
CHAPTER III COHO SALMON MANAGEMENT

OREGON PRODUCTION INDEX AREA COHO STOCKS

Oregon production index (OPI) area coho stocks include all Washington, Oregon, and California natural and hatchery stocks from streams south of Leadbetter Point, Washington. The largest naturally produced component of the OPI coho stock is OCN coho. It is managed as a stock aggregate with four identified components including coho produced from Oregon river and lake systems south of the Columbia River. NMFS has identified three ESUs within the naturally produced OPI area coho stocks which are listed as threatened: central California coast (CCC) coho listed October 1996, SONC coho listed May 1997, and OCN coho listed August 1998.

Management Objectives

In establishing ocean salmon fisheries that impact OPI area coho stocks, the Council was guided by the reasonable and prudent alternatives of NMFS 1999 Supplemental Biological Opinion and Incidental Take Statement for CCC, SONC, and OCN coho which required:

1. No directed coho fisheries or retention of coho in all commercial and recreational fisheries off California to protect threatened CCC coho.
2. Marine fishery impacts on threatened CCC and SONC coho must be no more than 13% as indicated by projected impacts on RK hatchery coho.
3. Marine and freshwater fishery impacts on OCN coho should not exceed levels permitted in the FMP (15% in 2002).
4. The OCN Coho Work Group recommended a 15% combined marine and freshwater exploitation rate based on its review of Amendment 13. The Council accepted the recommendation as expert biological advice at the November 2000 Council meeting.
5. ODFW recommended a maximum 12.5% OCN exploitation rate to further protect lower Columbia River natural coho.

Regulations to Achieve Objectives

Historically, OPI area coho stocks contributed primarily to ocean fisheries off Oregon and northern California and, to a lesser degree, to ocean fisheries off Washington and British Columbia. The 2002 ocean salmon fisheries within the OPI area were limited to meet NMFS jeopardy standards and the recommendations of the OCN Coho Work Group for ESA listed species as outlined above. The Council prohibited retention of coho in all fisheries off California and adopted seasons that the STT projected would result in exploitation rates of 7.7% for RK coho in marine fisheries and an overall 12.3% for OCN coho in marine and freshwater fisheries combined.

Commercial Troll

Commercial troll fisheries have been closed to coho retention south of Cape Falcon since 1993. Commercial troll selective fisheries for marked hatchery coho occurred in 2002 from Cape Falcon to Leadbetter Point. Chinook fishery closures (primarily in July) and gear restrictions (4-spread requirement) were also used to reduce OCN impacts.

Recreational

Retention of coho has been limited in the recreational fisheries south of Cape Falcon since 1993. All coho directed fisheries in the OPI area have been selective for hatchery coho marked with a healed adipose fin clip since 1998. Improving hatchery coho populations in the OPI area have allowed increasing opportunity for harvesting marked hatchery coho. In 1998, the first mark-selective recreational coho fisheries were restricted to the area off the mouth of the Columbia River. Beginning in 1999, selective coho fisheries opened off the Central Oregon coast and north of Leadbetter Point.

Inside Harvest

Inside harvest estimates of coho are not available for river systems in California.

The 2002 inside recreational harvest of coho in Oregon coastal streams, as in recent years, was very restricted and limited to areas where surplus hatchery coho returns were expected. Selective fisheries for adipose fin-clipped hatchery coho occurred in nine freshwater areas. Estimates of the 2002 inriver recreational coho harvest are not available at this time. Historical estimates of the recreational harvest of adult coho in Oregon coastal estuaries and rivers, derived from ODFW salmon and steelhead angler catch record cards, are reported in Table III-1.

Coho harvest statistics for Columbia River commercial and recreational fisheries are presented in Appendix B, Table B-21. The 2002 Columbia River non-Indian commercial gillnet fishery harvested 161,600 adult coho, compared to 253,100 coho in 2001. Select Area fisheries in both Oregon and Washington accounted for 67,500 of the total 2002 Columbia River commercial coho catch. The treaty Indian mainstem commercial gillnet coho catch was 500 fish, compared to the 2001 catch of 5,500 coho.

The total mainstem and Buoy 10 recreational fisheries below Bonneville Dam harvested 41,700 coho compared to 132,000 adult coho in 2001. In 2002, Columbia River managers opened the Buoy 10 fishery August 1 through December 31 for both chinook and coho. The upriver boundary at the Tongue Point, Oregon to Rocky Point, Washington line has been in effect since 2000. Retention of coho was selective for fish with a healed adipose fin clip. The 2002 Buoy 10 harvest and effort totaled 6,200 coho and 84,500 angler trips (Table III-2). Historical Buoy 10 catch and effort data are provided in Appendix B, Table B-22.

Escapement and Management Performance

The overall OPI abundance estimate for 2002 was 967,600, down from 1,560,000 in 2001 but greater than the ten-year average of 489,000 (Figure III-1).

Central California Coast and Northern California Coho

Spawner estimates are not available for CCC coho. Estimates are available for escapement to Klamath River Basin hatcheries, but not for coho spawning in natural areas. In 2002, coho returns to Iron Gate and Trinity River hatcheries totaled 7,647 adults (6,496 coho to Trinity River and 1,151 coho to Iron Gate), compared to a combined goal of 2,000 adult coho.

Oregon Coast Natural Coho

Preliminary estimates of natural spawner escapement in 2002 to Oregon coastal river and lake systems from the Coquille River north is 264,300 adult coho by SRS accounting. This compares to 151,100 adults in 2001. Historical spawner escapement estimates of naturally produced coho are reported in Table III-1 and have been adjusted to reflect SRS accounting.

Preliminary information based on SRS surveys indicate the best natural spawning population on the Oregon coast on record, in part, due to very low levels of ocean exploitation. Moreover, the estimate of the natural

TABLE III-1. Estimated returns to Oregon coastal streams and lakes in thousands of adult coho (SRS spawner accounting).
(Page 1 of 1)

Year	Returns to Hatchery Facilities			Count at North Fork Umpqua Winchester Dam	Number of OCN Spawners ^{a/}			Inside Harvest Impacts ^{b/}	Ocean Escapement to Oregon Coast ^{a/}
	Private	Public	STEP ^{c/}		Lakes	Rivers	Total		
1970	-	36.2	-	0.2	20.5	51.2	71.7	39.8	147.9
1971	-	29.1	-	0.6	29.2	65.6	94.8	24.1	148.6
1972	-	12.9	-	0.3	10.0	24.1	34.1	16.6	63.9
1973	-	18.4	-	0.4	17.6	37.8	55.4	15.4	89.6
1974	-	35.1	-	0.4	6.4	28.1	34.5	13.5	83.5
1975	-	4.9	-	0.5	5.6	34.8	40.4	13.5	59.3
1976	-	38.7	-	0.3	1.5	39.2	40.7	19.6	99.3
1977	4.2	6.5	-	0.4	5.8	13.7	19.5	13.5	44.1
1978	12.3	5.6	-	0.5	1.6	18.2	19.8	4.5	42.7
1979	49.2	22.2	-	0.4	6.6	38.4	45.0	1.5	118.3
1980	38.7	21.9	-	0.2	4.7	25.6	30.3	6.3	97.4
1981	117.8	21.2	-	0.1	2.5	30.1	32.6	9.9	181.6
1982	184.7	14.8	-	2.7	7.9	68.3	76.2	14.7	293.1
1983	133.9	9.5	-	1.2	3.3	19.4	22.7	6.8	174.1
1984	115.4	28.6	-	3.2	14.7	59.7	74.4	17.4	239.0
1985	332.0	15.8	-	4.0	7.6	66.3	73.9	15.7	441.4
1986	453.7	35.8	2.5	9.6	11.8	58.2	70.0	30.3	601.9
1987	119.3	12.3	0.2	2.2	4.2	25.9	30.1	7.7	171.8
1988	116.1	33.7	1.2	1.2	5.8	51.0	56.8	13.3	222.3
1989	46.9	37.3	1.2	3.0	4.8	41.6	46.4	15.1	149.9
1990	35.6	15.4	1.6	2.3	4.4	16.5	20.9	9.5	85.3
1991	35.1	39.6	4.9	5.2	7.3	29.1	36.4	75.4	196.6
1992	-	23.3	0.6	6.0	2.0	37.7	39.7	19.3	88.9
1993	-	20.2	2.0	3.3	10.1	44.3	54.4	13.3	93.2
1994	-	23.4	1.8	2.8	5.8	37.9	43.7	2.4	74.1
1995	-	25.2	0.4	4.2	11.2	41.2	52.4	3.6	85.8
1996	-	23.8	1.0	6.2	13.5	59.5	73.0	4	108.0
1997	-	17.6	0.2	3.6	8.6	14.1	22.7	4.3	48.4
1998	-	15.2	0.2	5.3	11.1	19.8	30.9	5.2	56.8
1999	-	13.3	0.4	2.5	12.7	34.6	47.3	2.8	66.3
2000	-	15.0	0.5	11.1	12.7	63.1	75.8	4.5	106.9
2001 ^{d/}	-	38.1	1.2	24.9	19.7	149.8	169.5	10.0	243.7
2002 ^{d/}	-	30.9	2.6	10.4	22.1	242.2	264.3	8.1	316.3

a/ Does not include estimates for the southern OCN component (Rogue River). Spawner escapements to rivers have historically been estimated by a nonrandom standard index of streams north of the Rogue River. A total coastwide spawner escapement methodology based on SRS was initiated in 1990 and implemented concurrently with the standard index methodology. The SRS methodology indicated that actual escapements were less than estimated by the standard rivers index. The spawner index data for years prior to 1990 have been recalibrated in this table to be comparable with the SRS estimates.

b/ Freshwater sport catch from ODFW salmon/steelhead angler tag information and represents only those fish greater than 24 inches. Includes estimated mortality from hook-and-release.

c/ Oregon coastal Salmon Trout Enhancement Program (STEP) production from hatchery smolt rearing sites only.

d/ Preliminary.

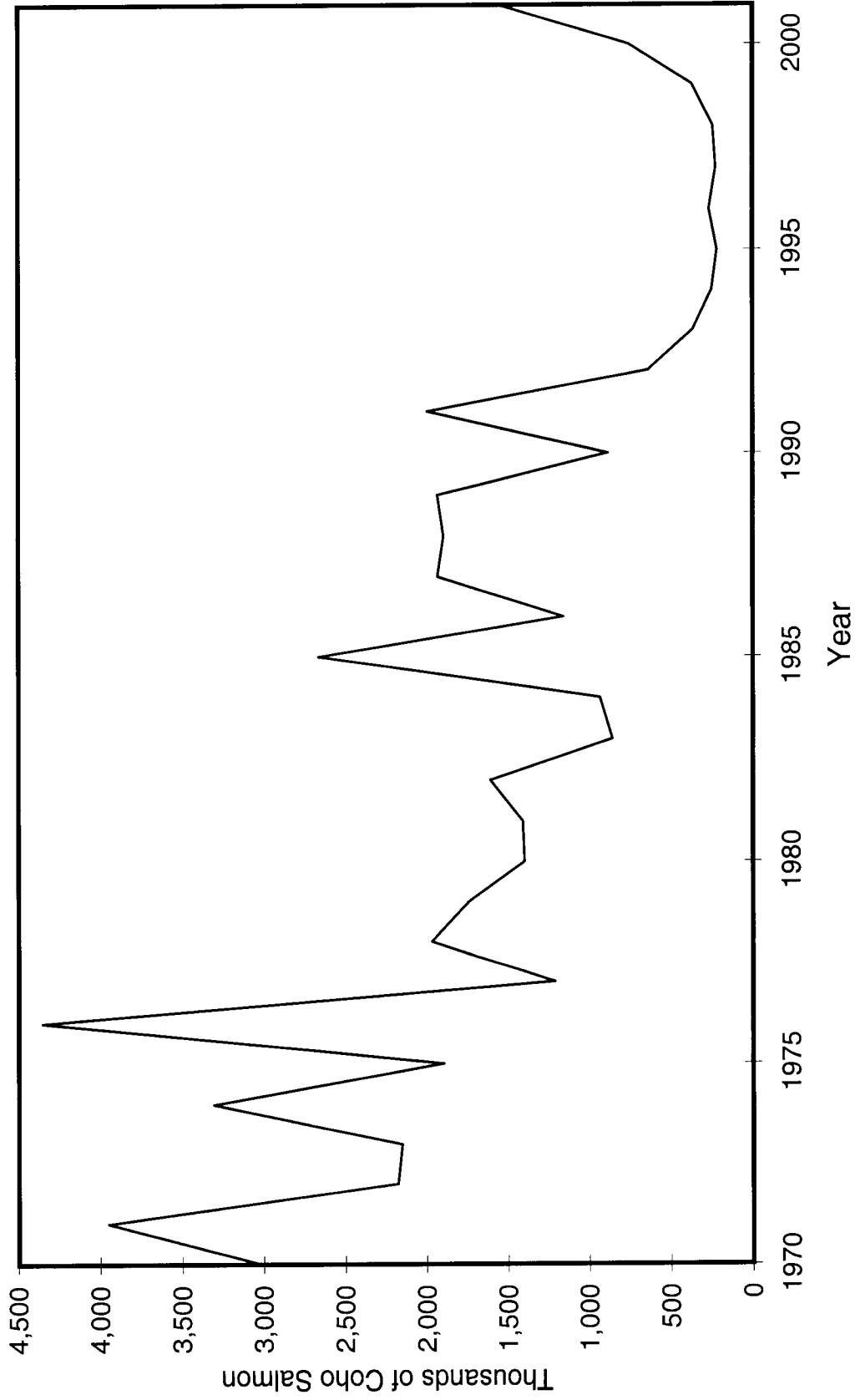


Figure III-1. Oregon production area coho salmon abundance estimates by stratified random survey (SRS) accounting methods, 1970-2002.

TABLE III-2. Estimated weekly **effort** (in angler trips) and **catches** of chinook and coho in the 2002 **Buoy 10 recreational** fisheries (all data are preliminary).^{a/} (Page 1 of 1)

Week Number	Ending Date of Period	Angler Trips	Catch		Catch Per Trip
			Chinook	Coho	
31	Aug.-4	5,429	265	53	0.06
32	Aug.-11	7,592	1,183	338	0.20
33	Aug.-18	18,654	6,204	259	0.35
34	Aug.-25	24,098	6,053	1,222	0.30
35	Sept.-2	16,877	5,093	2,542	0.45
36	Sept.-8	8,225	503	1,343	0.22
37	Sept.-15	2,220	99	315	0.19
38	Sept.-22	951	18	114	0.14
39	Sept.-29	411	24	46	0.17
40-44	Nov.-3	0	0	0	0.00
Total		84,457	19,442	6,232	0.30

a/ Includes boat-based and shore-based fisheries from the new upstream boundary at the Tongue Point/Rocky Point line downstream to the Buoy 10 line including Clatsop Spit, the South Jetty of the Columbia River, and the North Jetty of the Columbia River after the ocean closed. Fishery was open August 1-December 31 for all species except nonfin-clipped coho and steelhead.

spawning population in 2002 was nearly six times that of the 1999 parental spawning population (Table III-3, Figure III-2). In addition, natural spawning populations were distributed well among coastal basins.

Preliminary estimates of total coho returns to Oregon coastal public hatcheries and Salmon Trout Enhancement Program (STEP) smolt production facilities were 30,900 and 2,600 adults, respectively (Table III-1). Hatchery egg-take goals are expected to be met at all public hatchery stations.

Columbia River Coho

The 2002 ocean escapement of adult early and late Columbia River coho stocks was 514,400 fish, compared to 1,108,000 adults in 2001 (Appendix B, Table B-21). The 2002 Columbia River coho abundance was sufficient to meet all hatchery brood stock escapement needs.

Oregon and Washington conducted an on-the-water observation program for the Buoy 10 selective fishery. Preseason, the STT (using the coho FRAM) predicted the mark rate for the Buoy 10 fishery would be 70%. From on-the-water observations and dockside interviews, the mark rate for the Buoy 10 fishery was estimated at 74%.

WASHINGTON COASTAL COHO STOCKS

Washington coastal stocks include all natural and hatchery stocks originating in Washington coastal streams north of the Columbia River through the western strait of Juan de Fuca (west of the Elwha River). The primary stocks in this group which are most pertinent to ocean salmon fishery management are Willapa Bay (hatchery), Grays Harbor, Quinault (hatchery), Queets, Hoh, and Quillayute coho.

Management Objectives

Management goals for Grays Harbor and Olympic Peninsula coho stocks include achieving natural spawning escapement objectives and treaty Indian allocation requirements. The conservation objectives for stocks managed for natural production are based on maximum sustainable yield (MSY) spawner escapements established pursuant to the U.S. District Court order in *Hoh versus Baldrige*. Annual natural spawning escapement targets and total escapement objectives are established by WDFW and treaty Indian tribes under the provisions of *U.S. versus Washington* and subsequent U.S. District Court orders. After an agreement to annual targets is reached by the parties in this litigation, ocean fishery escapement objectives are established for each river, or region of origin, which include provisions for treaty Indian allocation requirements and inside non-Indian fishery needs. The conservation objectives for the Queets, Hoh, and Quillayute rivers were developed as ranges intended to bracket estimates of MSY escapement. The range reflects the degree of uncertainty inherent by using the high estimate of recruits-per-spawner and the low estimate of carrying capacity for the lower bound, and the low estimate of recruits-per-spawner with the high estimate of smolt carrying capacity for the upper end of the range.

Regulations to Achieve Objectives

Washington coastal coho stocks contribute primarily to ocean fisheries off Washington and British Columbia. These stocks did not play a primary roll in 2002 ocean fishery management considerations because of impact constraints on OCN stocks. Overall harvest quotas were limited to levels well below those of the late 1980s and early 1990s, and all retention of coho in recreational ocean fisheries north of Cape Falcon was limited to fish with healed adipose fin clips.

TABLE III-3. OCN adult coho salmon conservation objective, fishery impacts, and spawner escapement, based on stratified random survey (SRS) methodology. (Page 1 of 1)

Year	Fishery Impact			Adjusted SRS Adult Coho Spawner Population Estimates in						Adult Coho Spawners Per Spawner Habitat Mile			
	Conservation Objective ^{b/}	Preseason Projection	Postseason Estimate ^{c/}	Thousands of Spawners by Stock Component		Coastwide		Southern		Central		Average	
				Northern ^{d/}	North ^{e/} Central	South ^{f/} Central	Southern ^{g/}	Northern ^{d/}	North ^{e/} Central	South ^{f/} Central	Southern ^{g/}	Coastwide	Coastwide Average
1990	-	-	-	2.2	5.6	13.1	3.1	24.0	2	5	8	8	6
1991	-	0.460	0.454	9.3	6.7	20.3	1.0	37.3	10	6	13	2	9
1992	-	0.420	0.511	2.4	15.4	22.8	2.2	42.8	3	13	14	5	10
1993	-	0.260	0.423	4.5	7.8	42.1	0.4 ^{h/}	54.8	5	7	26	1 ^{h/}	13
1994	≤0.20	0.111	0.068	3.4	9.8	30.0	5.4	48.6	4	8	18	13	12
1995	≤0.20	0.118	0.124	3.8	13.6	35.0	3.8	56.2	4	12	22	9	14
1996	≤0.20	0.125	0.083	3.3	18.1	51.5	4.6	77.5	4	16	32	11	19
1997	≤0.20	0.110	0.124	2.1	2.8	17.7	8.3	30.9	2	2	11	20	8
1998	≤0.13	0.119	0.078	2.6	3.3	25.2	2.3	33.4	3	3	16	6	8
1999	≤0.15	0.087	0.087	8.8	11.4	27.1	1.4	48.7	10	10	17	3	12
2000	≤0.15	0.082	0.073	18.6	15.8	38.1	11.0	83.5	21	14	23	27	20
2001	≤0.08	0.074	NA	33.7	25.5	110.3	12.2	181.7	37	22	68	30	44
2002 ^{i/}	≤0.15	0.123	NA	52.2	104.1	108.0	7.8	272.1	58	90	67	19	66

a/ A spawner escapement methodology study based on SRS has been in effect since 1990 in which coho salmon population estimates have been made for Oregon coastal river systems from the Coquille River and north. Spawner population estimates include an adjustment for observation error.

b/ Prior to 1994, the conservation objective was expressed in terms of the total escapement of OCN spawners in index numbers rather than as an exploitation rate. The index escapement objectives from 1981 through 1993 are provided in Table III-2 of the *Review of 1998 Ocean Salmon Fisheries* and Table 1 of Amendment 11. From 1994 through 1997, Amendment 11 specified that at low stock sizes, only incidental harvest of OCN coho could occur and that impacts could not exceed 20%. Beginning in 1998, the OCN conservation objective has been as specified in Amendment 13 which is also the basis for the NMFS jeopardy standards under the Endangered Species Act listing.

c/ From the coho FRAM, except the estimates prior to 1994 represent the OPI composite exploitation rate for hatchery and natural stocks.

d/ Estimate based on 899 miles of spawner habitat within Nehalem, Tillamook, and Nestucca Rivers and other direct ocean tributaries from Necanicum River through Neskowin Creek.

e/ Estimate based on 1,163 miles of spawner habitat within Siletz, Yaquina, Alsea, and Siuslaw Rivers and other direct ocean tributaries from the Salmon through Siuslaw Rivers.

f/ Estimate based on 1,622 miles of spawner habitat within Umpqua, Coos, and Coquille Rivers. Also includes spawners using tributaries to Siltcoos, Tahkenitch, and Tenmile Lakes.

g/ Estimate based on a mark-recapture methodology and 410 miles of spawner habitat within the Rogue River.

h/ Unreliable estimate.

i/ Preliminary.

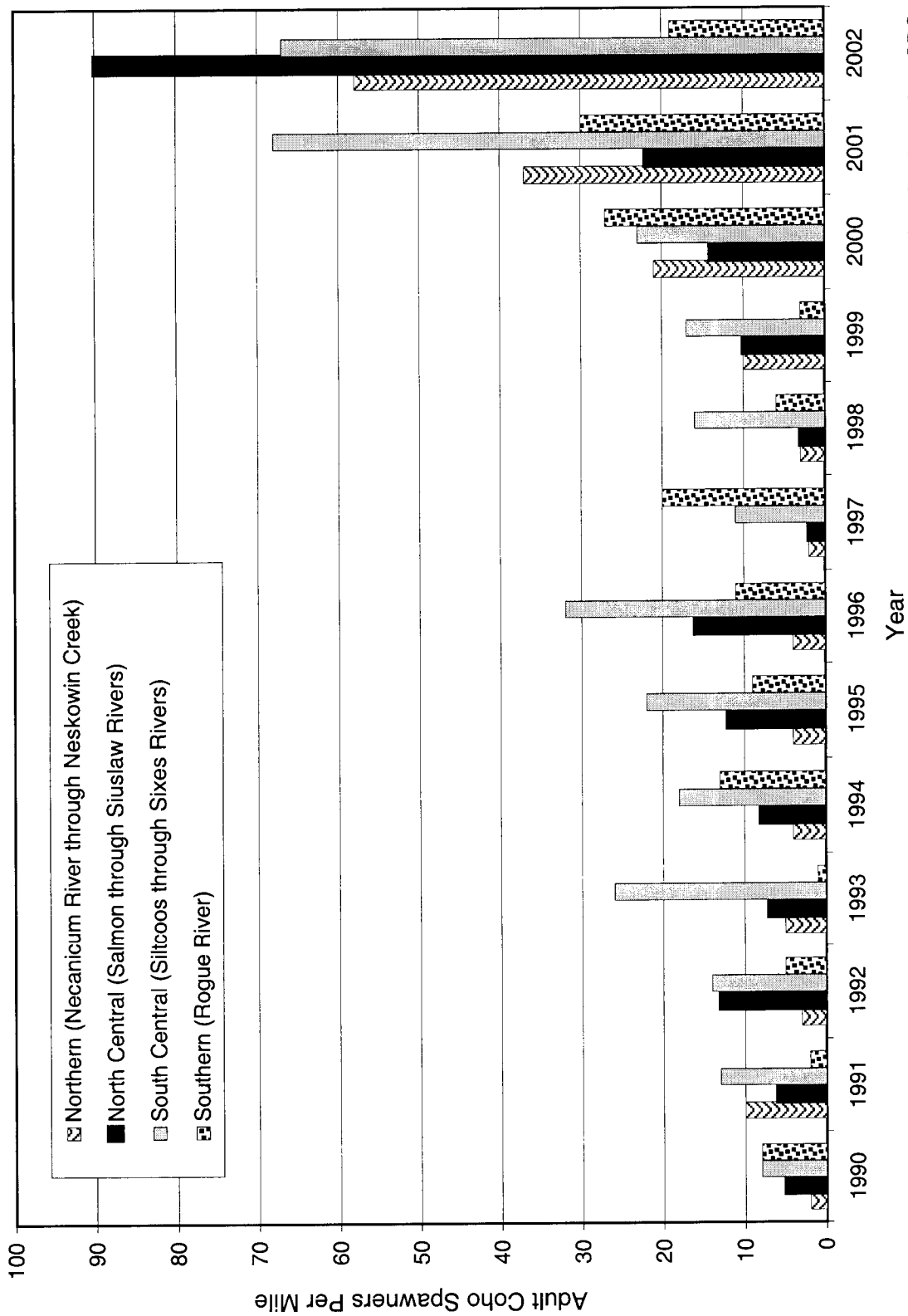


FIGURE III-2. Oregon coastal natural adult coho salmon spawners per spawner habitat mile by coastal region based on SRS, 1990-2002.

Willapa Bay Coho

Inside Harvest

The gillnet catch of coho in Willapa Bay in 2002 totaled 60,059 fish (wild 26,900 and hatchery 33,159). Based on the preseason forecast for a terminal run of 61,988 fish, the scheduled commercial fisheries were expected to harvest approximately 42,798 total coho.

Marine and freshwater recreational harvest estimates are not yet available for 2002. Willapa Bay was open to recreational fishing from August 16 through January 31 with a daily-bag-limit of six salmon, two of which could be adults. All retained coho were required to have a healed adipose fin clip. The freshwater sport fisheries opened at the usual time, were of normal duration, and maintained normal bag limits.

Escapement and Management Performance

Willapa Bay coho are managed primarily for natural production. Estimates of natural spawning escapement for 2002 are not yet available. Escapement to Willapa Bay hatcheries in 2002 numbered 39,815 coho, which met the egg take goal.

Grays Harbor Coho

Run size, harvest, and escapement data for Grays Harbor coho are presented in Appendix B, Table B-26.

Inside Harvest

Historical terminal run size, harvest and escapement data for Grays Harbor coho are presented in Appendix B, Table B-26. The terminal run size forecast for Grays Harbor coho was for 100,490 fish (50,640 wild and 49,850 hatchery). A total of 20,984 coho (wild, hatchery, and net-pen origin) were harvested in net fisheries. This included 14,139 coho in the Quinault Indian Nation fisheries, 6,845 in the non-Indian gillnet fishery, and small number in the Chehalis tribal fishery.

Recreational harvest estimates for 2002 are not yet available. The Chehalis River and its tributaries were open to non-selective coho harvest with one unmarked coho allowed in a two-adult coho bag limit, through November 15. After November 15, fish without a healed adipose fin clip were required to be released. The Humptulips recreational fishery required release of all coho without a healed adipose fin clip throughout the season.

Escapement and Management Performance

Grays Harbor coho are managed for natural production with a spawning escapement goal of 35,400. Natural spawning escapement estimates are not yet available.

The preliminary estimates of the total return to Grays Harbor hatcheries is 42,600 coho, which met egg take needs. Net pen reared coho also returned to Grays Harbor in 2002 and contributed to the coho harvest, but no estimate of escapement is available.

Quinault River Coho

Inside Harvest

Historical terminal run size, harvest, and escapement for Quinault River coho are presented in Appendix B, Table B-28.

The treaty Indian gillnet fishery targets hatchery chinook and coho from early September through mid-November. A total of 19,194 coho were harvested by the gillnet fishery in 2002.

Escapement and Management Performance

Quinault River coho are managed for hatchery production. Escapement estimates for Quinault River coho in 2002 are not yet available. Hatchery production objectives were achieved for Quinault River coho.

Queets River Coho

Inside Harvest

Historical terminal run size, harvest, and escapement for Queets River coho are presented in Appendix B, Table B-31.

Queets River fisheries were established by preseason agreement, based on preseason abundance estimates and planned Council ocean fisheries. The treaty Indian gillnet fishery was structured to target returning hatchery and wild coho during September and early October. The total harvest of fall coho by the net fishery was 23,742, including 30 fish taken for ceremonial and subsistence use. The gillnet harvest was comprised primarily of hatchery fish. Recreational fisheries operated in the Queets, Clearwater, and Salmon Rivers; no catch estimate is available for the inriver recreational fishery.

Escapement and Management Performance

The preliminary spawning escapement estimate for Queets wild (including supplemental) coho is 23,131 adults, far exceeding the upper end of the escapement objective of 5,800 to 14,500 established for this stock.

Hoh River Coho

Inside Harvest

Historical terminal run size, harvest, and escapement for Hoh River coho are presented in Appendix B, Table B-34.

The preseason terminal run size for Hoh coho was projected to be 6,849 after planned ocean fisheries under Council regulation, above the upper end of the spawning escapement range for this stock. Returning adults in 2002 were the result of moderate freshwater smolt production and above average ocean survival impacts comparable to those observed during the early 1980's.

The tribal terminal fishery was designed to harvest wild coho within constraints on fall chinook impacts. The tribal fishery harvested approximately 3,144 coho (2,100 wild, including dip in fish). The non-Indian recreational fishery opened below the Oxbow Campground boat ramp with a daily-bag-limit of 6 salmon, two of which could be adults. Regulations for the recreational fishery were adjusted in response to concerns for impacts on fall chinook. No catch estimate for the recreational fishery is available.

Escapement and Management Performance

Preliminary escapement data suggest the 2002 coho escapement will be well above the upper end of the spawning escapement range. Flow conditions within the Hoh River Basin resulted in average spawner distribution in the mainstem and floodplains areas, but below average distribution in tributaries.

Quillayute River Coho

Inside Harvest

Historical terminal run size, harvest, and escapements for Quillayute River summer and fall coho are presented in Appendix B, Table B-37.

Recreational and tribal fisheries for summer coho were established through agreement between the Quileute Tribe and WDFW. The summer coho run in the Quillayute River is managed primarily for its hatchery component, which returns during the last weeks of the spring/summer fishery and the first weeks of the fall fishery. A total of 4,032 summer coho (1,074 wild) were harvested in the Quileute tribe's commercial and ceremonial and subsistence fisheries. No estimate of the 2002 inriver sport fishery catch of summer coho is available.

The total tribal harvest of fall coho in 2002 was 22,264 (11,476 wild). No catch estimate is available for the inriver sport fishery. Unusually low flows resulted in adjustments to both the tribal and sport fisheries (see discussion under fall chinook).

Escapement and Goal Assessment

The summer coho run in the Quillayute River is managed primarily for the hatchery component. The summer coho hatchery rack return was approximately 3,939 adults, far in excess of the 300 adults needed for the egg take goal. The natural escapement of summer coho in 2002 is estimated at 500 adults.

Preliminary information indicates the 2002 escapement of fall coho was 14,713 adults, approaching the upper end of the spawning escapement goal range of 6,300 to 15,800 established for this stock. The hatchery fall coho rack return was 30,656 adults, far in excess of the 600 adult egg take goal.

PUGET SOUND COHO STOCKS

Puget Sound coho salmon stocks include natural and hatchery stocks originating from U.S. tributaries in Puget Sound and the eastern Strait of Juan de Fuca (east of Salt Creek). The primary stocks in this group that are most pertinent to ocean salmon fishery management are eastern Strait of Juan de Fuca, Hood Canal, Skagit, Stillaguamish, Snohomish, and South Puget Sound (hatchery) coho.

Management Objectives

The Puget Sound Salmon Management Plan defines management objectives and long-term goals for these stocks as developed by representatives from federal, state, and tribal agencies. Conservation objectives for specific stocks are currently based on either maximum sustainable production for stocks managed primarily for natural production or on hatchery escapement needs for stocks managed for artificial production. A transition to exploitation rate management is currently under consideration by the involved managers. Annual escapement targets for these coho stocks are developed through procedures established in U.S. District Court. Puget Sound management procedures are outlined in a "Memorandum Adopting Salmon Management Plan" (*U.S. versus Washington*, 626 F. Supp. 1405 [1985]). The original conservation objectives were developed by a State/Tribal Management Plan Development Team following the Boldt Decision with the goal for natural spawning stocks defined as "the adult spawning population that will, on the average, maximize biomass of juvenile outmigrants subsequent to incubation and freshwater rearing under average environmental conditions". The methodology used to develop the objectives was based on assessment of the quantity and quality of rearing habitat and the number of adult spawners required to fully seed the habitat. Some objectives have subsequently been modified by the U.S. District Court Fisheries Advisory Board and later determinations of the WDFW/Tribal Technical Committee.

Regulations to Achieve Objectives

Puget Sound coho stocks contribute primarily to ocean fisheries off Washington and British Columbia. These stocks did not play a primary roll in 2002 ocean fishery management considerations since the needs of OCN stocks were more critical. The mark selective regulations in ocean and Puget Sound recreational fisheries served to increase harvest of marked hatchery fish while protecting wild Puget Sound coho and Thompson River coho (Canada).

Inside Harvest

Commercial inside fishery harvest of Puget Sound coho is managed on the basis of six regional management units: Strait of Juan de Fuca, Nooksack-Samish, Skagit, Stillaguamish-Snohomish, South Puget Sound, and Hood Canal. Harvest of coho for each management unit is regulated according to the natural spawning escapement or hatchery program escapement goal for that unit. Commercial net and troll harvest (treaty Indian and non-Indian) for all coho stocks combined is presented in Appendix B, Table B-38. The 2002 total Puget Sound commercial catch of coho was 287,100 fish, compared to a catch of 360,800 coho in 2001. Non-Indian harvest was 24,200 coho, compared to a catch of 31,300 coho in 2001. Treaty Indian net and troll fisheries harvested 262,900 coho, compared to a catch of 329,500 coho in 2001.

Historic coho recreational catches in the Puget Sound recreational fishery for the years from 1971 through 2001 are listed in Appendix B, Table B-39.

Escapement and Management Performance

Estimates of 2002 natural spawning escapements are unavailable at this time. Historic hatchery and natural run component escapements and net catches for each Puget Sound region of origin are presented in Appendix B, Table B-41.

In general, Puget Sound hatchery coho escapement and egg-take goals were met in all regions except for South Puget Sound .

COASTWIDE GOAL ASSESSMENT SUMMARY

A summary of 2002 performance for coho salmon by stock in relation to the Council's conservation objectives (Amendment 14) is presented in Table III-4.

TABLE III-4. Performance of coho salmon stocks in relation to 2002 conservation objectives (preliminary data). (Page 1 of 1)

System and Stock	2002 FMP Conservation Objective	Achievement
Puget Sound Coho	Natural spawner escapement objectives as provided below and in state/tribal agreements; meet hatchery egg-take goals; meet treaty Indian allocation requirements and inside non-Indian fishery needs for 6 management units.	Data not available for 2001 natural spawner escapements, but all are expected to be better than preseason expectations. Hatchery egg-take goals met, except for South Puget Sound. No information available on catch allocation.
Strait of Juan de Fuca	≤40% total exploitation rate. 12,800 adult spawners.	Preseason expected ocean escapement of 22,000 adult fish for eastern and western Strait of Juan de Fuca combined. 17.0% total exploitation rate.
Hood Canal	≤65% total exploitation rate. 21,500 natural adult spawners.	Preseason expected ocean escapement of 25,600 adult fish. 44.0% total exploitation rate.
Skagit	≤60% total exploitation rate. 30,000 natural adult spawners.	Preseason expected ocean escapement of 79,900 adult fish. 38.0% total exploitation rate.
Stillaguamish	≤35% total exploitation rate. 17,000 natural adult spawners.	Preseason expected ocean escapement of 14,500 adult fish. 35.0% total exploitation rate.
Snohomish	≤40% total exploitation rate. 70,000 natural adult spawners.	Preseason expected ocean escapement of 86,700 adult fish. 34.0% total exploitation rate.
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Washington Coast Coho	Natural spawner escapement objectives as provided below and in state/tribal agreements; meet hatchery egg-take goals; meet treaty Indian obligations.	Hatchery egg-take goals achieved. No information available on catch allocation.
Quillayute Fall	6,300 to 15,800 natural adult spawners.	Postseason estimate not available, but expected to be in the upper end of the range. Preseason expectation for an ocean escapement of 18,500 adult fish.
Hoh	2,000 to 5,000 natural adult spawners.	6,900 natural adult spawners.
Queets	5,800 to 14,500 natural adult spawners.	10,200 natural adult spawners.
Grays Harbor	35,400 natural adult spawners.	Postseason estimate not available, but the objective is expected to be met. Preseason expectation for an ocean escapement of 50,300 adult fish.
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OPI Area Coho (Columbia River and coastal stocks south of Leadbetter Point)	Natural spawner escapement objectives as provided below; meet hatchery egg-take goals; meet treaty Indian obligations.	Hatchery egg-take goals achieved. No information available on catch allocation.
OCN (Threatened)	Combined marine and freshwater exploitation rate ≤15.0% for the 4 stock components. Council adopted a projected exploitation rate of 12.3% with an expected escapement of 63,300 adult spawners (SRS of rivers and lakes from the Coquille River north).	Postseason exploitation rate estimate not available. Preliminary OCN escapement of 151,700 adult spawners (SRS of rivers and lakes from the Coquille River north).
Northern California (Threatened) and CCC (Threatened)	No directed coho fisheries or retention of coho south of Humbug Mt. Marine exploitation rate ≤13% as indicated by R/K hatchery stocks. Council adopted a projected exploitation rate on R/K hatchery coho of 7.7%.	No directed coho fisheries or retention of coho south of Humbug Mt. Postseason exploitation estimate not available.