

Concise Explanatory Statement

Puget Sound Commercial Salmon Regulations for 2013

This Concise Explanatory Statement (CES) describes the Washington Department of Fish and Wildlife's (WDFW) reasons for adopting the 2013 Puget Sound commercial salmon fishing rules and responds to public comments received on the proposed rules. The adopted rules are set forth in Washington Administrative Code (WAC) 220-47-307, -311, -411, and -428.

Rule Development Process

The 2013 annual public process for defining salmon fishery rules, known as North of Falcon, began on January 23, 2013 with a meeting with the industry to review the 2012 Puget Sound commercial salmon fisheries. This meeting was held at the Mill Creek WDFW offices to accommodate commercial industry representatives from various areas of Puget Sound. WDFW presented a review of the 2012 Puget Sound commercial salmon fisheries and discussed outcomes of the season, and also began discussions on the upcoming 2013 season.

The next North of Falcon meeting, presenting the 2013 run forecasts, was held in the Natural Resources Building in Olympia on March 1, 2013. WDFW presented and discussed the 2013 preseason forecasts of salmon abundance with interested stakeholders. Implications of the forecasts and 2013 season planning were discussed in a Puget Sound commercial break-out session during this meeting. Additional public meetings were held March 15th, March 21st, and March 27th. During these meetings WDFW gathered input on structuring fishing seasons, possible rule changes and provided the public with information on the status of the 2013 planning process. Formal rule making hearings were held on April 9, 2013 and June 4, 2013 to provide an opportunity for comments on the proposed rules as published in the Washington State Register. No verbal comments or testimony was presented at either hearing. In addition to input during the public meetings, WDFW received comments by letter and electronic mail during the North of Falcon process.

WDFW published the proposed 2013 commercial salmon season regulations as Washington State Register (WSR) 13-06-072 on March 6, 2013. This filing included changes to WAC 220-47-311, -411 and -428. Modifications to the proposed rules were made as a result of the public process and negotiations with the Northwest Treaty Tribes (co-managers). A supplemental filing, WSR 13-10-088, was published in the WSR on May 1, 2013, to cover the modifications made to the rules after the original filing. The supplemental filing included changes to WAC 220-47-311, -411, -428 and the addition of changes to WAC 220-47-307. An attachment explaining the changes made from WSR 13-06-072 was included in the supplemental filing of the proposed rule changes. Information regarding both filings of the proposed rule changes was mailed out to Puget Sound commercial salmon license holders, available at meetings and posted on WDFW's website.

During the 2013 North of Falcon season planning process, the tribal co-managers and WDFW conducted technical meetings and policy level discussions to agree on conservation objectives, run-size forecasts, and estimates of the allowable tribal and non-tribal catch shares for the various salmon runs considered in defining fishing levels. WDFW and the tribes also reached agreement on coordinated fishing schedules for tribal- and state-managed Puget Sound salmon fisheries. These schedules provide days of the week that are exclusively reserved for treaty fishing in areas where non-treaty fishing is also conducted. The Puget Sound commercial salmon fishing seasons proposed for adoption by WDFW in 2013 are products of both the government-to-government, tribal-state negotiation component and the open public process component of the annual North of Falcon process.

Written and oral comments received during this process were considered in the development of the final rule, as explained in the “Rationale for Adoption of Rules” section. Additional written comments were submitted to the WDFW rules coordinator in response to the CR-102 filings on March 6 and May 1, 2013. Responses to those comments are summarized in the “Response to Comments Received” section of this document.

Rationale for Adoption of Rules

WDFW considered all the facts and circumstances surrounding setting the 2013 commercial salmon season in Puget Sound. The agency carefully reviewed all input from industry representatives and the general public regarding preferred fishing rules during North of Falcon public meetings and the state’s rule making process. WDFW considered and relied upon the best technical and scientific information available to tribal and state fishery management experts, including pre-season forecasts of the abundance of salmon stocks and data that will be used during the season to update forecasts. Important characteristics of the Puget Sound commercial salmon fishery were considered, including the total number of licensed vessels potentially participating in each fishery; the number of vessels that have actually participated in each fishery in recent years; the outcomes in terms of target and non-target species catch in recent years; the catch likely to result from the proposed rules; and the economic value of these commercial fisheries. The department also considered fishing schedules of tribal fisheries that must be coordinated with the state’s commercial fishing schedules as part of the co-management process developed under sub-proceedings of United States v. Washington.

Regulations for the 2013 Puget Sound commercial salmon fisheries were considered with respect to the following management objectives, listed in order of priority. These objectives were shared with industry representatives during the North of Falcon public process:

- 1) Conserve the wildlife and food fish, game fish, and shellfish resources in a manner that does not impair the resource (RCW 77.04.012) by achieving conservation objectives for all species and stocks
 - a) Ensure primary stocks meet escapement goals and/or management objectives

- b) Manage fisheries to minimize mortalities on non-target species and stocks (including salmonids, non-salmonids, birds and marine mammals) consistent with Fish and Wildlife Commission Policy POL-C3608. This includes using management strategies to limit seabird mortalities consistent with the federal Migratory Bird Treaty Act
 - c) Monitor fisheries to ensure a & b are met
- 2) Harvest the non-treaty share of salmon
 - 3) Maintain the economic well-being and stability of the fishing industry (RCW 77.04.012); allow a sustainable level of harvest sufficient to provide opportunity for each gear type (RCW 77.50.120)

WDFW concludes that the adopted 2013 Puget Sound commercial fishing regulations are consistent with these management objectives based on the following rationale:

Objective 1a: Ensure primary stocks meet escapement goals and/or management objectives

The adopted rules and regulations of these commercial fisheries are constructed to ensure achievement of conservation objectives defined for each target species, stock, or management unit. The adopted rules define schedules with open fishing periods only for those fisheries that are directed at salmon stocks with harvestable abundance; all fisheries are monitored to ensure that catches do not exceed the number allowed for each species, stock, or management unit at which the fishery is directed. WDFW relied on pre-season forecasts of abundance to construct the fishing schedules. The agency will use in-season information, where available, to update preseason forecasts of stock abundance and to revise estimates of the allowable catches for each fishery.

Objective 1b: Manage fisheries to minimize mortalities on non-target species and stocks

Fish and Wildlife Commission Policy number C-3608, titled *2013-2014 North of Falcon*, instructed the department to manage fisheries to minimize mortalities on non-target species. In structuring rules for the 2013 commercial salmon seasons, WDFW considered impacts of fisheries on non-target species; including Endangered Species Act (ESA) listed Puget Sound Chinook, Hood Canal summer chum salmon, steelhead, and rockfish, as well as other fish and wildlife species of concern. The adopted regulations are structured to ensure that incidental mortalities on non-target species are minimized by focusing fisheries at times and in areas of peak abundance for target salmon stocks, while avoiding times and areas with higher incidence of non-target species. When applying a regulation or rule to minimize bycatch, WDFW has considered the best available scientific information concerning the potential impact of these fishing seasons on non-target species, often relying on joint tribal-state technical recommendations.

Since bycatch mortalities vary by fishing method, the objective of minimizing bycatch requires WDFW to apply different rules to the different gear types. For example, salmon bycatch mortality associated with operation of reef net gear (used only in the Area 7 & 7A fisheries) is assumed by state and tribal fishery managers to be zero, because minimal contact with non-target salmon occurs with this gear during fishing operations and all prohibited bycatch is quickly released. For purse seine gear, state and tribal managers reviewed results of scientific studies on salmon bycatch mortality and concluded that the majority of coho and Chinook salmon encountered by this gear will survive being sorted and returned to the water. Based on this scientific data, bycatch mortality of Chinook and coho salmon in Puget Sound commercial purse seine fisheries targeting other salmon species can be minimized by requiring that these non-target species be released.

Fewer scientific studies have been conducted on mortality rates for coho and Chinook salmon encountered by gillnet gear. Given this lack of directly applicable scientific studies, WDFW must address the bycatch minimization objective for gillnet gear differently than the approach used for purse seine gear. Relying on recommendations of the Joint Chinook Technical Committee of the Pacific Salmon Commission (Report TCCHINOOK (97)-1. PSC, 1997) that “CNR (Chinook non-retention) gill net fisheries are unlikely to be implemented due to the high expected mortality rate of the fish released,” WDFW concludes that requiring release of Chinook and coho salmon in Puget Sound gillnet fisheries generally will not result in the minimization of bycatch mortality. In the majority of Puget Sound gillnet fisheries WDFW does not require release of Chinook or coho. Fishers are prohibited from discarding salmon that may be legally retained, except for fish that are made unmarketable due to pinniped predation. Because all retained salmon are required to be reported on commercial fish tickets, WDFW may assume that bycatch of these species can be estimated using fish tickets. In recent years, WDFW has increased on-board monitoring of gillnet vessels, with the objective of comparing levels of bycatch estimated from direct observation of gillnet bycatch of Chinook and coho to levels estimated by commercial fish tickets.

There are some unique circumstances where WDFW has concluded that the bycatch minimization objective will be achieved by requiring release from gillnets. Such circumstances include when regulations restrict the number of licenses participating such that all participants can be monitored, when regulations limit the size of fishing gear and length of net soak times (e.g., in the extreme terminal Area 12A coho fishery with skiff gillnets), and when regulations require the use of recovery boxes.

The mortality rates applied to Chinook salmon encountered and released in Puget Sound purse seine fisheries, and the drop-out rates applied to gillnet fisheries, based on joint-tribal-state technical recommendations, are documented in the *2010 Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component*. This plan was approved by the

National Marine Fisheries Service, providing ESA coverage for Puget Sound Fisheries under Limit 6 of the ESA 4(d) rule.

Conservation concerns over the non-salmon species encountered during Puget Sound commercial salmon fisheries are increasing. Fish species of concern in Puget Sound include ESA-listed Chinook salmon and steelhead, as well as ESA-listed canary, bocaccio and yelloweye rockfish. Other wildlife species of concern in Puget Sound include federal ESA-listed killer whales, stellar sealions and marbled murrelets, along with common murre, a state Species of Concern “candidate” species. For these species, data collected from recent purse seine seasons indicates a low encounter rate, but (as discussed below) there is minimal gillnet monitoring data from recent seasons. Extrapolation of purse seine data to the gillnet fishery in general may not be valid given known differences between the gear types and their impacts on various species.

Seabird bycatch mortalities in gillnet fisheries are a special concern; out of all the types of nets used in Puget Sound commercial salmon fisheries, gillnets are believed to pose the greatest risk of entangling and drowning seabirds (*USFWS opinion on the effects of the proposed action on the threatened marbled murrelet*. 1994). A later USFWS document (*USFWS Biological Opinion on proposed all-citizen Puget Sound Area commercial and recreational salmon fisheries*, 2001) concluded that mortality caused by the fisheries appeared to be having a “relatively insignificant adverse effect” on the marbled murrelet population, but went on to say that chronic mortality from gillnet fisheries would have an increasingly significant effect if the murrelet population continues to decline. This analysis was based on gillnet effort during the years 1996-2000.

Since then, gillnet effort has increased dramatically in the Area 10/11 and 12/12B/12C chum fisheries, and decreased in area 7/7A fisheries. The decrease in gillnet landings in Area 7/7A is in part due to the low abundances of Fraser River sockeye available for harvest in recent years, excluding the large return in 2010. Without the decrease in effort in Area 7/7A gillnet fisheries, the increase of incidental take of marbled murrelets from the chum fisheries might have exceeded the limits set forth in the Biological Opinion. Should sockeye abundances and gillnet effort in 7/7A increase, and effort in chum fisheries in 10/11 and 12/12B remain high, Puget Sound commercial fisheries could exceed the limits from the Biological Opinion.

The adopted regulations for the 2013 Puget Sound commercial salmon seasons include restrictions specific to purse seine and gillnet gears that are expected to reduce seabird mortalities. These restrictions are identical to those implemented since the mid-1990s on the basis of recommendations of scientists conducting seabird bycatch studies as well as input from both gillnet and purse seine fishers. In addition, WDFW has concluded that continued closure of the Port Madison area is an appropriate and prudent measure to minimize bycatch of these species. WDFW will continue this closure with the adopted regulations for 2013.

Marine mammal injuries and mortalities in Puget Sound net fisheries are another concern. The Marine Mammal Protection Act requires NOAA to address the impacts of all fisheries on

individual marine mammal stocks and classify those fisheries into three categories based on their “incidental take” of marine mammals. All fisheries require marine mammal injuries or mortalities to be reported to the National Marine Fisheries Service within 48 hours. Puget Sound purse seine fisheries are designated as a Category III fishery “with a remote likelihood or no known serious injuries or mortalities” to marine mammals and have no requirements beyond reporting any mortalities. Puget Sound gillnet fisheries are designated as a Category II fishery “with occasional serious injuries or mortalities” to marine mammals. Category II fisheries require fishers to obtain an annual Marine Mammal Take Authorization from NOAA and carry it on board the vessel during any commercial fishing operations. Currently NOAA cites incidental takes of harbor porpoises in this fishery as being the driver for the Category II designation of the gillnet fishery.

An additional concern with net fishing is lost or derelict gear, which can remain in the environment and entangle animals until it is located and removed. Efforts to locate and remove derelict gear have increased in recent years. The Northwest Straits Foundation reported removing 2,492 derelict fishing nets from Puget Sound, the San Juans, and the Strait of Juan de Fuca between 2009 and 2011, with a total of 139,865 animals and 185 unique species entangled. The majority of the nets identified and removed were gillnets, and they estimated that between 20 and 33 additional nets are lost each year, based on recent fishing effort. Commercial fishermen are required to report any gear they abandon to WDFW within 24 hours, so that efforts can be made to locate and remove it as soon as possible. While reporting requirements and removal projects have decreased the derelict gear problem, it remains to be a concern.

In summary, WDFW concludes that the adopted regulations for the 2013 Puget Sound commercial salmon seasons are reasonably constructed to meet the objective to minimize bycatch overall. However, with respect to non-target salmon species, seabirds, and other non-salmon species, continued monitoring is needed to verify that bycatch is indeed minimized, particularly for gillnet fisheries which had not been intensively monitored in recent years prior to 2011.

Objective 1c: Monitor fisheries to ensure a & b are met

Assessing non-target salmon bycatch is a matter of estimating both the number of fish encountered by the gear and the proportion of the fish released that will survive. WDFW relies on scientific studies to determine the release survival rate. The most accurate estimates of numbers of fish or other species incidentally encountered in purse seine and gillnet fisheries come from direct, on-board sampling by trained technical staff. The data collection is focused on non-target salmon species as well as ESA-listed species and other species of concern. However, this on-board sampling does not provide estimates for additional sources of fishing related-mortality, such as net dropout (fish that fall out of the net while it is being retrieved) or predation by marine mammals on fish captured in the net.

Prior to 2011, sampling and monitoring programs implemented by WDFW in recent seasons had been almost entirely focused on purse seine fisheries. In-season monitoring data is needed from purse seine vessels to estimate the number of Chinook and coho they encounter in a fishery when they are not allowed to retain those species. WDFW sampling programs had not been focused on gillnet gear in recent seasons, and estimates of the number of non-target salmon species encountered in the fishery have relied gillnet fishermen self-reporting their catch through fish tickets. WDFW primarily relied on fish tickets for gillnet fisheries because the budget for sampling these fisheries is inadequate to support a program capable of collecting sufficient samples to generate statistically reliable estimates of encountered Chinook and coho or non-salmon species in the gillnet fisheries. During the 2011 and 2012 seasons, WDFW focused a portion of its commercial sampling efforts on gillnet vessels to collect data on bycatch of non-target salmon, non-salable fish, and other species. With the limited resources available for commercial monitoring, the department had to reduce the sampling on purse seine vessels and rely on bycatch data and rates from past years with more robust sampling for projecting bycatch impacts for purse seines. Examination of gillnet observer data from the 2011 and 2012 has raised some questions about whether fish tickets can be used to accurately evaluate bycatch of non-target salmon species. For both Areas 10/11 and 12/12B, gillnet observer data show a higher rate of Chinook/1000 chum than were reported on fish tickets for gillnet landings.

A number of species and stocks of conservation concern are encountered incidental to Puget Sound commercial salmon fisheries, including ESA-listed Chinook salmon, Marbled Murrelets, Puget Sound steelhead, and Puget Sound rockfish. Commercial fishers are prohibited from landing some of these species (e.g. steelhead) and therefore they are not reported on fish tickets. Consequently, WDFW has been unable to estimate by-catch in gill nets for some species. To address uncertainty and risk associated with this management information shortcoming, WDFW is continuing to evaluate alternative sampling programs designed for the collection of data from Puget Sound gillnet fisheries. This will improve WDFW's confidence that fisheries are structured and implemented consistent with the objective of minimizing bycatch mortalities for these species. Unfortunately the sampling program is limited by its budget, meaning that comprehensive sampling of all fisheries to address bycatch concerns is not possible every year. Until the current sampling program is modified and the data collected are sufficient to conclude that bycatch is indeed minimized, WDFW will manage the Puget Sound commercial salmon fisheries cautiously. Further, WDFW will utilize limited sampling information in a precautionary manner and may adjust fishing schedules if data indicate that non-target species bycatch levels for either gear type are greater than levels assumed in pre-season planning models and analyses.

Objective 2: Harvest the non-treaty share of salmon

The adopted rules and regulations of these commercial fisheries are designed to ensure that the total allowable catches defined for each fishery are fully utilized. Season structures considered

for 2013 reflect expected abundance of target salmon species and stocks, based on preseason forecasts. One significant difference between the seasons and regulations considered this year and those considered last year is the opportunity to harvest Puget Sound pink salmon, a species that returns only in odd years. Abundances for some salmon stocks will be updated as the season progresses, based on scientific information collected from the fisheries and agreements reached by the state and tribal co-managers. The non-Indian total allowable catch will be adjusted accordingly and may result in increasing non-Indian fishing opportunity. However, given the uncertainty associated with estimates of fishing effort, harvest rates, and the abundance of the target or incidentally caught resources, in-season adjustments to the fisheries may be necessary to meet conservation objectives. These adjustments could result in the harvest of less than the full non-Indian allowable catch. WDFW will attempt to provide advanced notice to the commercial fishing fleet of any changes to schedules.

If tribal harvest allocations are not fully utilized, then WDFW may seek to maximize the state's commercial-fishing harvest opportunity by adjusting the non-Indian total allowable catch consistent with the Washington Fish and Wildlife North of Falcon policy (C-3608). This policy states: "The Department will seek non-treaty fishing access to unutilized portions of treaty harvest allocations through the implementation of pre-season agreements, taking into consideration changes in abundance, fishery conflicts, and factors that may influence attainment of spawning escapement objectives."

Objective 3: Maintain the economic well-being and stability of the fishing industry (RCW 77.04.012); allow a sustainable level of harvest sufficient to provide opportunity for each gear type (RCW 77.50.120)

The adopted rules and regulations for these commercial fisheries are designed to maintain the economic well-being and stability of the fishing industry, and to provide a sustainable level of harvest sufficient to provide opportunity for each gear type. This management objective is challenging to address, given the diversity of the Puget Sound commercial salmon fishing fleet in terms of gear types, and the number of discretely managed fisheries opened each year. In addition, the economic health and stability of these fisheries depends on many factors beyond WDFW's control, including the prices paid for salmon, the abundance of salmon, the relative size of the salmon, the proportion of vessels choosing to participate in a fishery, the catch rates of vessels that do participate, and related factors.

Prices paid for salmon caught in these fisheries are influenced by coast-wide and international market conditions, and possibly by the success of local/niche marketing initiatives. Prices paid are also influenced by the abundance of salmon, which WDFW cannot control. While WDFW can open areas to harvest of salmon by license holders, the department cannot control the number of vessels that choose to participate in full-fleet openings. Participation levels in a given opening are driven by several of the other factors listed here, in addition to factors such as fuel prices,

weather conditions, and harvest opportunities on other species and/or in other areas. Catch rates for a given gear will vary between years and between openings within a single year due to changes in salmon abundance, salmon size, migration behavior, weather and tidal conditions, and operational decisions made by vessels participating in the fishery. WFDW cannot control any of these factors.

Finally, WFDW must negotiate non-treaty commercial salmon fishing openings with the Puget Sound Treaty tribes, consistent with the process developed under sub-proceedings of United States v. Washington. This means that there may be instances where WFDW would prefer to maintain or increase fishing opportunity for non-treaty fishers, but the ability to do so is affected by the outcome of negotiations with the tribes.

Given the many factors beyond WFDW's control, the department concludes that the most effective means of positively affecting the well-being and stability of the industry is by providing a predictable season structure designed to access the full allowable harvest. This management approach gives fishing businesses the ability to plan for upcoming opportunities and to make business-based decisions about when and where to fish. Significant changes to fishery schedules can be disruptive to individual fishers, gear groups, and the industry as a whole. Changes to a schedule in one fishery can have an effect on outcomes in other fisheries, as the changes may cause license holders to shift participation between fisheries. Schedules may occasionally be adjusted to address apparent instability of the industry. However, WFDW believes it is prudent to avoid annual or short-term adjustments to season schedules because there is significant inter-annual variation in fishery performance, and the outcome of a single year may not indicate that an adjustment is appropriate or necessary to achieve this management objective. In situations where the non-treaty share is not being fully utilized, increased opportunity can promote the well-being of the industry, if that opportunity can be provided while meeting conservation objectives for target and non-target species and stocks.

The rationale for how the 2013 rules will promote the well-being and stability of the industry and allow a sustainable level of harvest is detailed by fishery below. Due to the potential destabilizing effect of changes, focus is placed on modifications to schedules from past years and ways the modifications will affect achievement of Objective 3. The rationale for incorporating or not incorporating industry input received during the North of Falcon process is also included here.

Area 6D (coho) – The 2013 schedule is similar to recent years, except during the first week of the fishery. Per the Hood Canal Summer Chum Conservation Initiative, the fishery cannot open until 9/21. In recent years it has been open Monday through Friday each week, beginning on 9/21. In 2013 the first day the fishery can open is Saturday 9/21, meaning the first opening would be two days after the allowable opening date if Saturday and Sunday remained closed. The industry requested opening the fishery on Saturday of

the first week to allow harvest on the first day the fishery can occur. WDFW negotiated with the tribes to open the non-treaty fishery on Saturday 9/21, then close on Sunday 9/22 and Monday 9/23. The rest of the schedule is similar to recent years with the fishery closed on weekends.

Area 7/7A (chum) – In recent years, the non-treaty allocation of chum in areas 7/7A has not been fully harvested. In order to provide opportunity for the non-treaty fleet to harvest its share, an agreement was negotiated with the tribe to provide additional non-treaty fishing opportunity early in the season, if only a small portion of the non-treaty share has been harvested after the first three days of non-treaty fishing. The schedule may be adjusted inseason depending on the catch in those first three days. The 2013 schedule provides the maximum amount of fishing time for all gear types, within the constraints of the Pacific Salmon Treaty and negotiated co-management agreements for the treaty and non-treaty fleets.

Area 7B/7C (Chinook/coho/chum) – The fishing schedule for Areas 7B and 7C is identical to 2012, with the only adjustments being for calendar dates and management periods. There were several requests from industry for changes to gillnet mesh size requirements for certain weeks, and for additional opportunity in certain weeks. Due to the potential effects on Upper Fraser River coho, which make up a portion of the coho harvested in Area 7B, these changes were not made. The definition of the area closure that has been effect from September 1 to 21 to project Upper Fraser coho was modified to reflect the area agreed to with the tribes.

Area 8 & 8A (pink)- In response to requests from industry, additional pink fishing opportunity was scheduled for both gear types in both areas (in comparison to 2011), the schedule was adjusted to provide fishing opportunity on the peak of the pink run in each area, and to allow fishermen to participate in both the Area 8 and 8A pink fisheries. There were requests to open the western portion of the closure area in southern 8A to commercial fishing. This is an area of high use by recreational anglers, so the area was not opened due to the high potential for conflict between recreational and commercial fishers. The hours for purse seine openings were shortened at the request of industry, to limit conflict between purse seine vessels and recreational boat traffic.

Area 8A (coho) – The 2013 Area 8A coho schedule is similar to the 2012 schedule, with two weeks with limited opportunity openings for purse seine, one week with a limited opportunity opening for gillnets, and one week with two full-fleet gillnet openings. There were requests to open the fishery one week earlier, however this was not pursued due to a conflict with a local recreational coho derby.

Area 9A (coho) – The fishery is structured identical to 2012, with adjustments made for calendar dates, and will be open weekly Sunday through Saturday.

Area 12A (coho) – The fishery is structured similar to 2012, opening on August 21, the earliest date permitted under the Hood Canal Summer Chum Conservation Initiative.

Area 10 (pink) – This limited participation fishery was expanded to allow five boats of each gear type, as opposed to the four allowed in the past. Based on input from industry, an area on the east shore of Area 10 was closed north of the existing area closure north of Shilshole Bay for purse seines with the intent of reducing the numbers of Chinook encountered in the fishery. The hours for purse seine openings were shortened at the request of industry, to limit conflict between purse seine vessels and recreational boat traffic. Also based on input from industry, gillnet fishing was switched to night hours. During the comment period on the supplemental filing, requests were made to relax the soak-time limitation for gillnets. WDFW increased the soak time allowed from 45 minutes to 90 minutes based on these requests. More information on the reasons for allowing the increased soak times are included in the Response to Comments section below.

Area 10 (coho) – There were requests from the gillnet industry to provide openings to target coho in Area 10. The Fish and Wildlife Commission’s North of Falcon policy prioritizes Puget Sound coho for recreational fisheries, and instructs the department to identify and provide opportunities for commercial harvest. WDFW has provided commercial coho harvest opportunities in the Bellingham Bay, Everett, Dungeness, and Quilcene terminal areas, but has prioritized coho harvest in Area 10 for recreational fisheries. Another concern with coho-directed commercial openings is the potential increase in impacts on early-timed chum stocks returning to South Sound during the same period, which are less productive than normal-timed fall stocks and are more susceptible to over-harvest.

Areas 10/11 and 12/12B/12C (chum) – The 2013 schedule for chum fishing in South Puget Sound and Hood Canal is similar to the schedules implemented in recent years, which have provided consistent fishing opportunity for both gear types since 2008, with small changes made each year to allow alternating first openings in each area for each gear type.

The schedules for these areas were altered significantly in 2003, in response to multi-year signs of instability including low prices per pound for chum salmon and low participation and catches in these fisheries by the gillnet industry. Prior to 2003, WDFW managed these fisheries by providing equal fishing opportunity for the gill net and purse seine fleets, in terms of days open. Beginning in 2003, WDFW provided significant additional fishing time for gillnets, to promote the well-being of that sector of the industry. As the health of the gillnet industry has improved over time, as reflected by increased catch and ex-vessel values of catch in these fisheries, WDFW has adjusted fishing schedules to reduce the amount of extra time allocated to the gillnet fleet. Beginning in 2008, the annual fishing schedules included ‘Market’ openings for gillnet vessels in South Sound. These are 8-hour openings late in the week that are intended to promote efforts of gillnet

fishers to supply fish to niche markets for the weekend, presumably with a larger economic benefit to the fisher than fish landed during normal openings early in the week. As described below, WDFW believes the schedule contemplated by the current rules will maintain the long-term stability of both the gillnet and purse seine sectors.

The fishing schedules for chum fisheries in Area 10/11 and 12/12B must be considered together, as the timing of openings in one area affects participation levels and catch and economic outcomes in the other area. To assess the short- and long-term stability and well-being of the industry as reflected in these two closely-linked fisheries, WDFW assembled and analyzed catch data, economic information (ex-vessel landing value), and the number of licensed vessels, by gear type, for the chum salmon fisheries operating in these two areas combined, for the period from 1973 through 2012. Ex-vessel landing value data were adjusted according to the Consumer Price Index (CPI) to account for inflation and allow for comparability of the economic data between years. These data and summary statistics are presented in Table 1, including average values by each gear for the period 1973-2002 (the historical time period with consistent yearly fishing schedules providing equal fishing time to gillnet and purse seine gear), the period 2003-2012 (the time period when extra fishing time was provided for gillnet gear) and also for the period 2008-2012 (the most recent time period with consistent yearly fishing schedules providing additional fishing time for gillnet gear).

For the period 1973-2002, gillnets landed an average of 32% of total catch in these two fisheries, while purse seines landed 68%. During that period, gillnets on average accounted for 78% of licenses eligible to participate in these fisheries, while purse seines accounted for 22%. The total number of participating licenses and the composition of the fleet by gear type have changed dramatically over time, due to changes in the salmon industry (such as a government-sponsored license buy-back program). Across the most recent time period, 2008-2012, the gillnet proportion of the fleet has been 72%, a 6% drop from historic levels, while the purse seine proportion increased from 22% to 28%. In order to calculate what the expected percentages of total catch would be given the change in fleet composition, WDFW calculated the mean percentage of total catch per mean percentage of licenses during the historic time period (1973-2002). These percentages were multiplied by the current percentages of licenses for each gear, then scaled to 100% to give the expected percentages of catch under the current fleet composition. Given the changes in fleet composition, the average catch share for gillnet would be expected to drop from a historical share of 32% to 26% and the average catch share for purse seine would be expected to proportionally increase from the historical share of 68% to 74%.

The average percentages of catch for the period 2003-2012 were 22% for gillnet and 78% for purse seine. As expected based on analysis conducted in 2012, the percentage of

gillnet catch in 2012 (24%) increased from the value of 21% in 2011. The average size of chum returning in 2011 was smaller than normal, and likely resulted in decreased catch rates for gillnet gear. The averages for the 2008-2012, the period with consistent yearly fishing schedules, were 24% gillnet and 76% purse seine. These proportions were used for projecting the likely outcome of implementing a similar fishing schedule in 2013. The expected catch proportions in 2013, with fishing schedules very similar to those implemented in 2008-2012, are 24% gillnet and 76% purse seine. These proportions are close to the historic adjusted percentages of 26% and 74% referenced above, indicating that the schedule promotes long-term stability for the industry.

Since 2003, the CPI-adjusted ex-vessel value of landed catch has varied annually for both gear types. Ex-vessel value has shown an increasing trend for both gears over that period (Figure 1), due in large part to increases in price per pound paid for chum salmon. Average price for these areas increased steadily, from a low of \$0.21 in 2003 to a high of \$1.28 in 2011. While the market price for chum is controlled by factors beyond WDFW's influence, prices per pound paid each year to gillnet fishers have been very similar to prices paid to purse seine fishers. This outcome indicates recent fishing schedules that include increased fishing opportunity for the gillnet sector have contributed to the economic well-being of the industry overall.

Based on 2013 chum run-size forecasts for South Sound and Hood Canal, and preliminary calculations of expected harvestable numbers at those run-sizes, the total non-treaty share of chum for those areas will be around 255,200, or 2.19 million pounds (based on an average weight of 8.6 pounds per fish for 2008-2012). The average annual price per pound in these areas from 2008-2012 was \$0.93 per pound. If the entire non-treaty share, as projected pre-season, is harvested, and the price averages \$0.93 per pound, then the ex-vessel value for these fisheries will total \$2.04 million in 2012. It is reasonable to expect that catch and ex-vessel value totals will be split between gears by proportions similar to those seen in 2008-2012, since similar fishing opportunity was scheduled in those years for these two areas. For gillnets, a total catch of 62,200 chum salmon is expected, with an ex-vessel value of \$498,500 or \$2,560 per gillnet license. For comparison to past values used in economic analysis of the fishery, which were CPI adjusted relative to 2010, this equates to \$2,430 (Figure 2). This value compares to a CPI-adjusted average of \$950 per gillnet license for the period 1973-2002. For purse seines, a total catch of 192,900 chum salmon is expected, with an ex-vessel value of \$1,544,500, or \$20,600 per purse seine license. This equates to \$19,600 in 2010 dollars (Figure 2), compared to an average of \$6,100 per purse seine license for the period 1973-2002. These value per license calculations assume that all license holders participate in these fisheries. If not all license holders participate, the average amount per participant would be higher than these estimates at identical total ex-vessel values.

These projections for the 2013 season represent reductions in ex-vessel value per license (CPI adjusted) from the 2008-2012 average for both gear types (38.0% reduction for gillnets and 38.9% reduction for purse seines). The reductions reflect the smaller abundances of chum forecast to return to these areas in 2013. The actual ex-vessel values will depend on the number of chum that do return to these areas in 2012, the price paid for chum during the season, and the ability of the fleets to catch the non-treaty share. Prices paid for chum decreased in 2012 from the peak seen in 2011, and could increase or decrease in 2013. While these projected values show a decrease in ex-vessel value per license from recent years, the increased per license value compared to 1973-2002 for both fleets supports the conclusion that this season structure will promote the economic well-being and stability of the commercial fishing industry, within the constraints of a reduction in the number and pounds of chum available for harvest in 2013, as compared to recent years.

WDFW considered specific proposals heard during the North of Falcon process to modify the regulations for chum fishing in 2013 in South Sound. First, the Puget Sound Harvesters requested conversion of the gillnet half-night 'market' openings in South Sound into full nights of fishing, in order to increase the proportion of chum caught by gillnet. This request for increased fishing opportunity was not supported by the department. The fishing schedule adopted already provides additional opportunity for gillnets relative to purse seines, and the analysis above of likely catch and economic outcomes indicates that the adopted schedule will promote economic well-being and stability for the industry as a whole.

Industry also requested that WDFW allow chum fishing in an area that was closed in 2011 and 2012. The portion of Area 10 east of the Alki Point to Four Mile Rock was first closed to non-treaty chum fishing in 2011, as a result of negotiations with the Muckleshoot and Suquamish Tribes. WDFW was unable to reach agreement with the co-managers to re-open the area in 2013, so it will remain closed during non-treaty chum fisheries.

To conclude, season structures defined by the 2013 Puget Sound commercial salmon regulations will promote the economic well-being and stability of the commercial fishing industry while meeting the constraints imposed by conservation objectives. While catch and ex-vessel value outcomes have not been projected for all species in all fishery management areas, WDFW has estimated likely outcomes for the South Sound and Hood Canal chum salmon fisheries, the two largest Puget sound commercial salmon fisheries that have generated a great deal of industry attention in recent years. WDFW concludes that the projected result of the 2013 season is consistent with promoting both short- and long-term stability of the fishing industry (as reflected by comparison to the historical record), is consistent with maintaining the economic well-being of the industry, and

provides sustainable harvest levels by offering opportunity for each gear type within the constraints of reduced run-sizes forecast to return in some areas.

Response to Comments Received During Comment Period for WSR 13-06-072

Comment by Gendler & Mann: WDFW is knowingly setting commercial salmon rules that will result in an allocation of only 20-25% of allowable non-treaty harvest to the gillnet fleet, and 75-80% of the harvest to the purse seine fleet. The Department continues to draw a distinction between the two types of commercial gear and treat one group significantly different than the other. WDFW should adopt commercial salmon regulations that treat both groups within the class of commercial fishermen equally.

WDFW has not restricted the percentage of harvest of chum salmon in Areas 10 and 11 to gillnet or purse seine gears. The 2013 schedule is not intended to achieve a catch share for the participating gear groups, or to restrict the catch percentage for either group. WDFW has constructed a fishing schedule based on fishing opportunity, and as described above, has estimated the likely catch share outcome of the season. The department projects that the 2013 schedule will result in catch percentages of approximately 25% for gillnets, and 75% for purse seines, for the Area 10/11 and 12/12B/12C fisheries combined. These percentages are consistent with recent with recent and historic catch percentages adjusted for changes to fleet sizes over time, and are consistent with the objective of maintaining the economic well-being and stability of the industry.

WDFW acknowledges that the gillnet and purse seine groups are being treated differently, as the regulations provide additional fishing opportunity for the gillnet group relative to the purse seine group. WDFW has historically structured seasons for Puget Sound commercial salmon fisheries on the basis of equal fishing time, unless it determined that unequal time is more effective in achieving one or more management objectives, or that unequal time would facilitate consensus among State, tribal, and/or industry representatives. Providing equal fishing time for gillnet and purse seine groups in these fisheries in 2013 would significantly reduce the gillnet catch share, potentially destabilizing the industry. The 2013 schedule, which provides more opportunity for gillnets than purse seines, should result in catch percentages close to short- and long-term averages, and is more effective in achieving the objective of maintaining stability than a schedule providing equal amounts of fishing opportunity for both groups.

Comment by Gendler & Mann: Submitted January 2013 analysis of bycatch by Stephen Mathews, and video labeled "Seine fishing" for inclusion in the record, along with hundreds of pages of documents that WDFW included the 2012 rule making file. No specific comments relating these items to the 2013 proposed seasons were included by Gendler & Mann.

The January 2013 paper by Steve Mathews presents analysis of WDFW's 2011 bycatch data for salmon fisheries in areas 10,11, 12 and 12B, offers some conclusions based on that analysis, criticism of previous WDFW analysis, and provides comments on WDFW's sampling program.

The paper offers no explanation for how any of the points made should affect the proposed 2013 fishing regulations.

Mathews made several conclusions about salmon bycatch estimates based on fish tickets as compared to observer data, about bycatch rates and survival of non-salmonid bycatch. He concluded that both gears have specific but different bycatch issues, but that bycatch is “sufficiently inconsequential as to be a non-factor in allocating catch opportunities.” WDFW has not allocated catch opportunities based on bycatch. WDFW has implemented restrictions to minimize bycatch while meeting the other management objectives listed above. WDFW has also expressed concern over the inability to accurately estimate bycatch mortality, particularly due to the lack of data from gillnet monitoring in the recent past.

Mathews offered many criticisms of WDFW’s sampling programs. WDFW appreciates the input on sampling design and will consider the suggestions while trying to implement adequate monitoring programs for both gear types within the severe financial constraints imposed by the Agency’s budget.

Response to Comments Received During Comment Period for WSR 13-10-088

Comments by Pete Knutson, Ray Honea and Stephen Mathews: The 45-minute soak time limit for gillnet gear in the Area 10 pink fishery is not feasible for implantation due to time required for picking pink salmon from the fishing gear.

The 45-minute soak time is not a new regulation. The 2009 and 2011 Area 10 gillnet pink salmon fisheries had an identical requirement, and the original CR-102 filing for 2013 (13-01-064) included this requirement. This requirement also exists for chum fishing in Area 7 and 7A during mid-October. The requirement is intended, along with the requirement to use fishery recovery boxes and release non-target species, to minimize mortality of non-target species encountered in the fishery. WDFW received no oral or written comment on this requirement during North of Falcon process, the comment period, or the rule hearing.

Because of the concern the 45 minutes will not offer sufficient time for gillnet fishers to retrieve and pick their net, WDFW modified the regulation to allow 90-minute soak times. This fishery has several restrictions in place that will limit bycatch, in addition to the soak time limit. The fishery is limited participation, and only five gillnetters will be allowed to participate in any opening. WDFW observers will be on board, so that WDFW can monitor bycatch during the season, and take appropriate action to limit bycatch if needed. Finally, the fishery will be managed to not exceed a fixed number of Chinook encounters/mortalities during the seasons. Because of these additional restrictions to limit bycatch, WDFW agreed to implement the 90-minute soak time, and will evaluate the outcome using the data collected to assess whether it should be implemented in the future.

Comments by Stephen Mathews: Mathews provided a report that included analysis and discussion of data collected by WDFW in the 2012 Puget Sound chum salmon fisheries. No specific recommendations are made regarding the proposed 2013 Puget Sound commercial salmon fishing regulations.

Mathews' report includes a brief analysis of 2012 bycatch data, a brief discussion of potential biases in bycatch estimation, and general observations on bycatch issues in Puget Sound commercial fisheries and beyond. Again, WDFW appreciates the analysis of the bycatch data, and suggested improvement to sampling protocols within the financial limitation faced in implementing the programs. Many of the general observations made in the paper are beyond the scope of and/or not applicable to the rules open for comment. For example, the paper implies that WDFW should use changes to the recreational fishery in Puget Sound to reduce incidental mortality on Chinook salmon, but makes no specific comment on the proposed commercial rules.

The paper makes the argument that mortality of common murre, one of the most common birds entangled in gillnets in Puget Sound, is not a concern, because the murre may have global abundance similar to that of some species that are hunted. Contrary to the paper's claim, common murre are listed as a candidate state species of concern (*WDFW Threatened and Endangered Wildlife Annual Report 2011*, page 7). The paper makes similar cases for bycatch of auklets, harbor seals, and harbor porpoises not being a concern. Management objective 1b for management of 2013 Puget Sound commercial salmon fisheries is to minimize mortality on non-target species and stocks, including unlisted species. While fishery planning may not be constrained by strict limitations on mortality for these species, as it does for ESA-listed species, one of WDFW's objectives is still to minimize mortality of all non-target species, listed or not.

Again, while this paper makes some interesting observations on bycatch issues, it makes no suggestions for changes to the 2013 Puget Sound commercial salmon fishing regulations.

Comment by Adolph and Alice Larson: Hales Pass should be open in September as coho migrate along the western shore of Lummi Island, not in Hales Pass. The majority of fish caught during September in Hales Pass are Chinook and pink salmon.

This closure is necessary to minimize impacts on Upper Fraser coho salmon transiting the area and to insure conservation objectives for coho established under the Pacific Salmon Treaty are met. Data from prior seasons indicates that Upper Fraser coho are caught in the Bellingham Bay area during September, and closure of the Hale's Passage reduces impacts on that stock, while allowing fishing to proceed in the rest of the area.

Comment by Dan Erickson: Concerned that any delay in opening Samish Bay for Chinook fisheries would delay opening Bellingham Bay for coho.

There was some discussion of delaying the Samish Bay Chinook openings by the industry during North of Falcon meetings. Further discussions resulted in no changes being made to the Chinook and coho seasons in Bellingham and Samish Bays compared to previous years.

Conclusion

WDFW has considered all the facts and circumstances surrounding the 2013 Puget Sound Commercial salmon season schedule. The agency carefully reviewed all input from industry representatives during the North of Falcon public meetings and the state's rule making process. The agency's 2013 Puget Sound commercial salmon fishing regulations comply with its statutory mandate and are consistent with WDFW's management objectives for these fisheries.

Table 1. Chum catch, licenses and economic values for gillnet and purse seine, in the combined South Sound and Hood Canal fisheries, 1973-2012.

| Year | CPI | Combined | Combined | Combined | GN Licenses | GN Catch | GN Proportion of catch | GN Ex-vessel | GN Ex-vessel | GN Ex-vessel | GN Ex-vessel Value per license | Purse Seine Licenses | PS Catch | PS Proportion of Catch | PS Ex-Vessel Value | PS Ex-Vessel Value CPI Adjusted | PS Ex-vessel per license |
|----------------|------|-------------------|-----------------------|------------------------------------|-------------|----------|------------------------|--------------|--------------|--------------|--------------------------------|----------------------|----------|------------------------|--------------------|---------------------------------|--------------------------|
| | | Gears Total Catch | Gears Ex-vessel Value | Gears Ex-vessel Value CPI adjusted | | | | Value | Value CPI | | | | | | | | |
| 1973 | 4.92 | 93,264 | \$734,961 | \$3,616,011 | 1,303 | 59,793 | 0.64 | \$472,419 | \$2,324,303 | \$1,784 | 320 | 33,471 | 0.36 | \$262,542 | \$1,291,707 | \$4,037 | |
| 1974 | 4.43 | 15,353 | \$78,322 | \$346,965 | 1,990 | 2,023 | 0.13 | \$10,399 | \$46,069 | \$23 | 137 | 13,330 | 0.87 | \$67,923 | \$300,897 | \$2,196 | |
| 1975 | 4.06 | 6,534 | \$49,699 | \$201,777 | 1,659 | 3,017 | 0.46 | \$20,410 | \$82,865 | \$50 | 385 | 3,517 | 0.54 | \$29,289 | \$118,912 | \$309 | |
| 1976 | 3.84 | 119,743 | \$1,107,754 | \$4,253,777 | 1,536 | 65,385 | 0.55 | \$644,114 | \$2,473,399 | \$1,610 | 376 | 54,358 | 0.45 | \$463,640 | \$1,780,378 | \$4,735 | |
| 1977 | 3.6 | 146,509 | \$1,471,793 | \$5,298,456 | 1,517 | 114,444 | 0.78 | \$1,189,141 | \$4,280,906 | \$2,822 | 393 | 32,065 | 0.22 | \$282,653 | \$1,017,550 | \$2,589 | |
| 1978 | 3.35 | 291,755 | \$3,110,616 | \$10,420,562 | 1,532 | 166,416 | 0.57 | \$2,132,816 | \$7,144,932 | \$4,664 | 402 | 125,339 | 0.43 | \$977,800 | \$3,275,630 | \$8,148 | |
| 1979 | 3.01 | 13,063 | \$87,840 | \$264,399 | 1,501 | 6,901 | 0.53 | \$54,040 | \$162,659 | \$108 | 402 | 6,162 | 0.47 | \$33,800 | \$101,739 | \$253 | |
| 1980 | 2.65 | 192,116 | \$1,029,828 | \$2,729,043 | 1,487 | 78,977 | 0.41 | \$513,517 | \$1,360,819 | \$915 | 398 | 113,139 | 0.59 | \$516,311 | \$1,368,224 | \$3,438 | |
| 1981 | 2.4 | 123,688 | \$1,113,134 | \$2,671,521 | 1,450 | 63,428 | 0.51 | \$587,612 | \$1,410,268 | \$973 | 396 | 60,260 | 0.49 | \$525,522 | \$1,261,253 | \$3,185 | |
| 1982 | 2.26 | 200,191 | \$1,144,347 | \$2,586,225 | 1,420 | 70,801 | 0.35 | \$425,611 | \$961,881 | \$677 | 390 | 129,390 | 0.65 | \$718,736 | \$1,624,344 | \$4,165 | |
| 1983 | 2.19 | 128,969 | \$1,039,556 | \$2,276,629 | 1,374 | 46,097 | 0.36 | \$376,604 | \$824,762 | \$600 | 383 | 82,872 | 0.64 | \$662,953 | \$1,451,866 | \$3,791 | |
| 1984 | 2.1 | 266,228 | \$2,016,143 | \$4,233,901 | 1,259 | 94,041 | 0.35 | \$708,422 | \$1,487,686 | \$1,182 | 367 | 172,187 | 0.65 | \$1,307,722 | \$2,746,215 | \$7,483 | |
| 1985 | 2.03 | 184,764 | \$935,630 | \$1,899,328 | 1,196 | 53,811 | 0.29 | \$335,146 | \$680,347 | \$569 | 349 | 130,953 | 0.71 | \$600,483 | \$1,218,981 | \$3,493 | |
| 1986 | 1.99 | 276,814 | \$1,141,165 | \$2,270,918 | 1,200 | 71,595 | 0.26 | \$301,284 | \$599,555 | \$500 | 345 | 205,219 | 0.74 | \$839,881 | \$1,671,363 | \$4,845 | |
| 1987 | 1.92 | 466,208 | \$6,608,284 | \$12,687,905 | 1,148 | 105,651 | 0.23 | \$1,760,755 | \$3,380,650 | \$2,945 | 341 | 360,557 | 0.77 | \$4,847,529 | \$9,307,255 | \$27,294 | |
| 1988 | 1.85 | 471,548 | \$3,651,358 | \$6,755,012 | 1,142 | 153,758 | 0.33 | \$1,223,330 | \$2,263,160 | \$1,982 | 342 | 317,790 | 0.67 | \$2,428,028 | \$4,491,852 | \$13,134 | |
| 1989 | 1.76 | 274,858 | \$2,430,410 | \$4,277,522 | 1,152 | 95,913 | 0.35 | \$828,325 | \$1,457,851 | \$1,265 | 341 | 178,945 | 0.65 | \$1,602,086 | \$2,819,671 | \$8,269 | |
| 1990 | 1.67 | 261,821 | \$2,270,850 | \$3,792,320 | 1,148 | 89,200 | 0.34 | \$776,463 | \$1,296,693 | \$1,130 | 337 | 172,621 | 0.66 | \$1,494,388 | \$2,495,627 | \$7,405 | |
| 1991 | 1.6 | 307,908 | \$1,481,976 | \$2,371,161 | 1,132 | 77,835 | 0.25 | \$423,123 | \$676,996 | \$598 | 330 | 230,073 | 0.75 | \$1,058,853 | \$1,694,165 | \$5,134 | |
| 1992 | 1.56 | 529,520 | \$2,461,390 | \$3,839,769 | 1,118 | 173,808 | 0.33 | \$833,282 | \$1,299,919 | \$1,163 | 327 | 355,712 | 0.67 | \$1,628,109 | \$2,539,849 | \$7,767 | |
| 1993 | 1.51 | 402,089 | \$2,316,092 | \$3,497,299 | 1,083 | 125,238 | 0.31 | \$757,658 | \$1,144,064 | \$1,056 | 318 | 276,851 | 0.69 | \$1,558,434 | \$2,353,235 | \$7,400 | |
| 1994 | 1.47 | 386,967 | \$1,104,806 | \$1,624,065 | 1,042 | 64,465 | 0.17 | \$181,819 | \$267,274 | \$257 | 306 | 322,502 | 0.83 | \$922,987 | \$1,356,791 | \$4,434 | |
| 1995 | 1.43 | 288,538 | \$809,434 | \$1,157,490 | 966 | 55,178 | 0.19 | \$150,667 | \$215,454 | \$223 | 297 | 233,360 | 0.81 | \$658,767 | \$942,037 | \$3,172 | |
| 1996 | 1.39 | 490,370 | \$786,358 | \$1,093,038 | 887 | 74,319 | 0.15 | \$114,229 | \$158,779 | \$179 | 292 | 416,051 | 0.85 | \$672,129 | \$934,259 | \$3,200 | |
| 1997 | 1.36 | 209,837 | \$856,313 | \$1,164,585 | 872 | 19,488 | 0.09 | \$74,057 | \$100,718 | \$116 | 290 | 190,349 | 0.91 | \$782,255 | \$1,063,867 | \$3,669 | |
| 1998 | 1.34 | 414,133 | \$682,627 | \$914,720 | 820 | 52,035 | 0.13 | \$86,581 | \$116,019 | \$141 | 276 | 362,098 | 0.87 | \$596,046 | \$798,701 | \$2,894 | |
| 1999 | 1.31 | 90,471 | \$317,261 | \$415,612 | 682 | 18,782 | 0.21 | \$63,843 | \$83,635 | \$123 | 262 | 71,689 | 0.79 | \$253,418 | \$331,978 | \$1,267 | |
| 2000 | 1.27 | 123,932 | \$627,545 | \$796,982 | 679 | 19,329 | 0.16 | \$92,279 | \$117,194 | \$173 | 262 | 104,603 | 0.84 | \$535,266 | \$679,787 | \$2,595 | |
| 2001 | 1.23 | 679,244 | \$1,490,595 | \$1,833,432 | 359 | 48,505 | 0.07 | \$100,715 | \$123,880 | \$345 | 122 | 630,739 | 0.93 | \$1,389,880 | \$1,709,552 | \$14,013 | |
| 2002 | 1.21 | 788,468 | \$1,317,428 | \$1,594,087 | 215 | 29,534 | 0.04 | \$48,076 | \$58,172 | \$271 | 84 | 758,934 | 0.96 | \$1,269,351 | \$1,535,915 | \$18,285 | |
| 2003 | 1.19 | 713,597 | \$1,339,056 | \$1,593,476 | 208 | 59,043 | 0.08 | \$104,987 | \$124,935 | \$601 | 83 | 654,554 | 0.92 | \$1,234,068 | \$1,468,541 | \$17,693 | |
| 2004 | 1.16 | 1,047,080 | \$2,718,389 | \$3,153,332 | 204 | 113,781 | 0.11 | \$324,818 | \$376,789 | \$1,847 | 81 | 933,299 | 0.89 | \$2,393,572 | \$2,776,543 | \$34,278 | |
| 2005 | 1.12 | 318,802 | \$1,327,792 | \$1,487,127 | 202 | 94,944 | 0.30 | \$386,887 | \$433,314 | \$2,145 | 81 | 223,858 | 0.70 | \$940,905 | \$1,053,813 | \$13,010 | |
| 2006 | 1.08 | 695,849 | \$3,748,099 | \$4,047,946 | 198 | 116,160 | 0.17 | \$590,702 | \$637,958 | \$3,222 | 75 | 579,689 | 0.83 | \$3,157,397 | \$3,409,989 | \$45,467 | |
| 2007 | 1.05 | 598,376 | \$4,719,458 | \$4,955,431 | 198 | 169,933 | 0.28 | \$1,324,268 | \$1,390,481 | \$7,023 | 75 | 428,443 | 0.72 | \$3,395,191 | \$3,564,950 | \$47,533 | |
| 2008 | 1.01 | 375,857 | \$2,937,003 | \$2,966,373 | 196 | 92,454 | 0.25 | \$721,898 | \$729,117 | \$3,720 | 75 | 283,403 | 0.75 | \$2,215,105 | \$2,237,256 | \$29,830 | |
| 2009 | 1.02 | 278,064 | \$1,780,429 | \$1,816,037 | 195 | 78,693 | 0.28 | \$517,907 | \$528,265 | \$2,709 | 75 | 199,371 | 0.72 | \$1,262,522 | \$1,287,772 | \$17,170 | |
| 2010 | 1 | 404,366 | \$3,429,154 | \$3,429,154 | 195 | 98,057 | 0.24 | \$833,760 | \$833,760 | \$4,276 | 75 | 306,309 | 0.76 | \$2,595,393 | \$2,595,393 | \$34,605 | |
| 2011 | 0.97 | 431,128 | \$4,311,188 | \$4,181,852 | 195 | 88,405 | 0.21 | \$943,899 | \$915,582 | \$4,695 | 75 | 342,723 | 0.79 | \$3,367,289 | \$3,266,270 | \$43,550 | |
| 2012 | 0.95 | 538,130 | \$3,678,425 | \$3,494,504 | 195 | 131,532 | 0.24 | \$862,026 | \$818,925 | \$4,200 | 75 | 406,598 | 0.76 | \$2,816,399 | \$2,675,579 | \$35,674 | |
| 1973-2002 mean | | 274,830 | \$1,475,784 | \$3,029,484 | 1,162 | 69,992 | 0.318 | \$509,558 | \$1,220,030 | \$948 | 319 | 204,838 | 0.682 | \$966,226 | \$1,809,453 | \$6,087 | |
| 2003-2012 mean | | 540,125 | \$2,998,899 | \$3,112,523 | 199 | 104,300 | 0.216 | \$661,115 | \$678,913 | \$3,444 | 77 | 435,825 | 0.784 | \$2,337,784 | \$2,433,611 | \$31,881 | |
| 2008-2012 mean | | 405,509 | \$3,227,240 | \$3,177,584 | 195 | 97,828 | 0.244 | \$775,898 | \$765,130 | \$3,920 | 75 | 307,681 | 0.756 | \$2,451,342 | \$2,412,454 | \$32,166 | |

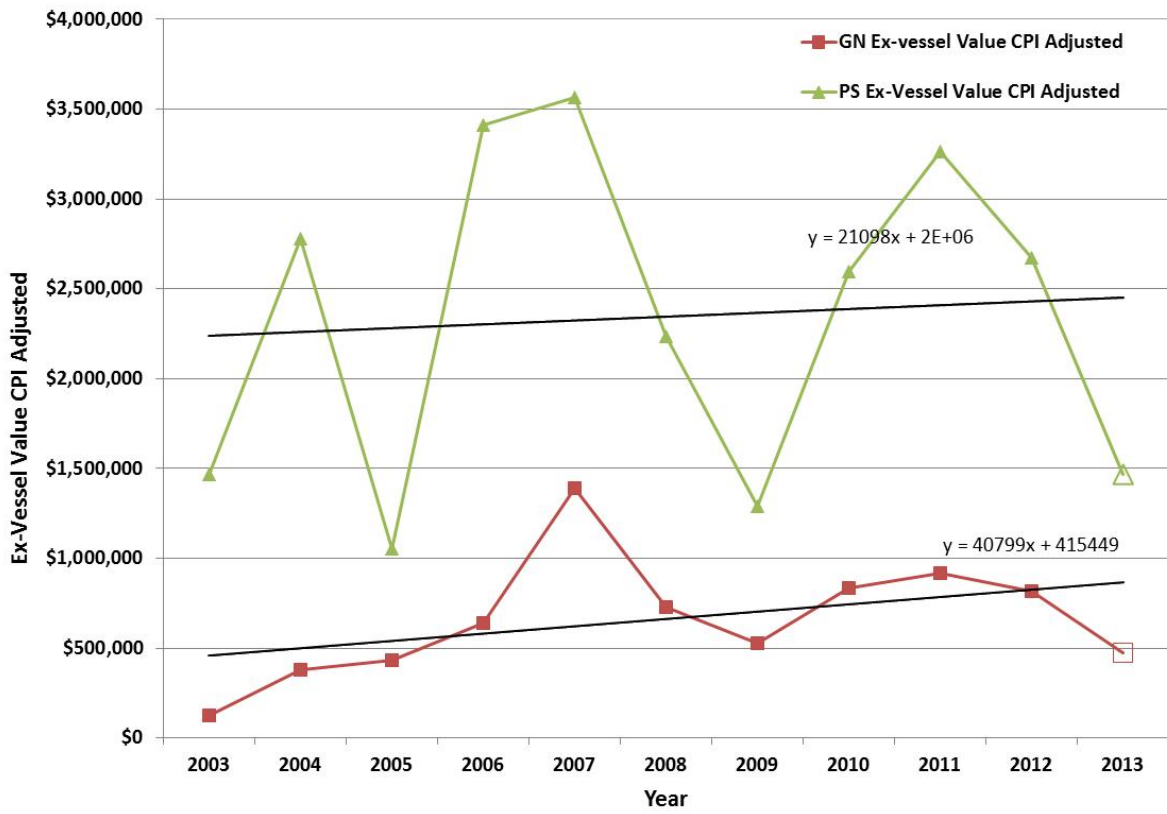


Figure 1. Trends in annual, CPI-adjusted ex-vessel value of gillnet and purse seine chum salmon landings for South Sound (Areas 10&11) and Hood Canal (Area 12), 2003 – 2012, and projected value for 2013.

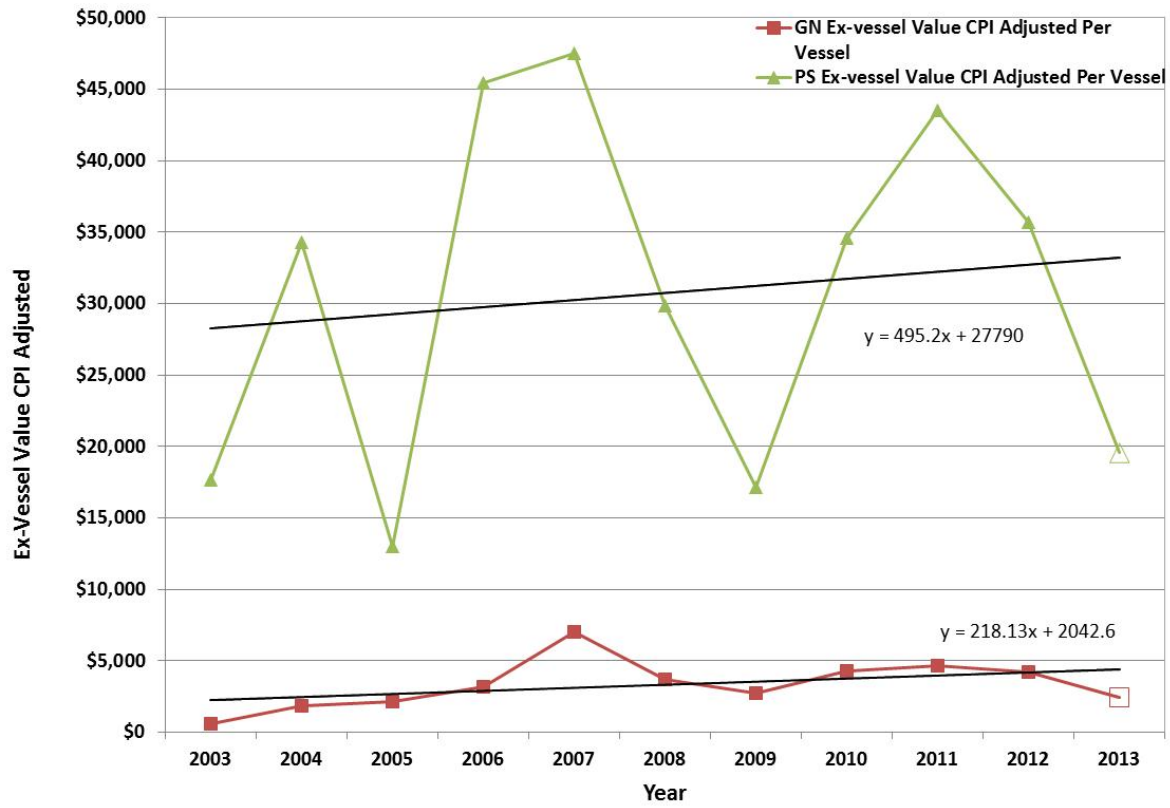


Figure 2. Trends in annual, CPI-adjusted ex-vessel value per license for gillnet and purse seine chum salmon landings for South Sound (Areas 10&11) and Hood Canal (Area 12), 2003–2012, and projected value for 2013.