

## PRELIMINARY 2016 SALMON OUTLOOK

Since 2002, Pacific Region (BC & Yukon) Stock Assessment staff has provided a categorical outlook for the next year's salmon returns. The Outlook is intended to provide an objective and consistent context within which to initiate fisheries planning. In particular, it provides a preliminary indication of salmon production and associated fishing opportunities by geographic area and species stock groups called an Outlook Unit. The Conservation Units covered by each Outlook Unit are listed in Appendix 1.

Final stock-specific fishing plans described in the annual Salmon Integrated Fisheries Management Plan (IFMP) may be different from the generic scenarios described here. Stock-specific plans are informed by available science and management information, the specific nature of fisheries on a given stock, allocation policy, consultation input and other considerations. Actual fishing opportunities are subject to in-season information and are announced in-season via fishery notice or other official communications from DFO.

For each Outlook Unit, an Outlook Category is provided on a scale of 1 to 4 (table below). The category reflects the current interpretation of available quantitative and qualitative information, including pre-season forecasts if available, and the opinion of DFO Stock Assessment staff. Where management targets for stocks have not been formally described, interim targets were either based on historical return levels or, if necessary, opinion of local staff. The Department is currently developing benchmarks of status under the Wild Salmon Policy.

Outlook Categories influence fisheries expectations where an Outlook Unit is caught directly or incidentally. In the context of this outlook, potential fishery consequences associated with each of the four Outlook Categories are identified in the table below.

Outlook Category	Category Definition	Criteria	General Fisheries Expectations <sup>1</sup>
1	Stock of Concern	Stock is (or is forecast to be) less than 25% of target or is declining rapidly.	Fisheries opportunities highly restricted including non-retention, closures or other measures. Likely requirement for management measures in fisheries targeting co-migrating stocks to minimize by-catch or incidental impacts.
2	Low	Stock is (or is forecast to be) well below target or below target and declining.	Directed fisheries opportunities unlikely or very limited (subject to allocation policy considerations). Potential requirement for management measures in fisheries targeting co-migrating stocks to minimize by-catch or incidental impacts.
3	Near Target	Stock is (or is forecast to be) within 25% of target and stable or increasing.	Directed fisheries possible subject to allocation policy and other considerations laid out in IFMPs, including measures to address weak stocks that may be present during fisheries.
4	Abundant	Stock is (or is forecast to be) well above target.	Directed fisheries are likely for all harvesters subject to allocation policy and other considerations laid out in IFMPs including measures to address weak stocks that may be present during fisheries.

<sup>1</sup> "Fisheries Expectations" provides a generalized description of the potential fisheries consequences of each outlook category.

It is important to note that the fishery expectations implied by any of the Outlook Categories do not reflect interactions with stocks in other Outlook Units. Consequently, conservation requirements for stocks in Outlook Units at Outlook Categories 1 and 2 may limit fishing opportunities for Outlook Units at a higher Outlook Category. Where possible, the comments associated with each Outlook Unit identify such potential constraints. A range of Outlook Categories indicates significant geographic variation in outlook within the Outlook Unit and fisheries may be shaped in response to that variation.

**This version of the 2016 outlook should be regarded as an early scan of salmon production, and as subject to change as more information becomes available. This preliminary version of the document may be replaced by a final version, planned for release in May 2016. However, individual outlooks may be periodically updated as statistical forecasts and assessments are completed and reviewed.**

## Summary of Pacific Salmon Outlook Units for 2016

A total of **91** Outlook Units were considered and outlooks categorized for **84**. Six units were data deficient (ND), and one pink unit was not applicable (NA). Twenty-nine (**29**) Outlook Units are likely to be at or above target abundance (categories 3, 4, 3/4), while **32** are expected to be of some conservation concern (categories 1, 2, 1/2). The remaining **23** Outlook Units have mixed outlook levels (categories 1/3, 1/4, 2/3, 2/4). Overall, the outlook for 2016 has declined relative to the previous outlook (2015 for most species but 2014 for pink). Eleven (**11**) Outlook Units improved in category (WCVI–Other, Nass, and Alsek sockeye; Georgia Strait Fall, Alsek, and Stikine chinook; Georgia Strait–West, Georgia Strait–East, and North Coast Areas 3 to 6 pink; Fraser River and WCVI chum). Nineteen (**19**) units declined in category (Okanagan, Early Summer–North Thompson, Early Summer–South Thompson, Summer–Chilko, Summer–Quesnel, Summer–Harrison, Fall–South Thompson, Fall–Birkenhead, and Fall–Lower Fraser sockeye; Fraser River Summer Run 4<sub>1</sub>, Fraser River Fall Run 4<sub>1</sub> and Skeena chinook; Mid and Upper-Fraser, Thompson, Lower Fraser, WCVI, Area 12, and Georgia Strait coho; Areas 7 to 10 pink).

### General Observations:

Returns of most Pacific salmon stocks have been increasingly variable due to a combination of factors such as: numbers of parental spawners and the changing freshwater and marine environment affecting subsequent production from these spawners at various life history stages. The 2016 outlook for salmon returns shows this variation but also suggests a period of continued reduced productivity. Reasons include the extremely warm water temperatures in the central NE Pacific ocean (the “warm blob”), the forecast El Nino conditions, and the resulting changes in the marine food web – zooplankton composition, density, and distribution. For Pacific salmon, the full implications of these conditions are uncertain; however, these conditions have been linked to reduced survival and / or growth for salmon in the past. These conditions could also affect returning adults in 2016 through changes in age-at-return, fish condition, migration routes, and run timing.

A general summary of expected returns and potential fishery opportunities for species and major river systems are outlined below. This information is provided as a general indication of potential fishing opportunities. Actual fishing opportunities for many populations are based on in-season information and assessments.

### **Sockeye**

- Nass River: Average returns and opportunities for directed harvest expected.
- Skeena River: Poor survival rates expected for 4 year olds and average survival rates expected for 5 year olds returning in 2016. Return rates have become more uncertain in recent years, with greater variability among the Skeena stock components and brood year survival rates. Harvest opportunities are uncertain.
- Fraser River: Below average returns are expected for most Fraser sockeye populations. Harvest opportunities are uncertain.
- Somass River: Abundance expected to decline relative to record return in 2015; returns near longer term average run size. Opportunities for directed harvest expected.
- Quantitative forecasts will be provided at a later date for sockeye populations.
- Fishing opportunities for sockeye are determined based on in-season assessments of actual sockeye returns.

### **Pink**

- Northern BC: Potential for good returns in some stocks in Areas 3 to 6, and possibly Haida Gwaii, based on brood year escapements; poor returns expected in Areas 7 and 8. Opportunities for directed harvest expected.
- Southern BC: There are minimal returns of pink salmon to the Fraser River in even years. Local pink abundances in other areas of Georgia Strait may provide opportunities for directed harvest.

### **Chinook**

- Returns are expected to vary considerably depending on area due to on-going fluctuations in survival rates and variable parental spawner abundance.
- Northern BC: Recent average returns are expected in the Skeena and Nass Rivers. Variable returns in other systems with abundant returns expected in the Bella Coola.
- Southern BC: Many populations are stocks of concern or are expected to return at low levels due to low spawner abundance and persistent low survival rates. Lower returns of South Thompson origin chinook expected due to low 2012 escapement. Expect continued discussion on fishery restrictions to limit exploitation rates on many of these populations.
- Yukon chinook: Returns to Canada are expected to remain below the long-term average; fisheries opportunities are uncertain.
- Quantitative forecasts of abundance for some populations and the Abundance Indices for Pacific Salmon Treaty Aggregate Abundance Based Management (AABM) ocean fisheries will be provided in 2016.

## **Coho**

- Survival rates of coho remain variable and are still below historic highs in most areas, particularly Southern BC.
- Northern BC: Coho populations generally continue to exhibit higher productivity and returns than southern populations; however, returns are uncertain and will depend on survival rates of juveniles that went to sea in 2015. Opportunities for directed harvest expected.
- Southern BC: Coho populations, particularly Interior Fraser River coho, remain in a low productivity period with very low returns observed in many areas in 2015. Conservation measures and harvest restrictions will be required in southern fisheries to limit impacts on these populations.

## **Chum**

- Chum forecasts are highly uncertain.
- Northern BC: Chum stocks in the Skeena River, Nass River and parts of the Central Coast continue to be stocks of concern and actions will continue to be required to limit impacts on these stocks in fisheries for other species.
- Southern BC: Inside chum returns are expected to support fisheries. Fisheries are managed using a cautious harvest strategy that provides for harvest opportunities for all groups in mixed stock areas and terminal opportunities subject to meeting escapement targets. Fraser River chum are expected to be abundant. Local opportunities may be considered for enhanced WCVI chum.
- Yukon mainstem chum: An above average return is expected to provide fisheries opportunities.

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
<b>Sockeye</b>		
1. Okanagan	2	<p>Returns of Okanagan sockeye adults to the Columbia and Okanagan rivers in 2016 will be derived from smolt cohorts that migrated seaward in spring 2013 (returning as 5-year-olds), 2014 (returning as 4-year-olds) and 2015 (returning as 3-year old “jacks” or “jills”). Although year-specific smolt-to-adult survival values for these specific cohorts are not available as yet, Okanagan sockeye marine survival variations are known to be similar to Barkley Sound sockeye in that above and below average survivals occur in association with either cold-ocean (La Nina) or warm ocean (El Nino) events respectively. Two of the three sea entry years noted above exhibited anomalously warm conditions (i.e. 2014 and 2015). Consequently, a sub-average smolt-to-adult survival rate of approximately 3% has been applied to annual smolt production values derived from fall fry surveys such that expected production originating from the 2011, 2012 and 2013 brood years is estimated to be about 545,000 adults contributing to the 2014-2018 return years. Allocation of this production to specific return years based on average age-at-return values for Okanagan sockeye suggests a total return in 2016 on the order of 200,000 fish representing a steep decline to less than 50% of recent year returns. Further, en route mortalities of adults in the Columbia and Okanagan rivers in 2015 exceeded 50% of total returns such that, in combination with U.S. harvest of roughly 100,000 Okanagan sockeye, an escapement of around 10,000 adults fell far short of Canada’s domestic target of 35,000 at Oliver, B.C. The expectation that 2016 is likely to also be a warmer than average year will necessitate renewed discussions between U.S. and Canadian fisheries managers of their approach to harvest of Okanagan sockeye in 2016 in order to meet the current domestic escapement objective. <i>(2015 Outlook Category was 3.)</i></p>
Fraser Sockeye	Overview	<p>Quantitative forecasts for Fraser sockeye stocks are published annually through the Canadian Science Advisory Secretariat (CSAS) process. The 2016 forecasts will be published as a Science Response at the following link: <a href="http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR">http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR</a></p> <p>Note that the dominant age-of-maturity for most Fraser Sockeye stocks is four years, so Sockeye returning in 2016 as four year olds originate from the 2012 brood year. Five year olds returning in 2016 originate from the 2011 brood year. There are a number of stocks returning in 2016 that have much higher brood year escapements for five year olds; therefore, for these stocks five year olds would be expected to contribute more to total returns compared to average.</p> <p>Poor returns of four year olds in 2015 for most stocks (although not all), indicate poorer survival of five year olds in 2016 from the same brood year. Environmental conditions that have contributed to the large mass of warm water in the North Pacific (the warm blob) have persisted, and four year old returns in 2016 could similarly be affected. A supplement to the Fraser sockeye forecasts was produced as part of the 2016 forecast process and will be published as a second Science Response on the following website: <a href="http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR">http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR</a></p>

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
2. Early Stuart  (CU: Takla-Trembleur-Early Stuart)	1	Very low returns are expected in 2016 relative to the cycle average of 124,000 (1952-2008). The 2012 brood year escapement is a weak cycle for Early Stuart and escapement in 2012 (6,800 effective female spawners: EFS) was less than half the cycle average for this stock (18,700 EFS). Additionally, the 2011 brood year escapement for Early Stuart (200 effective female spawners: EFS) was the smallest escapement on record for this stock, falling well below the 2011 cycle average (25,200 EFS). (2015 Outlook Category was 1.)
3. Early Summer – North Thompson  (CU: North Barriere-ES)	1	<b>North Barriere River</b> (previously identified as Fennell Creek): Very low returns are expected in 2016 relative to the cycle average of 34,000 (1972-2008). The 2012 brood year escapement for North Barriere (700 EFS) was 15% of the cycle average (4,700 EFS).  Further, since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2016, given the poorer survival of this brood year (2011) as observed in four year old returns in 2015, reduced returns for the five year olds is anticipated in 2016. <u>Note change to CU composition in last three years; Raft has been moved into the Summer Run. (2015 Outlook Category was 2.)</u>
4. Early Summer South Thompson  (CU: Shuswap-ES)	2	<b>Scotch:</b> Below average returns are expected in 2016 relative to the cycle average of 11,000 (1980-2008). The 2012 brood year escapement for Scotch (700 EFS) was similar to the cycle average (800 EFS). Since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated returns for the five year olds will be reduced in 2016. The 2011 brood year escapement for Scotch (12,500 EFS), which will contribute the five-year old component of the 2016 return, was the largest escapement on this cycle, almost tripling the cycle average (4,400 EFS).  <b>Seymour:</b> Below average returns are expected in 2016 relative to the cycle average of 34,000 (1952-2008). The 2012 brood year escapement for Seymour (including McNomee) (300 EFS) was much smaller than the cycle average (3,800 EFS). Since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2011 brood year escapement for Seymour (including McNomee) (8,000 EFS) was also smaller than the cycle average (19,300 EFS). (2015 Outlook Category was 3.)

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
<p>5. Early Summer – Mid &amp; Upper Fraser</p> <p>(CUs: Anderson-Seton-ES; Nadina-Francois-ES (new mixed); Bowron-ES; Taseko-ES)</p>	1/3	<p><b>Gates (Anderson-Seton-ES):</b> Below average returns are expected in 2016 relative to the cycle average of 129,000 (1972-2008). The 2012 brood year escapement for Gates (6,900 EFS) was below the cycle average (9,000 EFS). Further, since five year olds are expected to contribute a higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The individual 2016 Outlook Category is 3.</p> <p><b>Nadina (Nadina-Francois-ES):</b> Below average returns are expected in 2016 relative to the cycle average of 122,000 (1976-2008). The 2012 brood year escapement for Nadina (16,800 EFS) was greater than the cycle average (13,700 EFS). The 2011 brood year escapement (1,200 EFS) was well below the cycle average (11,200 EFS). The individual 2016 Outlook Category is 3.</p> <p><b>Bowron (Bowron-ES):</b> Very low returns are expected in 2016 relative to the cycle average of 31,000 (1952-2008). The 2012 brood year escapement for Bowron (30 EFS) was the smallest escapement on record for this stock, falling well below the cycle average (3,500 EFS). Further, since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2011 brood year escapement (2,000 EFS) was one quarter of the long-term cycle average (8,200 EFS). The individual 2016 Outlook Category is 1.</p> <p><b>Taseko (Taseko-ES):</b> Return data are not available for this CU; only escapements can be compared to the time series average. The brood year escapement index for Taseko (40 EFS) was much smaller than the cycle average of 900 EFS (1950-1970, 1994-2010); note that Taseko escapement assessments are an index of abundance only. The individual 2016 Outlook Category is 1. (2015 Outlook Category was 1/3.)</p>
<p>6. Early Summer – Lower Fraser</p> <p>(CU: Pitt-ES; Chilliwack-ES; Nahatlach-ES)</p>	1/3	<p><b>Pitt:</b> Below average returns are expected in 2016 relative to the average across cycles of 71,000 (1954-2011). Since Pitt has a higher proportion of five year old recruits (~70%) relative to four year old recruits, and given the poorer survival of this brood year (2011) as four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2012 brood year escapement (four year old returns) for Pitt (41,400 EFS) was almost three times the average across cycles (14,500). The individual 2016 Outlook Category is 3.</p> <p><b>Chilliwack Lake/Dolly Varden Creek and Nahatlatch Lake/River: Return data are not available for the two CUs in this Outlook Unit; only escapements can be compared to time series averages.</b></p> <p><b>Chilliwack Lake/Dolly Varden Creek:</b> Brood year escapement in 2012 (78,700 EFS) was more than seven times the recent time series average (10,800 EFS) from 2002-2014 across all cycles when both sites were assessed, and is the largest escapement on record for this stock. The individual 2016 Outlook Category is 3.</p> <p><b>Nahatlatch Lake/River:</b> Brood year escapement (1,100 EFS) was half the cycle average (2,500 EFS). The individual 2016 Outlook Category is 1. (2015 Outlook Category was 1/3.)</p>

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
7. Summer – Chilko  (CUs: Chilko-S; Chilko-ES)	3	Below average returns are expected in 2016 relative to the cycle average of 1.78 million (1952-2008). Escapement in the 2012 brood year (90,800 EFS) was less than half the cycle average (252,800 EFS) for Chilko. Chilko freshwater survival was within the average range in the 2012 brood year; however the resulting smolt abundance (used to generate the 2016 forecast) was below average. (2015 Outlook Category was 4.)
8. Summer – Late Stuart  (CUs: Takla-Trembleur-Stuart-S)	2	Average (to below average depending on survival of four year olds) returns are expected in 2016 relative to the cycle average of 175,000 (1952-2008). The 2012 brood year escapement for Late Stuart (31,800 EFS) was similar to the cycle average (26,000 EFS). (2015 Outlook Category was 2)
9. Summer – Nechako  (CU: Francois-Fraser-S)	3	Average (to below average depending on survival of four year olds) returns are expected in 2016 relative to the cycle average of 448,000 (1952-2008). The 2012 brood year escapement for Stellako (50,600 EFS) was similar to the cycle average (61,500 EFS). (2015 Outlook Category was 3.)
10. Summer – Quesnel  (CU: Quesnel-S)	1	Below average returns are expected in 2016 relative to the cycle average of 55,000 (1952-2008). The 2012 brood year escapement for Quesnel (100 EFS) was extremely low, and well below the cycle average (4,500). Further, since five year olds are expected to contribute most of the abundance to this stock's return in 2015, given the poorer survival of this brood year (2011) as four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2011 brood year escapement for Quesnel (17,000 EFS) was smaller than the cycle average (28,800 EFS). (2015 Outlook Category was 3.)
94. Summer-Harrison  (CU: Harrison-River Type)	3	This CU was moved from the Fall to Summer management group in 2012. Below average returns are expected in 2016 relative to the average across cycles of 105,000 (1953-2011). However, given the exceptional escapements for this stock in recent years, and the increases in productivity, predictions of returns are extremely uncertain. Both three and four year olds experienced low survival in 2015. The 2012 escapement for Harrison (32,900 EFS) (age-4 recruits in 2016) was similar to the long term average for this stock (25,500 EFS), while the 2013 escapement (78,000 EFS) (age-3 recruits in 2016) was above average (25,500 EFS). (2015 Outlook Category was 4.)
95. Summer-Raft  (CU: Kamloops-ES)	2	This CU was moved from the Early Summer to the Summer management group in 2012. Below average returns are expected in 2016 relative to the cycle average of 57,000 (1952-2008). The 2012 brood year escapement for Raft (1,700 EFS) was much smaller than the cycle average (6,600 EFS). Further, since five year olds are expected to contribute a similar proportion to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. (2015 Outlook Category was 2.)
11. Fall – Cultus  (CU: Cultus-L)	1	Very low returns are expected in 2016 relative to the cycle average of 22,000 (1952-2008). Juvenile production of 63,600 smolts (97% hatchery marked) fell well below the long-term cycle average (1952-2012 cycle average: 395,800 smolts), though it was somewhat similar to the post-1980 average (1983-2011 cycle average: 78,000 smolts). (2015 Outlook Category was 1.)



Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
12. Fall – Portage (CU: Seton-L)	1	Very low returns are expected in 2016 relative to the cycle average of 16,000 (1960-2008). The 2012 brood year escapement for Portage (13 EFS) was extremely small, falling well below the cycle average (600 EFS). Escapements in Portage have been consistently declining for the past two cycles, and the 2012 escapement was the smallest observed on this cycle since the population was restored with hatchery transplants in the 1960s. (2015 Outlook Category was 1.)
13. Fall – South Thompson (CU: Shuswap-L)	1	Below average returns are expected in 2016 relative to the cycle average of 29,000 (1952-2008). The 2012 brood year escapement for Late Shuswap (6 EFS) was the smallest on record across all cycles, falling well below the cycle average (2,800). Further, since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) as four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. (2015 Outlook Category was 3.)
14. Fall – Birkenhead (CU: Lillooet-Harrison-L)	2	Below average returns are expected in 2016 relative to the cycle average of 277,000 (1952-2008). The 2012 brood year escapement for Birkenhead (2,500 EFS) was much smaller than the cycle average (32,300 EFS), and was the smallest escapement on record for this stock. Further, since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2015, given the poorer survival of this brood year (2011) in four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2011 brood year escapement (92,400 EFS) was larger than the cycle average (46,800 EFS). (2015 Outlook Category was 3.)
15. Fall – Lower Fraser  CUs: Harrison (U/S)-L; Harrison (D/S)-L; Harrison (River-Type); Widgeon (River-Type)	1	<b>Weaver (including miscellaneous Harrison Lake-rearing stocks):</b> Below average returns are expected in 2016 relative to the cycle average of 345,000 (1972-2008). The 2012 brood year escapement for Weaver (400 EFS) was the smallest escapement on record for this stock, falling well below the cycle average (18,300 EFS). Further, since five year olds are expected to contribute a much higher proportion than average to this stock's return in 2016, given the extremely poor survival of this brood year (2011) as four year old returns in 2015, it is anticipated that returns for the five year olds will be reduced in 2016. The 2011 brood year escapement for Weaver (24,500 EFS) was larger than the cycle average (18,300 EFS) Individual 2016 Outlook Category is 1.  <b>Widgeon Creek:</b> CU return data are not available, instead only escapements are compared to time series averages. Brood year escapement (230 EFS) was smaller than the cycle average (350 EFS). Individual 2016 Outlook Category is 1. (2015 Outlook Category was 1/3.)
16. Somass	4	After a record return of over 2 million in 2015, abundance is expected to decline in 2016 to a level closer to the long term average run size. Most of the production is expected from the 2011 brood, which produced the large amount of 4-year old fish observed in 2015. Much less production is expected from the 2012 brood, a portion of which return as 4-year old fish in 2016. Indicators of low production for the 2012 brood/2014 sea entry year are; 1) the very low number of 3 year old (or jack) sockeye observed in 2015 and 2) the generally negative signal from ocean correlates associated with marine survival rate for the 2014 sea entry year. (2015 Outlook Category was 4.)

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
17. Henderson	2	Although the Henderson stock has showed improvement in some recent years, the observed return was low in 2015 in contrast to the record return observed for the two nearby Somass stocks. The return of 4 year olds in 2016 is expected to be low given expected poor marine survival for the 2014 sea entry year (see above). The return of 5 year olds in 2016 is expected to be low based on the low return of 4 year old sockeye observed in 2015. (2015 Outlook Category was 2.)
18. WCVI - Other	2/3	Assessment data are not available to for most systems. The limited available observations suggest variable status with some stocks showing moderate to even abundant run sizes in recent years whereas others are apparently low and stable, but show little sign of rebuilding. (2015 Outlook Category was 2.)
19. Areas 11 to 13	2/3	<p>Preliminary sockeye returns in 2015 to the Nimpkish River (Area 12) were above average but show a decline in survival relative to the strong 2010 and 2011 brood years. The assessment of the escapement data associated with the Quaste River (Area 12) has not yet been completed, but indications are for return abundance lower than previous years. Preliminary 2015 sockeye returns in Area 13, specifically the Phillips River, were average.</p> <p>The only indication of marine survival comes from decreased returns of local pink and coho salmon in 2015 (same 2014 outmigration year as the sockeye). Consequently, the above average brood and potential for reduced marine survival conditions result in an outlook that is low to near target. (2015 Outlook Category was 2/3).</p>
20. Sakinaw	1	691 adult and 26 jack sockeye were enumerated in 2015, coming from a smolt count of 253,000 in 2013. The marine survival of smolt to escaping adult is only 0.2% for hatchery origin and 0.8% for wild origin smolts indicating a continuation of poor marine survivals. This return is mostly comprised of progeny from captive brood, held at Rosewall and Ouilette hatcheries, and a small number of wild origin sockeye. The expectation for 2016 is for a lower number of adults (430) due to fewer smolts observed in 2014 (126,000). (2015 Outlook Category was 1.)
21. Areas 7 to 10	1/4	Area 8 sockeye returns are expected to be very poor based on very low brood year escapements and continuing poor return rates. Areas 9 and 10 five year old returns from the strong 2011 escapement could be good depending on ocean survivals. (2015 Outlook Category was 1/4.)
22. Coastal Areas 3 to 6	2/4	Status is uncertain. Indications are escapements are improving in the last cycle. Limited assessment data for evaluation. (2015 Outlook Category was 2/4.)
23. Babine Lake - Enhanced	4	Below average abundance forecast for age-5 sockeye based on 2015 age 4 returns. Poor age 4 returns expected in 2016 based on age-3 returns in 2015. (2015 Outlook Category was 4.)
24. Skeena - Wild	1/4	Expect average survival for sockeye that went to sea in 2013 (returning as 5 year olds in 2016). The survival for sockeye that went to sea in 2014 (returning as 4 year olds in 2016) is expected to be poor based on the poor 2015 jack sockeye return to Babine. Return rates have become more uncertain in recent years, with greater variability among the Skeena stock components. (2015 Outlook Category was 1/4.)
25. Nass	3/4	Average returns are expected. Kwinageese had good brood year escapement in 2011, poor in 2012. (2015 Outlook Category was 1/4.)
26. Haida Gwaii	2/4	Status uncertain for some systems; limited assessment work indicates improved returns over the last cycle. (2015 Outlook Category was 2/4.)
27. Alsek	3	Based on brood year escapements outside (above) of the MSY target range and stock-recruitment relations from historical records, an average to above average run is expected. (2015 Outlook Category was 2/3.)

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
28. Stikine - Wild	3	Stikine sockeye production has varied widely since 1985. Low production periods occurred in the mid-1980s to early 1990s. From 2003 through 2006 production improved, believed due to improved marine survival. Returns since 2007, however, were below forecast suggesting a downturn in marine survival. For 2016, the Tahltan Lake component is predicted to be above average due to the above average number of smolts which emigrated from the lake in 2013. The main stem component is expected to be above average. Fishing opportunities are expected within the confines of conservation and PST harvest sharing arrangements. (2015 Outlook Category was 3.)
29. Taku - Wild	3	The 2015 run was lower than forecast. Regarding the outlook for 2016, the dominant and sub-dominant brood year escapements were within the range associated with good production. Taking into account both information sources an average return is expected in 2016. Fishing opportunities are expected within the confines of conservation levels and PST harvest sharing arrangements. (2015 Outlook Category was 3.)
<b>Chinook</b>		
96. Fraser River Spring Run 4 <sub>2</sub>	2	Escapement in 2015 improved considerably over the parent brood escapements in 2011. Expectations for 2016 are for continued modest improvements over the 2012 parental brood escapements, however overall abundance is expected to remain fairly low due to ongoing unfavorable and highly variable marine survival conditions. (2015 Outlook Category was 2.)
97. Fraser River Spring Run 5 <sub>2</sub>	2	Expectations are for modest improvements again in 2016, but continued overall low escapements related to depressed parental abundance and continuing unfavorable and highly variable marine survival conditions. For the systems with information, escapements in 2015 exceeded the levels of the parental brood escapement. (2015 Outlook Category was 2.)
98. Fraser River Summer Run 5 <sub>2</sub>	2	Expectations are for modest improvements over parental brood levels again, but continued overall low to modest escapements in 2016, related to ongoing depressed parental abundance and unfavorable and highly variable marine survival conditions. Escapements in 2015 exceeded parental escapement levels. (2015 Outlook Category was 2.)
99. Fraser River Summer Run 4 <sub>1</sub>	2	Instability in smolt to adult survival rates, combined with poor escapements in 2012, temper the outlook for this aggregate. The 2012 brood year escapement was the second lowest aggregate escapement since 1996. If high smolt survival conditions occur, abundance in 2016 may attain average levels despite the poor parental escapements; however, if survival is average then escapement may only improve modestly. Aggregate escapement in 2015 was the highest on record for the aggregate (>170,000), and exceeded parent brood levels for all stocks. However, fecundity (eggs/female) was about 20% below average. It is unclear what contributed to the increased production and decreased fecundity. (2015 Outlook Category was 3.)

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
100. Fraser River Fall Run 4 <sub>1</sub>	2	<p>Current marine conditions appear unfavorable, thus expectations for escapements in 2016 are highly uncertain, and tempered by the low parental brood escapement in 2012. A formal forecast for 2016 will be available in early spring. Escapement programs are ongoing and while abundance appears to be greater than in 2014, it is unclear if that abundance will meet parental escapement levels observed in 2011. Fecundity is below average, similar to experiences with Fraser Summer Run 4<sub>1</sub>.</p> <p>Although there are significant hatchery releases of Harrison fall-run chinook stock into the Harrison &amp; Stave Rivers, lower Fraser River fall-run hatchery chinook consists mainly of Chilliwack Hatchery releases. 2015 adult escapement surveys at Chilliwack are ongoing and preliminary results indicate only modest returns. Forecasts will be prepared for early spring release. (2015 Outlook Category was 2/3.)</p>
39. WCVI - Hatchery	3	<p>Adult returns of WCVI hatchery chinook in 2016 will be comprised mostly of 3, 4 and 5 year old fish returning from the 2013, 2012 and 2011 brood years, respectively. Based on the observed return of younger age classes in 2015, the survival rate of the 2012 brood was about average. However the survival rates of the other two brood years were apparently either very low (2011) or low (2013). A very low forecast abundance of 5 year olds may result in concern for sufficient female spawners as the younger age classes produce fewer females. (2015 Outlook Category was 3.)</p>
40. WCVI-Wild	1	<p>Wild populations have been well below target for several generations showing limited or no signs of rebuilding. While in recent years stocks in the NWVI CU showed moderate improvement, this trend is not generally observed in SWVI populations; particularly those from Clayoquot Sound. Expectations are for continued low abundance in 2016. (2015 Outlook Category was 1)</p>
41. Johnstone Strait Area (including mainland inlets)	2/3	<p>Data are sparse for many of the wild Chinook populations in the area, but those surveyed in 2015 are below historic abundances. Escapement monitoring on the Campbell/Quinsam system is still underway, however preliminary information suggests an improvement over the 2014 return, but remaining below average return for this hatchery indicator. The enhanced population of the Phillips River produced another strong return, slightly lower than the past two years, but well above its historic average. Outlook is similar to recent years with wild stocks at low level (category 2) and hatchery stocks likely near target (category 3). (2015 Outlook Category was 2/3.)</p>
42. Georgia Strait Fall (wild and small hatchery operations)	2/3	<p>The 2015 return to Cowichan was similar to the previous year suggesting that the rebuilding is continuing. The Cowichan return remains below the 6500 MSY target. Above average jack returns in 2015 suggest potential improvement in 2016 age 3 returns. For Nanaimo, 2015 returns were lower than the 1 and 3 generation averages; indicating that this stock is low and stable. (2015 Outlook Category was 2.)</p>
43. Georgia Strait Fall (large hatchery operations)	2	<p>Returns in 2015 to rivers with major hatcheries (Big Qualicum, Little Qualicum and Puntledge) are similar to last year's (2014) returns and have been low but stable over the last 10 years. (2015 Outlook Category was 2.)</p>
44. Georgia Strait Spring and Summer	2	<p>Nanaimo spring chinook were not monitored in 2015. Nanaimo summer run appear to be below average. Returns of summer run chinook to the Puntledge hatchery are below the 1 and 3 generational average and below target escapements. Rebuilding efforts are continuing. The summer run in Cowichan River was monitored in 2015 and preliminary results indicate a run of ~200 adults. (2015 Outlook Category was 2.)</p>

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
45. Areas 7 and 8	3/4	2016 Bella Coola returns are expected to be above average based on the recent returns. (2015 Outlook Category was 3/4.)
46. Areas 9 and 10	2/4	Wannock River chinook returns are expected to be average. The spring-run stocks including the Owikeno tributary stocks and Chuckwalla/Kilbella are expected to be below average based on recent trends. (2015 Outlook Category was 2/4.)
47. Coastal Areas 3 to 6	2/3	Stocks are generally depressed and variable and this pattern is expected to continue. Assessments are of poor quality. (2015 Outlook Category was 2/3.)
48. Nass	3/4	Recent average return expected (pending detailed review of the 2015 return age structure). (2015 Outlook Category was 3/4.)
49. Haida Gwaii	ND	No recent assessments of Yakoun chinook. (2015 Outlook Category was ND.)
50. Skeena	2/4	Recent average returns expected, subject to adjustment once the 2015 age structure is understood. (2015 Outlook Category was 3/4.)
51. Alsek	3	Brood year escapements were outside (above) the established optimal range. Based on stock recruitment relation using historical records, an above average run is expected. (2015 Outlook Category was 2/3.)
52. Stikine	2	A bilaterally developed pre-season forecast is not yet available but is required by December 01. This stock has been subjected to directed commercial fisheries since 2005 due to new provisions under the PST. Under the Treaty, directed fisheries are allowed if the pre-season forecast is greater than 28,100 large chinook (chinook > 659 mm MEF) and in-season projections are >24,500 large chinook. Similar to 2015, the preliminary pre-season sibling-based forecast suggests production will be below the pre-season trigger for conducting a directed fishery in Canada. Since 2011 the run sizes have been well below predictions. This outlook will be updated after the TTC analysis is done (by December 01). (2015 Outlook Category was 1.)
53. Taku	2	Taku chinook salmon have been managed under a PST fishing regime implemented in 2005 and renewed for 2009 to 2018 with minor modifications. In 2009 the escapement goal was revised to 25,500 large Chinook (range: 19,000-36,000). The previous goal was 36,000 (range: 30,000-55,000). A bilaterally developed run outlook is due on December 1 (based on preliminary estimates of the 2015 return and historical sibling relationships) and will likely be discounted to account for forecast error over the past five years. It is anticipated that the 2016 run will be below average and will not support directed fishing in Canada or the US. (2015 Outlook Category was 2.)
54. Yukon	2	The Canadian-origin return of Yukon River Chinook salmon in 2016 is anticipated to be below the long-term average. The current interim management escapement goal endorsed by the U.S. / Canada Yukon River Panel is 42,500 to 55,000 adult fish. 5 and 6 year-old fish dominate returns. Production resulting from the very poor spawning escapement in 2010 (32,000 spawners) is anticipated to lead to a weak return of 6 year olds while adequate returns in 2011 (46,300) is likely to lead to a decent return of 5 year olds. Total production observed in Canadian-origin Yukon River Chinook salmon stocks is well below levels observed pre-1998. Run sizes have averaged around 75,000 in the last ten years compared to 150,000 in the 1980s and 1990s. If conditions leading to poor production continue, fishing opportunities may again be limited in 2016. (2015 Outlook Category was 2.)

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
<b>Coho</b>		
55. Mid and Upper - Fraser	1	The outlook for 2016 is for continued low abundance due to current unfavorable marine conditions. Sustained improvement in marine conditions will be required to improve outlook and rebuild abundance. A formal forecast will be presented in spring 2016. Fall 2015 escapement surveys are now underway; early information suggests that abundances may be poor, and that productivity has declined due to reduced fecundity and an unusually low percentage of female fish returning. <i>(2015 Outlook Category was 2.)</i>
56. Thompson	1	The outlook for 2016 is for continued low abundance due to current unfavorable marine conditions. Sustained improvement in marine conditions will be required to improve outlook and rebuild abundance. A formal forecast will be presented in spring 2016. Fall 2015 escapement surveys are now underway; early information suggests that abundances may be poor, and that productivity has declined due to reduced fecundity and an unusually low percentage of female fish returning. <i>(2015 Outlook Category was 2.)</i>
57. Lower Fraser	1	Fall/winter 2015/2016 escapement surveys are now underway; however, it is too early to determine trends. The outlook for 2016 is for continued low abundance due to current marine conditions. Sustained improvement in marine conditions will be required to improve outlook. A formal forecast of smolt-adult survival will be presented in spring 2016. <i>(2015 Outlook Category was 2.)</i>
58. WCVI	2/3	For 2016, most of the return will be coho originating from the 2013 brood year that smolted in 2015. Ocean indicators correlated with early marine survival of juvenile salmon deteriorated in 2014 and then again in 2015. As a result, observed returns were low in 2015 and expected similar or lower in 2016. <i>(2015 Outlook Category was 3.)</i>
59. Area 12	2/3	Monitoring of the key indicator streams (Keogh) is still ongoing, but preliminary information suggests very poor returns in 2015. Return levels in 2016 will be influenced by: 1) above average brood year escapement in 2013, 2) above average freshwater survival (based on the Keogh River indicator), and 3) indication of poor marine conditions in 2015 in much of the inside south coast marine waters. Expectations are for similar to slightly improved returns over 2015 but with high uncertainty. <i>(2015 Outlook Category was 3.)</i>
60. Area 13 - North	2/3	Escapement monitoring for 2015 is ongoing and to date has indicated variable returns to the area, with some indication of a reduction in wild stocks. Early estimates for the 2015 run size to the Quinsam River hatchery indicator are moderate and reduced relative to 2014. Decreased marine survival was evident in both pink and Coho returns to the area in 2015, relative to the 2014 out-migration. If marine conditions continue to be poor in 2015, 2016 production will likely be low as well. 2016 expectations are for returns similar to 2015 (below to near average escapement), but are highly uncertain with wild stocks at category 2 and hatchery stocks at category 3. <i>(2015 Outlook Category was 2/3.)</i>
61. Georgia Strait	2	2015 escapements are not complete and to date indicate variability between systems. Preliminary surveys suggest low returns to Cowichan River and Black Creek. Marine survival continues to be below the long term average suggesting that GST coho remain in a low productivity regime. With lower escapements observed and low smolt counts at the Black Creek indicator in 2015, the Outlook Category drops to 2. <i>(2015 Outlook Category was 3.)</i>
62. Areas 7 to 10	3/4	Survivals have been modest in recent years. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2015. <i>(2015 Outlook Category was 3/4.)</i>

<b>Outlook Unit</b>	<b>2016 Outlook Category</b>	<b>Comments (2015 Outlook category has been retained for reference)</b>
63. Areas 5 and 6	3/4	Survivals have been relatively good in recent years. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2015. <i>(2015 Outlook Category was 3/4.)</i>
64. Area 3	4	Abundant returns are expected, but depend on the survivals of the juveniles that went to sea in 2015. <i>(2015 Outlook Category was 4.)</i>
65. Haida Gwaii -E (Area 2 East)	4	Limited assessments since 2002. Recent returns have been good. <i>(2015 Outlook Category was 4.)</i>
66. Haida Gwaii -N (Area 1)	ND	No recent assessments. <i>(2015 Outlook Category was ND.)</i>
67. Haida Gwaii -W (Area 2 West)	ND	No recent assessments. <i>(2015 Outlook Category was ND.)</i>
68. Skeena	4	Recent returns have been good except 2015 lower Skeena tributaries. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2015. <i>(2015 Outlook Category was 4.)</i>
69. Skeena – High Interior	4	Recent returns have been good. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2015. <i>(2015 Outlook Category was 4.)</i>
70. Alsek	3	A below average run is expected based on a below average weir count in the Klukshu River for the 2012 brood year. <i>(2015 Outlook Category was 3.)</i>
71. Stikine	3	Reliable brood year escapement data are limited and ancillary observations are sometimes contradictory: extrapolated test fishing indices were below average and aerial surveys were subject to very poor viewing conditions for brood years contributing to the 2016 return. Based on data of limited quality, the 2016 return is expected to be below average. <i>(2015 Outlook Category was 3.)</i>
72. Taku	3	Based on preliminary smolt abundance in 2015 combined with recent smolt-to-adult survival rates, an average run is expected for 2016. It is anticipated that the run will be sufficient for directed harvest levels comparable to recent years. <i>(2015 Outlook Category was 3.)</i>
73. Yukon	ND	Very little is known about coho salmon stock status within Canadian portions of the Yukon River drainage. Data from the U.S. portion of the drainage indicate returns to the drainage in the last five years have been near the long term average. Coho salmon exploitation rates are directly influenced by actions implemented in Alaska to manage co-migrating fall chum. Although above average spawning escapement was observed drainage-wide in 2015, no assessment programs are currently undertaken in Canada and the current stock status is unknown. <i>(2015 Outlook Category was ND.)</i>
<b>Pink</b>		
74. Fraser - Odd only(CU: Fraser River)	NA	Relative to the odd numbered years, insignificant abundance of pink salmon return to the Fraser River in even numbered years; no quantitative assessment information is available. <i>(2014 Outlook Category was NA; 2015 Outlook Category was 4.)</i>
75. Squamish - Odd only	ND	Relative to the odd numbered years, insignificant abundance of pink salmon return to the Squamish River in even numbered years; no quantitative assessment information is available. <i>(2015 Outlook Category was ND.)</i>
76. WCVI - Odd & Even	ND	No quantitative assessment information is available. <i>(2015 Outlook Category was ND.)</i>

Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
77. Areas 11 to 13 - Odd & Even	2/3	<p>Odd Year: Preliminary information in 2015 for the off cycle returns showed a significant decline in abundance over an improving trend over the last 2 return years.</p> <p>Even Year: There has been a steadily improving trend in abundance of the dominant even year cycle since 2008 with significant return in 2014. With the indications of poor marine survival in 2015 ocean entry and the well above average brood year returns in 2014, expectations are for below to near target returns in 2016. Historically pink returns to this area have been highly variable and expectations are highly uncertain. (2014 Outlook Category was 2/3; 2015 Outlook Category was 3.)</p>
78. Georgia Strait - West - Odd & Even	2/3	<p>Preliminary information suggests returns in 2015 are similar to or higher than the 2013 brood year and are above average. With the indications of poor marine survival in 2015 ocean entry and the well above average brood year returns in 2014, expectations are for below to near target returns in 2016. (2014 Outlook Category was 2; 2015 Outlook Category was 2.)</p>
79. Georgia Strait - East - Odd & Even	2/3	<p>Assessment information on pink salmon in this area is limited. Generally, pink salmon have been reported in large numbers across a broad range of systems, building on above average escapements in the 2014 brood year. Enhancement is limited to Chapman and Lang Creeks. With the indications of poor marine survival in 2015 ocean entry and the well above average brood year returns in 2014, expectations are for below to near target returns in 2016. (2014 Outlook Category was 2; 2015 Outlook Category was 2.)</p>
80. Areas 7 to 10 - Odd & Even	1/4	<p>Poor returns are expected based on low 2014 brood year escapements for areas 7 and extremely low escapement to Area 8. (2014 Outlook Category was 2/3; 2015 Outlook Category was 3/4.)</p>
81. North Coast Areas 3 to 6 - Odd & Even	4	<p>Brood year escapements were very good in Areas 3 through 6. Returns are highly dependent on pink return rates. (2014 Outlook Category was 3/4; 2015 Outlook Category was 4.)</p>
82. Haida Gwaii - Odd & Even	3/4	<p>Even year pink stock. Anecdotal indications of good Yakoun pink escapement in 2014. (2014 Outlook Category was 3/4; 2015 Outlook Category was NA.)</p>
<b>Chum</b>		
83. Fraser River (CUs: Fraser Canyon and Lower Fraser)	4	<p>Fraser Chum salmon escapement trended downward from 1998 to 2010. The escapement decline was halted and reversed with an estimated 1.1 million spawners reported in 2011. Spawning escapement has remained stable through 2014 (2012-2014 estimated escapement averaged 1.2 million spawners). Escapement assessments in 2015 are ongoing; an estimate of the 2015 escapement will be available by March 2016. The escapement goal for Fraser Chum is 800K. The in-season estimate of the terminal return (provided on Oct.22, 2015) was approximately 1.78 million chum salmon (with a 96% probability that the run will exceed the escapement goal). (2015 Outlook Category was 3.)</p>
84. WCVI	2/3	<p>Adult returns in 2016 are from the 2011 to 2013 brood years and 2012 to 2014 sea entry years. Overall, spawner abundances for two of the contributing brood years were relatively low and about moderate for one (2011). Smolt survival rates for the three sea entry years are variable; with two of the sea entry years (2012 and 2014) likely experiencing below average survival and the other (2013) experiencing potentially average survival. Therefore, returns in 2016 are expected to remain below target for many wild stocks, although surpluses may result for hatchery stocks. (2015 Outlook Category was 2.)</p>



Outlook Unit	2016 Outlook Category	Comments (2015 Outlook category has been retained for reference)
85. Johnstone Strait Area and Mainland Inlets (Areas 11 to 13)	3	Returns in 2015 are still being assessed; however abundance appears to be just below average. A strong 3 year old age class was evident this year coming from the 2012 brood year. The smaller than average size 4 year olds from 2011 appeared to have reduced survival as expected. The main contributing brood year (2012) to the 2016 return was considered an average return. Expectations for 2016 are near target. This is based on the strong parental brood abundances of the 2011-2013 returns; the indications of improved early marine survival conditions in 2013 (strong pink and coho returns in 2014), the subsequent poor marine condition in 2014 (poor pink and coho returns to the local area) with an expectation of continued poor marine conditions and the high variability in chum returns. Summer chum stocks in 2012 were mainly below average throughout the area and will likely stay the same in 2016. <i>(2015 Outlook Category was 3.)</i>
86. Georgia Strait	3	Preliminary escapement enumeration data for 2015 indicate abundances are below forecast levels but should be close to targets. There is no clear division or difference between northern Strait of Georgia and southern Strait of Georgia stocks. For 2016, returns should be greater than 2015 for the Cowichan, Goldstream and Jervis Inlet stocks, and similar for the Nanaimo and Mid-Island stocks, based on brood year escapement in 2012. <i>(2015 Outlook Category was 3.)</i>
87. Coastal Areas 5 & 6	1/4	Modest 2012 brood year escapement. Poor chum returns in recent years. Kitimat enhanced return strength uncertain; depends on ocean survivals. <i>(2015 Outlook Category was 1/4.)</i>
88. Haida Gwaii	2/4	Generally poor brood year escapements indicate poor returns. <i>(2015 Outlook Category was 2/4.)</i>
89. Skeena-Nass	1/2	Very poor returns expected from very poor brood year escapements. 2015 returns were much better than recent years. <i>(2015 Outlook Category was 1/2.)</i>
90. Areas 7 to 10	3/4	Wild brood year escapements were generally good. Returns of enhanced stocks are dependent upon ocean survival which has been highly variable in recent years. <i>(2015 Outlook Category was 3/4.)</i>
91. Yukon (mainstem)	3	The Yukon River (Mainstem) chum salmon outlook group includes all (Canadian) upper Yukon River populations excluding the Porcupine River drainage stocks. Spawning escapements have generally exceeded targets since 2002, although significant conservation measures were required in 2010, both in the U.S. and Canada, as a result of poor adult return. Escapements in 2011 and 2012, the principal brood years (5 and 4 year-olds) for the 2016 run, were well above the minimum goal. An above-average run is expected in 2016. <i>(2015 Outlook Category was 3.)</i>
92. Yukon (Porcupine)	2	An Interim Management Escapement Goal of 22,000 to 49,000 has been in place for Canadian-origin chum salmon stocks in the Porcupine River (at Fishing Branch River) since 2008. Returns over the last five years have been well below expected and the minimum escapement goal was not achieved in several of these years. Escapements in 2011 and 2012, the principal brood years (5 and 4 year-olds) contributing to the 2016 run, were very weak at 13,085 and 22,399 respectively. If conditions contributing to the weak returns persist, a poor run is again expected in 2016 and fishing opportunities could be restricted. <i>(2015 Outlook Category was 2.)</i>
93. Taku	2	Ancillary observations suggest that escapements have been relatively low since 1991, but no scientifically defensible estimates are available. The in-river run abundance index for the primary brood year was below average. Non-retention provisions are expected to continue. <i>(2015 Outlook Category was 2.)</i>

Appendix 1. Outlook Units and associated Conservation Units. Where the WSP Status column is blank, a Wild Salmon Policy status classification is not available for that Conservation Unit.

No.	Outlook Unit Name	Conservation Unit
<b>Sockeye</b> (sockeye CU types: SEL = lake type, SER = river type)		
1	Okanagan	SEL::Osoyoos
2	Early Stuart	SEL::Takla/Trembleur-Early Stuart timing
3	Early Summer - North Thompson	SEL::North Barriere-Early Summer timing
4	Early Summer - South Thompson	SEL::Shuswap-Early Summer timing
5	Early Summer - Mid and Upper Fraser	SEL::Anderson/Seton-Early Summer timing
		SEL::Bowron-Early Summer timing
		SEL::Chilko-Early Summer timing
		SEL::Francois-First Run-Early Summer timing
		SEL::Francois-Second Run-Early Summer timing
		SEL::Indian/Kruger-Early Summer timing
		SEL::Nadina/Francois-Early Summer timing
6	Early Summer - Lower Fraser	SEL::Taseko-Early Summer timing
		SEL::Chilliwack-Early Summer timing
		SEL::Nahatlatch-Early Summer timing
7	Summer - Chilko	SEL::Pitt-Early Summer timing
8	Summer - Late Stuart	SEL::Chilko-Summer timing
9	Summer - Nechako	SEL::Takla/Trembleur/Stuart-Summer timing
10	Summer - Quesnel	SEL::Francois/Fraser-Summer timing
94	(new) Summer - Harrison	SEL::Quesnel-Summer timing
95	(new) Summer - Raft	SER::Harrison River
11	Fall - Cultus	SEL::Kamloops-Early Summer timing
12	Fall - Portage	SEL::Cultus-Late timing
13	Fall - South Thompson	SEL::Seton-Late timing
14	Fall - Birkenhead	SEL::Shuswap Complex-Late timing
15	Fall - Lower Fraser	SEL::Lillooet/Harrison-Late timing
		SEL::Harrison-downstream migrating-Late timing
16	Somass	SEL::Harrison-upstream migrating-Late timing
		SEL::Great Central
17	Henderson	SEL::Sproat
		SEL::Henderson
18	WCVI - Other	SEL::Alice
		SEL::Canoe Creek
		SEL::Cecilia
		SEL::Cheewat
		SEL::Clayoquot
		SEL::Deserted
		SEL::Fairy
		SEL::Hesquiat
		SEL::Hobiton
		SEL::Jansen
		SEL::Kanim
		SEL::Kennedy
		SEL::Maggie
		SEL::Megin
SEL::Muchalat		
SEL::Muriel		

No.	Outlook Unit Name	Conservation Unit
		SEL::Nitinat SEL::O'Connell SEL::Owossitsa SEL::Park River SEL::Power SEL::William/Brink
19	Areas 11 to 13	SEL::Fulmore SEL::Heydon SEL::Ida/Bonanza SEL::Kakweiken SEL::Loose SEL::Mackenzie SEL::Nahwitti SEL::Nimpkish SEL::Pack SEL::Phillips SEL::Quatse SEL::Schoen SEL::Shushartie SEL::Tzoonie SEL::Vernon SEL::Village Bay SEL::Woss
20	Sakinaw	SEL::Sakinaw
21	Areas 7 to 10	SEL::Long SEL::Owikeno SEL::Owikeno-Late timing SEL::South Atnarko Lakes SEL::Wannock[Owikeno]
22	Coastal Areas 3 to 6	SEL::Backland SEL::Banks SEL::Bloomfield SEL::Bolton Creek SEL::Bonilla SEL::Borrowman Creek SEL::Busey Creek SEL::Canoona SEL::Cartwright Creek SEL::Chic Chic SEL::Curtis Inlet SEL::Dallain Creek SEL::Deer SEL::Devon SEL::Dome SEL::Douglas Creek SEL::Elizabeth SEL::Elsie/Hoy SEL::End Hill Creek SEL::Evelyn SEL::Evinrude Inlet SEL::Fannie Cove SEL::Freedda/Brodie

No.	Outlook Unit Name	Conservation Unit
		SEL::Hartley Bay
		SEL::Hevenor Inlet
		SEL::Higgins Lagoon
		SEL::Kadjusdis River
		SEL::Kainet Creek
		SEL::Kdelmashan Creek
		SEL::Keecha
		SEL::Kent Inlet Lagoon Creek
		SEL::Kenzuwash Creeks
		SEL::Keswar Creek
		SEL::Kildidt Creek
		SEL::Kildidt Lagoon Creek
		SEL::Kimsquit
		SEL::Kisameet
		SEL::Kitkiata
		SEL::Kitlope
		SEL::Koeye
		SEL::Kooryet
		SEL::Kunsoot River
		SEL::Kwakwa Creek
		SEL::Lewis Creek
		SEL::Limestone Creek
		SEL::Lowe/Simpson/Weare
		SEL::Mary Cove Creek
		SEL::Mcdonald Creek
		SEL::Mcloughlin
		SEL::Mikado
		SEL::Monckton Inlet Creek
		SEL::Namu
		SEL::Pine River
		SEL::Port John
		SEL::Powles Creek
		SEL::Price Creek
		SEL::Prudhomme
		SEL::Roderick
		SEL::Ryan Creek
		SEL::Salter
		SEL::Scoular/Kilpatrick
		SEL::Shawatlan
		SEL::Sheneeza Inlet
		SEL::Ship Point Creek
		SEL::Sockeye Creek
		SEL::Spencer Creek
		SEL::Stannard Creek
		SEL::Talamoosa Creek
		SEL::Tankeeah River
		SEL::Treneman Creek
		SEL::Tsimtack Lakes
		SEL::Tuno Creek East
		SEL::Tuno Creek West
		SEL::Tuwartz
		SEL::Tyler Creek

No.	Outlook Unit Name	Conservation Unit
		SEL::Wale Creek
		SEL::Watt Bay
		SEL::West Creek
		SEL::Whalen
		SEL::Yaaklele Lagoon
		SEL::Yeo
23	Babine Lake - Enhanced	SEL::Babine
24	Skeena - Wild	SEL::Alastair
		SEL::Aldrich
		SEL::Asitika
		SEL::Atna
		SEL::Azuklotz
		SEL::Bear
		SEL::Clements
		SEL::Damshilgwit
		SEL::Dennis
		SEL::Ecstall/Lower
		SEL::Footsore/Hodder
		SEL::Johanson
		SEL::Johnston
		SEL::Kitsumkalum
		SEL::Kitwancool
		SEL::Kluatantan
		SEL::Kluayaz
		SEL::Lakelse
		SEL::Maxan
		SEL::Mcdonell
		SEL::Morice
		SEL::Motase
		SEL::Nilkitkwa
		SEL::Sicintine
		SEL::Slamgeesh
		SEL::Spawning
		SEL::Split Mountain/Leverson
		SEL::Stephens
		SEL::Sustut
		SEL::Swan
		SEL::Tahlo/Morrison
25	Nass	SEL::Bowser
		SEL::Bulkley
		SEL::Damdochax/Wiminasik
		SEL::Fred Wright
		SEL::Kwinageese
		SEL::Meziadin
		SEL::Oweegee
26	Haida Gwaii	SEL::Ain/Skundale/Ian
		SEL::Awun
		SEL::Fairfax
		SEL::Jalun
		SEL::Marian/Eden
		SEL::Marie
		SEL::Mathers

No.	Outlook Unit Name	Conservation Unit
		SEL::Mercer
		SEL::Skidegate
		SEL::Yakoun
27	Alsek	SEL::Blanchard
		SEL::Klukshu
		SEL::Neskatahin
28	Stikine - Wild	SEL::Christina
		SEL::Chutine
		SEL::Tahltan
29	Taku - Wild	SEL::King Salmon
		SEL::Kuthai
		SEL::Little Trapper
		SEL::Tatsamenie
<b>Chinook</b>		
96	Fraser River Spring Run 42	CK::South Thompson-Besette Creek
		CK::Lower Thompson-spring timing-age 1.2
97	Fraser River Spring Run 52	CK::Lower Fraser River-spring timing
		CK::Lower Fraser River-Upper Pitt
		CK::Fraser Canyon-Nahatlatch
		CK::Middle Fraser River-spring timing
		CK::Upper Fraser River-spring timing
		CK::North Thompson-spring timing-age 1.3
98	Fraser River Summer Run 52	CK::Lower Fraser River-summer timing
		CK::Middle Fraser River-Portage
		CK::Middle Fraser River-summer timing
		CK::South Thompson-summer timing-age 1.3
		CK::North Thompson-summer timing-age 1.3
99	Fraser River Summer Run 41	CK::Maria Slough
		CK::South Thompson-summer timing-age 0.3
		CK::Shuswap River-summer timing-age 0.3
		CK::Upper Adams River_su_1.x
100	Fraser River Fall Run 41	CK::Lower Fraser River-fall timing (white)
		(P)Hatchery Exclusion-Lower Fraser River
39	WCVI - Hatchery	includes production from major hatchery facilities at Conuma, Stamp, and Nitinat rivers
40	WCVI - Wild	CK::Nootka and Kyuquot
		CK::Northwest Vancouver Island
		CK::Southwest Vancouver Island
41	Johnstone Strait Area (including mainland inlets)	CK::Homathko
		CK::Klinaklini
		CK::Northeast Vancouver Island
		CK::South Coast-southern fjords
42	Georgia Strait Fall (wild and small hatchery operations)	CK::Boundary Bay
		CK::East Vancouver Island-Cowichan and Koksilah
		CK::East Vancouver Island-Goldstream
		CK::East Vancouver Island-Nanaimo and Chemainus-fall timing
		CK::South Coast-Georgia Strait
43	Georgia Strait Fall (large hatchery operations)	CK::East Vancouver Island-Qualicum and Puntledge-fall timing
44	Georgia Strait Spring and Summer	CK::Vancouver Island-Georgia Strait_su_0.3
		CK::East Vancouver Island-Nanaimo-spring timing

No.	Outlook Unit Name	Conservation Unit
45	Areas 7 and 8	CK::Bella Coola-Bentinck
		CK::Dean River
46	Areas 9 and 10	CK::Docee
		CK::Rivers Inlet
		CK::Wannock
47	Coastal Areas 3 to 6	CK::North and Central Coast-early timing
		CK::North and Central Coast-late timing
		CK::Portland Sound-Observatory Inlet-Lower Nass
		CK::Skeena Estuary
48	Nass	CK::Upper Nass
49	Haida Gwaii	CK::Haida Gwaii-East
		CK::Haida Gwaii-North
50	Skeena	CK::Ecstall
		CK::Kalum-early timing
		CK::Kalum-late timing
		CK::Lakelse
		CK::Lower Skeena
		CK::Middle Skeena-large lakes
		CK::Middle Skeena-mainstem tributaries
		CK::Sicintine
		CK::Upper Bulkley River
		CK::Upper Skeena
		CK::Zymoetz
51	Alsek	CK::Alsek
52	Stikine	CK::Stikine-early timing
		CK::Stikine-late timing
53	Taku	CK::Taku-early timing
		CK::Taku-late timing
		CK::Taku-mid timing
54	Yukon	CK::Big Salmon
		CK::Middle Yukon River and tributaries
		CK::Nordenskiold
		CK::Northern Yukon River and tributaries
		CK::Old Crow
		CK::Pelly
		CK::Porcupine
		CK::Salmon Fork
		CK::Stewart
		CK::Upper Yukon River
		CK::White and tributaries
CK::Yukon River-Teslin headwaters		
<b>Coho</b>		
55	Mid and Upper - Fraser	CO::Fraser Canyon
		CO::Middle Fraser
56	Thompson	CO::Lower Thompson
		CO::North Thompson
		CO::South Thompson
57	Lower Fraser	CO::Lillooet
		CO::Lower Fraser-A
		CO::Lower Fraser-B
58	WCVI	CO::Clayoquot

No.	Outlook Unit Name	Conservation Unit
		CO::Juan de Fuca-Pachena
		CO::West Vancouver Island
59	Area 12	CO::Homathko-Klinaklini Rivers
		CO::Nahwitti Lowland
60	Area 13 - North	CO::East Vancouver Island-Johnstone Strait-Southern Fjords
		CO::Southern Coastal Streams-Queen Charlotte Strait-Johnstone Strait-Southern Fjords
61	Georgia Strait	CO::Boundary Bay
		CO::East Vancouver Island-Georgia Strait
		CO::Georgia Strait Mainland
		CO::Howe Sound-Burrard Inlet
62	Areas 7 to 10	CO::Bella Coola-Dean Rivers
		CO::Rivers Inlet
		CO::Smith Inlet
63	Areas 5 and 6	CO::Brim-Wahoo
		CO::Douglas Channel-Kitimat Arm
		CO::Hecate Strait Mainland
		CO::Mussel-Kynoch
		CO::Northern Coastal Streams
64	Area 3	CO::Lower Nass
		CO::Portland Sound-Observatory Inlet-Portland Canal
		CO::Skeena Estuary
		CO::Upper Nass
65	Haida Gwaii - East (Area 2 East)	CO::Haida Gwaii-East
66	Haida Gwaii - North (Area 1)	CO::Haida Gwaii-Graham Island Lowlands
67	Haida Gwaii - West (Area 2 West)	CO::Haida Gwaii-West
68	Skeena	CO::Lower Skeena
		CO::Middle Skeena
69	Skeena - High Interior	CO::Upper Skeena
70	Alsek	CO::Alsek River
71	Stikine	CO::Lower Stikine
72	Taku	CO::Taku-early timing
		CO::Taku-late timing
		CO::Taku-mid timing
73	Yukon	CO::Porcupine
<b>Pink</b> (pink CU types: PKO = odd year, PKE = even year)		
74	Fraser - Odd only	PKO::Fraser River
75	Squamish - Odd only	PKO::East Howe Sound-Burrard Inlet
76	WCVI - Odd & Even	PKE::Northwest Vancouver Island
		PKE::West Vancouver Island
		PKO::West Vancouver Island
77	Areas 11 to 13 - Odd & Even	PKE::Southern Fjords
		PKO::Nahwitti
		PKO::Southern Fjords
		PKO::East Vancouver Island-Johnstone Strait
78	Georgia Strait - West - Odd & Even	not yet defined; includes some seapen releases
79	Georgia Strait - East - Odd & Even	PKE::Georgia Strait
		PKO::Georgia Strait
80	Areas 7 to 10 - Odd & Even	PKE::Hecate Lowlands



No.	Outlook Unit Name	Conservation Unit
		PKE::Hecate Strait-Fjords
		PKO::Hecate Strait-Fjords
		PKO::Hecate Strait-Lowlands
		PKO::Homathko-Klinaklini-Smith-Rivers-Bella Coola-Dean
81	North Coast Areas 3 to 6 - Odd & Even	PKE::Hecate Lowlands
		PKE::Hecate Strait-Fjords
		PKE::Middle-Upper Skeena
		PKE::Nass-Skeena Estuary
		PKE::Upper Nass
		PKO::Hecate Strait-Fjords
		PKO::Hecate Strait-Lowlands
		PKO::Lower Skeena
		PKO::Middle and Upper Skeena
		PKO::Nass-Portland-Observatory
		PKO::Nass-Skeena Estuary
		PKO::Upper Nass
82	Haida Gwaii - Odd & Even	PKE::East Haida Gwaii
		PKE::North Haida Gwaii
		PKE::West Haida Gwaii
		PKO::East Haida Gwaii
		PKO::North Haida Gwaii
		PKO::West Haida Gwaii
<b>Chum</b>		
83	Fraser River	CM::Fraser Canyon
		CM::Lower Fraser
84	WCVI	CM::Northwest Vancouver Island
		CM::Southwest Vancouver Island
85	Johnstone Strait Area and Mainland Inlets (Areas 11 to 13)	CM::Bute Inlet
		CM::Loughborough
		CM::Northeast Vancouver Island
		CM::Southern Coastal Streams
		CM::Upper Knight
86	Georgia Strait	CM::Georgia Strait
		CM::Howe Sound-Burrard Inlet
87	Coastal Areas 5 & 6	CM::Douglas-Gardner
		CM::Hecate Lowlands
		CM::Mussel-Kynoch
88	Haida Gwaii	CM::East HG
		CM::North Haida Gwaii
		CM::North Haida Gwaii-Stanley Creek
		CM::Skidegate
		CM::West Haida Gwaii
89	Skeena - Nass	CM::Lower Nass
		CM::Lower Skeena
		CM::Middle Skeena
90	Areas 7 to 10	CM::Bella Coola River-Late
		CM::Bella Coola-Dean Rivers
		CM::Rivers Inlet
		CM::Smith Inlet
		CM::Spiller-Fitz Hugh-Burke

No.	Outlook Unit Name	Conservation Unit
		CM::Wannock
91	Yukon (mainstem)	CM::Donjek-Kluane
		CM::Middle Yukon River
		CM::North Yukon River
		CM::Old Crow
		CM::Stewart
		CM::Teslin
		CM::White River
92	Yukon (Porcupine)	CM::Porcupine River
93	Taku	CM::Taku

Appendix 2. Expansion of acronyms used in this document.

Acronym	Expanded Form
A/G	Amber / Green (WSP Status classification)
CK	Chinook salmon
CM	Chum salmon
CO	Coho salmon
CSAS	Canadian Science Advisory Secretariat
CU	Conservation Unit
DD	Data Deficient (WSP Status classification)
EFS	Effective Female Spawners
ENSO	El Niño – Southern Oscillation
GST	Georgia Strait
IMEG	Interim Management Escapement Goal
MEF	Mid-Eye to Fork (length measurement)
MSY	Maximum Sustainable Yield
NA	Not Applicable
ND	No Data (i.e. data deficient)
NWVI	Northwest Vancouver Island
OU	Outlook Unit
PKE	Pink salmon – Even year (Conservation Unit type)
PKO	Pink salmon – Odd year (Conservation Unit type)
PST	Pacific Salmon Treaty
R/A	Red / Amber (WSP Status classification)
SEL	Sockeye salmon – Lake (Conservation Unit type)
SER	Sockeye salmon – River (Conservation Unit type)
SWVI	Southwest Vancouver Island
TTC	Trans-boundary Technical Committee
US	The United States of America
WCVI	West Coast Vancouver Island