
APPENDIX B

OREGON PRODUCTION INDEX DATA

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TABLE B-1. Millions of coho smolts released annually into the OPI area by geographic area and rearing agency. ^{a/} (Page 1 of 1)

Year	Oregon Coast										Total OPI
	Columbia River					Oregon Coast					
	Oregon	Washington		Combined	Federal	Total	ODFW ^{b/}	Yearlings	Total	California	
	Early	Late					Private				
1960	2.2	-	-	2.5	1.7	6.4	1.0	-	1.0	0.0	7.4
1961	4.6	-	-	6.3	4.2	15.1	1.4	-	1.4	0.1	16.6
1962	6.7	-	-	5.5	2.3	14.5	2.5	-	2.5	0.4	17.4
1963	6.5	-	-	8.0	7.9	22.4	2.7	-	2.7	0.5	25.6
1964	6.9	-	-	6.5	4.6	18.0	2.3	-	2.3	0.5	20.8
1965	6.4	-	-	7.8	6.4	20.6	2.1	-	2.1	1.1	23.8
1966	6.0	-	-	12.1	6.5	24.6	2.1	-	2.1	0.7	27.4
1967	7.0	-	-	8.5	8.6	24.1	2.4	-	2.4	1.3	27.8
1968	5.5	-	-	6.6	7.2	19.3	3.2	-	3.2	1.8	24.3
1969	6.3	10.5	5.2	15.7	5.6	27.6	3.4	-	3.4	1.4	32.4
1970	5.2	9.8	4.6	14.4	4.4	24.0	3.4	-	3.4	1.4	28.8
1971	7.2	13.5	3.1	16.6	4.5	28.2	4.1	-	4.1	1.0	33.3
1972	6.9	13.6	5.2	18.8	4.2	29.9	3.8	-	3.8	1.6	35.3
1973	6.3	11.1	5.9	17.0	5.2	28.5	3.9	-	3.9	1.2	33.6
1974	6.9	9.5	7.2	16.7	4.3	27.9	4.1	-	4.1	0.6	32.6
1975	6.6	5.9	12.4	18.3	4.1	29.0	3.4	-	3.4	1.6	34.0
1976	8.2	5.6	10.9	16.5	4.2	28.9	4.0	0.7	4.7	0.6	34.2
1977	8.4	6.4	10.6	17.0	6.0	31.4	3.2	1.1	4.3	0.9	36.6
1978	9.1	10.2	8.0	18.2	5.3	32.6	4.0	0.3	4.3	0.5	37.4
1979	8.8	8.2	9.1	17.3	2.8	28.9	4.5	0.9	5.4	0.8	35.1
1980	5.5	5.9 ^{c/}	11.7	17.6	5.0	28.1	3.4	4.1	7.5	0.8	36.4
1981	5.9	8.7	14.2	22.8	3.7	32.5	3.9	6.6	10.5	0.9	43.9
1982	5.6	4.0	14.9	18.9	3.3	27.8	4.3	3.2	7.5	0.6	35.9
1983	6.2	2.4	15.0	17.4	3.4	27.0	3.0	1.3	4.3	0.9	32.2
1984	8.9	2.5	14.2	16.7	3.6	29.3	4.5	1.4	5.9	0.7	35.9
1985	9.1	3.9	13.8	17.7	2.0	28.8	3.8	4.2	8.0	0.2	37.0
1986	9.1	3.8	15.3	19.1	4.7	32.9	4.8	3.1	7.9	1.8	42.6
1987	6.8	3.3	15.4	18.7	3.3	28.8	4.9	0.5	5.4	1.3	35.5
1988	6.2	2.8	16.1	18.9	4.5	29.5	5.3	1.1	6.4	1.2	37.1
1989	6.6	2.5	17.0	19.5	3.5	29.6	5.2	2.0	7.2	1.3	38.1
1990	8.0	3.3	14.3	17.6	4.7	30.3	5.7	2.8	8.5	1.2	40.0
1991	10.4	3.7	15.3	19.0	5.9	35.3	5.3	-	5.3	1.5	42.1
1992	11.5	4.3	14.3	18.6	2.7	32.8	6.2	-	6.2	0.7	39.7
1993	11.1	4.3	14.8	19.1	4.1	34.4	4.3	-	4.3	0.8	39.5
1994	9.1	2.5	12.0	14.5	3.0	26.6	5.2	-	5.0	0.6	32.3
1995	7.1	3.4	12.9	16.3	1.7	25.2	3.7	-	3.7	0.7	29.5
1996	8.4	3.4	12.9	16.3	3.4	28.0	3.3	-	3.3	0.3	31.6
1997	6.1	3.2	7.8	11.0	3.9	21.0	2.9	-	2.9	0.7	24.6
1998	6.1	5.8	11.4	17.2	3.6	26.8	1.7	-	1.7	0.6	29.1
1999	7.6	4.0	11.5	15.5	4.8	27.9	1.0	-	1.0	0.7	29.7
2000	7.8	6.2	10.8	17.0	5.9	30.6	0.9	-	0.9	0.6	32.1
2001	7.6	4.2	9.7	13.9	3.7	25.3	0.9	-	0.9	0.6	26.8
2002 ^{d/}	7.5	3.3	8.6	11.9	4.3	23.7	1.0	-	1.0	0.6	25.2

a/ A coho smolt is here defined as 30 fish per pound or larger and released in February or later.

b/ Beginning in 1989, does not include minor releases from STEP projects.

c/ Excludes 3.5 million assumed lost at Toutle Hatchery on May 18, 1980 during the eruption of Mt. Saint Helens.

d/ Preliminary.

TABLE B-2. Data set used in predicting 2003 Oregon production index hatchery (OPIH) adult coho with Stratified Random Sampling accounting. Adults and jacks shown in thousands of fish and smolts in millions of fish. ^{a/} (Page 1 of 1)

Year (t)	Adult OPIH (t)	Jack CR (t-1)	Jack OC (t-1)	Sm CR (t-1)	Sm D (t-1)
1970	2,765.1	148.6	13.6	27.6	0.0
1971	3,365.0	172.8	6.6	24.0	0.0
1972	1,924.8	100.8	2.9	28.3	0.0
1973	1,817.0	85.7	5.7	29.9	1.8
1974	3,071.1	132.1	12.1	28.5	2.9
1975	1,652.8	75.1	1.1	27.8	1.8
1976	3,885.3	146.2	25.3	29.0	2.0
1977	987.5	46.2	7.5	28.9	0.2
1978	1,824.1	99.2	4.0	31.4	0.0
1979	1,476.7	64.1	8.4	32.6	5.0
1980	1,224.0	51.6	6.0	28.9	6.7
1981	1,064.5	40.6	8.1	28.1	5.6
1982	1,266.8	55.0	6.3	32.4	6.8
1983 ^{b/}	599.2	61.0	7.2	27.7	5.0
1984	691.3	28.1	3.6	27.0	5.1
1985	717.5	18.2	7.8	29.2	9.1
1986	2,435.8	64.6	12.9	28.8	12.2
1987	887.2	24.2	8.7	32.9	9.0
1988	1,669.3	72.3	12.9	28.8	7.7
1989	1,720.2	55.0	5.8	29.5	7.2
1990	718.4	37.1	9.6	29.6	8.5
1991	1,874.8	60.8	7.9	30.3	7.1
1992	543.6	19.9	5.7	35.3	6.0
1993	261.7	19.6	7.5	32.8	5.5
1994	202.3	3.9	1.3	34.4	6.0
1995	147.6	9.1	2.7	26.6	3.1
1996	177.8	14.1	3.2	25.2	4.2
1997	197.6	15.8	4.6	28.0	3.4
1998	205.2	6.8	3.0	21.0	2.5
1999	335.1	22.9	5.9	26.8	3.0
2000	679.4	31.2	3.5	27.9	4.1
2001	1,439.6	71.1	15.7	30.6	2.0
2002	660.1	18.8	6.3	23.5	1.4
2003	863.1 ^{c/}	42.6	8.1	23.7	0.3

a/ Adult OPIH = Harvest impacts plus escapement for public hatchery stocks originating in the Columbia River, Oregon coastal rivers, and the Klamath River, California.

Jack CR = Columbia River jack returns corrected for small adults.

Jack OC = Oregon coastal and California hatchery jack returns corrected for small adults.

Sm CR = Columbia River smolt release.

Sm D = Columbia River delayed smolt releases.

b/ Data not used in the analysis due to *El Niño* impacts.

c/ Preseason predicted adults.

TABLE B-3. Estimated coho salmon natural spawner abundance (SRS accounting) in Oregon coastal basins for each OCN coho management component. Estimates adjusted for visual observation bias by multiplying observed count by 1.33. (Page 1 of 1)

Adjusted SRS Natural Coho Spawner Estimates														1990-2002	
Component and Basin	Miles	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ^{a/}	2000 ^{a/}	2001 ^{a/}	2002 ^{a/}	Mean
NORTHERN															
Nehalem	386	1,552	3,975	1,268	2,265	2,007	1,463	1,057	1,173	1,190	3,713	15,519	22,310	20,654	6,011
Tillamook	249	265	3,000	261	860	652	289	661	388	271	2,175	2,253	1,883	16,488	2,265
Nestucca	167	189	728	684	401	313	1,811	519	271	169	2,201	1,070	3,940	12,334	1,895
Direct Ocean Tributaries	97	191	1,579	209	983	485	319	1,043	314	946	775	410	5,318	2,726	1,177
TOTAL	899	2,197	9,282	2,422	4,509	3,457	3,882	3,280	2,146	2,576	8,842	18,596	33,667	52,202	11,312
NORTH CENTRAL															
Siletz	118	441	984	2,447	400	1,200	607	763	336	394	706	2,765	1,437	2,369	1,142
Yaquina	109	381	380	633	549	2,448	5,668	5,127	384	365	2,588	788	3,039	25,039	3,645
Alesea	221	1,189	1,561	7,029	1,071	1,279	681	1,637	680	213	2,050	2,571	3,339	5,767	2,236
Siuslaw	514	2,685	3,740	3,440	4,428	3,205	6,089	7,625	668	1,089	2,724	6,910	11,024	57,125	8,519
Direct Ocean Tributaries	201	895	67	1,821	1,331	1,683	560	2,975	774	1,222	3,691	1,002	6,373	13,809	2,785
TOTAL	1,163	5,591	6,732	15,370	7,779	9,815	13,605	18,127	2,842	3,283	11,442	15,820	25,528	104,111	18,465
SOUTH CENTRAL															
Umpqua	1,083	3,737	3,600	2,152	9,311	4,485	11,349	9,749	2,233	8,426	6,466	12,990	34,041	42,413	11,612
Coos	208	2,273	3,813	16,545	15,284	14,685	10,351	12,128	1,127	3,167	4,945	4,600	43,301	35,005	12,863
Coquille	331	2,712	5,651	2,115	7,384	5,035	2,116	16,169	5,720	2,466	3,001	7,669	13,310	8,488	6,295
Coastal Lakes	-	4,393	7,251	1,986	10,145	5,841	11,216	13,493	8,603	11,107	12,710	12,747	19,669	22,097	10,866
TOTAL	1,622	13,115	20,315	22,798	42,124	30,046	35,032	51,539	17,683	25,166	27,122	38,006	109,031	108,003	41,537
SOUTH															
Rogue ^{b/}	-	3,051	1,027	2,208	361	5,439	3,761	4,622	8,282	2,316	1,438	10,966	12,213	7,800	4,883
COASTWIDE	-	23954	37356	42798	54773	48757	56280	77568	30953	33,341	48,844	83,388	180,439	272,116	76,197

a/ The sum of the individual basins may not equal the aggregate totals due to the method used in removing hatchery strays.

b/ Mark recapture estimate based on seining at Huntley Park in the lower Rogue River.

TABLE B-4. Data set used in predicting 2003 Oregon coastal natural river (OCNR) coho recruits with Stratified Random Sampling (SRS) accounting. Recruits shown in thousands of fish. (Page 1 of 1)

Year	Recruits to Ocean			
	SRS	Ln SRS (Recruits)	JanAnom ^{a/}	UpAnom (t-1) ^{a/}
1970	147.1	4.99111	0.307	-16.92
1971	374.1	5.92452	-1.293	30.08
1972	153.5	5.03370	-1.393	10.08
1973	209.2	5.34329	-0.493	23.08
1974	170.6	5.13932	-0.693	47.08
1975	187.3	5.23271	-0.493	48.08
1976	387.6	5.95997	-0.893	65.08
1977	122.3	4.80648	-0.193	32.08
1978	104.2	4.64631	1.207	17.08
1979	186.8	5.23004	-1.193	-2.92
1980	95.0	4.55388	0.507	17.08
1981	159.6	5.07267	1.607	-1.92
1982	177.8	5.18066	-0.093	-8.92
1983	90.9	4.50976	1.007	14.08
1984	87.7	4.47392	0.607	-24.92
1985	116.7	4.75961	0.007	-24.92
1986	87.5	4.47164	0.107	-24.92
1987	64.0	4.15888	0.507	-39.92
1988	116.9	4.76132	-0.093	-21.92
1989	93.1	4.53367	-0.493	-43.92
1990	53.1	3.97218	-0.007	-21.92
1991	52.3	3.95700	-0.893	-37.92
1992	78.6	4.36437	0.107	43.08
1993	76.8	4.34120	-0.593	7.08
1994	40.2	3.69387	1.107	-50.92
1995	47.1	3.85227	0.707	-3.92
1996	64.9	4.17285	1.807	-1.92
1997	16.1	2.77882	0.907	9.08
1998	21.5	3.06805	2.407	-24.92
1999	37.4	3.62167	-0.393	18.08
2000	68.1	4.22098	0.107	84.08
2001	161.8	5.08636	0.707	9.08
2002	276.2 ^{b/}	5.62113	0.207	65.08
2003	97.8 ^{b/}	4.60393	1.107	54.08

a/ JanAnom = The annual deviation from mean (1969-1996) January sea surface temperature (degrees Centigrade) at Charleston, Oregon.

UpAnom = Annual deviation from mean (1946-1996) April-June Bakun upwelling index at 42° N latitude.

b/ Preseason adult prediction.