

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, which includes coho produced from Oregon river and lake systems south of the Columbia River. OCN coho are managed as a stock aggregate with four identified components. NMFS listed three coho ESUs within the OPI area as threatened: CCC coho listed October 1996, SONCC coho listed May 1997, and OCN coho listed August 1998. In 2002, NMFS began an update of all its listing determinations and in January of 2006 concluded that the OCN ESU did not warrant listing under the ESA. However, Columbia River natural coho were listed as endangered under the Oregon State ESA in 2002, and as threatened under the Federal ESA on June 28, 2005. The primary hatchery stocks include a south migrating Columbia River (early) stock, a north migrating Columbia River (late) stock, 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 and SONCC coho and reasonable and prudent alternatives in the March 2006 NMFS ESA guidance letter for LCR natural 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 13.0% as indicated by projected impacts on RK hatchery coho.
3. Marine fishery impacts on threatened LCR natural coho should not exceed a coastwide marine and freshwater exploitation rate of 15.0%.

Based on parent escapement levels and observed OPI smolt-to-jack survival for 2003 brood OPI smolts, the total allowable OCN coho exploitation rate for 2006 fisheries was no greater than 20.0% under the Salmon FMP (Amendment 13), but no greater than 15.0% under the matrix developed by the OCN work group during their review of Amendment 13. The work group recommendation was accepted by the Council as expert biological advice in November 2000.

The Council was also guided by treaty Indian/non-Indian sharing agreement for Columbia upriver coho stocks, which required passage of 50% of the run destined for areas above Bonneville Dam.

Regulations to Achieve Objectives

Historically, OPI area coho stocks contributed primarily to ocean fisheries off Oregon and northern California and, to a lesser degree, Washington and B.C. The Council prohibited retention of coho in all fisheries south of the Oregon/California border, and adopted seasons the STT projected would result in

exploitation rates of 5.2% for RK coho in marine fisheries, 9.6% for OCN coho in marine and freshwater fisheries combined, and 9.9% for LCR natural coho in marine fisheries.

Commercial Troll

Commercial troll fisheries have been closed to coho retention south of Cape Falcon since 1993. Chinook fishery closures and gear restrictions (four-spread requirement) were also used to reduce coho impacts.

Non-Indian commercial troll fisheries from Cape Falcon to the U.S./Canada border occurred in 2006 with an overall quota of 6,800 coho. The fisheries were restricted to mark-selective coho retention.

All species treaty Indian fisheries north of Cape Falcon were not restricted to mark-selective retention of coho, and operated on an overall quota of 37,500 coho.

Recreational

Retention of coho has been limited in the recreational fisheries south of Cape Falcon since 1993. All coho directed recreational fisheries in the OPI area have been mark-selective since 1998. Retention of coho has been prohibited off California since 1996 to protect ESA listed CCC coho. Adequate abundance of marked coho in the OPI area has resulted in allowable harvests of marked coho in Oregon and Washington within constraints for OCN and LCR natural coho.

Inside Harvest

Coho retention in all California fisheries was prohibited.

The 2006 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 2006 inriver recreational coho harvest were not available. 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.

A limited fishery for naturally-produced coho was approved in Siltcoos and Tahkenitch Lakes. The recreational fishery opened October 1, with a harvest quota of 400 adult coho for Siltcoos Lake and 200 adult coho for Tahkenitch Lake. The Siltcoos and Tahkenitch Lakes fisheries closed December 15 as scheduled. The final catch estimates were 220 adults and 70 jacks in the Siltcoos Lake fishery and 55 adults and 17 jacks in the Tahkenitch Lake fishery.

The 2006 Columbia River non-Indian commercial gillnet fishery harvested 64,100 adult coho, compared to 94,800 coho in 2005. Select Area fisheries in both Oregon and Washington accounted for 35,800 of the total 2006 Columbia River commercial coho catch. The treaty Indian mainstem commercial gillnet coho catch was 5,600 fish, compared to the 2005 catch of 4,700 coho. All Columbia River coho commercial fisheries were non-mark-selective. Coho harvest statistics for Columbia River commercial and recreational fisheries are presented in Appendix B, Table B-21.

The Buoy 10 and mainstem recreational fisheries below Bonneville Dam harvested 20,700 adult coho compared to 7,500 adult coho in 2005. In 2006, Columbia River managers opened the Buoy 10 fishery August 1 for both Chinook and adipose fin-clipped coho. The fishery ran through December 31 with the upriver boundary at the Tongue Point, Oregon to Rocky Point, Washington line. The 2006 Buoy 10 harvest and effort totaled 3,700 coho and 40,600 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 area stocks in 2006 was 557,100, down from 592,100 in 2005 and less than the ten-year average of 715,300 (Table III-3; Figure III-1).

Central California Coast and Northern California Coho

Spawner estimates were not available for CCC coho. Estimates were available for escapement to Klamath River Basin hatcheries, but not for coho spawning in natural areas. In 2006, a total of 9,818 coho returned to Trinity River Hatchery and 263 coho returned to Iron Gate Hatchery. These values compare to a combined goal of 2,000 adults.

Oregon Coast Natural Coho

The preliminary estimate of natural spawner escapement in 2006 to Oregon coastal river and lake systems from the Coquille River north (Oregon coast ESU) was 109,500 adult coho by SRS accounting. This compares to 89,300 adults in 2005. 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 6th largest total 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 2006 was 113,409, including estimates from the Rogue River, which is part of the SONCC ESU (Table III-4, Figure III-2).

Preliminary estimates of total coho returns to Oregon coastal public hatcheries and STEP smolt production facilities were 32,900 and 100 adults, respectively (Table III-1). Hatchery egg-take goals were expected to be met at all public hatchery stations.

Columbia River Coho

The 2006 ocean escapement of adult early and late Columbia River coho stocks was 384,100 fish, compared to 341,800 adults in 2005 (Appendix B, Table B-21). The 2006 Columbia River coho abundance was sufficient to meet all hatchery brood stock escapement needs.

WASHINGTON COASTAL COHO STOCKS

Washington coastal coho 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, inclusive). The stocks in this group most pertinent to ocean salmon fishery management were Willapa Bay (hatchery), Grays Harbor, Quinalt (hatchery), Queets, Hoh, and Quillayute coho.

Management Objectives

Management goals for Grays Harbor and Olympic Peninsula coho stocks included achieving natural spawning escapement objectives and treaty Indian allocation requirements. The Council's conservation objectives for stocks managed for natural production were based on maximum sustainable yield (MSY) spawner escapements established pursuant to the U.S. District Court order in *Hoh versus Baldrige*. 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. Annual targets for natural spawning escapement and total escapement were established by WDFW and treaty Indian tribes under the provisions of *U.S. versus Washington* and subsequent U.S. District Court orders. After the annual agreement was reached, ocean fishery escapement objectives were established for each river, or region of origin. The agreement includes provisions for treaty Indian allocation requirements and inside non-Indian fishery needs.

Regulations to Achieve Objectives

Washington coastal coho stocks contribute primarily to ocean fisheries off Washington and B.C. Those stocks did not play a primary role in 2006 Council area ocean fishery management because of impact constraints on Interior Fraser (Thompson River, B.C.) and LCR natural coho stocks, and treaty Indian/non-Indian inriver sharing of Columbia upriver coho. Overall harvest quotas were limited to levels well below those of the late 1980s and early 1990s. All non-Indian ocean coho fisheries north of Cape Falcon were mark-selective. Treaty Indian fisheries were not mark-selective.

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 2006 totaled 19,914 fish. Based on the preseason forecast for a terminal run of 68,005 fish, the scheduled commercial fisheries were expected to harvest approximately 17,290 total coho.

From July 3, 2006 through July 31, 2006, Willapa Bay (Marine Area 2-1) was open for recreational fishing, concurrent with the Ocean Marine Area 2 (ocean rules applied). August 1, 2006 through August 15, 2006 Willapa Bay was open to recreational fishing with a daily-bag-limit of six salmon with no more than two adults and August 16, 2006 through January 31, 2007, Willapa Bay was open to recreational fishing with a daily-bag-limit of six salmon, no more than three adults, of which only two could be Chinook. Single-point, barbless hooks were required when fishing for salmon. Marine and freshwater recreational harvest estimates were not yet available for 2006. Expected harvest in recreational fisheries based on preseason forecast abundance was 1,936. Marine Area 2-1 and freshwater recreational harvest estimates for 2005 harvest estimates totaled 4,384 fish.

Freshwater recreational fisheries in the Willapa Bay watershed were open for salmon fishing from August 1, 2006 through January 31, 2007 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 were managed primarily for natural production. Estimates of natural spawning escapement for 2006 were not available. The most recent escapement estimate available was 26,394 in 2005. Escapement to Willapa Bay hatcheries in 2006 was estimated at 17,086 coho, which met the escapement objective of 6,100 spawners.

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 ocean age-3 run size forecast for Grays Harbor coho, after accounting for ocean fishery impacts, was 104,774 fish (60,222 wild and 44,552 hatchery). Nearly 26,300 coho (wild, hatchery, and net-pen origin) were harvested in treaty Indian and non-Indian gillnet fisheries. This

included 8,687 coho in the Quinault Indian Nation fisheries, 649 in the non-Indian gillnet fishery, and small numbers in the Chehalis tribal fishery.

Recreational harvest estimates for 2006 were not available. The eastern portion of Grays Harbor was open for recreational salmon fishing September 16 through November 30 with a daily-bag-limit of two salmon. The Chehalis River and its tributaries downstream of the bridge crossing at the town of Porter were open for retention of up to two adult coho (regardless of mark status) from April 16 through July 31 and October 1 through November 30. The Chehalis River and its tributaries upstream of the bridge crossing at the town of Porter were open to retention of up to two adult coho (regardless of mark status) April 16 through July 31 and October 16 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 or release wild adult coho in a two-adult coho bag limit. The Humptulips recreational fishery required release of all wild adult coho (December 1 through January 31).

The Quinault Indian Nation operated two separately schedule gillnet fisheries in the area of the Lower Humptulips and in the area of the Lower Chehalis, as described in Chapter 2 under the section labeled Grays Harbor Chinook, for both Chinook and coho as well as chum salmon. The expected coho fishery impacts were limited by the expected abundance and harvest of Chinook in those fisheries. The Humptulips area fishery harvested 6,422 coho, while the Chehalis area fishery harvested 2,265 coho. Harvest levels were slightly less than 50% of pre-season expected levels in both fisheries.

Escapement and Management Performance

Grays Harbor coho were managed for natural production with a spawning escapement goal of 35,400. Natural spawning escapement estimates for 2004 and 2005 were 60,690 and 44,090 respectively, however 2006 estimates were not 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 targeted hatchery Chinook and coho from early September through mid-November. A total of 9,785 coho were harvested by the gillnet fishery in 2006.

Escapement and Management Performance

Quinault River coho were managed for hatchery production. Escapement estimates for Quinault River coho in 2006 were not available. The Quinault National Fish Hatchery egg-take objectives for 2006 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 managed under preseason agreement with WDFW 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 in the gillnet fishery was 6,190 commercially landed fish. The gillnet harvest was comprised primarily of early-timed hatchery fish. Recreational fisheries operated with standard bag limits (no restriction on coho based on mark status) and schedules in the Queets, Clearwater, and Salmon Rivers. A 2006 catch estimate was not available.

Escapement and Management Performance

A preliminary wild coho escapement estimate was not available. Releases of supplemental coho were discontinued after 2004 so there were no returns of those fish in 2006. The preseason escapement estimate modeled for Queets wild coho was 5,802, at the lower 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 5,559, based on Clearwater River smolt production and moderate marine survival expectations. The tribal fishery took approximately 1,313 coho, with 1,072 estimated to be wild coho, including dip-in wild fish. This was below the preseason expected catch of approximately 1,917 wild Hoh and dip-in wild coho. The non-Indian recreational fishery extended from September 1 through November 30, with the area below Willoughby Creek open and a daily-bag-limit of six salmon, two of which could be adults and no mark selective coho restriction. The portion of the river between Willoughby Creek and Morgan's Crossing opened October 16 to reduce impacts on spawning spring/summer Chinook in that reach. The river above Morgan's Crossing did not open for recreational salmon fishing. A catch estimate was not available for the recreational fishery.

Escapement and Management Performance

Based on preliminary review of spawning ground survey data and preliminary catch and expected harvest rates, spawning escapement appears to be well below preseason expectations. The preliminary spawning escapement estimate for Hoh coho of 2,037 was at the lower end of the escapement goal range (2,000-5,000).

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 a preseason agreement between WDFW and the Quileute Tribe. A total of 2,410 (1,181 wild) summer coho were harvested in the Quileute Tribe's commercial, and ceremonial and subsistence fisheries. An estimate of the 2006 recreational catch was not available.

The Quileute Tribal harvest of fall coho for 2006 was 9,463 (ceremonial and subsistence included). Tribal net fisheries harvested approximately 6,582 wild coho. An estimate of the 2006 recreational catch was not available.

WDFW reduced the impacts of the recreational fishery on wild summer coho by requiring mark-selective fisheries for coho during July and August. The 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 was managed primarily for the hatchery component, which returns in August and September. The summer coho rack return was 2,273, well above the goal of 300.

An additional 17 wild summer coho were collected as broodstock. The preliminary estimate for natural summer coho escapement was 574.

The preliminary 2006 escapement estimate for natural fall coho was 4,955, which was below the escapement goal of 6,300 to 15,800. The hatchery rack return of 4,450 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, inclusive). The primary stocks in this group that are most pertinent to ocean salmon fishery management were eastern Strait of Juan de Fuca, Hood Canal, Skagit, Stillaguamish, Snohomish, and South Puget Sound (hatchery) coho.

Management Objectives

The Council's conservation objectives were based on the Puget Sound Salmon Management Plan, which defined management objectives and long-term goals for these stocks as developed by representatives from Federal, state, and tribal agencies. Conservation objectives for specific stocks were based on either maximum sustainable production for stocks managed primarily for natural production or on hatchery escapement needs for stocks managed for artificial production. 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. Annual escapement targets for these coho stocks were 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]). A transition to exploitation rate management is currently under consideration by the involved managers.

Regulations to Achieve Objectives

Puget Sound coho stocks contribute primarily to ocean fisheries off Washington and B.C. Those stocks did not play a primary role in 2006 ocean fishery management considerations, since management of impacts to Interior Fraser (Thompson River, B.C.) and Columbia River stocks were more constraining. The mark-selective regulations in ocean and Puget Sound recreational fisheries served to increase harvest of marked hatchery fish while minimizing impacts on wild Puget Sound coho, LCR natural coho, OCN coho, and Interior Fraser coho.

Inside Harvest

Commercial inside harvest of Puget Sound coho was 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 2006 total Puget Sound commercial catch of coho was 302,490 fish, compared to a catch of 316,331 coho in 2005. Non-Indian harvest was 10,042 coho, compared to a catch of 19,694 coho in 2005. Treaty Indian net and troll fisheries harvested 292,448 coho, compared to a catch of 296,637 coho in 2005.

Historical coho recreational catches in the Puget Sound recreational fishery for the years from 1971 through 2005 are listed in Appendix B, Table B-39.

Escapement and Management Performance

Estimates of 2006 natural spawning escapements were unavailable. 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 likely met in all regions in 2006 except for South Puget Sound.

COASTWIDE GOAL ASSESSMENT SUMMARY

Conservation objective achievement assessments were not available for many coho stocks; however, those that were available all met their objectives. Puget Sound and Washington coastal areas experienced coho returns well below the numbers forecasted.

A summary of 2006 performance for coho salmon by stock in relation to the Council's conservation objectives is presented in Table III-5.

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 Hatcheries			Count at North Fork Umpqua			Number of OCN Spawners ^{a/}	Inside Harvest Impacts ^{c/}	Ocean Escapement to Oregon Coast ^{a/}
	Private	Public	STEP ^{b/}	Winchester Dam	Lakes	Rivers			
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	38.6	40.6	19.3	89.8
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	37.5	43.3	2.4	73.7
1995	-	25.2	0.4	4.2	11.2	41.3	52.5	3.6	85.9
1996	-	23.8	1.0	6.2	13.5	59.5	73.0	4.0	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	54.1	66.8	4.5	97.9
2001	-	38.1	1.2	24.9	19.7	148.0	167.7	10.0	241.9
2002	-	30.9	2.6	11.2	22.1	231.4	253.5	8.1	306.3
2003	-	15.9	3.6	13.7	16.1	206.3	222.4	6.7	262.3
2004	-	13.2	0.8	10.9	18.7	147.6	166.2	6.3	197.4
2005 ^{d/}	-	10.0	0.3	11.0	13.9	119.3	133.2	5.9	160.4
2006 ^{d/}	-	9.8	0.1	10.1	22.2	87.2	109.5	1.1	130.6

a/ Does not include estimates for the southern OCN component (Rogue River). Spawner escapements to rivers prior to 1990 were 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/ Oregon coastal Salmon Trout Enhancement Program (STEP) production from hatchery smolt rearing sites only.

c/ 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.

d/ Preliminary.

TABLE III-2. Estimated weekly effort (in angler trips) and catches of Chinook and coho in the 2006 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	
32	Aug.-6	1,244	12	0	0.01
33	Aug.-13	1,886	24	8	0.02
34	Aug.-20	10,650	715	686	0.13
35	Aug.-27	13,664	462	1,158	0.12
36	Sept.-3	9,130	466	1,715	0.24
37	Sept.-10	2,962	26	95	0.04
38	Sept.-17	755	0	21	0.03
39	Sept.-24	266	0	3	0.01
40-44	Oct.-30	131	1	1	0.02
Total		40,688	1,706	3,687	0.13

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 Chinook and adipose fin-clipped coho, with the daily-bag-limit of two salmon, only one of which may be a Chinook, except Chinook retention was prohibited from October 1-19.

TABLE III-3. Oregon production index (OPI) area coho harvest impacts, spawning, abundance, and exploitation rate estimates by SRS accounting in thousands of fish.^{a/} (Page 1 of 1)

Year or Avg.	Oregon and California Coastal Returns							Ocean	OCN Exploitation
	Ocean Fisheries ^{b/}		Hatcheries and Freshwater		Private	Columbia River	Abundance	Exploitation Rate Based on OPI	Rate Based on Postseason
	Troll	Sport	Harvest ^{c/}	OCN Spaw ners	Hatcheries	Returns		Abundance ^{d/}	FRAM ^{e/}
1970-1975	1,629.6	558.4	45.8	55.2	-	460.4	2,749.3	0.80	-
1976	2,936.1	977.7	62.6	40.7	-	337.0	4,347.6	0.90	-
1977	664.4	412.1	21.4	19.5	4.2	93.6	1,220.4	0.89	-
1978	1,104.2	524.6	12.6	19.8	12.3	307.5	1,977.4	0.83	-
1979	1,056.6	334.4	27.4	45.0	49.2	276.5	1,789.5	0.79	-
1980	506.9	526.4	32.1	30.3	38.7	301.6	1,436.4	0.73	-
1981	830.9	339.9	34.1	32.6	117.8	170.3	1,555.0	0.81	-
1982	740.9	300.4	37.1	76.2	184.7	453.1	1,763.4	0.62	-
1983	429.6	275.0	18.2	22.8	133.9	109.7	1,070.0	0.79	-
1984	95.8	174.2	51.2	74.5	115.4	424.7	881.5	0.32	-
1985	166.4	280.4	45.4	73.9	332.0	366.2	1,373.4	0.43	-
1986	643.5	320.6	81.8	70.0	453.7	1,548.2	3,026.7	0.34	-
1987	469.1	296.2	45.3	30.1	119.3	316.3	1,377.9	0.60	-
1988	844.7	297.2	62.3	56.8	116.1	670.7	1,989.2	0.56	-
1989	646.9	425.5	62.3	46.4	46.9	711.8	1,871.2	0.55	-
1990	277.6	357.1	30.6	20.9	35.6	196.1	1,128.5	0.69	-
1991	450.6	469.9	84.0	36.3	35.1	934.3	1,823.2	0.45	-
1992	67.5	256.5	53.8	40.6	-	215.9	610.0	0.51	-
1993	13.2	140.8	41.5	54.4	-	113.9	342.1	0.42	-
1994	2.7	3.0	30.7	43.3	-	168.9	250.5	0.02	0.07
1995	5.4	43.5	40.0	52.5	-	74.1	215.9	0.23	0.12
1996	7.0	31.8	48.9	72.9	-	113.0	297.3	0.15	0.08
1997	5.5	22.4	27.9	22.7	-	148.3	204.6	0.12	0.12
1998	3.5	12.8	30.4	30.9	-	168.7	265.2	0.06	0.08
1999	3.6	36.5	22.2	47.3	-	274.1	414.0	0.12	0.09
2000	25.9	74.6	35.2	66.8	-	547.6	901.0	0.13	0.07
2001	38.1	216.8	86.0	167.7	-	1,108.3	1,438.6	0.16	0.07
2002	14.9	118.7	60.4	253.5	-	499.7	990.5	0.14	0.12
2003	28.8	252.4	51.6	222.4	-	677.2	1,183.6	0.23	0.14
2004	26.2	159.4	42.6	167.7	-	442.6	826.8	0.25	0.15
2005 ^{f/}	10.5	58.2	44.9	133.2	-	341.8	592.1	0.12	0.11
2006 ^{f/}	4.5	47.5	32.2	109.5	-	384.1	557.1	0.06	0.10

a/ The OPI area includes ocean and inside harvest impacts and escapement to streams and lakes south of Leadbetter Pt., Washington.

b/ Includes estimated nonretention mortality: troll fishery--hook-and-release mortality for 1982-2005 and drop-off mortality for all years; sport fishery--hook-and-release mortality for 1994-2005 and drop-off mortality for all years.

c/ Includes returns from Salmon-Trout Enhancement Program (STEP) smolt releases.

d/ Ocean fishery impacts on private hatchery stock and returns to private hatcheries are excluded in calculating the OPI area stock aggregate ocean exploitation rate

e/ 2001, 2002, 2003, 2004, 2005, and 2006 based on preseason FRAM estimate.

f/ Preliminary.

TABLE III-4. 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/}	North		South		Coastwide	North		South		Coastwide Average
				Northern ^{d/}	Central ^{e/}	Central ^{f/}	Southern ^{g/}		Northern ^{d/}	Central ^{e/}	Southern ^{g/}		
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	3.5	9.8	30.0	5.4	48.7	4	8	18	13	12
1995	≤0.20	0.118	0.124	3.9	13.6	35.0	3.8	56.3	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	52.5	99.5	101.1	7.8	260.9	55	88	62	19	64
2003	≤0.15	0.144	NA	59.7	66.6	96.2	6.8	229.3	66	57	59	16	56
2004	≤0.15	0.147	NA	33.1	40.4	92.7	24.5	190.7	42	32	57	60	47
2005	≤0.15 ^{i/}	0.111	NA	14.8	42.2	76.2	10.3	143.5	17	36	47	25	35
2006 ^{i/}	≤0.15 ^{i/}	0.096	NA	22.6	16.1	67.1	3.9	109.7	25	14	41	10	27

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 Neskow in 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.

j/ The Salmon FMP specified an allowable marine and freshwater exploitation rate of 20%, however, the OCN workgroup matrix specified 15% and the Council chose to manage at the more conservative level for 2005 and 2006.

TABLE III-5. Performance of coho salmon stocks in relation to 2006 conservation objectives (preliminary data). (Page 1 of 2)

System and Stock	2006 FMP Conservation Objective	Achievement
OPI Area Coho		
(Columbia River and coastal stocks south of Leadbetter Point)	Natural spaw ner 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.
Northern California (Threatened) and CCC (Threatened)	No directed coho fisheries or retention of coho south of Humbug Mt. Marine exploitation rate $\leq 13.0\%$ as indicated by R/K hatchery stocks. Council adopted a projected exploitation rate on R/K hatchery coho of 5.2%.	No directed coho fisheries or retention of coho south of Humbug Mt. Postseason exploitation estimate not available.
OCN	Combined marine and freshw ater exploitation rate $\leq 20.0\%$ ($\leq 15.0\%$ Council and NMFS annual objective) for the four stock components. Council adopted a projected exploitation rate of 9.6%, with an expected escapement of 55,200 adult spaw ners (SRS of rivers and lakes from the Coquille River north).	Postseason exploitation rate estimate not available. Preliminary OCN escapement of 109,500 adult spaw ners (SRS of rivers and lakes from the Coquille River north).
Columbia River Natural (Threatened)	Combined exploitation rate $\leq 15\%$ in Council area and mainstem Columbia River fisheries. Council adopted management measures resulted in a projected exploitation rate of 9.9% in Council area fisheries.	No post-season assessment avialable.
Washington Coast Coho		
	Natural spaw ner 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.
Grays Harbor	35,400 natural adult spaw ners.	Postseason estimate unavailable.
Queets	5,800 to 14,500 natural adult spaw ners.	Postseason estimate unavailable.
Hoh	2,000 to 5,000 natural adult spaw ners.	Preliminary estimate of 2,037 meets the escapement floor.
Quillayute Fall	6,300 to 15,800 natural adult spaw ners.	Preliminary estimate of 4,955 fails to meet the escapement floor.

TABLE III-5. Performance of coho salmon stocks in relation to 2006 conservation objectives (preliminary data).
(Page 2 of 2)

System and Stock	2006 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 obligations and inside non-Indian fishery needs for six management units.	Data not available for 2006 natural spawner escapements, but all are expected to meet escapement goals. 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 23,500 adult fish for eastern and western Strait of Juan de Fuca combined and a 11% total exploitation rate.
Hood Canal	≤65% total exploitation rate. 21,500 natural adult spawners.	Preseason expected ocean escapement of 46,400 adult fish and a 37% total exploitation rate.
Skagit	≤35% total exploitation rate. 30,000 natural adult spawners.	Preseason expected ocean escapement of 87,800 adult fish and a 36% total exploitation rate.
Stillaguamish	≤50% total exploitation rate. 17,000 natural adult spawners.	Preseason expected ocean escapement of 32,700 adult fish. 40% total exploitation rate.
Snohomish	≤60% total exploitation rate. 70,000 natural adult spawners.	Preseason expected ocean escapement of 98,000 adult fish and a 39% total exploitation rate.

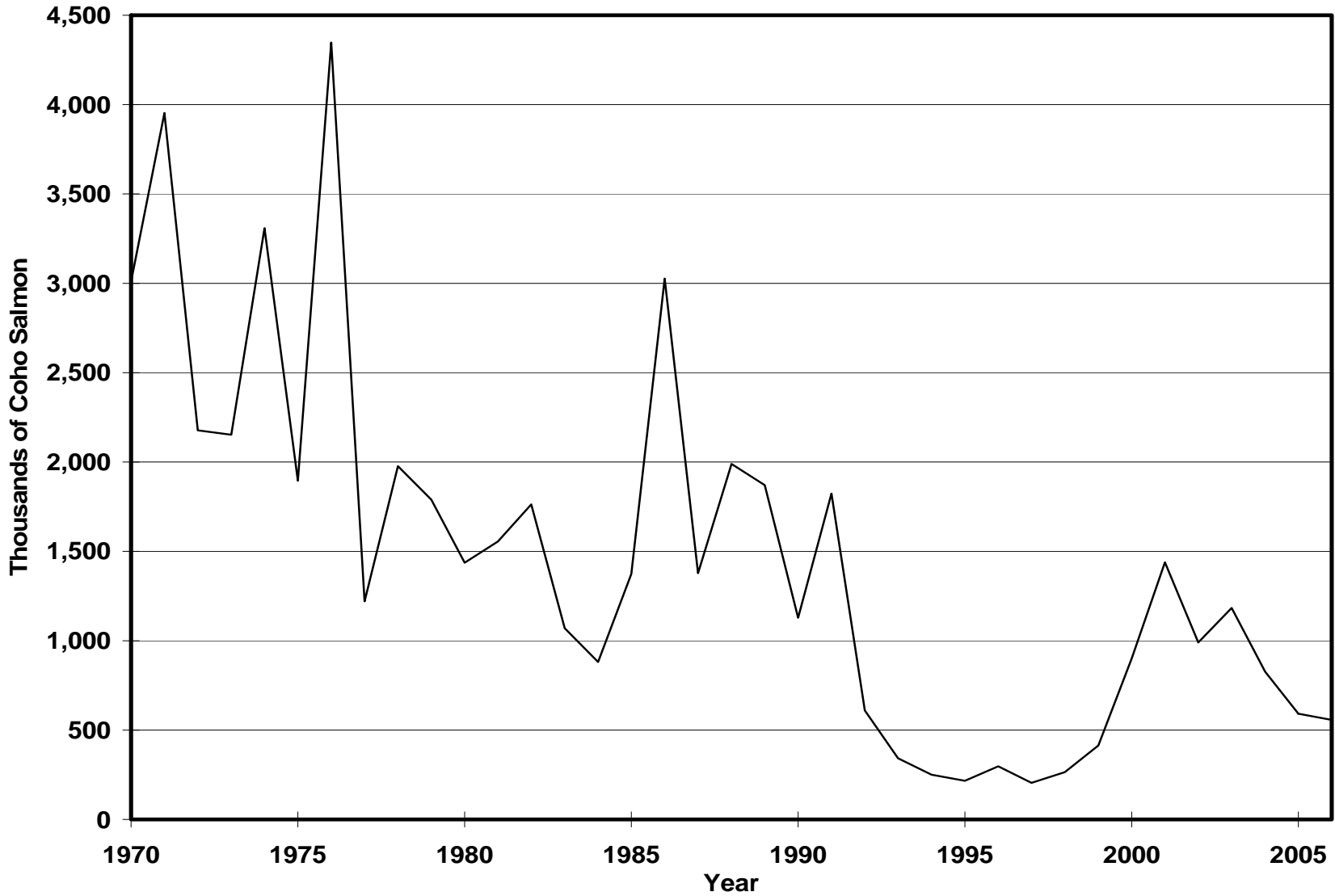


Figure III-1. Oregon Production Index (OPI) area coho abundance estimates by stratified random surveys (SRS) accounting methods (1970-2006).

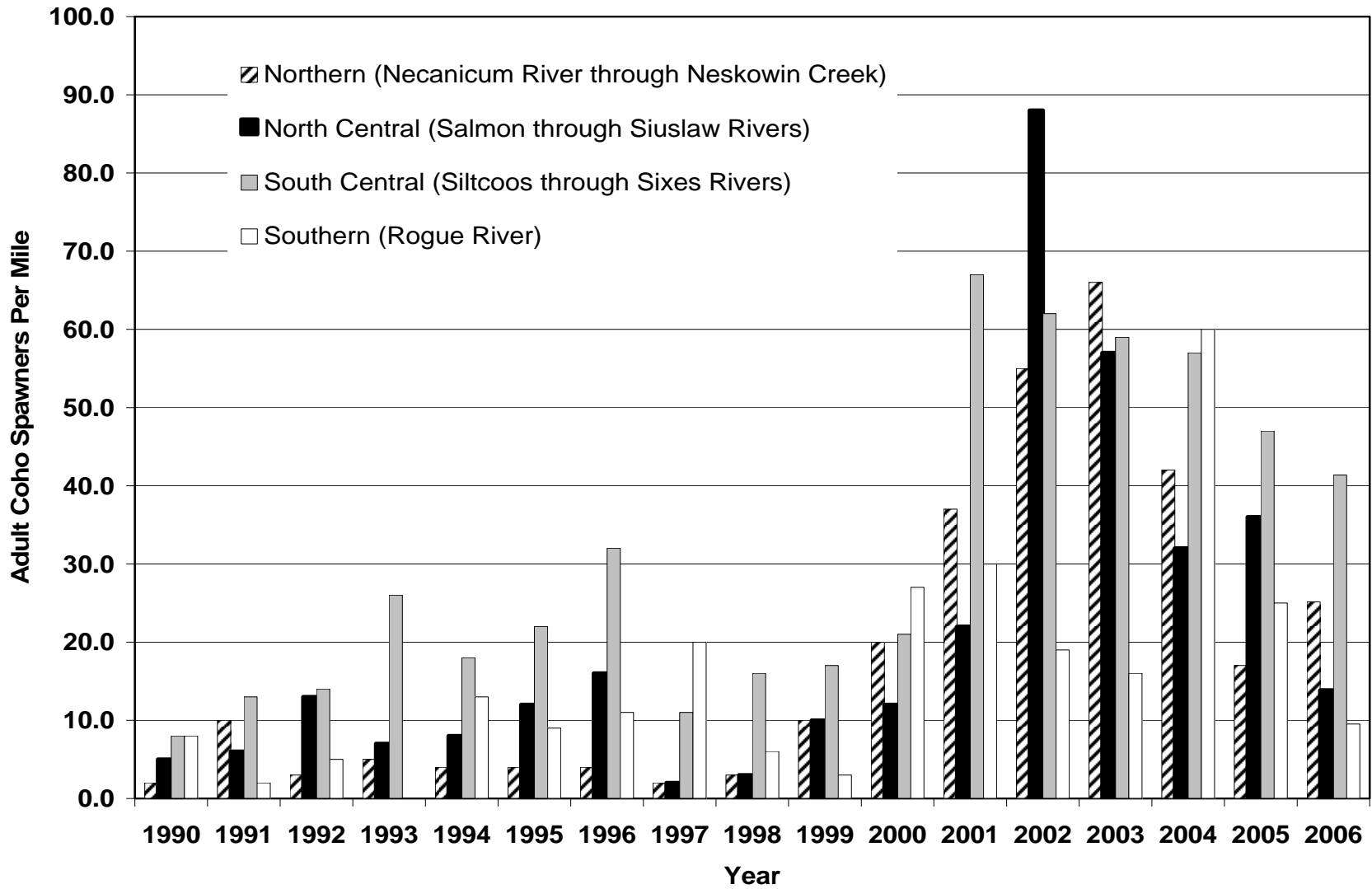


Figure III-2. Oregon coastal natural (OCN) adult coho spawners per habitat mile by coastal region based on SRS accounting methods, 1990-2006.