II, Page 3.

Rousseau, R. F. 1968. Oregon State Game Commission Annual Report, Lincoln District. Page 15.