CHAPTER II

CHINOOK SALMON MANAGEMENT

CENTRAL VALLEY CHINOOK STOCKS

Central Valley Chinook stocks include fall, late-fall, winter, and spring stocks of the Sacramento and San Joaquin rivers and their tributaries. Two of these stocks were listed under the ESA: (1) Sacramento River winter Chinook, listed as endangered in January 1994; and (2) Central Valley spring Chinook, listed as threatened in September 1999.

Management Objectives

The following conservation objectives guided Council management of Central Valley Chinook salmon stocks in the 2006 fisheries: (1) for fall Chinook in the Sacramento River system, an escapement goal of 122,000 to 180,000 hatchery and natural adults; and (2) for Sacramento River winter and Central Valley spring Chinook, the ESA consultation standard concerning the duration and timing of the commercial and recreational fisheries south of Point Arena.

Regulations to Achieve Objectives

Harvest impacts on Central Valley Chinook were a primary management concern in fisheries south of Point Arena, California. For 2006, no specific restrictions were required for ocean salmon fisheries to meet the conservation objective for Sacramento River fall Chinook. Under the 2006 regulations, the projected escapement to the Sacramento River was 368,000 fall Chinook adults, exceeding the upper end of the conservation objective range.

To meet the Sacramento River winter and Central Valley spring Chinook ESA consultation standard (Chapter I, Regulatory Objectives by Management Area, Horse Mountain to U.S./Mexico Border, Chinook Fisheries, 2.), the recreational seasons south of Point Arena opened April 1 with final closure dates of November 12 north of Pigeon Point and September 24 south of Pigeon Point, with a minimum size limit of 20 inches total length. The commercial seasons from Point Arena to Pigeon Point opened July 26 and south of Pigeon Point opened May 1, with a final closure date of September 30, except for the October 2-6 and 9-13 opening between Point Reyes and Point San Pedro. The commercial minimum size limit varied by month and area from 26 inches to 28 inches total length.

Inside Harvest

Although no catch estimate was made for the 2006 season, recreational harvest regulations continued to allow extensive harvest of fall Chinook. A comprehensive angler survey of the Sacramento River system, conducted from 1990 through 1994, showed that recreational catch averaged 25% of the river run. An additional survey conducted from 1998 through 2000 showed similar results. Since 1990, regulations have closed the mainstem Sacramento River to retention of salmon from January 15 to July 15, a period when winter Chinook adults are thought to be most abundant. Beginning in 2004, the retention closure was enacted earlier, on January 1 from the Carquinez Bridge to Red Bluff, in response to recovery of winter Chinook CWT's in the sport fishery. In response to the low escapements in the Stanislaus, Toulumne, and Merced rivers during the last decade, the majority of the San Joaquin River has been closed to recreational salmon fishing.

Escapement and Management Performance

Sacramento River Fall Chinook

In 2006, a total of 270,224 natural and hatchery fall Chinook adults were estimated to have returned to the Sacramento River basin for spawning. This value is approximately 73% of the preseason expectation of 368,000, but, with an in-river harvest rate of 25%, still exceeds the Council's conservation escapement objective of 122,000 to 180,000 adults. Fall Chinook returns to Sacramento River hatcheries totaled 76,715 adults. Available data indicate hatchery-produced fish constitute a majority of the Sacramento River naturally spawning fall Chinook population. Table II-1 and Figure II-1 display historical natural and hatchery fall spawner escapements. For a more detailed breakdown of the historical escapements, see Appendix B, Tables B-1 and B-2.

Sacramento River Winter and Spring Chinook

Historical spawner escapements for Sacramento River winter and spring Chinook salmon are presented in Appendix B, Table B-3.

Spawner escapement of endangered winter Chinook salmon in 2006 was estimated to be 7,513 jacks and adults (expanded counts from Red Bluff Diversion Dam). It should be noted that a time series of spawner escapement estimates based on carcass surveys also exists for the run from 1996 to the present. Expansion of the carcass survey data has yielded, in most cases, higher estimates of spawning escapement than have expansions of dam counts. While the carcass survey estimates have the potential to reduce the large uncertainty associated with the dam expansion estimates, a review of the most appropriate methodology for estimating the spawning escapement from the carcass survey data has not been completed. The carcass survey estimates of run size (jacks and adults) over the 2000–2006 period have ranged from 0.8–3.2 times those derived from the Red Bluff Diversion Dam counts, with the 2006 carcass survey estimate of 17,303 being the highest to date. Ocean fishery impacts on the returning cohort of winter Chinook spawners in 2006 were incurred primarily during the 2005 season and in the early 2006 recreational season south of Point Arena, California.

Returns of spring Chinook to the Sacramento River totaled approximately 12,567 fish (jacks and adults), of which approximately 10,615 fish returned to the upper river (above the mouth of the Feather River). The method used to estimate the spring Chinook return to the Feather River Hatchery was modified in 2005. In previous years, the estimate was equal to the number of Chinook that entered the hatchery during the early period of Chinook spawning. In 2005 and 2006, prior to the spring run spawning period, fish that entered the hatchery were tagged and returned to the river; the number of tagged fish that re-entered the hatchery during the spring run spawning period was used as the estimate of spring Chinook escapement in the Feather River. The fish that were tagged at the hatchery and returned to the river but did not re-enter the hatchery during the spawning period were counted in the natural fall run survey and reported as Feather River fall Chinook. The natural area surveys in the Feather River are not currently capable of separating the spring and fall runs.

San Joaquin River Fall Chinook

San Joaquin River spawning areas are used primarily by fall Chinook. The estimated San Joaquin River fall Chinook spawning escapement in 2006 totaled 7,918 jacks and adults in natural areas and 4,266 jacks and adults to hatcheries (Appendix B, Tables B-1 and B-2 provide historical spawner escapements). Salmon production in the San Joaquin River is determined largely by spring outflows three years earlier. Since 1986, spawner returns to the San Joaquin River have constituted less than 10% of the total Central Valley escapement for fall run Chinook.

NORTHERN CALIFORNIA COAST CHINOOK STOCKS

Northern California stocks include fall and spring stocks north of the entrance to San Francisco Bay. Primary river systems in this area are (from north to south) the Smith, Klamath, Mad, Eel, Mattole, and Russian rivers. Coastal Chinook stocks south of the Klamath River were listed as threatened under the ESA in September 1999.

Management Objectives

The KRFC conservation objective provided primary guidance for Council management of northern California Chinook salmon stocks in the 2006 fisheries. KRFC were managed in accordance with a harvest rate plan (Amendment 9) calling for a minimum adult natural spawner escapement rate of 33%, with a minimum spawner escapement (floor) of 35,000 adults in natural areas. However, for 2006, the spawner floor requirement was projected to be unattainable even with complete closure of all salmon fisheries impacting KRFC. In response, NMFS advised the Council to structure 2006 fisheries to result in a natural area spawning escapement of no less than 21,000 adults. The available harvest was to be shared equally between non-tribal and tribal fisheries (tribes with Federally-recognized fishing rights), and an equitable sharing arrangement was to be negotiated among the non-tribal fisheries. KRFC also provide the basis for the NMFS ESA consultation standard for California coastal Chinook, which limits the ocean harvest rate on age-4 KRFC to no more than 16.0%.

Regulations to Achieve Objectives

To achieve the management objectives for KRFC, the adopted regulations were designed to result in: (1) a Klamath River run of 47,600 fall Chinook adults resulting in a spawner escapement of 21,100 fish in natural areas, taking into account a projected river harvest impact of 11,200 adults and returns to basin hatcheries; (2) 50% (10,000) of the allowable adult harvest for tribal subsistence and commercial fisheries; (3) 0% (0) of the non-tribal harvest to the Klamath River recreational fishery; and (4) 8.8% (900) of the ocean harvest to the KMZ recreational fishery. These harvest allocations were expected to result in a 44%/56% California/Oregon sharing of KRFC ocean troll harvest. The age-4 ocean harvest rate resulting from the above configuration was expected to be 11.5%.

Inside Harvest

Yurok and Hoopa tribes shared a federally reserved right of 50% (10,000) of the available harvest surplus of adult Klamath fall Chinook. The river recreational fishery was closed in 2006 to adult retention. A jack-only fishery was expected to result in an incidental hook-and-release mortality of 300 fall Chinook adults. Tribal adult fall Chinook landings totaled 10,285 (103% of the quota), and it was estimated that the recreational fishery retained 62 adult fish. River harvest estimates for streams outside the Klamath River Basin are not available.

Escapement and Management Performance

Threatened California North Coast Chinook

Historical indices of spawner abundance, or actual spawning escapement estimates, for Chinook salmon in California coastal streams outside of the Klamath River Basin are limited to cursory, nonsystematic surveys of one tributary of the Mad River and two tributaries of the Eel River (Appendix B, Table B-7).

The 2006 preseason forecast of the KRFC age-4 ocean harvest rate was 11.5% (the ESA consultation standard for California Coastal Chinook was no more than 16.0%). The postseason evaluation of the 2006 age-4 ocean harvest rate was not available in time for this report.

Klamath River Fall Chinook

The 2006 preliminary postseason river run size estimate for KRFC was 61,630 adults compared to the preseason predicted ocean escapement (river run size) of 47,600 adults. The escapement to natural spawning areas was 30,422 adults, which was more than the preseason prediction of 21,100 adults. This was the third consecutive year of failing to meet the minimum spawner floor conservation objective for the stock. The estimated number of hatchery returns was 19,522 adults. Table II-2, Figure II 2, and Appendix B Table B-4 present historical harvest and escapement data for KRFC.

Spawning escapement to the upper Klamath River tributaries (Salmon, Scott, and Shasta Rivers), where spawning was only minimally affected by hatchery strays, totaled 5,074 adults. The Shasta River has historically been the most important Chinook salmon spawning stream in the upper Klamath River, supporting a spawning escapement of 30,700 adults as recently as 1964, and 63,700 in 1935. The escapement in 2006 was 789 adults (Appendix B, Table B-6). The coded-wire tag (CWT) data necessary to evaluate whether the Council's harvest allocations were met were not available.

OREGON COAST CHINOOK STOCKS

Oregon coast Chinook stocks include all fall and spring stocks from Oregon streams south of the Columbia River. These stocks are categorized into two major subgroups based on ocean migration patterns. Although ocean harvest distributions overlap somewhat, they are categorized as either north or south/local migrating. North migrating Chinook stocks include stocks north of and including the Elk River, with the exception of Umpqua River spring Chinook. South/local migrating Chinook stocks include Rogue River spring and fall Chinook, Umpqua River spring Chinook, and fall Chinook from smaller rivers south of the Elk River.

Based on CWT analysis, the populations from ten major north Oregon coast (NOC) river systems from the Nehalem through the Siuslaw Rivers are harvested primarily in PSC ocean fisheries off B.C. and SEAK, and to a much lesser degree, in Council area fisheries off Washington and Oregon, and terminal area fisheries. Analysis of CWTs indicates the population from five major mid-Oregon coast (MOC) systems from the Coos through the Elk Rivers are harvested primarily in ocean fisheries off B.C., Washington, and Oregon, with minor catches in California fisheries. South/local stocks are important contributors to ocean fisheries off Oregon and northern California. Another central Oregon stock, Umpqua River spring Chinook, contributes primarily to ocean fisheries off Oregon and California, and to a lesser degree, off Washington, B.C., and southeastern Alaska

Management Objectives

The conservation objective for Oregon coast salmon was an aggregate of 150,000 to 200,000 natural adult spawners as indicated by peak spawner counts of 60 to 90 fish per mile in standard index surveys. Preseason abundance estimates were not developed for this stock, and it has not been of critical management concern. Constraints for OCN coho, California coastal Chinook, and KRFC management objectives generally result in reduced ocean fishery impacts on Oregon south/local migrating Chinook stocks. Humbug Mountain to Cape Falcon Chinook fisheries have a minor impact on most of the stocks originating from the north Oregon coast, which have a northerly marine distribution pattern.

Regulations to Achieve Objectives

The areas of primary management concern for ocean fisheries impacting Oregon coast Chinook vary between the north and south/local migrating stocks, although there is some overlap. Preseason abundance estimates were not available for Oregon coast Chinook, however, based on postseason abundance indicators, Council-area fisheries impacts on this stock have not significantly affected objective achievement in recent years. Under the 2006 regulations, the STT expected the aggregate conservation

objective for this stock to be met with the constraints required for north California coast Chinook and OCN coho.

For the Oregon State-waters terminal area fisheries a wide range of regulations were adopted, including fisheries spanning between two to three watersheds, various north-south boundary areas, and 30 fathom restrictions in deep water areas for the Coos and Umpqua rivers. Weekly landing limit regulations and minimum size limits were matched to regulations for Federal waters north of Florence, and quotas for terminal area fisheries were adopted.

Inside Harvest

Inside recreational harvest of fall and spring Chinook occurred in most Oregon coastal estuaries and rivers. Complete estimates of the 2006 recreational Chinook harvest in freshwater areas were not available. Historical estimates of the recreational harvest of fall and spring Chinook, derived from Oregon Department of Fish and Wildlife (ODFW) salmon and steelhead angler catch record cards are reported in Table II-3.

Escapement and Management Performance

Actual escapement was not estimated for this stock aggregate. Achievement of an aggregate 150,000 to 200,000 naturally spawning adults was assessed through indices (e.g., stream surveys, dam counts, etc.). The escapement goal was equivalent to peak spawner index counts of 60 to 90 adults per mile in nine index streams and includes both spring and fall Chinook. Peak spawner index counts were based on traditional non-random surveys. ODFW is developing alternate methodologies for establishing escapement goals for several fall Chinook PSC indicator stocks. Escapement goals and assessment for these stocks will likely change upon completion of this process.

The overall quota for the nine terminal area fisheries with quotas was 12,250. The final catch estimate for those fisheries was 2,132 Chinook.

North Migrating Chinook

An index of adult spawners (peak count per index mile) in nine standard streams was used to measure natural spawner escapement trends for north migrating fall Chinook. Data have been collected since about 1950 for most systems. Overall peak Chinook adult index spawner counts in 2006 were preliminarily estimated at 81 adults per mile, within the goal range of 60 to 90 adults per mile (Table II-4, Figure II-3).

South/Local Migrating Chinook

Standard fall Chinook spawning index escapement data for the smaller southern Oregon coastal rivers (south of the Elk River) are available for the Winchuck, Chetco, and Pistol Rivers (Appendix B, Table B-8). Rogue River carcass counts were used as an indicator of trends in escapement for naturally produced fall Chinook, but these surveys were not conducted in 2006 (Table II-4). In addition, two trend indicators of escapement for naturally produced spring Chinook were utilized: (1) Rogue River counts at Gold Ray Dam, and (2) Umpqua River counts at Winchester Dam (Table II-4). Escapement based on these indicators has been stable or increasing since the early 1990s but were below the recent five-year returns in 2006 (Figures II-3 and II-4). The aggregate Oregon coast goal of 150,000 to 200,000 naturally spawning Chinook adults was probably exceeded in 2006.

Coastal Hatchery Chinook

Preliminary estimates of total fall and spring Chinook returns to Oregon coastal hatcheries in 2006 were 2,300 and 7,400 adults, respectively (Table II-3). Hatchery egg-take goals were expected to be met at all stations.

COLUMBIA RIVER BASIN CHINOOK STOCKS

Columbia River Basin Chinook salmon stocks include fall, summer, and spring stocks. NMFS has listed five Chinook ESUs within the Columbia Basin under the ESA, (1) Snake River fall listed as threatened April 1992; (2) Snake River spring/summer listed as threatened April 1992; (3) upper Columbia River spring listed as endangered March 1999; (4) lower Columbia River listed as threatened March 1999; and (5) upper Willamette River spring listed as threatened March 1999.

The assessment below covers five major stock groups of Columbia River Basin fall Chinook: lower river hatchery (LRH) tule stock and lower river wild (LRW) bright stock, both of which are part of the ESA-listed lower Columbia River Chinook ESU; Spring Creek Hatchery (SCH) tule stock; upriver bright (URB) stock, which includes the ESA-listed Snake River fall Chinook ESU; and mid-Columbia bright (MCB) hatchery stock. Management details for Columbia River spring and summer Chinook stocks are not discussed, since Council-managed ocean salmon fisheries have very limited impacts on these stocks (less than a 2% exploitation rate in base-period fisheries). Appendix B, Tables B-12 through B-19, contain historical harvest and escapement data for fall, summer, and spring stocks. Appendix B, Table B-20 summarizes catch information for all three races of Chinook in the Columbia Basin. Additional information on these stocks can be found in the *Joint Staff Report: stock status and fisheries for spring Chinook, summer Chinook, sockeye, steelhead, and other species and miscellaneous regulations* and the *Joint Staff Report concerning the fall in-river commercial harvest of Columbia River fall Chinook, summer steelhead, coho salmon chum salmon, and sturgeon.* published annually by the joint staffs of ODFW and Washington Department of Fish and Wildlife (WDFW).

Management Objectives

Council-area fisheries north of Cape Falcon in 2006 were managed to access SCH stocks while meeting the NMFS ESA consultation standards for the ESA-listed lower Columbia River Chinook ESU and Snake River fall Chinook ESU. The standard for the ESA-listed lower Columbia River Chinook ESU was a total (ocean plus inriver) AEQ exploitation rate on ESA-listed natural tules of no more than 49.0%. For preseason modeling, the estimated total exploitation rate on Coweeman natural tules was used as a surrogate for the rate on all naturally spawning tules. The standard for the Snake River fall Chinook ESU was no less than a 30.0% reduction in the Snake River Fall Index (SRFI) from the 1988 through 1993 base period exploitation rate for all ocean fisheries combined.

Inside Harvest

In recent years, fall Chinook in Columbia River fisheries have been managed under the guidance of annual management agreements among the *U.S.* versus *Oregon* parties. The Columbia River Fishery Management Plan expired on December 31, 1998. In 2006, the fall fisheries were managed for a 30.0% reduction in the inriver harvest rate of Snake River wild fall Chinook relative to the 1988 through 1993 base period, as represented by a 31.29% harvest rate of the aggregate URB return. Fisheries were also constrained to keep the total estimated AEQ exploitation rate on naturally spawning Coweeman River tules at or below 49.0%.

Harvestable surplus was projected for all major fall stocks in 2006, however, the postseason fall Chinook run reconstruction was not completed in time for this report. The preliminary catch estimate for the non-Indian commercial gillnet fisheries was 32,100 Chinook, which included 4,100 Chinook in Select Area

(terminal) fisheries. The preliminary catch estimate for the treaty Indian fishery was 83,000 Chinook. The preliminary catch estimate for the recreational fisheries included 1,700 fall Chinook in the Buoy 10 fishery, 13,200 in the mainstem fishery below Bonneville Dam, and 600 in the Hanford Reach fishery above McNary dam (Appendix B, Table B-20).

Escapement and Management Performance

All Columbia River fall Chinook were projected to meet their FMP objectives (Table II-5). Appendix B, Tables B-12 through B-20 contain more detailed historical escapement data for most Columbia River fall, summer, and spring stocks.

The postseason fall Chinook run reconstruction was not completed in time for this report; however preliminary estimates of river mouth returns based on inseason run updates were: 57,500 LRH; 16,600 LRW; 35,600 SCH; 225,900 URB; and 73,400 MCB. The total ocean escapement of the five stocks was 421,400 fall Chinook. Figure II-5 shows the river mouth return of these stock groups from 1976-2006.

Columbia River mainstem fisheries for fall Chinook in 2006 were managed for at least a 30.0% harvest rate reduction from the 1988 to 1993 average harvest rate on URB fall Chinook to protect ESA-threatened Snake River wild fall Chinook. This goal was achieved, with a preliminary URB harvest rate estimate of 28.7%, or a 35.0% reduction from the 1988 through 1993 base-period average URB harvest rate (44.7%).

No specific escapement goal was established for the ESA-threatened Snake River wild fall Chinook stock. Because nearly all spawning of this stock occurs upstream from Lower Granite Dam, establishing a spawning escapement goal at Lower Granite Dam would be appropriate. In the *Proposed Recovery Plan for Snake River Salmon*, NMFS has proposed a delisting goal for Snake River fall Chinook that provides for an eight-year (approximately two generation) geometric mean of at least 2,500 natural spawners in the mainstem Snake River annually; the eight-year mean through 2005 was 1,924. The total adult fall Chinook count at Lower Granite Dam in 2006 was 8,048, down from 11,170 in 2005. A significant portion of recent year years returns were from supplementation programs. An estimate of wild Snake River fall Chinook escapement in 2006 was not available for this report. Historical estimates of the number of adult wild Snake River fall Chinook counted at Lower Granite Dam are provided in Appendix B, Table B-18.

WASHINGTON COASTAL CHINOOK STOCKS

Washington coastal Chinook stocks include all fall, summer, and spring stocks from coastal streams north of the Columbia River through the western Strait of Juan de Fuca (west of the Elwha River, inclusive). This complex consists of several natural stocks, generally of small to medium-sized populations, and some hatchery production (primarily Willapa Bay and Quinault River). Coastal stocks are not impacted significantly by Council fisheries.

Management Objectives

Spawning escapement goals for natural stocks managed within this complex, established in U.S. District Court by WDFW and the treaty Indian tribes, were recognized in the Council's FMP conservation objectives. Objectives for Grays Harbor and the North Coast river systems were established pursuant to the U.S. District Court order in *Hoh* versus *Baldrige*. However, annual natural spawning escapement targets may vary from the FMP conservation objectives if agreed to by WDFW and the treaty Indian tribes under the provisions of *Hoh* versus *Baldrige* and subsequent U.S. District Court orders. After agreement is reached on the annual targets, ocean fishery escapement objectives are established for each river, or region of origin, which include provisions for treaty Indian allocation and inside non-Indian fishery needs.

Regulations to Achieve Objectives

Stocks in this complex tend to range farther north than most Columbia River stocks and, while present in fisheries from Cape Falcon to southeast Alaska, tend to have limited impacts in Council-area ocean fisheries. Preseason abundance estimates were generally not available for Council management. Base period Council-area ocean fishery AEQ exploitation rates of 5% or less were below a management threshold that allows effective Council management of these stocks, and therefore they qualified as exceptions to the Council's overfishing criteria.

Willapa Bay Chinook

Inside Harvest

Run size, harvest, and escapement data for Willapa Bay fall Chinook are presented in Appendix B, Table B-23.

No Chinook directed non-Indian gillnet fishery was conducted during July and the first half of August 2006. This fishery is commonly referred to as the "summer dip-in" fishery; it occurs irregularly because historically it was dependent on Columbia River tule abundance, which are now an ESA listed stock. This fishery was generally assumed to harvest Columbia River tule stocks in a mix similar to adjacent ocean area catches; however, in light of recent catch composition information (>70% local Willapa Bay and Grays Harbor origin stock) this assumption has been questioned.

The 2006 preseason forecast of Chinook returning to Willapa Bay was 31,445 fish (1,880 natural and 29,565 hatchery). Concerned by the low forecast abundance of local Willapa Chinook, the one-day update fishery that typically occurs in late August was eliminated in order to maximize harvest of hatchery coho. Chinook harvest in coho and chum targeted gillnet fisheries during 2006 totaled 12,334 fish based on preliminary data. Recreational fisheries in the marine waters of Willapa Bay were open August 1, 2006 through August 15, 2006 with no more than two adults allowed to be harvested daily and August 16, 2006 through January 31, 2007 with no more than three adults allowed to be harvested daily, of which only two could be Chinook. Recreational salmon fisheries in tributaries to Willapa Bay varied in duration but were generally open August 1, 2006 through January 31, 2007 with two adult Chinook allowed to daily. Single-point, barbless hooks were required in all areas. Recreational harvest estimates were not available for 2006.

Escapement and Management Performance

During 2005, Chinook returning to hatcheries in the Willapa Bay watershed totaled 18,425 fish. Based on current hatchery production, this return was sufficient to achieve the goal of 9,800 total Chinook escapement to Willapa Bay hatchery facilities. An escapement estimate was unavailable for 2006

The WDFW escapement goal for naturally spawning Chinook in Willapa Bay was 4,350 adults. An estimate of the 2006 natural spawning escapement was not available, (the 2005 natural escapement was 1,804 Chinook).

Grays Harbor Chinook

Inside Harvest

Run size, harvest, and escapement data for Grays Harbor Chinook are presented in Appendix B, Table B-25.

Net fisheries were conducted by the Quinault Indian Nation and the Chehalis Tribe targeting spring Chinook. The Quinault Indian Nation harvested five spring Chinook in 2006. No catch estimate was

available for the Chehalis Tribe. A recreational season was conducted on the Chehalis River, but catch estimates were not available.

No summer non-Indian gillnet fishery directed at non-local Chinook stocks occurred in 2006. Retention of fall Chinook was not allowed during the coho-directed non-Indian gillnet fishery in 2006; no Chinook were harvested during the non-Indian chum-directed fishery. In the non-Indian recreational fishery, retention of adult Chinook was not allowed in Marine Area 2-2 (September 16 through September 30 and October 16 through November 30), the lower Chehalis River downstream of the bridge crossing at the town of Porter (October 1 through November 30), and in the Humptulips River downstream of the Highway 101 bridge crossing (October 1 through October 15 and November 1 through November 30). Recreational fisheries were closed to Chinook retention beginning December 1, 2006. Recreational harvest estimates were not available. The Quinault Indian Nation gillnet fishery harvested a total of 3,751 fall Chinook. The Quinault Indian Nation fall gillnet fishery operated separately scheduled net fisheries: one in the lower Humptulips River and adjacent Area 2C of Grays Harbor and; the second one in the lower Chehalis River and adjacent areas of Grays Harbor, areas 2A and 2A-1. An additional fishing restriction in the Chehalis River, 2A, 2A-1 fishery was set by limiting fishing to east of Stearns Bluff in order to further limit catches of Chinook destined to Grays Harbor tributaries other than the Chehalis River. The Humptulips area treaty gillnet fishery caught 2,063 fall Chinook while the Chehalis River treaty gillnet fishery caught 1,688 fall Chinook. Both catches exceeded pre-season expected catch levels.

Escapement and Management Performance

Chehalis River spring Chinook are of natural origin and managed for an escapement goal of 1,400 adults. The 2006 terminal run forecast for spring Chinook was 2,317 adult fish; final 2005 and 2006 escapement estimates were 2,129 and 2,481, respectively.

Grays Harbor fall Chinook are managed for a natural spawning escapement goal of 14,600 adults. The 2006 Grays Harbor fall Chinook forecast was 16,639 wild and 3,781 hatchery adults; an escapement estimate for 2006 was not available. There is no management goal for Grays Harbor fall Chinook hatchery production.

Quinault River Chinook

Inside Harvest

Historical terminal gillnet harvest data for Quinault River Chinook stocks are presented in Appendix B, Table B-27.

A run of natural spawning spring/summer Chinook enters the river from April through July. The spring/summer Chinook run is typically small and any harvest is taken incidentally during fisheries directed at sockeye and steelhead. A total of 16 spring/summer Chinook were harvested in 2006.

The 2006 harvest of Quinault River fall Chinook was mostly hatchery origin fish taken in September and October. The treaty Indian net catch totaled 7,044 fall Chinook.

Escapement and Management Performance

Quinault fall Chinook were managed for hatchery production. The 2006 fall Chinook spawning escapement estimate was not available. Hatchery egg-take goals for fall Chinook were obtained at the tribal facilities. In addition, fall Chinook eggs to supplement hatchery rack returns at the U.S. Fish and Wildlife Service (USFWS) Quinault National Fish Hatchery were taken at the tribal facility.

Queets River Chinook

Inside Harvest

Historical terminal run size, catch, and escapement data for Queets River spring/summer and fall Chinook are presented in Appendix B-29 and B-30, respectively.

The treaty Indian gillnet harvest of spring/summer Chinook was limited to incidental catch in a June 29-30 subsistence fishery. Incidental harvest was six Chinook during the one-day steelhead fishery. The non-Indian inriver recreational fishery was closed.

Fall Chinook were harvested from September through early November by the treaty Indian gillnet fishery. The fishery started September 3 and followed a schedule set in a preseason management agreement between the Quinault Indian Nation and WDFW, targeting hatchery and wild coho during September through early October, and hatchery and wild Chinook from mid-October through early November. The treaty Indian gillnet fishery harvested 1,079 fall Chinook in the commercial fishery. Recreational fisheries operated with standard bag limits and schedules in the Queets, Clearwater, and Salmon Rivers. A catch estimate for this fishery was not available.

Escapement and Management Performance

The preliminary 2006 spawning escapement estimate for Queets River spring/summer Chinook was 330 adults, approximately 53% below the floor escapement goal of 700.

A preliminary estimate of 2,611 fall Chinook spawned naturally in the Queets system. An estimated 2,498 were produced naturally and 1,013 were "indicator" Chinook, which had wild parents for broodstock but were reared in the hatchery prior to release. Total fall Chinook escapement exceeded the minimum floor escapement goal of 2,500.

Hoh River Chinook

Inside Harvest

Historical terminal run size, catch, and escapement data for Hoh River spring/summer and fall Chinook are presented in Appendix B, Tables B-32 and B-33, respectively.

The spring/summer Chinook preseason abundance forecast was for a wild run size of 1,369. The Hoh Tribe and WDFW agreed upon terminal fisheries expected to harvest 31% of the terminal wild run size as well as dip-in hatchery Chinook from the Quillayute River system. Natural escapement was expected preseason to be approximately 945 wild Chinook. The tribal fishery operated at two days per week from week 19 (week of May 1) to week 21 (week of May 15) and one day per week from week 22 (week of May 22) to week 35 (week of August 21). Tribal regulations in 2006 required a minimum of 8 inch stretch mesh from week 19 to week 21 in order to target Chinook. The fishery took 613 Chinook, including an estimated 37 taken during separately scheduled ceremonial and subsistence fishing. Results of mark sampling indicated that 512 of these were of hatchery origin. Scale samples remain to be analyzed. The recreational fishery operated from May 17 through August 31, Wednesdays through Sundays, with a bag limit of one adult per day from the mouth up to Willoughby Creek. A preliminary estimate of 109 Chinook were taken in the sport fishery, of which 64 were wild.

Hoh River fisheries for fall Chinook were based on an expected terminal run size of 3,988 adults, allowing for a harvest rate of 40%. The spawning escapement was expected to be 2,393 adults. The tribal fishery targeted 25.75% of the terminal run. In order to develop an alternative mesh size limit model for future applications, 2006 regulations required 6 inch maximum stretch mesh from weeks 43 to

46, the same as the 2004 and 2005 season regulations. The tribal gillnet fishery was scheduled for three days per week from weeks 36 (week of August 28) through 48 (week of November 20), except for two days per week during week 42. The tribal fishery caught approximately 571 Chinook. Results of mark sampling indicated that 552 of these were of wild origin. Coded-wire tag samples remain to be analyzed. 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. 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 was not open for recreational salmon fishing. A catch estimate was not available for the recreational fishery.

Escapement and Management Performance

Based on the tribal gillnet catch and expected harvest rate, the spring/summer Chinook run appears lower than the preseason terminal run size forecasted. Catch analysis indicates that the spawning estimate for Hoh spring/summer Chinook was 904 adults, just making the 900 fish escapement floor for this stock. Spawning ground data was not finalized; however, preliminary cumulative Chinook redd counts indicate escapement will be slightly higher than the projected escapement based on catch and expected tribal harvest rate.

Based on the tribal gillnet catch and expected harvest rate, the fall Chinook terminal run size appears to be below the level anticipated preseason. The preliminary spawning escapement estimate for Hoh fall Chinook was 1,325, above the 1,200 fish escapement floor established for this stock. No spawning ground data was available for producing a stratified escapement based on Chinook redd counts.

Quillayute River Chinook

Inside Harvest

Historical terminal run size, catch, and escapement data for Quillayute River spring, summer, and fall Chinook are presented in Appendix B, Tables B-35 and B-36 respectively. Spring and summer Chinook were currently managed separately, but data for both were combined in Table B-35. All hatchery origin fish were considered to be spring Chinook, and all natural spawners and tribal broodstock collections were considered to be summer Chinook.

The recreational and tribal fisheries for spring and summer Chinook were established by preseason agreement between WDFW and the Quileute Tribe. The total tribal catch for 2006 was 632 spring and 56 summer Chinook, and included ceremonial and subsistence use. Estimates of 2006 recreational spring and summer Chinook harvest were not available.

The total 2006 Quileute Tribal harvest of fall Chinook was 2,020, and included ceremonial and subsistence use. An estimate of the recreational catch was not available.

As in past years, WDFW required release of unmarked Chinook during July and August to reduce impacts of the recreational fishery on the natural summer Chinook stock. The fall recreational fishery from September through November 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 to reduce impacts to summer Chinook.

Escapement and Management Performance

The management agreement called for an escapement goal of 200 hatchery spring Chinook. The actual rack return was 1,032, which exceeded hatchery requirements.

The summer Chinook run was managed to achieve an escapement of 1,200 (adults, jacks, and broodstock collection combined). The preliminary estimated natural spawning summer Chinook escapement of 600 was under the escapement goal.

Terminal area fisheries on fall Chinook were managed for a target 40% harvest rate, with a minimum escapement level of 3,000 adults. The preliminary escapement estimate of 6,336 fall Chinook exceeded the minimum escapement goal.

PUGET SOUND CHINOOK STOCKS

Puget Sound Chinook stocks include all fall, summer, and spring stocks originating from U.S. tributaries in Puget Sound and the eastern Strait of Juan de Fuca (east of Salt Creek, inclusive). This stock complex consists of numerous natural Chinook stocks of small to medium sized populations and significant hatchery production. The Puget Sound ESU was listed under the ESA as threatened in March 1999.

Management Objectives

The stocks within this complex and their respective FMP conservation objectives were established in U.S. District Court by WDFW and the treaty Indian tribes. The conservation objectives for stocks managed primarily for natural production were developed by a State/Tribal Management Plan Development Team following the Boldt Decision, and were based on "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 objectives were estimated for the average spawning escapement during periods thought to represent spawner abundances that provided maximum production. The objectives for stocks managed for artificial production are based on hatchery escapement needs. Annual management targets (expected hatchery returns plus natural escapement) for specific rivers or regions of origin may vary from the FMP conservation objectives by following fixed procedures established in U.S. District Court as outlined in "Memorandum Adopting Salmon Management Plan" (*U.S. versus Washington*, 626 F. Supp. 1405 [1985]).

NMFS has developed rebuilding exploitation rate (RER) standards for some ESA-listed Puget Sound stocks (Table II-5). Predicted total exploitation rates were compared to these standards and used by NMFS in setting ESA consultation standards for the combined Council/Puget Sound salmon fisheries. Puget Sound stocks were managed pursuant to the provisions of a WDFW/Tribal management plan approved under a 4(d) rule promulgated by NMFS.

Regulations to Achieve Objectives

Puget Sound stocks contribute to fisheries off B.C., are present to a lesser degree off southeast Alaska, and are impacted to a minor degree by Council-area ocean fisheries. Base period Council-area ocean fishery AEQ exploitation rates of 5% or less were below a management threshold which allowed effective Council management of these stocks, and they qualify as exceptions to the Council's overfishing criteria.

Inside Harvest

Commercial inside fishery harvest of Puget Sound Chinook was managed on the basis of six regional stock management units or, in some cases, component stocks within management units: Strait of Juan de Fuca, Nooksack-Samish, Skagit, Stillaguamish-Snohomish, South Puget Sound, and Hood Canal. Harvest was regulated according to the natural spawning escapement goal or hatchery program escapement goal for that unit. Commercial net and troll harvest (treaty Indian and non-Indian) is presented in Appendix B, Table B-38. These catches included some fish of non-Puget Sound origin. The total commercial harvest in Puget Sound in 2006 was 147,694 Chinook, compared to 92,307 Chinook caught in 2005. The non-Indian net catch was 13,090 Chinook, compared to 6,236 Chinook caught in

2005. The treaty Indian net and troll harvest was 134,604 Chinook, compared to 86,071 Chinook caught in 2005.

Recreational Chinook catches in the Puget Sound recreational fishery for years from 1971 through 2005 are presented in Appendix B, Table B-39. Catch estimates for the 2006 Puget Sound recreational fishery were not available.

Escapement and Management Performance

Puget Sound Chinook management goals for fishery planning processes in 2006 were expressed in terms of constraints on total fishery exploitation rates. Information to evaluate performance against these constraints is not yet available.

Historical hatchery and natural run component escapements and net catches for summer/fall Chinook for each Puget Sound region of origin are presented in Appendix B, Table B-40. Historical spring Chinook escapement data are presented in Appendix B, Table B-43.

All Puget Sound spring Chinook hatchery escapement goals were met. Preliminary data suggest most Puget Sound hatcheries met their summer/fall Chinook goals.

Naturally spawning Puget Sound spring and summer/fall Chinook remained depressed in 2006. Preliminary data suggest no Puget Sound spring Chinook natural stocks met their escapement goals. Preliminary information on 2006 natural spawning escapements for summer/fall Chinook stocks indicate escapement goals were met in some areas, but not in Stillaguamish, Snohomish, Cedar, Green, Dosewallips, Duckabush and Hamma Hamma rivers. In many natural spawning areas hatchery Chinook comprise a large component of the natural spawning population.

COASTWIDE GOAL ASSESSMENT SUMMARY

Information to assess conservation objectives was unavailable for Columbia River natural (Coweeman) tule, Snake River wild fall Chinook, Grays Harbor natural fall Chinook, and all Puget Sound natural Chinook stocks. Conservation objectives for all other Council managed Chinook stocks were met except natural spawning escapement for Klamath River fall, Queets spring/summer, and Quillayute spring/summer Chinook.

A summary of 2006 performance for Chinook salmon stocks in relation to Council conservation objectives is presented in Table II-5.

TABLE II-1. Sacramento River natural and hatchery adult fall Chinook escapements in numbers of fish. (Page 1 of 1)

	Upper River[a/]			Lower River			Total		Grand
Year	Hatchery	Natural[b/]	Subtotal	Hatchery	Natural[b/]	Subtotal	Hatchery	Natural[b/]	Total
1970	3,010	61,159	64,168	10,266	82,718	92,984	13,275	143,877	157,152
1971	1,728	67,586	69,314	11,011	74,556	85,567	12,739	142,143	154,882
1972	1,259	36,485	37,744	6,766	47,647	54,413	8,025	84,131	92,156
1973	1,679	48,948	50,627	18,010	151,422	169,433	19,689	200,371	220,060
1974	1,984	66,304	68,288	11,799	121,930	133,729	13,783	188,234	202,017
1975	3,289	72,986	76,275	10,781	68,564	79,346	14,071	141,550	155,621
1976	3,017	80,262	83,279	8,612	75,975	84,586	11,628	156,237	167,865
1977	6,083	60,966	67,049	14,896	82,065	96,961	20,978	143,032	164,010
1978	2,717	66,991	69,708	9,937	47,303	57,240	12,654	114,295	126,948
1979	6,407	81,332	87,739	9,405	72,299	81,704	15,812	153,632	169,444
1980	10,271	45,504	55,775	14,645	71,608	86,253	24,916	117,113	142,028
1981	5,883	51,832	57,714	25,047	92,129	117,177	30,930	143,961	174,891
1982	17,117	39,694	56,811	14,548	92,600	107,148	31,666	132,293	163,959
1983	6,112	41,969	48,082	12,474	48,831	61,305	18,586	90,800	109,386
1984	19,594	51,771	71,365	19,131	67,733 [c/]	86,865	38,725	119,505	158,230
1985	15,869	103,698	119,566	13,385	105,753	119,138	29,254	209,450	238,704
1986	11,283	113,875	125,158	10,565	102,434	112,999	21,847	216,310	238,157
1987	9,981	76,861	86,842	9,851	97,930	107,782	19,833	174,791	194,623
1988	12,594	128,725	141,319	14,177	69,228	83,405	26,771	197,953	224,724
1989	10,212	67,296	77,508	14,730	59,387	74,117	24,942	126,683	151,625
1990	13,464	50,226	63,690	8,283	32,973	41,256	21,747	83,199	104,946
1991	10,031	35,258	45,289	15,999	56,144	72,143	26,030	91,402	117,432
1992	6,257	31,734	37,990	15,431	27,723	43,154	21,688	59,457	81,145
1993	7,056	55,144	62,200	17,570	55,412	72,982	24,626	110,556	135,182
1994	11,585	66,383	77,967	19,017	66,647	85,664	30,601	133,030	163,631
1995	24,810	112,234	137,044	16,738	141,252	157,990	41,548	253,486	295,034
1996	18,848	131,267 [d/]	150,116	13,670	135,803	149,474	32,519	267,071	299,589
1997	44,590	167,354	211,943	18,686	112,246	130,932	63,276	279,600	342,875
1998	42,400	60,713 [d/]	103,112	27,516	107,431	134,947	69,915	168,144	238,060
1999	23,194	256,629	279,823	19,029	97,089	116,118	42,224	353,718	395,942
2000	20,793	152,923	173,716	26,782	216,291	243,073	47,575	369,214	416,789
2001	23,710	130,440	154,150	33,689	358,217	391,906	57,399	488,657	546,056
2002	61,946	481,924 [e/]	543,870	23,747	207,883	231,630	85,693	689,806	775,499
2003	82,708	164,802	247,510	25,490	248,636	274,126	108,198	413,438	521,636
2004	51,557	70,557	122,114	28,510	132,930	161,440	80,067	203,487	283,554
2005	142,135	96,716	238,851	41,166	113,990	155,156	183,301	210,706	394,007
2006[f/]	56,962	86,312	143,274	19,753	107,197	126,950	76,715	193,509	270,224

a/ Above the Feather River; 1971-1985 estimates include Tehama-Colusa Spawning Channel.

b/ Fish spawning in natural areas are the result of hatchery and natural production; estimates generally based on carcass surveys.

c/ Does not include estimated Bear River escapement, approximately 300 adult fish.

d/ Includes Butte Creek, for which a fall spawner survey was conducted in 1996 and 1998.

e/ Estimation methodology was changed due to an extremely high Battle Creek escapement in 2002.

f/ Preliminary.

TABLE II-2. Klamath River adult inriver fall Chinook run size, spawning escapement, recreational catch, Indian gillnet harvest, and non-landed fishing mortalities in numbers of fish and percent of the total inriver run size. (Page 1 of 1)

	Spawning Escapement		Inriver Recreational Catch		Indian Net Catch		Non-landed Fishing Mortality		Inriver Run Size
Year	Numbers	Percent	Numbers	Percent	Numbers	Percent	Numbers	Percent	Numbers
1978	71,471	77%	1,694	2%	18,200	20%	1,618	2%	92,983
1979	34,273	67%	2,141	4%	13,650	27%	1,231	2%	51,295
1980	27,994	61%	4,496	10%	12,013	26%	1,137	2%	45,640
1981	38,282	48%	5,983	7%	33,033	41%	2,994	4%	80,292
1982	42,362	64%	8,339	13%	14,482	22%	1,429	2%	66,612
1983	44,649	78%	4,235	7%	7,890	14%	772	1%	57,546
1984	23,560	50%	3,340	7%	18,670	40%	1,691	4%	47,261
1985	48,211	75%	3,582	6%	11,566	18%	1,079	2%	64,438
1986	146,251	75%	21,027	11%	25,127	13%	2,614	1%	195,019
1987	130,840	63%	20,169	10%	53,096	25%	5,029	2%	209,134
1988	112,844	59%	22,203	12%	51,651	27%	4,944	3%	191,642
1989	65,859	53%	8,775	7%	45,565	37%	4,141	3%	124,340
1990	23,663	66%	3,553	10%	7,906	22%	760	2%	35,882
1991	18,133	56%	3,383	10%	10,198	31%	956	3%	32,670
1992	19,388	73%	1,002	4%	5,785	22%	523	2%	26,698
1993	43,501	76%	3,172	6%	9,636	17%	903	2%	57,212
1994	49,405	77%	1,832	3%	11,692	18%	1,054	2%	63,983
1995	199,653	90%	6,081	3%	15,557	7%	1,477	1%	222,768
1996	101,359	58%	12,766	7%	56,476	32%	5,172	3%	175,773
1997	64,806	77%	5,676	7%	12,087	14%	1,167	1%	83,736
1998	71,707	79%	7,710	9%	10,187	11%	1,043	1%	90,647
1999	32,784	64%	2,282	4%	14,660	29%	1,322	3%	51,048
2000	180,339	83%	5,650	3%	29,415	13%	2,673	1%	218,077
2001	132,946	71%	12,134	6%	38,645	21%	3,608	2%	187,333
2002	92,818	58%	10,495	7%	24,574	15%	2,351	1%	160,788 [a/]
2003	149,424	78%	9,680	5%	30,034	16%	2,810	1%	191,948
2004	47,060	59%	4,003	5%	25,803	33%	2,325	3%	79,191
2005[b/]	54,488	84%	1,985	3%	8,016	12%	738	1%	65,227
2006[b/]	49,944	81%	62	0%	10,285	17%	1,338	2%	61,629

a/ Inriver run size includes a USFWS estimate of 30,550 fish (19% of the run) that died prior to spawning in September 2002.
b/ Preliminary.

TABLE II-3. Oregon coastal spring and fall Chinook hatchery return and harvest in estuary and freshwater fisheries. (Page 1 of 1)

	Return to Facilities				
	Public Hatchery[a/]		Private	Estuary and Freshwater Harvest[b/]	
Year	Spring	Fall	All	Spring	Fall
			THOUSANDS OF CHINOOK		
1976	2.9	0.5	-	13.5	24.3
1977	2.4	4.2	-	13.8	35.6
1978	4.4	1.6	-	13.1	43.4
1979	7.0	2.0	0.4	16.4	31.2
1980	7.9	1.8	3.4	11.9	22.7
1981	2.5	1.8	5.1	11.2	30.0
1982	4.1	2.3	12.1	11.6	25.1
1983	3.9	4.0	6.1	4.9	21.5
1984	5.6	3.3	6.3	4.1	29.0
1985	8.7	3.5	34.6	9.0	29.5
1986	30.6	5.8	70.8	17.3	36.5
1987	22.8	7.1	38.7	20.2	54.8
1988	22.0	6.4	25.0	28.9	61.4
1989	32.7	4.3	14.7	23.7	53.9
1990	6.3	3.4	7.8	15.5	39.9
1991	5.4	3.1	4.1	11.1	47.7
1992	2.7	4.4	-	8.0	44.7
1993	10.6	2.8	-	16.4	54.7
1994	4.8	3.0	-	9.2	46.7
1995	55.0	3.3	-	31.1	62.0
1996	26.7	3.6	-	25.6	66.0
1997	29.1	2.0	-	14.7	43.1
1998	11.0	2.6	-	8.2	37.3
1999	18.1	3.3	-	8.2	35.2
2000	24.5	3.1	-	11.4	40.5
2001	26.8	5.7	-	18.6	66.3
2002	24.7	2.9	-	30.8	75.1
2003	17.2	3.9	-	29.3	82.5
2004	19.7	2.6	-	NA	NA
2005	11.7	2.6	-	NA	NA
2006[c/]	7.4	2.3	-	NA	NA

a/ Adults only.

b/ Freshwater harvests are derived from ODFW salmon/steelhead angler catch record card information and represent fish larger than 24 inches (i.e., adults). Includes both hatchery and natural fish.

c/ Preliminary.

TABLE II-4. Spawner indices for naturally produced Oregon coastal fall Chinook and south migrating/localized spring Chinook.[a/] (Page 1 of 1)

	Fall Chinook Spawner Indices		South/local Migrating Spring Chinook Spawner Indices	
Year	North Migrating Peak Count Adults Per Mile	Rogue River (South/local migrating) Adult Carcass Counts	Rogue River Gold Ray Dam Counts	Umpqua River Winchester Dam Counts
1976	49	-	20	6
1977	71	1,356	15	7
1978	73	9,174	40	5
1979	81	8,272	29	6
1980	89	2,221	24	6
1981	82	5,228	13	5
1982	90	2,812	23	7
1983	42	2,737	10	3
1984	98	3,267	8	5
1985	132	5,486	28	8
1986	109	17,177	40	8
1987	121	25,918	37	8
1988	214	31,613	39	8
1989	137	7,408	8	8
1990	121	1,868	18	6
1991	150	2,799	9	2
1992	138	2,366	2	3
1993	63	5,447	13	4
1994	125	7,366	4	3
1995	101	3,958	21	6
1996	147	2,448	10	4
1997	105	1,643	10	3
1998	98	3,601	4	4
1999	124	2,493	6	3
2000	85	3,366	3	3
2001	203	6,380	9	6
2002	268	11,836	7	7
2003	297	14,620	19	8
2004	211	5,326 [b/]	13	5
2005[c/]	118	d/	6	4
2006[c/]	81	d/	5	3

a/ North migrating peak counts are taken on nine miles of standard index surveys over nine river systems (see Appendix B, Table B-11 for individual system counts). Complete carcass counts are listed in Appendix B, Table B-10. Complete counts for Gold Ray and Winchester dams are listed in Appendix B, Table B-9.

b/ In 2004 one of the standard survey sections was not sampled. In the previous two years this section accounted for 33% of the total adult carcass counts.

c/ Preliminary.

d/ Surveys were not conducted.

Table II-5. Performance of Chinook salmon stocks in relation to 2006 conservation objectives (preliminary data). (Page 1 of 2)

System and Stock	2006 FMP Conservation Objective	Achievement
Sacramento River Chinook		
Fall	122,000-180,000 natural and hatchery adults.	241,194 adult fall Chinook, 134% of the upper end of the escapement goal range.
Winter (Endangered)	NMFS ESA consultation standard defines specific limits on management measures to protect Sacramento River winter and spring Chinook.	Commercial and recreational seasons south of Point Arena conformed with the consultation standard.
Spring (Threatened)	Same objective as for winter Chinook.	Objective met-see winter Chinook achievement.
California North Coast Chinook		
Klamath River Fall	Inriver run size expectation of 47,600 adults to provide an expected escapement of 21,100 natural adult spawners.[a/]	Run size 61,300 adults, 129% of expectation; 30,400 natural area spawners, 144% of forecast and 87% of conservation objective.
California Coastal (Threatened)	No greater than 16.0% ocean harvest rate on age-4 Klamath River fall Chinook.	Preseason projection of 11.5%; no postseason estimate is currently available.
Oregon Coast Chinook		
North and South/Local Migrating Stocks	150,000-200,000 natural adult spawners (equivalent to peak spawner index counts of 60-90 adults per mile).	81 natural adult spawners per mile, within the aggregate stock index range.
Columbia River Basin Fall Chinook		
LRW (Component of threatened lower Columbia River Chinook ESU)	MSY objective of 5,700 natural North Lewis River adult spawners (no specific NMFS ESA guidance for	Preliminary projections indicate that the escapement objective will be met.
Lower Columbia natural tules (Component of threatened lower Columbia River Chinook ESU)	Total (ocean plus inriver) AEQ exploitation rate on ESA-listed Cowlitz River natural tules of no more than 49.0%	Preseason projection of less than 49%. No postseason estimate is currently available.
LRH	14,100 adult hatchery spawners.	Preliminary projection of 19,500 adult hatchery spawners, 138% of goal.
SCH	7,000 adult hatchery spawners.	9,300 adult hatchery spawners, 133% of target.
MCB	No FMP objective; target of 7,750 hatchery adults.	Based on inseason projections, escapement will meet hatchery needs.
URB	40-45,000 natural and hatchery adults above McNary Dam, plus meet treaty Indian obligations. *U.S. v. Oregon* parties agreed to a target of 45,000 adults between 1991 and 1993, and 46,000 after 1993.	90,900 natural and hatchery adults over McNary Dam, 197% of MSY target in FMP.

Table II-5. Performance of Chinook salmon stocks in relation to 2006 conservation objectives (preliminary data). (Page 2 of 2)

System and Stock	2006 FMP Conservation Objective		Achievement	
Columbia River Basin Fall Chinook (continued)				
Snake River Fall Chinook (Threatened; component of URB)	SRFI ≤0.700 for all ocean fisheries combined (i.e., no less than a 30.0% reduction from the 1988-1993 base period exploitation rate).		Preseason SRFI projection of 0.643. No postseason estimate is currently available.	
Washington Coastal Chinook				
Fall	Natural spawner escapement objectives as provided in state-tribal agreements; meet hatchery egg-take goals and meet treaty Indian obligations.		Based on preliminary estimates, escapement objectives were met for Willapa and Quinault hatchery, and Queets, Hoh, and Quillayute natural stocks. Estimates were not available for Willapa Bay and Grays Harbor natural stocks.	
Spring/Summer	Natural spawner escapement objectives as provided in state-tribal agreements; meet hatchery egg-take goals and meet treaty Indian obligations.		Based on preliminary estimates, escapement objectives met for Grays Harbor spring natural and Hoh spring/summer natural; not met for Queets spring/summer natural and Quillayute summer natural.	
Puget Sound Chinook				
(Threatened)	Minor part of Washington ocean harvest; Council ocean management not directed at these stocks. Adult equivalent exploitation rate standard developed for some stocks:		Postseason estimates not available. Preseason predictions of adult equivalent exploitation rates and spawner objectives were:	
	Exploitation Rate	Spawner Esc.	Exploitation Rate	Spawner Esc.
· Nooksack spring	· 4% So U.S.	-	3.6%	
· Skagit summer/fall	· 50% Total	-	30.3%	
· Skagit spring	· 38% Total	-	18.4%	
· Stillaguamish summer/fall	· 15% So U.S.	-	12.2%	
· Snohomish summer/fall	· 15% So U.S.	-	14.7%	
· Lake Wash. summer/fall	· 15% pre-term SUS	-	10.4%	
· White River spring	· 20% pre-term SUS	-	19.7%	
· Green River summer/fall	· 15% pre-term SUS	5,800	10.4%	13,527
· Puyallup summer/fall	· 50% Total		50.0%	
· Nisqually summer/fall	· NA	1,100	-	1,752
· Skokomish summer/fall	· 15% pre-term SUS	1,200	9.0%	1,230
· Mid-Hood Canal fall	· 10.4% pre-term SU.	-	8.9%	
· Dungeness spring	· 10% So US	-	2.1%	
· Elwha summer/fall	· 10% So US	-	2.2%	

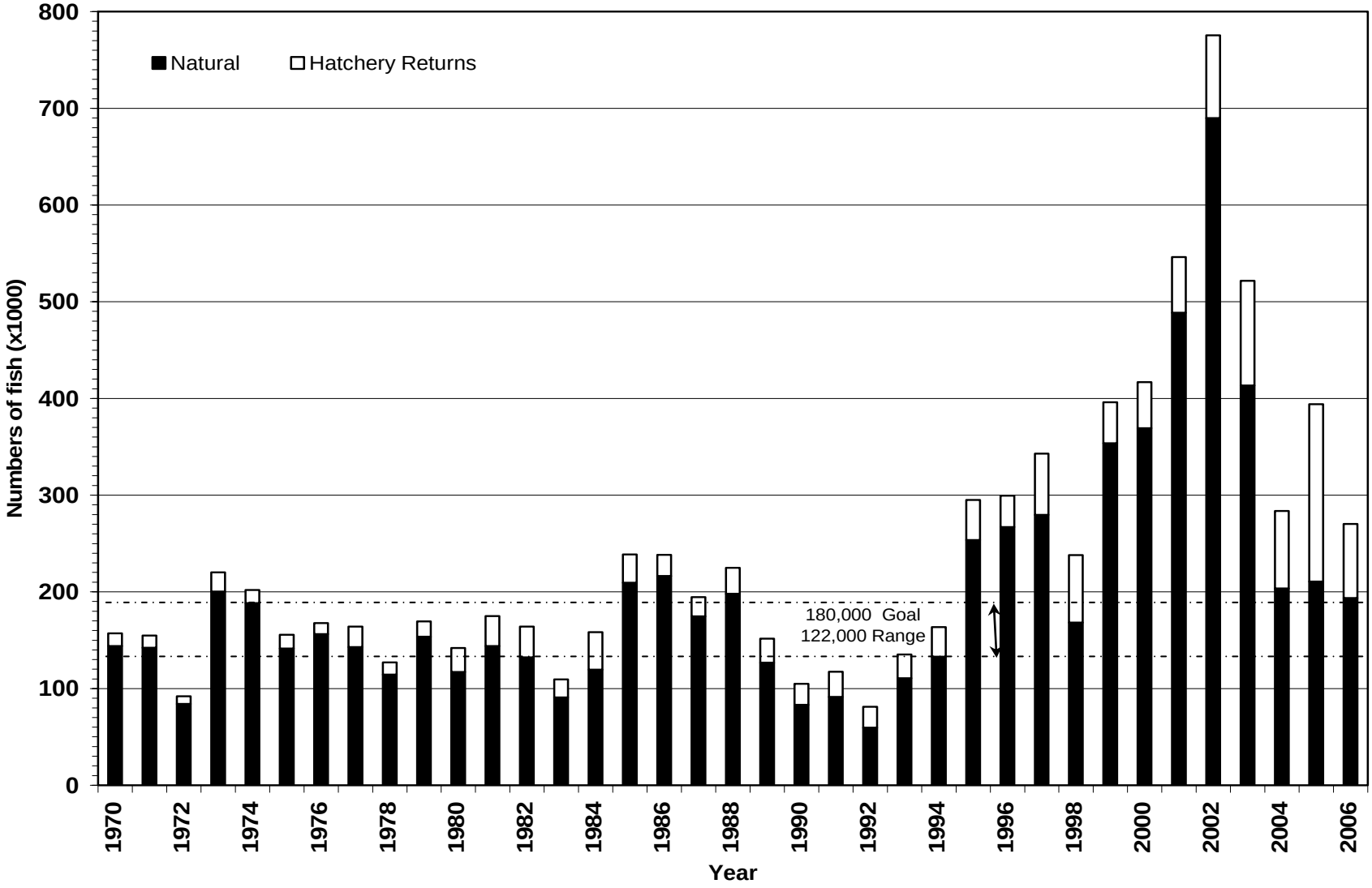

Figure II-1. Sacramento River adult fall Chinook spawning escapements, 1970-2006.

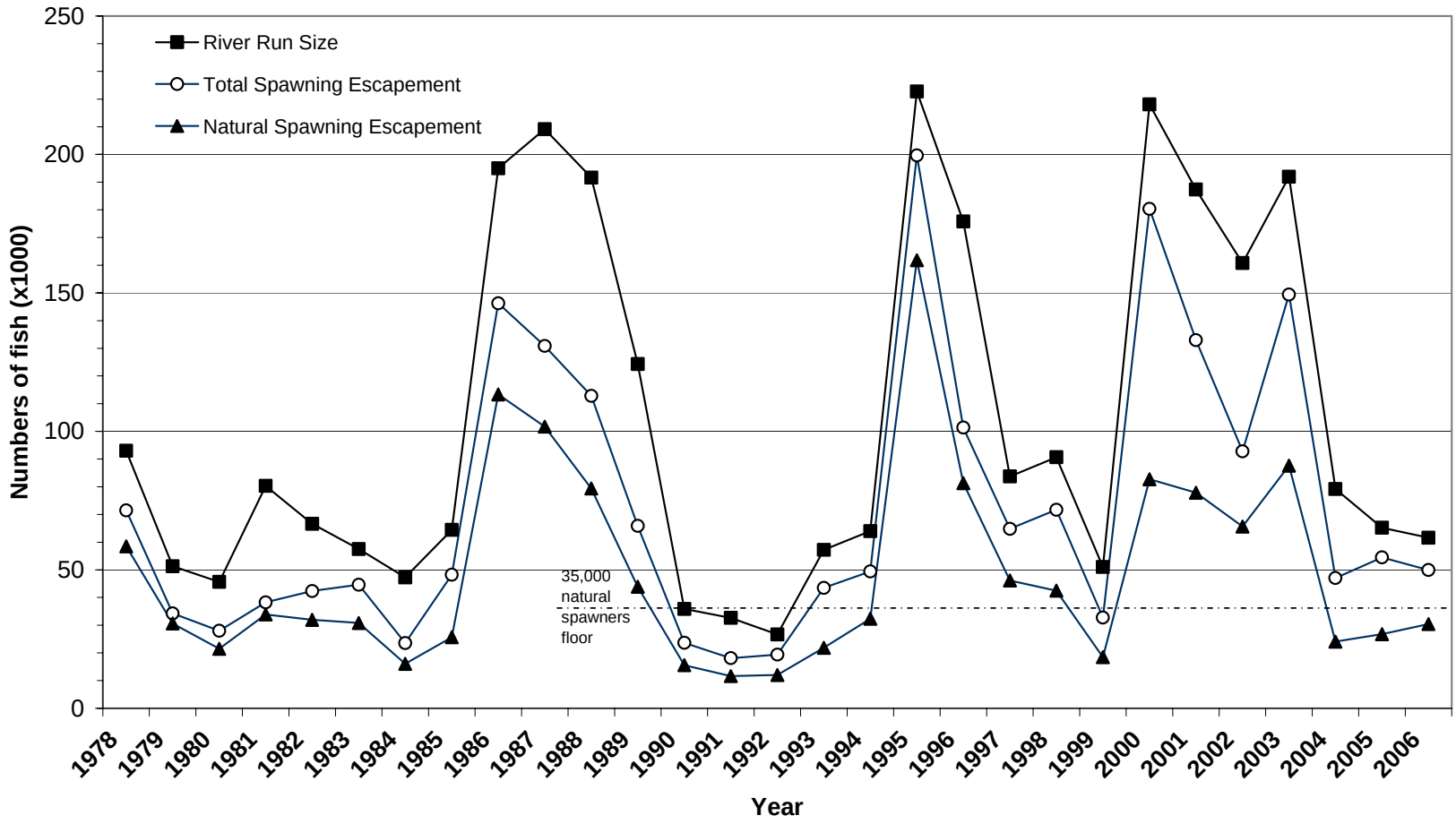

Figure II-2. Klamath River adult fall Chinook returns and spawning escapements, 1978-2006.

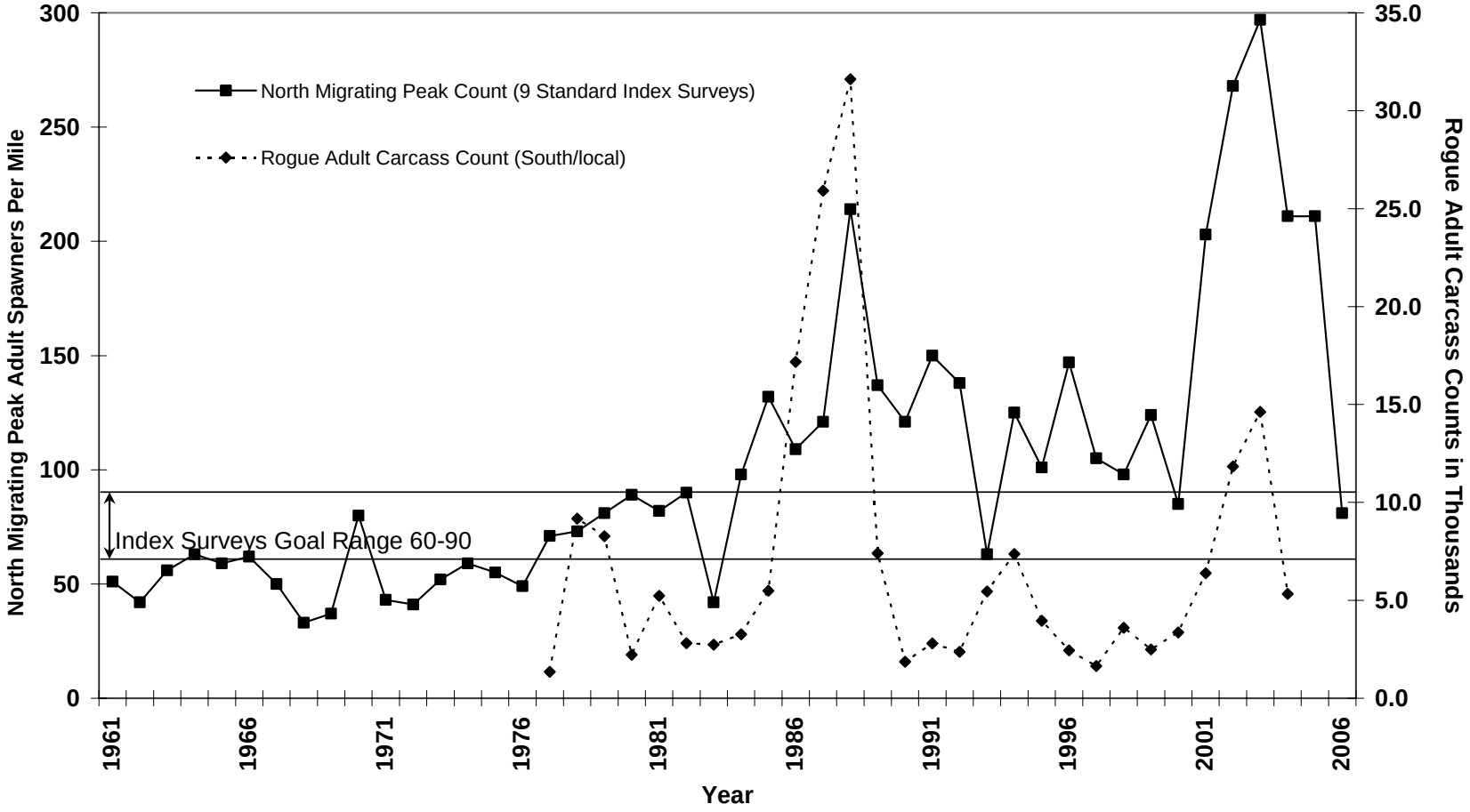

Figure II-3. Spawner indices for naturally produced Oregon coastal fall Chinook.

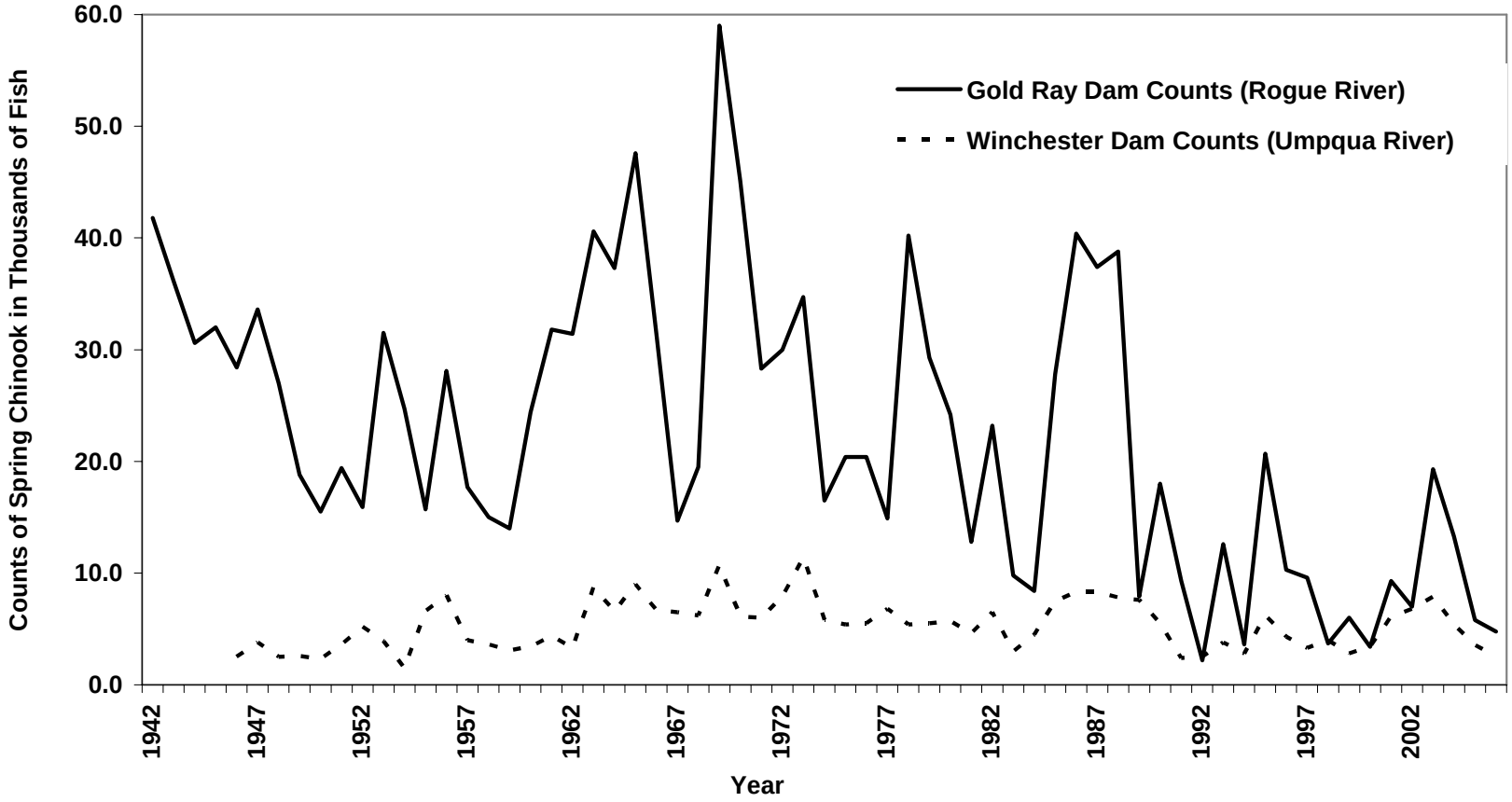

Figure II-4. Escapement indices for naturally produced Oregon coastal south/local migrating spring Chinook, 1942-2006.

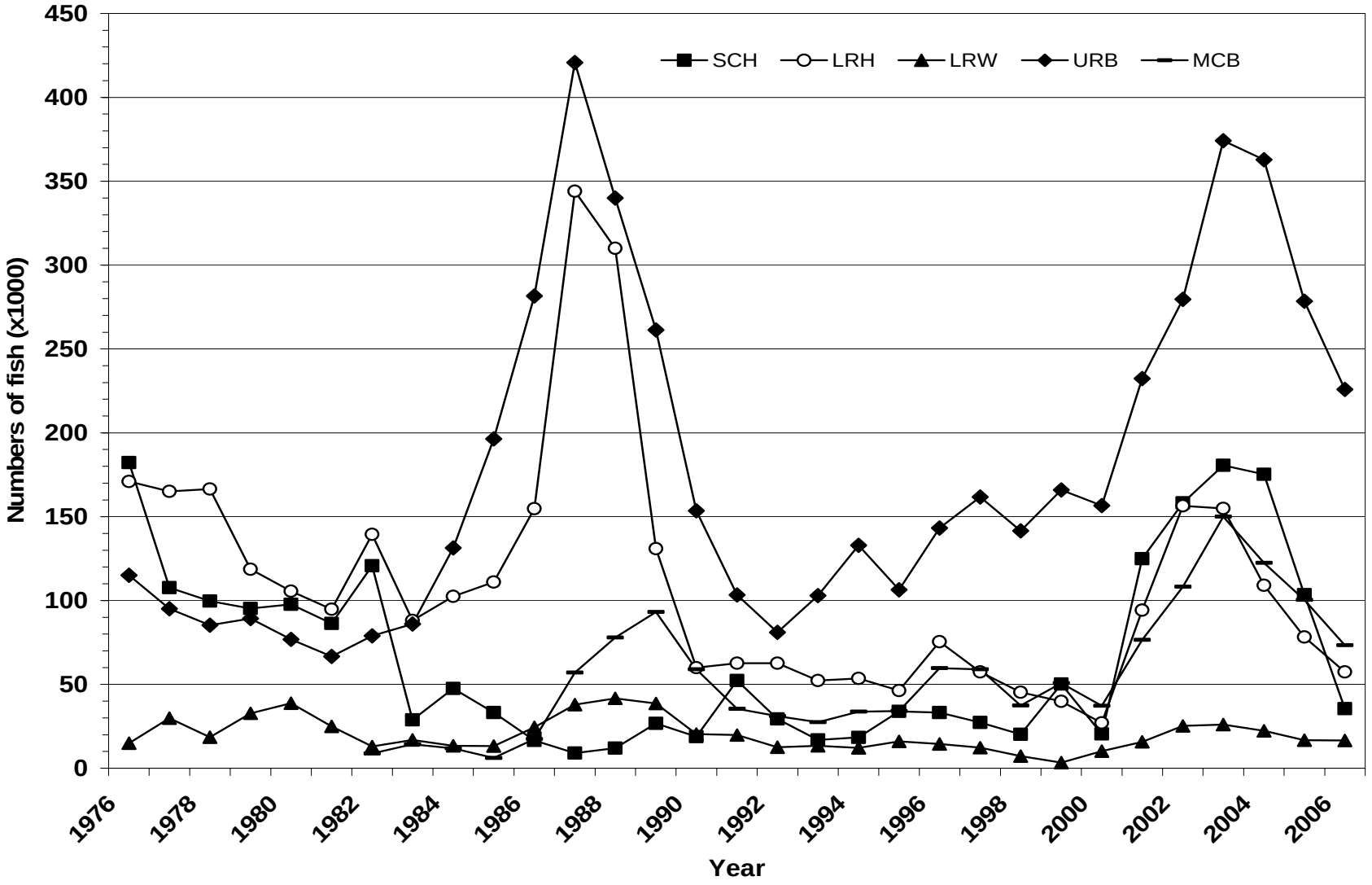

Figure II-5. Columbia River mouth adult returns of the five major fall Chinook stock groups, 1976-2006.