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OTTER TRAWL INVESTIGATIONS
Progress Report

November 1 - May 1, 1957

INTRODUCTION

During this period a movement of biologists was observed as well as shifts in fish and fishermen. Jergen Westrheim moved to Clackamas as project leader, Columbia River Investigations, and was succeeded at Astoria by Ray Morgan, February 1, 1957. Otherwise the tranquility of the otter trawl investigations was not broken by incoming or outgoing personnel.

The following meetings were attended during the period:

Month	Meeting	Location	Personnel
February	O. F. C. Public Hearing	Portland	Morgan
March	Staff Meeting	Gladstone	Morgan Jones Leith
	P. M. F. C. Biologists Meeting	Portland	Morgan Jones Leith
April	Pacific Fisheries Biologists	Chico	Morgan Jones Leith

FLEET ACTIVITIES

The Oregon trawl fleet was held dock-fast during much of the past winter by frequent storms, particularly in the ports south of Astoria. By April, however, 42 trawl boats were fishing from Oregon ports, (Table 1). The majority of these, 27 boats, were delivering to Astoria docks, 7 were fishing out of Newport and 4 boats delivered regularly to Winchester Bay and Coos Bay. This is an increase of 9 boats over a similar period the previous year.

TRAWL LANDINGS (Unofficial)

The total trawl landings for the first four months of 1957 amounted to approximately 5.5 million pounds, slightly more than were landed for the same period in 1956. However, the disposition of the catch differed considerably between the two years. During the first four months of 1956 the ratio of fillet market deliveries to mink food deliveries in millions of pounds was approximately 3 to 2. For the same period in 1957 this ratio was about 4 to 1.

The increase in the fillet market landings caused more fillet scrap to be available to fur ranchers, thus reducing the demand for whole fish. The increase in fillet scrap production was opportune for many fur ranchers who were seeking to cut feed costs to offset the drop in mink pelt prices that occurred the first part of 1957.

1956 MINK FOOD FISHERY

The trawl landings for mink food in 1956 continued the upward trend noted in this fishery over the past four years. It exceeded the fillet market fishery by a considerable amount, approximately 2 million pounds, for the first time in the history of Oregon trawling. An excess of 14 million pounds of fish were landed for fur farm use in 1956 compared to about 11 million pounds in 1955, (Table 2).

The increase in the 1956 mink food landings was shared in by all of the major Oregon trawl ports with the greatest increase occurring in the Winchester Bay - Coos Bay areas. Approximately 7 million pounds were landed at Astoria; slightly in excess of 4 million pounds were landed at Newport; and a total of about 3 million pounds was landed at Winchester bay, Coos Bay, and Tillamook Bay, of which by far the greatest amount was delivered to Winchester Bay.

The species composition of the mink food landings for all ports in 1956

did not differ appreciably from that determined for 1955, (Table 3). Turbot accounted for the greatest poundage of any single species with 4.2 million pounds. This amounted to 30 per cent of the total landings which is a decrease of about 11 per cent from the percentage composition of this species in the 1955 landings.

Rex sole, 1.9 million pounds, and Dover sole, 1.7 million pounds, accounted for 14 and 12 per cent, respectively, of the total landings. Although the proportion of rex sole in the total landings decreased by 3 per cent in 1956 compared to 1955, the poundage of this species increased slightly over the previous year. Dover sole landings in 1956 more than doubled from the 3/4 million pounds landed in 1955.

Deliveries of English sole, petrale sole, and Bellingham sole for mink food were comparatively small accounting for only 4, 2, and 1 per cent, respectively, of the total landing in 1956. By weight this amounted to around 1/2 million pounds of English sole, 1/4 million pounds of petrale sole, and 82,000 pounds of Bellingham sole.

The rockfishes as a group, consisting of 18 species, accounted for 30 per cent, 4.3 million pounds, of the mink food landings. In this group the orange rockfish, Sebastes pinniger, Pacific Ocean perch, S. alutus, and bocaccio, S. paucispinis composed 29, 23, and 13 per cent, respectively, of the rockfish landings. These three species combined with the Hollywood rockfish, S. rubrivinctus, and the spiny cheeked rockfish constituted 84 per cent of the total rockfish landings.

The miscellaneous group of fishes included 14 species and totaled a little over a million pounds and accounted for about 7 per cent of the total landings. The majority of the poundage in this group was composed of skates, blackcod, and lingcod.

AREAS FISHED FOR MINK FOOD

The Oregon mink food fishery has been concentrated on trawling grounds generally near the major ports of delivery over the past four years as illustrated in Figure 1. Area II, off the Columbia River and between Willapa Bay and Tillamook Rock, has produced roughly 35 per cent of the total mink food landings in each year since 1952. A total of 13 million pounds was taken from this area in the four years. Most of these fish were caught immediately adjacent to and in the river entrance.

Approximately the same poundage was reportedly caught in Area IV off the Yaquina River and between Cascade Head and Heceta Head. However, this area produced only about 30 per cent of the fish for fur farms in 1955 and 1956 compared to about 40 per cent in 1953 and 1954.

Area V, located between Heceta Head and Cape Blanco, provides the major trawling grounds for boats fishing out of Winchester Bay on the Umpqua River and from ports in the Coos Bay area. Landings from this area have progressively increased as evidenced by the 1956 mink food landings of almost 4 million pounds compared to 686,000 pounds in 1953. This area has produced a little more than 7 million pounds over the four-year period.

Area I, north of Willapa Bay, and Area III, between Tillamook Rock and Cascade Head, each contributed a little less than 2 million pounds to the mink food fishery during the four years.

Astoria vessels took mink food from all of the areas, but those vessels that reported fish caught from other than Area II were generally delivering mink food caught incidental to fillet market fishing. Boats from the southerly ports had markets principally for mink food, and economics dictated that they limit their range to short trips.

Table 1. List of Oregon Trawl Vessels, by Home Port, April 30, 1957.

Astoria	Newport	Winchester Bay	Coos Bay
Betty	Alten	Alta	Anakt
Daphne	Dare II	C. T. Holland	Nel Ren Dis
Eagle	Destiny	Hero	Pearl Harbor
Galaxy	Harold J.	Madeline J.	Sitka
Georgine	Margaret E.		
Jennie F. Decker	Pacific Queen		
Jimmy Boy	Ruth Ellen		
Kinchel'ol			
Kiska			
Marian F.			
Marie H.			
Mary R.			
Nestucca			
New Hope			
New Mexico			
Oregonian			
Rodonia			
Rose Ann Hess			
San Antonio			
Silver Queen			
Tralea			
Trash			
Trego			
Valhalla II			
Washington			
Washington (L)			
W. C. F. #1			

Table 2. Pounds of Whole Bottom Fish Landed in Oregon for Mink Food.

Port	1953 Pounds	1954 Pounds	1955 Pounds	1956 Pounds
Astoria	2,088,000	2,400,000	5,940,000	6,855,000
Newport	2,813,000	3,542,000	3,558,000	4,303,000
Other 1/	76,000	197,000	1,457,000	2,963,000
Total	4,977,000	6,139,000	10,955,000	14,121,000

1/ Tillamook Bay, Winchester Bay, and Coos Bay areas.

Figure 1. Relative Distribution of Trawl Landings of Mink Food
by Area Fished, Oregon, 1953 - 1956.

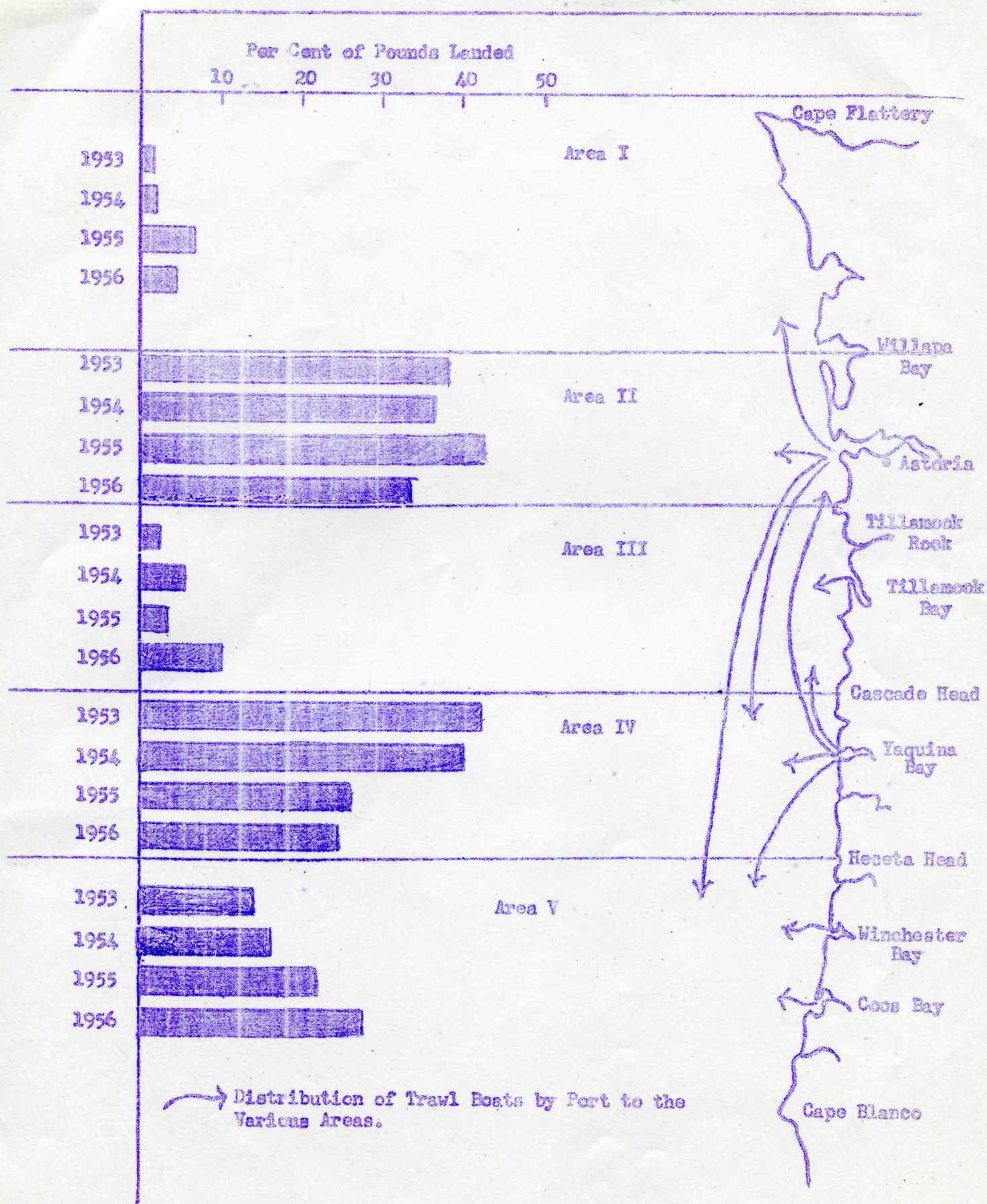


Table 3. Species Composition of Otter-Trawl Landings of Fish Delivered for Mink Food, Oregon, 1953-1956.

Species	1953		1954		1955		1956	
	Pounds	Per Cent	Pounds	Per Cent	Pounds	Per Cent	Pounds	Per Cent
Dover Sole	547,000	11	677,000	11	759,000	7	1,700,000	12
English Sole	647,000	13	308,000	5	759,000	7	552,000	4
Petrals Sole	99,000	2	62,000	1	109,000	1	228,000	2
Bellingham Sole	348,000	7	184,000	3	217,000	2	82,000	1
Rex Sole	846,000	17	492,000	8	1,844,000	17	1,944,000	14
Turbot	1,045,000	21	1,907,000	31	4,448,000	41	4,239,000	30
Rockfish	647,000	13	1,415,000	23	1,627,000	15	4,298,000	30
Misc. Fish	796,000	16	1,107,000	18	1,085,000	10	721,000	5
Total	4,975,000	100	6,152,000	100	10,848,000	100	14,121,000	100

Tagged Fish Recoveries

Dover sole, tagged in April 1955, continued to furnish numbers of tagged fish in the otter trawl catches from deep water areas.

Recoveries in the otter trawl catch were also made of starry flounders tagged in the Columbia River and of English and petrale sole released off Washington by the Washington Department of Fisheries.

The recoveries of tagged Dover sole from the 1955 tagging are shown by time and area caught (inshore or offshore) in Table 4. No inshore recoveries have been made since June 1956.

A total of 171 tagged fish has been recovered to date or 6.8 per cent of the number tagged. The true number of tagged fish caught has undoubtedly been greater since returns are voluntary on the part of the fishermen and dealers.

Recoveries were made of two starry flounders. One fish had been released at Sand Island trap in 1951 and the other at McGowan trap in 1953.

Dover Sole Sampling

During the winter season the Dover sole are not generally available to the otter trawl fishery, and no significant numbers are landed. For this

Table 4. Recoveries of Tagged Dover Sole According to Time and Areas of Recovery.

Recovery Time	Recovery Areas		Unknown	Total
	Inshore 1/	Offshore 2/		
1955				
April	4	0	0	4
May-June	5	12	0	17
July-August	0	7	0	7
September-October	5	1	2	8
November-December	0	2	0	2
Total	14	22	2	38
1956				
January-February	10	0	0	10
March-April	4	0	5	9
May-June	5	11	0	16
July-August	0	5	0	5
September-October	0	3	0	3
November-December	0	26	0	26
Total	19	45	5	59
1957				
January-February	0	21	0	21
March-April	0	38	0	38
May 2/	0	5	0	5
Total	0	64	0	64

1/ < 150 fathoms

2/ > 150 fathoms

3/ Through May 22 only.

reason no sampling of the food fish catches is undertaken during the winter.

Sampling of the Dover sole catches has been continued through the winter whenever possible, however, to obtain fish for the age and growth studies. No samples were obtained during the period November 1956 through February 1957 because of the scarcity of Dover sole in the landings from the local area. Dover sole began to appear in the landings in March and have been available in increasing numbers since then. All scale samples have been read twice, and all otoliths have been read once, and some have been read twice. To date both otoliths and scales have been about equally difficult to read. The age and growth studies will be continued.

Juvenile Dover Sole Study

It is planned to make one or two trips at sea a month to obtain small Dover sole of sizes smaller than those occurring in the otter trawl catches. A double bag (a 1/2-inch mesh bag inside of a 1-inch mesh bag) will be fished over a 3-inch mesh cod end. Small fish passing through the 3-inch mesh will be retained in the fine mesh bag. Larger fish retained in the 3-inch mesh will simplify the sorting problem considerably. All plans and gear are subject to immediate changes if necessary.

Otter Trawl Investigations

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