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by

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Keywords: hatchery, wild, salmon, abundance, biomass, North Pacific

Abstract

This report provides provisional abundance estimates for pink, chum, and sockeye salmon in major regions of the North Pacific from 1952 through 2015 in terms of: numbers of natural-origin and hatchery-origin salmon returns (i.e., catch plus escapement), numbers and biomass (metric tonnes) of total returns (natural-origin and hatchery-origin), as well as biomass expanded to include immature salmon remaining at sea. Estimates in this report update and replace those published previously. Data quality and methodology, which vary among regions and years, are briefly discussed. Temporal abundance patterns generally follow commercial catch patterns documented elsewhere. Results suggest that the proportion of hatchery-origin chum salmon abundance peaked in the late 1990's at ~70%, and is currently ~45%. Hatchery-origin pink and sockeye salmon currently constitute ~19% and ~4% of the total returns for these species, respectively. Total adult abundance and biomass peaked in 2009 (910 million pink, chum, and sockeye salmon; 1.7 million metric tonnes); when immature salmon were included, total biomass exceeded 5 million metric tonnes in 2009 and again in 2013. We encourage experts within NPAFC member nations to examine these data and the methods used to generate them with a view to generating revised estimates. In the future, it would be useful to report on these data types annually and provide data in a publicly accessible website.

Introduction

Salmon in the North Pacific are at near all-time high abundance levels, due to a combination of generally favourable climate conditions, and large releases of hatchery origin salmon. Recent evidence that salmon from different regions and origins (i.e., hatchery and wild) compete with each other for a common pool of prey resources in the North Pacific Ocean has highlighted the need for better estimates of total abundance of the major species separated into wild and hatchery-origin fish.

In the past, various researchers combined catch and spawner escapement data to develop abundance estimates for hatchery-origin and wild pink, chum, and sockeye salmon. For instance Eggers (2009) reconstructed terminal runs and biomass estimates. He fit age-structure models to hatchery release and wild smolt outmigration data sets to estimate brood-year specific rates of natural mortality, growth, and maturation, and ultimately total biomass for both hatchery and wild fish. Fukuwaka et al. (2010) also used an age-structure approach in conjunction with results from genetic stock identification studies to estimate the biomass of immature chum salmon in the Bering Sea. Morita et al. (2006) and Ohnuki et al. (2015) estimated the proportion of hatchery-origin Japanese pink salmon.

In a series of publications, Kaeriyama and colleagues investigated North Pacific carrying capacity issues that required estimates of biomass. Kaeriyama et al. (2009) used location specific

exploitation rates to expand catch estimates into run sizes. Run size estimates for particular hatchery populations were used to partition total run size estimates into hatchery and wild components. Kaeriyama et al. (2012) estimated that the biomass contributed by hatcheries amounted to 50% for chum salmon, more than 10% for pink salmon, and less than 10% for sockeye salmon. Also working with pink, chum, and sockeye salmon, Ruggerone et al. (2010a) compiled data on catches, spawner abundances, harvest rates, and abundances of wild and hatchery salmon for various areas within the North Pacific.

A different approach is used by Canada and the USA under the Pacific Salmon Treaty. These countries collaboratively developed a joint model to assess stock-specific catch (hatchery & wild separately) of coho salmon based on an intensive historic tagging and tag recovery program. Both countries release hatchery coho salmon with coded-wire-tags (CWT). This method assumes hatchery releases have the same life history and distribution as wild fish; tagged hatchery salmon act as indicators of wild fish from the same location. If the ratio of tagged hatchery fish to untagged fish is known in the terminal area, tags recovered in mixed-stock fisheries can be expanded by the constant expansion factor to account for stock-specific catch of wild coho in each fishery. Untagged catch is allocated to stock by optimizing expansions over all stocks contributing to the fishery. This method requires intensive tagging and recovery of tags in fisheries and escapement. Ogden et al. (2014) describe a similar approach to separate estimates of catch and escapement of Canadian Chinook and coho salmon into hatchery- and wild-origin fish.

The North Pacific Anadromous Fish Commission (NPAFC) Stock Assessment Working Group has been investigating ways of improving estimates of hatchery-wild salmon abundances across the Pacific Rim for at least several years. In 2015, Ruggerone and Irvine (2015) published preliminary estimates of total (catch plus spawning escapement) natural-origin ("wild") and hatchery-origin pink, chum, and sockeye salmon by country and region of origin from 1952 through 2010). That report updated data and methods previously presented by Ruggerone et al. (2010a, b).

The current report extends the time series in Ruggerone and Irvine (2015) to 2015, revises previously published estimates for British Columbia (BC), and includes new time series of biomass estimates for total (i.e., natural-origin and hatchery-origin) returns and species total biomass (returns plus immature fish alive at that time). We refer to non-hatchery salmon as natural-origin ("wild") so as to not contradict the terminology in Canada where Pacific salmon are considered wild "if they have spent their entire life cycle in the wild and originate from parents that were also produced by natural spawning and continuously lived in the wild" (DFO 2005). We acknowledge the provisional nature of all estimates and encourage experts within each country to examine the data and methods presented here and generate revised estimates as appropriate.

Methods

To estimate the total annual abundance of adult pink, chum, and sockeye salmon in the North Pacific Ocean, we compiled available annual data for the period 1952–2015 on catches, spawner abundances, harvest rates, and abundances of wild and hatchery-released adults of these species from South Korea, Japan, Russia, Alaska, British Columbia, and Washington State (including the

Columbia River). Data used to estimate abundances of hatchery and wild salmon returning to Asia originated primarily from NPAFC and International North Pacific Fisheries Commission (INPFC) documents, whereas data for North American salmon originated primarily from agency and other regional reports that were generally the basis for North American salmon data supplied to the NPAFC. The resulting data series were aggregated into major pink, chum, and sockeye salmon population groups within 20 regions (Fig. 1 from Mantua et al. 2009 except that southern BC fish were kept separate from those in Washington and the Columbia River Basin). Such large aggregations had the benefit of greatly reducing problems of poor stock identification in catches that would, for example, incorrectly allocate fish from one population to another if the spatial extent of units was too small.

Our goal was to produce time series of 1) numerical estimates of natural-origin ("wild") and hatchery-origin salmon returning to major regions (i.e. pre-fishery abundances); 2) biomass estimates of total (i.e., natural-origin plus hatchery-origin fish) returns, and; 3) species biomass estimates that included immature fish as well as mature fish. The extent and quality of data collection programs varied among regions of the North Pacific and in some areas spawner abundance had to be estimated indirectly from harvest data, as described later. As much as practicable, the methods of data collection and verification were similar across regions.

Hatchery-origin fish were often not segregated from natural-origin fish in the reported data. When possible, we utilized government estimates of wild versus hatchery salmon abundance in the returning run, catch, and spawning population. However, often we estimated wild salmon abundance by subtracting adult hatchery salmon abundance from estimates of total adult salmon abundance. We did not attempt to identify the proportion of river spawners represented by hatchery strays because few data were available. Therefore, hatchery estimates were biased low and wild salmon spawner estimates were biased high to the extent that hatchery salmon stray and spawn in non-hatchery streams.

The first task for most regions was to estimate wild spawner escapements and returns.

Approaches to estimating wild salmon spawner abundances

Estimates were available in some areas for total numbers of adult salmon in the catch and spawning populations. For Russia and much of Alaska, we started with total abundance (i.e. catch plus escapement) and then subtracted hatchery fish to get total numbers of natural-origin fish.

In most regions, data on spawner abundances of wild salmon did not extend back to the 1950s, were sometimes intermittent, or often only estimated part of the spawning population. We used four general approaches to address these issues.

Approach 1. In much of British Columbia (BC) and Alaska, where spawning data were intermittently missing for some stocks within a region but were available for other stocks in the same region, we filled in the missing values by interpolating values from the other stocks within the region.

In southern BC, we applied the following approach to generate numerical escapement and return estimates of wild salmon (other than Fraser River sockeye and pink salmon and Okanagan sockeye salmon, the latter being included within Columbia River basin totals):

1. Escapement data were downloaded from the DFO nuSEDS database for each Conservation Unit (CU – ecologically and/or genetically distinct groups of wild salmon) for 1952-2014
2. CUs for each species were separated into 3 geographical groups based on where they spawned – west coast of Vancouver Island (WCVI), Fraser River watershed, and inside watersheds (i.e. non-Fraser River watersheds draining into inside waters, e.g. Strait of Georgia, Queen Charlotte Strait, Johnstone Strait)
3. Streams with no salmon ever reported were ignored.
4. Missing cells were infilled for streams within CUs using an algorithm provided by Brown (1974) when there were other streams with estimates for missing cells (years). When this was not possible, streams were aggregated within each of three areas before infilling missing cells.
5. The resulting time series of wild spawner escapements were multiplied by returns/spawner estimates from the database described by Ogden et al (2015) to yield total returns (pre-fishery abundance).
6. Estimates for 2015 were generated based on previous brood year abundances over the previous decade.

For Fraser sockeye and pink salmon and Okanagan sockeye salmon:

1. Sockeye salmon returning to Canada's Okanagan were included with estimates of sockeye returning to the Columbia River Basin and therefore (incorrectly) listed as part of the total for Washington State.
2. Fraser sockeye salmon return estimates (Sue Grant, DFO, pers. comm. 29 Oct 2015) were initially aligned by brood year and reorganized to yield abundances by run year for 1954-2013
3. 2014 estimates were preliminary and 2015 estimates were based on previous brood year abundances over the previous decade.
4. Fraser pink salmon returns were computed from the Canadian recruits/spawner dataset (Ogden et al 2015).

Approach 2. In northern British Columbia and parts of Alaska, annual estimates of spawning abundance were consistently underestimated because coverage of spawning areas was incomplete. In Alaska, we used information from area management reports (e.g., Bue et al. 2002, 2008; Geiger and McPherson 2004, Nelson et al. 2005, 2006; Baker et al. 2006; English et al. 2006; Dinnocenzo and Caldentey 2008) and managers (see Acknowledgements) to expand index counts. These expansions were based on the proportion and relative size of total streams surveyed and the approximate proportion of total spawners counted in the surveyed streams. This and the other approaches were employed so that total abundances of hatchery and wild salmon could be standardized and compared across the Pacific Rim.

For northern BC (north of Vancouver Island), return (and escapement) data were provided by Karl English (LGL Ltd., Sidney BC, pers. comm., April 2016) and the procedures to generate

these estimates are documented in English et al. (2016). This report describes how, as in southern BC, escapement estimates were downloaded from the nuSEDS database but many were incomplete. Regional biologists identified 681 indicator streams for even-numbered years and 630 for odd-numbered years as having the most reliable escapement data and assigned quality ratings for each. Salmon returns were subsequently estimated using procedures that ranged from simple summation of annual catch and escapement estimates to complex run reconstructions (English et al. 2015).

Approach 3. In many areas, including Asia, there were years in which spawning abundance could not be reliably estimated, therefore we estimated spawning abundance and total adult abundance from catch data and estimates of harvest rate. In most of these cases, we used a regression of harvest rate (proportion) on $\log_e$(catch) during years for which full data were available to estimate harvest rate as a function of catch (e.g., Rogers 1987). In tests with simulated data, this regression method provided better results than using a simple overall average of observed harvest rates.

Approach 4. In a few areas, which typically involved stocks with low abundances and low fishing effort, we used assumed harvests rates that were based on fishing effort and/or harvest rates of monitored species. For example, in Southeast Alaska, where only 82 of approximately 1,200 chum salmon streams were examined for peak period spawners, we assumed the harvest rate on wild chum salmon was 90% of the rate for pink salmon because many wild chum were captured incidentally in fisheries for pink salmon (Geiger and McPherson 2004; Eggers and Heinl 2008).

The degree of reliance on the four approaches used to address missing or questionable spawning abundance varied among regions, species, and years. Reported total abundance (catch plus spawners) was available for only one-quarter and one-third of the stock-year combinations for North America and Asia, respectively. Reported catch plus expanded index spawner counts (Approaches 1 & 2) were used in about one-third of the stock-years in North America, but this method was not used in Asia. The regression method (Approach 3) for estimating harvest rate was the primary method for approximately one-quarter and two-thirds of the stock-years in North America and Asia, respectively, mainly during early years. An assumed harvest rate (Approach 4) was used to estimate total abundance in about one-fifth the stock-years in North America and rarely in Asia, largely for relatively small stocks that were incidentally harvested.

Data for sockeye salmon were the most complete and reliable, followed by pink salmon, and then chum salmon. For example, in North America, approximately 50% of total abundance estimates of sockeye salmon were provided by agency reports, whereas only about 10% of pink salmon and 10% of chum salmon estimates were available. In Asia, approximately 60% of annual spawning abundance values were estimated from catch and harvest rate because spawning abundances were typically not readily available prior to 1992. The aforementioned procedures to estimate total spawning abundance were necessary for comparison of abundance of species and populations across the Pacific Rim.

Comments on North American salmon data

A large portion of return data for Alaskan salmon populations came from 120 North American populations of pink, chum, and sockeye salmon described by Pyper et al. (2001, 2002), Mueter et al. (2002), Peterman et al. (1998), and Dorner et al. (2008), the latter of which includes the original dataset through the early 2000s. The database was updated with values from recent regional reports, run reconstructions (e.g., Starr and Hilborn 1988), and data that were not included in those specific populations (http://www.adfg.alaska.gov/). Recently, data for BC populations of pink, chum, and sockeye salmon were extensively revised and updated to replace those in the aforementioned publications (Ogden et al. 2015).

For Alaska, the reported spawner counts for pink and chum salmon were typically annual peak values rather than total estimates, and Approach 2 (expand escapement index counts) was used to estimate total spawner abundance. Spawning abundance estimates were often not available during earlier years and in these cases Approach 3 (harvest rate estimation) was used to estimate total spawner abundance, which was then added to catch. Sockeye salmon abundances were typically reported by the Alaska Department of Fish and Game (ADF&G) as total abundances for major stocks within each region of Alaska. ADF&G updates catch and escapement values for each species in each management area in annual reports (http://www.adfg.alaska.gov/index.cfm?adfg=fishingcommercialbyarea.main). In Cook Inlet, sockeye values were updated for the past 15 years. In the Arctic-Yukon-Kuskokwim region of western Alaska, where fisheries do not target pink salmon, previously reported values were reduced by approximately 1.2 million fish per year, on average. In Prince William Sound, updated hatchery and wild pink, chum, and sockeye salmon were provided by R. Brenner, ADF&G. Estimates or approximations of adult hatchery salmon abundance in each region of Alaska were reported annually, and were subtracted from total regional salmon estimates when appropriate (e.g., White 2005, Stopha 2016). However, in the Alaska Peninsula region of Alaska, where no hatchery chum production occurs, we did not attempt to estimate harvests of hatchery chum salmon originating from Asia. Recent genetic data may enable this to be done now.

For BC, hatchery-origin returns (i.e., pre-fishery recruitment) were estimated by:

1. Obtaining hatchery release data from the NPAFC web-page
2. Assembling published survival estimates (fry to return, smolt to return) for pink, chum, and sockeye salmon (Beacham and Starr 1982; Bradford 1995; Fedorenko and Bailey 1980; Fraser et al. 1983); Grant et al. 2011; Heard 1991; Irvine and Akenhead 2013; Kline et al. 2011; Parker 1962; Quinn 2005; RMISD 2009; Ryall et al. 1999; Salo 1991)
3. Multiplying hatchery releases numbers by the most appropriate survival estimate

For the conterminous United States (primarily Washington and the Columbia River Basin), recent estimates of salmon abundance were provided by state biologists, agency websites and the Pacific Fishery Management Council reports (e.g., PFMC 2016, https://fortress.wa.gov/dfw/score/score/species/species.jsp). Puget Sound pink salmon and fall chum salmon data were updated with run reconstruction data for hatchery and wild components (A. Dufault, WDFW, personal communication). Some earlier wild salmon spawning abundance estimates were based on Approach 3 (harvest rates).

Comments on Asian salmon data

For Russia, we relied upon catch and spawning abundance statistics for each district as provided in annual reports by Russia to the North Pacific Anadromous Fish Commission (NPAFC) beginning in 1992 (e.g., Anonymous 2007a, Pacific Research Fisheries Centre 2011, Klovach et al. 2016). Spawning abundance estimates in Russia were often based on aerial counts or redd counts (e.g., Sinyakov 1998; Bocharov and Melnikov 2005), but estimates were not available prior to 1992; therefore, Approach 3 (harvest rate) and catch reported by the International North Pacific Fisheries Commission (e.g., INPFC 1979) were used for most earlier years. For early Kamchatka pink salmon, we used run reconstruction estimates dating back to 1957 (Bugaev 2002). These statistics did not account for unreported harvests of salmon (Clarke 2007; Clarke et al. 2009).

Russian statistics did not identify hatchery versus wild adult salmon, therefore hatchery releases in Russia (W. J. McNeil, August 4, 1976, pers. comm.; Morita et al. 2006; Sharov 2006; Anonymous 2007b; Pacific Research Fisheries Centre 2011) and their assumed survival rates (see below) were used to estimate hatchery production of adult salmon, which was subtracted from total abundance to estimate abundance of wild salmon. Russian hatchery releases prior to 1971 were not available (Irvine et al. 2012), except for the Sakhalin and Kurile Island region, but they were likely small compared with recent years (Zaporozhets and Zaporozhets 2004). Average survival rates of hatchery chum salmon (range of means: 0.21% to 0.64%) were available from Zaporozhets and Zaporozhets (2004) and N. Kran (Sevvostrybvod, Petropavlovsk-Kamchatsky, Russia, pers. comm.) and updated with annual values for Sakhalin and Iturup islands (Kaev 2012). Survival rates were lower in southern regions of Russia and during years prior to the 1990s when hatchery fish quality was lower. Survival of hatchery pink salmon increased from approximately 1.38% in 1971-1983 to 5.08% in 1989-1997, owing to improved hatchery practices (Tarasyuk and Tarasyuk 2007; Kaev and Geraschenko 2008). Hatchery production is increasing in the Sakhalin and Kurile Island region, potentially leading to less reliable estimates of wild chum and pink salmon.

Harvests of Japanese hatchery salmon were largely available from NPAFC documents or other processed reports (e.g., CCAHSHP 1988; Hiroi 1998; Eggers et al. 2005; NASREC 2007; Hokkaido National Fisheries Research Institute 2011, Hirabayashi et al. 2016). Most production of pink salmon in Japan was previously thought to originate from hatcheries (Hiroi 1998), but recent evidence (e.g., recovery of otolith-marked juvenile and adult pink salmon in rivers, hatcheries and coastal areas, and body morphology) suggests many pink salmon originated from natural spawners (Fujiwara 2006; Miyakoshi 2006; Morita et al. 2006; Hoshino et al. 2008). We used estimates of hatchery and wild pink salmon production provided by Morita et al. (2006) and Ohnuki et al. (2015) while recognizing high uncertainty in the estimates of wild pink salmon. More recent values assumed 79% of total pink salmon abundance was derived from natural spawners, based on the mean of the last several years reported by Morita et al. (2006) and Ohnuki et al. (2015). Total abundance estimates assumed an 80% harvest rate on pink salmon and a 100% harvest rate on chum salmon, recognizing that in recent years some chum salmon have been allowed to spawn naturally. Recent evidence indicates Japan also produces some wild chum salmon but comprehensive estimates are not yet available (Morita et al. 2013; Morita 2014; Kitada 2014). Small numbers of wild sockeye salmon are present in the Bibi River, Japan (K. Morita, personal communication).

The relatively small production of hatchery chum salmon in South Korea was updated from Seong (1998) with data from S. Kang (National Fisheries Research Development Institute, Yangyang-gun, Gangwon-do, Korea, pers. comm.), Seong and Hong (2010), and Hong et al. (2016). Small numbers of pink salmon return to North Korea, but estimates are unavailable (Kim et al. 2007).

High seas harvests

Annual harvests of salmon in the Japanese high seas fisheries (mothership, landbased, and the more recent fishery in the Russian Exclusive Economic Zone) are available on the NPAFC website. These harvests were relatively high during 1952-1979, averaging 40 million pink, 17 million chum and 8 million sockeye salmon per year. Proportions of mature and immature salmon were reported by Fredin et al. (1977), Harris (1988), Shepard et al. (1968), Myers et al. (1993), and Radchenko (1994). Catches of maturing and immature salmon were converted to adult-equivalent catch estimates based on monthly mortality schedules for each species (Ricker 1976; Bradford 1995). Continent of origin of the high seas salmon catch was reported by Fredin et al. (1977), Harris (1988), and Myers et al. (1993). Some sockeye salmon, and to a much lesser extent chum and pink salmon, harvested in the mothership fishery were from North American rivers. Sockeye and chum salmon originating from North America were allocated to western Alaska; harvests of North American pink salmon averaged less than 25,000 fish per year. The high seas catch of Asian-bound salmon (after removing North American salmon from the total catch) was split into hatchery and wild fish based on the proportion of hatchery versus wild salmon returning to Asia in that year. The proportion of hatchery or wild fish returning to each region was used to allocate the high seas catch to that region. Salmon harvested by Japan in the Russian Exclusive Economic Zone were allocated to Russia.

Accounting for salmon harvests on the high seas and allocating these fish back to their natal regions (adult equivalent values) leads to higher abundances of pink, chum, and sockeye salmon in each region than if only terminal catch and escapement are used. Inflated values are greatest prior to the mid-1980s when high seas harvests were relatively large.

Biomass estimates

To convert numerical abundance estimates of adult salmon to biomass, we needed weight data for individual salmon for the various spatial strata in our numerical abundance dataset for each year. Bigler et al. (1996) published an excellent review of changing sizes of Pacific salmon but their spatial and temporal coverage was relatively limited compared to our abundance dataset. We decided to utilize the NPAFC data series to generate individual weights, and to use data from other sources, primarily Bigler et al. (1996) as a comparison.

To convert run biomass to total biomass (including immature salmon remaining at sea) we used species-specific average ratios provided by Eggers (2009, his Figure 8).

1) We downloaded commercial catch data time series for pink, chum, and sockeye salmon from the NPAFC website (numbers and total weights).
2) We computed mean individual fish weights for each species and all spatial strata by dividing total fish weight by fish numbers.

a. We identified outliers from our new individual weight time series and compared these values with values in Bigler et al. (1996) and nearby adjacent spatial strata within our new data file. Extreme outliers were replaced with weight estimates from nearby locations.

3) Revised average fish weight values were multiplied by numerical abundance estimates to generate adult run biomass estimates in metric tonnes.
4) Run biomass estimates were multiplied by species specific terminal run proportions for Asia and North America (from Eggers 2006) to generate total annual biomass time series (i.e., includes immature fish as well as mature fish). Eggers (2006) time series stopped at 2005 – we applied his 2005 estimates for more recent years.

Results and Discussion

Table 1 provides a legend to interpret abbreviations of regional names used in the data tables. Tables 2, 3, and 4 provide annual regional estimates of wild pink, chum and sockeye salmon. Tables 5, 6, and 7 provide annual regional estimates of hatchery pink, chum and sockeye salmon. Sockeye and chum salmon produced in spawning channels in British Columbia were included in the wild salmon tables. Tables 8, 9, and 10 provide annual regional estimates of total pink, chum and sockeye salmon. Tables 10-13 provide biomass (catch and escapement in metric tonnes) of pink, chum, and sockeye salmon returning to regions of Asia and North America, 1952-2015. Table 14-16 provide the same data as in Tables 10-13, plus the values have been expanded to include immature salmon remaining at sea.

Temporal patterns in numerical and biomass run sizes (Figs. 2, 3, and 5) were similar to commercial catch time series (e.g., NPAFC website) but higher because spawning escapement was included.

The proportion of hatchery-origin chum salmon peaked in the late 1990's at ~70%, and is currently ~45% (Fig. 4). Hatchery-origin pink and sockeye salmon currently constitute ~19% and ~4% of the total returns for these species respectively. These estimates are similar to those of Kaeriyama et al. (2012) who estimated that the biomass contributed by hatcheries amounted to 50% for chum salmon, more than 10% for pink salmon, and less than 10% for sockeye salmon.

Total adult abundance (910 million salmon), adult biomass (1.7 million metric tonnes), and total adult and immature biomass (5 million metric tonnes) peaked in 2009. In 2009, salmon abundance was dominated by pink salmon (74% of total), whereas adult biomass of pink salmon was only 55% of the total, owing to the smaller average weight of pink salmon. In contrast, total adult and immature salmon biomass was dominated by chum salmon (61% of total in 2009), owing to their relatively long life in the ocean.

We compared our estimates of run size (numbers and biomass) with estimates provided by Eggers (2009) while realizing that they are not completely independent. For pink and chum salmon (all areas combined), our estimates were highly correlated with those of Eggers (R^2 = 0.98-0.99 for both species, numbers and biomass). For pink salmon, the correlation was less strong R^2 = 0.88 and 0.76 for biomass and numbers respectively. Eggers's estimates were consistently lower than ours in all cases because he did not fully expand all escapement counts.

Cautions regarding data quality

As with previous analyses of such data by Rogers (1987, 2001), Beamish et al. (1997) Eggers (2009), and Kaeriyama et al. (2009), we have had to make many assumptions. Nevertheless, we believe that the general patterns and trends in abundances across time, regions, and species are reasonably robust to these assumptions. We urge readers to focus on broad patterns, rather than on particular year-to-year variations in estimates; the latter may be imprecise. The quality of data for some species in some regions is low. Lower quality data are typically associated with relatively smaller levels of abundance and low fishing effort, e.g., wild pink salmon in western Alaska. High uncertainty exists for estimates of wild pink salmon abundances in Japan and hatchery/wild pink and chum salmon ratios in the Sakhalin and Iturup islands in Russia (within the mainland & islands grouping). Also, Japanese chum salmon are all assumed to be hatchery-origin and recent evidence indicates this is not true (Saito and Nagasawa 2009, Miyakoshi et al. 2012, Morita 2014).

The data presented here represent a more complete accounting of both wild and hatchery salmon abundances throughout the North Pacific than previous estimates (e.g., Rogers 1987, 2001, Beamish et al. 1997, Eggers 2009, Kaeriyama et al. 2009, Irvine et al. 2009, Ruggerone and Irvine 2015) because we expanded spawner counts where appropriate and accounted for hatchery salmon in all regions. Nevertheless, we caution readers that the quality of the salmon abundance data is variable among species and regions. Estimating stock-specific catch and spawning abundance of wild salmon is difficult, especially in large remote watersheds, but it is much more difficult when hatchery and wild salmon are mixed in the catch and hatchery fish stray. However, the key question is, how would these caveats and assumptions have led to incorrect conclusions about spatial and temporal differences in abundances? In most cases, we believe that errors in our assumptions would have produced more imprecision in year-to-year estimates than consistent bias in one direction or the other. Thus, the general patterns and approximate magnitude of hatchery versus wild salmon in the compiled data are likely valid.

Spawner abundance represents the least accurate component of total salmon abundance because only a portion of total spawners is typically enumerated. Price et al. (2008) noted that the quality of spawner counts in British Columbia has declined in recent years because fewer streams are now monitored, especially smaller streams whose populations may not be highly correlated with the monitored populations. In northern British Columbia, observed spawner counts were expanded by species-specific factors (English et al. 2016).). In Alaska, pink and chum salmon counts were expanded, whereas most large stocks of sockeye salmon were not as most were close to complete counts. In southern BC, counts were not expanded but estimates for all missing years were infilled, significantly increasing annual escapement estimates for many areas. In Russia, total spawning abundance has been reported by district since 1992, but information on expansion factors was not readily available (V. Svirdov, TINRO, Vladivostok, Russia, pers. com.) and it is not possible to evaluate the potential for error in spawner counts. However, as in British Columbia and Alaska, we suspect effort to enumerate spawning salmon in Russia has declined in response to declining budgets for salmon management. We note that comparison of catch to total salmon abundance in some areas of Russia produced exceptionally high estimates

of harvest rates (e.g., 80-90%), which might be an indication of underestimated spawner estimates.

Numbers of hatchery salmon on the spawning grounds are typically not reported because hatchery fish cannot be identified without a mark for identification and because spawning salmon, especially pink and chum salmon, are typically enumerated using techniques such as aerial flights that prevent identification of hatchery versus wild-origin salmon. The degree to which hatchery salmon contributed to regional natural spawning populations in the dataset reflects the ability of harvesters to remove most hatchery salmon in the region (e.g., terminal hatchery harvest area), the ratio of hatchery to wild salmon abundance, distance of the stream from the hatchery, species of salmon and associated degree of straying, and characteristics of the hatchery to attract homing hatchery salmon. As a result of these factors, the dataset overestimates wild salmon abundance and underestimates hatchery salmon production in some regions such as Prince William Sound and Southeast Alaska where hatchery production of pink and chum salmon is high. In these regions, the Alaska Department of Fish and Game (ADFG) has recently shown high numbers of stray hatchery pink and chum salmon (Brenner et al. 2012; Piston and Heinl 2012). The influence of hatchery strays on wild salmon counts has been greater after about 1980 in response to relatively high hatchery production in Alaska.

Harvest rate estimation was a key approach for estimating total spawners, especially during early years of the dataset when fewer spawner counts were available. Years with low harvest rates could lead to greater error in total salmon abundance. However, in most regions, fisheries were fully developed by the 1950s and harvest rates were often greater than 50%, suggesting that harvest estimates, which are relatively accurate, typically accounted for most of total abundance. Again, even if the estimated harvest rates were imprecise (as opposed to consistently being biased either low or high), this would not change the overall conclusions about regional and temporal trends in abundance. Labor strikes may affect abundance estimates in some regions in some years, but their effect on the abundance trends shown here was likely small because abundances in recent decades were often based on estimated spawners and reported harvests, and because the area influenced by the strike was often small. Less frequently, we used assumed harvest rates, primarily for small, less exploited stocks.

Abundance of hatchery salmon in the harvest was typically not reported by the harvest management agency. We used regional hatchery abundances reported by the hatcheries when possible (e.g., Alaska) but we typically estimated total abundance of hatchery salmon using survival rate estimates and removed these hatchery fish from the total abundance counts when appropriate. Species-specific survival rates were typically mean annual values for a region because most hatcheries do not estimate survival annually. This approach introduced error to the extent that survival of hatchery salmon varies year to year.

There are strengths and weaknesses in the various approaches used in the literature and here to estimate abundance as well as methods to partition the data into hatchery and wild. Because the various species attain different maximum sizes and live in the ocean for different lengths of time, estimates of salmon numbers will tend to overestimate the role of smaller, shorter-lived species such as pink salmon. Fish generally recruit to the fishery in their final year, and catch estimates therefore rarely include immature fish. This is why we converted return estimates in numbers to

totals including immature salmon as these provide arguably better indicators of the role of individual species in the ecosystem than adult return abundance.

Recommendations

A database of total annual adult abundances of hatchery and wild salmon by region of the North Pacific was developed for the years 1952 to 2015. We offer these data as provisional values developed from the best information readily available at this time. We realize that these estimates can be improved upon, and encourage experts within NPAFC member nations to examine the data and methods so that revised estimates of hatchery and wild abundances of salmon returning to their country can be generated. Additionally, when reporting annual catch and abundance statistics in future years, we encourage member nations to provide separate estimates for hatchery and wild salmon.

Hatchery production is growing in many areas, such as Alaska and Russia, and this production can confound the evaluation of wild salmon abundance and their status unless adult hatchery salmon are enumerated. To facilitate estimation of wild salmon, hatchery salmon should be marked every year. Mass marking of otoliths in the hatchery each year would facilitate estimation of hatchery and wild adult salmon in the return. Alternatively, if only a subset of the hatchery population is marked or tagged, these fish could be used to develop survival estimates for hatchery salmon each year. These survival estimates could then be applied to the entire release of hatchery fish associated with the survival analysis and used to estimate adult hatchery returns. Ultimately, the goal is to estimate abundance of natural-origin salmon as part of the process to sustainably manage the wild population. Estimates of hatchery salmon abundance is important for documenting economic benefits of the hatchery.

This database does not include estimates of hatchery and natural-origin Chinook, coho, steelhead, and masu salmon. Future efforts should attempt to estimate the abundances of these species as has been done in BC (English et al. 2016, Ogden et al. 2014).

Finally, estimates of natural-origin and hatchery-origin salmon should be stored in a publicly accessible database.

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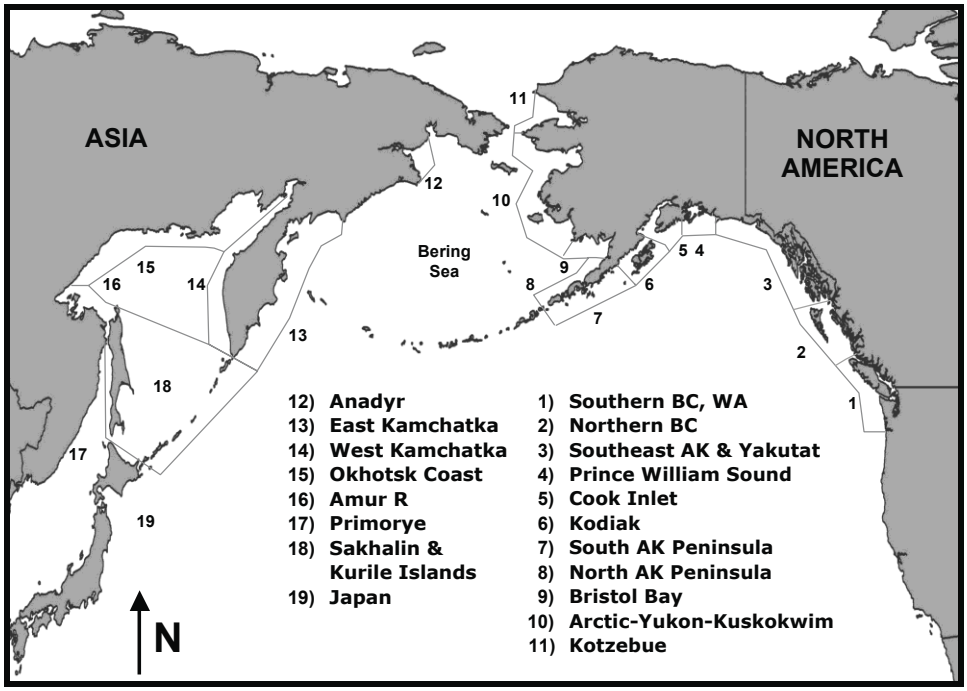

Figure 1.The approximate geographic locations of regional stock groups. Area 1, Southern British Columbia (BC) and Washington (WA), includes the Columbia River and all areas south of the central coast of British Columbia (~51°N). Area 2, Northern BC, includes central and northern British Columbia. Area 3, Southeast Alaska (AK), includes the Yakutat coast. The Central Alaska region extends from the Bering River (~60°N), which is near Prince William Sound in Area 4, westward to Unimak Island (~166°W), thereby including Areas 4 through 7. Western Alaska includes Areas 8 through 11, i.e., all North American drainages into the Bering Sea from Unimak Island to Kotzebue. Data for East and West Kamchatka (Areas 13 and 14) are separated from data for the Russian mainland and islands (called "Mainland & Islands" here, which includes the Okhotsk coast, Amur River, Primorye, Sakhalin and Kurile Islands, and relatively small runs to the Anadyr). Area 19, Japan, includes the islands of Hokkaido and Honshu. South Korea not shown. For this report, salmon abundances in WA and southern BC are reported separately.

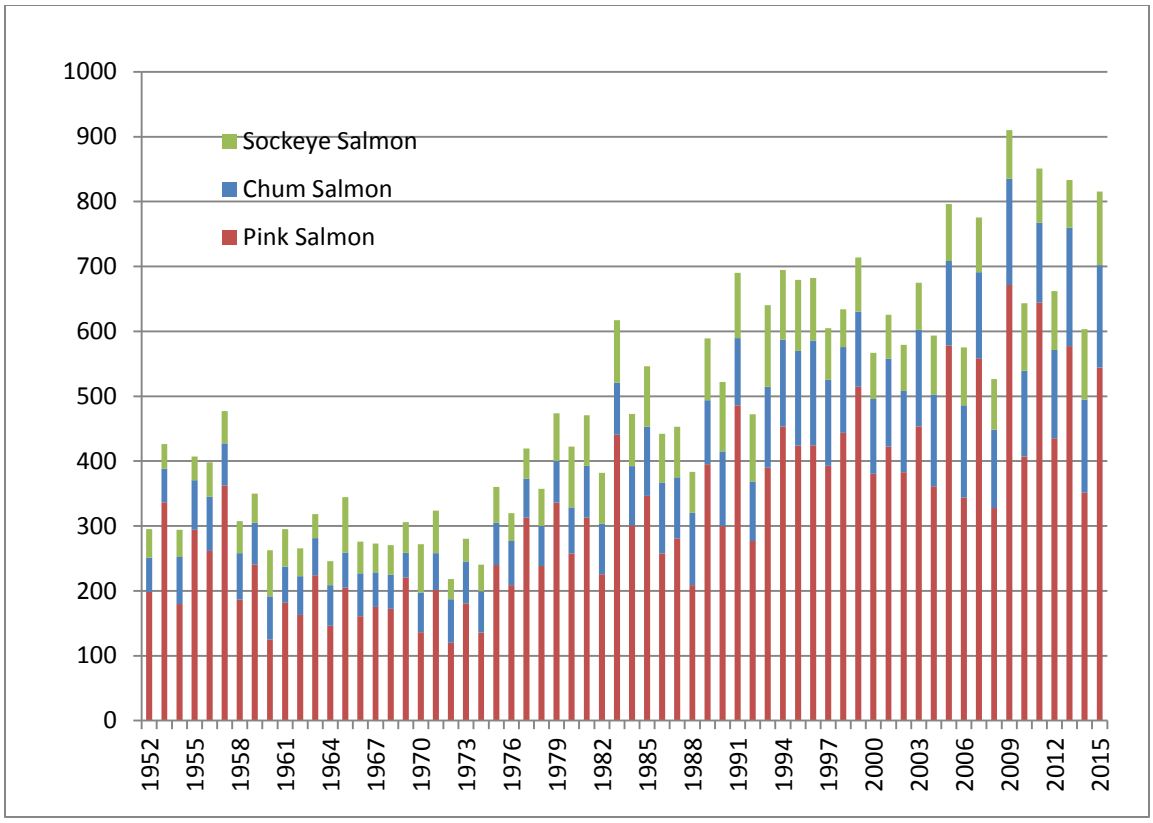

Figure 2. Abundances of adult pink, chum, and sockeye salmon (catch plus escapement in millions of fish) returning from the North Pacific

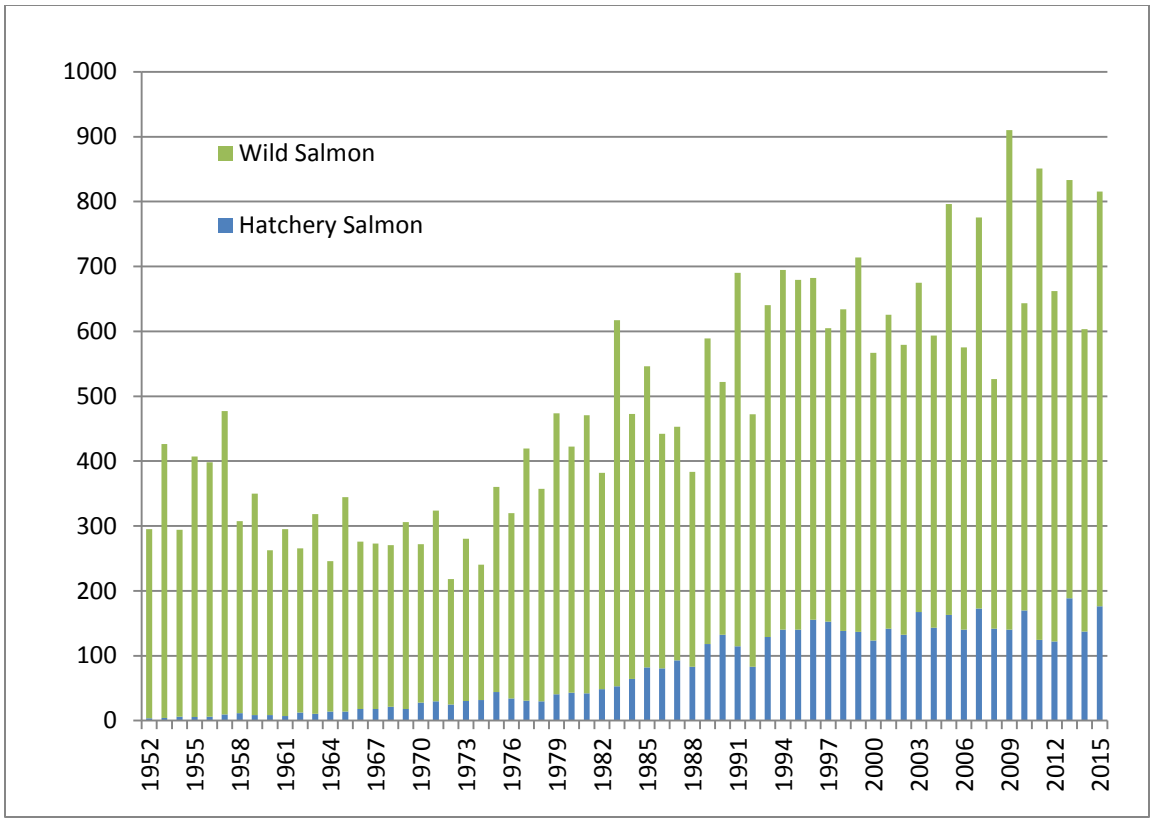

Figure 3. Abundances of natural-origin ("wild") and hatchery-origin salmon returns (catch plus escapement in millions of pink, chum, and sockeye salmon)

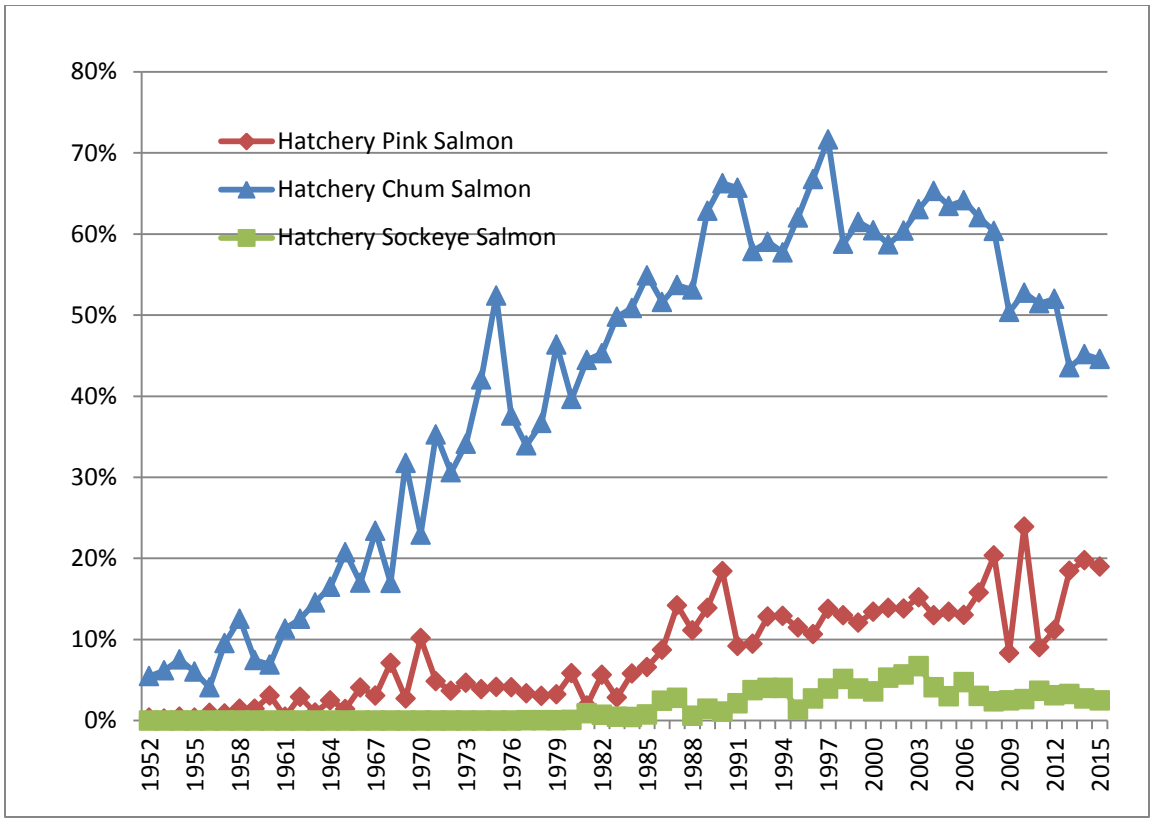

Figure 4. Percentage of total numbers of pink, chum, and sockeye salmon returns that originated from hatcheries

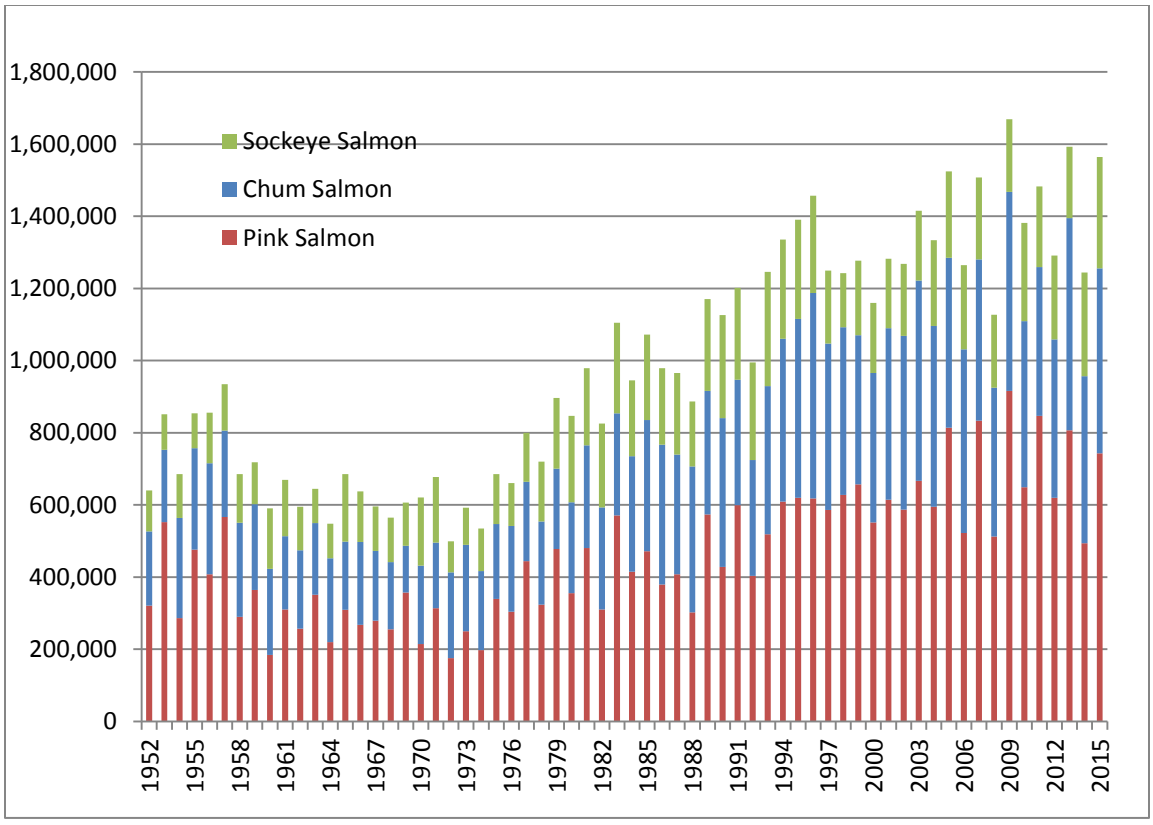

Figure 5. Biomass (catch and escapement in metric tonnes) of adult pink, chum, and sockeye salmon returns (i.e. pre-fishery recruitment)

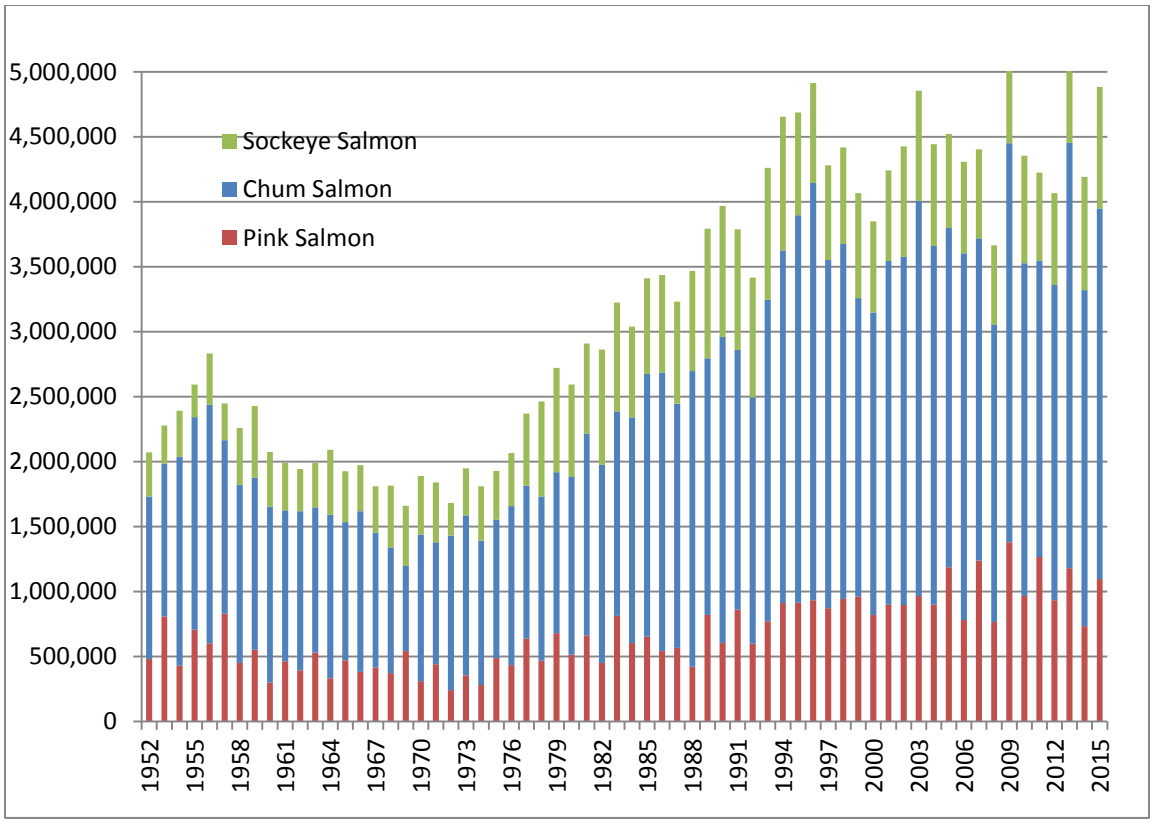

Figure 6. Total biomass (metric tonnes) of mature and immature pink, chum and sockeye salmon in the North Pacific

Table 1. Regional names associated with abbreviations in each of the following tables of salmon abundance

Abbreviation	Regional name
Japan	Japan & South Korea
M&I	Russia: Mainland & Islands
WKam	Western Kamchatka
EKam	Eastern Kamchatka
WAK	Western Alaska
SPen	Southern Alaska Peninsula
Kod	Kodiak
CI	Cook Inlet
PWS	Prince William Sound
SEAK	Southeast Alaska
NBC	Northern British Columbia
SBC	Southern British Columbia
WA	Washington State
WC	West Coast USA

Table 2. Abundance (catch and escapement in millions of fish) of "wild" pink salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0	1.4	26.3	98.1	16.3	4.0	2.7	6.6	4.4	3.4	19.9	10.0	4.9	0.0	197.8
1953	0	1.3	44.2	208.6	26.6	0.3	6.0	7.3	1.3	3.2	11.5	3.7	16.4	5.3	335.6
1954	0	0.9	46.1	59.6	13.5	4.0	4.8	10.9	4.7	4.3	18.4	8.7	3.2	0.0	179.0
1955	0	2.6	78.2	117.7	28.6	0.3	5.6	13.4	2.7	4.3	19.1	3.8	12.9	3.8	293.0
1956	0	2.6	103.9	85.5	4.5	4.0	6.0	5.1	3.6	5.9	26.2	9.5	2.3	0.0	259.0
1957	0	1.1	66.7	169.0	78.9	0.3	2.7	6.7	0.8	1.5	14.8	5.0	8.4	3.0	358.9
1958	0	2.2	104.6	9.6	11.5	4.0	3.6	5.9	4.5	7.7	19.9	7.7	2.6	0.0	183.8
1959	0	1.2	66.9	35.4	93.5	0.3	2.6	3.3	0.4	4.3	16.5	5.4	4.4	2.4	236.8
1960	0	1.0	38.8	13.0	25.3	4.0	3.8	9.0	3.9	5.7	7.6	8.3	0.6	0.0	121.2
1961	0	0.7	36.5	26.8	61.2	0.3	4.2	5.8	0.9	8.6	15.9	10.6	8.3	1.2	181.0
1962	0	1.3	17.1	21.1	16.2	3.3	6.7	16.9	7.4	12.5	18.1	36.0	1.7	0.0	158.2
1963	0	1.6	42.6	37.2	59.7	0.3	6.6	7.6	0.6	9.2	30.3	12.4	6.0	7.8	222.1
1964	0	1.3	20.7	4.5	27.2	3.7	7.6	14.7	8.8	9.5	26.4	16.2	1.8	0.0	142.7
1965	0	1.2	81.0	14.4	48.0	0.1	5.6	4.5	0.4	5.3	17.7	8.6	14.0	1.1	202.1
1966	0	0.9	40.3	0.8	23.3	5.8	3.0	13.4	5.5	6.8	29.9	19.5	5.6	0.0	154.6
1967	0	2.7	82.1	15.2	46.1	0.3	1.2	0.6	1.0	5.0	6.2	3.3	5.0	1.0	169.8
1968	0	1.3	34.1	1.4	17.0	8.7	4.7	11.9	6.2	5.8	33.4	28.7	6.9	0.0	160.1
1969	0	2.0	108.5	11.1	39.1	0.6	6.8	14.3	0.6	6.0	11.3	3.8	10.1	0.4	214.7
1970	0	3.0	22.5	0.5	26.5	2.0	5.1	15.9	2.2	5.6	18.0	16.6	4.5	0.0	122.2
1971	0	1.6	93.1	11.9	30.8	0.1	3.6	5.5	1.1	10.5	18.8	5.3	8.3	1.1	191.7
1972	0	1.0	45.8	2.4	13.1	0.6	0.3	3.7	1.7	1.9	20.8	22.3	1.8	0.0	115.5
1973	0	3.3	102.8	9.4	20.5	0.3	0.5	1.2	1.5	5.6	14.6	5.3	6.6	0.8	172.2
1974	0	1.9	64.2	2.8	19.4	4.0	0.9	5.0	1.3	3.2	11.9	11.5	4.7	0.0	130.7
1975	0	3.2	99.3	33.9	46.8	0.3	1.1	4.2	2.9	8.1	13.1	6.3	10.3	0.4	229.8
1976	0	1.7	81.4	13.2	23.3	4.1	5.1	14.5	3.4	5.7	28.4	13.5	6.2	0.0	200.4
1977	0	1.7	105.1	63.6	57.7	0.3	6.1	8.7	3.6	8.2	24.8	6.2	15.2	0.9	302.4
1978	0	1.0	81.5	15.5	12.5	19.4	11.0	20.4	4.6	6.1	40.1	16.4	2.7	0.0	231.2
1979	0	0.5	71.7	78.6	59.1	1.0	12.6	14.0	5.6	21.5	33.1	7.1	19.4	1.4	325.4
1980	0	1.5	97.0	24.3	5.0	10.3	11.4	23.8	4.9	17.1	32.0	12.3	3.0	0.0	242.7
1981	0	1.6	72.4	46.6	65.0	1.3	9.3	13.1	6.2	22.8	39.0	11.9	17.2	0.5	307.0
1982	0	0.5	51.7	41.0	17.8	6.8	8.9	13.1	2.2	21.0	42.2	6.8	0.9	0.0	212.9
1983	0	1.3	89.5	164.5	41.6	0.5	4.2	5.1	2.1	15.6	61.1	20.2	21.3	1.0	428.2
1984	0	0.9	29.7	87.2	29.8	8.4	16.9	13.2	2.1	28.7	51.4	14.5	0.7	0.0	283.6
1985	0	1.8	120.1	9.8	24.8	0.2	7.0	7.7	1.6	24.8	95.5	19.6	9.0	1.8	323.7
1986	0	0.9	37.1	42.0	4.4	1.5	7.8	13.6	4.1	7.4	83.7	30.8	2.2	0.0	235.2
1987	0	2.5	92.8	1.7	56.3	0.2	3.7	4.2	0.6	15.8	30.3	14.0	17.4	1.6	241.0
1988	0	2.2	31.7	36.5	9.5	6.5	15.7	18.8	2.2	3.6	24.3	32.0	2.8	0.0	185.6
1989	0	4.5	96.9	1.6	68.8	0.2	11.6	19.6	1.6	7.1	88.2	14.5	24.0	2.0	340.5
1990	0	4.3	56.9	28.0	27.5	5.8	6.4	11.9	1.1	15.4	54.3	28.8	4.5	0.0	244.9
1991	0	12.3	147.7	2.8	97.2	0.2	15.5	18.3	0.8	11.0	87.1	29.0	18.3	1.1	441.4
1992	0	12.2	97.3	19.3	9.9	3.6	16.8	6.3	1.9	2.4	58.0	19.6	3.6	0.0	250.9
1993	0	11.2	100.4	0.6	69.8	1.0	16.6	26.6	0.8	3.5	85.7	7.6	15.0	1.1	339.9
1994	0	20.3	111.7	108.6	21.2	8.4	12.7	10.4	1.8	7.3	85.2	5.5	1.7	0.0	394.9
1995	0	11.7	90.7	0.5	78.0	0.1	30.8	50.0	1.5	6.2	81.4	13.0	9.4	2.1	375.4
1996	0	21.8	88.9	77.4	15.9	4.0	9.2	6.0	0.9	7.3	122.1	22.9	2.7	0.0	379.0
1997	0	6.8	124.4	0.8	99.7	0.3	12.2	13.2	1.1	5.2	63.2	6.6	4.6	0.4	338.6
1998	0	14.7	76.0	137.6	13.3	3.8	16.4	23.6	1.8	7.9	80.3	8.0	2.5	0.0	385.9
1999	0	6.3	111.2	0.1	107.6	0.1	17.6	12.1	0.6	14.0	149.9	9.3	22.7	1.0	452.5
2000	0	16.9	118.5	88.9	1.8	2.4	8.6	11.2	1.1	10.5	50.3	13.1	6.4	0.0	329.4
2001	0	4.1	117.6	1.4	43.4	0.1	12.5	10.1	0.6	12.6	112.8	18.0	27.1	3.6	363.9
2002	0	14.6	78.9	82.4	4.7	2.6	7.8	20.9	2.2	3.0	96.8	14.9	1.2	0.0	330.2
2003	0	12.4	135.0	0.7	66.7	0.6	14.3	13.1	0.7	12.7	95.3	18.6	11.1	3.3	384.5
2004	0	6.0	40.7	85.3	22.8	7.2	16.6	26.9	5.3	8.7	83.7	9.3	1.8	0.0	314.3
2005	0	8.6	160.3	23.9	100.5	2.6	17.0	20.5	4.5	25.8	107.5	18.0	9.6	1.9	500.7
2006	0	4.7	110.4	60.2	29.1	3.7	8.2	33.9	2.8	5.5	36.8	2.9	0.7	0.0	299.2
2007	0	13.0	169.1	13.7	101.1	0.2	14.2	19.8	1.9	14.3	87.7	11.3	21.0	3.2	470.4
2008	0	6.2	90.4	69.9	12.0	3.7	20.0	10.2	1.2	3.9	39.6	3.2	0.7	0.0	261.0
2009	0	9.7	226.2	4.5	199.7	0.2	13.9	24.3	2.7	6.2	69.1	23.7	25.2	10.3	615.7
2010	0	6.9	97.7	104.9	14.4	4.7	2.7	9.7	0.6	7.9	51.5	7.0	1.8	0.0	309.7
2011	0	5.2	178.2	5.2	222.6	0.2	10.2	17.2	0.8	17.0	101.7	4.6	17.9	5.7	586.3
2012	0	1.8	125.4	143.8	23.7	3.8	1.7	19.2	1.5	6.5	48.8	7.3	3.1	0.0	386.6
2013	0	3.5	156.9	1.6	33.4	0.2	12.5	20.8	4.1	30.7	155.8	19.9	22.5	8.7	470.6
2014	0	1.4	116.7	6.4	48.2	4.6	2.8	7.4	1.7	4.1	71.8	13.9	3.1	0.0	282.1
2015	0	1.8	59.2	3.4	163.5	0.2	28.5	33.3	10.7	33.2	64.6	14.9	21.6	6.0	440.8

Table 3. Abundance (catch and escapement in millions of fish) of "wild" chum salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0	-	19.3	3.7	3.7	4.9	1.8	1.7	1.3	0.8	6.5	2.1	2.8	1.5	50.0
1953	0	-	19.4	3.7	2.0	5.1	2.3	0.9	1.4	0.6	5.7	3.2	3.3	1.0	48.6
1954	0	-	28.1	7.4	3.6	5.4	2.1	1.7	1.9	0.7	6.6	3.9	3.8	1.4	66.7
1955	0	-	38.7	10.5	7.4	4.6	1.6	0.8	1.0	0.7	3.1	1.3	1.7	0.8	72.2
1956	0	-	44.6	7.1	7.2	5.4	2.5	1.1	2.1	0.8	4.7	2.3	1.7	0.5	80.1
1957	0	-	28.7	2.4	3.4	5.0	2.1	1.7	2.8	1.0	5.6	3.0	2.8	0.6	59.0
1958	0	-	34.0	2.3	4.1	5.1	1.6	1.4	1.6	1.0	4.8	3.0	2.6	1.0	62.4
1959	0	-	28.4	6.8	6.1	5.6	1.3	1.1	1.2	0.8	2.8	1.2	3.6	1.0	59.9
1960	0	-	35.5	3.1	3.3	7.2	1.8	1.8	1.9	0.6	2.0	1.7	2.6	0.5	62.1
1961	0	-	26.9	2.4	3.1	5.2	1.5	0.9	1.2	0.5	3.8	1.8	1.7	0.4	49.3
1962	0	-	26.4	2.2	3.7	5.5	1.9	1.2	2.6	1.2	3.3	2.7	1.0	0.6	52.3
1963	0	-	25.8	1.6	4.6	4.2	1.4	0.6	1.4	1.2	2.6	2.7	1.8	0.7	48.6
1964	0	-	24.1	1.8	3.3	5.4	2.0	1.6	3.1	0.8	3.0	4.3	2.1	0.6	52.2
1965	0	-	26.1	1.6	2.1	4.4	1.0	0.8	1.0	0.4	2.7	1.6	0.8	0.5	42.9
1966	0	-	30.0	1.7	2.4	4.4	1.4	1.2	1.7	0.7	5.3	3.6	1.4	0.8	54.6
1967	0	-	22.2	0.6	2.7	4.3	0.7	0.4	1.1	0.6	4.1	2.5	1.2	0.6	40.9
1968	0	-	18.2	0.7	1.9	4.6	1.0	0.9	2.7	0.5	3.9	4.5	4.2	0.5	43.6
1969	0	-	9.6	0.8	1.9	4.5	0.6	0.6	1.0	0.5	1.4	1.8	2.7	0.4	25.8
1970	0	-	17.8	1.6	1.8	6.7	1.8	1.0	2.4	0.4	4.6	4.1	4.8	0.6	47.5
1971	0	-	14.5	0.6	1.4	5.8	2.4	1.8	1.3	0.8	4.3	2.2	1.2	0.3	36.7
1972	0	-	15.7	0.5	1.8	5.2	1.0	1.5	1.8	0.7	5.5	3.9	8.2	0.8	46.5
1973	0	-	11.5	0.3	1.6	6.9	0.6	0.6	2.1	1.8	4.4	4.7	7.2	0.6	42.5
1974	0	-	13.2	0.8	1.5	8.1	0.7	0.4	1.2	0.5	4.5	3.1	2.0	0.7	36.7
1975	0	-	10.6	0.1	1.4	9.6	0.5	0.3	2.7	0.2	2.5	1.2	1.6	0.2	31.0
1976	0	-	16.8	0.2	1.9	7.9	1.0	1.0	1.1	0.6	6.1	1.6	3.3	0.8	42.2
1977	0	-	12.0	0.3	3.2	9.3	1.8	1.9	4.0	0.9	1.5	1.8	2.5	0.6	39.8
1978	0	-	11.4	0.8	2.6	9.4	1.7	1.3	1.2	0.8	1.8	2.6	4.8	0.8	39.1
1979	0	-	10.7	0.6	3.5	7.9	1.5	1.0	2.8	0.5	2.8	1.5	1.3	0.2	34.2
1980	0	-	10.9	0.3	2.2	12.4	2.0	1.9	1.4	0.6	3.9	2.4	3.9	0.8	42.8
1981	0	-	9.8	0.6	3.0	12.8	2.7	2.1	3.7	2.0	1.8	1.8	3.5	0.6	44.4
1982	0	-	11.2	0.5	2.1	8.3	2.5	2.4	3.2	2.1	2.3	2.4	4.4	1.2	42.6
1983	0	-	11.9	0.2	5.1	8.7	2.0	2.0	2.5	1.8	1.8	1.6	2.4	0.5	40.4
1984	0	-	9.9	0.7	3.0	12.0	3.0	1.3	1.9	1.6	6.0	2.3	2.3	0.8	44.8
1985	0	-	10.0	2.6	4.2	9.4	1.9	0.9	2.1	1.7	4.7	3.8	5.8	1.1	48.1
1986	0	-	11.5	1.7	4.8	8.8	2.6	1.7	2.8	1.9	4.0	5.1	6.8	1.2	52.9
1987	0	-	10.2	1.5	3.8	8.9	2.3	1.1	1.4	2.4	4.7	2.7	3.5	1.2	43.6
1988	0	-	11.3	1.4	2.4	11.9	2.9	2.0	2.4	2.6	5.2	4.8	4.3	1.0	52.2
1989	0	-	11.7	1.0	2.8	9.7	1.2	1.2	1.0	1.3	2.1	2.2	1.9	0.4	36.5
1990	0	-	8.7	1.2	4.4	7.2	1.9	1.0	0.8	1.0	2.2	3.3	6.0	1.1	38.8
1991	0	-	10.3	1.0	1.5	8.4	2.6	1.9	0.8	0.2	2.6	2.0	3.1	0.8	35.4
1992	0	-	8.2	0.8	1.8	7.1	2.3	1.2	1.0	0.2	5.1	1.2	8.0	1.5	38.6
1993	0	-	22.2	1.0	2.1	5.1	1.6	0.8	0.4	0.3	5.3	1.9	9.4	0.9	51.0
1994	0	-	20.4	1.7	3.6	9.0	3.2	1.1	0.9	0.4	6.4	2.4	5.5	1.8	56.5
1995	0	-	20.1	1.2	2.4	11.0	3.2	1.7	1.4	0.4	6.6	2.8	3.6	1.0	55.3
1996	0	-	21.7	1.6	2.3	10.8	2.0	0.9	0.6	0.7	6.9	2.1	2.6	1.6	53.7
1997	0	-	12.8	1.4	2.0	5.2	2.5	0.7	1.0	0.7	5.6	1.7	3.6	0.4	37.7
1998	0	-	14.5	2.0	2.2	5.7	2.3	0.5	0.7	0.7	9.9	4.2	10.1	1.6	54.5
1999	0	-	12.8	1.3	3.4	6.2	2.4	1.2	0.6	1.1	8.7	2.1	4.3	0.6	44.6
2000	0	-	12.2	2.8	6.5	4.0	2.2	1.6	0.7	1.3	9.6	1.6	2.8	0.5	45.7
2001	0	-	19.5	3.1	5.2	6.6	3.0	1.3	0.6	1.4	6.0	2.1	5.5	1.7	55.9
2002	0	-	12.3	3.6	3.9	6.4	1.7	0.9	0.9	0.8	4.6	2.7	9.3	2.6	49.6
2003	0	-	11.0	2.0	2.3	7.8	1.6	1.0	0.6	2.7	4.4	3.9	16.2	1.6	55.1
2004	0	-	15.4	2.1	1.9	6.8	2.0	1.7	1.0	0.5	6.9	3.6	4.6	2.5	49.1
2005	0	-	9.2	3.0	4.5	11.9	2.4	0.7	0.6	0.5	7.6	2.1	4.3	0.8	47.6
2006	0	-	17.8	5.3	4.5	8.7	2.9	1.9	0.6	0.7	1.6	1.9	3.1	2.0	50.9
2007	0	-	18.3	4.3	4.6	8.7	2.9	0.8	0.6	0.7	3.3	1.1	3.4	1.5	50.2
2008	0	-	21.9	3.8	5.0	7.5	2.3	1.1	0.6	0.3	1.9	0.7	1.9	0.9	47.9
2009	0	-	50.6	3.2	4.8	7.3	3.1	1.2	0.6	0.4	1.6	1.0	6.8	0.6	81.2
2010	0	-	33.8	5.0	4.1	8.9	1.7	0.9	0.8	0.9	3.2	0.7	1.6	0.9	62.5
2011	0	-	24.0	5.6	3.6	11.1	2.5	1.0	0.7	0.8	3.0	1.8	4.5	1.1	59.8
2012	0	-	30.7	7.2	5.4	10.7	1.4	1.0	0.9	0.1	2.4	1.6	2.8	1.0	65.3
2013	0	-	65.3	6.0	7.2	10.9	2.6	1.2	0.7	0.5	3.6	1.6	2.4	1.1	103.0
2014	0	-	42.3	7.9	9.6	10.1	1.3	0.5	0.6	0.7	1.0	1.0	2.5	1.1	78.7
2015	0	-	45.6	8.2	6.6	8.6	2.9	1.2	1.3	0.3	6.3	1.5	3.9	1.2	87.5

Table 4. Abundance (catch and escapement in millions of fish) of "wild" sockeye salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WC	Total
1952	0	-	0.2	4.6	0.3	24.7	0.4	1.6	2.3	2.0	1.2	2.0	4.1	0.3	43.6
1953	0	-	0.1	3.5	0.2	12.7	0.7	1.1	2.3	1.2	1.8	4.6	9.2	0.5	37.9
1954	0	-	0.2	4.1	1.0	10.5	0.6	1.1	2.0	1.8	1.6	2.1	16.4	0.8	42.2
1955	0	-	0.4	6.9	4.2	10.2	0.8	0.9	1.8	1.3	1.0	2.1	6.6	0.3	36.4
1956	0	-	0.3	5.6	3.5	27.1	1.4	1.0	2.1	1.4	1.2	2.9	6.3	0.2	53.0
1957	0	-	1.2	10.2	4.1	20.2	0.8	1.0	1.3	1.2	1.4	1.9	6.3	0.4	50.0
1958	0	-	0.4	6.3	6.1	7.7	0.7	1.1	1.0	0.8	1.3	2.9	20.4	0.8	49.5
1959	0	-	0.4	5.0	5.9	15.0	0.8	1.1	1.2	0.8	1.2	2.6	10.4	0.4	45.0
1960	0	-	0.4	5.5	6.7	41.8	1.3	1.2	1.7	0.9	0.8	2.2	8.1	0.3	70.9
1961	0	-	0.4	8.9	2.9	25.7	0.7	1.3	2.0	1.2	1.0	4.3	8.7	0.3	57.5
1962	0	-	0.4	8.3	2.9	12.9	0.9	1.9	2.0	1.4	1.0	5.1	5.9	0.2	42.8
1963	0	-	0.3	5.3	4.3	9.0	0.9	1.3	1.7	1.0	0.9	6.0	6.0	0.3	37.0
1964	0	-	0.2	1.7	5.4	12.7	0.9	1.4	1.7	1.4	1.2	6.0	4.1	0.1	37.0
1965	0	-	0.3	3.6	4.3	61.7	1.1	1.2	2.3	1.6	1.5	2.9	4.5	0.2	85.2
1966	0	-	0.3	2.5	5.7	21.1	0.8	1.6	2.8	1.9	1.4	3.3	7.1	0.3	48.8
1967	0	-	0.4	3.4	7.5	12.7	1.0	1.1	2.3	1.1	1.3	5.1	7.9	0.5	44.3
1968	0	-	0.3	1.0	7.3	10.5	1.8	1.8	1.9	1.3	1.1	7.6	10.6	0.2	45.4
1969	0	-	0.2	0.7	6.7	23.4	1.0	1.6	1.3	1.7	1.1	3.1	6.1	0.4	47.4
1970	0	-	0.2	1.1	6.4	46.0	2.5	2.1	1.4	2.0	0.9	2.6	8.9	0.3	74.4
1971	0	-	0.2	1.9	4.3	19.7	2.2	1.4	1.3	1.4	0.8	4.2	27.3	0.7	65.4
1972	0	-	0.2	1.7	3.9	8.2	1.0	1.0	1.6	1.7	0.7	3.2	7.6	0.5	31.4
1973	0	-	0.2	1.3	4.4	4.4	1.7	0.9	1.3	1.0	0.9	8.4	9.9	0.7	35.1
1974	0	-	0.5	2.9	1.1	12.7	1.5	1.3	1.1	1.4	1.0	5.4	12.0	0.2	41.0
1975	0	-	0.2	1.3	3.9	27.0	1.0	0.9	1.3	1.1	0.9	3.7	13.8	0.3	55.3
1976	0	-	0.2	1.6	3.5	14.4	2.2	1.6	2.6	1.7	1.6	3.6	9.9	0.3	43.2
1977	0	-	0.2	0.4	2.6	12.1	3.1	1.6	3.2	1.6	2.0	4.3	14.1	0.9	46.2
1978	0	-	0.2	0.9	3.6	24.2	2.5	1.9	3.3	1.0	1.5	3.3	13.9	0.4	56.8
1979	0	-	0.3	0.8	3.3	46.2	1.9	1.7	1.6	0.8	1.9	4.3	10.4	0.4	73.6
1980	0	-	0.2	1.4	3.2	70.5	1.5	2.2	2.5	0.6	1.5	2.8	6.8	0.7	93.9
1981	0	-	0.2	1.6	2.9	41.3	3.0	2.0	2.3	1.4	1.5	6.5	14.6	0.3	77.5
1982	0	-	0.3	1.3	2.5	28.0	2.6	2.3	4.1	3.3	2.0	7.3	23.6	0.5	77.7
1983	0	-	0.3	1.4	3.3	52.0	3.3	2.0	6.0	1.5	1.8	4.1	19.6	0.4	95.7
1984	0	-	0.2	1.9	2.9	46.4	4.5	3.2	3.0	2.1	1.6	3.8	10.0	0.7	80.2
1985	0	-	0.1	3.5	2.3	44.2	1.9	4.3	4.9	2.2	2.1	8.5	17.8	0.6	92.4
1986	0	-	0.2	3.0	2.1	28.6	2.8	4.0	5.2	2.0	1.6	4.7	18.6	0.4	73.1
1987	0	-	0.2	4.4	2.2	30.8	3.2	1.6	10.6	2.5	1.8	5.1	12.9	0.5	75.9
1988	0	-	0.1	3.0	1.7	27.0	1.6	5.2	8.0	0.6	1.3	6.1	7.1	0.9	62.6
1989	0	-	0.2	3.9	1.6	49.6	2.2	2.5	6.7	1.2	2.0	3.7	20.3	0.3	94.2
1990	0	-	0.1	6.5	0.7	54.3	3.2	7.3	3.8	0.7	2.0	4.0	23.0	0.3	106.0
1991	0	-	0.3	6.7	0.7	49.1	3.5	8.4	2.3	1.7	2.0	5.9	17.9	0.3	98.7
1992	0	-	0.3	5.9	2.2	52.8	2.4	3.7	9.8	2.1	2.5	7.8	9.9	0.4	99.8
1993	0	-	0.4	6.9	3.7	61.3	2.9	2.0	5.5	2.3	3.2	7.2	25.1	0.4	120.9
1994	0	-	0.3	6.1	3.2	57.6	3.1	2.7	4.8	1.9	2.1	3.7	17.6	0.2	103.3
1995	0	-	0.5	5.1	5.3	69.0	2.9	6.7	3.9	1.9	1.6	6.6	4.5	0.1	108.3
1996	0	-	0.6	5.4	5.2	43.0	3.1	6.4	4.8	3.0	3.1	8.2	10.6	0.6	94.0
1997	0	-	0.3	3.6	4.5	24.1	1.6	4.1	5.6	3.7	2.2	4.7	21.4	0.2	76.0
1998	0	-	0.2	4.2	3.4	22.6	1.9	4.3	2.2	1.7	1.4	1.8	11.6	0.1	55.3
1999	0	-	0.3	4.2	4.7	46.5	4.5	6.4	3.4	2.3	1.6	1.8	4.4	0.1	80.2
2000	0	-	0.4	5.7	3.2	34.1	3.1	4.5	3.0	1.6	1.3	5.3	5.7	0.4	68.4
2001	0	-	0.5	4.7	3.3	26.5	3.2	4.0	2.8	2.1	1.8	4.7	10.1	0.3	64.0
2002	0	-	0.3	11.4	2.0	20.6	2.4	2.8	4.0	1.9	1.5	3.2	16.4	0.4	66.9
2003	0	-	0.2	6.4	3.1	29.8	2.1	6.5	5.7	2.1	1.7	3.8	5.9	0.3	67.6
2004	0	-	0.1	6.7	2.4	48.7	1.7	5.7	6.2	2.0	1.9	2.7	8.6	0.4	87.2
2005	0	-	0.7	9.3	3.0	45.2	2.0	4.4	6.9	2.2	1.7	2.1	7.3	0.2	85.0
2006	0	-	0.7	8.2	3.4	43.9	2.3	2.4	3.4	1.5	1.5	3.9	13.2	0.4	84.9
2007	0	-	0.4	13.6	4.1	45.4	2.0	3.1	5.4	1.9	2.0	2.5	1.6	0.1	82.1
2008	0	-	0.4	10.0	4.1	43.4	1.5	2.4	4.7	0.3	0.9	2.8	5.2	0.2	76.0
2009	0	-	0.4	8.4	5.9	43.3	2.2	2.6	4.5	0.8	1.3	1.8	1.8	0.2	73.1
2010	0	-	0.5	8.7	5.7	41.4	2.4	2.2	5.2	1.2	1.1	1.9	30.7	0.5	101.4
2011	0	-	0.6	10.9	5.3	31.9	4.0	2.8	8.8	2.5	1.5	3.8	8.1	0.2	80.5
2012	0	-	0.5	13.5	6.5	31.2	3.0	3.2	6.7	3.1	1.3	3.3	14.9	0.6	87.8
2013	0	-	0.5	13.8	7.6	26.3	3.8	3.4	5.9	2.1	1.3	1.7	4.4	0.3	71.2
2014	0	-	0.4	10.9	6.3	44.5	1.6	4.5	5.9	2.6	1.8	3.9	22.3	0.6	105.3
2015	0	-	0.6	13.9	6.2	62.3	4.5	4.3	6.1	2.4	1.7	3.2	4.9	0.5	110.5

Table 5. Abundance (catch and escapement in millions of fish) of hatchery pink salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1953	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
1954	0.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
1955	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1956	0.0	1.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
1957	0.0	1.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
1958	0.0	1.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
1959	0.0	1.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
1960	0.0	2.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9
1961	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
1962	0.0	2.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
1963	0.0	1.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.2
1964	0.0	2.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
1965	0.0	1.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.9
1966	0.0	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5
1967	0.0	2.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	5.4
1968	0.0	6.5	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2
1969	0.0	2.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	6.0
1970	0.0	8.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8
1971	0.0	6.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	9.8
1972	0.0	1.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4
1973	0.0	2.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	8.4
1974	0.0	1.4	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
1975	0.0	2.9	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	9.9
1976	0.0	2.1	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6
1977	0.0	2.0	7.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0	10.5
1978	0.0	1.5	5.4	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	7.2
1979	0.0	1.7	6.6	0.0	0.0	0.0	0.0	0.7	0.1	0.6	0.1	0.0	1.1	0.0	10.8
1980	0.0	1.9	10.6	0.0	0.0	0.0	0.0	0.7	0.2	1.6	0.1	0.0	0.0	0.0	15.0
1981	0.0	1.0	0.1	0.0	0.0	0.0	0.0	0.9	0.1	2.4	0.2	0.1	0.9	0.0	5.8
1982	0.0	1.7	3.5	0.0	0.0	0.0	0.0	1.0	0.2	5.9	0.2	0.0	0.2	0.0	12.7
1983	0.0	0.9	2.8	0.0	0.0	0.0	0.0	1.9	0.3	4.8	0.6	0.0	1.2	0.0	12.4
1984	0.0	2.5	5.8	0.0	0.0	0.0	0.0	2.8	0.3	5.2	0.6	0.0	0.1	0.0	17.5
1985	0.0	5.4	2.5	0.0	0.0	0.0	0.0	3.4	0.3	8.4	1.8	0.0	1.0	0.0	22.8
1986	0.0	4.6	6.0	0.0	0.0	0.0	0.0	3.0	0.4	7.2	1.0	0.0	0.2	0.0	22.4
1987	0.0	5.6	8.4	0.0	0.0	0.0	0.0	3.9	0.5	18.5	1.9	0.0	1.1	0.0	39.9
1988	0.0	4.7	5.2	0.0	0.0	0.0	0.0	0.7	0.2	11.4	0.3	0.0	0.6	0.0	23.2
1989	0.0	4.3	23.0	0.1	0.0	0.0	0.0	3.7	0.3	20.7	1.1	0.0	1.7	0.0	54.9
1990	0.0	2.3	16.0	0.0	0.0	0.0	0.0	0.8	1.0	32.7	1.8	0.0	0.6	0.0	55.2
1991	0.0	2.4	4.5	0.0	0.0	0.0	0.0	3.3	0.7	30.1	2.0	0.0	1.8	0.0	44.7
1992	0.0	2.7	9.3	0.0	0.0	0.0	0.0	1.0	0.5	7.9	4.2	0.0	0.6	0.0	26.2
1993	0.0	6.8	20.9	0.0	0.0	0.0	0.0	12.9	1.5	4.9	1.3	0.0	1.7	0.0	50.0
1994	0.0	1.8	15.8	0.0	0.0	0.0	0.0	2.4	1.7	29.6	6.7	0.0	0.5	0.0	58.6
1995	0.0	2.5	19.9	0.1	0.0	0.0	0.0	4.8	2.6	14.8	2.5	0.0	1.3	0.0	48.6
1996	0.0	2.0	16.4	0.1	0.0	0.0	0.0	1.3	0.6	20.8	3.5	0.0	0.4	0.0	45.1
1997	0.0	1.7	17.5	0.1	0.0	0.0	0.0	1.5	3.0	25.9	3.1	0.0	1.2	0.0	54.0
1998	0.0	2.2	18.6	0.0	0.0	0.0	0.0	6.7	1.5	25.6	2.6	0.0	0.4	0.0	57.6
1999	0.0	3.2	4.6	0.0	0.0	0.0	0.0	4.5	1.3	42.4	5.0	0.0	1.2	0.0	62.1
2000	0.0	2.3	8.1	0.0	0.0	0.0	0.0	4.0	1.3	34.1	0.6	0.0	0.5	0.0	51.0
2001	0.0	1.7	9.6	0.0	0.0	0.0	0.0	13.6	0.8	29.8	2.7	0.0	0.5	0.1	58.6
2002	0.0	2.8	19.0	0.0	0.0	0.0	0.0	7.1	1.4	20.0	2.1	0.0	0.5	0.0	52.8
2003	0.0	4.1	4.3	0.0	0.0	0.0	0.0	7.0	0.9	50.5	1.3	0.0	0.7	0.0	68.8
2004	0.0	2.0	14.5	0.0	0.0	0.0	0.0	4.3	2.6	21.2	1.8	0.0	0.6	0.0	46.9
2005	0.0	2.5	5.6	0.0	0.0	0.0	0.0	14.0	2.4	50.6	1.8	0.0	0.6	0.0	77.5
2006	0.0	1.5	16.1	0.0	0.0	0.0	0.0	4.5	0.3	21.3	0.7	0.0	0.4	0.0	44.8
2007	0.0	3.9	19.1	0.0	0.0	0.0	0.0	8.2	0.1	54.7	1.3	0.0	0.7	0.0	88.1
2008	0.0	2.0	20.0	0.0	0.0	0.0	0.0	2.5	0.0	41.5	0.2	0.0	0.4	0.0	66.7
2009	0.0	2.9	23.3	0.0	0.0	0.0	0.0	9.3	0.0	18.2	1.5	0.0	0.8	0.0	56.0
2010	0.0	2.2	20.4	0.0	0.0	0.0	0.0	3.6	0.0	69.2	1.4	0.0	0.5	0.0	97.3
2011	0.0	1.1	24.3	0.0	0.0	0.0	0.0	2.5	0.0	27.6	1.5	0.0	0.9	0.0	58.1
2012	0.0	0.8	19.6	0.0	0.0	0.0	0.0	3.2	0.0	23.9	0.6	0.0	0.5	0.0	48.6
2013	0.0	1.0	13.5	0.0	0.0	0.0	0.0	12.4	0.2	75.7	2.9	0.0	0.8	0.0	106.6
2014	0.0	0.5	19.8	0.0	0.0	0.0	0.0	6.2	0.1	41.6	0.7	0.0	0.5	0.0	69.5
2015	0.0	0.5	21.1	0.0	0.0	0.0	0.0	5.6	2.5	71.9	0.9	0.0	0.8	0.0	103.2

Table 6. Abundance (catch and escapement in millions of fish) of hatchery chum salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.9
1953	0.0	3.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
1954	0.0	5.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4
1955	0.0	4.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
1956	0.0	3.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
1957	0.0	6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
1958	0.0	8.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0
1959	0.0	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
1960	0.0	4.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
1961	0.0	5.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3
1962	0.0	6.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	7.5
1963	0.0	7.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	8.3
1964	0.0	9.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	10.3
1965	0.0	10.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	11.3
1966	0.0	10.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	11.2
1967	0.0	11.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	12.5
1968	0.0	7.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	8.9
1969	0.0	11.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	12.0
1970	0.0	13.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	14.1
1971	0.0	18.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	20.0
1972	0.0	18.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	20.5
1973	0.0	20.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	22.0
1974	0.0	25.1	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	26.6
1975	0.0	32.6	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	34.1
1976	0.0	23.5	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	25.4
1977	0.0	18.4	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.1	20.4
1978	0.0	20.0	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.8	22.7
1979	0.0	27.6	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	0.1	29.6
1980	0.0	26.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.3	28.1
1981	0.0	33.5	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.9	0.2	35.5
1982	0.0	32.6	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.2	0.4	35.2
1983	0.0	37.3	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.4	0.3	40.0
1984	0.0	42.3	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.7	0.3	1.0	0.5	46.4
1985	0.0	52.3	0.6	0.0	0.1	0.0	0.0	0.1	0.0	1.5	1.1	0.4	1.9	0.5	58.5
1986	0.0	50.6	0.7	0.0	0.1	0.0	0.0	0.1	0.0	0.3	1.5	0.4	2.4	0.5	56.5
1987	0.0	44.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7	0.3	1.8	0.8	50.6
1988	0.0	52.5	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	1.6	0.4	1.8	1.4	59.2
1989	0.0	55.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.5	2.9	0.7	61.8
1990	0.0	69.0	1.6	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.2	0.5	2.9	0.3	76.1
1991	0.0	60.8	0.9	0.0	0.1	0.0	0.0	0.1	0.1	0.2	1.9	0.5	2.8	0.6	67.8
1992	0.1	45.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.6	0.4	2.2	0.6	53.0
1993	0.1	62.7	0.7	0.0	0.0	0.0	0.0	0.1	0.0	1.2	5.1	0.4	2.6	0.6	73.6
1994	0.1	63.8	0.9	0.0	0.1	0.1	0.0	0.0	0.1	1.0	7.5	0.4	2.3	0.8	77.1
1995	0.1	75.6	1.1	0.0	0.0	0.1	0.0	0.3	0.1	0.7	8.5	0.5	3.0	0.4	90.4
1996	0.1	86.8	1.1	0.0	0.0	0.1	0.0	0.0	0.0	1.8	14.0	0.4	2.9	0.5	107.8
1997	0.1	77.7	1.8	0.0	0.1	0.1	0.0	0.0	0.0	1.9	10.5	0.4	2.5	0.4	95.4
1998	0.2	59.3	1.7	0.0	0.0	0.1	0.0	0.1	0.0	1.2	12.2	0.5	1.7	0.6	77.7
1999	0.2	51.5	2.1	0.0	0.1	0.0	0.0	0.2	0.0	2.8	12.0	0.5	1.6	0.1	71.2
2000	0.2	46.2	2.1	0.0	0.1	0.0	0.0	0.3	0.0	4.8	13.6	0.6	1.8	0.1	69.8
2001	0.1	64.3	1.8	0.0	0.1	0.0	0.0	0.2	0.0	2.8	6.3	0.6	2.3	1.0	79.5
2002	0.0	56.0	3.7	0.0	0.1	0.0	0.0	0.1	0.0	6.4	6.1	0.4	1.9	0.9	75.6
2003	0.0	73.5	3.4	0.0	0.2	0.0	0.0	0.5	0.0	3.7	9.7	0.5	1.3	1.0	93.9
2004	0.1	77.0	1.6	0.0	0.1	0.0	0.0	0.3	0.0	2.0	8.7	0.4	1.4	0.9	92.4
2005	0.0	70.8	2.6	0.0	0.1	0.0	0.0	0.1	0.0	2.1	5.2	0.3	0.9	0.3	82.7
2006	0.0	68.0	4.9	0.0	0.2	0.0	0.0	0.2	0.0	2.0	13.3	0.5	1.3	0.7	91.1
2007	0.0	60.7	6.5	0.0	0.2	0.0	0.0	0.3	0.0	3.5	8.4	0.5	1.5	0.8	82.2
2008	0.1	48.6	8.8	0.0	0.1	0.0	0.0	0.1	0.0	4.8	8.6	0.2	1.1	0.5	73.0
2009	0.1	58.2	8.8	0.0	0.0	0.0	0.0	0.2	0.0	3.1	9.4	0.4	1.8	0.5	82.4
2010	0.1	45.3	9.2	0.1	0.1	0.0	0.0	0.2	0.0	4.1	8.5	0.2	1.5	0.6	69.8
2011	0.1	39.7	9.5	0.0	0.2	0.0	0.0	0.4	0.0	1.8	9.8	0.1	1.3	0.6	63.3
2012	0.1	40.0	12.0	0.0	0.1	0.0	0.0	0.3	0.0	4.8	11.7	0.2	1.0	0.7	70.8
2013	0.0	47.4	14.0	0.0	0.1	0.0	0.0	0.1	0.0	4.0	11.4	0.2	0.8	1.3	79.4
2014	0.0	40.8	13.9	0.0	0.2	0.0	0.0	0.1	0.0	1.3	6.6	0.2	1.1	0.6	64.8
2015	0.1	39.6	16.6	0.0	0.2	0.0	0.0	0.1	0.0	2.3	9.2	0.3	1.4	0.5	70.4

Table 7. Abundance (catch and escapement in millions of fish) of hatchery sockeye salmon returning to regions of Asia and North America, 1952-2015. Values do not include Canadian spawning channel sockeye salmon.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WC	Total
1952	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1953	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1954	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1955	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1956	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1957	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1958	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1959	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1960	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1961	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1962	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1963	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1964	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1965	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1966	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1967	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1968	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1969	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1970	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1971	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1972	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1973	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1974	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1975	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.7
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.5
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.5
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.7
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	0.1	0.1	0.0	0.0	0.0	1.8
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.1	0.1	0.0	0.0	0.0	2.2
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.4
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.3	0.0	0.0	0.0	0.0	1.4
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	0.1	0.0	0.0	0.0	1.2
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.7	0.4	0.0	0.0	0.0	2.2
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.6	0.7	0.0	0.0	0.0	0.0	3.9
1993	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.6	0.5	0.5	0.0	0.0	0.0	5.1
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.3	0.5	0.3	0.0	0.0	0.0	4.3
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.3	0.0	0.0	0.0	1.4
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	1.0	0.7	0.0	0.0	0.0	2.6
1997	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.2	1.5	0.5	0.0	0.0	0.0	3.1
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.3	0.9	0.4	0.0	0.0	0.0	3.0
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.6	1.3	0.3	0.0	0.0	0.0	3.3
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.8	0.4	0.0	0.0	0.2	2.5
2001	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	1.2	1.1	0.5	0.0	0.0	0.1	3.6
2002	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.8	1.4	1.4	0.1	0.0	0.0	0.1	4.0
2003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	1.6	0.4	0.0	0.0	0.1	4.9
2004	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9	0.8	0.6	0.0	0.0	0.1	3.7
2005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	0.7	0.3	0.0	0.0	0.0	2.6
2006	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	1.9	1.3	0.5	0.0	0.0	0.1	4.2
2007	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.8	1.3	0.2	0.0	0.0	0.0	2.6
2008	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.9	0.1	0.0	0.0	0.0	1.8
2009	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	1.0	0.2	0.0	0.0	0.0	1.8
2010	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	1.8	0.1	0.0	0.0	0.1	2.8
2011	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.3	1.9	0.2	0.0	0.0	0.1	3.1
2012	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.2	1.7	0.2	0.0	0.0	0.2	2.8
2013	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.2	1.3	0.3	0.0	0.0	0.1	2.4
2014	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.3	1.7	0.3	0.0	0.0	0.1	2.9
2015	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.3	1.8	0.2	0.0	0.0	0.1	2.8

Table 8. Abundance (catch and escapement in millions of fish) of total pink salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0.0	2.1	26.3	98.1	16.3	4.0	2.7	6.6	4.4	3.4	19.9	10.0	4.9	0.0	198.5
1953	0.0	1.9	44.4	208.6	26.6	0.3	6.0	7.3	1.3	3.2	11.5	3.7	16.4	5.3	336.4
1954	0.0	1.6	46.3	59.6	13.5	4.0	4.8	10.9	4.7	4.3	18.4	8.7	3.2	0.0	179.9
1955	0.0	3.1	78.8	117.7	28.6	0.3	5.6	13.4	2.7	4.3	19.1	3.8	12.9	3.8	294.0
1956	0.0	3.9	105.1	85.5	4.5	4.0	6.0	5.1	3.6	5.9	26.2	9.5	2.3	0.0	261.5
1957	0.0	2.5	68.3	169.0	78.9	0.3	2.7	6.7	0.8	1.5	14.8	5.0	8.4	3.0	361.9
1958	0.0	3.8	105.7	9.6	11.5	4.0	3.6	5.9	4.5	7.7	19.9	7.7	2.6	0.0	186.5
1959	0.0	2.7	68.9	35.4	93.5	0.3	2.6	3.3	0.4	4.3	16.5	5.4	4.4	2.4	240.3
1960	0.0	3.3	40.3	13.0	25.3	4.0	3.8	9.0	3.9	5.7	7.6	8.3	0.6	0.0	125.0
1961	0.0	1.2	36.7	26.8	61.2	0.3	4.2	5.8	0.9	8.6	15.9	10.6	8.3	1.2	181.8
1962	0.0	3.7	19.4	21.1	16.2	3.3	6.7	16.9	7.4	12.5	18.1	36.0	1.7	0.0	163.0
1963	0.0	2.7	43.6	37.2	59.7	0.3	6.6	7.6	0.6	9.2	30.3	12.4	6.2	7.8	224.3
1964	0.0	3.5	22.2	4.5	27.2	3.7	7.6	14.7	8.8	9.5	26.4	16.2	1.8	0.0	146.3
1965	0.0	2.5	82.4	14.4	48.0	0.1	5.6	4.5	0.4	5.3	17.7	8.6	14.2	1.1	205.0
1966	0.0	4.4	43.3	0.8	23.3	5.8	3.0	13.4	5.5	6.8	29.9	19.5	5.6	0.0	161.2
1967	0.0	4.9	85.1	15.2	46.1	0.3	1.2	0.6	1.0	5.0	6.2	3.3	5.1	1.0	175.1
1968	0.0	7.7	39.9	1.4	17.0	8.7	4.7	11.9	6.2	5.8	33.4	28.7	6.9	0.0	172.4
1969	0.0	4.4	111.7	11.1	39.1	0.6	6.8	14.3	0.6	6.0	11.3	3.8	10.5	0.4	220.7
1970	0.0	11.0	28.4	0.5	26.5	2.0	5.1	15.9	2.2	5.6	18.0	16.6	4.5	0.0	136.1
1971	0.0	8.1	95.9	11.9	30.8	0.1	3.6	5.5	1.1	10.5	18.8	5.3	8.8	1.1	201.5
1972	0.0	2.7	48.5	2.5	13.1	0.6	0.3	3.7	1.7	1.9	20.8	22.3	1.8	0.0	119.9
1973	0.0	5.6	108.1	9.4	20.5	0.3	0.5	1.2	1.5	5.6	14.6	5.3	7.3	0.8	180.6
1974	0.0	3.2	68.1	2.8	19.4	4.0	0.9	5.0	1.3	3.2	11.9	11.5	4.7	0.0	135.9
1975	0.0	6.1	105.4	33.9	46.8	0.3	1.1	4.2	2.9	8.1	13.1	6.3	11.1	0.5	239.7
1976	0.0	3.8	87.9	13.2	23.3	4.1	5.1	14.5	3.4	5.7	28.4	13.5	6.2	0.0	209.0
1977	0.0	3.7	112.5	63.6	57.7	0.3	6.1	8.8	3.6	8.3	24.8	6.2	16.1	0.9	312.9
1978	0.0	2.5	86.9	15.5	12.5	19.4	11.0	20.6	4.6	6.2	40.1	16.4	2.7	0.0	238.5
1979	0.0	2.2	78.2	78.6	59.1	1.0	12.6	14.7	5.7	22.0	33.1	7.1	20.5	1.4	336.2
1980	0.0	3.4	107.6	24.3	5.0	10.3	11.4	24.5	5.0	18.7	32.1	12.3	3.0	0.0	257.7
1981	0.0	2.7	72.5	46.6	65.0	1.3	9.3	13.9	6.3	25.1	39.2	12.0	18.1	0.5	312.7
1982	0.0	2.2	55.3	41.1	17.8	6.8	8.9	14.1	2.3	27.0	42.3	6.8	1.1	0.0	225.6
1983	0.0	2.2	92.3	164.5	41.6	0.5	4.2	7.0	2.4	20.4	61.6	20.2	22.5	1.0	440.6
1984	0.0	3.5	35.5	87.2	29.8	8.4	16.9	16.0	2.4	34.0	52.0	14.6	0.8	0.0	301.1
1985	0.0	7.2	122.5	9.8	24.8	0.2	7.0	11.1	1.9	33.3	97.3	19.6	10.0	1.8	346.6
1986	0.0	5.4	43.1	42.0	4.4	1.5	7.8	16.5	4.5	14.6	84.7	30.8	2.4	0.0	257.7
1987	0.0	8.1	101.2	1.7	56.3	0.2	3.7	8.0	1.1	34.3	32.2	14.0	18.5	1.6	280.9
1988	0.0	6.9	36.9	36.5	9.5	6.5	15.7	19.5	2.3	15.0	24.6	32.0	3.3	0.0	208.8
1989	0.0	8.8	119.8	1.7	68.8	0.2	11.6	23.3	1.9	27.9	89.3	14.5	25.7	2.0	395.4
1990	0.0	6.5	72.9	28.1	27.5	5.8	6.4	12.7	2.0	48.1	56.1	28.8	5.0	0.0	300.1
1991	0.0	14.7	152.1	2.9	97.2	0.2	15.5	21.6	1.4	41.1	89.1	29.0	20.1	1.1	486.1
1992	0.0	14.9	106.6	19.3	9.9	3.6	16.8	7.3	2.4	10.3	62.1	19.6	4.2	0.0	277.1
1993	0.0	18.0	121.3	0.6	69.8	1.0	16.6	39.5	2.3	8.4	87.0	7.6	16.7	1.1	389.9
1994	0.0	22.1	127.5	108.6	21.2	8.4	12.7	12.7	3.5	36.9	91.9	5.5	2.2	0.0	453.4
1995	0.0	14.2	110.6	0.6	78.0	0.1	30.8	54.8	4.1	21.0	83.9	13.0	10.8	2.2	424.0
1996	0.0	23.8	105.3	77.5	15.9	4.0	9.2	7.3	1.5	28.1	125.6	22.9	3.1	0.0	424.2
1997	0.0	8.5	142.0	0.9	99.7	0.3	12.2	14.7	4.0	31.1	66.2	6.6	5.8	0.4	392.5
1998	0.0	16.9	94.6	137.6	13.3	3.8	16.4	30.3	3.3	33.5	82.9	8.0	2.9	0.0	443.5
1999	0.0	9.5	115.8	0.1	107.6	0.1	17.6	16.7	1.9	56.4	154.9	9.3	24.0	1.0	514.6
2000	0.0	19.2	126.6	88.9	1.8	2.4	8.6	15.1	2.4	44.6	50.9	13.1	6.8	0.0	380.5
2001	0.0	5.8	127.1	1.4	43.4	0.1	12.5	23.7	1.4	42.4	115.5	18.0	27.6	3.7	422.5
2002	0.0	17.4	97.9	82.4	4.7	2.6	7.8	28.0	3.6	23.0	98.9	14.9	1.6	0.0	383.0
2003	0.0	16.5	139.3	0.7	66.7	0.6	14.3	20.1	1.7	63.2	96.6	18.6	11.7	3.3	453.3
2004	0.0	8.0	55.1	85.3	22.8	7.2	16.6	31.2	8.0	29.8	85.4	9.3	2.3	0.0	361.2
2005	0.0	11.1	165.9	23.9	100.5	2.6	17.0	34.5	6.8	76.4	109.3	18.0	10.2	2.0	578.2
2006	0.0	6.2	126.6	60.2	29.1	3.7	8.2	38.4	3.1	26.8	37.5	2.9	1.1	0.0	344.0
2007	0.0	16.9	188.2	13.7	101.1	0.2	14.2	28.0	2.0	69.1	89.0	11.3	21.7	3.2	558.5
2008	0.0	8.2	110.5	69.9	12.0	3.7	20.0	12.7	1.2	45.4	39.9	3.2	1.1	0.0	327.6
2009	0.0	12.6	249.5	4.5	199.7	0.2	13.9	33.5	2.7	24.5	70.6	23.7	26.0	10.3	671.7
2010	0.0	9.0	118.1	104.9	14.4	4.7	2.7	13.2	0.6	77.1	52.9	7.0	2.3	0.0	407.0
2011	0.0	6.3	202.5	5.2	222.6	0.2	10.2	19.8	0.8	44.6	103.2	4.6	18.8	5.7	644.3
2012	0.0	2.6	145.1	143.8	23.7	3.8	1.7	22.4	1.5	30.4	49.3	7.3	3.6	0.0	435.2
2013	0.0	4.5	170.4	1.6	33.4	0.2	12.5	33.2	4.3	106.4	158.8	19.9	23.3	8.7	577.2
2014	0.0	1.9	136.5	6.4	48.2	4.6	2.8	13.7	1.8	45.7	72.5	13.9	3.6	0.0	351.6
2015	0.0	2.3	80.3	3.4	163.5	0.2	28.5	38.9	13.1	105.1	65.5	14.9	22.4	6.0	544.1

Table 9. Abundance (catch and escapement in millions of fish) of total chum salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	Total
1952	0.0	2.8	19.3	3.7	3.7	4.9	1.8	1.7	1.3	0.8	6.5	2.1	2.8	1.5	52.9
1953	0.0	3.0	19.6	3.7	2.0	5.1	2.3	0.9	1.4	0.6	5.7	3.2	3.3	1.0	51.8
1954	0.0	5.2	28.3	7.4	3.6	5.4	2.1	1.7	1.9	0.7	6.6	3.9	3.8	1.4	72.1
1955	0.0	4.5	38.9	10.5	7.4	4.6	1.6	0.8	1.0	0.7	3.1	1.3	1.7	0.8	76.8
1956	0.0	3.2	44.8	7.1	7.2	5.4	2.5	1.1	2.1	0.8	4.7	2.3	1.7	0.5	83.5
1957	0.0	6.0	29.0	2.4	3.4	5.0	2.1	1.7	2.8	1.0	5.6	3.0	2.8	0.6	65.2
1958	0.0	8.7	34.3	2.3	4.1	5.1	1.6	1.4	1.6	1.0	4.8	3.0	2.6	1.0	71.4
1959	0.0	4.6	28.6	6.8	6.1	5.6	1.3	1.1	1.2	0.8	2.8	1.2	3.6	1.0	64.7
1960	0.0	4.2	35.9	3.1	3.3	7.2	1.8	1.8	1.9	0.6	2.0	1.7	2.6	0.5	66.7
1961	0.0	5.9	27.3	2.4	3.1	5.2	1.5	0.9	1.2	0.5	3.8	1.8	1.7	0.4	55.6
1962	0.0	6.7	26.9	2.2	3.7	5.5	1.9	1.2	2.6	1.2	3.3	2.7	1.4	0.6	59.7
1963	0.0	7.7	26.4	1.6	4.6	4.2	1.4	0.6	1.4	1.2	2.6	2.7	1.9	0.7	56.9
1964	0.0	9.8	24.6	1.8	3.3	5.4	2.0	1.6	3.1	0.8	3.0	4.3	2.1	0.6	62.5
1965	0.0	10.4	26.8	1.6	2.1	4.4	1.0	0.8	1.0	0.4	2.7	1.6	0.9	0.5	54.2
1966	0.0	10.4	30.4	1.7	2.4	4.4	1.4	1.2	1.7	0.7	5.3	3.6	1.8	0.8	65.8
1967	0.0	11.9	22.5	0.6	2.7	4.3	0.7	0.4	1.1	0.6	4.1	2.5	1.5	0.6	53.4
1968	0.0	7.9	19.0	0.7	1.9	4.6	1.0	0.9	2.7	0.5	3.9	4.5	4.3	0.6	52.6
1969	0.0	11.3	9.9	0.8	1.9	4.5	0.6	0.6	1.0	0.5	1.4	1.8	3.0	0.4	37.8
1970	0.0	13.1	18.2	1.6	1.8	6.7	1.8	1.0	2.4	0.4	4.6	4.1	5.4	0.7	61.6
1971	0.0	18.2	15.5	0.6	1.4	5.8	2.4	1.8	1.3	0.8	4.3	2.2	2.0	0.4	56.7
1972	0.0	18.9	16.2	0.5	1.8	5.2	1.0	1.5	1.8	0.7	5.5	3.9	9.2	0.9	67.1
1973	0.0	20.1	12.6	0.3	1.6	6.9	0.6	0.6	2.1	1.8	4.4	4.7	8.0	0.6	64.5
1974	0.0	25.1	14.0	0.8	1.6	8.1	0.7	0.4	1.2	0.5	4.5	3.1	2.7	0.8	63.4
1975	0.0	32.6	11.3	0.1	1.5	9.6	0.5	0.3	2.7	0.2	2.5	1.2	2.4	0.3	65.1
1976	0.0	23.5	17.5	0.2	1.9	7.9	1.0	1.0	1.1	0.6	6.1	1.6	4.2	1.0	67.7
1977	0.0	18.4	12.6	0.3	3.3	9.3	1.8	1.9	4.0	0.9	1.5	1.8	3.8	0.7	60.3
1978	0.0	20.0	12.1	0.8	2.6	9.4	1.7	1.3	1.2	0.8	1.8	2.6	5.8	1.6	61.8
1979	0.0	27.6	11.3	0.6	3.6	7.9	1.5	1.0	2.8	0.5	2.9	1.5	2.3	0.3	63.8
1980	0.0	26.1	11.5	0.3	2.3	12.4	2.0	1.9	1.4	0.6	4.0	2.5	4.8	1.1	71.0
1981	0.0	33.5	10.5	0.6	3.0	12.8	2.7	2.1	3.7	2.0	1.8	1.9	4.4	0.8	79.9
1982	0.0	32.6	11.8	0.6	2.2	8.3	2.5	2.4	3.2	2.1	2.5	2.6	5.6	1.6	77.8
1983	0.0	37.3	12.5	0.2	5.2	8.7	2.0	2.0	2.5	1.8	2.0	1.8	3.7	0.7	80.4
1984	0.0	42.3	10.5	0.8	3.0	12.0	3.0	1.3	1.9	1.6	7.7	2.5	3.3	1.3	91.2
1985	0.0	52.3	10.6	2.6	4.2	9.4	1.9	1.0	2.1	3.2	5.8	4.2	7.7	1.6	106.6
1986	0.0	50.6	12.2	1.7	4.9	8.8	2.6	1.8	2.8	2.2	5.6	5.5	9.1	1.7	109.4
1987	0.0	44.8	10.9	1.5	3.9	8.9	2.3	1.1	1.4	2.8	6.3	3.0	5.3	1.9	94.2
1988	0.0	52.5	12.3	1.4	2.5	11.9	2.9	2.0	2.4	3.1	6.7	5.2	6.1	2.4	111.5
1989	0.0	55.6	12.5	1.0	2.9	9.7	1.2	1.2	1.0	1.7	2.9	2.7	4.8	1.1	98.3
1990	0.0	69.0	10.3	1.2	4.4	7.2	1.9	1.1	0.8	1.4	3.4	3.7	8.9	1.4	114.9
1991	0.0	60.8	11.2	1.0	1.6	8.5	2.6	2.0	0.9	0.4	4.5	2.5	6.0	1.4	103.2
1992	0.1	45.9	8.9	0.8	1.9	7.2	2.3	1.2	1.0	0.6	7.8	1.7	10.2	2.1	91.6
1993	0.1	62.7	22.9	1.0	2.1	5.1	1.6	0.8	0.4	1.5	10.5	2.3	11.9	1.5	124.6
1994	0.1	63.8	21.3	1.7	3.7	9.1	3.2	1.1	1.0	1.5	13.9	2.8	7.8	2.6	133.6
1995	0.1	75.6	21.1	1.2	2.4	11.0	3.2	2.0	1.5	1.1	15.2	3.3	6.6	1.4	145.8
1996	0.1	86.8	22.8	1.6	2.4	10.8	2.0	0.9	0.6	2.5	20.9	2.5	5.5	2.0	161.5
1997	0.1	77.7	14.6	1.4	2.1	5.3	2.5	0.8	1.0	2.6	16.1	2.1	6.1	0.8	133.1
1998	0.2	59.3	16.2	2.0	2.3	5.7	2.3	0.6	0.7	1.9	22.1	4.7	11.9	2.2	132.1
1999	0.2	51.5	14.9	1.3	3.4	6.2	2.4	1.4	0.6	3.8	20.7	2.5	5.9	0.7	115.7
2000	0.2	46.2	14.2	2.8	6.7	4.0	2.2	2.0	0.7	6.0	23.2	2.2	4.6	0.6	115.5
2001	0.1	64.3	21.3	3.1	5.3	6.6	3.0	1.5	0.6	4.2	12.3	2.6	7.8	2.7	135.3
2002	0.0	56.0	16.0	3.6	4.0	6.4	1.7	1.1	0.9	7.2	10.7	3.1	11.1	3.6	125.2
2003	0.0	73.5	14.5	2.1	2.5	7.8	1.6	1.5	0.6	6.4	14.1	4.5	17.4	2.6	149.0
2004	0.1	77.0	16.9	2.1	2.0	6.8	2.0	2.0	1.0	2.5	15.6	4.0	6.1	3.4	141.5
2005	0.0	70.8	11.8	3.0	4.7	11.9	2.4	0.9	0.6	2.7	12.8	2.4	5.2	1.2	130.2
2006	0.0	68.0	22.7	5.3	4.7	8.7	2.9	2.1	0.6	2.7	14.9	2.4	4.3	2.7	142.0
2007	0.0	60.7	24.8	4.4	4.8	8.7	2.9	1.1	0.6	4.1	11.7	1.6	4.9	2.2	132.4
2008	0.1	48.6	30.7	3.8	5.2	7.5	2.3	1.2	0.6	5.1	10.5	0.8	3.1	1.4	120.9
2009	0.1	58.2	59.4	3.2	4.8	7.3	3.1	1.3	0.6	3.5	11.0	1.4	8.6	1.0	163.6
2010	0.1	45.3	43.0	5.1	4.3	8.9	1.7	1.1	0.8	4.9	11.7	0.9	3.0	1.5	132.3
2011	0.1	39.7	33.5	5.6	3.8	11.1	2.5	1.4	0.7	2.6	12.8	2.0	5.8	1.7	123.2
2012	0.1	40.0	42.7	7.3	5.5	10.7	1.4	1.3	0.9	4.9	14.2	1.8	3.8	1.7	136.1
2013	0.0	47.4	79.3	6.0	7.4	10.9	2.6	1.3	0.7	4.5	15.0	1.8	3.2	2.4	182.4
2014	0.0	40.8	56.2	7.9	9.8	10.1	1.3	0.6	0.6	1.9	7.7	1.1	3.6	1.7	143.5
2015	0.1	39.6	62.2	8.2	6.8	8.6	2.9	1.3	1.3	2.6	15.5	1.8	5.3	1.7	157.9

Table 10. Abundance (catch and escapement in millions of fish) of total sockeye salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WC	Total
1952	0.0	0.0	0.2	4.6	0.3	24.7	0.4	1.6	2.3	2.0	1.2	2.0	4.1	0.3	43.6
1953	0.0	0.0	0.1	3.5	0.2	12.7	0.7	1.1	2.3	1.2	1.8	4.6	9.2	0.5	37.9
1954	0.0	0.0	0.2	4.1	1.0	10.5	0.6	1.1	2.0	1.8	1.6	2.1	16.4	0.8	42.2
1955	0.0	0.0	0.4	6.9	4.2	10.2	0.8	0.9	1.8	1.3	1.0	2.1	6.6	0.3	36.4
1956	0.0	0.0	0.3	5.6	3.5	27.1	1.4	1.0	2.1	1.4	1.2	2.9	6.3	0.2	53.0
1957	0.0	0.0	1.2	10.2	4.1	20.2	0.8	1.0	1.3	1.2	1.4	1.9	6.3	0.4	50.0
1958	0.0	0.0	0.4	6.3	6.1	7.7	0.7	1.1	1.0	0.8	1.3	2.9	20.4	0.8	49.5
1959	0.0	0.0	0.4	5.0	5.9	15.0	0.8	1.1	1.2	0.8	1.2	2.6	10.4	0.4	45.0
1960	0.0	0.0	0.4	5.5	6.7	41.8	1.3	1.2	1.7	0.9	0.8	2.2	8.1	0.3	70.9
1961	0.0	0.0	0.4	8.9	2.9	25.7	0.7	1.3	2.0	1.2	1.0	4.3	8.7	0.3	57.5
1962	0.0	0.0	0.4	8.3	2.9	12.9	0.9	1.9	2.0	1.4	1.0	5.1	5.9	0.2	42.8
1963	0.0	0.0	0.3	5.3	4.3	9.0	0.9	1.3	1.7	1.0	0.9	6.0	6.0	0.3	37.0
1964	0.0	0.0	0.2	1.7	5.4	12.7	0.9	1.4	1.7	1.4	1.2	6.0	4.1	0.1	37.0
1965	0.0	0.0	0.3	3.6	4.3	61.7	1.1	1.2	2.3	1.6	1.5	2.9	4.5	0.2	85.2
1966	0.0	0.0	0.3	2.5	5.7	21.1	0.8	1.6	2.8	1.9	1.4	3.3	7.1	0.3	48.8
1967	0.0	0.0	0.4	3.4	7.5	12.7	1.0	1.1	2.3	1.1	1.3	5.1	7.9	0.5	44.3
1968	0.0	0.0	0.3	1.0	7.3	10.5	1.8	1.8	1.9	1.3	1.1	7.6	10.6	0.2	45.4
1969	0.0	0.0	0.2	0.7	6.7	23.4	1.0	1.6	1.3	1.7	1.1	3.1	6.1	0.4	47.4
1970	0.0	0.0	0.2	1.1	6.4	46.0	2.5	2.1	1.4	2.0	0.9	2.6	8.9	0.3	74.4
1971	0.0	0.0	0.2	1.9	4.3	19.7	2.2	1.4	1.3	1.4	0.8	4.2	27.3	0.7	65.4
1972	0.0	0.0	0.2	1.7	3.9	8.2	1.0	1.0	1.6	1.7	0.7	3.2	7.6	0.5	31.4
1973	0.0	0.0	0.2	1.3	4.4	4.4	1.7	0.9	1.3	1.0	0.9	8.4	9.9	0.7	35.1
1974	0.0	0.0	0.5	2.9	1.1	12.7	1.5	1.3	1.1	1.4	1.0	5.4	12.0	0.2	41.0
1975	0.0	0.0	0.2	1.3	3.9	27.0	1.0	0.9	1.3	1.1	0.9	3.7	13.8	0.3	55.3
1976	0.0	0.0	0.2	1.6	3.5	14.4	2.2	1.6	2.6	1.7	1.6	3.6	9.9	0.3	43.2
1977	0.0	0.0	0.2	0.4	2.6	12.1	3.1	1.6	3.2	1.6	2.0	4.3	14.1	0.9	46.2
1978	0.0	0.0	0.2	0.9	3.6	24.2	2.5	1.9	3.3	1.0	1.5	3.3	13.9	0.4	56.8
1979	0.0	0.0	0.3	0.8	3.3	46.2	1.9	1.7	1.6	0.8	1.9	4.3	10.4	0.4	73.6
1980	0.0	0.0	0.2	1.4	3.2	70.5	1.5	2.3	2.5	0.6	1.5	2.8	6.8	0.7	94.0
1981	0.0	0.0	0.2	1.6	2.9	41.3	3.0	2.3	2.6	1.4	1.5	6.5	14.6	0.3	78.2
1982	0.0	0.0	0.3	1.3	2.5	28.0	2.6	2.5	4.3	3.3	2.0	7.3	23.6	0.5	78.3
1983	0.0	0.0	0.3	1.4	3.3	52.0	3.3	2.2	6.2	1.6	1.8	4.1	19.6	0.4	96.1
1984	0.0	0.0	0.2	1.9	2.9	46.4	4.5	3.2	3.3	2.1	1.6	3.8	10.0	0.8	80.6
1985	0.0	0.0	0.1	3.5	2.3	44.2	1.9	4.3	5.5	2.3	2.1	8.5	17.8	0.6	93.1
1986	0.0	0.0	0.2	3.0	2.1	28.6	2.8	5.0	5.9	2.1	1.6	4.7	18.6	0.4	74.9
1987	0.0	0.0	0.2	4.4	2.2	30.8	3.2	2.7	11.5	2.6	1.9	5.1	12.9	0.5	78.0
1988	0.0	0.0	0.1	3.0	1.7	27.0	1.6	5.2	8.0	0.8	1.4	6.1	7.1	0.9	62.9
1989	0.0	0.0	0.2	3.9	1.6	49.6	2.2	3.3	6.9	1.5	2.1	3.7	20.3	0.3	95.6
1990	0.0	0.0	0.1	6.5	0.7	54.3	3.2	7.3	4.8	0.8	2.1	4.0	23.0	0.3	107.2
1991	0.0	0.0	0.3	6.7	0.7	49.1	3.5	8.4	3.4	2.4	2.4	5.9	17.9	0.3	100.9
1992	0.0	0.0	0.3	5.9	2.2	52.8	2.4	6.3	10.4	2.8	2.5	7.8	9.9	0.4	103.7
1993	0.0	0.0	0.4	6.9	3.7	61.3	2.9	5.4	6.2	2.8	3.7	7.3	25.1	0.4	126.0
1994	0.0	0.0	0.3	6.1	3.2	57.6	3.1	5.8	5.2	2.4	2.4	3.8	17.6	0.2	107.6
1995	0.0	0.0	0.5	5.1	5.3	69.0	2.9	7.0	4.3	2.3	1.9	6.6	4.5	0.1	109.7
1996	0.0	0.0	0.6	5.4	5.2	43.0	3.1	6.8	5.3	4.0	3.7	8.2	10.6	0.6	96.6
1997	0.0	0.0	0.3	3.7	4.5	24.1	1.6	4.9	5.8	5.2	2.7	4.7	21.4	0.2	79.1
1998	0.0	0.0	0.2	4.3	3.4	22.6	1.9	5.6	2.5	2.6	1.7	1.8	11.6	0.1	58.3
1999	0.0	0.0	0.3	4.2	4.7	46.5	4.5	7.4	4.1	3.6	1.9	1.8	4.4	0.1	83.5
2000	0.0	0.0	0.4	5.8	3.2	34.1	3.1	5.0	3.5	2.5	1.7	5.3	5.7	0.6	70.9
2001	0.0	0.0	0.5	4.8	3.3	26.5	3.2	4.5	4.0	3.3	2.4	4.7	10.1	0.4	67.6
2002	0.0	0.0	0.3	11.6	2.0	20.6	2.4	3.6	5.4	3.3	1.7	3.3	16.4	0.5	70.9
2003	0.0	0.0	0.2	6.5	3.1	29.8	2.1	7.4	7.5	3.7	2.1	3.8	5.9	0.4	72.4
2004	0.0	0.0	0.1	6.7	2.4	48.7	1.7	6.1	8.1	2.8	2.5	2.7	8.6	0.6	90.9
2005	0.0	0.0	0.7	9.3	3.0	45.2	2.0	4.6	8.3	2.8	2.0	2.1	7.3	0.2	87.6
2006	0.0	0.0	0.7	8.3	3.4	43.9	2.3	2.6	5.4	2.8	2.1	3.9	13.2	0.5	89.1
2007	0.0	0.0	0.4	13.6	4.1	45.4	2.0	3.3	6.2	3.2	2.1	2.5	1.6	0.1	84.7
2008	0.0	0.0	0.4	10.1	4.1	43.4	1.5	2.8	5.0	1.3	1.0	2.8	5.2	0.3	77.8
2009	0.0	0.0	0.4	8.4	5.9	43.3	2.2	2.8	4.8	1.8	1.4	1.8	1.8	0.2	74.9
2010	0.0	0.0	0.5	8.8	5.7	41.4	2.4	2.5	5.5	3.0	1.2	1.9	30.7	0.6	104.2
2011	0.0	0.0	0.7	11.0	5.3	31.9	4.0	3.3	9.2	4.4	1.7	3.9	8.1	0.3	83.6
2012	0.0	0.0	0.5	13.7	6.5	31.2	3.0	3.5	6.9	4.8	1.5	3.4	14.9	0.7	90.6
2013	0.0	0.0	0.5	13.9	7.6	26.3	3.8	3.9	6.1	3.4	1.5	1.7	4.4	0.4	73.6
2014	0.0	0.0	0.4	11.0	6.3	44.5	1.6	4.9	6.2	4.3	2.1	3.9	22.3	0.8	108.2
2015	0.0	0.0	0.6	14.0	6.2	62.3	4.5	4.6	6.4	4.2	1.9	3.2	4.9	0.6	113.3

Table 11. Biomass (catch and escapement in metric tonnes) of total pink salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	TOTAL
1952	0	2,560	38,110	157,954	22,406	6,346	4,351	10,623	7,051	5,473	34,938	20,699	10,069	0	320,581
1953	0	2,332	64,293	336,095	36,629	460	9,648	11,728	2,100	5,143	20,158	9,135	41,042	13,768	552,531
1954	0	1,948	66,999	96,006	18,556	6,375	7,599	17,379	7,425	6,836	32,298	18,866	6,330	0	286,618
1955	0	4,155	114,038	189,574	39,383	460	8,950	21,378	4,247	6,837	33,557	8,535	34,625	10,538	476,277
1956	0	4,767	152,132	137,651	6,149	6,260	9,757	8,258	5,823	9,661	46,189	17,073	4,142	0	407,863
1957	0	2,966	98,915	272,315	108,713	460	4,328	10,794	1,288	2,392	26,084	10,762	19,740	7,499	566,256
1958	0	5,424	153,048	15,436	15,853	6,281	5,925	9,739	7,390	12,592	35,041	17,386	5,315	0	289,430
1959	0	3,626	99,734	57,043	128,949	460	4,209	5,300	671	6,836	29,121	12,179	10,366	5,681	364,176
1960	0	4,420	58,427	20,865	34,926	7,174	5,654	13,317	5,674	4,427	11,775	16,628	1,338	0	184,624
1961	0	1,626	53,200	43,235	84,418	534	8,595	11,767	1,764	7,180	37,470	30,248	26,610	3,528	310,176
1962	0	4,369	29,356	35,215	23,133	4,540	9,107	23,051	10,126	13,580	32,038	69,425	3,476	0	257,416
1963	0	3,128	63,317	59,872	82,360	469	11,313	13,113	1,110	10,574	42,769	29,470	15,853	17,714	351,063
1964	0	4,011	30,453	6,941	35,849	5,066	11,779	22,797	13,655	9,797	45,411	30,138	3,494	0	219,392
1965	0	2,822	113,835	22,214	63,556	170	8,757	7,023	664	5,129	31,406	18,471	32,506	3,229	309,783
1966	0	5,194	63,975	1,299	32,722	8,139	5,117	23,136	9,464	7,014	59,807	39,875	11,995	0	267,737
1967	0	5,522	130,445	25,743	66,432	408	2,411	1,246	2,001	6,986	12,732	8,201	14,143	2,537	278,807
1968	0	9,696	64,492	2,537	25,777	12,841	7,186	18,088	9,454	5,520	50,052	40,369	9,038	0	255,051
1969	0	5,076	165,595	18,238	54,838	1,086	12,730	26,921	1,222	9,214	22,035	9,579	29,175	1,165	356,873
1970	0	14,657	41,320	795	36,699	3,202	8,643	26,703	3,747	6,495	31,799	31,375	8,665	0	214,101
1971	0	10,061	141,617	19,459	43,248	158	5,996	9,208	1,761	15,659	31,538	11,768	20,911	2,557	313,941
1972	0	3,332	72,695	4,073	18,625	836	619	7,321	3,357	1,567	29,541	31,126	2,342	0	175,435
1973	0	7,113	137,687	13,457	25,320	525	823	2,159	2,612	6,597	23,723	11,402	16,717	1,940	250,075
1974	0	3,837	91,356	4,250	25,030	7,323	1,683	9,590	2,558	3,801	22,338	18,734	7,487	0	197,986
1975	0	6,774	133,154	48,034	57,494	380	2,112	7,960	5,485	11,615	22,584	14,666	27,957	1,209	339,426
1976	0	4,961	105,382	17,861	27,484	6,384	9,558	27,082	6,404	7,732	56,426	23,972	11,174	0	304,420
1977	0	4,184	127,762	82,179	65,450	575	11,625	16,748	6,909	11,091	55,166	15,601	44,177	2,352	443,819
1978	0	2,615	102,549	20,626	14,603	28,672	18,082	33,863	7,598	7,618	58,093	25,430	4,106	0	323,855
1979	0	2,259	90,162	102,302	67,519	1,644	20,875	24,481	9,506	32,348	59,198	15,790	48,288	3,129	477,500
1980	0	3,253	127,523	32,642	5,818	15,313	17,148	36,804	7,580	25,314	56,657	22,107	5,474	0	355,632
1981	0	2,808	89,939	64,949	78,914	2,046	16,959	25,281	11,458	41,091	75,685	26,746	43,242	1,144	480,262
1982	0	2,258	67,798	56,824	21,478	9,864	13,984	22,104	3,677	37,160	62,767	10,712	1,647	0	310,274
1983	0	2,287	102,252	207,306	46,172	855	6,457	10,732	3,715	25,589	87,349	35,848	40,268	2,000	570,831
1984	0	3,341	38,972	109,044	32,905	12,711	28,132	26,748	4,034	48,076	84,483	25,124	1,373	0	414,945
1985	0	8,261	138,048	12,507	27,955	332	11,213	17,650	3,025	47,900	140,620	38,930	20,683	4,181	471,305
1986	0	5,980	59,146	64,192	5,747	2,410	11,182	23,772	6,510	14,754	127,794	54,075	4,221	0	379,784
1987	0	9,446	127,396	2,410	69,153	302	5,797	12,713	1,765	49,617	54,046	29,936	41,909	3,347	407,838
1988	0	8,098	48,025	53,104	11,981	10,940	24,689	30,700	3,647	21,113	36,451	48,567	4,868	0	302,182
1989	0	10,499	152,048	2,375	85,050	314	17,876	35,975	2,959	43,850	139,300	28,050	51,416	3,922	573,635
1990	0	7,713	96,807	41,738	35,374	8,178	8,748	17,259	2,747	72,467	81,382	47,298	8,170	0	427,881
1991	0	16,039	195,060	4,101	121,048	255	17,842	24,866	1,643	30,205	109,482	45,823	30,877	2,056	599,297
1992	0	20,948	147,188	29,761	13,133	5,583	26,155	11,320	3,731	15,764	93,048	30,648	6,351	0	403,629
1993	0	20,248	159,922	873	89,094	1,396	21,444	50,943	2,980	10,517	117,469	12,913	28,504	1,981	518,282
1994	0	31,622	153,136	146,998	25,057	13,593	17,940	18,051	4,970	58,605	125,901	9,219	3,654	0	608,747
1995	0	20,546	154,507	902	104,421	234	48,381	86,086	6,489	30,365	121,248	23,429	19,750	3,631	619,989
1996	0	34,123	143,051	117,667	20,758	6,146	14,857	11,784	2,435	58,596	170,974	33,399	4,234	0	618,024
1997	0	13,384	195,821	1,390	131,913	394	20,451	24,600	6,753	52,536	115,529	12,009	10,665	742	586,187
1998	0	24,076	111,744	183,306	15,480	6,266	27,142	50,117	5,485	56,098	130,352	12,847	4,523	0	627,437
1999	0	13,301	139,520	113	127,184	167	23,568	22,377	2,518	70,165	206,020	14,449	36,252	1,644	657,278
2000	0	27,920	168,571	132,182	2,330	3,395	13,220	23,279	3,691	65,502	78,738	21,355	11,015	0	551,199
2001	0	8,275	169,807	2,072	56,115	215	19,167	36,339	2,113	60,026	172,333	31,952	49,302	6,715	614,430
2002	0	26,246	144,015	134,503	6,620	4,380	12,241	44,102	5,651	33,738	149,022	23,753	2,566	131	586,970
2003	0	24,704	190,920	1,131	87,756	1,009	23,030	32,390	2,707	95,986	153,930	29,037	17,780	6,058	666,437
2004	0	12,155	86,970	148,806	33,771	11,664	27,858	52,266	13,325	48,701	140,581	15,084	3,663	117	594,961
2005	0	16,058	207,588	33,550	122,697	4,029	26,537	53,874	10,698	110,655	173,513	32,300	18,468	3,864	813,831
2006	0	8,906	174,268	92,662	38,564	6,149	13,471	62,982	5,056	43,984	68,244	5,568	2,207	0	522,060
2007	0	23,478	266,118	21,458	136,201	251	21,645	42,725	3,086	105,303	145,220	21,023	41,454	5,484	833,447
2008	0	11,213	166,276	116,845	17,092	5,916	30,762	19,505	1,903	69,557	66,558	5,371	1,823	64	512,884
2009	0	18,204	339,211	6,835	261,139	227	19,012	45,788	3,752	33,431	101,132	34,562	35,976	16,868	916,137
2010	0	13,208	168,247	166,832	19,653	7,558	4,335	21,552	1,044	129,711	101,771	11,134	3,548	93	648,687
2011	0	9,150	240,448	7,024	261,354	223	13,780	26,790	1,071	60,739	173,729	8,143	33,761	10,838	847,050
2012	0	3,758	182,635	203,529	29,134	6,167	2,920	39,599	2,566	53,822	79,821	10,548	4,929	55	619,485
2013	0	6,913	243,323	2,559	45,489	217	15,813	41,910	5,415	133,422	231,621	30,220	33,811	16,285	806,999
2014	0	2,946	194,874	10,171	65,679	6,562	3,576	17,226	2,304	58,274	105,779	21,004	5,206	82	493,683
2015	0	3,596	114,664	5,349	222,827	217	35,961	49,069	16,576	132,515	95,487	22,527	32,630	11,184	742,601

Table 12. Biomass (catch and escapement in metric tonnes) of total chum salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	TOTAL
1952	0	7,791	71,350	13,859	13,438	15,066	6,166	6,040	4,398	2,910	28,379	12,416	15,725	8,614	206,153
1953	0	7,725	72,326	13,764	7,425	15,582	7,935	3,180	5,042	2,130	25,040	18,884	16,203	5,081	200,319
1954	0	12,950	104,638	27,773	12,982	16,794	7,416	6,069	6,755	2,437	28,715	22,232	21,313	7,236	277,310
1955	0	9,533	143,515	39,355	26,871	14,248	5,445	2,889	3,357	2,437	13,647	6,595	8,768	4,447	281,106
1956	0	6,559	165,403	26,525	26,325	16,725	8,711	3,862	7,409	2,744	20,472	12,167	8,415	2,792	308,111
1957	0	12,960	106,994	9,150	12,244	15,354	7,281	5,904	9,669	3,491	24,353	15,585	13,941	2,914	239,840
1958	0	18,847	126,465	8,607	15,050	15,609	5,568	4,799	5,478	3,420	20,948	18,341	12,687	5,138	260,956
1959	0	9,712	105,599	25,324	22,190	17,123	4,568	3,984	4,097	2,835	12,174	7,263	17,999	5,403	238,270
1960	0	9,201	132,465	11,654	12,179	20,750	5,656	5,545	5,985	1,993	9,062	9,406	12,012	2,642	238,552
1961	0	14,225	100,829	9,043	11,425	16,114	5,234	3,047	4,043	1,582	16,071	10,091	8,786	2,326	202,816
1962	0	16,127	98,915	8,070	13,253	16,978	6,460	4,162	9,117	4,077	14,183	15,327	7,020	2,857	216,548
1963	0	18,184	93,790	5,957	16,226	11,780	5,123	2,158	5,198	4,538	10,357	12,602	9,468	2,869	198,251
1964	0	21,916	96,660	7,045	12,396	17,478	7,470	6,066	11,810	3,097	13,962	20,318	11,561	3,057	232,837
1965	0	24,350	98,922	6,038	7,648	13,490	3,559	2,615	3,521	1,460	12,313	7,771	4,314	2,101	188,103
1966	0	23,094	106,651	6,079	8,567	14,972	4,752	4,019	5,818	2,565	20,555	19,206	9,414	3,696	229,386
1967	0	26,878	90,764	2,441	10,339	13,556	2,474	1,333	4,024	2,042	17,672	12,246	7,317	2,790	193,877
1968	0	17,390	58,629	2,253	6,105	13,991	3,637	3,239	9,836	1,839	19,271	24,511	22,444	2,911	186,057
1969	0	26,579	40,182	3,052	7,281	13,248	1,948	2,131	3,388	1,804	6,029	7,973	14,488	1,894	129,997
1970	0	30,523	73,138	6,507	6,762	19,465	5,526	3,157	7,331	1,146	17,420	17,941	26,008	3,170	218,094
1971	0	44,394	57,220	2,170	5,260	17,384	7,410	5,613	4,103	2,576	16,324	9,356	8,656	1,507	181,972
1972	0	42,635	62,809	1,767	6,699	16,777	3,362	5,132	6,141	2,204	21,856	20,090	44,371	4,231	238,076
1973	0	49,266	50,901	1,128	6,389	23,090	2,296	2,420	7,922	6,916	19,498	24,692	42,082	3,029	239,631
1974	0	63,449	55,690	2,999	6,156	25,350	2,835	1,405	4,545	1,796	18,230	18,222	13,801	4,032	218,508
1975	0	89,179	41,887	507	5,297	30,488	1,672	880	8,330	646	10,319	5,572	11,187	1,287	207,251
1976	0	58,400	64,705	821	7,020	24,504	3,801	3,833	4,228	2,054	29,470	9,663	23,315	5,147	236,962
1977	0	51,852	47,795	1,297	12,188	31,714	7,065	7,452	15,517	3,635	6,763	9,998	21,118	3,563	219,959
1978	0	60,419	47,389	3,163	9,890	30,538	6,489	4,882	4,644	3,137	7,631	14,097	30,096	7,754	230,128
1979	0	84,975	43,344	2,182	13,389	25,616	5,267	3,378	9,788	1,778	12,375	8,446	11,198	1,587	223,323
1980	0	81,037	43,983	1,296	8,483	37,473	6,547	6,401	4,590	2,033	18,044	12,972	23,511	5,303	251,674
1981	0	105,736	38,251	2,412	10,994	43,072	9,822	7,659	13,218	7,409	8,311	10,561	23,094	4,079	284,616
1982	0	101,847	44,992	2,109	8,041	27,634	9,418	8,788	12,133	7,710	11,260	13,238	27,983	7,824	282,977
1983	0	118,577	47,778	798	19,187	27,515	7,208	7,112	9,100	6,747	8,189	8,475	18,691	3,518	282,893
1984	0	134,303	40,219	2,874	11,262	36,647	10,792	4,757	6,858	6,125	32,574	11,941	15,799	5,899	320,051
1985	0	168,795	36,091	9,293	14,475	30,194	6,490	3,563	7,204	5,866	23,809	17,055	34,224	7,270	364,329
1986	0	163,914	42,177	6,215	17,021	28,851	8,925	6,243	9,536	7,481	22,238	23,582	43,395	7,930	387,508
1987	0	145,255	39,217	5,615	13,790	29,554	7,428	3,709	4,468	8,653	25,339	14,819	25,275	8,509	331,630
1988	0	171,347	44,271	5,181	8,829	43,397	10,479	7,232	8,752	10,910	27,521	27,259	28,152	10,848	404,177
1989	0	181,872	43,271	3,681	10,006	30,240	4,148	3,990	3,363	5,410	12,452	12,531	26,361	5,356	342,680
1990	0	226,551	36,659	4,442	15,747	22,534	6,452	3,663	2,811	5,966	14,404	21,214	45,728	6,888	413,057
1991	0	194,972	38,757	3,601	5,537	25,374	7,919	6,072	2,726	3,243	16,119	10,230	27,091	5,831	347,472
1992	278	151,165	31,055	2,963	6,586	22,399	6,988	3,659	3,024	2,091	28,208	7,215	45,993	9,376	320,998
1993	256	199,769	75,134	3,588	7,195	14,309	4,598	2,327	1,173	4,601	33,502	8,935	49,858	5,868	411,114
1994	298	210,035	63,252	5,601	11,486	28,387	10,855	3,748	3,201	4,665	48,040	12,379	38,148	11,785	451,878
1995	302	249,063	63,085	3,829	7,443	36,225	10,274	6,292	4,709	3,908	56,190	16,277	31,797	5,702	495,093
1996	321	285,801	74,444	5,477	7,908	37,162	7,387	3,365	2,269	11,019	87,651	13,048	25,894	7,989	569,734
1997	335	255,262	44,836	4,747	6,627	17,769	9,355	2,838	3,710	10,491	65,754	9,359	26,198	3,574	460,855
1998	494	195,155	48,356	6,611	7,211	18,882	8,072	1,999	2,326	6,704	88,568	21,590	49,991	9,200	465,159
1999	542	169,484	44,008	4,159	10,764	20,720	8,326	5,009	2,250	13,898	88,587	13,855	27,587	3,412	412,602
2000	473	152,033	42,357	9,133	21,021	14,301	7,860	7,062	2,453	21,852	98,444	11,391	23,248	3,012	414,640
2001	278	211,411	68,972	10,752	17,721	23,639	10,155	5,108	2,092	13,799	49,415	14,705	36,063	11,194	475,305
2002	48	208,725	54,080	12,653	13,821	21,666	6,331	3,944	3,227	26,320	44,940	16,911	53,259	15,848	481,772
2003	134	276,916	51,594	7,572	8,743	24,824	4,663	4,399	1,656	18,243	45,634	21,612	80,215	9,036	555,241
2004	203	265,900	58,062	7,561	6,911	22,256	6,528	6,581	3,423	8,268	57,038	19,171	26,758	12,765	501,426
2005	87	244,775	42,796	11,120	16,775	38,095	7,932	2,917	1,992	9,056	51,572	12,337	25,806	5,877	471,138
2006	64	230,855	75,453	18,731	15,941	31,282	9,687	6,966	2,007	9,201	62,898	13,135	20,400	12,810	509,430
2007	60	198,084	77,780	14,761	15,641	29,413	8,619	3,300	1,843	12,408	43,614	8,509	23,607	9,594	447,233
2008	132	159,617	97,876	13,098	16,998	26,519	7,932	4,024	1,953	17,405	41,169	4,484	14,482	5,858	411,548
2009	242	202,710	182,332	10,830	15,420	24,020	10,050	4,292	2,011	11,522	36,682	7,060	39,888	4,068	551,127
2010	225	158,380	144,535	17,958	14,645	29,865	5,138	3,373	2,478	14,986	44,270	4,228	14,489	5,759	460,330
2011	131	132,679	102,784	18,852	12,127	34,121	7,970	4,352	2,199	8,352	44,351	9,329	29,217	5,942	412,404
2012	102	124,028	119,702	23,026	16,662	37,333	4,525	4,141	2,779	13,278	58,422	9,631	18,409	7,121	439,159
2013	98	155,699	237,753	19,832	23,371	36,951	8,363	4,210	2,273	14,768	53,145	9,238	12,760	9,059	587,521
2014	116	133,887	168,580	26,071	30,956	34,513	4,284	2,103	2,059	6,289	27,191	6,051	14,310	6,645	463,053
2015	314	130,108	186,466	26,999	21,569	29,316	9,529	4,303	4,153	8,502	54,673	9,377	21,378	6,642	513,329

Table 13. Biomass (catch and escapement in metric tonnes) of total sockeye salmon returning to regions of Asia and North America, 1952-2015.

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WC	TOTAL
1952	0	0	497	13,321	909	60,874	1,096	4,122	6,002	5,115	3,311	5,577	11,496	799	113,117
1953	0	0	369	10,194	409	31,468	1,780	2,892	5,941	3,113	4,958	12,428	23,711	1,282	98,545
1954	0	0	514	11,908	2,650	26,016	1,441	2,927	5,198	4,774	4,395	6,233	53,172	2,517	121,743
1955	0	0	1,120	20,150	11,106	25,321	2,096	2,281	4,624	3,336	2,692	5,605	17,488	664	96,483
1956	0	0	884	16,242	9,380	66,965	3,742	2,693	5,477	3,529	3,295	8,749	17,788	653	139,396
1957	0	0	3,427	29,668	11,085	49,792	2,140	2,537	3,308	3,169	3,858	4,764	14,089	911	128,748
1958	0	0	1,252	18,335	16,257	19,128	1,701	2,765	2,669	2,066	3,632	8,071	56,586	2,323	134,784
1959	0	0	1,106	14,719	15,719	37,085	2,176	2,949	3,191	1,994	3,208	6,844	25,523	997	115,511
1960	0	0	1,241	16,102	18,024	91,432	3,242	2,963	4,145	2,295	1,960	5,254	20,080	732	167,469
1961	0	0	1,247	25,912	7,662	68,789	1,983	3,447	5,400	3,396	2,978	11,435	23,246	850	156,346
1962	0	0	1,328	29,014	8,922	32,760	2,219	4,844	5,085	3,747	2,862	12,625	16,723	519	120,648
1963	0	0	944	14,920	11,210	21,295	2,431	3,282	4,391	2,506	2,259	15,516	15,287	815	94,857
1964	0	0	666	4,821	14,273	30,009	2,380	3,668	4,475	3,663	3,362	17,571	10,694	315	95,897
1965	0	0	819	10,372	11,364	125,913	3,035	3,102	6,152	4,355	4,022	6,751	10,973	618	187,476
1966	0	0	898	8,445	16,755	58,435	2,278	4,547	7,947	5,208	4,344	9,361	21,201	950	140,369
1967	0	0	1,120	11,126	21,646	36,126	2,875	3,091	6,367	3,149	3,718	12,066	20,909	1,266	123,460
1968	0	0	782	2,545	18,517	26,149	5,145	5,323	5,538	3,876	3,535	23,665	28,417	555	124,047
1969	0	0	679	1,970	17,328	56,206	2,858	4,486	3,844	4,950	2,856	8,091	15,578	988	119,834
1970	0	0	684	3,016	16,855	108,853	7,053	5,897	3,985	5,716	2,592	6,669	25,819	893	188,033
1971	0	0	593	5,191	10,927	53,529	6,770	4,208	3,842	4,148	2,416	10,958	77,311	1,890	181,782
1972	0	0	572	5,003	10,503	22,020	2,927	2,814	4,714	4,911	2,037	8,687	20,051	1,351	85,589
1973	0	0	553	3,539	11,399	14,249	6,185	3,121	4,645	3,495	2,842	25,101	25,912	1,754	102,795
1974	0	0	1,551	8,681	2,973	33,403	4,578	3,877	3,193	4,114	2,949	15,971	36,184	720	118,195
1975	0	0	510	3,708	10,079	65,900	3,107	2,532	3,947	3,237	2,375	9,193	33,772	646	139,007
1976	0	0	492	4,349	9,013	39,678	6,965	4,979	8,219	5,377	4,898	9,172	25,252	756	119,151
1977	0	0	480	1,138	6,816	36,196	11,013	5,881	11,436	5,823	6,415	12,179	36,322	2,355	136,056
1978	0	0	514	2,618	9,340	64,993	8,549	6,462	10,909	3,469	4,444	10,597	42,810	1,215	165,919
1979	0	0	644	2,109	8,082	122,986	5,673	5,336	4,972	2,545	5,577	10,669	26,304	945	195,841
1980	0	0	524	3,764	8,342	178,308	4,236	6,275	6,862	1,594	4,349	7,454	16,019	1,704	239,430
1981	0	0	491	4,707	7,691	115,722	8,957	6,844	7,809	4,226	4,162	15,429	37,003	755	213,795
1982	0	2	662	3,439	6,193	80,713	8,331	7,994	13,618	10,449	5,953	22,117	70,942	1,410	231,823
1983	0	4	719	3,659	8,229	133,592	9,409	6,204	17,798	4,529	5,015	10,976	50,302	1,124	251,560
1984	0	6	526	5,316	7,585	118,936	12,606	8,999	9,360	5,884	4,581	9,470	25,366	1,958	210,593
1985	0	8	387	10,760	6,339	106,864	4,892	11,298	14,346	5,934	5,983	22,318	45,496	1,566	236,189
1986	0	9	520	9,098	5,744	79,007	7,475	13,717	15,933	5,612	4,795	12,904	56,062	1,131	212,007
1987	0	11	491	12,800	6,000	92,192	9,187	7,532	32,698	7,398	5,626	14,361	36,406	1,480	226,182
1988	0	15	494	11,694	5,759	73,950	4,546	14,925	23,191	4,026	3,917	15,796	19,277	2,318	179,910
1989	0	13	448	11,076	4,217	133,810	5,954	8,711	18,236	5,117	6,005	9,677	50,381	683	254,327
1990	0	16	400	20,661	1,932	139,283	8,461	19,224	12,554	4,186	6,013	10,602	61,161	660	285,154
1991	0	15	723	17,529	1,789	123,613	9,181	21,936	8,902	6,811	6,558	14,837	42,626	637	255,157
1992	0	17	756	15,664	5,423	137,753	6,375	16,832	27,908	7,093	6,874	20,303	24,584	923	270,506
1993	0	19	1,111	18,764	9,523	154,011	8,000	14,580	16,748	7,431	9,845	17,697	57,984	854	316,567
1994	0	21	921	17,282	8,393	142,838	7,745	14,676	13,047	5,906	6,495	9,702	47,604	567	275,198
1995	0	23	1,519	14,626	14,038	171,336	7,306	17,418	10,796	5,877	5,067	15,090	11,618	257	274,970
1996	0	23	1,619	15,404	13,615	120,062	8,964	19,466	15,117	11,453	10,825	21,067	30,355	1,581	269,551
1997	0	23	776	10,773	12,134	61,494	4,500	13,628	16,252	14,635	7,714	12,025	47,839	506	202,300
1998	0	19	428	9,666	7,597	55,070	5,016	14,609	6,489	6,708	4,748	4,983	33,590	395	149,318
1999	0	19	720	9,521	10,596	118,333	10,863	18,106	9,951	7,181	5,067	4,766	11,758	236	207,115
2000	0	21	1,056	14,688	7,889	96,206	8,541	14,079	9,869	6,260	4,606	13,575	15,767	1,546	194,103
2001	0	24	1,370	14,673	9,138	73,842	9,647	13,505	11,891	9,564	6,600	13,439	28,095	1,147	192,936
2002	0	0	722	33,127	5,206	54,505	6,596	10,203	15,079	8,977	4,763	8,903	49,991	1,466	199,539
2003	0	0	510	17,697	7,961	77,376	5,920	20,659	20,920	10,800	5,791	9,960	15,218	928	193,739
2004	0	0	278	20,495	6,573	123,506	4,550	15,995	21,390	7,348	6,721	7,105	22,096	1,432	237,489
2005	0	0	1,940	26,417	7,885	121,879	5,787	12,978	23,402	8,194	5,104	5,298	19,949	519	239,351
2006	0	88	2,186	25,310	9,231	113,620	5,850	6,649	13,861	7,237	5,377	9,390	32,497	1,410	232,707
2007	0	0	1,184	38,794	10,866	118,717	5,319	8,746	16,503	8,510	6,161	6,960	4,448	335	226,543
2008	0	55	1,069	28,087	10,565	111,719	3,989	7,224	13,031	3,327	2,851	6,901	12,742	784	202,344
2009	0	0	967	22,663	14,850	118,368	6,070	7,681	12,950	4,974	3,779	4,863	3,970	383	201,520
2010	0	0	1,185	22,946	14,231	109,115	6,438	6,759	14,671	7,987	3,206	4,780	79,778	1,569	272,665
2011	0	0	1,576	26,174	12,498	91,533	11,031	9,154	25,566	12,244	4,599	9,268	18,454	837	222,934
2012	0	0	1,153	34,015	15,735	85,307	8,026	9,540	18,536	13,076	4,287	8,681	32,564	1,776	232,695
2013	0	0	1,309	36,368	18,953	74,062	10,530	10,661	16,776	9,220	4,185	4,055	10,398	1,151	197,669
2014	0	0	1,080	28,866	15,612	125,324	4,485	13,381	16,846	11,805	5,671	9,307	52,958	2,107	287,442
2015	0	0	1,500	36,682	15,341	175,373	12,237	12,575	17,374	11,543	5,040	7,638	11,612	1,732	308,647

Table 14. Total biomass (metric tonnes) of mature and immature pink salmon in the North Pacific

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	TOTAL
1952	0	3,816	56,816	235,484	33,403	9,561	6,556	16,006	10,624	8,247	52,640	31,187	15,170	0	479,511
1953	0	3,519	97,013	507,146	55,270	588	12,326	14,984	2,683	6,571	25,753	11,671	52,435	17,590	807,549
1954	0	2,896	99,606	142,730	27,587	9,640	11,490	26,277	11,226	10,337	48,835	28,526	9,571	0	428,721
1955	0	6,109	167,657	278,709	57,901	696	13,542	32,346	6,426	10,344	50,773	12,914	52,388	15,945	705,749
1956	0	6,972	222,513	201,333	8,994	9,387	14,632	12,384	8,732	14,487	69,263	25,603	6,211	0	600,511
1957	0	4,327	144,300	397,260	158,593	696	6,546	16,326	1,948	3,617	39,450	16,276	29,856	11,342	830,538
1958	0	8,605	242,800	24,488	25,150	9,391	8,859	14,563	11,050	18,829	52,396	25,996	7,948	0	450,075
1959	0	5,501	151,315	86,544	195,639	695	6,364	8,013	1,015	10,337	44,034	18,416	15,675	8,590	552,137
1960	0	7,486	98,962	35,340	59,157	10,772	8,490	19,996	8,520	6,647	17,682	24,969	2,009	0	300,030
1961	0	2,422	79,246	64,403	125,749	803	12,918	17,685	2,650	10,790	56,312	45,459	39,991	5,302	463,729
1962	0	6,939	46,622	55,927	36,738	6,830	13,699	34,677	15,233	20,429	48,196	104,438	5,229	0	394,955
1963	0	4,734	95,824	90,611	124,645	705	16,979	19,681	1,666	15,869	64,190	44,230	23,793	26,587	529,515
1964	0	6,148	46,681	10,639	54,952	7,608	17,689	34,234	20,506	14,712	68,193	45,258	5,247	0	331,868
1965	0	4,310	173,874	33,930	97,077	256	13,179	10,569	1,000	7,718	47,263	27,797	48,918	4,859	470,751
1966	0	8,271	101,887	2,068	52,113	10,722	6,741	30,478	12,467	9,240	78,786	52,530	15,802	0	381,105
1967	0	8,687	205,205	40,497	104,505	469	2,771	1,432	2,299	8,027	14,628	9,423	16,250	2,914	417,108
1968	0	15,902	105,766	4,161	42,274	17,031	9,531	23,990	12,538	7,321	66,382	53,540	11,987	0	370,423
1969	0	8,001	260,989	28,744	86,428	1,521	17,829	37,706	1,711	12,905	30,862	13,416	40,862	1,632	542,606
1970	0	23,770	67,012	1,289	59,517	4,212	11,369	35,124	4,929	8,544	41,827	41,270	11,398	0	310,261
1971	0	14,615	205,719	28,266	62,824	203	7,711	11,841	2,264	20,137	40,556	15,133	26,891	3,288	439,449
1972	0	4,751	103,656	5,808	26,557	1,081	800	9,462	4,339	2,026	38,180	40,229	3,027	0	239,915
1973	0	10,528	203,780	19,917	37,474	660	1,036	2,717	3,287	8,302	29,854	14,350	21,038	2,441	355,384
1974	0	5,559	132,339	6,156	36,259	9,859	2,265	12,911	3,443	5,117	30,073	25,221	10,079	0	279,281
1975	0	10,067	197,873	71,381	85,439	501	2,783	10,490	7,228	15,305	29,761	19,327	36,841	1,593	488,590
1976	0	7,348	156,089	26,456	40,709	8,670	12,981	36,779	8,697	10,500	76,631	32,555	15,175	0	432,590
1977	0	6,251	190,881	122,778	97,785	769	15,534	22,380	9,232	14,821	73,718	20,848	59,034	3,143	637,175
1978	0	3,914	153,506	30,875	21,860	40,351	25,447	47,656	10,693	10,721	81,755	35,788	5,779	0	468,345
1979	0	3,382	134,990	153,168	101,090	2,184	27,732	32,522	12,628	42,973	78,641	20,976	64,149	4,156	678,591
1980	0	4,867	190,782	48,835	8,704	21,444	24,014	51,541	10,615	35,450	79,343	30,959	7,666	0	514,219
1981	0	4,192	134,255	96,951	117,796	2,596	21,518	32,077	14,538	52,135	96,028	33,935	54,865	1,451	662,336
1982	0	3,357	100,782	84,470	31,928	14,052	19,922	31,490	5,239	52,939	89,418	15,261	2,347	0	451,204
1983	0	3,433	153,503	311,213	69,315	1,103	8,332	13,848	4,794	33,019	112,711	46,256	51,960	2,581	812,068
1984	0	4,991	58,217	162,889	49,154	18,012	39,865	37,903	5,716	68,126	119,717	35,602	1,946	0	602,140
1985	0	12,360	206,557	18,714	41,827	436	14,738	23,199	3,976	62,959	184,829	51,170	27,185	5,496	653,448
1986	0	8,956	88,577	96,134	8,607	3,335	15,478	32,904	9,011	20,422	176,886	74,848	5,843	0	541,001
1987	0	14,267	192,416	3,640	104,448	381	7,313	16,036	2,227	62,588	68,174	37,762	52,865	4,221	566,340
1988	0	12,176	72,211	79,848	18,015	14,379	32,452	40,352	4,794	27,752	47,912	63,837	6,399	0	420,127
1989	0	15,934	230,765	3,605	129,082	427	24,314	48,932	4,024	59,644	189,470	38,153	69,934	5,335	819,618
1990	0	11,774	147,770	63,710	53,996	10,853	11,609	22,904	3,645	96,170	108,000	62,768	10,843	0	604,041
1991	0	24,239	294,795	6,198	182,940	343	23,988	33,433	2,209	40,611	147,200	61,609	41,515	2,764	861,843
1992	0	31,652	222,393	44,967	19,843	8,116	38,025	16,458	5,425	22,918	135,275	44,557	9,233	0	598,860
1993	0	30,729	242,707	1,325	135,214	2,033	31,228	74,185	4,339	15,316	171,064	18,804	41,508	2,885	771,338
1994	0	48,452	234,637	225,232	38,392	19,628	25,905	26,066	7,177	84,626	181,801	13,312	5,276	0	910,505
1995	0	31,479	236,718	1,382	159,983	333	68,957	122,697	9,249	43,279	172,813	33,394	28,150	5,175	913,608
1996	0	53,665	224,979	185,056	32,647	8,897	21,507	17,059	3,526	84,826	247,508	48,349	6,130	0	934,149
1997	0	20,651	302,151	2,145	203,542	554	28,786	34,625	9,505	73,947	162,613	16,903	15,012	1,045	871,479
1998	0	37,421	173,684	284,913	24,061	9,034	39,128	72,250	7,907	80,872	187,918	18,521	6,521	0	942,231
1999	0	20,167	211,535	172	192,832	237	33,437	31,746	3,573	99,545	292,285	20,498	51,431	2,332	959,791
2000	0	43,397	262,019	205,458	3,622	4,697	18,289	32,204	5,107	90,619	108,929	29,544	15,238	0	819,124
2001	0	12,538	257,298	3,139	85,027	307	27,413	51,973	3,022	85,851	246,475	45,699	70,513	9,604	898,860
2002	0	41,544	227,958	212,901	10,479	6,402	17,893	64,465	8,261	49,315	217,828	34,721	3,751	192	895,710
2003	0	38,404	296,793	1,758	136,420	1,371	31,290	44,007	3,677	130,414	209,142	39,452	24,158	8,231	965,115
2004	0	18,856	134,919	230,847	52,390	17,155	40,971	76,867	19,597	71,624	206,750	22,183	5,387	172	897,717
2005	0	24,716	319,514	51,639	188,853	5,598	36,874	74,859	14,865	153,758	241,101	44,882	25,662	5,369	1,187,690
2006	0	13,804	270,115	143,626	59,774	8,670	18,995	88,804	7,129	62,017	96,224	7,851	3,112	0	780,121
2007	0	36,391	412,483	33,260	211,112	354	30,520	60,242	4,351	148,477	204,761	29,643	58,450	7,732	1,237,775
2008	0	17,380	257,728	181,109	26,492	8,342	43,375	27,502	2,683	98,076	93,847	7,573	2,570	90	766,767
2009	0	28,216	525,777	10,595	404,765	319	26,808	64,561	5,290	47,138	142,597	48,732	50,726	23,783	1,379,308
2010	0	20,472	260,782	258,590	30,463	10,656	6,112	30,388	1,472	182,892	143,498	15,699	5,003	132	966,160
2011	0	14,182	372,694	10,887	405,099	314	19,430	37,774	1,510	85,641	244,959	11,482	47,603	15,281	1,266,857
2012	0	5,825	283,084	315,470	45,157	8,696	4,117	55,835	3,618	75,889	112,547	14,873	6,951	78	932,142
2013	0	10,716	377,151	3,967	70,509	306	22,297	59,093	7,635	188,125	326,586	42,610	47,674	22,961	1,179,629
2014	0	4,567	302,055	15,766	101,802	9,252	5,043	24,289	3,249	82,166	149,148	29,615	7,340	116	734,406
2015	0	5,573	177,729	8,291	345,382	306	50,705	69,188	23,372	186,846	134,637	31,762	46,008	15,770	1,095,569

Table 15. Total biomass (metric tonnes) of mature and immature chum salmon in the North Pacific

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	TOTAL
1952	0	53,257	487,730	94,734	91,860	79,277	32,449	31,782	23,142	15,315	149,333	65,337	82,747	45,329	1,252,291
1953	0	50,046	468,574	89,174	48,106	82,024	41,770	16,742	26,540	11,214	131,813	99,408	85,295	26,749	1,177,454
1954	0	80,296	648,818	172,210	80,496	88,411	39,045	31,952	35,560	12,830	151,174	117,043	112,205	38,097	1,608,137
1955	0	56,990	858,003	235,281	160,650	74,972	28,651	15,203	17,664	12,823	71,805	34,700	46,132	23,397	1,636,270
1956	0	40,854	1,030,233	165,218	163,970	87,998	45,834	20,321	38,983	14,436	107,712	64,019	44,277	14,693	1,838,547
1957	0	74,805	617,566	52,816	70,675	80,828	38,331	31,082	50,898	18,377	128,201	82,044	73,390	15,338	1,334,352
1958	0	98,979	664,158	45,201	79,037	82,127	29,297	25,248	28,821	17,994	110,216	96,499	66,753	27,035	1,371,365
1959	0	55,274	601,011	144,128	126,292	90,083	24,034	20,959	21,551	14,915	64,043	38,212	94,689	28,425	1,323,617
1960	0	53,761	773,977	68,091	71,162	109,239	29,777	29,193	31,507	10,492	47,708	49,519	63,237	13,909	1,351,571
1961	0	84,708	600,408	53,849	68,030	84,753	27,529	16,028	21,265	8,323	84,529	53,073	46,211	12,235	1,160,941
1962	0	94,604	580,269	47,344	77,744	89,412	34,021	21,917	48,014	21,472	74,693	80,717	36,972	15,048	1,222,228
1963	0	106,025	546,850	34,733	94,607	61,944	26,942	11,348	27,333	23,862	54,463	66,266	49,786	15,089	1,119,248
1964	0	120,721	532,442	38,808	68,285	92,032	39,333	31,940	62,188	16,310	73,515	106,982	60,873	16,094	1,259,523
1965	0	141,306	574,061	35,039	44,380	71,031	18,739	13,771	18,538	7,686	64,834	40,916	22,714	11,065	1,064,079
1966	0	126,240	582,998	33,229	46,828	78,819	25,019	21,155	30,627	13,506	108,211	101,109	49,560	19,455	1,236,755
1967	0	144,818	489,044	13,154	55,709	71,365	13,022	7,019	21,186	10,751	93,031	64,466	38,522	14,690	1,036,777
1968	0	89,427	301,497	11,585	31,396	73,672	19,149	17,053	51,792	9,684	101,472	129,066	118,180	15,330	969,306
1969	0	129,878	196,353	14,913	35,579	69,688	10,247	11,209	17,822	9,492	31,718	41,943	76,212	9,963	655,017
1970	0	155,317	372,156	33,110	34,410	102,500	29,102	16,625	38,603	6,033	91,731	94,477	136,957	16,695	1,127,716
1971	0	226,462	291,891	11,070	26,831	91,536	39,020	29,555	21,604	13,564	85,955	49,265	45,581	7,934	940,269
1972	0	201,478	296,813	8,350	31,657	88,306	17,693	27,010	32,325	11,601	115,037	105,740	233,542	22,271	1,191,825
1973	0	245,339	253,482	5,620	31,816	121,526	12,086	12,736	41,696	36,402	102,623	129,957	221,484	15,944	1,230,712
1974	0	315,180	276,637	14,895	30,578	133,412	14,920	7,396	23,918	9,450	95,944	95,899	72,634	21,218	1,112,081
1975	0	452,567	212,566	2,571	26,881	160,570	8,806	4,633	43,871	3,405	54,348	29,344	58,916	6,781	1,065,258
1976	0	297,210	329,294	4,176	35,725	128,925	20,000	20,168	22,243	10,809	155,052	50,843	122,669	27,078	1,224,193
1977	0	282,300	260,213	7,062	66,355	166,894	37,180	39,214	81,660	19,132	35,592	52,615	111,133	18,750	1,178,100
1978	0	343,776	269,638	17,998	56,271	160,719	34,154	25,693	24,441	16,508	40,161	74,193	158,395	40,808	1,262,756
1979	0	485,274	247,526	12,463	76,459	134,745	27,707	17,770	51,487	9,354	65,093	44,425	58,902	8,350	1,239,554
1980	0	449,786	244,122	7,195	47,086	198,243	34,633	33,864	24,284	10,753	95,456	68,627	124,383	28,056	1,366,489
1981	0	583,110	210,946	13,301	60,627	232,158	52,940	41,280	71,244	39,932	44,796	56,922	124,478	21,986	1,553,719
1982	0	557,724	246,381	11,550	44,031	145,842	49,706	46,378	64,036	40,690	59,428	69,864	147,686	41,295	1,524,610
1983	0	663,675	267,414	4,464	107,390	151,349	39,647	39,119	50,056	37,111	45,042	46,615	102,810	19,353	1,574,046
1984	0	731,437	219,042	15,654	61,333	198,275	58,387	25,735	37,105	33,141	176,241	64,604	85,480	31,916	1,738,349
1985	0	944,251	201,898	51,984	80,975	165,122	35,494	19,482	39,396	32,080	130,204	93,270	187,160	39,755	2,021,072
1986	0	921,014	236,989	34,919	95,639	156,146	48,302	33,788	51,610	40,490	120,355	127,627	234,859	42,921	2,144,659
1987	0	826,616	223,173	31,955	78,474	166,646	41,884	20,914	25,193	48,792	142,878	83,560	142,522	47,978	1,880,583
1988	0	972,395	251,238	29,403	50,103	242,027	58,441	40,334	48,808	60,844	153,486	152,023	157,005	60,500	2,276,607
1989	0	1,018,582	242,343	20,617	56,037	185,607	25,460	24,487	20,643	33,203	76,429	76,912	161,801	32,872	1,974,993
1990	0	1,268,186	205,212	24,863	88,150	134,025	38,375	21,784	16,720	35,485	85,671	126,177	271,978	40,968	2,357,593
1991	0	1,081,375	214,958	19,973	30,709	157,866	49,271	37,778	16,961	20,174	100,286	63,645	168,551	36,281	1,997,828
1992	1,565	851,615	174,952	16,692	37,101	141,496	44,141	23,113	19,104	13,206	178,192	45,580	290,542	59,228	1,896,527
1993	1,460	1,139,213	428,461	20,464	41,031	96,482	31,004	15,689	7,908	31,025	225,895	60,248	336,175	39,568	2,474,623
1994	1,728	1,219,618	367,289	32,523	66,694	180,899	69,174	23,887	20,397	29,726	306,140	78,884	243,105	75,104	2,715,168
1995	1,748	1,441,832	365,199	22,166	43,088	234,341	66,464	40,701	30,462	25,279	363,497	105,295	205,697	36,884	2,982,654
1996	1,821	1,622,216	422,545	31,087	44,884	206,678	41,082	18,715	12,618	61,283	487,470	72,564	144,007	44,431	3,211,402
1997	1,896	1,444,124	253,653	26,856	37,494	109,267	57,527	17,453	22,816	64,509	404,334	57,550	161,099	21,975	2,680,553
1998	2,854	1,128,040	279,506	38,213	41,679	113,245	48,411	11,989	13,949	40,209	531,180	129,487	299,817	55,175	2,733,753
1999	3,159	987,162	256,325	24,223	62,695	109,016	43,809	26,356	11,837	73,125	466,103	72,896	145,151	17,952	2,299,811
2000	2,800	899,410	250,576	54,028	124,356	75,270	41,370	37,170	12,909	115,017	518,143	59,954	122,363	15,856	2,329,223
2001	1,595	1,211,477	395,241	61,611	101,547	124,428	53,453	26,887	11,012	72,634	260,102	77,402	189,821	58,922	2,646,131
2002	278	1,203,780	311,893	72,973	79,711	114,038	33,320	20,758	16,985	138,529	236,536	89,007	280,322	83,411	2,681,543
2003	750	1,553,009	289,353	42,465	49,035	130,687	24,546	23,159	8,719	96,044	240,243	113,781	422,300	47,571	3,041,661
2004	1,142	1,497,320	326,957	42,579	38,914	117,136	34,358	34,637	18,017	43,516	300,193	100,900	140,830	67,182	2,763,682
2005	496	1,390,085	243,040	63,153	95,267	200,355	41,719	15,339	10,476	47,626	271,234	64,882	135,720	30,911	2,610,303
2006	364	1,311,032	428,502	106,372	90,530	164,521	50,949	36,637	10,555	48,390	330,797	69,081	107,292	67,373	2,822,394
2007	338	1,124,924	441,714	83,826	88,825	154,691	45,331	17,354	9,695	65,255	229,381	44,752	124,157	50,459	2,480,704
2008	747	906,472	555,844	74,385	96,535	139,470	41,718	21,166	10,272	91,536	216,522	23,584	76,164	30,809	2,285,223
2009	1,374	1,151,195	1,035,472	61,505	87,570	126,326	52,856	22,574	10,576	60,599	192,921	37,132	209,785	21,393	3,071,277
2010	1,277	899,444	820,818	101,986	83,168	157,066	27,025	17,741	13,031	78,814	232,831	22,239	76,203	30,290	2,561,933
2011	741	753,487	583,714	107,060	68,868	179,454	41,917	22,889	11,565	43,926	233,253	49,063	153,660	31,248	2,280,845
2012	579	704,361	679,790	130,766	94,623	196,343	23,800	21,779	14,617	69,832	307,257	50,654	96,819	37,451	2,428,671
2013	555	884,217	1,350,207	112,629	132,724	194,335	43,985	22,140	11,956	77,668	279,508	48,588	67,108	47,646	3,273,267
2014	656	760,350	957,369	148,056	175,798	181,514	22,531	11,062	10,828	33,078	143,004	31,826	75,260	34,946	2,586,276
2015	1,784	738,890	1,058,944	153,328	122,491	154,181	50,116	22,629	21,843	44,717	287,541	49,315	112,432	34,932	2,853,144

Table 16. Total biomass (metric tonnes) of mature and immature sockeye salmon in the North Pacific

Year	Korea	Japan	M&I	WKam	EKam	WAK	SPen	Kod	CI	PWS	SEAK	NBC	SBC	WA	TOTAL
1952	0	0	1,434	38,464	2,623	184,429	3,321	12,488	18,183	15,498	10,032	16,896	34,831	2,419	340,617
1953	0	0	949	26,190	1,050	95,327	5,393	8,761	17,998	9,429	15,019	37,648	71,831	3,884	293,479
1954	0	0	1,105	25,612	5,699	78,862	4,368	8,873	15,756	14,471	13,322	18,892	161,177	7,631	355,767
1955	0	0	1,986	35,735	19,696	76,745	6,354	6,912	14,016	10,110	8,158	16,987	53,004	2,014	251,717
1956	0	0	1,771	32,540	18,791	202,011	11,288	8,124	16,524	10,645	9,940	26,393	53,661	1,969	393,656
1957	0	0	5,835	50,509	18,872	123,227	5,296	6,278	8,187	7,844	9,549	11,789	34,869	2,254	284,509
1958	0	0	2,018	29,550	26,202	73,136	6,504	10,573	10,204	7,900	13,885	30,859	216,361	8,883	436,075
1959	0	0	2,103	27,989	29,889	217,369	12,756	17,283	18,705	11,688	18,803	40,116	149,604	5,842	552,147
1960	0	0	2,222	28,827	32,269	249,091	8,831	8,071	11,293	6,253	5,340	14,313	54,705	1,993	423,210
1961	0	0	2,390	49,634	14,677	168,652	4,863	8,451	13,239	8,326	7,302	28,035	56,993	2,084	364,645
1962	0	0	2,500	54,646	16,804	101,136	6,850	14,956	15,698	11,567	8,836	38,974	51,626	1,601	325,195
1963	0	0	1,758	27,795	20,883	91,755	10,476	14,143	18,918	10,800	9,731	66,852	65,869	3,513	342,494
1964	0	0	1,253	9,078	26,876	181,886	14,422	22,229	27,123	22,204	20,380	106,500	64,818	1,909	498,680
1965	0	0	1,516	19,187	21,024	266,385	6,422	6,562	13,015	9,213	8,510	14,283	23,216	1,307	390,639
1966	0	0	1,728	16,261	32,260	156,346	6,095	12,167	21,262	13,936	11,623	25,047	56,725	2,542	355,990
1967	0	0	2,034	20,202	39,303	118,967	9,468	10,179	20,967	10,371	12,243	39,735	68,857	4,169	356,495
1968	0	0	1,404	4,566	33,222	111,916	22,020	22,781	23,703	16,590	15,129	101,284	121,621	2,376	476,612
1969	0	0	1,179	3,420	30,086	240,356	12,221	19,186	16,437	21,169	12,214	34,600	66,618	4,225	461,711
1970	0	0	1,350	5,948	33,244	266,340	17,258	14,428	9,751	13,987	6,342	16,318	63,173	2,185	450,323
1971	0	0	1,135	9,932	20,906	139,224	17,608	10,944	9,992	10,787	6,285	28,499	201,075	4,916	461,303
1972	0	0	987	8,638	18,135	70,537	9,377	9,013	15,102	15,732	6,524	27,828	64,230	4,326	250,430
1973	0	0	1,066	6,822	21,978	54,286	23,565	11,889	17,697	13,317	10,828	95,630	98,719	6,683	362,480
1974	0	0	2,804	15,695	5,376	125,857	17,249	14,608	12,029	15,501	11,113	60,178	136,337	2,714	419,463
1975	0	0	959	6,976	18,961	183,441	8,649	7,049	10,987	9,011	6,612	25,591	94,009	1,797	374,041
1976	0	0	894	7,893	16,358	144,706	25,401	18,158	29,976	19,610	17,863	33,452	92,094	2,756	409,160
1977	0	0	1,036	2,456	14,708	151,981	46,243	24,694	48,016	24,452	26,935	51,136	152,509	9,889	554,055
1978	0	0	1,190	6,059	21,620	297,787	39,168	29,610	49,984	15,893	20,362	48,552	196,148	5,567	731,941
1979	0	0	1,465	4,799	18,390	517,157	23,854	22,437	20,907	10,701	23,451	44,865	110,609	3,973	802,608
1980	0	0	1,225	8,793	19,488	536,970	12,757	18,896	20,664	4,799	13,096	22,447	48,241	5,130	712,507
1981	0	0	1,161	11,132	18,192	381,352	29,518	22,552	25,733	13,926	13,717	50,843	121,939	2,489	692,555
1982	0	4	1,557	8,088	14,565	314,439	32,454	31,141	53,053	40,708	23,190	86,163	276,376	5,493	887,230
1983	0	10	1,769	9,004	20,251	451,241	31,781	20,955	60,117	15,299	16,940	37,073	169,907	3,797	838,144
1984	0	15	1,400	14,151	20,190	400,511	42,451	30,305	31,520	19,815	15,425	31,889	85,418	6,593	699,683
1985	0	21	1,093	30,378	17,895	335,665	15,366	35,486	45,060	18,639	18,794	70,101	142,905	4,918	736,320
1986	0	26	1,477	25,841	16,313	284,434	26,910	49,383	57,362	20,205	17,263	46,454	201,828	4,071	751,569
1987	0	31	1,431	37,270	17,469	324,116	32,298	26,480	114,956	26,009	19,779	50,489	127,990	5,202	783,520
1988	0	45	1,466	34,681	17,080	327,856	20,154	66,170	102,818	17,851	17,366	70,031	85,462	10,278	771,259
1989	0	39	1,330	32,897	12,526	533,659	23,745	34,742	72,727	20,406	23,950	38,593	200,928	2,723	998,264
1990	0	48	1,201	61,983	5,796	498,572	30,287	68,813	44,939	14,984	21,523	37,951	218,930	2,362	1,007,387
1991	0	46	2,175	52,731	5,381	456,177	33,881	80,953	32,851	25,134	24,202	54,752	157,304	2,351	927,938
1992	0	50	2,293	47,481	16,439	473,282	21,904	57,830	95,885	24,371	23,617	69,754	84,464	3,173	920,545
1993	0	57	3,368	56,897	28,875	496,598	25,795	47,013	54,004	23,959	31,746	57,062	186,965	2,754	1,015,094
1994	0	64	2,784	52,248	25,373	545,327	29,569	56,032	49,812	22,549	24,796	37,041	181,744	2,164	1,029,503
1995	0	69	4,602	44,320	42,537	489,797	20,885	49,792	30,863	16,800	14,484	43,137	33,214	734	791,234
1996	0	69	4,916	46,761	41,331	339,170	25,323	54,991	42,704	32,353	30,580	59,513	85,751	4,468	767,929
1997	0	70	2,347	32,588	36,704	226,361	16,566	50,166	59,823	53,872	28,397	44,264	176,098	1,863	729,118
1998	0	57	1,300	29,343	23,062	287,915	26,224	76,380	33,926	35,071	24,825	26,052	175,615	2,063	741,834
1999	0	57	2,185	28,901	32,164	473,186	43,439	72,400	39,794	28,716	20,261	19,057	47,018	942	808,119
2000	0	63	3,194	44,440	23,869	355,179	31,531	51,980	36,436	23,113	17,006	50,117	58,210	5,708	700,847
2001	0	74	4,157	44,510	27,720	272,820	35,641	49,895	43,932	35,336	24,385	49,652	103,801	4,239	696,161
2002	0	0	2,188	100,423	15,782	247,906	30,003	46,407	68,585	40,830	21,661	40,494	227,373	6,668	848,321
2003	0	0	1,546	53,652	24,136	354,953	27,158	94,770	95,969	49,543	26,565	45,691	69,810	4,256	848,050
2004	0	0	841	62,033	19,894	410,603	15,127	53,175	71,112	24,430	22,345	23,621	73,460	4,759	781,399
2005	0	0	5,885	80,150	23,925	369,418	17,540	39,337	70,931	24,836	15,470	16,058	60,465	1,572	725,587
2006	0	267	6,632	76,793	28,008	344,385	17,731	20,154	42,013	21,937	16,299	28,460	98,500	4,273	705,451
2007	0	0	3,592	117,706	32,967	359,832	16,122	26,509	50,022	25,793	18,675	21,095	13,481	1,015	686,811
2008	0	166	3,245	85,218	32,054	338,622	12,091	21,895	39,497	10,085	8,640	20,917	38,621	2,377	613,428
2009	0	0	2,934	68,763	45,057	358,775	18,399	23,282	39,252	15,077	11,455	14,739	12,034	1,161	610,927
2010	0	0	3,596	69,621	43,177	330,728	19,514	20,486	44,468	24,210	9,717	14,488	241,808	4,756	826,569
2011	0	0	4,781	79,416	37,921	277,437	33,435	27,747	77,490	37,112	13,938	28,091	55,936	2,537	675,839
2012	0	0	3,499	103,205	47,742	258,566	24,326	28,916	56,182	39,635	12,994	26,311	98,702	5,382	705,460
2013	0	0	3,973	110,343	57,504	224,484	31,918	32,313	50,849	27,947	12,686	12,290	31,517	3,488	599,311
2014	0	0	3,277	87,582	47,367	379,860	13,593	40,558	51,061	35,781	17,188	28,210	160,516	6,385	871,379
2015	0	0	4,550	111,296	46,546	531,557	37,091	38,115	52,660	34,987	15,276	23,151	35,197	5,248	935,676