

## THE 1960 YAQUINA BAY CLAM STUDY

### INTRODUCTION

Yaquina Bay has been selected by the Corps of Engineers for a multimillion dollar River and Harbors Project. This involves extension of the existing jetties out to the north and south reefs and deepening the channel to 30 feet and bar to 40 feet at mean lower low water. Some local people are advocating the spill material from this project be deposited in Sally's Bend (Figure 1) to provide an area for industrial expansion.

Therefore, with this spoil disposal problem in sight, it was proposed in June 1960 that a study of Sally's Bend, the major clam producing area in Yaquina Bay, be made during the summer of 1960.<sup>1/</sup> The objectives of this study were: (1) to obtain digger counts and interviews on all reasonably low tides; (2) to estimate the total numbers of clams harvested by both commercial and personal-use diggers; (3) to determine origin of personal-use diggers—Lincoln County, Oregon, or out-of-state; and (4) to make index counts of bay clam species of major importance in Sally's Bend and Southbeach by standard survey methods. The results of this study are summarized in the following report.

### METHODS

Sally's Bend, up bay (east from Newport), is accessible from 3 general areas: Mclean Point, Coquille Point, and the southwest side by boat. Idaho Point (also called Hinton Point) is accessible from 2 sides: an abandoned saw(?)mill site on the southeast edge of the bed and the northeast edge by boat.

On most low tides one or more biologists were stationed at one or more of these access sites and diggers were counted on and off the flats from 2-3

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<sup>1/</sup> OFC Information Report. The Corps of Engineers Proposed Rivers and Harbors Projects in Yaquina Bay.

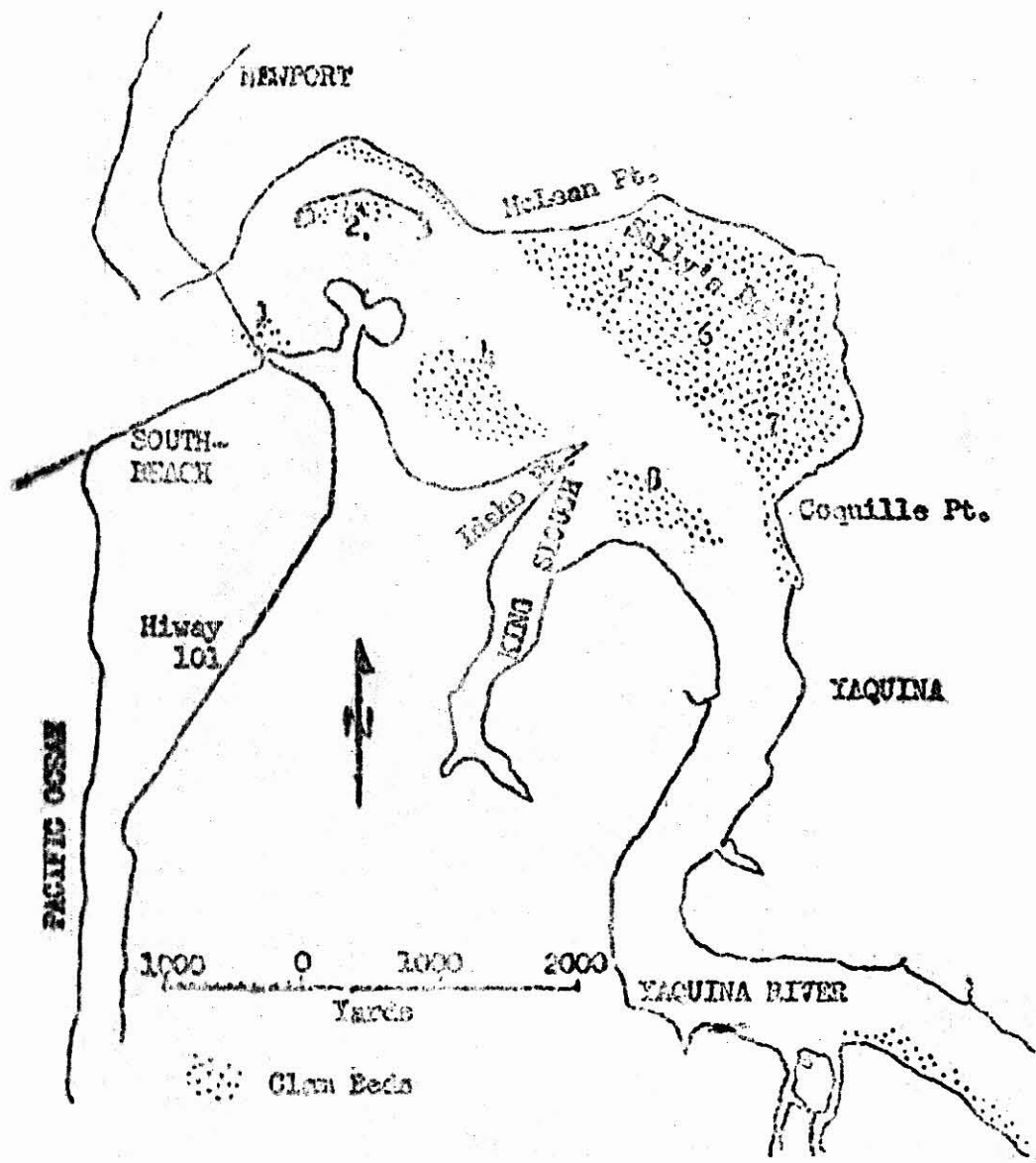


Figure 1. Yaquina Bay, Showing Glan Beds.

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hours before low water until all clam diggers had left. When diggers had completed digging they were interviewed to determine number and species of clams dug and town and county where they lived.

A list of commercial clam licenses was obtained from the Oregon Fish Commission statistical section and all commercial diggers from the Lincoln County area were questioned in person or by phone after each low tide series for number or pounds of clams dug, species, and area dug. Also, a large number of commercially dug were checked at the point of sale when delivered by the digger.

Index counts were made on Sally's Bend from feel counts of clam necks within predetermined transects. The transects were run from the low-water level shoreward. Within each transect, every other 50 feet, a 2 x 50 foot plot was examined. Parallel transects were run in this manner from the lower end of the bed near McLean Point to the upper limits near Coquille Point (Figure 2).

## RESULTS

### Digger Counts and Interviews

During the period June 22-September 20, 1960, 91 low-tide days, in which the tide ranged from a -2.5 to -1.9 feet, occurred. All low tides were investigated and on 74 of the 91 days diggers were present to be checked. Fifty-nine per cent of the clam diggers observed on Sally's Bend and Idaho Point were interviewed. In both areas it was found that the average number of people per party was 3, usually a family group.

A total of 5,051 clam diggers were observed on Sally's Bend and Idaho Point during the period of study. Of this group, 2,986 were interviewed with a total of 81,470 clams (Table 1). This catch was composed of 83 per cent cockles (Clinocardium nuttalli) and 16 per cent gaper clams (Schizothaerus nuttalli) (Table 2). The other one per cent was composed of Washington clams

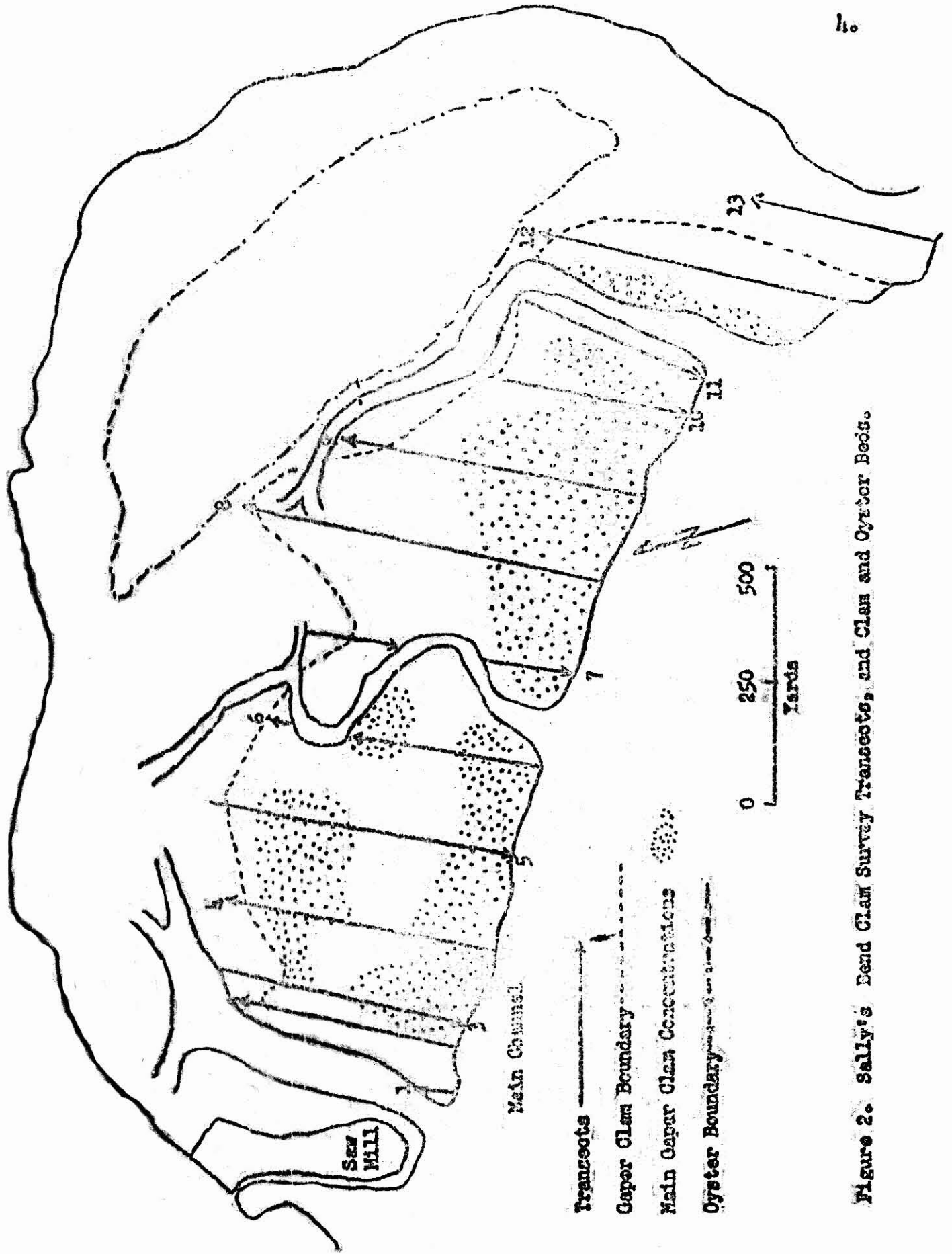


Figure 2. Sally's Dead Clam Survey Transects, and Clam and Oyster Beds.

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Table 1. Personal-Use Bay Clam Harvest from Sally's Bend and Idaho Point  
June 22-September 20, 1960.

Area and Month	Number of Diggers Observed	Number of Diggers Checked	Number of Clams Checked	Average Number of Clams Per Digger	Estimated Number of Clams Dug
<u>June</u>					
Sally's Bend	125	96	2,870	30.0	3,700
Idaho Point	219	172	5,225	30.0	6,500
<u>July</u>					
Sally's Bend	1,169	1,039	28,821	28.0	32,700
Idaho Point	1,616	566	15,100	27.0	43,600
<u>August</u>					
Sally's Bend	733	614	16,220	26.0	19,000
Idaho Point	865	290	7,702	27.0	23,300
<u>September</u>					
Sally's Bend	145	111	2,752	25.0	3,600
Idaho Point	179	98	2,780	28.0	5,000
<u>Total</u>					
Sally's Bend	2,172	1,860	50,663	27.0	59,000
Idaho Point	2,879	1,126	30,807	27.0	78,400
GRAND TOTAL	5,051	2,986	81,470	27.0	137,400

(Saxidomus giganteus), littleneck clams (Protothaca staminea), rough piddocks (Zirfaea pilsbryi), bentnose clams (Macoma nasuta), sand clams (Macoma secta), softshell clams (Mya arenaria), and jackknife clams (Solen sp.)(Table 2). The average number of clam per digger on Sally's Bend ranged from 30 in June to 25 in September, while on Idaho Point the range was 30 to 27 for the same period (Table 1).

Table 2. Species Composition for Clams Checked on Sally's Bend and Idaho Point, June 22-September 20, 1960.

Month	Number of Cockles	Number of Gapers	Number of Washington Clams	Number of Littlenecks	Piddocks Bentnose Sand Clams Softshells Jack Knife
June	8,048	18 <sup>1/</sup>	0	6	23
July	34,451	9,061	148	154	107
August	19,532	4,030	187	104	68
September	5,228	253	21	16	13
Total	67,259	13,362	356	280	211
Per Cent of Total	82.6	16.4	0.4	0.3	0.3

<sup>1/</sup> Illegal catch.

#### Estimated Commercial and Personal-Use Harvest

During the period of investigation 81,470 clams were checked for an average of 27.0 clams per digger. This figure multiplied by the number of diggers observed indicates a catch of about 136,300 clams by personal-use diggers on Sally's bend and Idaho Point (Table 1). When the average number per digger is calculated by monthly periods and multiplied by the monthly number of observed diggers an estimate of 137,400 clams is derived; 137,000 is probably a realistic estimate of the actual harvest. The personal-use catch is estimated at 59,000 clams from Sally's Bend and 78,700 from Idaho Point.

Commercially-dug clams were all taken from Sally's Bend (Table 3 and 4). During the period June through September, 11,906 pounds or 29,000 clams were taken commercially. The ratio of personal-use to commercial-taken clams is 5:1.

The total estimated commercial and personal-use harvest for Sally's Bend and Idaho Point for the study period is 166,000 clams. Of this total, 88,000 clams were from Sally's Bend and 78,000 from Idaho Point.

Figure 1 shows the clam beds in Yaquina Bay.<sup>1/</sup> Areas 5, 6, and 7 collectively are known as Sally's Bend. The personal-use harvest from Sally's Bend was 45 per cent from area 5, 50 per cent from area 7, and 6 per cent from area 6. On the other hand, the commercial production was 97 per cent from area 6 and 3 per cent from area 7. The commercial harvest from Sally's Bend and the personal-use harvest Idaho Point (area 4) was composed almost 100 per cent cockle clams.

#### Origin of Personal-Use Diggers

The clam diggers interviewed totaled 2,986 of whom 2,701 gave usable information about their residency (Tables 5, 6, and 7). Forty-nine per cent were from Lincoln County, 45 per cent from other counties, and 6 per cent from other states or nations. Lincoln, Benton, Lane, Multnomah, Linn, and Marion Counties were the source of 90 per cent of the Oregon diggers interviewed. The most unexpected(?) interview was held with a girl from France accompanied on the tide flat by an interpreter.

#### Index Counts

Feel counts were made in 17,800 square feet of Sally's Bend (Figure 2). In the area examined, a density of 0.026 gaper clams and 0.062 cockles per square foot was found (Table 8). Originally it was planned to take a census of Southbeach, but time and tides ran out before this could be accomplished in 1960. Some information is available for the Southbeach area from surveys

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<sup>1/</sup> From Bay Clams of Oregon, Oregon Fish Commission, Contribution No. 20.

Table 3. Commercial Clam Production (Cockles) from Sally's Bend by Monthly Periods.

Month	Pounds	Number of Clams <u>1/</u>	Per Cent
April	1,870	4,500	11.9
May	1,877	4,500	12.0
June	2,450	6,000	15.7
July	4,788	11,600	30.6
August	3,198	7,800	20.4
September	1,470	3,500	9.4
Total	15,653	37,900	100.0

1/ Based on 2.439 clams/pound.

Table 4. Commercial Production of Cockle Clams, Sally's Bend, April Through September 1960.

Time Period	Number of Commercial Diggers	Number of Pounds Checked or Entered in Pass Book	Number of Clams
June through September Study Period	15	11,906	29,000 <u>1/</u>
April through September	15	15,653	38,000 <u>1/</u>

1/ Based on 2.439 clams/pound.



Table 5. Residence of Clam Diggers Interviewed  
on Sally's Bend and Idaho Point.

Area	Number of People	Per Cent of Total
Lincoln County	1,317	49.0
Other Counties	1,218	45.0
Other States or Nations	166	6.0
Total	2,701	100.0

Table 6. Residence of Clam Diggers Interviewed  
on Sally's Bend Clam Beds.

County	In-State		Out-of-State		
	No. of People	Per Cent of Total	State	No. of People	Per Cent of Total
Lincoln	910	51.6	Washington	50	52.6
Benton	224	12.7	Idaho	16	16.8
Lane	134	7.6	California	8	8.4
Multnomah	126	7.1	Louisiana	5	5.3
Linn	125	7.1	Montana	5	5.3
Marion	104	5.9	New York	4	4.2
Clackamas	44	2.5	Arizona	3	3.2
Yamhill	36	2.0	Colorado	2	2.1
Deschutes	14	-----	Mississippi	1	1.1
Polk	10	-----	France	1	1.1
Crook	8	-----			
Klamath	7	-----			
Umatilla	4	-----			
Hood River	3	-----			
Tillamook	3	3.5			
Malheur	3	-----			
Curry	3	-----			
Wheeler	3	-----			
Coos	2	-----			
Union	1	-----			
Washington	1	-----			
Total	1,765			95	

Table 7. Residence of Clam Diggers Interviewed on Idaho Point Clam Beds.

County	In-State		Out-of-State		
	No. of People	Per Cent of Total	State	No. of People	Per Cent of Total
Lincoln	407	52.9	California	26	36.6
Linn	72	9.4	Washington	23	32.4
Benton	64	8.3	Canada	6	8.5
Lane	47	6.1	Georgia	5	7.0
Marion	41	5.3	Idaho	4	5.6
Multnomah	40	5.2	Missouri	3	4.2
Yamhill	21	2.7	Oklahoma	2	2.8
Klamath	18	2.3	Wyoming	1	1.4
Polk	16	2.1	Ohio	1	1.4
Coos	12	1.6			
Clackamas	8	1.0			
Wasco	4	-----			
Crook	4	-----			
Douglas	3	-----			
Malheur	3	-----			
Tillamook	3	3.1			
Union	3	-----			
Washington	2	-----			
Deschutes	1	-----			
Hood River	1	-----			
Total	770	100		71	99.9

Table 8. Clams per Square Foot on Sally's Bend (1960) and Southbeach (1958)

Area	Number of Square Feet Surveyed	Clams Per Square Foot			Clams Per Square Foot, All Species
		Gapers	Cockles	Little necks	
Sally's Bend	17,800	0.026 (0.028) <sup>1/</sup>	0.062 (0.086) <sup>1/</sup>	0.002	0.090
Southbeach	2,800	0.003	0.003	0.005	0.022

<sup>1/</sup> Corrected density derived by ratio found between feel count and complete digout.

made in 1958 when the gaper and cockle clam density was calculated at 0.003 per square foot (Table 8).

#### SUMMARY AND CONCLUSIONS

During the period June 22-September 20, 1960, 5,051 clam diggers were counted and 2,986 were interviewed. Information was obtained on the numbers and species of clams dug and the origin of the diggers.

The average number of clams per digger was calculated and the commercial clam harvest estimated from pass book entries. The estimated combined commercial and personal-use harvest for the study period from Sally's Bend and Idaho Point was 166,000 clams. The estimated harvest from Sally's Bend was 88,000 or 53 per cent of the total.

From interviews it was determined that 49 per cent of the clam diggers were from Lincoln County, 45 per cent from other Oregon counties, and 6 per cent from other states or nations.

Index counts were made of the clam species of major importance in Sally's Bend. The average number of cockle and gaper clams per square foot was 0.062 and 0.026, respectively.

It was concluded from this study that Sally's Bend supplies an important portion of the personal-use and commercial clam harvest of Yaquina Bay. Loss of this area or other clam producing areas to industrialization would have serious consequences on the future clam fishery within Yaquina Bay and the local economy.

It is recommended that the Corps of Engineers be requested to find areas other than the clam beds in Yaquina Bay for spoil disposal from the proposed project.

C. Dale Snow, Biologist  
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Oregon Fish Commission Research  
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(Transcribed September, 2010, J. McCrae. Original in Bay Clam folder in Shellfish Library)