

## **Appendix 1. Estimated adult abundance for naturally produced Tillamook Bay coho salmon, 1923-1998.**

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)				
Peak count of spawners (#/mile)	Mean AUC spawners (#/mile)	SRS estimate of total spawners		Number of "natural" spawners		Adult returns from hatchery releases	TB sport harvest rate	TB sport harvest rate	Percent of TB adults "natural"	TB sport "natural" coho	TB comm. catch (pounds)	TB comm. catch (# adults)	TB comm. harvest rate	TB coho before harvest rate	Ocean harvest rate	Adult coho in ocean	Adults per unit area of TB Basin (#/sq mi)	adults to bay	adults to spawn	Basin area (sq. mi.)	
Year(s)			Method 1	Method 2	Combined																
1923	---	---	---	68256	68256	527	0.007	454	0.992	451	5304050	42436	0.38	110818	0.062	118153	203	190	117	582	
1924	---	---	---	89940	89940	0	0.009	794	1.000	794	695140	55611	0.38	146345	0.083	159552	274	251	155	582	
1925	---	---	---	63888	63888	516	0.011	712	0.992	706	498870	39910	0.38	104183	0.103	116207	200	179	110	582	
1926	---	---	42664	42664	2227	0.013	597	0.950	567	348490	27879	0.38	69727	0.119	79171	136	120	73	582		
1927	---	---	53229	53229	1003	0.015	843	0.982	827	370700	29656	0.35	83164	0.147	97486	168	143	91	582		
1928	---	---	55432	55432	943	0.017	1004	0.983	987	386200	30896	0.35	86798	0.147	101809	175	149	95	582		
1929	---	---	79492	79492	2349	0.020	1643	0.971	1596	561910	44953	0.35	124750	0.159	148367	255	214	137	582		
1930	---	---	77085	77085	1217	0.022	1750	0.984	1723	538820	43106	0.35	121244	0.176	147122	253	208	132	582		
1931	---	---	50050	50050	1262	0.024	1265	0.975	1234	353880	28310	0.35	78898	0.182	96457	166	136	86	582		
1932	---	---	42003	42003	0	0.026	1132	1.000	1132	290330	23226	0.35	66361	0.219	84930	146	114	72	582		
1933	---	---	38888	38888	1727	0.028	1188	0.957	1138	245900	19672	0.32	58861	0.219	75356	129	101	67	582		
1934	---	---	94187	94187	511	0.031	2991	0.995	2974	574640	45971	0.32	142885	0.223	183955	316	246	162	582		
1935	---	---	105204	105204	1096	0.033	3605	0.990	3568	739740	59179	0.35	167341	0.272	229914	395	288	181	582		
1936	---	---	52527	52527	301	0.035	1905	0.994	1895	366580	29326	0.35	83310	0.227	107225	185	143	90	582		
1937	---	---	67667	67667	1473	0.037	2669	0.979	2612	483330	38666	0.35	108121	0.266	147308	253	186	116	582		
1938	---	---	71434	71434	1074	0.039	2971	0.985	2927	508030	40642	0.35	114402	0.256	153799	264	197	123	582		
1939	---	---	69637	69637	297	0.042	3031	0.996	3019	491110	38289	0.35	111777	0.284	156188	268	192	120	582		
1940	---	---	34214	34214	1536	0.044	1635	0.957	1565	251630	20130	0.35	55044	0.334	82675	142	95	59	582		
1941	---	---	24529	24529	1377	0.046	1247	0.947	1181	182760	14621	0.35	39553	0.366	62409	107	68	42	582		
1942	---	---	22937	22937	851	0.048	1202	0.964	1156	168200	13456	0.35	37070	0.314	54009	93	64	39	582		
1943	---	---	12079	12079	1269	0.050	707	0.905	640	94600	7568	0.35	19567	0.299	27921	48	34	21	582		
1944	---	---	39217	39217	1099	0.052	2233	0.973	2172	286390	22911	0.35	63676	0.294	90145	155	109	67	582		
1945	---	---	48149	48149	329	0.055	2803	0.993	2784	345160	27613	0.35	78359	0.278	108529	186	135	83	582		
1946	---	---	20927	20927	1222	0.057	1335	0.945	1261	158060	12645	0.35	34135	0.338	51587	89	59	36	582		
1947	---	---	31630	31630	2637	0.059	2150	0.923	1985	195090	15607	0.30	48021	0.375	76819	132	83	54	582		
1948	---	---	31133	31133	1808	0.046	1600	0.945	1512	185040	14803	0.30	46636	0.366	73599	126	80	53	582		
1949	---	---	27406	27406	736	0.047	1400	0.974	1363	158260	12661	0.30	41099	0.397	68192	117	71	47	582		
1950	8.2	---	7528	14272	10761	786	0.049	769	0.932	716	84790	6783	0.30	21071	0.394	34772	60	36	18	582	
1951	23.3	---	21389	21389	20530	0.050	1195	0.900	1075	141300	11304	0.32	31777	0.461	58951	101	55	35	582		
1952	13.1	---	12026	33534	22557	698	0.051	1836	0.970	1781	193220	15458	0.30	49980	0.547	110310	190	86	39	582	
1953	15.9	---	14596	12981	13518	645	0.052	749	0.954	715	73390	5871	0.29	19324	0.740	74333	128	33	23	582	
1954	2.6	---	2387	14846	8572	423	0.053	859	0.953	819	86400	6912	0.30	21957	0.713	76499	131	38	15	582	
1955	6.1	---	5600	13054	9223	606	0.054	786	0.938	738	77390	6191	0.30	19365	0.691	62710	108	33	16	582	
1956	5.9	---	5416	20334	12775	267	0.056	1213	0.980	1188	116860	9349	0.30	30255	0.743	118877	204	52	22	582	
1957	3.1	---	2846	2846	129	0.057	179	0.957	82	9540	763	0	3658	0.785	17071	29	6	5	582		
1958	2.8	---	2570	2570	1347	0.058	241	0.656	76	12900	1032	0	3324	0.820	18507	32	6	4	582		
1959	9.0	---	8262	8262	144	0.059	528	0.983	259	9900	792	0	9299	0.724	33749	58	16	14	582		
1960	8.0	---	7344	7344	1725	0.060	582	0.810	436	4410	353	0	8065	0.698	26698	46	14	13	582		
1961	20.6	---	18911	18911	1433	0.061	1333	0.930	983	11910	953	0	20779	0.720	74294	128	36	32	582		
1962	23.1	---	21206	21206	4084	0.063	1691	0.839	1134	0	0	0	0	0	22340	0.670	67678	116	38	36	582
1963	19.2	---	17626	17626	6044	0.064	1614	0.745	723	0	0	0	0	0	18349	0.796	89880	154	32	30	582
1964	32.2	---	29560	29560	13406	0.065	2987	0.688	1041	0	0	0	0	0	30600	0.698	100684	173	53	51	582
1965	11.9	---	10924	10924	9077	0.066	1418	0.546	715	0	0	0	0	0	11639	0.706	39553	68	20	19	582
1966	16.0	---	14688	14688	6527	0.067	1532	0.692	402	0	0	0	0	0	15090	0.636	41459	71	26	25	582
1967	31.8	---	29192	29192	16556	0.069	3366	0.638	1866	0	0	0	0	0	31058	0.731	115445	198	53	50	582
1968	18.6	---	17075	17075	8095	0.070	1886	0.678	1279	0	0	0	0	0	18354	0.770	79898	137	32	29	582
1969	7.5	---	6885	6885	9223	0.129	2384	0.427	1019	0	0	0	0	0	7904	0.698	26146	45	14	12	582
1970	26.5	---	24327	24327	11969	0.050	1921	0.670	1288	0	0	0	0	0	25615	0.639	71021	122	44	42	582
1971	25.5	---	23409	23409	10895	0.055	1994	0.682	1361	0	0	0	0	0	24770	0.812	131888	227	43	40	582
1972	10.0	---	9180	9180	8291	0.051	940	0.525	494	0	0	0	0	0	9674	0.832	57700	99	17	16	582
1973	30.6	---	28091	28091	8304	0.042	1580	0.772	1219	0	0	0	0	0	29310	0.810	154031	265	50	48	582
1974	29.2	---	26806	26806	9990	0.041	1569	0.729	1143	0	0	0	0	0	27949	0.825	160036	275	48	46	582
1975	15.9	---	14596	14596	1433	0.048	809	0.911	737	0	0	0	0	0	15333	0.801	77073	132	26	25	582
1976	10.3	---	9455	9455	24071	0.060	2138	0.282	603	0	0	0	0	0	10058	0.892	93219	160	17	16	582
1977	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1978	10.0	---	9180	9180	2617	0.047	579	0.778	451	0	0	0	0	0	9631	0.812	51224	88	17	16	582
1979	9.7	---	8905	8905	3930	0.024	312	0.694	216	0	0	0	0	0	9121	0.728	41016	70	16	15	582
1980	5.9	---	5416	5416	6399	0.044	541	0.458	248	0	0	0	0	0	5664	0.715	19878	34	10	9	582
1981	17.7	24.9	7420	7420	2177	0.049	494	0.773	382	0	0	0	0	0	7802	0.806	40240	69	13	13	582
1982	16.7	29.0	8642	8642	2987	0.133	1789	0.743	1330	0	0	0	0	0	9972	0.615	25868	44	17	15	582
1983	2.3	3.9	1162	1162	2832	0.052	221	0.291	64	0	0	0	0	0	1227	0.795	5979	10	2	2	582
1984	16.7	24.5	7301	7301	10315	0.128	2597	0.414	1076	0	0	0	0	0	8377	0.310	12147	21	14	13	582
1985	16.7	28.0	8344	8344	4539	0.095	1357	0.394													

**(A)**: Mean peak count (adults/mile) for Cedar Cr. and Devils Lk. Fk. Index areas (StreamNet 1999). **(B)**: Mean AUC spawners (adults/mile) for Cedar Cr. and Devil's Lk. Fk. Index areas (StreamNet 1999).

(A): CCR peak year (additional data from Cedar-Or and David-Max data sources); (B): Mean total natural spawners (adults) by year; (C): CCRS estimates for total spawning escapement in the Tillamook Bay Basin (PFMC 1999); (D): Method 1 estimates were based on the best available quantitative index of spawning escapements, estimated as 918x(A) (mean 1990-98 ratio of C/A) for 1950-1980, 298xB (mean 1990-98 ratio of C/B) for 1981-89, and C for 1990-98. (E): Method 2 calculated Natural Spawners = (MN)-N-G. (F): Escapes = amounts estimated by Method 1 (1923-49), as the average of Methods 1 and 2 (1950-56), and by Method 2 (1957-98). (G): For 1923-60, all juvenile hatchery fish released were converted to smolt equivalents

ments estimated by Method 1 (1925-49), as the average of Methods 1 and 2 (1950-56), and by Method 2 (1957-67). For 1925-50, an juvenile hatchery fish released were converted to smolt equivalents and then to adults assuming half the SAR rate seen for 1961-93, adjusted for intercepts (0.04662); For 1961-1984, estimated by converting all releases to smolt equivalents and assuming the same

SAR experienced by fish at Trask Hatchery (adjusted for interceptions). For 1985-92, known hatchery returns were used in calculations. (H): Calculated from values in the table, except that values for 1923-40

assumed zero sport harvest in 1920 and a steady increase in harvest from 1920 to 1948, and values for 1950-67 were assumed to steadily increase from a known value for 1949 to a known value for 1968.

(I): Data are shown in bold; estimated values were calculated as F-(F-1)(H). (J): Calculated as G(G+H). (K):  $K = I \times J$ . (L): ODFW, Tillamook, OR. (M):  $M = L/12.5$ . (N): Harvest rates from two OSFG study sites.

or as the mean of the two OSCG studies times fishing days in a given year/fishing days in the years of the studies. (O): O = MN. (P): For each year during 1923-51, rates were calculated as the average of two values: (1) linearly interpolated estimates assuming zero harvest in 1920 and an 0.547 rate in 1952 and (2) estimates derived by assuming a 40% coast-wide cillnet harvest rate and known values for Oregon.

values: (1) linearly interpolated estimates assuming zero harvest in 1920 and an 0.54% rate in 1952 and (2) estimates derived by assuming a 40% coast-wide gillnet harvest rate and known values for Oregon coastal troll landings plus total coastal gillnet landings. For 1952-91, estimates from Lawson (1992), adjusted for gillnet catches in early years, were used. For 1992-98, PFMC (1999) values adjusted to SRS

coastal trawl landings plus total coastal gillnet landings. For 1982-91, estimates from Lawson (1992), adjusted for gillnet catches in early years, were used. For 1992-98, FIMC (1999) values adjusted to SRS escapements were used. (Q) =  $O/(1-P)$ . (R) =  $R/Q(5/82)$ .

occupations were listed as:<sup>1</sup> 20% (11), 14% (8), 11% (6), 10% (6), 8% (5), 6% (4), 5% (3), 4% (2), 3% (2), 2% (1), 1% (1).