
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, although stocks produced north of Leadbetter Point are also intercepted in the OPI area. The largest naturally produced coho stock is OCN coho. OCN coho are 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 listed three ESUs as threatened: central California coast (CCC) coho listed October 1996, Southern Oregon/Northern California coastal SONCC coho listed May 1997, and Oregon Coastal (OCN) coho listed August 1998. Columbia River natural coho are a candidate species under the federal ESA, and are listed as endangered under the Oregon State ESA. The primary hatchery stocks include a south migrating Columbia River stock (earlies), a north migrating Columbia River stock (lates), public hatchery coho from the Oregon and Northern California coast, and a small cooperative program along the southern Oregon coast known as the Salmon Trout Enhancement Program (STEP).

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, SONCC, 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 SONCC 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 2003).

The Council was also guided by the OCN Work Group recommended 15% exploitation rate on OCN coho, which resulted from the 2000 review of Amendment 13, and which the Council accepted as expert biological advice at the November 2000 Council meeting.

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 Council prohibited retention of coho in all fisheries south of Humbug Mt., Oregon and adopted seasons that the STT projected would result in exploitation rates of 9.6% for RK coho in marine fisheries and an overall 14.4% 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. Chinook fishery closures and gear restrictions (4-spread requirement) were also used to reduce OCN impacts.

Non-Indian commercial troll fisheries allowing mark-selective coho retention occurred in 2003 from Cape Falcon to the U.S./Canada border with a 75,000 coho quota.

All species treaty Indian fisheries north of Cape Falcon were not restricted to mark-selective retention of coho, and operated on a quota of 90,000 coho.

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 mark-selective since 1998. Increased abundance of marked coho in the OPI area has resulted in larger allowable harvests of marked coho within constraints for ESA listed OCN coho.

Inside Harvest

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

The 2003 inside recreational harvest of coho in Oregon coastal streams, as in recent years, was very restricted and generally limited to areas where surplus hatchery coho returns were expected. Mark-selective coho fisheries occurred in nine freshwater areas. Estimates of the 2003 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.

For the first time since OCN coho were listed under the ESA, a limited fishery for naturally produced coho was approved in Siltcoos and Tahkenitch Lakes. The recreational fishery occurred from December 11-31, 2003. Due to this seasons late start the total catch was less than 20 fish.

The 2003 Columbia River non-Indian commercial gillnet fishery harvested 225,700 adult coho, compared to 163,000 coho in 2002. Select Area fisheries in both Oregon and Washington accounted for 111,800 of the total 2003 Columbia River commercial coho catch. The treaty Indian mainstem commercial gillnet coho catch was 2,600 fish, compared to the 2002 catch of 1600 coho. All Columbia River commercial fisheries are non-mark-selective. Coho harvest statistics for Columbia River commercial and recreational fisheries are presented in Appendix B, Table B-21.

The total mainstem and Buoy 10 recreational fisheries below Bonneville Dam harvested 84,200 adult coho compared to 41,700 adult coho in 2002. In 2003, 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. The 2003 Buoy 10 harvest and effort totaled 54,300 coho and 88,600 angler trips (Table III-2). All Columbia River recreational fisheries were mark-selective for coho. Historical Buoy 10 catch and effort data are provided in Appendix B, Table B-22.

Escapement and Management Performance

The overall abundance estimate for OPI areas stocks in 2003 was 1,234,900, down from 967,600 in 2002 and greater than the ten-year average of 522,000 (Figure III-1).

TABLE III-1. Estimated returns to Oregon coastal streams and lakes in thousands of adult coho (SRS spawner accounting).
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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	-	38.1	1.2	24.9	19.7	149.8	169.5	10.0	243.7
2002	-	30.9	2.6	11.2	22.1	242.2	264.3	8.1	317.1
2003 ^{d/}	-	15.9	3.6	13.7	25.1	213.2	238.3	6.7	278.2

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.

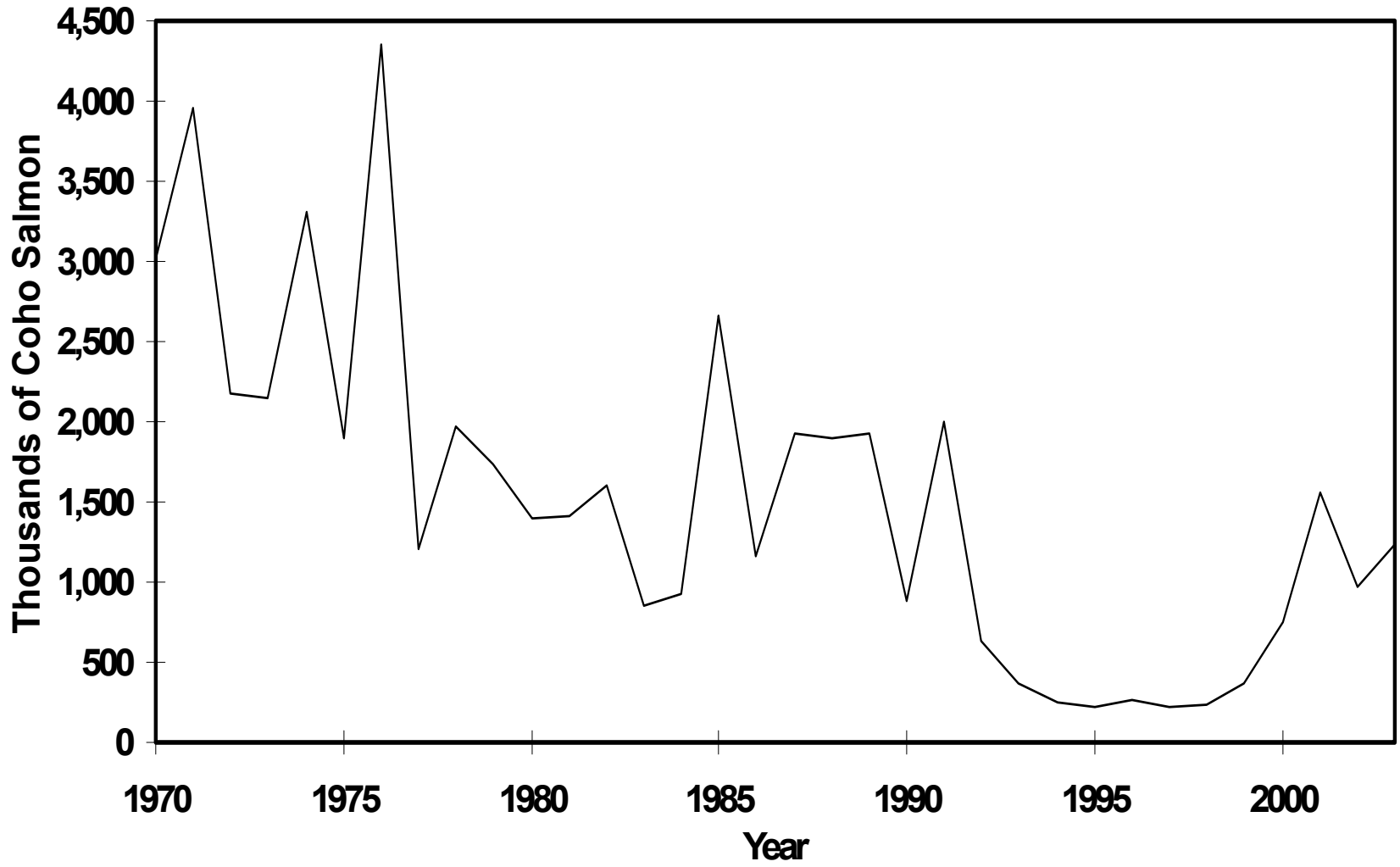


Figure III-1. Oregon production area (OPI) salmon abundance estimates by stratified random survey (SRS) accounting methods, 1970-2003.

TABLE III-2. Estimated weekly **effort** (in angler trips) and **catches** of chinook and coho in the 2003 **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.-3	2,238	113	191	0.14
32	Aug.-10	3,772	323	332	0.17
33	Aug.-17	11,119	2,045	3,028	0.46
34	Aug.-24	24,593	6,633	13,239	0.81
35	Sept.-1	20,238	4,372	16,620	1.04
36	Sept.-7	14,899	2,236	15,016	1.16
37	Sept.-14	7,419	500	4,809	0.72
38	Sept.-21	3,382	63	979	0.31
39	Sept.-28	951	9	87	0.10
40-44	Nov.-2	0	0	0	0.00
Total		88,611	16,294	54,301	0.80

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 coho and steelhead without healed adipose fin clips.

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 2003, coho returns to Iron Gate and Trinity River hatcheries totaled 11,742 adults (10,425 coho to Trinity River and 1,317 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 2003 to Oregon coastal river and lake systems from the Coquille River north is 238,300 adult coho by SRS accounting. This compares to 264,300 adults in 2002. 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 second best natural spawning population on the Oregon coast on record, in part, due to very low levels of ocean exploitation. The estimate of the natural spawning population in 2003 was 240,000 (Table III-3, Figure III-2). Natural spawning populations were at or near record highs for all basins except the southern basin.

Preliminary estimates of total coho returns to Oregon coastal public hatcheries and Salmon Trout Enhancement Program (STEP) smolt production facilities were 15,900 and 3,600 adults, respectively (Table III-1). Hatchery egg-take goals are expected to be met at all public hatchery stations.

Columbia River Coho

The 2003 ocean escapement of adult early and late Columbia River coho stocks was 694,800 fish, compared to 511,600 adults in 2002 (Appendix B, Table B-21). The 2003 Columbia River coho abundance was sufficient to meet all hatchery brood stock escapement needs.

Preseason, the STT (using the coho FRAM) predicted the mark rate for the Buoy 10 fishery would be 81%. From dockside interviews, the mark rate for the Buoy 10 fishery was estimated at 61%.

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, Quinalt (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

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 (Total Marine and Freshwater Exploitation Rate)			Adjusted SRS Adult Coho Spawner Population Estimates in Thousands of Spawners by Stock Component ^{a/}					Adult Coho Spawners Per Spawner Habitat Mile				
	Conservation Objective ^{b/}	Preseason Projection	Postseason Estimate ^{c/}	Northern ^{d/}	North Central ^{e/}	South Central ^{f/}	Southern ^{g/}	Coastwide	Northern ^{d/}	North Central ^{e/}	South Central ^{f/}	Southern ^{g/}	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	17.9	14.3	34.7	11.0	77.9	20	12	21	27	19
2001	#0.08	0.074	NA	33.4	25.2	109.0	12.2	179.8	37	22	67	30	44
2002	#0.15	0.123	NA	49.7	102.7	101.0	7.8	261.2	55	88	62	19	64
2003 ^{i/}	#0.15	0.144	NA	56.8	68.8	112.4	2.0	240.0	63	59	69	5	59

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.

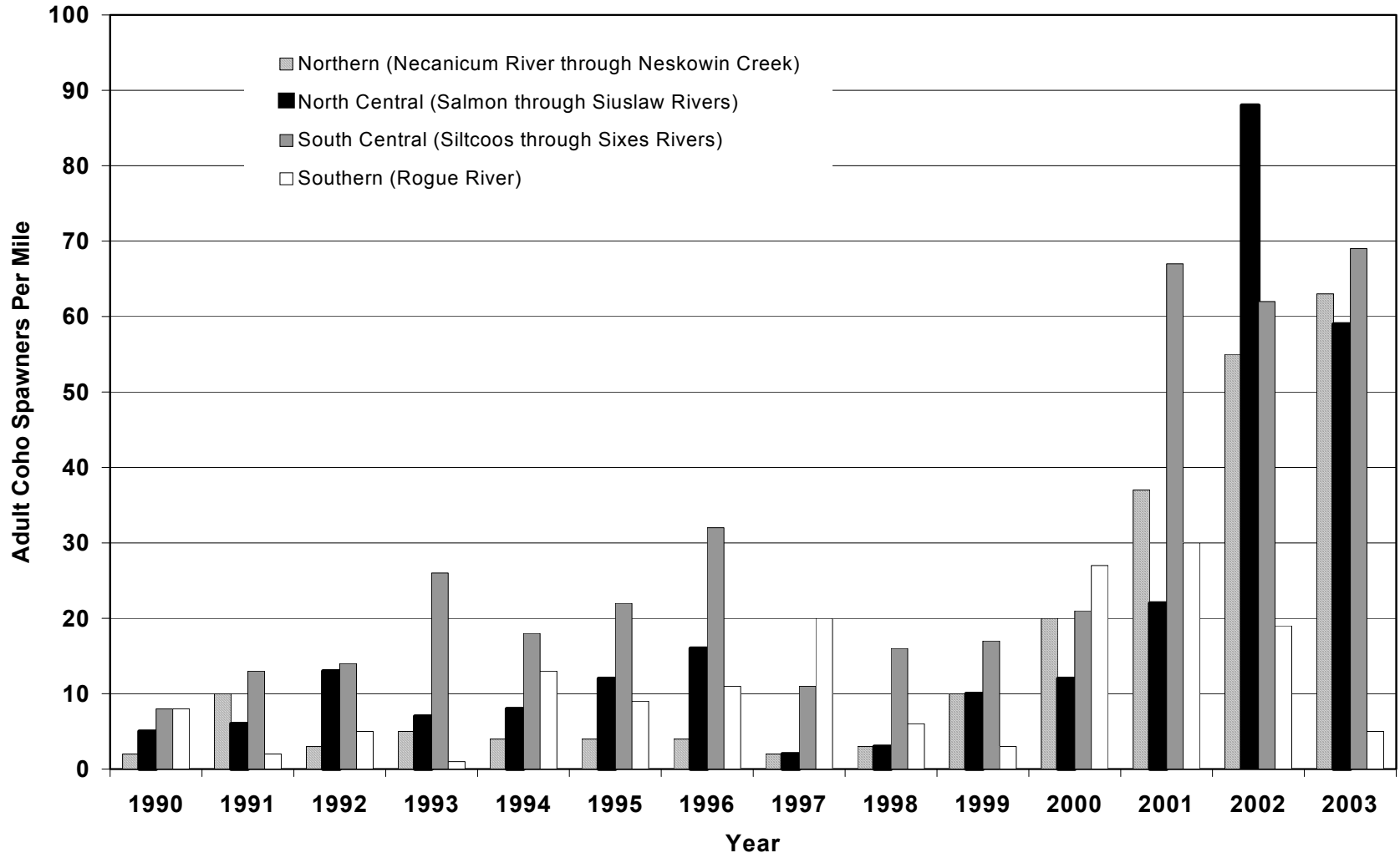


Figure III-2. Oregon coastal natural (OCN) adult coho salmon spawners per spawner habitat mile by coastal region based on SRS accounting methods, 1990-2003.

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 role in 2003 Council area ocean fishery management because of impact constraints on OCN stocks. Overall harvest quotas were limited to levels well below those of the late 1980s and early 1990s. All non-Indian coho ocean fisheries north of Cape Falcon were mark-selective, but treaty Indian fisheries did not have mark-selective coho restrictions.

Willapa Bay Coho

Inside Harvest

Historical terminal run size, harvest and escapement data for Willapa Bay coho are presented in Appendix B, Table B-24. The gillnet catch of coho in Willapa Bay in 2003 totaled 64,429 fish (wild 13,625 and hatchery 50,804). Based on the preseason forecast for a terminal run of 68,758 fish, the scheduled commercial fisheries were expected to harvest approximately 30,464 total coho.

Marine and freshwater recreational harvest estimates are not yet available for 2003. Expected harvest in recreational fisheries based on preseason forecast abundance was 2,758. Willapa Bay was open to recreational fishing from August 16, 2003 through January 31, 2004 with a daily-bag-limit of six salmon, no more than two adults. Single point barbless hook were required when fishing for salmon. Freshwater recreational fisheries in the Willapa Bay watershed were open for salmon fishing from August 16, 2003 through January 31, 2004 with a daily-bag-limit of six salmon, composed of up to three adult coho, including no more than one of natural origin identified by having an intact adipose fin.

Escapement and Management Performance

Willapa Bay coho are managed primarily for natural production. Estimates of natural spawning escapement for 2003 are not yet available. Escapement to Willapa Bay hatcheries in 2003 numbered 55,717 coho, which met the egg take goal.

Grays Harbor Coho

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 93,700 fish (51,200 wild and 42,500 hatchery). More than 18,000 coho (wild, hatchery, and net-pen origin) were harvested in treaty and non-treaty net fisheries. This included 12,048 coho in the Quinault Indian Nation fisheries, 6,330 in the non-Indian gillnet fishery, and small numbers in the Chehalis tribal fishery.

Recreational harvest estimates for 2003 are not yet available. The eastern portion of Grays Harbor was open for recreational salmon fishing September 16 through November 30 with a daily-bag-limit of six salmon, including no more than two adult coho. The Chehalis River and its tributaries were open to non-mark-selective harvest of up to two adult coho April 16 through July 31 and October 1 through November 30. In December, January, and February openings varied by system but coho harvest was limited to one unmarked

coho in a two-adult coho bag limit. 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 64,510 coho, which met egg take needs. Net pen reared coho also returned to Grays Harbor in 2003 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 22,558 coho were harvested by the gillnet fishery in 2003.

Escapement and Management Performance

Quinault River coho are managed for hatchery production. Escapement estimates for Quinault River coho in 2003 are not yet available. Hatchery production objectives were achieved.

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 12,722, including 30 fish taken for ceremonial and subsistence use. The gillnet harvest was comprised primarily of hatchery fish. Recreational fisheries operated with standard bag limits and schedules, in the Queets, Clearwater, and Salmon Rivers, and were not mark-selective for coho. The 2003 catch estimate for the inriver recreational fishery of 1,901 is preliminary.

Escapement and Management Performance

The preliminary spawning escapement estimate for Queets wild (including supplemental) coho is 16,686 adults, 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, catch, and escapement data for Hoh River coho are presented in Appendix B, Table B-34.

The terminal run size of Hoh River wild coho was projected to be 10,394, based on both strong freshwater and saltwater survival expectations. The fall fishing schedule was set as described in the Chapter II section on Hoh River fall chinook in order to stay within more stringent chinook harvest limitations. The tribal fishery took approximately 1,892 coho, with approximately 1,584 estimated to be wild coho, including dip-in wild fish. This was far below the preseason expected catch of approximately 3,381 wild Hoh and dip-in coho. The non-Indian recreational fishery operated as anticipated preseason, without a mark-selective coho restriction, and as described in the Chapter II section on Hoh River fall chinook.

Escapement and Management Performance

Though the overall preliminary run size estimate was less than expected preseason, escapement appears to be strong. Escapement surveys are still incomplete, but preliminary information indicate that the spawning escapement for Hoh coho should exceed the upper end of the escapement range established for this stock (5,000).

Quillayute River Coho

Inside Harvest

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

The recreational and tribal fisheries for coho were established by preseason agreement between WDFW and the Quileute Tribe. A total of 2,462 (962 wild) summer coho were harvested in the Quileute Tribes commercial and ceremonial and subsistence fisheries. An estimate of the 2003 recreational catch is not yet available.

The Quileute Tribal harvest of fall coho for 2003 was 13,999 (13,949 commercial, 50 ceremonial and subsistence). Approximately 7,698 wild coho were harvested by tribal net fisheries. An estimate of the 2003 recreational catch is not yet available.

WDFW reduced the impacts of the recreational fishery on naturally produced summer coho by requiring the mark-selective fisheries for coho during July and August. The non-mark-selective recreational fishery for fall coho proceeded with normal bag limits and schedule. The Quileute Tribe did not have a closure in their fishery this year, but as in past years, reduced their fishery to 29 hours per week during July and August.

Escapement and Goal Assessment

The summer coho run in the Quillayute is managed primarily for its hatchery component which returns in August and September. The summer coho rack return was 6,539. This is well above the goal of 300. The preliminary estimate for natural summer coho escapement is 505.

The preliminary 2003 escapement estimate for natural fall coho is 14,370. This is near the upper range of the escapement goal of 6,300 to 15,800 established for this stock. The hatchery rack return of 13,799 exceeded the goal of 600 adults.

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 Council's conservation objectives are based on the Puget Sound Salmon Management Plan, which 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 role in 2003 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 244,300 fish, compared to a catch of 287,100 coho in 2002. Non-Indian harvest was 17,700 coho, compared to a catch of 24,200 coho in 2002. Treaty Indian net and troll fisheries harvested 226,600 coho, compared to a catch of 262,900 coho in 2002.

Historic coho recreational catches in the Puget Sound recreational fishery for the years from 1971 through 2002 are listed in Appendix B, Table B-39.

Escapement and Management Performance

Estimates of 2003 natural spawning escapements are unavailable at this time. Historical 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

Conservation objective achievement assessments are not yet available for most coho stocks, however, those that are available have all met their objectives.

A summary of 2003 performance for coho salmon by stock in relation to the Council's conservation objectives is presented in Table III-4.

TABLE III-4. Performance of **coho** salmon stocks in relation to 2003 conservation objectives (preliminary data). (Page 1 of 1)

System and Stock	2003 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 2003 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 18,00 adult fish for eastern and western Strait of Juan de Fuca combined. 14.0% total exploitation rate.
Hood Canal	#45% total exploitation rate. 21,500 natural adult spawners.	Preseason expected ocean escapement of 25,800 adult fish. 41.0% total exploitation rate.
Skagit	#60% total exploitation rate. 30,000 natural adult spawners.	Preseason expected ocean escapement of 97,900 adult fish. 37.0% total exploitation rate.
Stillaguamish	#50% total exploitation rate. 17,000 natural adult spawners.	Preseason expected ocean escapement of 27,700 adult fish. 37.0% total exploitation rate.
Snohomish	#60% total exploitation rate. 70,000 natural adult spawners.	Preseason expected ocean escapement of 147,600 adult fish. 33.0% total exploitation rate.
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.	14,400 natural adult spawners.
Hoh	2,000 to 5,000 natural adult spawners.	5,115 natural adult spawners.
Queets	5,800 to 14,500 natural adult spawners.	16,000 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 52,300 adult fish.
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 14.4%, 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 238,300 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.