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Data and Estimating Missing Data for the Puget Sound Chinook Salmon ESU 5-Year Status Review

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Executive Summary

After a brief introduction, this report discusses the sources and methods used to obtain data estimates and estimate missing data, including natural spawning escapement, hatchery contribution, age distribution, and fishing rates, for 22 populations in the Puget Sound Chinook Salmon Evolutionarily Significant Unit. Twenty-two tables provide the data estimates and estimate the missing data for the 5-year status analyses. It may be in some cases that currently missing data could be made available with a bit of further research.

Introduction

This report documents the data used for the National Marine Fisheries Service's 2010 5-year status review of the Puget Sound Chinook Salmon Evolutionarily Significant Unit (ESU) populations (Ford 2011, NMFS 2011). It also documents the methods used to estimate values for missing years of data in order to develop the complete time series needed for cohort run reconstruction. The length of the time series for each population was determined by the availability of spawning abundance estimates. Data were supplied by state and tribal comanagers, either in reports or directly as the result of the public request for data as part of the 5-year status review of the Puget Sound Chinook Salmon ESU (NMFS 2010). The status review focused primarily on abundance and productivity of the 22 populations identified by the Puget Sound Technical Recovery Team (PS TRT) and used in the recovery plan (Ruckelshaus et al. 2006, SSDC 2007). In Table 1 through Table 22 of this report, data supplied by comanagers or obtained from reports are in normal font and estimates for missing data used in this analysis are in boldface. Methods for estimating missing data are provided in detail in the descriptions of each watershed population (22 populations in the 12 subsections of the Population-specific Data and Methods section).

Data Sources and Methods

For Chinook salmon (*Oncorhynchus tshawytscha*), cohort run reconstruction was used to determine productivity of the cohorts. The information needed for this at the population level included:

1. Natural spawning escapement (reported as adult spawners, i.e., age 3 and older).
2. Hatchery contribution or proportion to the natural spawning.
3. Age distribution of the natural-origin portion of the natural spawners, including age-2 fish.
4. Natural-origin fish that are taken in hatchery operations (e.g., broodstock take and rack return), usually supplied as total hatchery take and rack return and proportion of natural-origin fish.
5. Fishing rates (proportion of available age-specific cohort taken by fishery in a given year) for both mixed maturity fisheries and mature fisheries by age (ages 2–5).
    a. Mixed maturity fisheries are those that catch fish in the ocean which would either remain in ocean another year or return that year to the spawning grounds; the entire age-specific cohort remaining in the ocean is assumed to be available to the ocean fishery.
    b. Mature fisheries are those that catch fish during their return migration to the spawning grounds; the entire portion of the age-specific cohort returning to the spawning grounds in a given year is assumed to be available to the mature fishery.

Data was collected from comanagers and various reports by the PS TRT and maintained in Microsoft Excel spreadsheets, referred to as Abundance and Productivity (A&P) Tables, one file per population (Sands 2011).

Spawning Escapement Data

Natural spawning estimates and hatchery contribution estimates were provided by the comanagers through 2009 as a data file (Anderson unpubl. data) and management reports (WDFW and PSTIT 2004, 2005, 2006, 2007, 2008, 2009, 2010) as a result of the request for data in the Federal Register (NMFS 2010). Starting dates of available escapement data varied with populations and defined the time series for each population.

Age Distribution Data

Age distribution data for natural-origin spawning escapements was: 1) taken from the WDFW age database (Bishop unpubl. data), 2) provided by comanagers directly to the PS TRT, or 3) obtained from the annual management reports listed above (although age data was rarely provided in the management reports). Age data were often lacking for earlier years and unavailable for most recent years. Age composition estimates are based on scale and otolith samples from the spawning grounds; generally we used only samples of size greater than or

equal to 40. For some populations, smaller samples were used when data were very limited. See individual population descriptions for minimum sample size per population. To estimate the age distribution for years without data, rather than just using the average age distribution from available data, a method was developed to use information from relative total escapements per year to modify cohort age distribution; see the Age Engine subsection below.

Age Engine

The Age Engine (Excel worksheet in the A&P Tables) was used to estimate the age composition for calendar years without data (Sands 2007). The first step was to estimate the average age distribution over available years of data and use this as a starting value for the cohort age distribution. Only one Puget Sound Chinook salmon population had no data, the Mid Hood Canal, and for that we used information from other related populations. If enough years of continuous annual data are available, estimates of cohort age composition may be made. Otherwise, the average annual age composition may be used as a starting point for estimating the annual cohort age composition. For each broodyear, the starting proportion per age is weighted according to the relative abundance of the calendar escapements for years over which the cohort returns. Weights (w) are calculated for each calendar year (t) as

$$w_t = s_t / s \tag{1}$$

where s_t is the escapement for year t and s is the average escapement over all years. Just applying these weights to the cohort age distribution results in calendar age distributions that approach being constant. To get an estimate of an age distribution between a constant cohort age composition and a constant annual age composition, the factor (f) is calculated as

$$f_t = (w_t + 1) / 2 \tag{2}$$

Within a cohort, these annual factors are applied to the fixed starting cohort age distribution for the corresponding age proportion. For example, the age-2 fish from the 1990 cohort return in 1992, so the factor for 1992 would be applied to the starting estimated proportion of age-2 fish. This is done for all ages in the cohort and the resulting updated cohort age distribution is then adjusted to sum to 1.

Next the updated cohort age distribution per cohort is multiplied by the cohort size to get numbers of fish per age that may be rearranged to get the number of each age per calendar year return. Initial guesses were used for the cohort progeny spawner and the Excel Solver function was used to modify the cohort sizes such that the resulting calendar year abundances closely matched the observed abundances. For the Puget Sound Chinook salmon data, where reported escapements are adult fish only, the comparison was made between predicted and observed abundances of ages 3–6 fish. The error (absolute difference) between the predicted and observed calendar year escapement was calculated and summed over years to calculate the overall error to be minimized. While minimizing on the squared error gives a lower total error than minimizing on absolute error, the error is distributed over more years than when using the absolute error. Minimizing using absolute error resulted in a solution with fewer years with errors.

Calendar years with observed data are indicated in the calculation matrix and are not changed, since for a cohort with fixed observed age components, changing the input cohort

escapement size only influences the age components for years without data. In the minimization process, this could lead to large differences in the input cohort size and that obtained by summing over the component years. Therefore, the difference between the two is also calculated and raised to the error power already indicated (1 for this analysis) and added to the total error to be minimized. The calendar year age distributions are thus calculated for the missing years of data. For more information on the Age Engine, see Sands (2007).

Hatchery Contribution Data

Data to determine hatchery contributions to the natural spawning escapement is very limited. The method used to estimate contributions is done differently for each population. We worked closely with state and tribal scientists to develop estimates for years with missing data for some of the populations. Methods used are explained in the individual population subsections of the Population-specific Data and Methods section of this report.

Natural-origin Fish to Hatchery Operations

Estimates of natural-origin fish that are taken in broodstock takes or that return to hatcheries were provided for six of the populations by comanagers. Estimates of natural-origin fish that are removed by hatchery operations are another source of human take and were used to estimate the total natural-origin return and productivity.

Fishing Rate Estimates

Fishing rate estimates were obtained from the Pacific Salmon Commission Joint Chinook Technical Committee exploitation rate analyses that are updated each year (PSCJCTC no date). The years specific to this report were 2005–2009. The committee provides text file output for each hatchery indicator stock (called HRJ files, *.HRJ where * is the hatchery code) that gives the number of tagged fish caught and escaped by age and the total cohort size by broodyear and fishery. These estimates represent total harvest mortality, both direct and incidental mortality. The area-specific fisheries are then combined to give two fishery types: mixed maturity and mature. The mixed maturity fisheries are those that catch fish in the ocean where some will remain in the ocean another year or more and some will start the migration back to the river of origin; mature fisheries are those occurring in terminal areas that catch only fish returning to the spawning grounds that year. For each indicator stock, these estimates are in *OCNHR.PRN (ascii files) for the mixed maturity fisheries and in *THRB.PRN for the mature fisheries, where * represents the indicator hatchery code. For some of the Puget Sound Chinook salmon populations, we used an aggregate of several indicator stocks, either entirely (e.g., Snoqualmie population) or to fill in missing years for the watershed-specific indicator stock (e.g., Stillaguamish population). The aggregate groups made for Puget Sound are the Puget Sound aggregate (PSA) consisting of South Puget Sound (SPS), George Adam (GAD), Samish (SAM), Nisqually (NIS), and Stillaguamish (STL) fall fingerling indicator stocks, and the Strait (STR) group consisting of Elwha (ELW) and Hoko (HOK).[1] When making the harvest rate estimates for our aggregates, we started with the raw tagged fish estimates from the Joint Chinook

[1] The three-letter abbreviations are the standard abbreviations the Joint Chinook Technical Committee uses in its analyses.

Technical Committee *.HRJ files and combined them before use doing the cohort run reconstruction needed to estimate the population harvest rates.[2]

Since the age distribution of the natural-origin populations and the corresponding hatchery indicator stock usually differ, it is not appropriate to use the exploitation rates[3] estimated for hatchery stocks as rates for natural-origin stocks; total exploitation rates are dependent on the age distribution of the fish available for catch. Therefore, we used the fishing rate estimates per age to estimate catch and exploitation rates for the natural populations.

For broodyears with no appropriate indicator stock estimates, estimates were made by regressing harvest rates by age and fishery against average standardized total exploitation rate estimates, average standardized age-4 mixed maturity fishery harvest rates as available, and average standardized age-4 mature fishery harvest rates as available. The regression with the best correlation was used for each fishery. This estimation procedure was conducted within the A&P Tables (Sands 2011).

Cohort Run Reconstruction

The A&P Tables developed by the PS TRT were used to conduct the cohort run reconstruction (Sands 2011).

[2] The Excel file PugetSoundnjs2008.xlsx was used to make these estimates (Sands 2008).
[3] Exploitation rates by age are the percentage of the total return, after all natural mortality, taken by each fishery, as opposed to harvest rates, as used here, which are the percentage of the cohort at age either in the ocean or terminal areas that are taken in the fisheries.

Population-specific Data and Methods

Each of the following subsections on the specific Chinook salmon populations cover five topics: escapement, hatchery contribution to natural spawning, natural-origin returns (NORs) to hatchery, age data, and fishing rates.

North Fork and South Fork Nooksack Populations

Escapement—Natural spawning data were available starting in 1984 for the two Nooksack populations (Table 1, Table 2).

Hatchery contribution to natural spawning—Estimates were available for all years for the North Fork Nooksack population and only since 1999 for the South Fork Nooksack population. To estimate hatchery contribution for the South Fork Nooksack for the earlier years, the percentage of hatchery returns that went to the natural spawning grounds was calculated; this showed higher values in later years (2006–2009) than earlier years. The average value for 1999–2001 (5.3%) was used for earlier years to calculate hatchery contribution for years with Kendal Hatchery return data (data available since 1988). For the years 1984–1987, the average hatchery contribution rate for 1988–1990 (9.5%) was used.

NORs to hatchery—The hatchery in the Nooksack is the Kendal Hatchery. While data are available for hatchery returns since 1988, no estimates of natural-origin Nooksack Chinook salmon to the hatchery were made and they were assumed to be zero.

Age data—Estimates of age distribution for natural-origin spawners for the two Nooksack populations were available for 1992–1995 and 1997–2002. For the North Fork Nooksack population, samples sizes greater than or equal to 40 were available for 1993, 1995, and 2001–2002; for the South Fork Nooksack population, the years 1993, 1995, and 2001–2002 had sample sizes greater than or equal to 40. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the Nooksack fall fingerling and spring yearling indicator hatchery stocks were used. The two Nooksack populations are early run, but mostly (about 75%) fingerling outmigrants; therefore, the fingerling hatchery stock was considered the preferred indicator stock. Data were available for the fingerling indicator stock in broodyears 1988–1989 and 1992–2006 and for the yearling indicator stock in years 1981–1996. When the yearling fishing rates were used, they were adjusted to correspond to fingerling rates based on the relationship by age and fishery between the two during the years both estimates were available.

Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average Puget Sound exploitation rate (PS ER), average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these two populations, the age-4 mixed maturity fishing rate was used to calculate the mixed maturity fishing rates and the age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Lower Skagit, Upper Skagit, and Lower Sauk Populations

Escapement—Natural spawning data were available starting in 1952 for most of the Skagit populations. Estimates for the years 1968–1972 were available only as the total number for the summer/fall return (Lower Skagit, Upper Skagit, and Lower Sauk populations). Population-specific estimates for the three populations were made by multiplying the total summer/fall return times the average percentage each population was over the 3 years prior to and 3 years after the missing time period (i.e., 1965–1967 and 1973–1975). The Lower Skagit (Table 3) was 32%, the Upper Skagit (Table 4) was 59%, and the Lower Sauk (Table 5) was 10%.

Hatchery contribution to natural spawning—Estimates were available only for the years 2000–2006 and 2009 for the Lower Skagit; the range over these years was 1–7% and the average was 3.84%, and this was used for all years without estimates. Estimates for the Upper Skagit were available for the years 1995–2001, 2004–2006, and 2008–2009; the range was 0–7% and the average was 3.76%, and this was used for most years without data. For the years 1952–1956 and 1959–1962, the TRT assumed there were not hatchery fish as there were corresponding hatchery releases. For the Lower Sauk population, the team assumed that there were minimal hatchery contributions to the spawning grounds from 1952 to 1966 (0.1%). In 1964 there were 495,000 Green River hatchery fish planted in the Sauk River and some releases were made in later years. Hatchery contribution estimates for the Lower Sauk were available for the years 1994, 2004–2006, and 2009; the range was 1–7% and the average was 4.38%. The average was used for all years without data from 1967 on.

NORs to hatchery—The hatchery in the Skagit is the Marblemount Hatchery. No estimates were made of natural-origin fish for any of the summer/fall populations returning to the hatchery either in broodstock take or rack return.

Age data—Estimates of age distribution for natural-origin spawners for the Lower Skagit were available for 1986 and 1998–2008; for the Upper Skagit, 1986, 1990–1991, and 1993–2008; and for the Lower Sauk, 1986. For the Lower Skagit and Upper Skagit, these were years for which age samples were greater than or equal to 40; for the Lower Sauk only 1 year had a sample size greater than or equal to 40, so the later 2 years with sample sizes of 26 and 27 were used. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the Skagit summer fingerling indicator hatchery stock were available for broodyears 1994–2006. For the broodyears 1971–1994, mixed maturity fishing rates were used from an aggregate hatchery group including Samish, Stillaguamish, Grovers Creek, Green, Nisqually, and George Adams. For the mature fishing rates, a terminal run reconstruction by the comanagers (2001) was used plus Puget Sound net catches of the aggregate hatchery group. The 1994 entry was an average of the two estimates. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these three Skagit late-run populations, the average PS ER was used to calculate the mixed maturity fishing rates and the age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Upper Sauk, Upper Cascade, and Suiattle Populations

Escapement—Natural spawning data were available starting in 1952 for most of the Skagit populations, except for the Cascade, which starts in 1981.

Hatchery contribution to natural spawning—Estimates were available only for the years 2005 and 2009 for the Upper Sauk (Table 6); 2001, 2004, and 2009 for the Upper Cascade (Table 7); and 2001, 2004–2005, and 2009 for the Suiattle (Table 8). The average was 3.68% for the Upper Sauk, 2.04% for the Cascade, and 3.66% for the Suiattle. The average was used for all missing years of data from 1967 on. Prior to 1967, zero was assumed.

NORs to hatchery—The hatchery in the Skagit is the Marblemount Hatchery. No estimates were made of natural-origin fish from the Upper Sauk or the Upper Cascade returning to the hatchery either in broodstock take or rack return. Broodstock take commenced in the Suiattle in 1974 and ended with 1988; it was assumed to be 100% natural-origin fish.

Age data—Age samples were available for 18 years for the Upper Sauk, but only 7 of these had sample sizes greater than or equal to 40; 1 year with a sample size of 38 was also used. Estimates of age distribution were therefore available for 1986, 1994–1995, 1998, 2001, 2005–2006, and 2009. Age samples were taken for the Upper Cascade for 14 years between 1992 and 2008; however only 2 years (1994 and 2001) had samples greater than or equal to 40. The sample size in 1993 was 36 and that year's estimates were also used. For the Suiattle, age samples were available between 1986 and 2008; 12 of these years had sample sizes greater than or equal to 40 and were used (1986–1990, 1995, 1998–2001, and 2004–2005). The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the Skagit spring run indicator hatchery stock were available for broodyears 1981–1987, 1990, and 1993–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression

formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these three Skagit early-run populations, the average PS ER was used to calculate the mixed maturity fishing rates and the age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

North Fork and South Fork Stillaguamish Populations

Escapement—Natural spawning data were available starting in 1974 for the North Fork population (Table 9) and South Fork population (Table 10).

Hatchery contribution to natural spawning—Hatchery contribution was assumed to be zero prior to 1986. Estimates were available for 1986 for the North Fork population and were assumed to be zero for the South Fork population. However, in 2009 one coded-wire tag was found in the South Fork, providing an estimate of 7% hatchery contribution for that population that year.

NORs to hatchery—A broodstock take was initiated in the North Fork Stillaguamish in 1986 for the Stillaguamish Tribal Hatchery program. Estimates of natural-origin fish in the take were made each year and were available from 1986 to 2000. For 2001 the average of the previous 3 years was used and this ranged 28–31%. No South Fork Stillaguamish Chinook salmon were assumed to be found in the broodstock take.

Age data—Estimates of age distribution for natural-origin spawners for the North Fork population with sample sizes greater than or equal to 40 were available for 1987, 1989–1994, 1996, and 1998–2001. For the South Fork population, the years with sufficient sample sizes were 1987, 1989–1994, 1996, and 1998. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the Stillaguamish fall fingerling indicator hatchery stock were available for broodyears 1980–1983, 1986–1988, and 2002–2006. Broodyears 2004-2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. For broodyears 1974–1975, 1978–1979, and 1999–2001, the fishing rate estimates from the Puget Sound aggregate fall fingerling indicator stock group was used. For broodyears 1976 and 1977, for which there were no data from either indicator stock, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed fishery fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these two years, the average PS ER was used to calculate the mixed maturity fishing rates and the average age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Snohomish (Skykomish and Snoqualmie) Populations

Escapement—Natural spawning data were available starting in 1965 for the Skykomish population (Table 11) and the Snoqualmie population (Table 12).

Hatchery contribution to natural spawning—Estimates for the Skykomish were available for the years 1979–2001, 2004, and 2006–2009. For the Snoqualmie, they were available for 1979–2001 and 2004–2009. Estimates of hatchery contribution for the Skykomish population for 1965–1978 were made by taking the average of the following 5 years of estimates; for 2002, 2003, and 2005, the average of the previous 3 years was used. The estimate for the Snoqualmie population for 1965–1978 was the average of 1979–1983 (6.2%); for 2002 and 2003, the average of the previous 3 years was used.

NORs to hatchery—Hatchery returns to the Wallace Hatchery trap in the Snohomish were available for 1997–2001. For years prior to 1997, the average of these 5 years was used (12.5%). Trap counts were only available from 1979. Prior to that, an average return of the following 5 years was used such that estimates of natural-origin returns to the hatchery could be made. It was assumed that no natural-origin Snoqualmie Chinook salmon returned to the hatchery.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the Skykomish population were available for the years 1989, 1996–2002, and 2004. For the Snoqualmie population, the years with adequate samples were 1993–1994 and 1996–2004. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data for these two Snohomish populations were based on the Skykomish fall fingerling indicator hatchery stock and were available for broodyears 1971–1975 and 1978–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these two populations, the average PS ER was used to calculate the mixed maturity fishing rates and the age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Lake Washington (Sammamish and Cedar) Populations

Escapement—Natural spawning data were available starting in 1983 for the Sammamish population (Table 13) and 1965 for the Cedar population (Table 14).

Hatchery contribution to natural spawning—Estimates for the Sammamish were available for the years 2003–2008 and ranged from 62% to 79%; estimates for the Cedar were available for 2003–2009 and ranged from 10% to 39%. An estimate for 2009 for the

Sammamish was made by taking the average of the previous 3 years. For the years prior to 2003, estimates of hatchery fish on the spawning grounds were made using the average hatchery stray rate from the available years of estimates (2.0% Sammamish, 2.1% Cedar) times the total hatchery returns. Returns to the Lake Washington, Issaquah, and University of Washington hatcheries were available from 1970. The estimated hatchery contribution was estimated as the number of estimated hatchery fish divided by total natural spawners and ranged from 4% to 50%. For the Cedar population, the estimate for each year prior to 1970 was the average of estimates for 1970–1974 (18%).

NORs to hatchery—No estimates were available of natural-origin Chinook salmon to the various hatcheries mentioned above in and around Lake Washington; they were assumed to be zero for both populations.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the Sammamish population were available only in 1988 and for the Cedar population only in 2005. The age distribution represented by the single year of data was used as the starting point for each population and the Age Engine was used to estimate age distribution for all other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the South Puget Sound aggregate indicator hatchery stock were available for broodyears 1971–1975 and 1978–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these two populations, the average PS ER was used to calculate both the mixed maturity fishing rates and the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Green Population

Escapement—Natural spawning data were available starting in 1968 (Table 15).

Hatchery contribution to natural spawning—Estimates were available for the years 1989–2003 and 2005–2009. The estimate for 2004 was the average of 2001–2003. For the years 1989–2005, the percentage of hatchery returns that strayed to the spawning grounds was calculated. For years prior to 1989, the average straying rate from the hatchery to the spawning grounds over 1989–2005 (28%) was used to calculate hatchery contribution to the spawning grounds. The annual percent hatchery contribution for those years was calculated as the number of the hatchery rack return (RR) times the average stray rate (SR) divided by 1 minus the average stray rate, all divided by number of natural spawners (E), that is, $(RR \times SR/(1-SR))/E$. The minimum of this calculated rate and 95% was used.

NORs to hatchery—The number of natural-origin Chinook salmon returning to the hatchery was available for 1990–1998. For the years 1999–2009, the average of the previous 3 years was used (43–45%). Prior to 1990, zero was used, as the estimate for 1990 was zero.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 36 (all but one year had sample sizes greater than 40) for the Green population were available for the years 1988–1998. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the South Puget Sound aggregate indicator hatchery stock were available for broodyears 1971–1975 and 1978–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For the Green population, the average PS ER was used to calculate the mixed maturity fishing rates and the average age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

White Population

Escapement—Natural spawning data were available starting in 1965 (Table 16). Salmon are caught in a trap and passed upstream. The population that we are monitoring is a spring run. A certain percentage of the fish passed upstream were estimated to be fall Chinook salmon. Estimates of the percentage of fall Chinook in the total return were available for 1998 and 2002–2005 from a Ford et al. DNA study (unpubl. manuscr.).

Hatchery contribution to natural spawning—Estimates were based on acclimation pond hatchery fish being passed above the trap. Estimates were provided for all years.

NORs to hatchery—The hatchery take of natural-origin fish occurred in a broodstock take program from 2004 to present.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the White population were available for the years 1998 and 2000–2005. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data were based on the White River spring fingerling data when available and adjusted White River spring yearling indicator hatchery stock when available for years without fingerling releases. Adjustment was based on the relationship of estimates during years when releases of both fingerlings and yearlings were available. Fishing rate estimates were available for broodyears 1974–1975, 1979–1997, and 2002–2006. Broodyears

2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For this population, the average age-4 mixed maturity fishing rate was used to calculate both the mixed maturity fishing rates and the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Puyallup Population

Escapement—Natural spawning data were available starting in 1968 (Table 17).

Hatchery contribution to natural spawning—Hatchery trap counts were available since 1968. Assuming a stray rate of 18% of hatchery fish to the spawning grounds provided an estimate of hatchery contribution for 1968–2005. For 2006 and 2007, estimates of hatchery contribution were reported. For 2008 and 2009, the average of the 3 previous years was used.

NORs to hatchery—No estimates of NORs to the hatchery were made.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the Puyallup population were available for the years 1992–1996 and 1998–2000. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the South Puget Sound aggregate indicator hatchery stock were available for broodyears 1971–1975 and 1978–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For the Puyallup population, the average age-4 mixed maturity fishing rate was used to calculate the mixed maturity fishing rates and average age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Nisqually Population

Escapement—Natural spawning data were available starting in 1968, although estimates prior to 1978 appear to be of less precision (Table 18).

Hatchery contribution to natural spawning—Hatchery returns started in 1982. Estimates of hatchery contribution to the natural spawning grounds were made starting in 1982 and available through 2008. The estimate for 2009 was the average of the 3 previous years.

NORs to hatchery—No estimates of NORs to the hatchery were made.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the Nisqually population were available only for the years 2003–2005. For the years 1995 and 1998–2000, age samples with sizes of 21 to 37 fish were also used. The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the Nisqually fall fingerling indicator hatchery stock were available for broodyears 1979–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. To estimate missing data in a given year, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed maturity fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For the Nisqually population, the average PS ER was used to calculate the mixed maturity fishing rates and the average age-4 mature fishing rate was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Hood Canal (Skokomish and Mid Hood Canal) Populations

Escapement—Natural spawning data were available starting in 1968 for the Skokomish population (Table 19) and Mid Hood Canal population (Table 20). The Mid Hood Canal population consists of Chinook salmon spawning in the Dosewallips, Duckabush, and Hamma Hamma rivers.

Hatchery contribution to natural spawning—Estimates for the Skokomish population were available for the years 1987–2009; 1987–2005 estimates were provided by Kris Ryding (WDFW) with 0.561 as the average value for missing years. Estimates for 2006–2009 were from management reports. Estimates of hatchery contribution were available for 2005–2009 for the Mid Hood Canal population; all years for Hamma Hamma; 2009 for Duckabush; and 2005, 2007, and 2009 for Dosewallips. The Dosewallips and Duckabush were assumed to have few hatchery strays; estimates were either zero or 50%, indicating the imprecision of these estimates. Estimates for 1968–2004 for the Hamma Hamma were generated by assuming an average value of 35% for 2004, a maximum value of 80% for 1968, and a linear regression of values in between.

NORs to hatchery—It was assumed that no natural-origin fish from the Skokomish or the Mid Hood Canal populations strayed to the local hatcheries.

Age data—Estimates of age distribution for natural-origin spawners with sample sizes greater than or equal to 40 for the Skokomish population were available for the years 1993 and 1998–2007. The Age Engine was used to estimate age distribution for other years. No age data was available for the Mid Hood Canal population. The average age distribution of the Skokomish and Green populations was used as the seed for the Age Engine to estimate age

distributions by year. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Fishing rate data based on the George Adams fall fingerling indicator hatchery stock were available for broodyears 1972, 1974–1975, 1978–1981, and 1985–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery. Also, any single age-fishery fishing rate estimate was capped at 0.85 for these populations; this occurred twice for the mixed maturity fishery rates and 14 times for the mature fishing rates. To make estimates for the missing years in our time series, a regression formula was used relating age-fishery specific estimates against average PS ER, average age-4 mixed fishery fishing rate, and average age-4 mature fishing rate, choosing the regression with the best correlations within each fishery. For these two populations, the average age-4 mixed maturity fishing rate was used to calculate the mixed maturity fishing rates and the average PS ER was used to calculate the mature fishing rates. See the Fishing Rate Estimates subsection of the Data Sources and Methods section above for a more complete discussion of this method of estimating missing data.

Dungeness and Elwha Populations

Escapement—Natural spawning data were available starting in 1986 for the Dungeness population (Table 21) and the Elwha population (Table 22).

Hatchery contribution to natural spawning—Estimates were available for the Dungeness for the years 2001–2008. For earlier years, 82.5% was used; for 2009 the average for the previous 3 years was used.

NORs to hatchery—There is no hatchery on the Dungeness and no estimates of NORs to any hatchery operations were made.

Age data—Estimates of age distribution for natural-origin spawners from the Dungeness were available for 1987–1993 and 1995–1998; all sample sizes were less than 40. All sample sizes except 1992 and 1993 were greater than 10 and were used to estimate an average age distribution. This average age distribution was used to start the Age Engine and estimate age distributions per year for all years, since sample sizes less than 40 do not provide a reliable age distribution for a given year. Estimates of age distribution for natural-origin spawners from the Elwha were available for 1989–1990 and 1992–1998; all sample sizes were greater than 100 (40 being the usual minimum acceptable). The Age Engine was used to estimate age distribution for other years. See the Age Engine subsection of the Data Sources and Methods section above for more information about the engine.

Fishing rates—Due to the lack of a consistent indicator hatchery stock for these two populations, an indicator stock was used that incorporated the limited Elwha Hatchery return data (ends with broodyear 1994) with the more complete Hoko Hatchery return data. Fishing rate data based on this derived indicator hatchery stock were available for broodyears 1982–2006. Broodyears 2004–2006 have incomplete returns and the missing age rates were estimated by taking the average of the previous 3 years for that age and fishery.

Conclusions

The purpose of this report is to document the data that are needed for periodic status reviews and indicate where we have missing data and how missing data were estimated. It may be in some cases that currently missing data could be made available with a bit of further research.

Tables 1–22

These tables provide the input date for the 22 Chinook salmon populations. They are:

1. North Fork Nooksack
2. South Fork Nooksack
3. Lower Skagit
4. Upper Skagit
5. Lower Sauk
6. Upper Sauk
7. Upper Cascade
8. Suiattle
9. North Fork Stillaguamish
10. South Fork Stillaguamish
11. Skykomish
12. Snoqualmie
13. Sammamish
14. Cedar
15. Green/Duwamish
16. White
17. Puyallup
18. Nisqually
19. Skokomish
20. Mid Hood Canal
21. Dungeness
22. Elwha

CY/BY in the first column of each table = calendar year and broodyear; the latter applies to the two sets of fishing rates (age 2 to age 5) in the right-hand eight columns. CY escapements = BY. Broodyear returns and age-specific fishing rates occur over several calendar years.

Table 1. Input data for the North Fork Nooksack Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Kendal Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1981	—	—	—	—	—	—	—	—	—	—	.07	.31	.36	.12	.80	.07	.06	.00
1982	—	—	—	—	—	—	—	—	—	—	.02	.21	.25	.80	**.22**	**.05**	**.03**	**.02**
1983	—	—	—	—	—	—	—	—	—	—	**.06**	**.20**	**.31**	**.25**	**.29**	**.06**	**.04**	**.02**
1984	45	6.2	—	—	—	**2**	**58**	**22**	**18**	**0**	.05	.27	.34	.15	.11	.05	.06	.01
1985	255	12.4	—	—	—	**0**	**15**	**83**	**1**	**0**	**.06**	**.19**	**.31**	**.26**	**.32**	**.07**	**.05**	**.02**
1986	224	18.6	—	—	—	**1**	**12**	**71**	**16**	**0**	.11	.20	.45	.00	.00	.13	.00	.04
1987	179	24.7	—	—	—	**1**	**26**	**57**	**15**	**0**	.08	.19	.38	.00	.09	.03	.03	.00
1988	452	34.0	837	—	—	**0**	**17**	**76**	**7**	**0**	.05	.25	.22	.00	.00	.02	.02	.00
1989	300	27.8	470	—	—	**0**	**1**	**83**	**16**	**0**	.08	.43	.25	.19	.77	.03	.00	.00
1990	10	58.2	108	—	—	**2**	**27**	**19**	**52**	**0**	.08	.20	.30	.24	.06	.05	.02	.00
1991	107	27.1	151	—	—	**1**	**37**	**60**	**2**	**0**	**.06**	**.17**	**.30**	**.27**	**.09**	**.02**	**.01**	**.03**
1992	493	33.0	1,016	—	19	1	18	75	6	0	.06	.20	.17	.29	.00	.00	.00	.00
1993	446	59.1	1,364	—	114	0	1	90	9	0	.08	.20	.27	.22	.00	.00	.01	.00
1994	45	58.2	550	—	4	**2**	**33**	**16**	**49**	**0**	.04	.13	.14	.22	.04	.02	.00	.00
1995	230	25.7	792	—	50	2	34	48	16	0	.21	.04	.06	.29	**.11**	**.03**	**.01**	**.03**
1996	535	6.9	1,070	—	—	**0**	**8**	**84**	**8**	**0**	.02	.11	.36	.07	.80	.02	.00	.00
1997	617	88.0	1,663	—	29	**1**	**6**	**65**	**28**	**0**	.02	.08	.15	.26	.00	.00	.00	.00
1998	370	90.0	1,278	—	18	**2**	**32**	**46**	**20**	**0**	.03	.14	.31	.19	.10	.03	.00	.01
1999	823	89.7	2,873	—	31	**1**	**23**	**71**	**4**	**0**	.02	.09	.31	.56	.01	.01	.03	.00
2000	1,364	88.3	911	—	5	**1**	**25**	**66**	**9**	**0**	.03	.06	.54	.61	.00	.01	.01	.00
2001	4,057	93.5	5,362	—	63	0	11	78	11	0	.05	.19	.45	.19	.00	.01	.01	.05
2002	7,473	97.0	5,649	—	100	0	19	59	22	0	.03	.16	.45	.45	.00	.05	.04	.08
2003	3,441	93.9	5,046	—	—	**1**	**22**	**67**	**11**	**0**	.07	.30	.43	.30	.01	.11	.03	.24
2004	3,507	91.0	3,533	—	—	**1**	**13**	**76**	**10**	**0**	.08	.32	.52	**.31**	.00	.00	.14	**.12**
2005	3,133	93.3	1,569	—	—	**1**	**19**	**64**	**16**	**0**	.03	.22	**.47**	**.35**	.01	.05	**.07**	**.15**
2006	1,184	76.8	1,117	—	—	**1**	**18**	**71**	**10**	**0**	.01	**.28**	**.47**	**.32**	.00	**.05**	**.08**	**.17**
2007	1,438	76.8	665	—	—	**1**	**16**	**71**	**12**	**0**	—	—	—	—	—	—	—	—
2008	1,266	75.8	1,194	—	—	**1**	**15**	**71**	**13**	**0**	—	—	—	—	—	—	—	—
2009	1,903	85.9	812	—	—	**1**	**17**	**68**	**13**	**0**	—	—	—	—	—	—	—	—

Table 2. Input data for the South Fork Nooksack Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Kendal Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1981	—	—	—	—	—	—	—	—	—	—	.07	.31	.36	.12	.80	.07	.06	.00
1982	—	—	—	—	—	—	—	—	—	—	.02	.21	.25	.80	**.22**	**.05**	**.03**	**.02**
1983	—	—	—	—	—	—	—	—	—	—	**.06**	**.20**	**.31**	**.25**	**.29**	**.06**	**.04**	**.02**
1984	188	**9.5**	—	—	—	**0**	**21**	**61**	**18**	**0**	.05	.27	.34	.15	.11	.05	.06	.01
1985	445	**9.5**	—	—	—	**0**	**6**	**85**	**9**	**0**	**.06**	**.19**	**.31**	**.26**	**.32**	**.07**	**.05**	**.02**
1986	170	**9.5**	—	—	—	**0**	**17**	**54**	**29**	**0**	.11	.20	.45	.00	.00	.13	.00	.04
1987	248	**9.5**	—	—	—	**0**	**9**	**82**	**10**	**0**	.08	.19	.38	.00	.09	.03	.03	.00
1988	233	**2.0**	837	—	—	**0**	**24**	**57**	**20**	**0**	.05	.25	.22	.00	.00	.02	.02	.00
1989	606	**4.3**	470	—	—	**0**	**3**	**89**	**8**	**0**	.08	.43	.25	.19	.77	.03	.00	.00
1990	142	**4.2**	108	—	—	**0**	**26**	**37**	**37**	**0**	.08	.20	.30	.24	.06	.05	.02	.00
1991	365	**2.3**	151	—	—	**0**	**1**	**94**	**5**	**0**	**.06**	**.17**	**.30**	**.27**	**.09**	**.02**	**.01**	**.03**
1992	103	**55.0**	1,016	—	—	**0**	**25**	**11**	**64**	**0**	.06	.20	.17	.29	.00	.00	.00	.00
1993	235	**32.4**	1,364	—	55	0	4	73	24	0	.08	.20	.27	.22	.00	.00	.01	.00
1994	118	**26.0**	550	—	7	**0**	**21**	**55**	**24**	**0**	.04	.13	.14	.22	.04	.02	.00	.00
1995	290	**15.2**	792	—	50	0	28	68	4	0	.21	.04	.06	.29	**.11**	**.03**	**.01**	**.03**
1996	203	**29.4**	1,070	—	—	**0**	**8**	**72**	**20**	**0**	.02	.11	.36	.07	.80	.02	.00	.00
1997	180	**51.5**	1,663	—	2	**0**	**11**	**67**	**22**	**0**	.02	.08	.15	.26	.00	.00	.00	.00
1998	157	**45.4**	1,278	—	6	**0**	**18**	**67**	**15**	**0**	.03	.14	.31	.19	.10	.03	.00	.01
1999	288	44.8	2,873	—	21	**0**	**17**	**73**	**10**	**0**	.02	.09	.31	.56	.01	.01	.03	.00
2000	373	23.9	911	—	29	**0**	**12**	**76**	**12**	**0**	.03	.06	.54	.61	.00	.01	.01	.00
2001	420	34.8	5,362	—	108	0	5	76	19	0	.05	.19	.45	.19	.00	.01	.01	.05
2002	625	53.8	5,649	—	100	0	12	72	16	0	.03	.16	.45	.45	.00	.05	.04	.08
2003	591	62.9	5,046	—	—	**0**	**9**	**74**	**16**	**0**	.07	.30	.43	.30	.01	.11	.03	.24
2004	172	15.1	3,533	—	—	**0**	**9**	**70**	**20**	**0**	.08	.32	.52	**.31**	.00	.00	.14	**.12**
2005	233	43.8	1,569	—	—	**0**	**24**	**60**	**16**	**0**	.03	.22	**.47**	**.35**	.01	.05	**.07**	**.15**
2006	532	32.7	1,117	—	—	**0**	**8**	**84**	**8**	**0**	.01	**.28**	**.47**	**.32**	.00	**.05**	**.08**	**.17**
2007	348	42.2	665	—	—	**0**	**16**	**60**	**24**	**0**	—	—	—	—	—	—	—	—
2008	447	29.5	1,194	—	—	**0**	**11**	**78**	**11**	**0**	—	—	—	—	—	—	—	—
2009	456	36.4	812	—	—	**0**	**12**	**71**	**18**	**0**	—	—	—	—	—	—	—	—

Table 3. Input data for the Lower Skagit Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Marblemount Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1952	2,662	**3.8**	—	—	—	**2**	**10**	**82**	**7**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1953	1,806	**3.8**	—	—	—	**1**	**18**	**46**	**34**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1954	1,707	**3.8**	—	—	—	**2**	**11**	**70**	**16**	**1**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1955	1,339	**3.8**	—	—	—	**3**	**20**	**50**	**27**	**1**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1956	1,686	**3.8**	—	—	—	**3**	**18**	**64**	**14**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1957	2,220	**3.8**	—	—	—	**3**	**19**	**59**	**18**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1958	3,121	**3.8**	—	—	—	**3**	**19**	**61**	**16**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1959	5,028	**3.8**	—	—	—	**2**	**21**	**59**	**17**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1960	9,263	**3.8**	—	—	—	**1**	**13**	**69**	**17**	**0**	**.13**	**.31**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1961	4,567	**3.8**	—	—	—	**2**	**6**	**63**	**28**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1962	1,850	**3.8**	—	—	—	**2**	**28**	**36**	**33**	**1**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1963	3,353	**3.8**	—	—	—	**2**	**12**	**76**	**9**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1964	2,836	**3.8**	—	—	—	**3**	**20**	**50**	**28**	**0**	**.13**	**.31**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1965	3,961	**3.8**	—	—	—	**2**	**18**	**65**	**14**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.68**	**.56**	**.38**
1966	4,624	**3.8**	—	—	—	**2**	**11**	**66**	**20**	**0**	**.12**	**.31**	**.46**	**.39**	**.69**	**.69**	**.57**	**.39**
1967	3,262	**3.8**	—	—	—	**1**	**22**	**51**	**26**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.69**	**.57**	**.39**
1968	**3,898**	**3.8**	—	—	—	**3**	**7**	**74**	**15**	**0**	**.12**	**.29**	**.44**	**.38**	**.68**	**.67**	**.56**	**.38**
1969	**3,039**	**3.8**	—	—	—	**2**	**26**	**29**	**42**	**1**	**.12**	**.30**	**.46**	**.39**	**.70**	**.70**	**.58**	**.39**
1970	**5,966**	**3.8**	—	—	—	**2**	**14**	**76**	**7**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.68**	**.56**	**.38**
1971	**5,931**	**3.8**	—	—	—	**2**	**19**	**54**	**26**	**0**	.08	.12	.38	.57	.00	.50	.72	.58
1972	**7,346**	**3.8**	—	—	—	**1**	**14**	**68**	**17**	**0**	.08	.35	.55	.17	**.40**	**.78**	**.66**	**.44**
1973	4,911	**3.8**	—	—	—	**1**	**13**	**59**	**26**	**0**	.16	.37	.39	.52	.64	.82	.70	.60
1974	3,116	**3.8**	—	—	—	**3**	**14**	**59**	**24**	**1**	.13	.31	.56	.40	.80	.72	.52	.46
1975	3,185	**3.8**	—	—	—	**1**	**25**	**53**	**20**	**0**	.13	.41	.48	.49	.77	.61	.50	.36
1976	5,590	**3.8**	—	—	—	**2**	**8**	**76**	**14**	**0**	**.13**	**.32**	**.47**	**.39**	**.68**	**.68**	**.56**	**.38**
1977	2,485	**3.8**	—	—	—	**2**	**19**	**41**	**36**	**0**	**.13**	**.32**	**.48**	**.39**	**.70**	**.69**	**.58**	**.39**
1978	2,987	**3.8**	—	—	—	**3**	**17**	**67**	**13**	**1**	.16	.29	.37	.49	.49	.80	.72	.44
1979	3,829	**3.8**	—	—	—	**1**	**21**	**57**	**20**	**0**	.10	.28	.61	.43	.90	.81	.62	.20
1980	4,921	**3.8**	—	—	—	**1**	**10**	**71**	**17**	**0**	.12	.41	.40	.35	.63	.65	.31	.12
1981	2,348	**3.8**	—	—	—	**3**	**12**	**51**	**33**	**0**	.28	.42	.46	.45	.90	.31	.39	.19
1982	1,932	**3.8**	—	—	—	**2**	**24**	**54**	**19**	**1**	.10	.23	.37	.76	.51	.90	.17	.13
1983	3,151	**3.8**	—	—	—	**1**	**13**	**71**	**14**	**0**	.14	.27	.34	.00	.90	.31	.32	.19

Table 3 continued. Input data for the Lower Skagit Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Marblemount Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	2,306	**3.8**	—	—	—	**3**	**10**	**59**	**28**	**0**	.11	.25	.48	.35	.32	.43	.27	.75
1985	1,686	**3.8**	—	—	—	**2**	**27**	**46**	**24**	**1**	.07	.19	.35	.55	.59	.42	.54	.13
1986	4,584	**3.8**	—	—	70	0	13	64	23	0	.09	.25	.44	.39	.56	.65	.15	.37
1987	2,635	**3.8**	—	—	12	**1**	**18**	**53**	**28**	**0**	.09	.26	.37	.34	.72	.28	.37	.20
1988	2,339	**3.8**	—	—	9	**4**	**5**	**72**	**18**	**1**	.09	.24	.60	.28	.55	.49	.26	.12
1989	1,454	**3.8**	—	—	—	**1**	**39**	**26**	**33**	**1**	.08	.32	.58	.16	.55	.25	.19	.12
1990	3,705	**3.8**	—	—	—	**1**	**5**	**88**	**5**	**0**	.15	.39	.25	.37	.50	.18	.07	.26
1991	1,510	**3.8**	—	—	23	**1**	**18**	**32**	**49**	**0**	.06	.16	.37	.20	.37	.14	.25	.01
1992	1,331	**3.8**	—	—	5	**2**	**9**	**76**	**11**	**1**	.07	.22	.32	.31	.14	.31	.04	.18
1993	942	**3.8**	—	—	3	**1**	**19**	**46**	**33**	**0**	.13	.23	.40	.18	.28	.05	.21	.02
1994	884	**3.8**	—	—	6	**5**	**4**	**75**	**16**	**1**	.05	.11	.27	.42	.04	.35	.02	.02
1995	666	**3.8**	—	—	6	**0**	**46**	**20**	**33**	**0**	.02	.03	.35	.45	.00	.00	.03	.00
1996	1,521	**3.8**	—	—	—	**2**	**0**	**94**	**4**	**0**	.02	.07	.20	.88	**.26**	**.15**	**.06**	**.08**
1997	409	**3.8**	—	—	24	**3**	**36**	**1**	**61**	**0**	.03	.07	.26	.23	.01	.06	.01	.01
1998	2,388	**3.8**	—	—	56	7	21	52	20	0	.03	.07	.24	.31	.00	.02	.01	.01
1999	1,043	**3.8**	—	—	78	3	28	38	29	1	.02	.13	.23	.18	.01	.12	.02	.00
2000	3,262	.7	—	—	130	2	12	82	4	0	.01	.03	.15	.18	.00	.00	.01	.01
2001	2,606	2.5	—	—	168	1	6	81	12	0	.01	.05	.18	.08	.00	.02	.04	.01
2002	4,866	4.9	—	—	86	0	15	49	35	1	.01	.07	.14	.05	.90	.17	.04	.00
2003	1,161	1.2	—	—	119	1	29	57	13	0	.03	.09	.19	.21	.38	.08	.03	.24
2004	3,070	6.9	—	—	133	2	14	70	15	0	.00	.05	.12	**.11**	.02	.09	.03	**.09**
2005	3,320	3.9	—	—	145	1	22	43	34	0	.01	.03	**.15**	**.12**	.00	.07	**.03**	**.11**
2006	3,508	4.8	—	—	82	5	12	60	23	0	.00	**.05**	**.15**	**.15**	.00	**.08**	**.03**	**.15**
2007	1,053	**3.8**	—	—	96	2	49	33	16	0	—	—	—	—	—	—	—	—
2008	2,685	**3.8**	—	—	88	1	16	80	3	0	—	—	—	—	—	—	—	—
2009	1,439	5.9	—	—	0	**2**	**21**	**34**	**42**	**0**	—	—	—	—	—	—	—	—

Table 4. Input data for the Upper Skagit Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Marblemount Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1952	8,396	**0.0**	—	—	—	**1**	**15**	**77**	**7**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1953	9,800	**0.0**	—	—	—	**1**	**9**	**64**	**27**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1954	5,847	**0.0**	—	—	—	**1**	**14**	**54**	**31**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1955	5,661	**0.0**	—	—	—	**1**	**13**	**65**	**21**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1956	5,527	**0.1**	—	—	—	**1**	**12**	**63**	**24**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1957	5,468	**3.8**	—	—	—	**1**	**20**	**55**	**24**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1958	8,662	**3.8**	—	—	—	**1**	**12**	**70**	**16**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1959	9,334	**0.1**	—	—	—	**0**	**20**	**54**	**25**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1960	14,563	**0.0**	—	—	—	**1**	**5**	**78**	**17**	**0**	**.13**	**.31**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1961	5,485	**0.0**	—	—	—	**1**	**19**	**35**	**46**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1962	6,548	**0.1**	—	—	—	**1**	**10**	**77**	**12**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1963	5,366	**3.8**	—	—	—	**1**	**13**	**53**	**33**	**0**	**.13**	**.32**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1964	5,325	**3.8**	—	—	—	**1**	**18**	**61**	**20**	**0**	**.13**	**.31**	**.47**	**.39**	**.69**	**.68**	**.57**	**.38**
1965	7,779	**3.8**	—	—	—	**0**	**15**	**66**	**19**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.68**	**.56**	**.38**
1966	7,509	**3.8**	—	—	—	**1**	**4**	**70**	**25**	**0**	**.12**	**.31**	**.46**	**.39**	**.69**	**.69**	**.57**	**.39**
1967	3,742	**3.8**	—	—	—	**0**	**28**	**31**	**40**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.69**	**.57**	**.39**
1968	**7,245**	**3.8**	—	—	—	**1**	**4**	**87**	**8**	**0**	**.12**	**.29**	**.44**	**.38**	**.68**	**.67**	**.56**	**.38**
1969	**5,649**	**3.8**	—	—	—	**1**	**25**	**22**	**52**	**0**	**.12**	**.30**	**.46**	**.39**	**.70**	**.70**	**.58**	**.39**
1970	**11,090**	**3.8**	—	—	—	**1**	**11**	**82**	**6**	**0**	**.12**	**.30**	**.45**	**.38**	**.69**	**.68**	**.56**	**.38**
1971	**11,024**	**3.8**	—	—	—	**1**	**17**	**52**	**31**	**0**	.08	.12	.38	.57	.00	.50	.72	.58
1972	**13,653**	**3.8**	—	—	—	**1**	**11**	**71**	**18**	**0**	.08	.35	.55	.17	**.40**	**.78**	**.66**	**.44**
1973	9,836	**3.8**	—	—	—	**1**	**13**	**56**	**30**	**0**	.16	.37	.39	.52	.64	.82	.70	.60
1974	8,389	**3.8**	—	—	—	**1**	**12**	**65**	**22**	**0**	.13	.31	.56	.40	.80	.72	.52	.46
1975	7,171	**3.8**	—	—	—	**1**	**14**	**59**	**26**	**0**	.13	.41	.48	.49	.77	.61	.50	.36
1976	6,760	**3.8**	—	—	—	**1**	**10**	**66**	**23**	**0**	**.13**	**.32**	**.47**	**.39**	**.68**	**.68**	**.56**	**.38**
1977	5,807	**3.8**	—	—	—	**1**	**19**	**53**	**27**	**0**	**.13**	**.32**	**.48**	**.39**	**.70**	**.69**	**.58**	**.39**
1978	8,448	**3.8**	—	—	—	**1**	**10**	**72**	**16**	**0**	.16	.29	.37	.49	.49	.80	.72	.44
1979	7,841	**3.8**	—	—	—	**0**	**22**	**50**	**28**	**0**	.10	.28	.61	.43	.90	.81	.62	.20
1980	12,399	**3.8**	—	—	—	**1**	**2**	**82**	**15**	**0**	.12	.41	.40	.35	.63	.65	.31	.12
1981	4,233	**3.8**	—	—	—	**1**	**25**	**20**	**54**	**0**	.28	.42	.46	.45	.90	.31	.39	.19
1982	6,845	**3.8**	—	—	—	**1**	**7**	**86**	**6**	**0**	.10	.23	.37	.76	.51	.90	.17	.13
1983	5,197	**3.8**	—	—	—	**1**	**22**	**39**	**37**	**0**	.14	.27	.34	.00	.90	.31	.32	.19

Table 4 continued. Input data for the Upper Skagit Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Marblemount Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	9,642	**3.8**	—	—	—	**1**	**15**	**73**	**10**	**0**	.11	.25	.48	.35	.32	.43	.27	.75
1985	13,801	**3.8**	—	—	—	**0**	**14**	**62**	**23**	**0**	.07	.19	.35	.55	.59	.42	.54	.13
1986	12,181	**3.8**	—	—	—	1	6	68	24	0	.09	.25	.44	.39	.56	.65	.15	.37
1987	5,982	**3.8**	—	—	—	**0**	**20**	**43**	**36**	**0**	.09	.26	.37	.34	.72	.28	.37	.20
1988	8,077	**3.8**	—	—	—	**1**	**6**	**80**	**13**	**0**	.09	.24	.60	.28	.55	.49	.26	.12
1989	4,781	**3.8**	—	—	—	**1**	**23**	**36**	**40**	**0**	.08	.32	.58	.16	.55	.25	.19	.12
1990	11,793	**3.8**	—	—	135	0	6	69	25	0	.15	.39	.25	.37	.50	.18	.07	.26
1991	3,656	**3.8**	—	—	225	0	5	51	43	1	.06	.16	.37	.20	.37	.14	.25	.01
1992	5,548	**3.8**	—	—	35	**1**	**11**	**73**	**14**	**0**	.07	.22	.32	.31	.14	.31	.04	.18
1993	4,654	**3.8**	—	—	106	0	8	65	27	0	.13	.23	.40	.18	.28	.05	.21	.02
1994	4,565	**3.8**	—	—	315	2	29	53	17	0	.05	.11	.27	.42	.04	.35	.02	.02
1995	5,948	1.7	—	—	144	0	24	60	16	0	.02	.03	.35	.45	.00	.00	.03	.00
1996	7,989	0.0	—	—	104	1	16	72	11	0	.02	.07	.20	.88	.26	.15	.06	.08
1997	4,168	1.6	—	—	189	0	16	67	17	0	.03	.07	.26	.23	.01	.06	.01	.01
1998	11,761	2.3	—	—	309	2	6	74	18	0	.03	.07	.24	.31	.00	.02	.01	.01
1999	3,586	3.0	—	—	253	1	22	42	36	0	.02	.13	.23	.18	.01	.12	.02	.00
2000	13,092	2.1	—	—	298	2	14	77	7	0	.01	.03	.15	.18	.00	.00	.01	.01
2001	10,084	4.4	—	—	377	0	6	59	35	0	.01	.05	.18	.08	.00	.02	.04	.01
2002	13,815	**3.8**	—	—	358	4	9	60	27	0	.01	.07	.14	.05	.90	.17	.04	.00
2003	7,123	**3.8**	—	—	288	0	15	60	25	0	.03	.09	.19	.21	.38	.08	.03	.24
2004	20,040	3.7	—	—	266	3	14	61	21	1	.00	.05	.12	**.11**	.03	.10	.20	**.09**
2005	16,608	5.5	—	—	343	0	14	56	31	0	.01	.03	**.15**	**.12**	.90	.31	**.09**	**.11**
2006	16,215	7.1	—	—	281	3	9	65	23	0	.00	**.05**	**.16**	**.15**	.11	**.17**	**.11**	**.15**
2007	9,855	**3.8**	—	—	288	2	16	59	23	0	—	—	—	—	—	—	—	—
2008	8,441	6.8	—	—	706	2	20	67	11	0	—	—	—	—	—	—	—	—
2009	5,290	6.8	—	—	0	**1**	**15**	**53**	**30**	**0**	—	—	—	—	—	—	—	—

Table 5. Input data for the Lower Sauk Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				Age distribution of NOR spawners by percent						Mixed maturity fishing rate				Mature fishing rate			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1952	547	**0.1**	—	—	—	**0**	**5**	**89**	**6**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1953	564	**0.1**	—	—	—	**0**	**5**	**74**	**21**	**0**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1954	565	**0.1**	—	—	—	**0**	**5**	**75**	**19**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1955	631	**0.1**	—	—	—	**0**	**4**	**78**	**17**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1956	544	**0.1**	—	—	—	**0**	**3**	**74**	**22**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1957	397	**0.1**	—	—	—	**0**	**9**	**65**	**25**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1958	676	**0.1**	—	—	—	**0**	**3**	**86**	**11**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1959	509	**0.1**	—	—	—	**0**	**10**	**59**	**30**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1960	1,142	**0.1**	—	—	—	**0**	**4**	**87**	**8**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1961	1,007	**0.1**	—	—	—	**0**	**2**	**74**	**24**	**0**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1962	534	**0.1**	—	—	—	**0**	**11**	**55**	**32**	**2**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1963	1,140	**0.1**	—	—	—	**0**	**1**	**91**	**7**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1964	486	**0.1**	—	—	—	**0**	**6**	**46**	**48**	**1**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.57**	**.39**
1965	525	**0.1**	—	—	—	**0**	**10**	**79**	**10**	**2**	**.10**	**.25**	**.42**	**.35**	**.69**	**.68**	**.56**	**.39**
1966	1,056	**0.1**	—	—	—	**0**	**2**	**87**	**11**	**0**	**.10**	**.26**	**.42**	**.35**	**.69**	**.69**	**.57**	**.39**
1967	563	**4.4**	—	—	—	**0**	**10**	**47**	**42**	**1**	**.10**	**.26**	**.42**	**.35**	**.69**	**.69**	**.57**	**.39**
1968	**1,186**	**4.4**	—	—	—	**0**	**3**	**89**	**7**	**1**	**.10**	**.25**	**.41**	**.35**	**.68**	**.67**	**.56**	**.38**
1969	**925**	**4.4**	—	—	—	**0**	**8**	**55**	**37**	**0**	**.10**	**.27**	**.44**	**.35**	**.70**	**.70**	**.58**	**.40**
1970	**1,816**	**4.4**	—	—	—	**0**	**4**	**85**	**10**	**1**	**.10**	**.26**	**.43**	**.35**	**.69**	**.68**	**.56**	**.39**
1971	**1,805**	**4.4**	—	—	—	**0**	**5**	**72**	**23**	**0**	.08	.12	.38	.57	.00	.50	.72	.58
1972	**2,236**	**4.4**	—	—	—	**0**	**8**	**74**	**17**	**1**	.08	.35	.55	.17	**.40**	**.78**	**.66**	**.45**
1973	3,896	**4.4**	—	—	—	**0**	**0**	**86**	**13**	**1**	.16	.37	.39	.52	.64	.82	.70	.60
1974	1,082	**4.4**	—	—	—	**0**	**8**	**22**	**68**	**2**	.13	.31	.56	.40	.80	.72	.52	.46
1975	964	**4.4**	—	—	—	**0**	**9**	**85**	**4**	**2**	.13	.41	.48	.49	.77	.61	.50	.36
1976	1,770	**4.4**	—	—	—	**0**	**2**	**85**	**13**	**0**	**.12**	**.30**	**.49**	**.35**	**.68**	**.68**	**.56**	**.38**
1977	926	**4.4**	—	—	—	**0**	**9**	**52**	**38**	**1**	**.12**	**.30**	**.49**	**.35**	**.70**	**.69**	**.58**	**.39**
1978	1,640	**4.4**	—	—	—	**0**	**4**	**87**	**8**	**1**	.16	.29	.37	.49	.49	.80	.72	.44
1979	1,636	**4.4**	—	—	—	**0**	**8**	**68**	**24**	**0**	.10	.28	.61	.43	.90	.81	.62	.20
1980	2,738	**4.4**	—	—	—	**0**	**3**	**84**	**12**	**1**	.12	.41	.40	.35	.63	.65	.31	.12
1981	1,702	**4.4**	—	—	—	**0**	**5**	**66**	**29**	**1**	.28	.42	.46	.45	.90	.31	.39	.19
1982	1,133	**4.4**	—	—	—	**0**	**1**	**79**	**19**	**1**	.10	.23	.37	.76	.51	.90	.17	.13
1983	375	**4.4**	—	—	—	**0**	**12**	**37**	**50**	**2**	.14	.27	.34	.00	.90	.31	.32	.19

Table 5 continued. Input data for the Lower Sauk Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	680	**4.4**	—	—	—	**0**	**3**	**91**	**5**	**1**	.11	.25	.48	.35	.32	.43	.27	.75
1985	515	**4.4**	—	—	—	**0**	**8**	**61**	**31**	**0**	.07	.19	.35	.55	.59	.42	.54	.13
1986	1,143	**4.4**	—	—	62	0	10	66	23	2	.09	.25	.44	.39	.56	.65	.15	.37
1987	792	**4.4**	—	—	—	**0**	**7**	**70**	**22**	**0**	.09	.26	.37	.34	.72	.28	.37	.20
1988	1,052	**4.4**	—	—	—	**0**	**1**	**85**	**13**	**1**	.09	.24	.60	.28	.55	.49	.26	.12
1989	449	**4.4**	—	—	—	**0**	**15**	**35**	**49**	**1**	.08	.32	.58	.16	.55	.25	.19	.12
1990	1,294	**4.4**	—	—	—	**0**	**2**	**94**	**3**	**1**	.15	.39	.25	.37	.50	.18	.07	.26
1991	658	**4.4**	—	—	—	**0**	**5**	**55**	**40**	**0**	.06	.16	.37	.20	.37	.14	.25	.01
1992	469	**4.4**	—	—	—	**0**	**2**	**81**	**15**	**2**	.07	.22	.32	.31	.14	.31	.04	.18
1993	205	**4.4**	—	—	—	**0**	**3**	**55**	**41**	**1**	.13	.23	.40	.18	.28	.05	.21	.02
1994	112	**0.9**	—	—	—	**0**	**9**	**66**	**23**	**3**	.05	.11	.25	.42	.04	.35	.02	.02
1995	278	**4.4**	—	—	—	**0**	**19**	**72**	**9**	**1**	.02	.03	.35	.45	.00	.00	.03	.00
1996	1,103	**4.4**	—	—	—	**0**	**0**	**94**	**6**	**0**	.02	.07	.20	.88	**.26**	**.15**	**.06**	**.06**
1997	295	**4.4**	—	—	—	**0**	**12**	**3**	**84**	**1**	.03	.07	.25	.23	.01	.06	.01	.01
1998	460	**4.4**	—	—	—	**0**	**2**	**95**	**0**	**2**	.03	.08	.25	.31	.00	.02	.01	.01
1999	295	**4.4**	—	—	—	**0**	**9**	**54**	**37**	**0**	.02	.13	.24	.18	.01	.12	.02	.00
2000	576	**4.4**	—	—	—	**0**	**8**	**82**	**8**	**1**	.01	.03	.16	.13	.00	.00	.01	.01
2001	1,103	**4.4**	—	—	26	0	0	85	15	0	.02	.06	.18	.10	.00	.02	.04	.01
2002	910	**4.4**	—	—	1	**0**	**9**	**65**	**26**	**1**	.01	.07	.15	.05	.90	.17	.04	.00
2003	1,493	**4.4**	—	—	—	**0**	**0**	**88**	**11**	**1**	.02	.08	.16	.14	.38	.08	.03	.01
2004	443	6.9	—	—	—	**0**	**13**	**12**	**73**	**2**	.00	.05	.12	**.10**	.02	.09	.03	**.01**
2005	875	3.5	—	—	16	**0**	**7**	**90**	**1**	**1**	.01	.03	**.14**	**.09**	.00	.07	**.03**	**.01**
2006	1,095	4.8	—	—	27	11	0	81	7	0	.00	**.05**	**.14**	**.11**	.00	**.08**	**.03**	**.01**
2007	383	**4.4**	—	—	9	**0**	**7**	**31**	**60**	**2**	—	—	—	—	—	—	—	—
2008	538	**4.4**	—	—	4	**0**	**12**	**81**	**5**	**2**	—	—	—	—	—	—	—	—
2009	1,439	5.9	—	—	0	**0**	**2**	**88**	**10**	**0**	—	—	—	—	—	—	—	—

Table 6. Input data for the Upper Sauk Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1952	1,849	**0.0**	—	—	—	**1**	**8**	**39**	**52**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1953	789	**0.0**	—	—	—	**2**	**11**	**47**	**40**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1954	649	**0.0**	—	—	—	**4**	**10**	**50**	**36**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1955	844	**0.0**	—	—	—	**2**	**23**	**41**	**34**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1956	1,884	**0.0**	—	—	—	**0**	**10**	**70**	**21**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1957	2,523	**0.0**	—	—	—	**2**	**2**	**43**	**53**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1958	636	**0.0**	—	—	—	**5**	**22**	**15**	**58**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1959	740	**0.0**	—	—	—	**2**	**21**	**69**	**8**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1960	3,345	**0.0**	—	—	—	**2**	**7**	**58**	**33**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1961	3,302	**0.0**	—	—	—	**1**	**16**	**34**	**50**	**0**	**.04**	**.31**	**.46**	**.25**	**.48**	**.70**	**.70**	**.28**
1962	1,643	**0.0**	—	—	—	**2**	**3**	**70**	**26**	**0**	**.04**	**.31**	**.46**	**.25**	**.48**	**.70**	**.70**	**.28**
1963	1,249	**0.0**	—	—	—	**3**	**13**	**18**	**66**	**0**	**.04**	**.31**	**.46**	**.25**	**.48**	**.70**	**.70**	**.28**
1964	681	**0.0**	—	—	—	**2**	**20**	**63**	**14**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1965	2,018	**0.0**	—	—	—	**0**	**8**	**60**	**32**	**0**	**.04**	**.30**	**.44**	**.25**	**.48**	**.70**	**.70**	**.28**
1966	1,366	**0.0**	—	—	—	**1**	**0**	**44**	**54**	**0**	**.04**	**.30**	**.44**	**.25**	**.49**	**.70**	**.70**	**.28**
1967	336	**3.7**	—	—	—	**5**	**18**	**2**	**75**	**0**	**.04**	**.30**	**.44**	**.25**	**.48**	**.70**	**.70**	**.28**
1968	147	**3.7**	—	—	—	**4**	**26**	**68**	**1**	**0**	**.04**	**.29**	**.43**	**.25**	**.48**	**.70**	**.70**	**.28**
1969	978	**3.7**	—	—	—	**0**	**14**	**59**	**27**	**0**	**.04**	**.30**	**.44**	**.25**	**.49**	**.70**	**.70**	**.29**
1970	1,066	**3.7**	—	—	—	**3**	**0**	**56**	**41**	**0**	**.04**	**.29**	**.44**	**.25**	**.48**	**.70**	**.70**	**.28**
1971	610	**3.7**	—	—	—	**2**	**32**	**1**	**65**	**0**	**.04**	**.28**	**.43**	**.25**	**.47**	**.70**	**.68**	**.27**
1972	150	**3.7**	—	—	—	**1**	**7**	**92**	**1**	**0**	**.04**	**.32**	**.46**	**.25**	**.53**	**.70**	**.70**	**.32**
1973	1,255	**3.7**	—	—	—	**1**	**6**	**29**	**65**	**0**	**.04**	**.30**	**.44**	**.25**	**.46**	**.70**	**.66**	**.26**
1974	108	**3.7**	—	—	—	**1**	**12**	**47**	**41**	**0**	**.04**	**.32**	**.46**	**.25**	**.45**	**.70**	**.63**	**.25**
1975	300	**3.7**	—	—	—	**1**	**4**	**56**	**39**	**0**	**.04**	**.32**	**.47**	**.25**	**.45**	**.70**	**.63**	**.25**
1976	173	**3.7**	—	—	—	**6**	**7**	**26**	**61**	**0**	**.04**	**.31**	**.45**	**.25**	**.48**	**.70**	**.70**	**.28**
1977	113	**3.7**	—	—	—	**1**	**42**	**34**	**23**	**0**	**.04**	**.32**	**.46**	**.25**	**.49**	**.70**	**.70**	**.29**
1978	404	**3.7**	—	—	—	**4**	**3**	**82**	**11**	**0**	**.04**	**.32**	**.46**	**.25**	**.55**	**.70**	**.70**	**.33**
1979	411	**3.7**	—	—	—	**0**	**27**	**11**	**62**	**0**	**.04**	**.33**	**.47**	**.25**	**.47**	**.70**	**.70**	**.27**
1980	590	**3.7**	—	—	—	**2**	**0**	**91**	**7**	**0**	**.04**	**.31**	**.46**	**.25**	**.52**	**.70**	**.70**	**.31**
1981	393	**3.7**	—	—	—	**0**	**17**	**1**	**82**	**0**	.02	.31	.36	.35	.70	.47	.44	.00
1982	277	**3.7**	—	—	—	**2**	**0**	**97**	**1**	**0**	.04	.27	.66	.27	.00	.70	.31	.00
1983	202	**3.7**	—	—	—	**9**	**11**	**2**	**77**	**0**	.05	.40	.50	.00	.00	.70	.70	.57

Table 6 continued. Input data for the Upper Sauk Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	238	**3.7**	—	—	—	**1**	**53**	**44**	**1**	**0**	.03	.27	.18	.40	.00	.63	.55	.50
1985	1,819	**3.7**	—	—	—	**2**	**3**	**83**	**12**	**0**	.03	.26	.34	.31	.70	.48	.44	.13
1986	736	**3.7**	—	—	—	0	0	18	82	0	.05	.18	.48	.11	.70	.70	.27	.04
1987	815	**3.7**	—	—	—	**2**	**8**	**77**	**13**	**0**	.07	.32	.47	.18	.70	.69	.07	.00
1988	870	**3.7**	—	—	—	**1**	**12**	**32**	**55**	**0**	**.04**	**.27**	**.42**	**.25**	**.32**	**.34**	**.24**	**.15**
1989	668	**3.7**	—	—	—	**3**	**10**	**59**	**28**	**0**	**.04**	**.27**	**.41**	**.25**	**.29**	**.22**	**.15**	**.12**
1990	557	**3.7**	—	—	—	**1**	**15**	**41**	**42**	**0**	.04	.24	.36	.24	.70	.14	.06	.03
1991	747	**3.7**	—	—	—	**1**	**7**	**62**	**29**	**0**	**.04**	**.15**	**.30**	**.23**	**.26**	**.10**	**.05**	**.10**
1992	580	**3.7**	—	—	—	**0**	**9**	**37**	**53**	**0**	**.04**	**.11**	**.27**	**.23**	**.24**	**.02**	**.00**	**.08**
1993	323	**3.7**	—	—	—	**2**	**3**	**55**	**39**	**0**	.06	.12	.50	.00	.43	.00	.04	.10
1994	130	**3.7**	—	—	—	6	42	30	23	0	.03	.15	.25	.16	.20	.08	.02	.00
1995	190	**3.7**	—	—	—	0	5	87	8	0	.04	.12	.29	.52	.34	.09	.02	.03
1996	408	**3.7**	—	—	—	**2**	**9**	**50**	**40**	**0**	.03	.08	.22	.00	.00	.01	.00	.00
1997	305	**3.7**	—	—	—	**1**	**11**	**45**	**43**	**0**	.07	.26	.28	.27	.70	.11	.03	.00
1998	290	**3.7**	—	—	—	4	4	52	40	0	.05	.20	.22	.62	.00	.00	.03	.00
1999	180	**3.7**	—	—	—	**5**	**20**	**23**	**52**	**0**	.04	.08	.30	.21	.00	.01	.00	.01
2000	388	**3.7**	—	—	—	**2**	**21**	**64**	**13**	**0**	.02	.06	.31	.29	.70	.06	.02	.18
2001	543	**3.7**	—	—	—	0	7	62	31	0	.03	.05	.33	.29	.00	.03	.11	.56
2002	460	**3.7**	—	—	—	**3**	**14**	**34**	**49**	**0**	.03	.14	.30	.00	.00	.16	.45	.33
2003	193	**3.7**	—	—	—	**1**	**16**	**59**	**24**	**0**	.02	.09	.17	.29	.00	.41	.29	.13
2004	700	**3.7**	—	—	—	**3**	**6**	**56**	**35**	**0**	.01	.08	.20	**.19**	.68	.27	.23	**.34**
2005	308	4.9	—	—	—	0	15	41	44	0	.00	.00	**.22**	**.16**	.00	.00	**.32**	**.27**
2006	1,043	**3.7**	—	—	—	8	3	73	16	0	.00	**.06**	**.20**	**.22**	.00	**.22**	**.28**	**.25**
2007	282	**3.7**	—	—	—	**0**	**24**	**12**	**63**	**0**	—	—	—	—	—	—	—	—
2008	983	**3.7**	—	—	—	0	6	87	8	0	—	—	—	—	—	—	—	—
2009	367	2.5	—	—	—	**1**	**18**	**1**	**80**	**0**	—	—	—	—	—	—	—	—

Table 7. Input data for the Upper Cascade Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Marblemount Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1979	—	**0.0**	—	—	—	—	—	—	—	—	**.04**	**.33**	**.47**	**.25**	**.47**	**.70**	**.70**	**.27**
1980	—	**0.0**	—	—	—	—	—	—	—	—	**.04**	**.31**	**.46**	**.25**	**.52**	**.70**	**.70**	**.31**
1981	295	**2.0**	—	—	—	**1**	**6**	**76**	**17**	**0**	.02	.31	.36	.35	.70	.47	.44	.00
1982	198	**2.0**	—	—	—	**1**	**7**	**70**	**23**	**0**	.04	.27	.66	.27	.00	.70	.31	.00
1983	146	**2.0**	—	—	—	**1**	**7**	**72**	**20**	**0**	.05	.40	.50	.00	.00	.70	.70	.57
1984	113	**2.0**	—	—	—	**4**	**6**	**70**	**20**	**0**	.03	.27	.18	.40	.00	.63	.55	.50
1985	100	**2.0**	—	—	—	**2**	**21**	**58**	**19**	**0**	.03	.26	.34	.31	.70	.48	.44	.13
1986	380	**2.0**	—	—	—	**1**	**5**	**87**	**7**	**0**	.05	.18	.48	.11	.70	.70	.27	.04
1987	200	**2.0**	—	—	—	**2**	**6**	**64**	**29**	**0**	.07	.32	.47	.18	.70	.69	.07	.00
1988	133	**2.0**	—	—	—	**3**	**12**	**66**	**20**	**0**	**.04**	**.27**	**.42**	**.25**	**.32**	**.34**	**.24**	**.15**
1989	218	**2.0**	—	—	—	**1**	**10**	**77**	**12**	**0**	**.04**	**.27**	**.41**	**.25**	**.29**	**.22**	**.15**	**.12**
1990	269	**2.0**	—	—	—	**2**	**4**	**77**	**17**	**0**	.04	.24	.36	.24	.70	.14	.06	.03
1991	135	**2.0**	—	—	—	**2**	**12**	**59**	**28**	**0**	**.04**	**.15**	**.30**	**.23**	**.26**	**.10**	**.05**	**.10**
1992	205	**2.0**	—	—	4	**1**	**8**	**80**	**11**	**0**	**.04**	**.11**	**.27**	**.23**	**.24**	**.02**	**.00**	**.08**
1993	168	**2.0**	—	—	36	3	6	72	19	0	.06	.12	.50	.00	.43	.00	.04	.10
1994	173	**2.0**	—	—	48	2	17	63	19	0	.03	.15	.25	.16	.20	.08	.02	.00
1995	225	**2.0**	—	—	0	**2**	**7**	**78**	**13**	**0**	.04	.12	.29	.52	.34	.09	.02	.03
1996	208	**2.0**	—	—	9	**2**	**10**	**68**	**20**	**0**	.03	.08	.22	.00	.00	.01	.00	.00
1997	308	**2.0**	—	—	5	**0**	**9**	**77**	**14**	**0**	.07	.26	.28	.27	.70	.11	.03	.00
1998	323	**2.0**	—	—	9	**2**	**2**	**79**	**18**	**0**	.05	.20	.22	.62	.00	.00	.03	.00
1999	83	**2.0**	—	—	0	**5**	**19**	**34**	**42**	**0**	.04	.08	.30	.21	.00	.01	.00	.01
2000	273	**2.0**	—	—	13	**2**	**13**	**82**	**4**	**0**	.02	.06	.31	.29	.70	.06	.02	.18
2001	625	1.1	—	—	41	0	2	83	15	0	.03	.05	.33	.29	.00	.03	.11	.56
2002	340	**2.0**	—	—	2	**2**	**8**	**66**	**25**	**0**	.03	.14	.30	.00	.00	.16	.45	.33
2003	298	**2.0**	—	—	4	**2**	**9**	**72**	**17**	**0**	.02	.09	.17	.29	.00	.41	.29	.13
2004	380	**2.0**	—	—	13	**2**	**8**	**74**	**16**	**0**	.01	.08	.20	**.19**	.68	.27	.23	**.34**
2005	420	4.9	—	—	22	**1**	**9**	**72**	**18**	**0**	.00	.00	**.22**	**.16**	.00	.00	**.32**	**.27**
2006	478	**2.0**	—	—	15	**1**	**5**	**77**	**16**	**0**	.00	**.06**	**.20**	**.22**	.00	**.22**	**.28**	**.25**
2007	223	**2.0**	—	—	0	**2**	**10**	**62**	**26**	**0**	—	—	—	—	—	—	—	—
2008	284	**2.0**	—	—	5	**2**	**9**	**76**	**13**	**0**	—	—	—	—	—	—	—	—
2009	338	0.1	—	—	—	**2**	**7**	**74**	**17**	**0**	—	—	—	—	—	—	—	—

Table 8. Input data for the Suiattle Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1952	289	**0.0**	—	—	0	**1**	**11**	**85**	**1**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1953	505	**0.0**	—	—	0	**1**	**10**	**39**	**50**	**0**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1954	415	**0.0**	—	—	0	**2**	**9**	**53**	**34**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1955	540	**0.0**	—	—	0	**1**	**20**	**40**	**39**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1956	1,206	**0.0**	—	—	0	**1**	**5**	**71**	**23**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1957	901	**0.0**	—	—	0	**1**	**6**	**29**	**63**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1958	453	**0.0**	—	—	0	**0**	**21**	**44**	**32**	**2**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1959	1,034	**0.0**	—	—	0	**2**	**1**	**72**	**25**	**0**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1960	618	**0.0**	—	—	0	**1**	**21**	**5**	**73**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1961	924	**0.0**	—	—	0	**1**	**5**	**89**	**3**	**1**	**.04**	**.31**	**.46**	**.25**	**.60**	**.70**	**.66**	**.17**
1962	1,290	**0.0**	—	—	0	**0**	**11**	**24**	**64**	**0**	**.04**	**.31**	**.46**	**.25**	**.60**	**.70**	**.66**	**.17**
1963	693	**0.0**	—	—	0	**2**	**1**	**71**	**24**	**2**	**.04**	**.31**	**.46**	**.25**	**.60**	**.70**	**.66**	**.17**
1964	479	**0.0**	—	—	0	**0**	**27**	**3**	**69**	**1**	**.04**	**.31**	**.45**	**.25**	**.60**	**.70**	**.66**	**.17**
1965	1,053	**0.0**	—	—	—	**2**	**0**	**95**	**2**	**1**	**.04**	**.30**	**.44**	**.25**	**.59**	**.70**	**.65**	**.17**
1966	948	**0.0**	—	—	—	**0**	**18**	**1**	**81**	**0**	**.04**	**.30**	**.44**	**.25**	**.60**	**.70**	**.66**	**.17**
1967	818	**3.7**	—	—	—	**2**	**0**	**95**	**1**	**2**	**.04**	**.30**	**.44**	**.25**	**.60**	**.70**	**.66**	**.17**
1968	761	**3.7**	—	—	—	**0**	**20**	**1**	**80**	**0**	**.04**	**.29**	**.43**	**.25**	**.59**	**.70**	**.65**	**.17**
1969	830	**3.7**	—	—	—	**2**	**2**	**93**	**1**	**2**	**.04**	**.30**	**.44**	**.25**	**.61**	**.70**	**.68**	**.17**
1970	1,020	**3.7**	—	—	—	**1**	**20**	**8**	**71**	**0**	**.04**	**.29**	**.44**	**.25**	**.59**	**.70**	**.65**	**.17**
1971	1,468	**3.7**	—	—	—	**1**	**5**	**87**	**6**	**1**	**.04**	**.28**	**.43**	**.25**	**.57**	**.70**	**.61**	**.16**
1972	1,804	**3.7**	—	—	—	**0**	**9**	**24**	**67**	**0**	**.04**	**.32**	**.46**	**.25**	**.66**	**.70**	**.70**	**.18**
1973	577	**3.7**	—	—	—	**1**	**0**	**68**	**28**	**2**	**.04**	**.30**	**.44**	**.25**	**.55**	**.70**	**.58**	**.16**
1974	355	**3.7**	—	—	—	**0**	**19**	**2**	**77**	**1**	**.04**	**.32**	**.46**	**.25**	**.54**	**.70**	**.56**	**.16**
1975	327	**3.7**	—	—	—	**2**	**5**	**90**	**2**	**2**	**.04**	**.32**	**.47**	**.25**	**.54**	**.70**	**.56**	**.16**
1976	460	**3.7**	—	—	—	**1**	**14**	**21**	**64**	**0**	**.04**	**.31**	**.45**	**.25**	**.59**	**.70**	**.65**	**.17**
1977	407	**3.7**	—	—	—	**1**	**8**	**72**	**17**	**1**	**.04**	**.32**	**.46**	**.25**	**.60**	**.70**	**.67**	**.17**
1978	528	**3.7**	—	—	—	**1**	**9**	**36**	**53**	**0**	**.04**	**.32**	**.46**	**.25**	**.69**	**.70**	**.70**	**.19**
1979	407	**3.7**	—	—	—	**1**	**17**	**50**	**32**	**1**	**.04**	**.33**	**.47**	**.25**	**.57**	**.70**	**.62**	**.16**
1980	818	**3.7**	—	—	—	**1**	**6**	**62**	**30**	**1**	**.04**	**.31**	**.46**	**.25**	**.65**	**.70**	**.70**	**.18**
1981	652	**3.7**	—	—	—	**1**	**9**	**35**	**55**	**1**	.02	.31	.36	.35	.70	.47	.44	.00
1982	476	**3.7**	—	—	—	**1**	**8**	**55**	**35**	**2**	.04	.27	.66	.27	.00	.70	.31	.00
1983	352	**3.7**	—	—	—	**2**	**6**	**43**	**48**	**1**	.05	.40	.50	.00	.00	.70	.70	.57
1984	345	**3.7**	—	—	—	**1**	**23**	**33**	**40**	**1**	.03	.27	.18	.40	.00	.63	.55	.50

Table 8 continued. Input data for the Suiattle Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement				**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1985	715	**3.7**	—	—	—	**1**	**10**	**72**	**17**	**1**	.03	.26	.34	.31	.70	.48	.44	.13
1986	806	**3.7**	—	—	99	0	7	36	57	0	.05	.18	.48	.11	.70	.70	.27	.04
1987	729	**3.7**	—	—	45	0	9	40	49	2	.07	.32	.47	.18	.70	.69	.07	.00
1988	740	**3.7**	—	—	96	0	9	48	42	1	**.04**	**.27**	**.42**	**.25**	**.35**	**.32**	**.22**	**.12**
1989	514	**3.7**	—	—	78	4	12	44	41	0	**.04**	**.27**	**.41**	**.25**	**.31**	**.21**	**.14**	**.11**
1990	685	**3.7**	—	—	88	1	2	49	44	3	.04	.24	.36	.24	.70	.14	.06	.03
1991	354	**3.7**	—	—	14	**1**	**7**	**34**	**56**	**1**	**.04**	**.15**	**.30**	**.23**	**.26**	**.10**	**.05**	**.10**
1992	201	**3.7**	—	—	13	**0**	**14**	**48**	**36**	**2**	**.04**	**.11**	**.27**	**.23**	**.23**	**.03**	**.00**	**.09**
1993	291	**3.7**	—	—	13	**2**	**2**	**61**	**34**	**1**	.06	.12	.50	.00	.43	.00	.04	.10
1994	167	**3.7**	—	—	11	**1**	**25**	**11**	**61**	**1**	.03	.15	.25	.16	.20	.08	.02	.00
1995	440	**3.7**	—	—	57	0	11	82	7	0	.04	.12	.29	.52	.34	.09	.02	.03
1996	435	**3.7**	—	—	26	**1**	**10**	**30**	**59**	**0**	.03	.08	.22	.00	.00	.01	.00	.00
1997	428	**3.7**	—	—	22	**0**	**11**	**58**	**29**	**2**	.07	.26	.28	.27	.70	.11	.03	.00
1998	473	**3.7**	—	—	71	0	7	56	37	0	.05	.20	.22	.62	.00	.00	.03	.00
1999	208	**3.7**	—	—	46	0	13	30	54	2	.04	.08	.30	.21	.00	.01	.00	.01
2000	360	**3.7**	—	—	40	3	20	63	15	0	.02	.06	.31	.29	.70	.06	.02	.18
2001	688	0.1	—	—	49	2	8	41	49	0	.03	.05	.33	.29	.00	.03	.11	.56
2002	265	**3.7**	—	—	39	**1**	**12**	**31**	**54**	**1**	.03	.14	.30	.00	.00	.16	.45	.33
2003	353	**3.7**	—	—	13	**1**	**15**	**58**	**25**	**1**	.02	.09	.17	.29	.00	.41	.29	.13
2004	495	4.0	—	—	49	0	2	61	35	2	.01	.08	.20	**.19**	.68	.27	.23	**.34**
2005	518	4.9	—	—	46	0	4	52	43	0	.00	.00	**.22**	**.16**	.70	.30	**.32**	**.27**
2006	375	**3.7**	—	—	30	**1**	**6**	**47**	**44**	**1**	.00	**.06**	**.20**	**.22**	.70	**.32**	**.28**	**.25**
2007	108	**3.7**	—	—	1	**1**	**17**	**35**	**45**	**1**	—	—	—	—	—	—	—	—
2008	203	**3.7**	—	—	2	**1**	**4**	**70**	**23**	**1**	—	—	—	—	—	—	—	—
2009	273	0.8	—	—	—	**1**	**14**	**23**	**61**	**1**	—	—	—	—	—	—	—	—

Table 9. Input data for the North Fork Stillaguamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		Stillaguamish Tribal Hatchery		Age distribution of NOR spawners by percent						Mixed maturity fishing rate				Mature fishing rate			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1972	—	—	—	—	—	—	—	—	—	—	.08	.35	.58	.35	.37	.85	.83	.74
1973	—	—	—	—	—	—	—	—	—	—	.15	.38	.41	.52	.17	.60	.37	.41
1974	837	0.0	—	—	—	**7**	**26**	**60**	**7**	**0**	.12	.26	.50	.35	.85	.85	.85	.85
1975	990	0.0	—	—	—	**5**	**46**	**41**	**8**	**0**	.13	.36	.43	.47	.65	.78	.72	.71
1976	1,768	0.0	—	—	—	**4**	**28**	**63**	**5**	**0**	**.15**	**.41**	**.53**	**.32**	**.65**	**.67**	**.67**	**.66**
1977	1,218	0.0	—	—	—	**4**	**32**	**53**	**10**	**0**	**.16**	**.42**	**.54**	**.32**	**.66**	**.69**	**.69**	**.68**
1978	1,018	0.0	—	—	—	**5**	**29**	**58**	**8**	**0**	.14	.32	.51	.43	.85	.63	.66	.80
1979	861	0.0	—	—	—	**3**	**35**	**53**	**9**	**0**	.10	.29	.49	.51	.80	.84	.63	.80
1980	678	0.0	—	—	—	**5**	**22**	**64**	**9**	**0**	.23	.66	.84	.00	.76	.68	.76	.67
1981	520	0.0	—	—	—	**5**	**41**	**43**	**11**	**0**	.20	.74	.67	.00	.75	.55	.72	.51
1982	638	0.0	—	—	—	**1**	**30**	**63**	**6**	**0**	.27	.51	.63	.78	.73	.75	.36	.00
1983	320	0.0	—	—	—	**12**	**8**	**67**	**13**	**0**	.27	.56	.47	.00	.79	.35	.42	.20
1984	309	0.0	—	—	—	**6**	**72**	**13**	**9**	**0**	.11	.25	.50	.33	.52	.40	.26	.79
1985	1,148	0.0	—	—	—	**6**	**24**	**69**	**1**	**0**	.06	.21	.37	.61	.64	.61	.61	.57
1986	980	0.0	46	0.0	—	**3**	**42**	**43**	**11**	**0**	.21	.57	.43	.00	.85	.25	.12	.00
1987	1,065	0.0	91	97.9	80	0	18	70	13	0	.08	.26	.12	.00	.85	.07	.02	.05
1988	516	2.0	16	93.7	—	**6**	**20**	**58**	**16**	**0**	.13	.31	.60	.00	.85	.22	.23	.00
1989	537	1.1	27	66.7	64	16	41	30	14	0	.16	.52	.59	.00	.85	.09	.02	.00
1990	575	24.5	66	57.6	117	6	38	50	6	0	.20	.41	.29	.55	.83	.05	.00	.00
1991	1,331	26.5	96	50.0	191	2	21	71	6	0	.05	.21	.46	.00	.53	.24	.02	.00
1992	486	13.1	153	46.4	350	11	34	46	10	0	.06	.22	.28	.00	.13	.00	.00	.00
1993	583	34.8	169	35.3	106	1	51	36	12	0	.14	.25	.33	.03	.10	.01	.00	.00
1994	667	31.6	181	41.4	258	7	28	62	3	0	.07	.19	.17	.11	.01	.10	.02	.00
1995	599	28.1	89	46.0	31	**8**	**34**	**48**	**10**	**0**	.10	.15	.08	.72	.07	.26	.34	.46
1996	993	31.1	145	49.0	81	6	46	43	5	0	.04	.10	.14	.39	.05	.01	.00	.00
1997	930	34.1	157	21.7	37	**2**	**36**	**57**	**6**	**0**	.07	.10	.24	.00	.00	.00	.02	.00
1998	1,292	52.4	144	30.6	269	3	13	78	6	0	.03	.11	.25	.47	.00	.02	.00	.00
1999	845	39.2	131	**20.6**	485	2	55	31	12	0	.05	.12	.34	.38	.18	.35	.44	.40
2000	1,403	37.0	123	**35.0**	385	5	29	64	2	0	.04	.11	.39	.45	.21	.39	.34	.20
2001	1,066	38.8	127	**28.7**	386	2	18	72	8	0	.04	.16	.41	.49	.22	.35	.23	.29
2002	1,253	40.3	139	**28.1**	0	**9**	**15**	**68**	**8**	**0**	.03	.14	.17	.00	.05	.04	.03	.23
2003	884	16.1	122	**30.6**	0	**2**	**60**	**27**	**11**	**0**	.05	.19	.32	.83	.16	.06	.11	.00

Table 9 continued. Input data for the North Fork Stillaguamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Stillaguamish Tribal Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
2004	1,340	**19.5**	137	**29.1**	0	**7**	**9**	**81**	**3**	**0**	.05	.26	.17	**.44**	.01	.06	.02	**.18**
2005	947	37.6	140	**29.3**	0	**1**	**60**	**22**	**17**	**0**	.05	.13	**.22**	**.43**	.05	.07	**.05**	**.14**
2006	1,035	30.0	54	**29.7**	0	**7**	**5**	**85**	**3**	**0**	.00	**.19**	**.24**	**.57**	.00	**.07**	**.06**	**.10**
2007	569	74.6	178	**29.4**	0	**6**	**65**	**12**	**18**	**0**	—	—	—	—	—	—	—	—
2008	1,393	32.5	124	**29.4**	0	**2**	**25**	**72**	**1**	**0**	—	—	—	—	—	—	—	—
2009	958	55.4	156	**29.5**	0	**9**	**18**	**58**	**15**	**0**	—	—	—	—	—	—	—	—

Table 10. Input data for the South Fork Stillaguamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		Stillaguamish Tribal Hatchery		Age distribution of NOR spawners by percent						Mixed maturity fishing rate				Mature fishing rate			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1972	—	—	—	—	—	—	—	—	—	—	.08	.35	.58	.35	.37	.80	.80	.74
1973	—	—	—	—	—	—	—	—	—	—	.15	.38	.41	.52	.17	.60	.37	.41
1974	176	0.0	—	0.0	—	**9**	**23**	**57**	**10**	**0**	.12	.26	.50	.35	.80	.80	.80	.80
1975	208	0.0	—	0.0	—	**6**	**49**	**37**	**8**	**0**	.13	.36	.43	.47	.65	.78	.72	.71
1976	372	0.0	—	0.0	—	**5**	**27**	**64**	**5**	**0**	**.15**	**.41**	**.53**	**.32**	**.64**	**.65**	**.66**	**.66**
1977	257	0.0	—	0.0	—	**5**	**32**	**52**	**12**	**0**	**.16**	**.42**	**.54**	**.32**	**.65**	**.67**	**.68**	**.68**
1978	214	0.0	—	0.0	—	**5**	**28**	**58**	**9**	**0**	.14	.32	.51	.43	.80	.63	.66	.80
1979	181	0.0	—	0.0	—	**3**	**35**	**52**	**10**	**0**	.10	.29	.49	.51	.80	.80	.63	.80
1980	143	0.0	—	0.0	—	**6**	**21**	**64**	**9**	**0**	.23	.66	.80	.00	.76	.68	.76	.67
1981	110	0.0	—	0.0	—	**6**	**42**	**41**	**12**	**0**	.20	.74	.67	.00	.75	.55	.72	.51
1982	135	0.0	—	0.0	—	**0**	**29**	**65**	**6**	**0**	.27	.51	.63	.78	.73	.75	.36	.00
1983	67	0.0	—	0.0	—	**14**	**4**	**68**	**14**	**0**	.27	.56	.47	.00	.79	.35	.42	.20
1984	65	0.0	—	0.0	—	**10**	**74**	**6**	**10**	**0**	.11	.25	.50	.33	.52	.40	.26	.79
1985	261	0.0	—	0.0	—	**7**	**30**	**63**	**0**	**0**	.06	.21	.37	.61	.64	.61	.61	.57
1986	297	0.0	—	0.0	—	**5**	**37**	**48**	**9**	**0**	.21	.57	.43	.00	.80	.25	.12	.00
1987	256	0.0	—	0.0	80	0	18	70	13	0	.08	.26	.12	.00	.80	.07	.02	.05
1988	201	0.0	—	0.0	—	**7**	**21**	**61**	**11**	**0**	.13	.31	.60	.00	.80	.22	.23	.00
1989	274	0.0	—	0.0	64	16	41	30	14	0	.16	.52	.59	.00	.80	.09	.02	.00
1990	267	0.0	—	0.0	117	6	38	50	6	0	.20	.41	.29	.55	.80	.05	.00	.00
1991	301	0.0	—	0.0	191	2	21	71	6	0	.05	.21	.46	.00	.53	.24	.02	.00
1992	294	0.0	—	0.0	350	11	34	46	10	0	.06	.22	.28	.00	.13	.00	.00	.00
1993	345	0.0	—	0.0	106	1	51	36	12	0	.14	.25	.33	.03	.10	.01	.00	.00
1994	287	0.0	—	0.0	258	7	28	62	3	0	.07	.19	.17	.11	.01	.10	.02	.00
1995	223	0.0	—	0.0	31	**4**	**29**	**53**	**13**	**0**	.10	.15	.08	.72	.07	.26	.34	.46
1996	251	0.0	—	0.0	81	6	46	43	5	0	.04	.10	.14	.39	.05	.01	.00	.00
1997	226	0.0	—	0.0	37	**5**	**47**	**41**	**8**	**0**	.07	.10	.24	.00	.00	.00	.02	.00
1998	248	0.0	—	0.0	269	3	13	78	6	0	.03	.11	.25	.47	.00	.02	.00	.00
1999	253	0.0	—	**0.0**	19	**3**	**42**	**43**	**12**	**0**	.05	.12	.34	.38	.18	.35	.44	.40
2000	243	0.0	—	**0.0**	14	**10**	**17**	**67**	**6**	**0**	.04	.11	.39	.45	.21	.39	.34	.20
2001	283	0.0	—	**0.0**	24	**0**	**60**	**29**	**11**	**0**	.04	.16	.41	.49	.22	.35	.23	.29
2002	335	0.0	—	**0.0**	0	**7**	**1**	**88**	**4**	**0**	.03	.14	.17	.00	.05	.04	.03	.23
2003	106	0.0	—	**0.0**	0	**0**	**71**	**4**	**25**	**0**	.05	.19	.32	.80	.16	.06	.11	.00

Table 10 continued. Input data for the South Fork Stillaguamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Stillaguamish Tribal Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
2004	169	0.0	—	**0.0**	0	**10**	**2**	**87**	**0**	**0**	.05	.26	.17	**.44**	.01	.06	.02	**.18**
2005	89	0.0	—	**0.0**	0	**0**	**78**	**4**	**18**	**0**	.05	.13	**.22**	**.43**	.05	.07	**.05**	**.14**
2006	219	0.0	—	**0.0**	0	**10**	**2**	**88**	**0**	**0**	.00	**.19**	**.24**	**.57**	.00	**.07**	**.06**	**.10**
2007	40	0.0	—	**0.0**	0	**0**	**78**	**4**	**18**	**0**	—	—	—	—	—	—	—	—
2008	278	0.0	—	**0.0**	0	**4**	**2**	**94**	**0**	**0**	—	—	—	—	—	—	—	—
2009	44	6.8	—	**0.0**	0	**11**	**48**	**6**	**35**	**0**	—	—	—	—	—	—	—	—

Table 11. Input data for the Skykomish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Wallace Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1963	—	—	—	—	—	—	—	—	—	—	**.12**	**.32**	**.49**	**.49**	**.64**	**.68**	**.68**	**.69**
1964	—	—	—	—	—	—	—	—	—	—	**.12**	**.31**	**.48**	**.49**	**.64**	**.68**	**.68**	**.69**
1965	4,693	**24.9**	**2,582**	**12.5**	—	**1**	**19**	**64**	**16**	**0**	**.11**	**.31**	**.47**	**.48**	**.64**	**.68**	**.68**	**.68**
1966	6,463	**25.0**	**2,587**	**12.5**	—	**2**	**6**	**69**	**22**	**0**	**.12**	**.31**	**.47**	**.48**	**.64**	**.68**	**.69**	**.69**
1967	2,899	**25.1**	**2,593**	**12.5**	—	**2**	**23**	**34**	**41**	**0**	**.11**	**.30**	**.47**	**.48**	**.64**	**.68**	**.68**	**.69**
1968	4,301	**25.2**	**2,593**	**12.5**	—	**2**	**8**	**78**	**11**	**0**	**.11**	**.29**	**.46**	**.47**	**.63**	**.67**	**.68**	**.68**
1969	3,066	**24.8**	**2,566**	**12.5**	—	**4**	**19**	**41**	**37**	**0**	**.12**	**.31**	**.47**	**.48**	**.65**	**.69**	**.70**	**.70**
1970	4,687	**24.6**	**2,573**	**12.5**	—	**1**	**19**	**66**	**14**	**0**	**.11**	**.30**	**.47**	**.48**	**.64**	**.68**	**.68**	**.68**
1971	6,756	**25.2**	**2,608**	**12.5**	—	**2**	**6**	**69**	**23**	**0**	.08	.12	.38	.63	.00	.28	.67	.58
1972	2,726	**25.6**	**2,624**	**12.5**	—	**3**	**19**	**36**	**42**	**0**	.08	.35	.58	.35	.37	.85	.83	.74
1973	3,621	**25.6**	**2,595**	**12.5**	—	**2**	**18**	**68**	**13**	**0**	.15	.38	.41	.52	.17	.60	.37	.41
1974	4,684	**23.1**	**2,430**	**12.5**	—	**2**	**10**	**64**	**24**	**0**	.12	.26	.50	.35	.85	.85	.85	.85
1975	3,030	**23.3**	**2,608**	**12.5**	—	**3**	**14**	**51**	**32**	**0**	.13	.36	.43	.47	.65	.78	.72	.71
1976	3,223	**28.6**	**2,783**	**12.5**	—	**3**	**17**	**59**	**21**	**0**	**.12**	**.32**	**.48**	**.49**	**.64**	**.67**	**.68**	**.68**
1977	4,529	**27.5**	**2,704**	**12.5**	—	**2**	**16**	**61**	**20**	**0**	**.12**	**.32**	**.49**	**.50**	**.65**	**.68**	**.69**	**.69**
1978	5,849	**25.4**	**2,448**	**12.5**	—	**3**	**14**	**61**	**22**	**0**	.14	.32	.51	.43	.85	.63	.66	.80
1979	5,277	11.0	1,606	**12.5**	—	**0**	**16**	**58**	**25**	**0**	.10	.29	.49	.51	.80	.84	.63	.80
1980	5,221	24.0	3,499	**12.5**	—	**3**	**0**	**72**	**25**	**0**	.15	.41	.48	.79	.76	.68	.76	.67
1981	2,408	55.0	3,660	**12.5**	—	**3**	**35**	**4**	**58**	**1**	.17	.36	.43	.62	.75	.55	.72	.51
1982	3,690	22.0	2,305	**12.5**	—	**2**	**10**	**87**	**1**	**0**	.13	.31	.47	.69	.73	.75	.36	.00
1983	2,813	15.0	1,172	**12.5**	—	**3**	**12**	**48**	**38**	**0**	.16	.33	.37	.00	.79	.35	.42	.20
1984	2,389	18.0	1,174	**12.5**	—	**2**	**21**	**54**	**22**	**1**	.11	.25	.50	.33	.52	.40	.26	.79
1985	3,580	1.0	936	**12.5**	—	**2**	**12**	**68**	**17**	**0**	.06	.21	.37	.61	.64	.61	.61	.57
1986	3,377	12.0	931	**12.5**	—	**3**	**16**	**53**	**29**	**0**	.08	.23	.49	.46	.64	.57	.62	.58
1987	3,834	11.0	1,170	**12.5**	—	**1**	**16**	**62**	**20**	**0**	.09	.29	.37	.50	.59	.58	.39	.45
1988	4,004	11.0	1,122	**12.5**	—	**2**	**8**	**65**	**24**	**0**	.09	.24	.55	.46	.85	.43	.50	.65
1989	2,221	25.0	1,122	**12.5**	82	0	9	51	39	1	.09	.35	.55	.26	.51	.40	.37	.42
1990	2,932	13.0	1,461	**12.5**	—	**2**	**10**	**72**	**16**	**0**	.11	.34	.28	.35	.50	.31	.40	.22
1991	2,192	11.0	984	**12.5**	13	**1**	**15**	**50**	**34**	**0**	.06	.18	.32	.30	.22	.38	.30	.45
1992	2,002	18.0	550	**12.5**	14	**3**	**5**	**70**	**22**	**0**	.08	.20	.24	.29	.20	.23	.27	.03
1993	1,653	43.0	943	**12.5**	7	**2**	**27**	**29**	**42**	**0**	.09	.19	.30	.14	.11	.19	.12	.12
1994	2,898	49.0	1,929	**12.5**	—	**2**	**8**	**81**	**9**	**0**	.06	.16	.19	.25	.30	.30	.24	.21
1995	2,791	59.0	3,904	**12.5**	17	**3**	**19**	**39**	**39**	**0**	.04	.08	.26	.48	.07	.26	.34	.46

Table 11 continued. Input data for the Skykomish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Wallace Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1996	3,819	55.0	4,403	**12.5**	107	8	20	66	6	0	.06	.15	.32	.43	.18	.24	.24	.12
1997	2,161	28.8	3,435	25.0	73	0	16	66	18	0	.04	.10	.35	.20	.07	.24	.26	.44
1998	4,414	66.1	4,691	7.9	83	2	11	63	24	0	.05	.16	.33	.35	.14	.30	.42	.42
1999	3,446	24.6	6,423	3.8	114	1	29	42	27	1	.05	.12	.34	.38	.18	.35	.44	.40
2000	4,668	47.5	5,334	4.4	126	3	29	52	16	0	.04	.11	.39	.45	.21	.39	.34	.20
2001	4,575	31.4	3,441	21.6	90	1	4	74	20	0	.04	.16	.41	.49	.22	.35	.23	.29
2002	4,327	**34.5**	2,566	**9.9**	163	2	7	50	39	1	.05	.18	.33	.29	.10	.16	.36	.30
2003	3,472	**37.8**	5,655	**12.0**	26	**1**	**22**	**58**	**19**	**0**	.05	.17	.33	.35	.11	.44	.46	.42
2004	7,614	28.9	6,141	**14.5**	87	1	2	69	28	0	.06	.27	.28	**.38**	.14	.39	.28	**.34**
2005	3,203	**33.7**	3,827	**12.1**	0	**2**	**29**	**27**	**42**	**0**	.03	.13	**.31**	**.34**	.19	.35	**.37**	**.35**
2006	5,693	16.8	4,016	**12.9**	0	**3**	**7**	**82**	**8**	**0**	.00	**.19**	**.31**	**.35**	.07	**.40**	**.37**	**.37**
2007	2,648	43.0	6,290	**13.2**	0	**0**	**24**	**37**	**39**	**0**	—	—	—	—	—	—	—	—
2008	5,813	17.8	5,830	**12.7**	0	**2**	**0**	**84**	**13**	**0**	—	—	—	—	—	—	—	—
2009	1,414	28.9	5,379	**12.9**	0	**3**	**28**	**4**	**65**	**0**	—	—	—	—	—	—	—	—

Table 12. Input data for the Snoqualmie Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Wallace Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1963	—	—	—	—	—	—	—	—	—	—	**.12**	**.32**	**.49**	**.49**	**.58**	**.63**	**.65**	**.64**
1964	—	—	—	—	—	—	—	—	—	—	**.12**	**.31**	**.48**	**.48**	**.58**	**.63**	**.65**	**.64**
1965	525	**6.2**	**2,582**	**0**	—	**0**	**44**	**55**	**0**	**0**	**.11**	**.31**	**.47**	**.47**	**.58**	**.63**	**.65**	**.64**
1966	1,188	**6.2**	**2,587**	**0**	—	**3**	**0**	**87**	**10**	**0**	**.12**	**.31**	**.47**	**.48**	**.58**	**.63**	**.65**	**.65**
1967	321	**6.2**	**2,593**	**0**	—	**1**	**44**	**1**	**53**	**0**	**.11**	**.30**	**.47**	**.47**	**.58**	**.63**	**.65**	**.64**
1968	756	**6.2**	**2,593**	**0**	—	**3**	**5**	**92**	**0**	**0**	**.11**	**.29**	**.46**	**.46**	**.58**	**.62**	**.64**	**.64**
1969	424	**6.2**	**2,566**	**0**	—	**4**	**33**	**22**	**40**	**0**	**.12**	**.31**	**.47**	**.47**	**.59**	**.64**	**.66**	**.66**
1970	82	**6.2**	**2,573**	**0**	—	**1**	**21**	**74**	**4**	**0**	**.11**	**.30**	**.47**	**.47**	**.58**	**.63**	**.64**	**.64**
1971	785	**6.2**	**2,608**	**0**	—	**2**	**5**	**70**	**22**	**0**	.08	.12	.38	.63	.00	.28	.67	.58
1972	348	**6.2**	**2,624**	**0**	—	**6**	**29**	**29**	**36**	**0**	.08	.35	.58	.35	.37	.70	.70	.70
1973	656	**6.2**	**2,595**	**0**	—	**2**	**29**	**63**	**6**	**0**	.15	.38	.41	.52	.17	.60	.37	.41
1974	1,061	**6.2**	**2,430**	**0**	—	**4**	**12**	**70**	**14**	**0**	.12	.26	.50	.35	.70	.70	.70	.70
1975	923	**6.2**	**2,608**	**0**	—	**1**	**30**	**45**	**23**	**0**	.13	.36	.43	.47	.65	.70	.70	.70
1976	1,436	**6.2**	**2,783**	**0**	—	**4**	**8**	**77**	**10**	**0**	**.12**	**.32**	**.48**	**.48**	**.58**	**.62**	**.64**	**.64**
1977	1,013	**6.2**	**2,704**	**0**	—	**0**	**39**	**32**	**29**	**0**	**.12**	**.32**	**.49**	**.49**	**.59**	**.63**	**.65**	**.65**
1978	2,056	**6.2**	**2,448**	**0**	—	**3**	**0**	**90**	**7**	**0**	.14	.32	.51	.43	.70	.63	.66	.70
1979	449	9.0	1,606	**0**	—	**3**	**42**	**1**	**54**	**0**	.10	.29	.49	.51	.70	.70	.63	.70
1980	1,305	6.0	3,499	**0**	—	**2**	**13**	**84**	**0**	**0**	.15	.41	.48	.70	.70	.68	.70	.67
1981	922	9.0	3,660	**0**	—	**5**	**13**	**53**	**30**	**0**	.17	.36	.43	.62	.70	.55	.70	.51
1982	808	5.0	2,305	**0**	—	**2**	**34**	**46**	**17**	**0**	.13	.31	.47	.69	.70	.70	.36	.00
1983	1,724	2.0	1,172	**0**	—	**2**	**11**	**77**	**9**	**0**	.16	.33	.37	.00	.70	.35	.42	.20
1984	1,095	6.0	1,174	**0**	—	**2**	**21**	**47**	**29**	**0**	.11	.25	.50	.33	.52	.40	.26	.70
1985	1,150	5.0	936	**0**	—	**3**	**16**	**68**	**14**	**0**	.06	.21	.37	.61	.64	.61	.61	.57
1986	1,157	18.0	931	**0**	—	**1**	**20**	**56**	**22**	**0**	.08	.23	.49	.46	.64	.57	.62	.58
1987	855	5.0	1,170	**0**	—	**3**	**7**	**72**	**18**	**0**	.09	.29	.37	.50	.59	.58	.39	.45
1988	509	15.0	1,122	**0**	—	**5**	**29**	**34**	**32**	**0**	.09	.24	.55	.46	.70	.43	.50	.65
1989	952	14.0	1,122	**0**	20	**1**	**27**	**65**	**7**	**0**	.09	.35	.55	.26	.51	.40	.37	.42
1990	1,277	13.0	1,461	**0**	—	**2**	**8**	**74**	**16**	**0**	.11	.34	.28	.35	.50	.31	.40	.22
1991	628	21.0	984	**0**	—	**5**	**19**	**41**	**35**	**0**	.06	.18	.32	.30	.22	.38	.30	.45
1992	706	15.0	550	**0**	28	**3**	**29**	**57**	**11**	**0**	.08	.20	.24	.29	.20	.23	.27	.03
1993	2,366	5.0	943	**0**	60	3	17	53	27	0	.09	.19	.30	.14	.11	.19	.12	.12
1994	728	23.0	1,929	**0**	46	7	22	57	15	0	.06	.16	.19	.25	.30	.30	.24	.21
1995	385	72.0	3,904	**0**	31	**8**	**52**	**2**	**38**	**1**	.04	.08	.26	.48	.07	.26	.34	.46

Table 12 continued. Input data for the Snoqualmie Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Wallace Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1996	1,032	36.0	4,403	**0**	70	0	19	77	4	0	.06	.15	.32	.43	.18	.24	.24	.12
1997	1,917	6.3	3,435	**0**	89	1	11	64	24	0	.04	.10	.35	.20	.07	.24	.26	.44
1998	1,892	28.1	4,691	**0**	93	3	15	53	28	1	.05	.16	.33	.35	.14	.30	.42	.42
1999	1,344	22.6	6,423	**0**	142	8	37	41	15	0	.05	.12	.34	.38	.18	.35	.44	.40
2000	1,427	12.5	5,334	**0**	127	1	20	66	13	0	.04	.11	.39	.45	.21	.39	.34	.20
2001	3,589	8.5	3,441	**0**	255	0	16	71	13	0	.04	.16	.41	.49	.22	.35	.23	.29
2002	2,896	**14.6**	2,566	**0**	360	1	14	54	31	0	.05	.18	.33	.29	.10	.16	.36	.30
2003	1,975	**11.9**	5,655	**0**	169	1	22	63	15	0	.05	.17	.33	.35	.11	.44	.46	.42
2004	2,988	16.6	6,141	**0**	94	4	11	68	16	1	.06	.27	.28	**.38**	.14	.39	.28	**.34**
2005	1,281	7.4	3,827	**0**	0	**2**	**31**	**40**	**27**	**0**	.03	.13	**.31**	**.34**	.19	.35	**.37**	**.35**
2006	2,615	17.4	4,016	**0**	0	**3**	**9**	**79**	**9**	**0**	.00	**.19**	**.31**	**.35**	.07	**.40**	**.37**	**.37**
2007	1,334	12.0	6,290	**0**	0	**3**	**29**	**37**	**31**	**0**	—	—	—	—	—	—	—	—
2008	2,560	14.5	5,830	**0**	0	**2**	**14**	**75**	**9**	**0**	—	—	—	—	—	—	—	—
2009	895	28.6	5,379	**0**	0	**2**	**18**	**53**	**26**	**0**	—	—	—	—	—	—	—	—

Table 13. Input data for the Sammamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Lake Wash., Issaquah Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1968	—	—	—	—	—	—	—	—	—	—	**.11**	**.29**	**.46**	**.45**	**.56**	**.48**	**.44**	**.46**
1969	—	—	—	—	—	—	—	—	—	—	**.11**	**.31**	**.48**	**.46**	**.60**	**.51**	**.46**	**.48**
1970	—	—	8,804	—	—	—	—	—	—	—	**.11**	**.30**	**.47**	**.46**	**.58**	**.49**	**.46**	**.47**
1971	—	—	6,159	—	—	—	—	—	—	—	.08	.12	.38	.63	.00	.28	.67	.58
1972	—	—	5,437	—	—	—	—	—	—	—	.06	.32	.59	.41	.37	.69	.67	.67
1973	—	—	4,282	—	—	—	—	—	—	—	.15	.38	.41	.52	.17	.60	.37	.41
1974	—	—	3,333	—	—	—	—	—	—	—	.13	.31	.58	.41	.57	.42	.33	.25
1975	—	—	6,848	—	—	—	—	—	—	—	.12	.40	.52	.50	.62	.62	.23	.59
1976	303	**37.9**	5,615	—	—	—	—	—	—	—	**.11**	**.32**	**.49**	**.48**	**.63**	**.53**	**.48**	**.49**
1977	—	—	4,330	—	—	—	—	—	—	—	**.12**	**.32**	**.50**	**.48**	**.65**	**.55**	**.49**	**.50**
1978	—	—	2,447	—	—	—	—	—	—	—	.14	.33	.50	.45	.84	.52	.63	.76
1979	—	—	6,049	—	—	—	—	—	—	—	.10	.32	.51	.48	.90	.74	.65	.59
1980	—	—	6,541	—	—	—	—	—	—	—	.15	.41	.48	.76	.90	.70	.80	.78
1981	—	—	6,109	—	—	—	—	—	—	—	.19	.42	.43	.56	.74	.50	.57	.43
1982	—	—	7,219	—	—	—	—	—	—	—	.08	.26	.51	.53	.11	.67	.06	.00
1983	544	**25.4**	6,751	**0**	—	**1**	**78**	**21**	**0**	**0**	.12	.27	.34	.00	.83	.20	.13	.20
1984	354	**2.7**	3,577	**0**	—	**2**	**23**	**74**	**1**	**0**	.11	.26	.53	.31	.52	.31	.23	.30
1985	183	**35.7**	3,189	**0**	**7**	**6**	**61**	**29**	**3**	**0**	.05	.19	.31	.53	.60	.34	.31	.28
1986	528	**13.2**	3,396	**0**	—	**2**	**68**	**30**	**1**	**0**	.09	.23	.48	.45	.69	.47	.53	.60
1987	498	**11.2**	2,716	**0**	—	**2**	**39**	**58**	**1**	**0**	.08	.30	.37	.46	.64	.28	.46	.75
1988	233	**13.8**	1,567	**0**	75	3	52	44	1	0	.09	.21	.50	.45	.88	.45	.55	.69
1989	453	**16.2**	3,585	**0**	—	**1**	**63**	**35**	**1**	**0**	.06	.29	.46	.19	.55	.39	.42	.00
1990	318	**32.8**	5,098	**0**	—	**2**	**30**	**66**	**1**	**0**	.08	.30	.23	.23	.57	.28	.33	.11
1991	153	**22.5**	1,684	**0**	—	**4**	**59**	**34**	**3**	**0**	.06	.17	.30	.00	.48	.20	.17	.46
1992	265	**9.7**	1,254	**0**	—	**0**	**63**	**36**	**1**	**0**	.05	.14	.23	.18	.11	.05	.11	.03
1993	89	**79.9**	3,475	**0**	—	**8**	**9**	**81**	**2**	**0**	.08	.18	.26	.10	.11	.07	.03	.27
1994	436	**18.4**	3,923	**0**	—	**0**	**94**	**4**	**1**	**0**	.05	.13	.14	.24	.04	.08	.12	.20
1995	249	**21.2**	2,582	**0**	—	**0**	**3**	**96**	**0**	**0**	.03	.06	.25	.35	.25	.08	.22	.50
1996	33	**80.0**	2,146	**0**	—	**4**	**44**	**25**	**27**	**0**	.03	.10	.27	.16	.06	.10	.23	.18
1997	67	**80.0**	5,265	**0**	—	**21**	**53**	**26**	**1**	**0**	.03	.11	.33	.12	.04	.12	.19	.41
1998	265	**56.5**	7,314	**0**	—	**5**	**85**	**9**	**0**	**0**	.06	.16	.34	.38	.07	.17	.35	.34
1999	537	**13.4**	3,507	**0**	—	**1**	**59**	**40**	**0**	**0**	.06	.14	.36	.30	.12	.13	.25	.43

Table 13 continued. Input data for the Sammamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Lake Wash., Issaquah Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
2000	228	**15.0**	1,668	**0**	—	**4**	**27**	**67**	**2**	**0**	.06	.14	.47	.27	.09	.19	.34	.15
2001	458	**46.7**	0,451	**0**	—	**0**	**76**	**21**	**2**	**0**	.05	.20	.41	.51	.05	.13	.11	.46
2002	268	**51.5**	6,738	**0**	0	**3**	**9**	**87**	**1**	**0**	.05	.17	.37	.27	.07	.11	.34	.34
2003	212	66.0	5,742	**0**	0	**1**	**83**	**12**	**4**	**0**	.05	.19	.34	.53	.05	.13	.32	.50
2004	146	62.0	12,771	**0**	0	**4**	**13**	**83**	**0**	**0**	.08	.30	.30	**.44**	.08	.23	.34	**.43**
2005	215	79.0	6,852	**0**	0	**1**	**83**	**13**	**3**	**0**	.03	.12	**.33**	**.41**	.03	.22	**.34**	**.43**
2006	129	78.0	8,934	**0**	0	**5**	**14**	**81**	**0**	**0**	.00	**.20**	**.32**	**.46**	.12	**.19**	**.33**	**.45**
2007	161	75.0	13,432	**0**	0	**4**	**83**	**11**	**2**	**0**	—	—	—	—	—	—	—	—
2008	183	78.0	3,007	**0**	0	**8**	**47**	**44**	**0**	**0**	—	—	—	—	—	—	—	—
2009	1,161	**77.0**	8,458	**0**	0	**0**	**79**	**20**	**1**	**0**	—	—	—	—	—	—	—	—

Table 14. Input data for the Cedar Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Lake Wash., Issaquah, & UW Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1963	—	—	—	—	—	—	—	—	—	—	**.12**	**.32**	**.49**	**.48**	**.64**	**.54**	**.49**	**.49**
1964	—	—	—	—	—	—	—	—	—	—	**.11**	**.32**	**.49**	**.47**	**.62**	**.53**	**.48**	**.49**
1965	1,046	**17.9**	—	**0**	—	**0**	**93**	**7**	**0**	**0**	**.11**	**.31**	**.48**	**.46**	**.60**	**.50**	**.46**	**.48**
1966	1,752	**17.9**	—	**0**	—	**8**	**0**	**91**	**1**	**0**	**.11**	**.31**	**.48**	**.47**	**.60**	**.51**	**.47**	**.48**
1967	1,335	**17.9**	—	**0**	—	**0**	**72**	**0**	**27**	**0**	**.11**	**.30**	**.48**	**.46**	**.59**	**.50**	**.46**	**.48**
1968	1,363	**17.9**	—	**0**	—	**5**	**4**	**91**	**0**	**0**	**.11**	**.29**	**.46**	**.45**	**.56**	**.48**	**.44**	**.46**
1969	466	**17.9**	—	**0**	—	**7**	**53**	**7**	**33**	**0**	**.11**	**.31**	**.48**	**.46**	**.60**	**.51**	**.46**	**.48**
1970	1,745	**10.9**	8,804	**0**	—	**0**	**45**	**54**	**1**	**0**	**.11**	**.30**	**.47**	**.46**	**.58**	**.49**	**.46**	**.47**
1971	471	**28.3**	6,159	**0**	—	**7**	**1**	**74**	**18**	**0**	.08	.12	.38	.63	.00	.28	.67	.58
1972	419	**28.1**	5,437	**0**	—	**7**	**68**	**1**	**23**	**0**	.06	.32	.59	.41	.37	.69	.67	.67
1973	1,025	**9.1**	4,282	**0**	—	**1**	**40**	**58**	**0**	**0**	.15	.38	.41	.52	.17	.60	.37	.41
1974	560	**12.9**	3,333	**0**	—	**6**	**14**	**62**	**18**	**0**	.13	.31	.58	.41	.57	.42	.33	.25
1975	656	**22.6**	6,848	**0**	—	**0**	**61**	**20**	**19**	**0**	.12	.40	.52	.50	.62	.62	.23	.59
1976	416	**29.3**	5,615	**0**	—	**11**	**1**	**82**	**6**	**0**	**.11**	**.32**	**.49**	**.48**	**.63**	**.53**	**.48**	**.49**
1977	675	**13.9**	4,330	**0**	—	**2**	**79**	**1**	**18**	**0**	**.12**	**.32**	**.50**	**.48**	**.65**	**.55**	**.49**	**.50**
1978	890	**6.0**	2,447	**0**	—	**8**	**12**	**80**	**0**	**0**	.14	.33	.50	.45	.84	.52	.63	.76
1979	1,243	**10.5**	6,049	**0**	—	**2**	**63**	**15**	**20**	**0**	.10	.32	.51	.48	.90	.74	.65	.59
1980	1,360	**10.4**	6,541	**0**	—	**3**	**16**	**78**	**4**	**0**	.15	.41	.48	.76	.90	.70	.80	.78
1981	624	**21.2**	6,109	**0**	—	**7**	**34**	**29**	**30**	**0**	.19	.42	.43	.56	.74	.50	.57	.43
1982	763	**20.5**	7,219	**0**	—	**3**	**50**	**40**	**7**	**0**	.08	.26	.51	.53	.11	.67	.06	.00
1983	788	**18.6**	6,751	**0**	—	**7**	**23**	**60**	**10**	**0**	.12	.27	.34	.00	.83	.20	.13	.20
1984	898	**8.6**	3,577	**0**	—	**2**	**56**	**28**	**15**	**0**	.11	.26	.53	.31	.52	.31	.23	.30
1985	766	**9.0**	3,189	**0**	—	**8**	**13**	**72**	**7**	**0**	.05	.19	.31	.53	.60	.34	.31	.28
1986	942	**7.8**	3,396	**0**	—	**4**	**63**	**15**	**18**	**0**	.09	.23	.48	.45	.69	.47	.53	.60
1987	1,540	**3.8**	2,716	**0**	—	**1**	**27**	**68**	**3**	**0**	.08	.30	.37	.46	.64	.28	.46	.75
1988	559	**6.1**	1,567	**0**	—	**6**	**16**	**51**	**26**	**0**	.09	.21	.50	.45	.88	.45	.55	.69
1989	558	**13.9**	3,585	**0**	—	**0**	**61**	**24**	**15**	**0**	.06	.29	.46	.19	.55	.39	.42	.00
1990	469	**23.6**	5,098	**0**	—	**10**	**1**	**83**	**7**	**0**	.08	.30	.23	.23	.57	.28	.33	.11
1991	508	**7.2**	1,684	**0**	—	**0**	**78**	**1**	**20**	**0**	.06	.17	.30	.00	.48	.20	.17	.46
1992	525	**5.2**	1,254	**0**	—	**1**	**3**	**96**	**0**	**0**	.05	.14	.23	.18	.11	.05	.11	.03
1993	156	**48.3**	3,475	**0**	—	**18**	**20**	**7**	**55**	**0**	.08	.18	.26	.10	.11	.07	.03	.27
1994	452	**18.8**	3,923	**0**	—	**3**	**82**	**14**	**1**	**0**	.05	.13	.14	.24	.04	.08	.12	.20

Table 14 continued. Input data for the Cedar Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Lake Wash., Issaquah, and UW Hatchery**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1995	681	**8.2**	2,582	**0**	—	**1**	**18**	**78**	**3**	**0**	.03	.06	.25	.35	.25	.08	.22	.50
1996	303	**15.3**	2,146	**0**	—	**5**	**15**	**43**	**37**	**0**	.03	.10	.27	.16	.06	.10	.23	.18
1997	227	**50.3**	5,265	**0**	—	**7**	**56**	**23**	**14**	**0**	.03	.11	.33	.12	.04	.12	.19	.41
1998	432	**36.7**	7,314	**0**	—	**0**	**41**	**54**	**5**	**0**	.06	.16	.34	.38	.07	.17	.35	.34
1999	241	**31.5**	3,507	**0**	—	**11**	**2**	**68**	**18**	**0**	.06	.14	.36	.30	.12	.13	.25	.43
2000	120	**30.1**	1,668	**0**	—	**5**	**78**	**2**	**15**	**0**	.06	.14	.47	.27	.09	.19	.34	.15
2001	810	**28.0**	10,451	**0**	—	**3**	**29**	**68**	**0**	**0**	.05	.20	.41	.51	.05	.13	.11	.46
2002	369	**39.6**	6,738	**0**	—	**5**	**32**	**42**	**20**	**0**	.05	.17	.37	.27	.07	.11	.34	.34
2003	545	39.0	5,742	**0**	—	**5**	**43**	**41**	**11**	**0**	.05	.19	.34	.53	.05	.13	.32	.50
2004	575	34.0	12,771	**0**	—	**4**	**35**	**51**	**10**	**0**	.08	.30	.30	**.44**	.08	.23	.34	**.43**
2005	518	31.5	6,852	**0**	259	4	37	47	12	0	.02	.12	**.33**	**.41**	.02	.22	**.34**	**.43**
2006	1,066	19.5	8,934	**0**	18	**4**	**59**	**29**	**8**	**0**	.00	**.20**	**.32**	**.46**	.00	**.19**	**.33**	**.45**
2007	1,729	10.4	13,432	**0**	—	**2**	**29**	**62**	**6**	**0**	—	—	—	—	—	—	—	—
2008	758	9.5	3,007	**0**	—	**5**	**23**	**49**	**22**	**0**	—	—	—	—	—	—	—	—
2009	713	18.2	8,458	**0**	—	**6**	**48**	**32**	**14**	**0**	—	—	—	—	—	—	—	—

Table 15. Input data for the Green/Duwamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Soos, Icy, and Keta creeks hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1966	—	—	—	—	—	—	—	—	—	—	**.11**	**.31**	**.48**	**.47**	**.64**	**.5**	**.55**	**.57**
1967	—	—	—	—	—	—	—	—	—	—	**.11**	**.30**	**.48**	**.46**	**.64**	**.57**	**.55**	**.57**
1968	3,110	**95.0**	8,114	**0.0**	—	**41**	**41**	**16**	**2**	**0**	**.11**	**.29**	**.46**	**.45**	**.63**	**.56**	**.54**	**.56**
1969	4,035	**65.1**	6,650	**0.0**	—	**6**	**65**	**29**	**1**	**0**	**.11**	**.31**	**.48**	**.46**	**.65**	**.58**	**.56**	**.58**
1970	11,171	**37.9**	10,714	**0.0**	—	**3**	**15**	**79**	**2**	**0**	**.11**	**.30**	**.47**	**.46**	**.63**	**.57**	**.55**	**.57**
1971	5,832	**56.8**	8,387	**0.0**	—	**0**	**27**	**56**	**17**	**0**	.08	.12	.38	.63	.00	.28	.67	.58
1972	4,343	**65.5**	7,200	**0.0**	—	**9**	**2**	**79**	**10**	**0**	.06	.32	.59	.41	.37	.69	.67	.67
1973	3,180	**95.0**	8,275	**0.0**	—	**6**	**72**	**6**	**16**	**0**	.15	.38	.41	.52	.17	.60	.37	.41
1974	5,095	**29.3**	3,783	**0.0**	—	**5**	**14**	**81**	**0**	**0**	.13	.31	.58	.41	.57	.42	.33	.25
1975	3,394	**43.8**	3,759	**0.0**	—	**2**	**35**	**47**	**16**	**0**	.12	.40	.52	.50	.62	.62	.23	.59
1976	3,140	**28.9**	2,299	**0.0**	—	**0**	**12**	**81**	**6**	**0**	**.11**	**.32**	**.49**	**.48**	**.63**	**.57**	**.54**	**.56**
1977	3,804	**83.0**	7,993	**0.0**	—	**13**	**3**	**61**	**23**	**0**	**.12**	**.32**	**.50**	**.48**	**.64**	**.58**	**.56**	**.57**
1978	3,304	**95.0**	7,975	**0.0**	—	**15**	**69**	**8**	**8**	**0**	.14	.33	.50	.45	.84	.52	.63	.76
1979	9,704	**61.0**	14,985	**0.0**	—	**0**	**32**	**67**	**0**	**0**	.10	.32	.51	.48	.92	.74	.65	.59
1980	7,743	**62.1**	12,175	**0.0**	—	**0**	**1**	**88**	**11**	**0**	.15	.41	.48	.76	.92	.70	.80	.78
1981	3,606	**95.0**	11,001	**0.0**	—	**25**	**7**	**14**	**54**	**0**	.19	.42	.43	.56	.74	.50	.57	.43
1982	1,840	**82.1**	3,824	**0.0**	—	**9**	**81**	**10**	**1**	**0**	.08	.26	.51	.53	.11	.67	.06	.00
1983	3,679	**31.0**	2,888	**0.0**	—	**4**	**18**	**77**	**1**	**0**	.12	.27	.34	.00	.83	.20	.13	.20
1984	3,353	**48.0**	4,070	**0.0**	—	**0**	**29**	**57**	**14**	**0**	.11	.26	.53	.31	.52	.31	.23	.30
1985	2,908	**57.8**	4,253	**0.0**	—	**10**	**2**	**79**	**9**	**0**	.05	.19	.31	.53	.60	.34	.31	.28
1986	4,792	**88.9**	10,782	**0.0**	—	**11**	**69**	**6**	**14**	**0**	.09	.23	.48	.45	.69	.47	.53	.60
1987	10,338	**51.1**	13,376	**0.0**	—	**4**	**26**	**70**	**0**	**0**	.08	.30	.37	.46	.64	.28	.46	.75
1988	7,994	**54.8**	11,095	**0.0**	341	6	9	70	15	0	.09	.21	.50	.45	.88	.45	.55	.69
1989	11,512	35.6	18,972	**0.0**	566	0	39	53	8	0	.06	.29	.46	.19	.55	.39	.42	.00
1990	7,035	5.9	9,284	0.0	309	1	9	86	5	0	.08	.30	.23	.23	.57	.28	.33	.11
1991	10,548	59.0	4,855	14.0	236	0	37	31	32	0	.06	.17	.30	.00	.48	.20	.17	.46
1992	5,267	68.7	4,428	8.0	67	7	10	78	4	0	.05	.14	.23	.18	.11	.05	.11	.03
1993	2,476	38.3	3,656	40.0	92	3	51	37	9	0	.08	.18	.26	.10	.11	.07	.03	.27
1994	4,078	65.4	4,784	27.0	125	5	7	86	2	0	.05	.13	.14	.24	.04	.08	.12	.20
1995	7,939	52.4	10,518	56.0	36	14	39	44	3	0	.03	.06	.25	.35	.25	.08	.22	.50
1996	6,026	79.9	13,414	48.0	176	6	42	51	1	0	.03	.10	.27	.16	.06	.10	.23	.18
1997	7,101	77.8	11,800	36.0	136	4	12	78	6	0	.03	.11	.33	.12	.04	.12	.19	.41

Table 15 continued. Input data for the Green/Duwamish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Soos, Icy, and Keta creeks hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1998	5,963	78.0	9,896	48.0	370	5	22	61	12	0	.06	.16	.34	.38	.07	.17	.35	.34
1999	7,135	52.0	10,450	**44.0**	—	**5**	**19**	**72**	**5**	**0**	.06	.14	.36	.30	.12	.13	.25	.43
2000	4,473	47.8	6,170	**42.7**	—	**8**	**30**	**50**	**11**	**0**	.06	.14	.47	.27	.09	.19	.34	.15
2001	6,473	22.4	12,666	**44.9**	—	**2**	**35**	**58**	**6**	**0**	.05	.20	.41	.51	.05	.13	.11	.46
2002	7,564	22.9	10,490	**43.9**	—	**7**	**9**	**77**	**7**	**0**	.05	.17	.37	.27	.07	.11	.34	.34
2003	5,864	56.1	7,047	**43.8**	—	**0**	**52**	**32**	**16**	**0**	.05	.19	.34	.53	.05	.13	.32	.50
2004	7,947	**33.8**	4,782	**44.2**	—	**4**	**2**	**91**	**3**	**0**	.04	.20	.30	**.44**	.07	.23	.34	**.43**
2005	2,523	59.6	8,171	**43.9**	—	**4**	**57**	**9**	**30**	**0**	.02	.05	**.33**	**.41**	.02	.04	**.34**	**.43**
2006	5,790	60.0	11,217	**44.0**	—	**9**	**11**	**80**	**1**	**0**	.00	**.15**	**.32**	**.46**	.00	**.13**	**.33**	**.45**
2007	4,301	53.4	13,824	**44.0**	—	**0**	**55**	**32**	**13**	**0**	—	—	—	—	—	—	—	—
2008	6,384	35.5	8,465	**44.0**	—	**3**	**1**	**93**	**3**	**0**	—	—	—	—	—	—	—	—
2009	688	73.6	11,169	**44.0**	—	**13**	**47**	**6**	**34**	**0**	—	—	—	—	—	—	—	—

Table 16. Input data for the White Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**White River and Minter hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1963	—	—	—	—	—	—	—	—	—	—	**.05**	**.14**	**.31**	**.28**	**.15**	**.12**	**.08**	**.04**
1964	—	—	—	—	—	—	—	—	—	—	**.05**	**.14**	**.31**	**.28**	**.15**	**.12**	**.08**	**.04**
1965	969	0.0	—	0.0	—	**9**	**31**	**55**	**5**	**0**	**.05**	**.14**	**.31**	**.28**	**.15**	**.12**	**.08**	**.04**
1966	639	0.0	—	0.0	—	**12**	**34**	**46**	**8**	**0**	**.05**	**.14**	**.31**	**.28**	**.16**	**.12**	**.08**	**.04**
1967	654	0.0	—	0.0	—	**5**	**40**	**48**	**7**	**0**	**.05**	**.14**	**.31**	**.28**	**.16**	**.12**	**.08**	**.04**
1968	417	0.0	—	0.0	—	**19**	**17**	**57**	**7**	**0**	**.05**	**.13**	**.30**	**.28**	**.15**	**.11**	**.07**	**.04**
1969	534	0.0	—	0.0	—	**3**	**65**	**24**	**8**	**0**	**.05**	**.14**	**.32**	**.29**	**.16**	**.13**	**.08**	**.04**
1970	557	0.0	—	0.0	—	**15**	**7**	**75**	**3**	**0**	**.05**	**.14**	**.31**	**.28**	**.16**	**.12**	**.08**	**.04**
1971	393	0.0	—	0.0	—	**0**	**72**	**14**	**14**	**0**	**.05**	**.12**	**.27**	**.26**	**.13**	**.09**	**.06**	**.04**
1972	392	0.0	—	0.0	—	**11**	**1**	**86**	**2**	**0**	**.05**	**.16**	**.38**	**.33**	**.20**	**.17**	**.11**	**.04**
1973	137	0.0	—	0.0	—	**19**	**60**	**2**	**19**	**0**	**.05**	**.13**	**.28**	**.27**	**.14**	**.10**	**.07**	**.04**
1974	388	0.0	—	0.0	—	**13**	**38**	**49**	**0**	**0**	.06	.24	.52	.00	.00	.25	.01	.00
1975	488	0.0	—	0.0	—	**0**	**42**	**52**	**7**	**0**	.06	.26	.49	.00	.00	.21	.00	.00
1976	229	0.0	—	0.0	—	**9**	**1**	**80**	**10**	**0**	**.05**	**.15**	**.35**	**.31**	**.19**	**.15**	**.10**	**.04**
1977	66	0.0	—	0.0	—	**14**	**59**	**4**	**22**	**0**	**.05**	**.15**	**.35**	**.31**	**.18**	**.15**	**.09**	**.04**
1978	140	0.0	—	0.0	—	**1**	**36**	**63**	**0**	**0**	**.05**	**.13**	**.30**	**.28**	.00	.01	.02	.00
1979	72	0.0	—	0.0	—	**30**	**3**	**57**	**10**	**0**	.03	.05	.35	.45	.00	.25	.31	.00
1980	57	0.0	—	0.0	—	**1**	**88**	**4**	**7**	**0**	.04	.16	.32	.28	.51	.07	.23	.00
1981	178	0.0	—	0.0	—	**3**	**2**	**95**	**0**	**0**	.04	.09	.30	.00	**.16**	**.12**	**.08**	**.04**
1982	20	0.0	—	0.0	—	**3**	**33**	**13**	**50**	**0**	.05	.12	.25	.43	.11	.20	.11	.00
1983	21	1.3	—	0.0	—	**21**	**15**	**62**	**2**	**0**	.06	.17	.26	.42	.42	.14	.12	.13
1984	7	6.5	—	0.0	—	**4**	**68**	**20**	**8**	**0**	.04	.08	.30	.45	.06	.12	.08	.00
1985	27	1.3	—	0.0	—	**18**	**11**	**69**	**2**	**0**	.06	.16	.27	.58	.18	.08	.09	.00
1986	6	31.3	—	0.0	—	**45**	**39**	**10**	**6**	**0**	.05	.12	.30	.53	.16	.18	.04	.25
1987	117	1.2	—	0.0	—	**1**	**72**	**26**	**1**	**0**	.04	.09	.24	.71	.34	.14	.01	.00
1988	127	4.0	—	0.0	—	**23**	**2**	**72**	**3**	**0**	.03	.07	.26	.27	.00	.11	.09	.00
1989	83	4.3	—	0.0	—	**13**	**75**	**3**	**10**	**0**	.06	.24	.33	.49	.90	.02	.03	.00
1990	275	0.9	—	0.0	—	**8**	**27**	**65**	**0**	**0**	.03	.07	.14	.66	.07	.00	.00	.00
1991	194	1.2	—	0.0	—	**16**	**32**	**42**	**10**	**0**	.06	.14	.19	.00	.06	.02	.00	.00
1992	406	39.0	1,606	0.0	—	**9**	**48**	**38**	**5**	**0**	.05	.15	.23	.09	.05	.09	.02	.00
1993	409	32.9	1,444	0.0	—	**8**	**27**	**61**	**5**	**0**	.05	.15	.27	.14	.01	.01	.01	.00
1994	392	53.3	2,033	0.0	—	**21**	**29**	**41**	**9**	**0**	.08	.12	.31	.00	.00	.00	.01	.00

Table 16 continued. Input data for the White Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**White River and Minter hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1995	605	49.6	1,982	0.0	11	15	52	29	4	0	.03	.03	.15	.08	.02	.02	.01	.00
1996	628	6.6	924	0.0	20	5	38	54	3	0	.04	.14	.16	.00	.00	.13	.00	.00
1997	402	8.0	822	0.0	35	16	17	59	8	0	.09	.13	.46	.00	.00	.02	.16	.50
1998	323	14.2	454	0.0	51	24	51	25	0	0	**.05**	**.11**	**.21**	**.22**	**.09**	**.05**	**.04**	**.04**
1999	556	8.6	429	0.0	—	**26**	**22**	**50**	**2**	**0**	**.05**	**.11**	**.23**	**.23**	**.10**	**.06**	**.04**	**.04**
2000	1,490	5.7	740	0.0	249	0	73	24	2	0	**.05**	**.12**	**.26**	**.25**	**.12**	**.08**	**.06**	**.04**
2001	2,103	5.4	814	0.0	302	1	4	93	2	0	**.05**	**.12**	**.26**	**.25**	**.12**	**.08**	**.06**	**.04**
2002	696	15.5	348	0.0	317	15	32	27	25	0	.02	.03	.09	.37	.03	.00	.02	.08
2003	1,426	18.3	671	0.0	193	4	39	56	1	0	.02	.04	.03	.00	.00	.00	.06	.00
2004	1,457	16.7	620	4.7	156	26	12	55	8	0	.04	.08	.05	**.19**	.01	.00	.05	**.04**
2005	1,756	26.5	1,639	2.6	143	5	28	53	14	0	.01	.03	**.06**	**.19**	.00	.00	**.04**	**.04**
2006	2,057	31.7	1,342	2.9	0	**14**	**38**	**44**	**4**	**0**	.00	**.05**	**.04**	**.12**	.07	**.00**	**.05**	**.03**
2007	4,431	37.8	1,842	4.2	0	**4**	**45**	**49**	**2**	**0**	—	—	—	—	—	—	—	—
2008	1,811	26.6	977	2.4	0	**11**	**16**	**67**	**7**	**0**	—	—	—	—	—	—	—	—
2009	787	27.2	945	2.1	0	**17**	**44**	**27**	**11**	**0**	—	—	—	—	—	—	—	—

Table 17. Input data for the Puyallup Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Voights and Diru creeks hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1966	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.45**	**.41**	**.63**	**.57**	**.55**	**.57**
1967	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.45**	**.41**	**.63**	**.57**	**.55**	**.57**
1968	890	**22.2**	901	**0**	—	**7**	**12**	**10**	**70**	**0**	**.09**	**.26**	**.44**	**.40**	**.62**	**.56**	**.54**	**.56**
1969	850	**16.2**	627	**0**	—	**5**	**53**	**39**	**1**	**2**	**.10**	**.28**	**.47**	**.42**	**.64**	**.58**	**.56**	**.58**
1970	5,110	**6.5**	1,519	**0**	—	**1**	**18**	**78**	**2**	**0**	**.10**	**.27**	**.45**	**.41**	**.63**	**.57**	**.55**	**.57**
1971	2,220	**5.3**	540	**0**	—	**1**	**14**	**73**	**13**	**0**	.08	.12	.38	.63	.00	.28	.67	.58
1972	925	**15.9**	672	**0**	—	**4**	**12**	**69**	**15**	**0**	.06	.32	.59	.41	.37	.69	.67	.67
1973	630	**8.6**	248	**0**	—	**4**	**40**	**45**	**11**	**0**	.15	.38	.41	.52	.17	.60	.37	.41
1974	1,480	**3.9**	260	**0**	—	**3**	**19**	**74**	**3**	**0**	.13	.31	.58	.41	.57	.42	.33	.25
1975	1,396	**8.4**	535	**0**	—	**0**	**25**	**64**	**10**	**0**	.12	.40	.52	.50	.62	.62	.23	.59
1976	1,120	**5.4**	274	**0**	—	**2**	**4**	**85**	**9**	**0**	**.11**	**.31**	**.52**	**.45**	**.63**	**.57**	**.54**	**.56**
1977	703	**58.6**	1,878	**0**	—	**8**	**40**	**27**	**25**	**0**	**.11**	**.31**	**.51**	**.45**	**.64**	**.58**	**.56**	**.57**
1978	962	**19.1**	837	**0**	—	**6**	**30**	**62**	**2**	**0**	.14	.33	.50	.45	.84	.52	.63	.76
1979	2,359	**23.8**	2,553	**0**	—	**0**	**31**	**64**	**5**	**0**	.10	.32	.51	.48	.90	.74	.65	.59
1980	2,553	**20.2**	2,344	**0**	—	**2**	**0**	**91**	**8**	**0**	.15	.41	.48	.76	.90	.70	.80	.78
1981	518	**95.9**	2,264	**0**	—	**6**	**48**	**2**	**44**	**1**	.19	.42	.43	.56	.74	.50	.57	.43
1982	851	**28.3**	1,096	**0**	—	**4**	**22**	**73**	**0**	**0**	.08	.26	.51	.53	.11	.67	.06	.00
1983	1,184	**36.3**	1,959	**0**	—	**3**	**28**	**61**	**8**	**0**	.12	.27	.34	.00	.83	.20	.13	.20
1984	1,258	**14.1**	807	**0**	—	**2**	**20**	**72**	**6**	**0**	.11	.26	.53	.31	.52	.31	.23	.30
1985	1,147	**27.5**	1,438	**0**	—	**3**	**13**	**73**	**10**	**0**	.05	.19	.31	.53	.60	.34	.31	.28
1986	740	**29.0**	977	**0**	—	**4**	**27**	**56**	**12**	**0**	.09	.23	.48	.45	.69	.47	.53	.60
1987	925	**18.5**	780	**0**	—	**5**	**24**	**66**	**6**	**0**	.08	.30	.37	.46	.64	.28	.46	.75
1988	1,332	**18.6**	1,128	**0**	—	**5**	**28**	**61**	**7**	**0**	.09	.21	.50	.45	.88	.45	.55	.69
1989	2,442	**6.8**	762	**0**	—	**2**	**28**	**64**	**6**	**0**	.06	.29	.46	.19	.55	.39	.42	.00
1990	3,515	**10.3**	1,651	**0**	—	**4**	**11**	**78**	**7**	**0**	.08	.30	.23	.23	.57	.28	.33	.11
1991	1,702	**16.4**	1,273	**0**	—	**2**	**39**	**46**	**14**	**0**	.06	.17	.30	.00	.48	.20	.17	.46
1992	3,034	**12.4**	1,718	**0**	49	4	4	92	0	0	.05	.14	.23	.18	.11	.05	.11	.03
1993	1,999	**17.0**	1,546	**0**	55	4	29	53	15	0	.08	.18	.26	.10	.11	.07	.03	.27
1994	2,526	**22.0**	2,533	**0**	167	2	10	87	2	0	.05	.13	.14	.24	.04	.08	.12	.20
1995	2,701	**16.4**	2,023	**0**	136	3	40	48	9	0	.03	.06	.25	.35	.25	.08	.22	.50
1996	2,444	**22.4**	2,499	**0**	217	2	17	79	2	0	.03	.10	.27	.16	.06	.10	.23	.18
1997	1,554	**48.5**	3,434	**0**	35	**4**	**29**	**49**	**18**	**0**	.03	.11	.33	.12	.04	.12	.19	.41

Table 17 continued. Input data for the Puyallup Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Voights and Diru creeks hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1998	3,071	**24.9**	3,484	**0**	109	1	25	55	19	0	.06	.16	.34	.38	.07	.17	.35	.34
1999	1,988	**38.2**	3,464	**0**	94	3	18	65	13	1	.06	.14	.36	.30	.12	.13	.25	.43
2000	1,193	**34.0**	1,850	**0**	68	4	28	59	9	0	.06	.14	.47	.27	.09	.19	.34	.15
2001	1,915	**29.5**	2,576	**0**	—	**2**	**21**	**71**	**6**	**0**	.05	.20	.41	.51	.05	.13	.11	.46
2002	1,807	**35.8**	2,948	**0**	0	**4**	**18**	**69**	**10**	**0**	.05	.17	.37	.27	.07	.11	.34	.34
2003	1,547	**28.3**	1,997	**0**	0	**1**	**30**	**59**	**9**	**0**	.05	.19	.34	.53	.05	.13	.32	.50
2004	1,843	**24.6**	2,066	**0**	0	**3**	**7**	**83**	**7**	**0**	.08	.30	.30	**.44**	.08	.23	.34	**.43**
2005	1,063	**49.8**	2,414	**0**	0	**3**	**37**	**41**	**19**	**0**	.03	.12	**.33**	**.41**	.03	.22	**.34**	**.43**
2006	2,232	55.0	3,887	**0**	0	**4**	**15**	**77**	**3**	**0**	.00	**.20**	**.32**	**.46**	.12	**.19**	**.33**	**.45**
2007	2,932	72.4	4,097	**0**	0	**2**	**31**	**56**	**11**	**0**	—	—	—	—	—	—	—	—
2008	2,725	**59.1**	2,542	**0**	0	**2**	**12**	**80**	**6**	**0**	—	—	—	—	—	—	—	—
2009	1,526	**62.2**	3,509	**0**	0	**4**	**27**	**54**	**15**	**0**	—	—	—	—	—	—	—	—

Table 18. Input data for the Nisqually Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Nisqually Kalama and Clear Creek hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1966	—	—	—	—	—	—	—	—	—	—	**.13**	**.31**	**.55**	**.37**	**.84**	**.88**	**.80**	**.49**
1967	—	—	—	—	—	—	—	—	—	—	**.13**	**.31**	**.55**	**.38**	**.84**	**.88**	**.80**	**.49**
1968	600	0.0	—	**0**	—	**3**	**11**	**85**	**2**	**0**	**.12**	**.30**	**.53**	**.38**	**.82**	**.87**	**.80**	**.49**
1969	300	0.0	—	**0**	—	**6**	**59**	**18**	**16**	**0**	**.13**	**.31**	**.55**	**.37**	**.86**	**.89**	**.81**	**.49**
1970	900	0.0	—	**0**	—	**1**	**58**	**39**	**1**	**0**	**.13**	**.31**	**.54**	**.38**	**.83**	**.88**	**.80**	**.49**
1971	800	0.0	—	**0**	—	**4**	**21**	**70**	**5**	**0**	**.12**	**.30**	**.52**	**.38**	**.78**	**.85**	**.78**	**.49**
1972	700	0.0	—	**0**	—	**1**	**62**	**27**	**10**	**0**	**.14**	**.33**	**.58**	**.37**	**.90**	**.90**	**.85**	**.49**
1973	700	0.0	—	**0**	—	**3**	**23**	**71**	**3**	**0**	**.13**	**.31**	**.55**	**.38**	**.76**	**.84**	**.77**	**.49**
1974	500	0.0	—	**0**	—	**2**	**55**	**32**	**11**	**0**	**.14**	**.32**	**.58**	**.37**	**.73**	**.83**	**.76**	**.49**
1975	550	0.0	—	**0**	—	**3**	**33**	**60**	**4**	**0**	**.14**	**.33**	**.59**	**.37**	**.73**	**.83**	**.76**	**.49**
1976	450	0.0	—	**0**	—	**0**	**46**	**45**	**9**	**0**	**.13**	**.32**	**.56**	**.37**	**.83**	**.87**	**.80**	**.49**
1977	220	0.0	—	**0**	—	**5**	**2**	**84**	**9**	**0**	**.13**	**.32**	**.57**	**.37**	**.85**	**.88**	**.81**	**.49**
1978	178	0.0	—	**0**	—	**10**	**79**	**2**	**10**	**0**	**.14**	**.33**	**.58**	**.37**	**.90**	**.90**	**.87**	**.49**
1979	1,665	0.0	—	**0**	—	**1**	**62**	**37**	**0**	**0**	.11	.33	.87	.56	.90	.90	.51	.83
1980	1,124	0.0	—	**0**	—	**2**	**11**	**82**	**5**	**0**	.08	.35	.61	.00	.90	.90	.90	.71
1981	439	0.0	—	**0**	—	**6**	**51**	**23**	**20**	**0**	.46	.57	.64	.00	.90	.83	.90	.00
1982	848	15.3	28	**0**	—	**3**	**57**	**38**	**2**	**0**	.08	.21	.24	.90	.88	.90	.63	.00
1983	1,066	0.3	223	**0**	—	**0**	**36**	**59**	**4**	**0**	.15	.29	.35	.00	.76	.75	.90	.00
1984	313	23.8	163	**0**	—	**3**	**2**	**81**	**15**	**0**	.10	.24	.44	.34	.00	.90	.59	.90
1985	112	10.0	50	**0**	—	**2**	**78**	**3**	**17**	**0**	.08	.22	.33	.75	.35	.40	.77	.75
1986	302	22.5	233	**0**	—	**0**	**25**	**75**	**0**	**0**	.07	.22	.50	.65	.42	.89	.82	.50
1987	85	20.1	117	**0**	—	**26**	**11**	**47**	**16**	**0**	.08	.30	.50	.00	.13	.90	.74	.00
1988	1,342	8.8	738	**0**	—	**0**	**96**	**3**	**1**	**0**	.07	.23	.67	.34	.90	.74	.17	.75
1989	2,332	23.4	794	**0**	—	**3**	**0**	**96**	**0**	**0**	.07	.31	.61	.90	.07	.68	.75	.00
1990	994	28.2	700	**0**	—	**0**	**81**	**1**	**18**	**0**	.09	.31	.26	.44	.35	.56	.54	.63
1991	953	21.9	201	**0**	—	**2**	**7**	**91**	**0**	**0**	.06	.21	.29	.37	.15	.45	.54	.67
1992	106	27.0	325	**0**	—	**10**	**55**	**14**	**21**	**0**	.13	.31	.25	.80	.24	.58	.63	.20
1993	1,655	15.5	1,370	**0**	—	**1**	**70**	**28**	**1**	**0**	.11	.27	.40	.00	.08	.60	.36	.67
1994	1,730	15.6	2,104	**0**	—	**3**	**14**	**79**	**4**	**0**	.06	.22	.26	.50	.06	.58	.67	.71
1995	817	26.0	3,623	**0**	21	5	67	24	5	0	.04	.10	.29	.00	.05	.55	.70	.71
1996	606	24.0	2,701	**0**	—	**3**	**12**	**82**	**3**	**0**	.10	.24	.41	.77	.33	.64	.75	.57

Table 18 continued. Input data for the Nisqually Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Nisqually Kalama and Clear Creek hatcheries**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1997	340	7.5	3,251	**0**	—	**2**	**64**	**19**	**15**	**0**	.06	.10	.43	.78	.05	.84	.49	.67
1998	834	18.6	4,067	**0**	28	7	36	50	7	0	.06	.17	.29	.39	.90	.48	.65	.48
1999	1,399	24.0	13,481	**0**	23	0	83	17	0	0	.05	.10	.29	.48	.09	.63	.67	.29
2000	1,253	24.0	4,918	**0**	37	0	5	95	0	0	.05	.11	.30	.30	.30	.63	.56	.26
2001	1,079	30.1	7,612	**0**	—	**3**	**69**	**11**	**17**	**0**	.04	.15	.30	.00	.19	.53	.21	.50
2002	1,542	37.5	9,341	**0**	3	**4**	**38**	**58**	**1**	**0**	.06	.14	.28	.21	.12	.18	.63	.47
2003	627	17.8	7,697	**0**	222	2	32	55	11	0	.05	.15	.32	.57	.11	.63	.60	.67
2004	2,788	48.3	8,225	**0**	124	0	15	77	7	0	.02	.12	.42	**.26**	.09	.54	.84	**.55**
2005	2,159	53.0	12,470	**0**	150	5	57	25	14	0	.01	.04	**.34**	**.35**	.01	.07	**.69**	**.56**
2006	2,179	79.0	10,535	**0**	0	**3**	**20**	**73**	**4**	**0**	.00	**.10**	**.36**	**.39**	.00	**.41**	**.71**	**.59**
2007	1,743	75.0	15,497	**0**	0	**3**	**59**	**27**	**11**	**0**	—	—	—	—	—	—	—	—
2008	3,398	64.4	4,285	**0**	0	**2**	**36**	**59**	**3**	**0**	—	—	—	—	—	—	—	—
2009	870	**72.8**	10,106	**0**	0	**3**	**39**	**49**	**9**	**0**	—	—	—	—	—	—	—	—

Table 19. Input data for the Skokomish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**George Adams**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1966	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.52**	**.42**	**.59**	**.74**	**.72**	**.50**
1967	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.52**	**.42**	**.58**	**.72**	**.71**	**.49**
1968	2,407	**56.1**	—	**0**	—	**2**	**61**	**35**	**2**	**0**	**.09**	**.26**	**.50**	**.42**	**.55**	**.69**	**.68**	**.47**
1969	1,700	**56.1**	—	**0**	—	**19**	**7**	**73**	**2**	**0**	**.10**	**.28**	**.54**	**.42**	**.59**	**.73**	**.72**	**.49**
1970	2,100	**56.1**	—	**0**	—	**0**	**86**	**10**	**4**	**0**	**.09**	**.27**	**.52**	**.42**	**.57**	**.71**	**.70**	**.48**
1971	2,666	**56.1**	—	**0**	—	**13**	**0**	**86**	**0**	**0**	**.08**	**.24**	**.45**	**.41**	**.53**	**.67**	**.66**	**.45**
1972	1,066	**56.1**	—	**0**	—	**0**	**91**	**1**	**7**	**0**	.09	.40	.55	.00	.00	.85	.85	.85
1973	1,572	**56.1**	—	**0**	—	**15**	**1**	**83**	**0**	**0**	**.08**	**.25**	**.48**	**.41**	**.58**	**.72**	**.71**	**.49**
1974	674	**56.1**	—	**0**	—	**3**	**89**	**2**	**6**	**0**	.11	.32	.67	.53	.85	.85	.85	.85
1975	1,673	**56.1**	—	**0**	—	**14**	**8**	**77**	**0**	**0**	.12	.45	.60	.63	.85	.85	.84	.83
1976	1,134	**56.1**	—	**0**	—	**2**	**78**	**14**	**5**	**0**	**.11**	**.31**	**.59**	**.43**	**.62**	**.76**	**.75**	**.52**
1977	1,427	**56.1**	—	**0**	—	**10**	**8**	**82**	**1**	**0**	**.10**	**.31**	**.59**	**.43**	**.64**	**.79**	**.77**	**.53**
1978	164	**56.1**	—	**0**	—	**13**	**64**	**16**	**7**	**0**	.15	.29	.35	.57	.62	.64	.62	.36
1979	1,251	**56.1**	—	**0**	—	**0**	**40**	**59**	**1**	**0**	.14	.25	.58	.33	.85	.80	.85	.85
1980	479	**56.1**	—	**0**	—	**1**	**2**	**92**	**6**	**0**	.17	.45	.34	.00	.64	.82	.77	.00
1981	117	**56.1**	—	**0**	—	**65**	**8**	**9**	**18**	**0**	.14	.41	.46	.85	.60	.66	.63	.00
1982	248	**56.1**	—	**0**	—	**20**	**77**	**3**	**0**	**0**	**.09**	**.27**	**.51**	**.42**	**.52**	**.66**	**.65**	**.45**
1983	1,007	**56.1**	—	**0**	—	**13**	**39**	**48**	**0**	**0**	**.08**	**.23**	**.43**	**.40**	**.44**	**.57**	**.57**	**.39**
1984	1,394	**56.1**	—	**0**	—	**15**	**43**	**41**	**2**	**0**	**.09**	**.26**	**.49**	**.42**	**.54**	**.69**	**.68**	**.47**
1985	2,974	**56.1**	—	**0**	—	**7**	**48**	**43**	**2**	**0**	.07	.24	.43	.74	.76	.68	.85	.81
1986	2,643	**56.1**	—	**0**	—	**11**	**26**	**60**	**2**	**0**	.07	.26	.55	.36	.64	.85	.82	.82
1987	2,112	**56.1**	3,337	**0**	—	**12**	**49**	**36**	**3**	**0**	.10	.33	.53	.79	.50	.83	.69	.45
1988	2,666	19.0	4,930	**0**	—	**1**	**44**	**54**	**2**	**0**	.08	.21	.74	.85	.66	.82	.74	.00
1989	1,204	52.1	2,556	**0**	—	**13**	**4**	**79**	**4**	**0**	.07	.30	.80	.00	.26	.35	.28	.00
1990	642	**56.1**	2,186	**0**	—	**12**	**75**	**8**	**6**	**0**	.18	.50	.04	.00	.00	.00	.00	.00
1991	1,719	**56.1**	3,068	**0**	—	**9**	**30**	**60**	**0**	**0**	.06	.10	.43	.00	.06	.40	.00	.00
1992	825	**56.1**	294	**0**	20	**9**	**43**	**44**	**4**	**0**	.04	.20	.38	.17	.02	.16	.00	.00
1993	960	26.4	612	**0**	97	12	33	46	8	0	.07	.16	.36	.38	.03	.00	.02	.00
1994	657	45.2	495	**0**	31	**10**	**41**	**46**	**3**	**0**	.03	.05	.15	.57	.03	.00	.11	.00
1995	1,398	**56.1**	5,196	**0**	30	**6**	**41**	**51**	**2**	**0**	.03	.05	.22	.70	.02	.03	.12	.00
1996	995	**56.1**	3,100	**0**	9	**4**	**29**	**63**	**3**	**0**	.06	.18	.54	.39	.03	.05	.25	.00
1997	452	**56.1**	1,885	**0**	1	**18**	**24**	**54**	**5**	**0**	.03	.08	.50	.14	.06	.43	.23	.85
1998	1,177	54.2	5,584	**0**	74	39	47	12	1	0	.04	.16	.30	.34	.08	.21	.41	.41

Table 19 continued. Input data for the Skokomish Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**George Adams**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1999	1,692	77.4	8,227	**0**	109	3	72	26	0	0	.03	.12	.38	.54	.07	.20	.39	.14
2000	926	77.1	4,033	**0**	52	15	12	71	2	0	.03	.05	.44	.53	.07	.25	.29	.28
2001	1,913	94.5	8,816	**0**	70	1	60	37	1	0	.04	.15	.48	.84	.33	.23	.28	.50
2002	1,479	7.4	8,834	**0**	73	1	33	62	4	0	.05	.27	.43	.34	.07	.21	.29	.00
2003	1,125	23.6	10,034	**0**	76	0	26	72	1	0	.06	.13	.42	.00	.06	.21	.50	.00
2004	2,398	68.8	12,278	**0**	57	2	30	67	2	0	.07	.31	.40	**.39**	.27	.54	.31	**.17**
2005	2,032	78.7	16,018	**0**	240	1	49	45	5	0	.04	.11	**.42**	**.24**	.07	.22	**.37**	**.06**
2006	1,209	59.3	12,356	**0**	213	14	17	67	2	0	.01	**.18**	**.41**	**.21**	.01	**.32**	**.39**	**.07**
2007	531	21.0	13,720	**0**	64	17	27	56	0	0	—	—	—	—	—	—	—	—
2008	1,209	55.0	13,695	**0**	29	**11**	**49**	**39**	**2**	**0**	—	—	—	—	—	—	—	—
2009	1,066	62.0	13,257	**0**	33	**5**	**38**	**55**	**2**	**0**	—	—	—	—	—	—	—	—

Table 20. Input data for the Mid Hood Canal Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Hoodsport**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1966	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.52**	**.43**	**.63**	**.78**	**.76**	**.54**
1967	—	—	—	—	—	—	—	—	—	—	**.09**	**.27**	**.52**	**.43**	**.61**	**.76**	**.75**	**.53**
1968	827	**38.7**	—	—	—	**7**	**35**	**55**	**3**	**0**	**.09**	**.26**	**.50**	**.43**	**.58**	**.73**	**.71**	**.51**
1969	774	**30.5**	—	—	—	**11**	**27**	**56**	**5**	**0**	**.10**	**.28**	**.54**	**.43**	**.62**	**.77**	**.75**	**.53**
1970	1,127	**20.6**	—	—	—	**3**	**47**	**45**	**5**	**0**	**.09**	**.27**	**.52**	**.43**	**.61**	**.75**	**.74**	**.52**
1971	1,204	**26.9**	—	—	—	**10**	**11**	**75**	**4**	**0**	**.08**	**.24**	**.45**	**.41**	**.56**	**.71**	**.69**	**.49**
1972	548	**23.4**	—	—	—	**0**	**63**	**26**	**11**	**0**	.09	.40	.55	.00	.00	.95	.95	.95
1973	808	**23.0**	—	—	—	**12**	**2**	**85**	**2**	**0**	**.08**	**.25**	**.48**	**.42**	**.61**	**.76**	**.75**	**.53**
1974	346	**22.6**	—	—	—	**0**	**82**	**5**	**14**	**0**	.11	.32	.67	.53	.95	.95	.91	.95
1975	859	**22.2**	—	—	—	**10**	**1**	**89**	**0**	**0**	.12	.45	.60	.63	.95	.89	.84	.83
1976	345	**51.1**	—	—	—	**1**	**81**	**2**	**16**	**0**	**.11**	**.31**	**.59**	**.45**	**.65**	**.81**	**.79**	**.56**
1977	668	**32.6**	—	—	—	**9**	**2**	**89**	**0**	**0**	**.10**	**.31**	**.59**	**.45**	**.68**	**.83**	**.81**	**.57**
1978	52	**46.6**	—	—	—	**8**	**71**	**6**	**16**	**0**	.15	.29	.35	.57	.62	.64	.62	.36
1979	638	**28.8**	—	—	—	**5**	**21**	**73**	**0**	**0**	.14	.25	.58	.33	.91	.80	.90	.95
1980	244	**28.2**	—	—	—	**0**	**36**	**53**	**11**	**0**	.17	.45	.34	.00	.64	.82	.77	.00
1981	146	**11.3**	—	—	—	**17**	**2**	**75**	**7**	**0**	.14	.41	.46	.89	.60	.66	.63	.00
1982	127	**27.0**	—	—	—	**6**	**82**	**4**	**8**	**0**	**.09**	**.27**	**.51**	**.43**	**.56**	**.70**	**.69**	**.49**
1983	513	**26.7**	—	—	—	**15**	**13**	**72**	**0**	**0**	**.08**	**.23**	**.43**	**.41**	**.46**	**.60**	**.59**	**.43**
1984	710	**26.0**	—	—	—	**0**	**69**	**24**	**8**	**0**	**.09**	**.26**	**.49**	**.42**	**.58**	**.72**	**.71**	**.50**
1985	1,516	**25.5**	—	—	—	**2**	**1**	**95**	**2**	**0**	.07	.24	.43	.74	.76	.68	.87	.81
1986	**41**	**29.5**	—	—	—	**8**	**45**	**6**	**42**	**0**	.07	.26	.55	.36	.64	.85	.82	.82
1987	97	**12.1**	—	—	—	**13**	**27**	**59**	**0**	**0**	.10	.33	.53	.79	.50	.83	.69	.45
1988	127	**28.5**	—	—	—	**1**	**51**	**42**	**5**	**0**	.08	.21	.74	.95	.66	.82	.74	.00
1989	113	**12.3**	—	—	—	**4**	**6**	**85**	**4**	**0**	.07	.30	.80	.00	.26	.35	.28	.00
1990	46	**39.7**	—	—	—	**18**	**41**	**23**	**18**	**0**	.18	.50	.04	.00	.33	.46	.46	.34
1991	86	**17.8**	—	—	—	**1**	**52**	**45**	**1**	**0**	.06	.10	.43	.00	.06	.40	.00	.00
1992	96	**26.9**	—	—	—	**22**	**3**	**71**	**4**	**0**	.04	.20	.38	.17	.02	.16	.00	.00
1993	112	**12.1**	—	—	—	**8**	**81**	**5**	**6**	**0**	.07	.16	.36	.38	.03	.00	.02	.00
1994	384	**9.6**	—	—	—	**0**	**21**	**79**	**0**	**0**	.03	.05	.15	.57	.03	.00	.11	.00
1995	103	**11.1**	—	—	—	**13**	**3**	**68**	**15**	**0**	.03	.05	.22	.70	.02	.03	.12	.00
1996	**38**	**13.0**	—	—	—	**5**	**78**	**7**	**9**	**0**	.06	.18	.54	.39	.03	.05	.25	.00
1997	**175**	**9.4**	—	—	—	**17**	**12**	**70**	**0**	**0**	.03	.08	.50	.14	.06	.43	.23	.90
1998	287	**25.2**	—	—	—	**6**	**69**	**19**	**6**	**0**	.04	.16	.30	.34	.08	.21	.41	.41

Table 20 continued. Input data for the Mid Hood Canal Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Hoodsport**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1999	873	**21.1**	—	—	—	**7**	**17**	**75**	**1**	**0**	.03	.12	.38	.54	.07	.20	.39	.14
2000	438	**34.4**	—	—	—	**2**	**44**	**44**	**11**	**0**	.03	.05	.44	.53	.07	.25	.29	.28
2001	322	**29.5**	—	—	—	**6**	**8**	**81**	**5**	**0**	.04	.15	.48	.84	.33	.23	.28	.50
2002	95	**12.5**	—	—	—	**11**	**51**	**24**	**15**	**0**	.05	.27	.43	.34	.07	.21	.29	.00
2003	194	**17.5**	—	—	—	**3**	**34**	**61**	**2**	**0**	.06	.13	.42	.00	.06	.21	.50	.00
2004	129	**13.1**	—	—	—	**3**	**15**	**74**	**8**	**0**	.07	.31	.40	**.39**	.27	.54	.31	**.17**
2005	45	2.4	—	—	—	**2**	**28**	**54**	**16**	**0**	.04	.11	**.42**	**.24**	.07	.22	**.37**	**.06**
2006	30	14.5	—	—	—	**27**	**9**	**57**	**7**	**0**	.01	**.18**	**.41**	**.21**	.01	**.32**	**.39**	**.07**
2007	73	41.4	—	—	—	**4**	**83**	**10**	**4**	**0**	—	—	—	—	—	—	—	—
2008	273	60.4	—	—	—	**3**	**10**	**87**	**1**	**0**	—	—	—	—	—	—	—	—
2009	130	76.7	—	—	—	**17**	**30**	**35**	**18**	**0**	—	—	—	—	—	—	—	—

Table 21. Input data for the Dungeness Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		**Dungeness Hatchery (with Hurd Ck satellite)**		**Age distribution of NOR spawners by percent**						**Mixed maturity fishing rate**				**Mature fishing rate**			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	—	—	—	—	—	—	—	—	—	—	.09	.24	.34	.36	.00	.47	.26	.27
1985	—	—	—	—	—	—	—	—	—	—	.07	.20	.36	.31	.80	.23	.19	.00
1986	238	**82.5**	—	—	—	—	—	—	—	—	.06	.15	.31	.44	.37	.07	.09	.04
1987	100	**82.5**	—	—	13	**0**	**26**	**35**	**38**	**2**	.04	.10	.24	.36	.80	.11	.03	.01
1988	335	**82.5**	—	—	16	**0**	**5**	**84**	**11**	**0**	.07	.26	.80	.00	.37	.21	.13	.09
1989	88	**82.5**	—	—	13	**0**	**14**	**30**	**55**	**0**	.06	.15	.30	.70	.80	.04	.09	.06
1990	310	**82.5**	—	—	22	**0**	**2**	**80**	**17**	**1**	.08	.16	.16	.30	.00	.04	.03	.00
1991	163	**82.5**	—	—	19	**0**	**12**	**19**	**68**	**1**	.02	.07	.15	.18	.00	.00	.00	.00
1992	153	**82.5**	—	—	6	**0**	**4**	**82**	**12**	**2**	.03	.08	.09	.20	.00	.00	.00	.00
1993	43	**82.5**	—	—	3	**0**	**5**	**32**	**63**	**0**	.03	.05	.14	.23	.04	.01	.00	.00
1994	65	**82.5**	—	—	—	**0**	**26**	**44**	**28**	**2**	.02	.04	.10	.15	.24	.00	.00	.00
1995	163	**82.5**	—	—	39	**0**	**10**	**77**	**13**	**0**	.01	.02	.16	.10	.21	.07	.05	.04
1996	183	**82.5**	—	—	12	**0**	**4**	**54**	**42**	**0**	.01	.03	.10	.22	.17	.03	.04	.03
1997	50	**82.5**	—	—	14	**0**	**14**	**33**	**51**	**1**	.02	.01	.10	.52	.23	.08	.06	.05
1998	110	**82.5**	—	—	11	**0**	**5**	**76**	**18**	**1**	.02	.03	.17	.32	.25	.10	.07	.05
1999	75	**82.5**	—	—	0	**0**	**25**	**29**	**46**	**0**	.02	.02	.08	.35	.31	.16	.10	.07
2000	218	**82.5**	—	—	0	**0**	**2**	**87**	**10**	**1**	.01	.01	.14	.32	.26	.11	.08	.06
2001	453	96.2	—	—	0	**0**	**30**	**14**	**56**	**0**	.03	.04	.27	.80	.19	.05	.04	.03
2002	633	81.8	—	—	0	**0**	**6**	**90**	**4**	**1**	.02	.04	.19	.22	.37	.21	.13	.09
2003	640	80.8	—	—	—	**0**	**16**	**32**	**52**	**0**	.05	.08	.43	.80	.20	.06	.05	.04
2004	953	79.7	—	—	—	**0**	**8**	**76**	**15**	**1**	.02	.07	.35	**.67**	.21	.06	.05	**.04**
2005	955	68.2	—	—	—	**0**	**11**	**45**	**44**	**0**	.00	.03	**.32**	**.58**	.21	.07	**.05**	**.04**
2006	1,405	79.1	—	—	0	**0**	**6**	**66**	**27**	**1**	.00	**.06**	**.37**	**.70**	.22	**.07**	**.06**	**.04**
2007	305	52.1	—	—	0	**0**	**8**	**44**	**48**	**1**	—	—	—	—	—	—	—	—
2008	140	38.6	—	—	0	**0**	**10**	**56**	**33**	**1**	—	—	—	—	—	—	—	—
2009	220	**56.6**	—	—	0	**0**	**10**	**57**	**32**	**1**	—	—	—	—	—	—	—	—

Table 22. Input data for the Elwha Chinook salmon population. Numbers in normal font indicate provided estimates and numbers in boldface indicate missing data estimated for the 5-year status analyses. NOR = natural-origin return.

	Escapement		Elwha Hatchery (tribal), Elwha Facility (state)		Age distribution of NOR spawners by percent						Mixed maturity fishing rate				Mature fishing rate			
CY/ BY	Spawning grounds	% hat'y	Return	% NOR	Sample size	Age 2	Age 3	Age 4	Age 5	Age 6	Age 2	Age 3	Age 4	Age 5	Age 2	Age 3	Age 4	Age 5
1984	—	—	—	—	—	—	—	—	—	—	.07	.20	.36	.31	.70	.23	.19	.00
1985	—	—	—	—	—	—	—	—	—	—	.06	.15	.31	.44	.37	.07	.09	.04
1986	855	**52.3**	1,790	**13.5**	—	**4**	**18**	**48**	**29**	**1**	.04	.10	.24	.36	.70	.11	.03	.01
1987	1,642	**52.3**	2,421	**22.4**	—	**2**	**21**	**60**	**17**	**0**	.07	.26	.70	.00	.37	.18	.10	.06
1988	5,228	**52.3**	2,595	**9.3**	—	**2**	**10**	**68**	**20**	**0**	.06	.15	.30	.70	.70	.04	.09	.06
1989	3,035	**52.3**	2,040	**21.2**	383	1	13	53	33	1	.08	.16	.16	.30	.00	.04	.03	.00
1990	1,644	53.8	1,472	27.8	594	1	9	70	20	1	.02	.07	.15	.18	.00	.00	.00	.00
1991	1,467	37.2	1,827	29.4	—	**1**	**14**	**56**	**29**	**1**	.03	.08	.09	.20	.00	.00	.00	.00
1992	479	27.5	769	63.4	243	1	7	72	18	1	.03	.05	.14	.23	.04	.01	.00	.00
1993	633	31.2	936	56.7	225	0	16	24	59	0	.02	.04	.10	.15	.24	.00	.00	.00
1994	163	27.2	1,114	49.0	199	1	8	81	10	1	.01	.02	.16	.10	.09	.00	.00	.00
1995	524	50.0	663	39.1	277	3	8	54	35	0	.01	.03	.10	.22	.19	.07	.03	.02
1996	364	55.8	1,391	37.4	117	3	43	31	24	0	.02	.01	.10	.52	.15	.04	.02	.01
1997	1,578	53.6	942	30.7	107	0	12	78	10	0	.02	.03	.17	.32	.21	.08	.04	.02
1998	720	85.8	1,689	13.1	177	1	7	62	30	1	.02	.02	.08	.35	.22	.09	.05	.03
1999	903	51.0	722	**41.3**	—	**3**	**4**	**77**	**16**	**1**	.01	.01	.14	.32	.29	.13	.07	.04
2000	715	75.1	1,198	**21.3**	—	**2**	**27**	**22**	**49**	**0**	.03	.04	.27	.70	.24	.10	.05	.03
2001	655	31.3	1,591	**60.2**	—	**1**	**10**	**82**	**7**	**1**	.02	.04	.19	.22	.17	.05	.02	.01
2002	863	62.0	1,553	**26.4**	—	**4**	**4**	**49**	**43**	**0**	.05	.08	.43	.70	.34	.17	.09	.05
2003	464	27.0	1,840	**23.1**	—	**2**	**38**	**26**	**33**	**1**	.02	.07	.35	.70	.18	.06	.03	.02
2004	920	**35.9**	2,521	**29.3**	—	**1**	**7**	**86**	**6**	**0**	.00	.03	.21	**.62**	.18	.06	.03	**.02**
2005	723	50.9	2,801	**24.6**	—	**1**	**10**	**38**	**51**	**0**	.00	.00	**.33**	**.70**	.19	.07	**.03**	**.02**
2006	478	58.9	1,455	**34.7**	—	**1**	**8**	**65**	**25**	**1**	.00	**.04**	**.30**	**.70**	.20	**.07**	**.03**	**.02**
2007	398	75.3	757	**18.7**	342	**7**	**20**	**63**	**8**	**1**	—	—	—	—	—	—	—	—
2008	502	70.8	667	**25.3**	105	**5**	**56**	**30**	**10**	**0**	—	—	—	—	—	—	—	—
2009	912	76.8	1,304	**18.6**	0	**2**	**7**	**78**	**13**	**0**	—	—	—	—	—	—	—	—

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