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ORE-AQUA COHO SCALE ANALYSIS: AGE COMPOSITION OF THE 1982 RETURN

by

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Contract Completion Report
to
Oregon Aqua-Foods, Inc.
for the period
15 April 1982 - 31 December 1982

Approved

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Director

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ACKNOWLEDGMENTS

Mike Bauman provided scales and data from the 1982 coho run to Yaquina Bay. His diligence and care in mounting scales and recording the data facilitated our handling of them.

INTRODUCTION

The return of untagged coho salmon to the Yaquina Bay facility represents the bulk of realized salmon production from smolts released in previous years. Assessment of brood production in large part depends on accurately partitioning the total return into age groups so that individuals are assigned to appropriate brood years. This is normally accomplished by ageing a random sample of untagged fish using the growth patterns observable on their scales. This report summarizes the age composition statistics calculated from samples taken periodically throughout the 1982 coho return.

METHODS

Up to four scales were removed from fish randomly sampled from among those harvested. Sample sizes approximated 4% of the return of the untagged cohos within each week of the run. Scales were cleaned and placed on pre-printed gum cards with the distal surface facing up. Corresponding lengths, weights, sex, and date of sample were entered on data forms and sent together with gum cards to Fisheries Research Institute (FRI). At FRI, these scales were pressed into acetate replicas at 5000 lbs/sq. in. and 115^{0}C for 3 min. The resulting scale replicas were projected 72x to the screen of a microfiche reader for age analysis.

Age determinations were based upon the criteria presented in Parker and Burgner (1981), i.e. spacing and number of circuli and presence or absence of an identifiable annulus in the zone of pre-release growth. Age data were reported separately for fish $\leq$ 51 cm and those > 51 cm to evaluate the proportions of other age classes included in the "jack" category proposed by OAF as an upper boundary to jack size in the coho population.

RESULTS & DISCUSSION

Age composition statistics are tabulated in summary form in Tables 1-12. Raw data are available in Appendix Tables 1-6. Figure 1 is a graphical presentation of the trends in age composition observed over the duration of the run.

Table 1 indicates that 0.1 adults composed about 70.5% of the total return of untagged coho, while yearling adults and jacks contributed about 10% and 19%, respectively, in numbers of fish returned. As in previous years, 0.0 jacks were rare and accounted for less than 0.5% of all fish recovered.

Figure 1 illustrates an age-specific migratory timing that appears to be a consistent feature of the coho return to Yaquina Bay. The initial phase of the run is composed primarily of 0.1 adults, but the dominance of this age group gradually trends downward through the period of

the run. A similar pattern has been observed in previous years, although it has been somewhat more pronounced in terms of the replacement of 0.1 adults by 1.1 adults toward the end of the run. At no time did yearling adults compose more than about 25% of the 1982 return. Yearling jacks were present in substantial numbers in samples taken in mid-October and early November, although this result may be misleading due to small sample sizes in November.

REFERENCES

Parker, S. S., and R. L. Burgner. 1981. Age composition and age/length key for the 1981 coho salmon run. Univ Washington, Fish. Res. Inst., Contr. Completion Rep. FRI-UW-8128. 16 pp.

Table 1. Age composition of the 1982 coho return to Yaquina Bay, averaged over all sampling dates.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	6	255	948	131	395	1735
Percent	0.5	19.0	70.7	9.8	N/A	100.0

Table 2. Age composition of the 1982 return of coho less than 51 cm in length, averaged over all sampling dates.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	6	248	109	4	183	550
Percent	1.6	67.6	29.7	1.1	N/A	100.0

Table 3. Age composition of the 1982 return of coho larger than 51 cm in length, averaged over all sampling dates.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	7	839	127	212	1185
Percent	0	0.7	86.2	13.1	N/A	100.0

Table 4. Age composition of the September return of coho.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	21	264	26	80	391
Percent	0	6.8	84.9	8.4	N/A	100.0

Table 5. Age composition of the September return of coho less than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	21	24	1	38	84
Percent	0	45.7	52.2	2.2	N/A	100.0

Table 6. Age composition of the September return of coho larger than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	0	240	25	42	307
Percent	0	0	90.6	9.4	N/A	--

Table 7. Age composition of the October return of coho.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	6	227	673	101	282	1289
Percent	0.6	22.6	66.8	10.0	N/A	100.0

Table 8. Age composition of the October return of coho less than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	6	220	85	3	135	449
Percent	1.9	70.1	27.1	0.9	N/A	100.0

Table 9. Age composition of the October return of coho larger than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	7	588	98	147	840
Percent	0	1.0	84.9	14.1	N/A	100.0

Table 10. Age composition of the November return of coho.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	7	11	4	33	55
Percent	0	31.8	50.0	18.2	N/A	100.0

Table 11. Age composition of the November return of coho less than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	7	0	0	10	17
Percent	0	100.0	0	0	N/A	100.0

Table 12. Age composition of the November return of coho larger than 51 cm in length.

	Age group					
	0.0	1.0	0.1	1.1	Unr	Total
Number	0	0	11	4	23	38
Percent	0	0	73.3	26.6	N/A	100.0

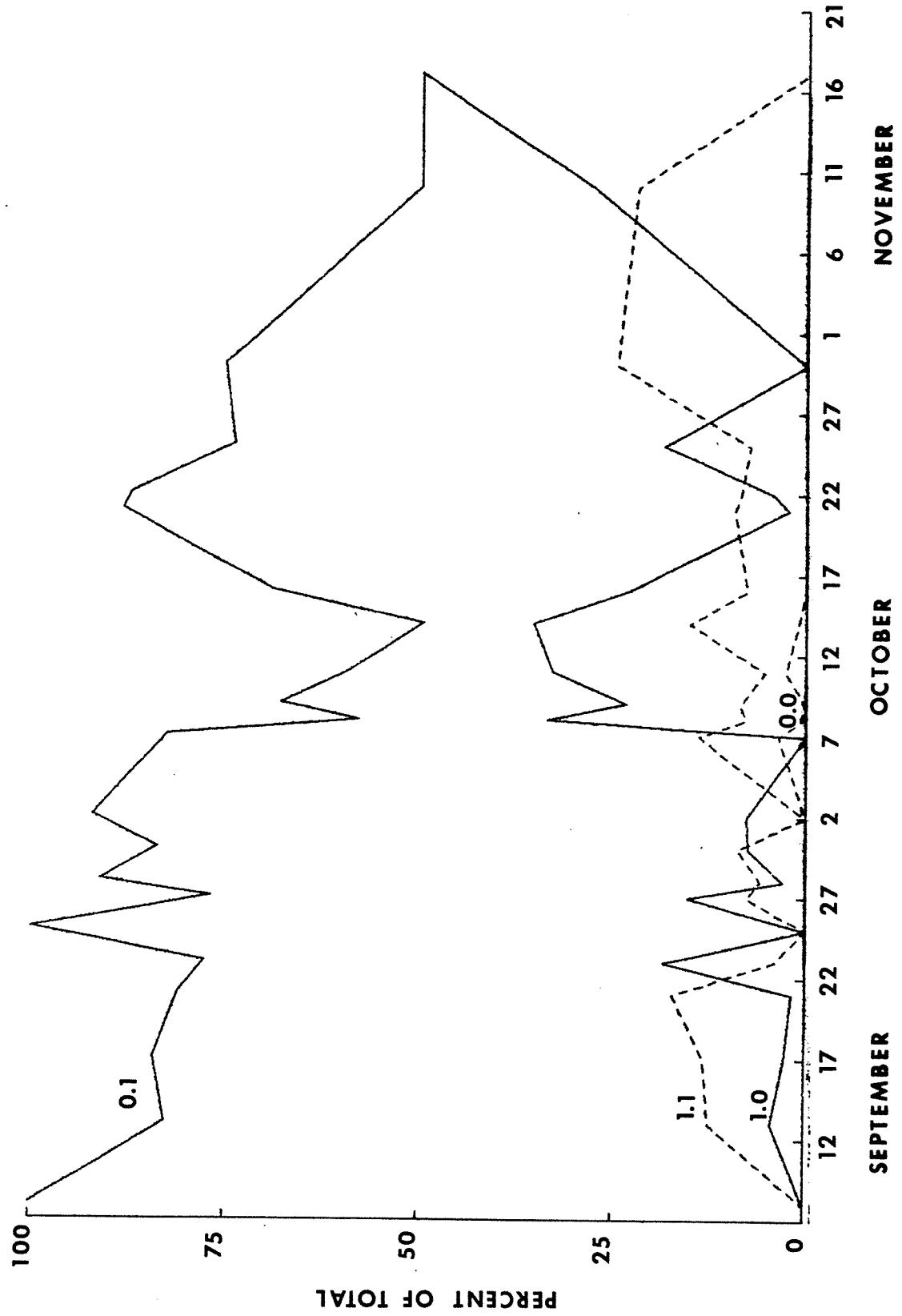

Fig. 1. Age composition of the coho return to Yaquina Bay by sampling date.

APPENDIX

Appendix Table 1. Age composition of the September return of coho, by sampling date.

Sample date		1.0	0.1	1.1	Unr
9/8	N	0	4	0	1
	%		100.0		
9/13	N	1	19	3	16
	%	4.3	82.6	12.5	
9/17	N	1	32	5	11
	%	2.6	84.2	13.2	
9/21	N	1	47	10	19
	%	1.7	81.0	17.2	
9/23	N	9	38	2	11
	%	18.4	77.6	4.1	
9/25	N	0	16	0	4
	%		100.0		
9/27	N	2	10	1	7
	%	15.4	76.9	7.7	
9/28	N	1	31	2	5
	%	2.9	91.2	5.9	
9/30	N	6	67	7	6
	%	7.5	83.8	8.8	

Appendix Table 2. Age composition of the September return of coho, by size category and sampling date.

Sample date		<51 cm				>51 cm			
		1.0	0.1	1.1	Unr	1.0	0.1	1.1	Unr
9/8	N	0	1	0	1	0	3	0	0
	%		100				100		
9/13	N	1	1	0	8	0	18	3	8
	%	50	50				75	25	
9/17	N	1	4	1	5	0	28	4	6
	%	17	66	17			88	12	
9/21	N	1	6	0	5	0	41	10	14
	%	14	86				80	20	
9/23	N	9	4	0	7	0	34	2	4
	%	69	31				94	6	
9/25	N	0	0	0	2	0	16	0	2
	%						100		
9/27	N	2	0	0	3	0	10	1	4
	%	100					91	9	
9/28	N	1	4	0	1	0	27	2	4
	%	20	80				93	7	
9/30	N	6	4	0	6	0	63	3	0
	%	60	40				95	5	

Appendix Table 3. Age composition of the October return of coho, by sampling date.

Sample date		0.0	1.0	0.1	1.1	Unr
10/2/82	N	0	1	12	0	7
	%		7.7	92.3		
10/7/82	N	1	0	24	4	11
	%	3.5		82.5	14	
10/8/82	N	2	10	190	26	85
	%	0.60	33.5	57.9	7.9	
10/9/82	N	0	11	32	4	11
	%		23.4	68.1	8.5	
10/11/82	N	2	25	45	4	25
	%	2.6	32.9	59.2	5.3	
10/14/82	N	1	37	52	16	32
	%	.9	35.2	49.5	15.2	
10/16/82	N	0	33	99	11	55
	%		23.1	69.2	7.7	
10/21/82	N	0	2	76	8	14
	%		2.3	88.4	9.3	
10/22/82	N	0	3	62	6	10
	%		4.2	87.3	8.5	
10/25/82	N	0	5	20	2	12
	%		18.5	74.1	7.4	
10/30/82	N	0	0	61	20	20
	%			75.3	24.7	

Appendix Table 4. Age composition of the October return of coho, by size category and sampling date.

Sample date		<51 cm					>51 cm				
		0.0	1.0	0.1	1.1	Unr	0.0	1.0	0.1	1.1	Unr
10/2	N	0	1	0	0	2	0	0	12	0	5
	%		100.0						100.0		
10/7	N	1	0	4	1	3	0	0	20	3	8
	%	17.0		66.0	17.0				87.0	13.0	
10/8	N	2	105	34	1	49	0	5	156	25	36
	%	1.0	74.0	24.0	.7			3.0	84.0	13.0	
10/9	N	0	11	4	0	8	0	0	28	4	3
	%		73.3	26.7					87.5	12.5	
10/11	N	2	24	10	1	20	0	1	34	3	5
	%	5.5	68.5	23.0	3.0			3.0	89.0	8.0	
10/14	N	1	37	7	0	20	0	0	45	16	12
	%	2.0	82.0	16.0					74.0	26.0	
10/16	N	0	33	12	0	21	0	0	87	11	34
	%		73.0	27.0					89.0	11.0	
10/21	N	0	1	2	0	0	0	1	74	8	14
	%		33.3	66.7				1.0	89.0	11.0	
10/22	N	0	3	4	0	2	0	0	58	6	8
	%		50.0	50.0					91.0	9.0	
10/25	N	0	5	3	0	9	0	0	17	2	3
	%		62.5	37.5					89.0	11.0	
10/30	N	0	0	5	0	1	0	0	56	20	19
	%			100.0					74.0	26.0	

Appendix Table 5. Age composition of the November return of coho, by sampling date.

Sample date		0.0	1.0	0.1	1.1	Unr
11/10	N	0	5	9	4	17
	%		27.8	50.0	22.2	
11/17	N	0	2	2	0	16
	%		50.0	50.0		

Appendix Table 6. Age composition of the November return of coho, by size category and sampling date.

Sample date		<51 cm					>51 cm				
		0.0	1.0	0.1	1.1	Unr	0.0	1.0	0.1	1.1	Unr
11/10	N	0	5	0	0	5	0	0	9	4	12
	%		100.0						69.2	30.8	
11/17	N	0	2	0	0	5	0	0	2	0	11
	%		100.0						100.0		