FISH COMMISSION OF OREGON

ALSEA RIVER ESTUARY

A STUDY IN RESOURCE USE
DIVISION OF MANAGEMENT AND RESEARCH

1971 ALSEA RIVER ESTUARY RESOURCE USE STUDY

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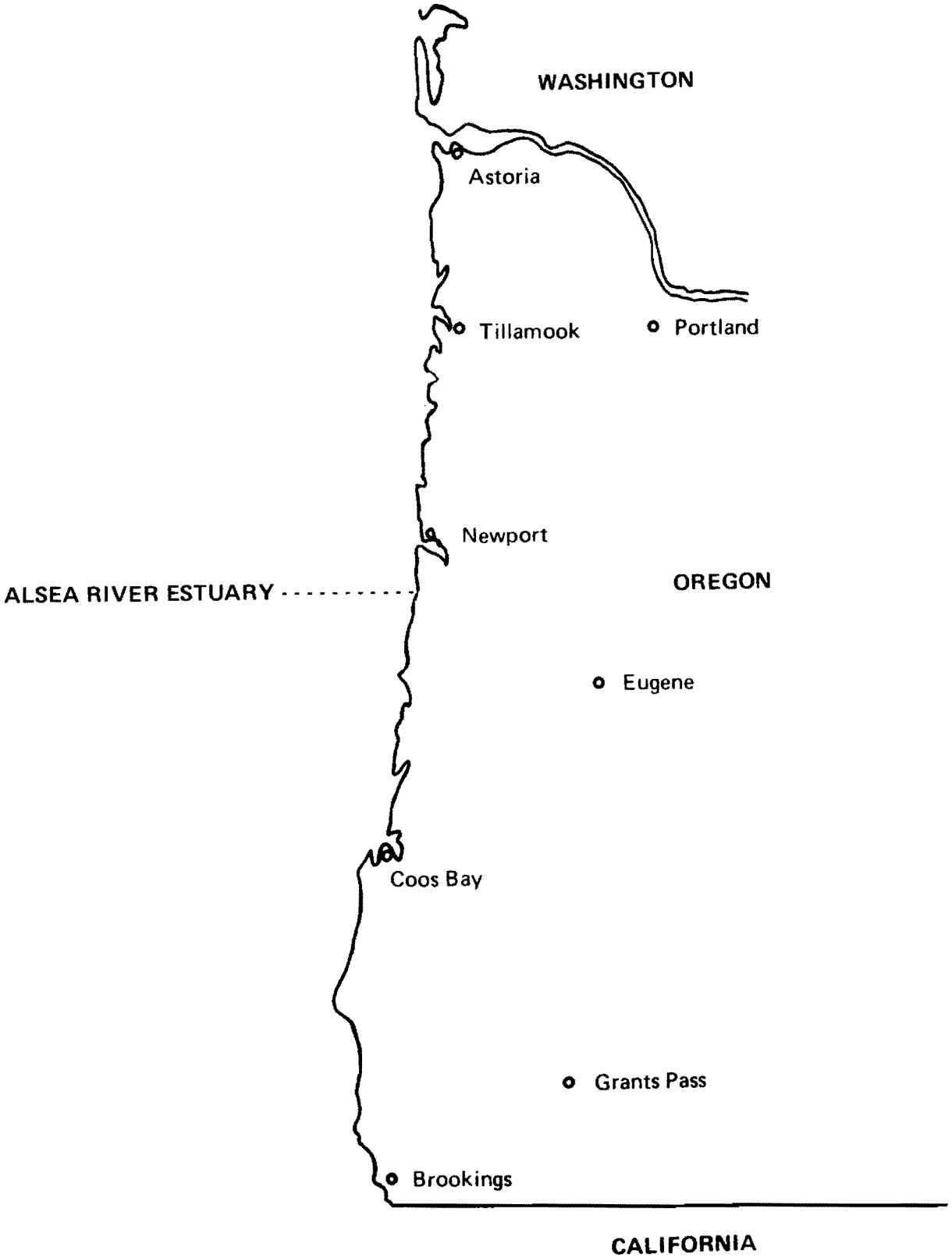

Figure 1. Location of Alsea River Estuary.

1971 ALSEA RIVER ESTUARY RESOURCE USE STUDY

INTRODUCTION

In 1971 the Fish Commission of Oregon conducted a comprehensive study of the recreational use of marine food fish, shellfish, and other miscellaneous invertebrates in 16 Oregon estuaries. The anadromous sport fisheries in the upper portions of most estuaries were not included in the study due to the lack of manpower to adequately sample those areas. The study was supported by state general funds and by the National Marine Fisheries Service under the Commerical Fisheries Research and Development Act. The U.S. Army Corps of Engineers funded portions of the data processing, preparation of a series of marine resource maps, and a special report for each estuary. This report summarizes the results of the Alsea River Estuary study.

PROCEDURE

The Alsea River Estuary is located 167 miles south of the Columbia River (Figure 1). The 2,146-acre bay contains 979 acres of tidelands.

From March 1 through October 31, 1971, boat and shore anglers and tideflat users were interviewed for catch, effort, and origin data in a program designed for statistical analysis. No scuba divers were encountered during the study. Resource users were categorized as (1) county: people that reside west of the coast range summit within the county where the sampled estuary is found, (2) state: residents of Oregon not classified as county, and (3) nonstate: nonresidents of Oregon.

The study area extended from the mouth of the estuary upstream 4 miles to Eckman Slough. Survey areas and their station numbers are outlined in Table 1 and are shown in Figure 2.

The 1971 Alsea River Estuary commercial landings of shellfish and their value, taken from Fish Commission catch statistic reports, are included as supplemental information.

The following maps were prepared using information collected in previous Fish Commission studies and the 1971 resource use survey.

1. Principal boat fishing areas.

2. Clam beds.

3. Eel grass beds.

4. Food production areas, fish feeding areas, fish migration routes, and known herring spawning area.

RESULTS

During the study 3,401 boat, shore, and tideflat resource user interviews were obtained to estimate catch and effort values and angler origin. The values presented in the tables are estimates and have been rounded off when used in the text.

Boat Fishery

Figure 3 shows the principal boat fishing areas of the Alsea River Estuary. Both sport and commercial boat fishing areas are combined on the map. Principal species of fish and shellfish caught and peak periods of fishing activity are outlined.

An estimated 13,900 boat angler trips were expended on the estuary below Eckman Slough (Table 2). These anglers spent 48,400 hours fishing (Table 3). Peak months of activity were July and August.

Nineteen species of fish and one species of crab were identified in the boat anglers' catch (Table 4). Dungeness crab was the principal species taken and accounted for 61% of the total number of animals caught. Peak catch occurred during July and fishing success (catch per hour) was highest during June (Table 5).

Shore Fishery

Interview data revealed that 10,000 shore angler trips were expended on the estuary (Table 6). The shore area from the Highway 101 bridge to the mouth of the bay was the principal fishing area; 55% of the anglers fished there. Shore anglers spent 19,600 hours fishing (Table 7). Peak activity occurred in October.

Seventeen species of fish and one species of crab were identified in the shore anglers' catch (Table 8). Pacific staghorn sculpin, starry flounder, and shiner perch were the principal species landed, accounting for 74% of the total number of animals caught. Catch and fishing success were highest during July (Table 9).

Tideflat Fishery

Figure 4 shows the distribution of bay clams in the estuary. Several species of clams including cockle, softshell, piddock, gaper, littleneck, bodega tellen, and butter clams are found in the intertidal and subtidal zones of the bay. Principal areas of digging are outlined on the map.

Table 10 shows that 3,600 tideflat user trips were expended to harvest clams, miscellaneous invertebrates, and fish from the estuary. Of this total 50% were clam digger trips. Tideflat users spent 5,000 hours collecting marine animals (Table 11). Peak months of activity were May, June, and July. The major digging effort (80%) was expended on the tideflats below the Highway 101 bridge where 2,900 tideflat users spent 4,100 hours collecting animals.

Seven species of clams and 6 species of miscellaneous invertebrates and fish were harvested by tideflat users (Table 12). Ghost and mud shrimp accounted for 69% of the total animals harvested. Cockle and softshell clams accounted for 97% of the total number of clams dug. The tideflats below the Highway 101 bridge was the principal area of catch providing 47,300 animals or 58% of the harvest. Peak catch occurred during May and digging success was highest during September (Table 13).

Angler Origin

Approximately 59% of the anglers interviewed were residents of Oregon living outside of Lincoln County, 32% were Lincoln County residents, and 9% were out-of-state residents.

	Angler Origin		
	County	**State**	**Non-State**
Boat	3,379	9,256	1,252
Shore	3,775	5,196	1,056
Tideflat	1,738	1,653	224
Total	**8,892**	**16,105**	**2,532**
Percentage	**32.3**	**58.5**	**9.2**

Combined Recreational Fisheries

A total of 27,500 resource user trips (13,900 boat, 10,000 shore, and 3,600 tideflat) were expended on the Alsea River Estuary during the study (Table 14). The 27,500 user trips represented 73,000 hours of effort (48,400 boat, 19,600 shore, and 5,000 tideflat). The peak months of activity for the boat, shore, and tideflat fisheries were July, October, and June, respectively. Combining all fisheries, Table 15 shows that July was the peak month of activity.

Anglers of the three fisheries harvested 134,500 marine animals (55,900 shrimp, 31,400 fish, 23,600 crabs, 23,400 clams, and 200 miscellaneous invertebrates). Dungeness crab comprised 61% of the boat anglers' total catch. Pacific staghorn sculpin, starry flounder, and shiner perch were the principal species of fish caught by shore anglers and represented 95% of their total take. Shrimp comprised 69% of the tideflat users' total take. Ghost shrimp was the principal species collected making up 63% of the harvest. Cockle and softshell clams were the principal species of clams harvested and represented 28% of the tideflat users' take. Comparing the catch for all three fisheries revealed that tideflat users harvested 81,600 or 61% of the total animals taken. Boat and shore anglers harvested 33,800 and 19,100 marine animals, respectively. Peak months of catch for the boat, shore, and tideflat fisheries were July, July and May, respectively. Combining all fisheries, the principal catch occurred in May.

Commercial Fishery

Commercial landings of shellfish caught in the Alsea River Estuary in 1971 totaled 10,791 pounds valued at $8,000 (fisherman's level) according to Fish Commission landing statistics. Ghost and mud shrimp were the principal species landed.

Species	Pounds	Value
Ghost and mud shrimp	6,877	$7,000
Dungeness crab	3,914	1,000
Total	**10,791**	**$8,000**

Eel Grass Beds

Eel grass beds are found scattered throughout the lower Alsea River Estuary up to river mile 2 (Figure 5). These beds are usually found in the areas of shallow water and high salinities. Clams and other important marine fauna are usually an integral part of the eel grass beds.

Food Production Areas, Fish Feeding Areas, Fish Migration Routes, and Known Herring Spawning Area

Figure 6 shows the food production areas, fish feeding areas, and fish migration routes in the estuary. Also outlined on the map is the only known herring spawning area.

Estuaries are some of the most productive lands on earth. The productivity of estuarial areas is directly related to length of shore line, depth of water, and geographical location. Within each estuary tidelands are generally more productive than deep water channel areas.

Production of food organisms occurs throughout the entire estuary. These food organisms include the microscopic phytoplankton and other algae, zooplankton, small crustaceans, mollusks, annelids, and fish which are all important in the estuarine food chain.

The fish feeding areas of the Alsea River Estuary (for finfish and shellfish) include all areas of the estuary under tidal influence. Tideflats as well as deep water channels and rocky areas provide a variety of rearing habitat. Species of fish, numbers, and distribution within each area are generally related to type of food organisms, bottom type, water depth, and water quality.

Fish and shellfish typically found associated with the estuary tideflats include flounder, sole, perch, salmon, crabs, shrimp, and clams. In addition to these species found on tideflats, herring, anchovy, and smelt reside in the estuary channels; period of residency is dependent on species, season, and location. A taxonomic list of species of marine animals observed in this study is contained in Table 16.

Rocky areas in the estuary are the preferred feeding and rearing areas of perch and greenling. These fish reside upstream of the Highway 101 bridge on the north side of the bay and around the county boat ramp.

Fish migration routes are those areas traveled by fish to and from spawning, feeding, or rearing areas. Fish migration routes through the Alsea River Estuary are as varied as the fish that use them. Species and age class of fish, season, water depth, and water quality all play an important role in fish migration patterns.

The use of channel areas throughout the estuary by salmon, trout, perch, flounder and baitfish is well known. In addition, during high tide, these same fish frequently swim across tideflats to reach their destination.

From January through March, herring eggs can be found adhered to pilings, rocks, or eel grass in the area outlined in Figure 6. More complete observations in the future will no doubt reveal other areas used by these fish.

ACKNOWLEDGMENTS

Many Fish Commission of Oregon personnel contributed in the gathering, compiling, analyzing of data, typing, and editing of this report. Special thanks are due Mrs. Linda Karlik for preparing the resource maps and Mr. Louis Fredd for his assistance in analyzing the data.

Table 1. LOCATION OF SAMPLING STATIONS
Alsea River Estuary, 1971

Fishing Activity	Station Number	Location
Boat	B-1	Mouth of estuary to Eckman Slough
Shore	S-1	101 to mouth (Highway 101 bridge and all areas downstream to mouth)
	S-2	Boat ramp-McKinley (public boat ramp and McKinley's Moorage)
	S-3	Eckman Slough
	S-4	Rock Slide
Tideflat	T-1	Below 101 bridge (all tideflats below Highway 101 bridge)
	T-2	Above 101 bridge (all tideflats above Highway 101 bridge)

Table 2. NUMBER OF BOAT ANGLER TRIPS
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

	Boat Fishing Area and Station Number	
Month	Mouth of Estuary to Eckman Slough Total (B-1 Only Station)	Percentage
March	77	0.6
April	435	3.1
May	1,785	12.9
June	1,647	11.9
July	3,210	23.1
August	3,086	22.2
September	2,364	17.0
October	1,283	9.2
Total	13,887	100.0

Table 3. HOURS OF BOAT ANGLER USE
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

Month	Boat Fishing Area and Station Number: Mouth of Estuary to Eckman Slough Total (B-1 Only Station)	Percentage
March	214	0.4
April	1,584	3.3
May	5,737	11.9
June	5,264	10.9
July	11,793	24.4
August	10,514	21.7
September	8,786	18.2
October	4,512	9.3
Total	48,404	100.1

Table 4. MARINE ANIMALS CAUGHT BY BOAT ANGLERS
Alsea River Estuary, by Species and Area
March 1 through October 31, 1971

Species	Boat Fishing Area and Station Number: Mouth of Estuary to Eckman Slough Total (B-1 Only Station)	Percentage
Dungeness crab	20,548	60.8
Pacific staghorn sculpin	4,164	12.3
Redtail surfperch	3,721	11.0
Starry flounder	2,126	6.3
Walleye surfperch	685	2.0
Northern anchovy	552	1.6
Silver surfperch	353	1.0
Coho salmon (adult)	278	0.8
Shiner perch	225	0.7
Pacific herring	217	0.6
Surf smelt	151	0.4
Pile perch	120	0.4
Chinook salmon (adult)	110	0.3
White seaperch	96	0.3
Buffalo sculpin	72	0.2
Striped seaperch	66	0.2
Rock greenling	48	0.1
Cutthroat trout	33	0.1
Kelp greenling	8	< 0.1
Rainbow trout	8	< 0.1
Unidentified fish	202	0.6
Total	33,783	99.7

Table 5. SPORT BOAT FISHING DATA
Alsea River Estuary, All Areas
1971

	March	April	May	June	July	Aug.	Sept.	Oct.	Total	Percentage
Angler trips (number)	77	435	1,785	1,647	3,210	3,086	2,364	1,283	13,887	–
Fishing effort (hours)	214	1,584	5,737	5,264	11,793	10,514	8,786	4,512	48,404	–
Fishing success (catch/hr.)	0.16	0.17	0.65	1.71	0.91	0.34	0.37	0.73	0.70	–
Catch (number)										
Dungeness crab	10	76	1,374	3,323	7,519	2,824	2,191	3,231	20,548	60.8
Pacific staghorn sculpin	0	0	0	2,472	583	293	816	0	4,164	12.3
Redtail surfperch	0	0	1,018	1,876	827	0	0	0	3,721	11.0
Starry flounder	25	190	983	371	502	20	24	11	2,126	6.3
Walleye surfperch	0	0	174	342	149	20	0	0	685	2.0
Northern anchovy	0	0	0	0	542	10	0	0	552	1.6
Silver surfperch	0	0	0	342	0	0	0	11	353	1.0
Coho salmon (adult)	0	0	0	0	0	111	133	34	278	0.8
Shiner perch	0	0	52	136	13	0	24	0	225	0.7
Pacific herring	0	0	0	0	217	0	0	0	217	0.6
Surf smelt	0	0	0	0	0	151	0	0	151	0.4
Pile perch	0	0	0	39	81	0	0	0	120	0.4
Chinook salmon (adult)	0	0	0	0	0	60	33	17	110	0.3
White seaperch	0	0	60	9	27	0	0	0	96	0.3
Buffalo sculpin	0	0	43	9	0	20	0	0	72	0.2
Striped seaperch	0	0	0	39	27	0	0	0	66	0.2
Rock greenling	0	0	0	48	0	0	0	0	48	0.1
Cutthroat trout	0	0	0	0	13	20	0	0	33	0.1
Kelp greenling	0	0	0	0	0	0	8	0	8	<0.1
Rainbow trout	0	0	8	0	0	0	0	0	8	<0.1
Unidentified fish	0	0	0	0	202	0	0	0	202	0.6
Total	35	266	3,712	9,006	10,702	3,529	3,229	3,304	33,783	99.7
Percentage	<0.1	0.8	11.0	26.7	31.7	10.4	9.6	9.8	100.0	

Table 6. NUMBER OF SHORE ANGLER TRIPS
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

Month	Shore Fishing Area and Station Number: 101 to Mouth S-1	Boat Ramp-McKinley S-2	Eckman Slough S-3	Rock Slide S-4	Total	Percentage
March	21	176	0	39	236	2.4
April	399	64	0	409	872	8.7
May	334	402	13	843	1,592	15.9
June	653	350	0	483	1,486	14.8
July	821	694	0	214	1,729	17.2
August	724	327	20	11	1,082	10.8
September	1,050	172	5	0	1,227	12.2
October	1,517	286	0	0	1,803	18.0
Total	5,519	2,471	38	1,999	10,027	100.0
Percentage	55.0	24.6	0.4	19.9	99.9	

Table 7. HOURS OF SHORE ANGLER USE
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

Month	Shore Fishing Area and Station Number: 101 to Mouth S-1	Boat Ramp-McKinley S-2	Eckman Slough S-3	Rock Slide S-4	Total	Percentage
March	41	338	0	75	454	2.3
April	794	128	0	815	1,737	8.8
May	642	773	25	1,621	3,061	15.6
June	1,287	689	0	952	2,928	14.9
July	1,598	1,352	0	416	3,366	17.1
August	1,431	647	40	23	2,141	10.9
September	2,047	335	11	0	2,393	12.2
October	2,989	564	0	0	3,553	18.1
Total	10,829	4,826	76	3,902	19,633	99.9
Percentage	55.2	24.6	0.4	19.9	100.1	

Table 8. MARINE ANIMALS CAUGHT BY SHORE ANGLERS
Alsea River Estuary, by Species and Area
March 1 through October 31, 1971

Species	Shore Fishing Area and Station Number: 101 to Mouth S-1	Boat Ramp-McKinley S-2	Eckman Slough S-3	Rock Slide S-4	Total	Percentage
Dungeness crab	646	296	0	14	956	5.0
Pacific staghorn sculpin	3,184	2,581	0	1,536	7,301	38.2
Starry flounder	1,186	319	7	2,252	3,764	19.7
Shiner perch	493	2,431	0	101	3,025	15.8
Redtail surfperch	828	375	0	300	1,503	7.9
Walleye surfperch	660	19	0	153	832	4.3
White seaperch	258	0	0	136	394	2.1
Striped seaperch	136	13	0	102	251	1.3
Buffalo sculpin	37	133	0	14	184	1.0
Coho salmon (adult)	128	0	0	0	128	0.7
Pile perch	9	43	0	67	119	0.6
Northern anchovy	11	49	0	0	60	0.3
Cutthroat trout	43	8	0	7	58	0.3
Kelp greenling	19	9	0	0	28	0.1
Pacific herring	19	0	0	0	19	0.1
American shad	0	9	0	0	9	< 0.1
Chinook salmon (adult)	9	0	0	0	9	< 0.1
Cabezon	6	0	0	0	6	< 0.1
Unidentified fish	77	389	0	21	487	2.5
Total	7,749	6,674	7	4,703	19,133	99.9
Percentage	40.5	34.9	< 0.1	24.6	100.0	

Table 9. SHORE FISHING DATA
Alsea River Estuary, All Areas
1971

	March	April	May	June	July	Aug.	Sept.	Oct.	Total	Percentage
Angler trips (number)	236	872	1,592	1,486	1,729	1,082	1,227	1,803	10,027	–
Fishing effort (hours)	454	1,737	3,061	2,928	3,366	2,141	2,393	3,553	19,633	–
Fishing success (catch/hr.)	0.67	1.43	1.27	1.40	1.59	0.70	0.32	0.21	0.97	–
Catch (number)										
Dungeness crab	0	15	43	214	176	129	26	353	956	5.0
Pacific staghorn sculpin	74	30	1,523	1,532	2,716	824	287	315	7,301	38.2
Starry flounder	223	2,409	892	128	77	23	12	0	3,764	19.7
Shiner perch	0	0	365	501	1,673	235	233	18	3,025	15.8
Redtail surfperch	0	31	497	888	87	0	0	0	1,503	7.9
Walleye surfperch	0	0	153	286	117	176	100	0	832	4.3
White seaperch	0	0	117	258	19	0	0	0	394	2.1
Striped seaperch	0	0	102	57	9	70	13	0	251	1.3
Buffalo sculpin	0	0	93	14	68	0	0	9	184	1.0
Coho salmon (adult)	0	0	0	0	0	0	73	55	128	0.7
Pile perch	0	0	65	0	18	23	13	0	119	0.6
Northern anchovy	0	0	0	0	49	11	0	0	60	0.3
Cutthroat trout	8	0	7	43	0	0	0	0	58	0.3
Kelp greenling	0	0	0	0	28	0	0	0	28	0.1
Pacific herring	0	0	0	0	19	0	0	0	19	0.1
American shad	0	0	0	0	9	0	0	0	9	< 0.1
Chinook salmon (adult)	0	0	0	0	0	0	0	9	9	< 0.1
Cabezon	0	0	0	0	0	0	6	0	6	< 0.1
Unidentified fish	0	0	21	171	295	0	0	0	487	2.5
Total	305	2,485	3,878	4,092	5,360	1,491	763	759	19,133	99.9
Percentage	1.6	13.0	20.3	21.4	28.0	7.8	4.0	4.0	100.1	

Table 10. NUMBER OF TIDEFLAT USER TRIPS
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

Month	Tideflat and Station Number: Below 101 Bridge T-1	Tideflat and Station Number: Above 101 Bridge T-2	Total	Percentage
March	0	53	53	1.5
April	415	60	475	13.1
May	635	214	849	23.5
June	661	217	878	24.3
July	722	50	772	21.4
August	410	13	423	11.7
September	54	30	84	2.3
October	0	81	81	2.2
Total	2,897	718	3,615	100.0
Percentage	80.1	19.9	100.0	

Table 11. HOURS OF TIDEFLAT USE
By Month and Area, Alsea River Estuary
March 1 through October 31, 1971

Month	Tideflat and Station Number: Below 101 Bridge T-1	Tideflat and Station Number: Above 101 Bridge T-2	Total	Percentage
March	0	53	53	1.1
April	422	61	483	9.7
May	839	267	1,106	22.2
June	825	260	1,085	21.8
July	1,083	91	1,174	23.6
August	823	44	867	17.4
September	59	33	92	1.8
October	0	122	122	2.4
Total	4,051	931	4,982	100.0
Percentage	81.3	18.7	100.0	

Table 12. MARINE ANIMALS CAUGHT BY TIDEFLAT USERS
Alsea River Estuary, By Species and Area
March 1 through October 31, 1971

Species	Tideflat and Station Number: Below 101 Bridge T-1	Tideflat and Station Number: Above 101 Bridge T-2	Total	Percentage
Cockle clam	13,834	0	13,834	16.9
Softshell clam	970	7,827	8,797	10.8
Piddock clam	531	0	531	0.7
Gaper clam	94	0	94	0.1
Native littleneck clam	79	0	79	0.1
Bodega tellen clam	47	0	47	0.1
Butter clam	40	0	40	< 0.1
Ghost shrimp	28,108	23,002	51,110	62.6
Mud shrimp	1,302	3,485	4,787	5.9
Dungeness crab	2,126	12	2,138	2.6
Purple snail	85	0	85	0.1
Bay mussel	64	0	64	0.1
Starry flounder	12	0	12	< 0.1
Total	47,292	34,326	81,618	100.0
Percentage	57.9	42.1	100.0	

Table 13. TIDEFLAT FISHING DATA
Alsea River Estuary, All Areas
1971

	March	April	May	June	July	Aug.	Sept.	Oct.	Total	Percentage
Angler trips (number)	53	475	849	878	772	423	84	81	3,615	—
Fishing effort (hours)	53	483	1,106	1,085	1,174	867	92	122	4,982	—
Fishing success (catch/hr.)	9.2	11.3	27.9	15.5	15.2	2.5	45.3	30.5	16.4	—
Catch (number)										
Cockle clam	0	1,195	4,920	3,117	4,113	489	0	0	13,834	16.9
Softshell clam	0	1,484	4,320	1,639	638	45	671	0	8,797	10.8
Piddock clam	0	0	0	0	531	0	0	0	531	0.7
Gaper clam	0	0	0	59	35	0	0	0	94	0.1
Native littleneck clam	0	0	0	8	26	45	0	0	79	0.1
Bodega tellen clam	0	0	0	47	0	0	0	0	47	0.1
Butter clam	0	10	30	0	0	0	0	0	40	< 0.1
Ghost shrimp	486	2,204	21,101	7,673	11,763	706	3,460	3,717	51,110	62.6
Mud shrimp	0	556	460	3,771	0	0	0	0	4,787	5.9
Dungeness crab	0	0	50	380	771	901	36	0	2,138	2.6
Purple snail	0	0	0	85	0	0	0	0	85	0.1
Bay mussel	0	0	0	64	0	0	0	0	64	0.1
Starry flounder	0	0	0	4	8	0	0	0	12	< 0.1
Total	486	5,449	30,881	16,847	17,885	2,186	4,167	3,717	81,618	100.0
Percentage	0.6	6.7	37.8	20.6	21.9	2.7	5.1	4.6	100.0	

Table 14. SUMMARY
Number of Angler Trips, Hours of Effort, and Animals Caught
Alsea River Estuary, by Station
March 1 through October 31, 1971

Station Number	No. Angler Trips	Angler Hours	Catch					
			Fish	Crabs	Clams	Shrimp	Misc. Invert.	Total
B-1	13,887	48,404	13,235	20,548	0	0	0	33,783
Total	13,887	48,404	13,235	20,548	0	0	0	33,783
S-1	5,519	10,829	7,103	646	0	0	0	7,749
S-2	2,471	4,826	6,378	296	0	0	0	6,674
S-3	38	76	7	0	0	0	0	7
S-4	1,999	3,902	4,689	14	0	0	0	4,703
Total	10,027	19,633	18,177	956	0	0	0	19,133
T-1	2,897	4,051	12	2,126	15,595	29,410	149	47,292
T-2	718	931	0	12	7,827	26,487	0	34,326
Total	3,615	4,982	12	2,138	23,422	55,897	149	81,618
Grand Total	27,529	73,019	31,424	23,642	23,422	55,897	149	134,534

Table 15. SUMMARY
Number of Angler Trips, Hours of Effort, and Animals Caught
Alsea River Estuary, by Month
March 1 through October 31, 1971

Fishery	Month	No. Angler Trips	Angler Hours	Catch					
				Fish	Crabs	Clams	Shrimp	Misc. Invert.	Total
Boat	March	77	214	25	10	0	0	0	35
	April	435	1,584	190	76	0	0	0	266
	May	1,785	5,737	2,338	1,374	0	0	0	3,712
	June	1,647	5,264	5,683	3,323	0	0	0	9,006
	July	3,210	11,793	3,183	7,519	0	0	0	10,702
	August	3,086	10,514	705	2,824	0	0	0	3,529
	September	2,364	8,786	1,038	2,191	0	0	0	3,229
	October	1,283	4,512	73	3,231	0	0	0	3,304
	Total	13,887	48,404	13,235	20,548	0	0	0	33,783
Shore	March	236	454	305	0	0	0	0	305
	April	872	1,737	2,470	15	0	0	0	2,485
	May	1,592	3,061	3,835	43	0	0	0	3,878
	June	1,486	2,928	3,878	214	0	0	0	4,092
	July	1,729	3,366	5,184	176	0	0	0	5,360
	August	1,082	2,141	1,362	129	0	0	0	1,491
	September	1,227	2,393	737	26	0	0	0	763
	October	1,803	3,553	406	353	0	0	0	759
	Total	10,027	19,633	18,177	956	0	0	0	19,133
Tideflat	March	53	53	0	0	0	486	0	486
	April	475	483	0	0	2,689	2,760	0	5,449
	May	849	1,106	0	50	9,270	21,561	0	30,881
	June	878	1,085	4	380	4,870	11,444	149	16,847
	July	772	1,174	8	771	5,343	11,763	0	17,885
	August	423	867	0	901	579	706	0	2,186
	September	84	92	0	36	671	3,460	0	4,167
	October	81	122	0	0	0	3,717	0	3,717
	Total	3,615	4,982	12	2,138	23,422	55,897	149	81,618
Combined	March	366	721	330	10	0	486	0	826
	April	1,782	3,804	2,660	91	2,689	2,760	0	8,200
	May	4,226	9,904	6,173	1,467	9,270	21,561	0	38,471
	June	4,011	9,277	9,565	3,917	4,870	11,444	149	29,945
	July	5,711	16,333	8,375	8,466	5,343	11,763	0	33,947
	August	4,591	13,522	2,067	3,854	579	706	0	7,206
	September	3,675	11,271	1,775	2,253	671	3,460	0	8,159
	October	3,167	8,187	479	3,584	0	3,717	0	7,780
Grand Total		27,529	73,019	31,424	23,642	23,422	55,897	149	134,534

Table 16. TAXONOMIC LIST OF SPECIES HARVESTED By Estuarine Resource Users, Alsea River Estuary March 1 through October 31, 1971

Common Name	Local Names	Scientific Name
Fish		
American shad	Shad	*Alosa sapidissima*
Buffalo sculpin	Bullhead	*Enophrys bison*
Cabezon	Rock cod, bullhead	*Scorpaenichthys marmoratus*
Chinook salmon	King salmon, salmon	*Oncorhynchus tshawytscha*
Coho salmon	Silver salmon	*Oncorhynchus kisutch*
Cutthroat trout	Blueback, harvest trout, sea run	*Salmo clarki*
Kelp greenling	Seatrout	*Hexagrammos decagrammus*
Northern anchovy		*Engraulis mordax*
Pacific herring		*Clupea harengus pallasi*
Pacific staghorn sculpin	Bullhead	*Leptocottus armatus*
Pile perch		*Rhacochilus vacca*
Rainbow trout		*Salmo gairdneri*
Redtail surfperch		*Amphistichus rhodoterus*
Rock greenling	Seatrout	*Hexagrammos lagocephalus*
Shiner perch	Shiner	*Cymatogaster aggregata*
Silver surfperch		*Hyperprosopon ellipticum*
Starry flounder		*Platichthys stellatus*
Striped seaperch	Rainbow perch	*Embiotoca lateralis*
Surf smelt		*Hypomesus pretiosus*
Walleye surfperch		*Hyperprosopon argenteum*
White seaperch		*Phanerodon furcatus*
Crabs		
Dungeness crab	Market crab	*Cancer magister*
Clams		
Bodega tellen clam		*Tellina bodegensis*
Butter clam	Beef steak, Coney Island, giant Oregon clam, quahog, Washington clam	*Saxidomus giganteus*
Cockle clam	Basket cockle, steamer	*Clinocardium nuttallii*
Gaper clam	Blue clam, blueneck, Empire clam, horse clam, horseneck clam	*Tresus capax*
Native littleneck clam	Steamer clam, butter clam	*Venerupis staminea*
Piddock clam	Rock oyster	*Zirfaea pilsbryi* and *Penitella penita*
Softshell clam	Bay clam, mud clam	*Mya arenaria*
Miscellaneous Invertebrates		
Bay mussel		*Mytilus edulis*
Ghost shrimp	Sand shrimp	*Callianassa californiensis*
Mud shrimp	Sand shrimp	*Upogebia pugettensis*
Purple snail		*Thais lamellosa*

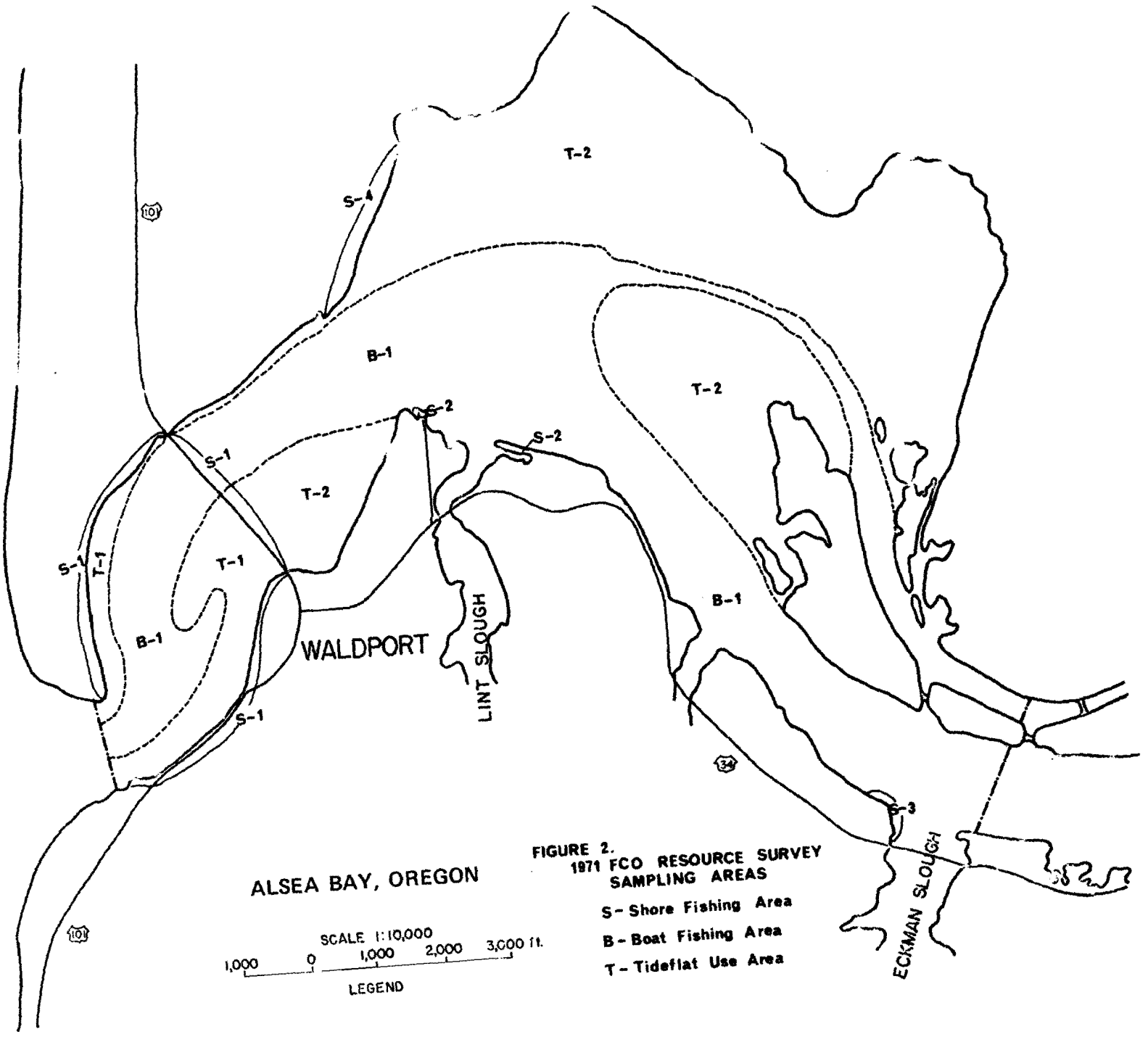

FIGURE 2.
1971 FCO RESOURCE SURVEY
SAMPLING AREAS

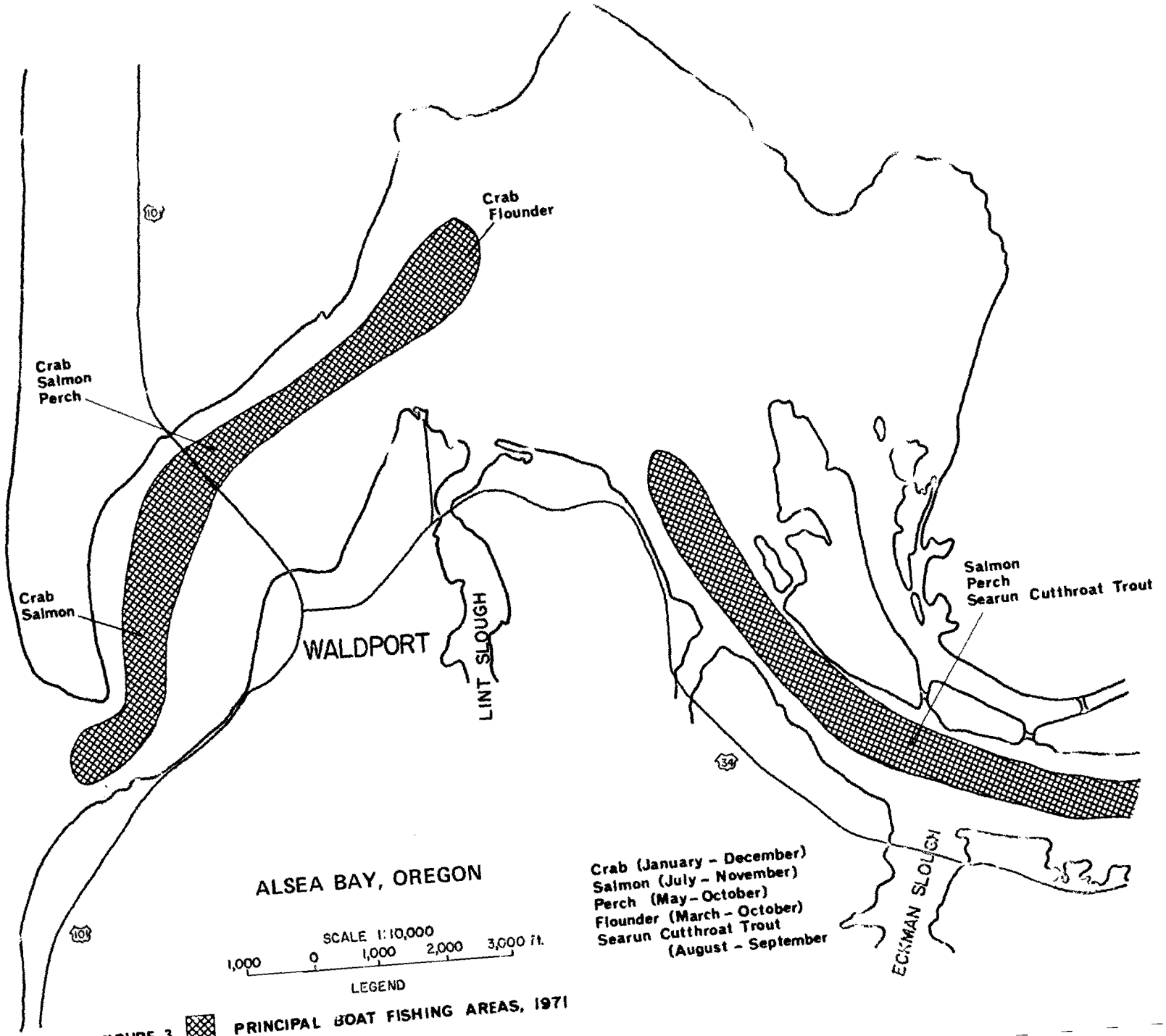

FIGURE 3. PRINCIPAL BOAT FISHING AREAS, 1971

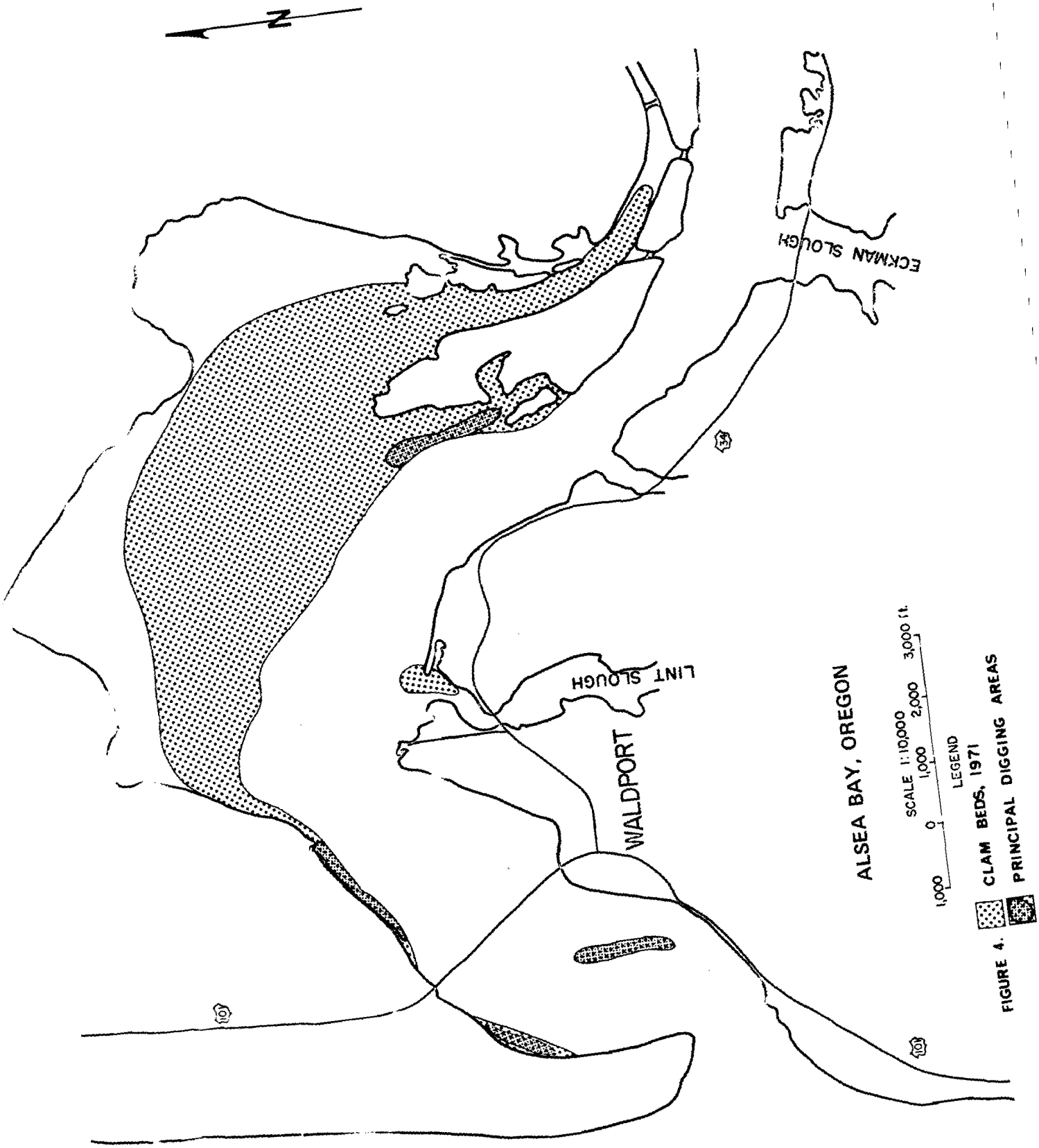
N
ECKMAN SLOUGH
LINT SLOUGH
WALDPORT
ALSEA BAY, OREGON
SCALE 1:10,000
1,000 0 1,000 2,000 3,000 ft.
LEGEND
CLAM BEDS, 1971
PRINCIPAL DIGGING AREAS
101
34
101
PACIFIC OCEAN

FIGURE 4.

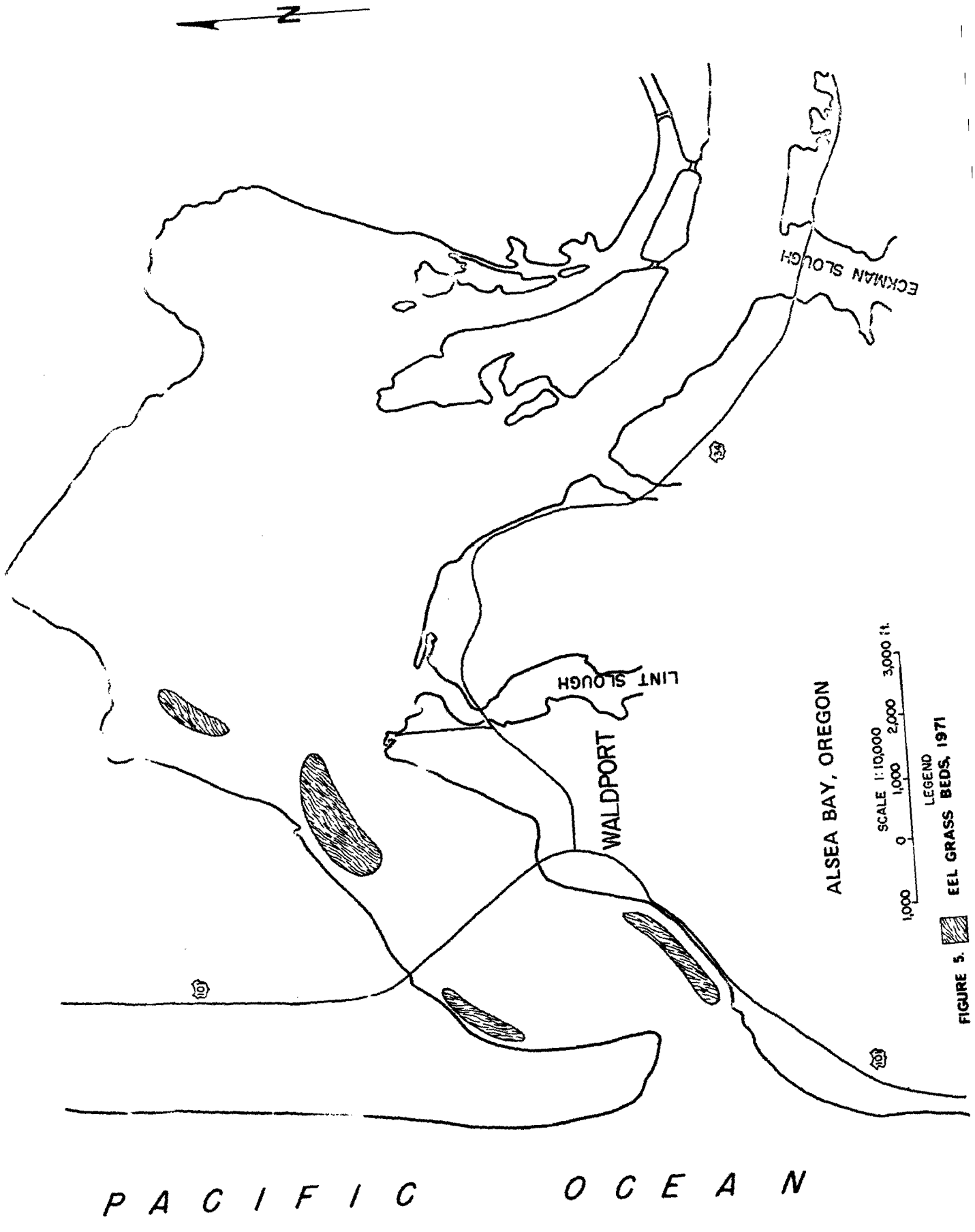
N
ECKMAN SLOUGH
LINT SLOUGH
WALDPORT
ALSEA BAY, OREGON
SCALE 1:10,000
3,000 ft.
2,000
1,000
0
1,000
LEGEND
EEL GRASS BEDS, 1971
PACIFIC OCEAN

FIGURE 5.

PACIFIC OCEAN
101
WALDPORT
LINT SLOUGH
34
ECKMAN SLOUGH
ALSEA BAY, OREGON
SCALE 1:10,000
1,000 0 1,000 2,000 3,000 ft.
LEGEND
FOOD PRODUCTION AREAS, FISH FEEDING AREAS AND FISH MIGRATION ROUTES, 1971
KNOWN HERRING SPAWNING AREA
N

FIGURE 6.


STATE OF OREGON
THE UNION
1859