

OREGON DEPARTMENT OF FISH AND WILDLIFE

SHELLFISH INVESTIGATION

Report of Cruise 78-1-S, Observation

Vessel: F/V *Heritage*

Dates: February 4-5, 1978

- Objectives:
1. To obtain some insight into fishing practices and crab gear attributes as typical of part of the Newport crab fleet;
  2. To obtain data on average catch/pot of legal and non-legal crab.
  3. To obtain data on escape port diameters that are used and distribution of such in gear run as well as insight into logistic needs for testing efficacy of such ports in retaining legal crabs and allowing escape of non-legal crabs.

Methods: The vessel is a 67-foot O.A. steel-hulled combination boat built at Yaquina Bay in 1976-77 (launched 7-1-77); it had a 400-hp (continuous) 12 VT 700 Cummings diesel engine, excellent crew accommodations, standard crabpot pulling hydraulic block, and hold which was flooded with seawater for retention of crab. Crab pots were baited and placed in "strings" of gear between Cape Lookout and the Siuslaw River in 10-35 fms on January 27, 1978, a 8-9 day soak. Bait was mostly razor clams; but some squid, particularly in deeper water. Pots were set about 300-400 feet apart parallel to shore in a given "string". Procedure was to retrieve a pot and unload it (legal crabs were placed in the hold; non-legals returned immediately to the water. Crabs of size close to legal were placed in a box and measured by crewmen as time permitted, then kept or discarded to the sea, inside of 10-15 minutes after being unloaded from the trap). The pot was then rebaited with fresh bait (frozen), top closed, and placed back into the sea.

As time permitted, I measured the maximum inside diameter of one of the two escape ports in each pot with a pair of calipers. I tried to obtain at least two sets of these data from widely dispersed "strings" of gear. I also kept records of the number of legal males and non-legal crabs in each pot on a sample basis.

Two sets of gear were operated this trip; about 1/3 between Tahkenitch Lake and Alsea River mouth; 2/3 north of Yaquina Bay between the Nestucca River mouth and Cape Lookout. However, about 100 pots of the latter set were not run due to worsening weather on this trip. Weather was overcast and calm on Feb. 4; overcast and increasingly windy on Feb. 5. Gale warnings were up both days at Newport.

Results:

A total of 37 pots in two sets (23,14) were measured for escape port diameters (inside). Most ports were slightly out-of-round, with maximum inside diameter usually occurring on a vertical plane. Range of diameters was 107-114 mm; average was 110.8 and 109.8 (110.0 total) mm; about 4 5/16-in., or slightly greater than the minimum 4 1/4-in. legal minimum. Pots with various, almost continuous range of escape port diameters were interspersed more or less randomly. Most pots seemed to have ports in the side; a substantial number had ports in the top, however, including a string of 102 pots of 48-inch total diameter, larger than usual (the average pot is about 38-42 inches in diameter). It became evident early in the trip that experimental conditions for adequately testing efficacy of escape port various diameters (especially 111 vs. 108) were not present. One person measuring and recording these data was insufficient, especially considering the crew was permitted to work at usual speed. Also, the spread of diameters and pot sizes, location, etc. was too variable and uncontrolled under these conditions to expect valid scientific results.

Table 1 summarizes pertinent data on catch of legal vs. non-legal (including both small males and females) crabs, per pot and string, together with range of these statistics and total pots and sampled pots.

Average catch per pot ranged from 3 to 15 legal crabs in a given string. Strings ranged from 24 to 136 pots. Non-legal crabs per pot ranged from 7.5 to 1.5; the data appear to substantiate (in a general way) the assertion of Captain Rock that less small crabs are caught in gear when the "legal" catch is greater; "scratch" fishing tends to result in a larger catch of small crabs. String 1 resulted in the lowest catch of legal males; it had the greatest number of non-legals; String 7 contrasted strongly in both legals and non-legals with string 1. String 1 was moved after removal of crabs to an area more productive.

Tentative collation of legal vs. non-legal crabs with two diameters of escape port appear to show no difference in catch of either.

In general, this trip was well worth the time. Some valuable insight into crab fishing practice was gained. Valuable insight into problems likely to be encountered in obtaining escape port diameter-retention data in future was gained. The companionship and insights of the Captain and crew were valuable in the writer's understanding of crab fishing practices.

Personnel:

Captain Joe Rock, owner  
Dick Cahill, cook  
Marvin Willy, crewman  
Bill Anott, crewman  
Jack Robinson, biologist

Jack G. Robinson  
February 8, 1978

TABLE 1. CRUISE DATA SUMMARY

2-4-78 South	Pots		Mean/Pot		Crabs Range		Catch/String
	N	n	Legal	Non-Legal	Legal	Non-Legal	
String 1	24	23	3.0	7.5	0-10	0-20	74
String 2	120	80	6.3	3.2	0-14	0-13	720
String 3	136	100	5.8	2.2	1-14	0-9	738
Total	280	203	5.7	3.2	0-14	0-20	1532
2-5-78 North							
String 4-5	71	59	6.8	1.6	2-12	0-6	405
String 6	75	--	---	---	---	---	---
String 7 <u>1/</u>	102	21	14.7	1.5	0-28	0-6	1281
Total	248	80	8.9	1.6	0-28	0-6	1686

1/ 48" pots. All others used were 40-42". 34 fm = deepest of any string.

TABLE 2. MEASUREMENTS

Date: 2/4/78  
 Soak Time: 1/27-2/4  
 Depth: 11 fm  
 Area: Alsea River Area

String 1 <u>1/</u>			String 3		
Legal Males	Sublegal Discard	Escape Port Inside Diameter (in mm)	Legal Males	Sublegal Discard	Escape Port Inside Diameter (in mm)
1	10	110	6	4	109
1	6	108	14	0	110
0	11	109	8	2	111
0	8	107	8	7	111
0	4	108	4	1	113
0	4	---	6	3	109
0	0	109	5	2	114
0	0	111	7	2	109
0	2	111	7	3	108
0	3	111	12	1	112
4	5	110	6	0	112
7	4	111	11	2	112
3	9	112	7	0	110
4	15	111	6	0	112
2	10	110	5	0	112
4	3	110	5	2	112
10	12	109	8	1	109
6	10	110	4	0	110
8	20	110	6	2	113
5	12	111	4	0	110
7	6	108	7	1	113
4	5	111	7	2	110
1	13	111	4	0	108
5	9	108			

72.....181.....Total.....156.....35.....  
 3.0.....7.5.....109.83 2/..Mean.....6.8.....1.5.....110.82 3/

	Legal $\bar{X}$	Sublegal $\bar{X}$	n		Legal $\bar{X}$	Sublegal $\bar{X}$	n
$\leq 108$	2.6	6.6	5	$\leq 110$	6.7	1.4	11
$\geq 111$	2.7	7.0	9	$\geq 111$	6.9	1.7	12

- 1/ This string picked up and moved.
- 2/ 109.83=4.32 in.=4 5/16 in.
- 3/ 110.82=4.36 in.=4 3/8 in.