

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, SONCC, and OCN coho, which required:

5. No directed coho fisheries or retention of coho in all commercial and recreational fisheries off California to protect threatened CCC coho.
6. 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.
7. Marine and freshwater fishery impacts on OCN coho should not exceed levels permitted in the Salmon FMP.

Based on parent escapement levels and observed OPI smolt-to-jack survival for 2002 brood OPI smolts, the total allowable OCN coho exploitation rate for 2005 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, and included as NMFS ESA guidance for 2005 fisheries.

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 British Columbia. 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 5.5% for RK coho in marine fisheries and of 11.1% 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 (four-spread requirement) were also used to reduce OCN impacts.

Non-Indian commercial troll fisheries from Cape Falcon to the U.S./Canada border occurred in 2005 with an overall quota of 23,200 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 50,000 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 coho.

Inside Harvest

Coho retention in all California fisheries is prohibited.

The 2005 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 2005 inriver recreational coho harvest are not currently 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.

For the third 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 opened October 1, with a harvest quota of 300 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 235 adults and 123 jacks in the Siltcoos Lake fishery and zero adults and 42 jacks in the Tahkenitch Lake fishery.

The 2005 Columbia River non-Indian commercial gillnet fishery harvested 94,800 adult coho, compared to 119,600 coho in 2004. Select Area fisheries in both Oregon and Washington accounted for 64,500 of the total 2005 Columbia River commercial coho catch. The treaty Indian mainstem commercial gillnet coho catch was 4,700 fish, compared to the 2004 catch of 6,400 coho. All Columbia River coho 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 Buoy 10 and mainstem recreational fisheries below Bonneville Dam harvested 7,500 adult coho compared to 16,400 adult coho in 2004. In 2005, Columbia River managers opened the Buoy 10 fishery August 1 for both Chinook and adipose fin-clipped coho. The fishery ran through December 31, although the fishery was closed to the retention of Chinook from October 1 through October 19. The upriver boundary at the Tongue Point, Oregon to Rocky Point, Washington line has been in effect since 2000. The 2005 Buoy 10 harvest and effort totaled 6,900 coho and 55,200 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 2005 was 593,600, down from 841,600 in 2004 and greater than the ten-year average of 677,600 (Table III-3; 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 2005, a total of 16,268 coho returned to Trinity River Hatchery and 1,395 coho returned to Iron Gate Hatchery. These values compare to a combined goal of 2,000 adults.

Oregon Coast Natural Coho

Preliminary estimates of natural spawner escapement in 2005 to Oregon coastal river and lake systems from the Coquille River north (Oregon coast ESU) is 133,200 adult coho by SRS accounting. This compares to 167,600 adults in 2004. 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 fifth 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 2005 was 143,500, 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 10,000 and 300 adults, respectively (Table III-1). Hatchery egg-take goals are expected to be met at all public hatchery stations.

Columbia River Coho

The 2005 ocean escapement of adult early and late Columbia River coho stocks was 346,800 fish, compared to 441,400 adults in 2004 (Appendix B, Table B-21). The 2005 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).

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 Council's 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 targets for natural spawning escapement and total escapement are 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 is reached, ocean fishery escapement objectives are established for each river, or region of origin. The agreement includes 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 role in 2005 Council area ocean fishery management because of impact constraints on Interior Fraser (Thompson River, B.C.) and OCN 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 coho ocean fisheries north of Cape Falcon were mark-selective. 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 2005 totaled 50,031 fish. Based on the preseason forecast for a terminal run of 71,907 fish, the scheduled commercial fisheries were expected to harvest approximately 21,587 total coho.

Marine Area 2-1 and freshwater recreational harvest estimates for 2004 harvest estimates totaled 2,325 fish. Marine and freshwater recreational harvest estimates are not yet available for 2005. Expected harvest in recreational fisheries based on preseason forecast abundance was 3,355. From June 26, 2005 through August 15, 2005, Willapa Bay (Marine Area 2-1) was open for recreational fishing, concurrent with the Ocean Marine Area 2 (ocean rules applied). August 16, 2005 through January 31, 2006, Willapa Bay was open to recreational fishing with a daily-bag-limit of six salmon, no more than two adults, and single-point, barbless hooks were required when fishing for salmon. Freshwater recreational fisheries in the Willapa Bay watershed were open for salmon fishing from August 1, 2005 through January 31, 2006 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 2005 are not yet available. The most recent escapement estimate available was 19,369 in 2004. Escapement to Willapa Bay hatcheries in 2005 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 terminal run size forecast for Grays Harbor coho was 138,682 fish (90,051 wild and 48,631 hatchery). Nearly 26,300 coho (wild, hatchery, and net-pen origin) were harvested in treaty Indian and non-Indian gillnet fisheries. This included 23,232 coho in the Quinault Indian Nation fisheries, 3,073 in the non-Indian gillnet fishery, and small numbers in the Chehalis tribal fishery.

Recreational harvest estimates for 2005 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 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 April 30 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 April 30 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 level impacts were limited by the expected abundances and harvests of Chinook in these fisheries. The Humptulips area fishery harvested 6,417 coho of which 1,320 were estimated to be wild, while the Chehalis area fishery harvested 16,815 coho of which 8,391 were estimated to be wild. Levels of hatchery harvest significantly exceeded pre-season expected levels in both fisheries. Humptulips area wild coho catch exceeded the expected level and Chehalis area wild catch fell slightly below expected pre-season levels.

Escapement and Management Performance

Grays Harbor coho are managed for natural production with a spawning escapement goal of 35,400. Natural spawning escapement estimates for 2004 and 2005 are not yet available. The most recent escapement estimate available was 83,874 in 2003.

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 23,796 coho were harvested by the gillnet fishery in 2005.

Escapement and Management Performance

Quinault River coho are managed for hatchery production. Escapement estimates for Quinault River coho in 2005 are not yet available. The Quinault National Fish Hatchery egg-take objectives for 2005 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, 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 20,840, 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 (no restriction on coho based on mark status) and schedules in the Queets, Clearwater, and Salmon Rivers. The preliminary 2005 catch estimate for the in-river recreational fishery was 680.

Escapement and Management Performance

The preliminary spawning escapement estimate for Queets wild (including supplemental) coho is 10,008 adults, approximately mid-range for 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 6,925, based on high freshwater and low saltwater survival expectations. The tribal fishery took approximately 3,610 coho, with approximately 3,179 estimated to be wild coho, including dip in wild fish. This was above the preseason expected catch of approximately 2,172 wild Hoh and dip in 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 is not yet available for the recreational fishery.

Escapement and Management Performance

The overall preliminary run size estimate is greater than expected preseason, and escapement appears to be strong (based on preliminary review of spawner surveys) and also indicated by comparing the actual tribal harvest rate to that anticipated pre season. Escapement surveys are still incomplete, but the preliminary spawning escapement estimate for Hoh coho of 6,365 exceeds the upper 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 preseason agreement between Washington Department of Fish and Wildlife (WDFW) and the Quileute Tribe. A total of 10,273 (961 wild) summer coho were harvested in the Quileute Tribes commercial and ceremonial and subsistence fisheries. An estimate of the 2005 recreational catch is not yet available.

The Quileute Tribal harvest of fall coho for 2005 was 29,530 (ceremonial and subsistence included). Tribal net fisheries harvested approximately 9,521 wild coho. An estimate of the 2005 recreational catch is not yet available.

WDFW reduced the impacts of the recreational fishery on naturally produced summer coho by requiring mark-selective fisheries for coho during July and August. The non-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 7,182. This is well above the goal of 300. The preliminary estimate for natural summer coho escapement is 1,218.

The preliminary 2005 escapement estimate for natural fall coho is 11,264, near the middle range of the escapement goal of 6,300 to 15,800 established for this stock. The hatchery rack return of 25,000 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 currently are 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 2005 ocean fishery management considerations, since the needs of Interior Fraser (Thompson River, B.C.) and OCN stocks, and treaty Indian/non-Indian inriver sharing of Columbia River stocks were more critical. 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, OCN coho, and Interior Fraser coho.

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 2005 total Puget Sound commercial catch of coho was 317,726 fish, compared to a catch of 562,200 coho in 2004. Non-Indian harvest was 19,794 coho, compared to a catch of 39,500 coho in 2004. Treaty Indian net and troll fisheries harvested 297,932 coho, compared to a catch of 522,700 coho in 2004.

Historic coho recreational catches in the Puget Sound recreational fishery for the years from 1971 through 2004 are listed in Appendix B, Table B-39.

Escapement and Management Performance

Estimates of 2005 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 likely met in all regions in 2005 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 2005 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	Number of OCN Spawners ^{a/}			Inside	Ocean
	Private	Public	STEP ^{b/}	Fork Umpqua Winchester Dam	Lakes	Rivers	Total	Harvest Impacts ^{c/}	Escapement to Oregon Coast ^{a/}
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

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 2005 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.-7	1,678	56	13	0.04
33	Aug.-14	3,551	373	13	0.11
34	Aug.-21	11,784	908	273	0.10
35	Aug.-28	17,907	5,775	2,534	0.46
36	Sept.-4	12,505	1,582	2,431	0.32
37	Sept.-11	5,578	541	1,393	0.35
38	Sept.-18	1,687	50	213	0.16
39	Sept.-25	374	2	7	0.02
40-44	Oct.-30	119	0	0	0.00
Total		55,182	9,286	6,878	0.29

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 Exploitation	OCN Exploitation
	Ocean Fisheries ^{b/}		Hatcheries and Freshwater		Private Hatcheries	Columbia River Returns	Abundance	Rate Based on OPI Abundance ^{d/}	Rate Based on Postseason FRAM ^{e/}	
	Troll	Sport	Harvest ^{c/}	OCN Spawners						
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	4,354.1	0.90	-	
1977	664.4	412.1	21.4	19.5	4.2	93.8	1,215.4	0.89	-	
1978	1,104.2	524.6	12.6	19.8	12.3	307.5	1,981.0	0.83	-	
1979	1,056.6	334.4	27.4	45.0	49.2	276.5	1,789.1	0.79	-	
1980	506.9	526.4	32.1	30.3	38.7	301.6	1,436.0	0.73	-	
1981	830.9	339.9	34.1	32.6	117.8	170.2	1,525.5	0.81	-	
1982	740.9	300.4	37.1	76.2	184.7	453.1	1,792.4	0.62	-	
1983	429.6	275.0	18.2	22.8	133.9	111.2	990.7	0.79	-	
1984	95.8	174.2	51.2	74.5	115.4	425.9	937.0	0.32	-	
1985	166.4	280.4	45.4	73.9	332.0	367.2	1,265.3	0.43	-	
1986	643.5	320.6	81.8	70.0	453.7	1,549.1	3,118.7	0.34	-	
1987	469.1	296.2	45.3	30.1	119.3	316.6	1,276.6	0.60	-	
1988	844.7	297.2	62.4	56.8	116.1	670.8	2,048.0	0.56	-	
1989	646.9	425.5	62.3	46.4	46.9	712.8	1,940.8	0.55	-	
1990	277.6	357.1	30.6	20.9	35.6	196.7	918.5	0.69	-	
1991	450.6	469.9	84.0	36.4	35.1	954.3	2,030.3	0.45	-	
1992	67.5	256.5	53.8	40.6	-	217.7	636.1	0.51	-	
1993	13.2	140.8	41.5	54.5	-	114.2	364.2	0.42	-	
1994	2.7	3.0	30.8	43.3	-	169.1	248.9	0.02	0.07	
1995	5.4	43.5	40.0	52.5	-	75.2	216.6	0.23	0.12	
1996	7.0	31.8	48.9	73.0	-	104.6	265.3	0.15	0.08	
1997	5.5	22.4	27.9	22.7	-	145.3	223.8	0.13	0.12	
1998	3.5	12.6	30.5	30.9	-	164.5	242.0	0.07	0.08	
1999	3.6	41.8	24.4	47.4	-	273.6	389.7	0.12	0.09	
2000	25.9	74.2	38.5	66.8	-	549.6	756.0	0.13	0.07	
2001	38.0	216.8	86.5	167.7	-	1,108.1	1,617.0	0.16	0.07	
2002	15.0	118.8	59.5	253.5	-	511.6	958.3	0.14	0.12	
2003	28.8	253.0	50.7	222.4	-	683.7	1,265.8	0.22	0.14	
2004	26.2	159.3	42.1	168.7	-	446.0	841.6	0.22	0.15	
2005 ^{f/}	10.5	57.3	44.9	133.2	-	346.8	593.6	0.12	0.11	

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 index.

e/ 2001, 2002, 2003, 2004, and 2005 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/}	Central ^{f/}	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 ^{i/}	≤0.15 ^{i/}	0.111	NA	14.8	42.2	76.2	10.3	143.5	17	36	47	25	35

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.

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.

TABLE III-5. Performance of coho salmon stocks in relation to 2005 conservation objectives (preliminary data). (Page 1 of 2)

System and Stock	2005 FMP Conservation Objective	Achievement
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.
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 7.7%.	No directed coho fisheries or retention of coho south of Humbug Mt. Postseason exploitation estimate not available.
OCN (Threatened)	Combined marine and freshwater 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 11.1%, with an expected escapement of 135,740 adult spawners (SRS of rivers and lakes from the Coquille River north).	Postseason exploitation rate estimate not available. Preliminary OCN escapement of 133,200 adult spawners (SRS of rivers and lakes from the Coquille River north).
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.
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 90,051 adult fish.
Queets	5,800 to 14,500 natural adult spawners.	Preliminary estimate of 11,008 meets the escapement floor.
Hoh	2,000 to 5,000 natural adult spawners.	Preliminary estimate of 6,352 exceeds the escapement goal range.
Quillayute Fall	6,300 to 15,800 natural adult spawners.	Preliminary estimate of 11,264 meets the escapement floor.
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 2005 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	$\leq 40\%$ total exploitation rate. 12,800 adult spawners.	Preseason expected ocean escapement of 18,600 adult fish for eastern and western Strait of Juan de Fuca combined and a 12.0% total exploitation rate.
Hood Canal	$\leq 65\%$ total exploitation rate. 21,500 natural adult spawners.	Preseason expected ocean escapement of 79,600 adult fish and a 35.0% total

TABLE III-5. Performance of coho salmon stocks in relation to 2005 conservation objectives (preliminary data).
 (Page 2 of 2)

System and Stock	2005 FMP Conservation Objective	Achievement
Puget Sound Coho (continued)		
Skagit	≤35% total exploitation rate. 30,000 natural adult spawners.	Preseason expected ocean escapement of 48,400 adult fish and a 35.0% total exploitation rate.
Stillaguamish	≤50% total exploitation rate. 17,000 natural adult spawners.	Preseason expected ocean escapement of 41,800 adult fish. 43.0% total exploitation rate.
Snohomish	≤60% total exploitation rate. 70,000 natural adult spawners.	Preseason expected ocean escapement of 178,300 adult fish and a 40.0% total

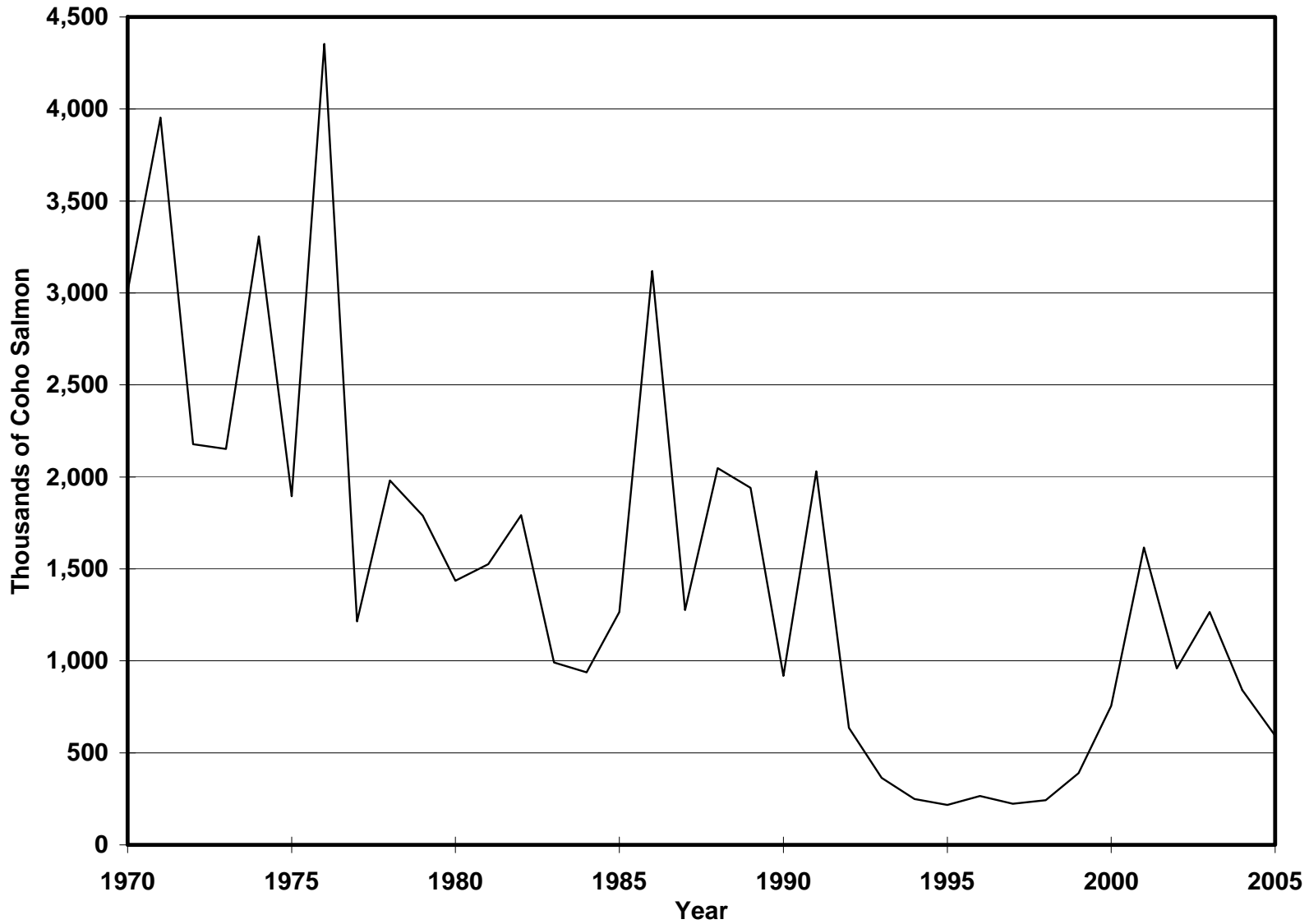


Figure III-1. Oregon Production Index (OPI) area coho abundance estimates by stratified random surveys (SRS) accounting methods (1970-2005).

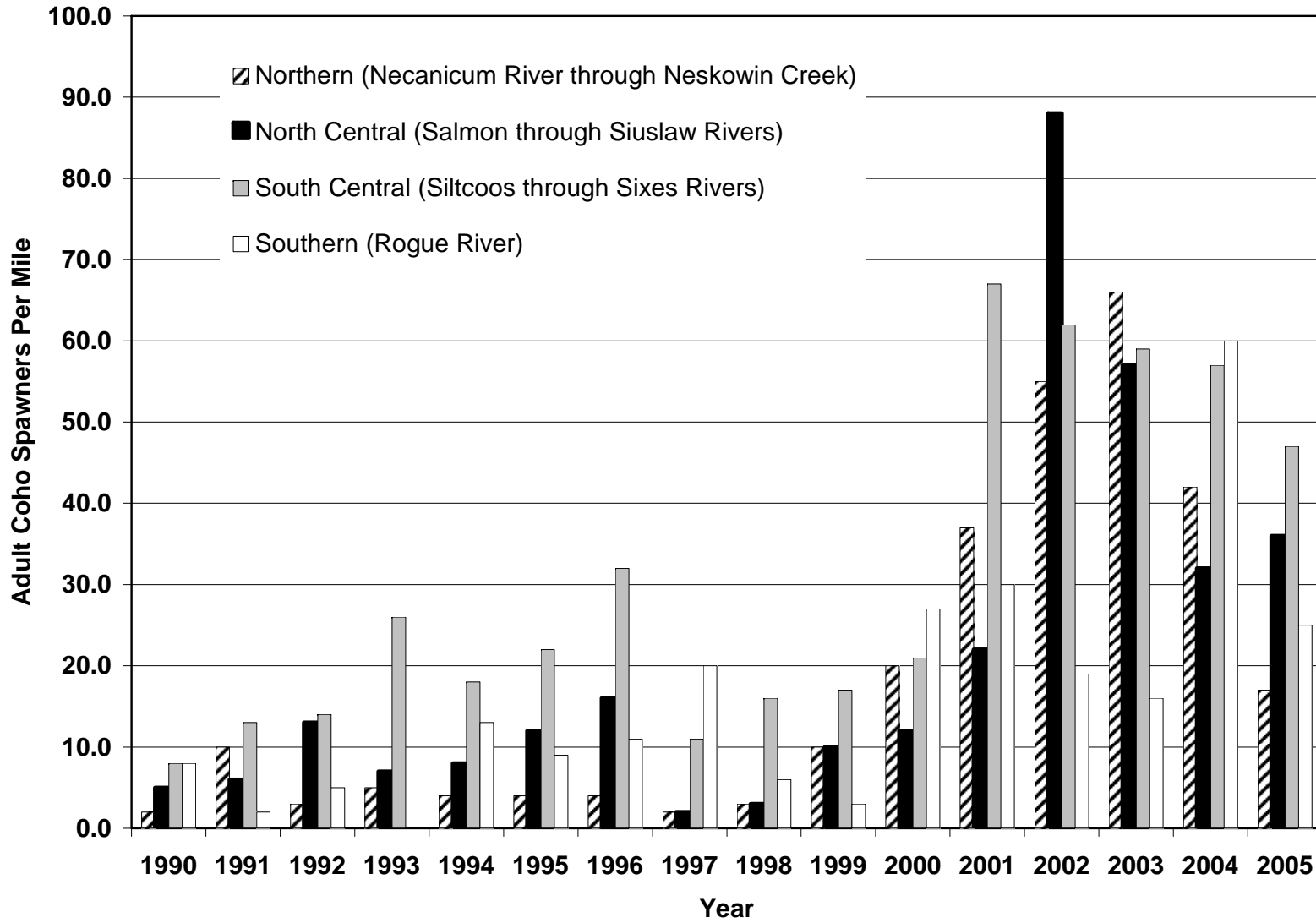


Figure III-2. Oregon coastal natural (OCN) adult coho spawners per habitat mile by coastal region based on SRS accounting methods, 1990-2005.

