PRELIMINARY 2017 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[1]
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.

[1] "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 2017 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 2017. However, individual outlooks may be periodically updated as statistical forecasts and assessments are completed and reviewed.

Summary of Pacific Salmon Outlook Units for 2017

A total of **91** Outlook Units were considered and outlooks categorized for **80**. Nine units were data deficient (ND). Thirty-two (**32**) Outlook Units are likely to be at or above target abundance (categories 3, 4, 3/4), while **31** are expected to be of some conservation concern (categories 1, 2, 1/2). The remaining **22** Outlook Units have mixed outlook levels (categories 1/3, 1/4, 2/3, 2/4). Overall, the outlook for 2017 has improved relative to the previous outlook (2016). Eleven (**11**) Outlook Units improved in category (Fraser Early Summer Sockeye – N Thompson, Fraser Summer Sockeye – Chilko Nechako Quesnel Harrison Raft, Stikine and Taku wild sockeye and Fraser River Summer Run 41 Chinook). Three (**3**) units declined in category (Somass sockeye, Alsek Chinook, and Fraser odd 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 2017 outlook for salmon returns shows this variation but also suggests a period of continued reduced productivity. Returns of salmon in 2017 may continue to be influenced by previous exposure to extremely warm water temperatures in the central NE Pacific ocean (the “warm blob”) and 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 2017 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 is 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 are expected.
- Skeena River: The 2017 return is expected to be poor based on the poor contributions of age 4 sockeye from the lowest return on record in 2013 and weak returns of age 5 sockeye from the 2012 brood year. Return rates have become more uncertain in recent years, with greater variability among the Skeena stock components and brood year survival rates. Returns expected to limit harvest opportunities.
- Fraser River: Below average returns are expected for most Fraser sockeye populations. Summer run sockeye populations are expected to comprise the majority of the total Fraser sockeye returns. Harvest opportunities are uncertain.
- Somass River: After abundant returns in 2015 and 2016, expectations for the 2017 Somass sockeye return are very low. Opportunities for directed harvest are unlikely.
- 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: Information is not available.
- Southern BC: Fraser River pink salmon return in odd years, however, below average returns are expected in 2017 based on fry outmigration from the Fraser River. Opportunities for directed harvest will be based on in-season information. Local pink abundances in other areas of Georgia Strait may provide opportunities for harvest.

Chinook

- Returns are expected to vary considerably depending on the area due to on-going fluctuations in survival rates and variable parental spawner abundance.
- Northern BC: Recent average or below average returns are expected in the Skeena and Nass Rivers. Variable returns are expected in other systems with above average returns expected in the Bella Coola area.
- 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. Expect continued discussion on fishery restrictions to limit exploitation rates on many of these populations. Returns of South Thompson origin chinook are expected to be improved compared with 2016 given a strong brood year escapement, however, survival rates are uncertain.
- Yukon: Returns to Canada are expected to remain below the long-term average; fishery 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 2017.

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, especially earlier summer coho in some of the larger

river systems. Fall coastal coho returns continue to be variable across the north. However, returns are uncertain and will depend on survival rates of juveniles that went to sea in 2016. Opportunities for incidental harvest are expected.

- Southern BC: Coho populations, particularly Interior Fraser River coho, remain in a low productivity period. 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: Escapement of chum stocks in the Skeena River and Nass River in 2016 improved relative to recent years. However, poor returns are expected in 2017 due to very poor brood year escapements. Wild brood year escapements for Central Coast stocks were generally good. Returns of enhanced stocks are dependent upon ocean survival which has been highly variable in recent years.
- 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: An above-average run is expected in 2017.

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
Sockeye		
1. Okanagan-Osoyoos	2	The 2013 brood year escapement of 23,341 (peak live plus dead terminal count) was only 67% of the Canadian domestic target for this CU. Returns of Okanagan sockeye adults to the Columbia and Okanagan rivers in 2017 will be derived from smolt cohorts that migrated seaward in spring 2014 (returning as 5-year-olds), 2015 (returning as 4-year-olds) and 2016 (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. Marine survival of two of three sea entry years noted above were likely to be influenced by warm ocean conditions at sea entry due to the onshore effects of the North Pacific warm "blob" of 2014-2015 and the development of a very strong El Nino event in 2015-2016. Consequently, an all-year average smolt-to-adult survival rate of approximately 3% has been applied to annual smolt production values derived from fall fry surveys such that production expected to originate from the 2012, 2013 and 2014 brood years is estimated to be about 259,000 adults contributing to the 2016-2018 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 2017 on the order of 25,000 jacks and jills (i.e. small age-3 fish) plus 71,700 larger and older (ages 4, 5 and 6) fish. Further to this, in 2013 hatchery-origin fry outplants to Skaha Lake were temporarily suspended while a new hatchery at Penticton was under construction. Consequently, virtually all returns in 2017 will consist of wild-origin sockeye. Given a domestic escapement objective of roughly 60,000 adults through Wells Dam and an associated terminal escapement of 35,000 sockeye at Oliver will leave a marginal surplus of only 11,000 large adults and possibly and 25,000 jacks or jills surplus to the current domestic escapement objective. *(2016 Outlook Category was 3.)*

Outlook Unit Sockeye	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
Fraser Sockeye	**Quantitative 2017 Forecast Availability**	Quantitative forecasts for Fraser Sockeye stocks are published annually through the Canadian Science Advisory Secretariat (CSAS) process. The 2017 forecasts will be published as a Science Response at the following link: http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR
	Age of Maturity	The dominant age-of-maturity for most Fraser Sockeye stocks is four years, so Sockeye returning in 2017 as four year olds originate from the 2013 brood year. Five year olds returning in 2017 originate from the 2012 brood year. A number of stocks returning in 2017 had small brood year escapements for five year olds, therefore, for these stocks, five year olds would be expected to contribute less to total returns compared to average. A number of stocks returning in 2016 exhibited poor four year old survival, which would further reduce the expected contribution of five year olds in the 2017 forecast.
	Environmental Conditions and Fraser Sockeye Supplement 2017	Fraser Sockeye returns exhibited below average survival for many but not all stocks in 2016. However, since direct links to environmental conditions cannot be made at this time, it is unclear if below average survivals will persist and influence survival of four year olds returning in 2017. Environmental conditions that contributed to the large mass of warm water in the North Pacific (the warm blob) have persisted, and survival of returns in 2017 could be affected. A supplement to the Fraser Sockeye forecasts is produced as part of the 2017 forecast process and will be published as a second Science Response on the following website: http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp#ScR
2. Early Stuart (CU: Takla-Trembleur-Early Stuart)	1	Very low returns are expected in 2017 relative to the cycle average of 754,000 (1953-2013). Although the 2013 cycle is the dominant cycle line for Early Stuart, the escapement in 2013 (39,700 effective female spawners: EFS) was less than half the cycle average for this stock (104,600 EFS). Given the age of maturity of Early Stuart is predominantly four year olds, five year olds are expected to contribute a small proportion to the 2017 returns. This proportion will be further reduced since 2012 is the weak cycle line for this stock, and also by the small 2012 brood year escapement for Early Stuart (6,800 effective female spawners: EFS), which was well below the 2012 cycle average (18,700 EFS). This CU is in the Red WSP status zone. *(2016 Outlook Category was 1)*
3. Early Summer – North Thompson (CU: North Barriere-ES)	2	**North Barriere River** (previously identified as Fennell Creek): Average returns are expected in 2017 relative to the cycle average of 11,600 (1973-2013). The 2013 brood year escapement for North Barriere (2,000 EFS) was very similar to the cycle average (1,900 EFS). Given the age of maturity of North Barriere River is predominantly four year olds, five year olds are expected to contribute a small proportion to the 2017 returns. This proportion will be further reduced since the 2012 brood year escapement for North Barriere (700 EFS) was very small and only 15% of the cycle average (4,700 EFS). This CU is in the Amber WSP status zone. Note the change to CU composition in last two years; Raft has been moved into the Summer Run. *(2016 Outlook Category was 1)*

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
4. Early Summer South Thompson (CU: Shuswap-ES)	2	**Scotch (combined with Seymour for Shuswap-ES CU):** The 2017 return for Scotch is expected to be larger than the cycle average of 28,000 (1985-2013). The 2013 brood year escapement for Scotch (11,000 EFS) was almost triple the cycle average (3,800 EFS). Given the age of maturity of Scotch is predominantly four year olds, five year olds are expected to contribute a small proportion to the 2017 returns. This proportion will be further reduced since the 2012 cycle is the weak cycle line for Scotch and the 2012 brood year escapement (700 EFS) was similar to the cycle average (800 EFS). **Seymour (combined with Scotch for Shuswap-ES CU):** The 2017 return for Seymour is expected to be larger than the cycle average of 28,000 (1953-2013). The 2013 brood year escapement for Seymour (including McNomee) (13,900 EFS) was more than three times larger than the cycle average (3,800 EFS). Given the age of maturity of Scotch is predominantly four year olds, five year olds are expected to contribute a small proportion to the 2017 returns. This proportion will be further reduced since the 2012 cycle is the weak cycle line for Seymour and the 2012 brood year escapement (300 EFS) was much smaller than the cycle average (3,800 EFS). This combined stock group is the Shuswap-ES CU, which is in the Amber/Green WSP status zone. *(2016 Outlook Category was 2)*
5. Early Summer – Mid & Upper Fraser (CUs: Anderson-Seton-ES; Nadina-Francois-ES (new mixed); Bowron-ES; Taseko-ES)	3/3/1/1 (note: three of the four CUs are in the Red WSP status zone)	**Gates (Anderson-Seton-ES):** The 2017 return for Gates is expected to be larger than the cycle average of 46,000 (1973-2013). The 2013 brood year escapement for Gates (23,100 EFS) was more than four times larger than the cycle average (5,600 EFS). Given the age of maturity of Gates is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. The 2012 brood year escapement for Gates (6,900 EFS) was smaller than the cycle average (9,000 EFS). This CU is in the Amber WSP status zone. The individual 2017 Outlook Category is 3. (*2016 Outlook Category was 3)* **Nadina (Nadina-Francois-ES):** Average returns are expected in 2017 relative to the cycle average of 67,000 (1981-2013). The 2013 brood year escapement for Nadina (7,100 EFS) was similar to the cycle average (8,300 EFS)**.** Given the age of maturity of Nadina is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. The 2012 brood year escapement for Nadina (16,800 EFS) was slightly larger than the cycle average (13,700 EFS)**.** This CU is in the Red WSP status zone. The individual 2017 Outlook Category is 3. (*2016 Outlook Category was 3)* **Bowron (Bowron-ES):** Below average returns are expected in 2017 relative to the cycle average of 23,000 (1953-2013). The 2013 brood year escapement for Bowron (1,900 EFS) fell below the cycle average (2,800 EFS). Given the age of maturity of Bowron is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. This proportion will be further reduced since 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). This CU is in the Red WSP status zone. The individual 2017 Outlook Category is 1. (*2016 Outlook Category was 1)* **Taseko (Taseko-ES):** 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 (90 EFS) was one tenth of the average of 900 EFS (1994-2010); note that Taseko escapement assessments are an index of abundance only. This CU is in the Red WSP status zone. The individual 2017 Outlook Category is 1. (*2016 Outlook Category was 1)*

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
6. Early Summer – Lower Fraser (CU: Pitt-ES; Chilliwack-ES; Nahatlach-ES)	3/2/1	**Pitt (Pitt-ES):** Average returns are expected in 2017 relative to the average across cycles of 71,000 (1953-2013) despite above average escapements in both the four and five year old brood years (2012 and 2013 respectively). Pitt has a higher proportion of five year old recruits (~70%) relative to four year old recruits. The 2012 brood year escapement (five year old returns) for Pitt (41,400 EFS) was almost three times the average across cycles (14,900 EFS). The 2013 brood year escapement (four year old returns) for Pitt (35,900 EFS) was more than double the average across cycles (14,900 EFS). This CU is in the Amber/Green WSP status zone. The individual 2017 Outlook Category is 3. (*2016 Outlook Category was 3)* **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.** **Chilliwack Lake/Dolly Varden Creek (Chilliwack-ES)** brood year escapement in 2013 (5,400 EFS) was smaller than the recent time series average (10,500 EFS) from 2002-2015 across all cycles when both sites (river and lake) were assessed. Conversely, the 2012 brood year escapement (78,800 EFS) was the largest escapement on record for this miscellaneous group. This CU is in the Red/Amber WSP status zone. The individual 2017 Outlook Category is 2. (*2016 Outlook Category was 3)* **Nahatlatch Lake/River (Nahatlach-ES)** brood year escapement (800 EFS) was half the cycle average from 1976 to 2013 (1,500 EFS). Similarly, the 2012 brood year escapement was small (1,100 EFS). This CU is in the Red WSP status zone. The individual 2017 Outlook Category is 1. *(2016 Outlook Category was 1)*
7. Summer – Chilko (CUs: Chilko-S; Chilko-ES)	4	Average to above returns are expected in 2017 relative to the cycle average of 1.6 M (1953-2015). Escapement in the 2013 brood year (624,500 EFS) was four times larger than the cycle average (154,100 EFS) for Chilko (Chilko-S/Chilko-ES). Chilko freshwater survival is not available for the 2013 brood year (a smolt assessment program could not be conducted in 2015 due to high water levels). Given the age of maturity of Chilko is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, escapement in the 2012 brood year (90,800 EFS) was less than half the cycle average (252,800 EFS). This CU is in the Green WSP status zone. *(2016 Outlook Category was 3)*
8. Summer – Late Stuart (CUs: Takla-Trembleur-Stuart-S)	2	Below average returns are expected in 2017 relative to the cycle average of 1.8 M (1953-2013). Although the 2013 cycle is the dominant cycle line for Late Stuart (Takla-Trembleur-Stuart-S), the escapement in 2013 (70,900 EFS) was less than half the cycle average (218,000 EFS). Given the age of maturity of Late Stuart is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. The 2012 brood year escapement for Late Stuart (31,800 EFS) was similar to the cycle average (26,000 EFS). This CU is in the Red/Amber WSP status zone. *(2016 Outlook Category was 2)*
9. Summer – Nechako (CU: Francois-Fraser-S)	4	Above average returns are expected in 2017 relative to the cycle average of 470,000 (1953-2013). The 2013 brood year escapement for Nechako (Francois-Fraser-S) (54,100 EFS) was larger than the cycle average (30,500 EFS). Given the age of maturity of Nechako is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. The 2012 brood year escapement for Stellako (50,600 EFS) was similar to the cycle average (61,500 EFS). This CU is in the Red/Amber WSP status zone *(2016 Outlook Category was 3)*

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
10. Summer – Quesnel (CU: Quesnel-S)	2	Well below average returns are expected in 2017 relative to the cycle average of 3.7 million (1953-2013). Although the 2013 cycle is the dominant cycle line for Quesnel (Quesnel-S), the escapement in 2013 (96,100 EFS) was much smaller than the cycle average (450,000). Given the age of maturity of Quesnel is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, the 2012 brood year escapement for Quesnel (100 EFS) was extremely small, and fell well below the cycle average (4,500). This CU is in the Red/Amber WSP status zone *(2016 Outlook Category was 1.)*
94. Summer-Harrison (CU: Harrison-River Type)	4	This CU was moved from the Fall to the Summer management group in 2012. Above average returns are expected in 2017 relative to the average across cycles of 130,000 (1953-2014). Given the exceptional escapements for Harrison (Harrison river-type) stock in the past decade, the increases in productivity, and the extreme variations in age of maturity, predictions of returns are extremely uncertain. Both 2013 escapement (78,000 EFS) (age-4 recruits in 2017) and 2014 escapement (238,400 EFS) (age-3 recruits in 2017) at Harrison were higher than the long-term average for this stock (26,300 EFS). This CU is in the Green WSP status zone *(2016 Outlook Category was 3)*
95. Summer-Raft (CU: Kamloops-ES)	3	This CU was moved from the Early Summer to the Summer management group in 2012. Average to above average returns are expected in 2017 relative to the cycle average of 26,000 (1953-2013). The 2013 brood year escapement for Raft (Kamloops-ES) (9,000 EFS) was larger than the cycle average (4,400 EFS). Given the age of maturity of Raft is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, the 2012 brood year escapement for Raft (1,700 EFS) was much smaller than the cycle average (6,600 EFS). *(2016 Outlook Category was 2)* North Thompson River and its tributaries do not have return data; only escapements can be compared to the time series average. The brood year escapement for North Thompson River (8,500 EFS) was above average of 1,900 (1953-2013). This was not included in previous year's reports and is part of the Kamloops-ES CU. This CU is in the Amber WSP status zone
11. Fall – Cultus (CU: Cultus-L)	1	Very low returns are expected in 2017 relative to the cycle average of 14,000 (1953-2013). Juvenile production of 110,000 smolts (41% hatchery marked) fell well below the long-term cycle average (1953-2013 cycle average: 254,000 smolts), though it was somewhat similar to the post-1980 average (1989-2013 cycle average: 89,700 smolts). Given the age of maturity of Cultus is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. This CU is in the Red WSP status zone. *(2016 Outlook Category was 1)*
12. Fall – Portage (CU: Seton-L)	1	Average returns are expected in 2017 relative to the cycle average of 45,000 (1961-2013). The 2013 brood year escapement for Portage (4,200 EFS) was larger than the cycle average (2,900 EFS). Given the age of maturity of Portage is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, 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 on the 2012 cycle line 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 1960's. Although this CU's WSP status is formally undetermined, recent data across all metrics indicate that this CU is in the Red WSP status zone *(2016 Outlook Category was 1)*

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
13. Fall – South Thompson (CU: Shuswap-L)	3	The 2017 return for the South Thompson is expected to be larger than the cycle average of 200,000 (1953-2013). The 2013 brood year escapement for the South Thompson (87,900 EFS) was almost ten times larger than the cycle average (8,800). Given the age of maturity of the South Thompson is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, the 2012 brood year escapement the South Thompson (6 EFS) was the smallest on record across all cycles, falling well below the cycle average (2,800), and is not expected to contribute much to the 2017 return. This CU is in the Green WSP status zone. *(2016 Outlook Category was 1)*
14. Fall – Birkenhead (CU: Lillooet-Harrison-L)	3	Average returns are expected in 2017 relative to the cycle average of 296,000 (1953-2013). The 2013 brood year escapement for Birkenhead (46,800 EFS) was much larger than the cycle average (29,500 EFS). Five year olds are expected to contribute little to the 2017 returns as 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. This CU is in the Green WSP status zone. *(2016 Outlook Category was 2.)*
15. Fall – Lower Fraser CUs: Harrison (U/S)-L; Harrison (D/S)-L; Harrison (River-Type); Widgeon (River-Type)	1/1	**Weaver (including miscellaneous Harrison Lake-rearing stocks):** Below average returns are expected in 2017 relative to the cycle average of 282,000 (1973-2013). The 2013 brood year escapement for Weaver (15,500 EFS) was smaller than the cycle average for this stock (20,400 EFS). Given the age of maturity of Weaver is predominantly four year olds, five year olds are expected to contribute little to the 2017 returns. Further, 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). Although this CU was in the WSP Amber zone, extremely poor escapements in recent years have resulted in Red status across all metrics. Individual 2017 Outlook Category is 1. (*2016 Outlook Category was 1)* **Widgeon Creek:** CU return data are not available, instead escapements are compared to time series averages. Brood year escapement (700 EFS) was similar to the average across cycles from 1950 to 2013(600 EFS). Individual 2017 Outlook Category is 1. *(2016 Outlook Category was 1)*
16. Somass	2	After abundant returns in 2015 and 2016, expectations for the 2017 Somass sockeye return are very low. For 2017, the two main contributing brood years are 2012 and 2013 and the two main contributing smolt years are 2014 and 2015. Brood abundance was average in 2012 and low in 2013. Smolt abundance was low to average in 2014 and very low in 2015. Based on ocean indicators and leading observations from earlier returning age classes, marine survival rates for the 2014 and 2015 smolt years also appear to be low. The abundant returns in the last two years were mostly attributed to production generated from the 2012 brood year. *(2016 Outlook Category was 4.)*
17. Henderson	2	For the 2017 return, the two main contributing brood years are 2012 and 2013 and the two main contributing smolt years are 2014 and 2015. Brood abundance was low to average in 2012 and low in 2013. Smolt abundance was low to average in 2014 and low in 2015. Based on ocean indicators and leading observations from earlier returning age classes and nearby Somass populations, marine survival rate for the 2014 and 2015 smolt years appears to be low. Therefore, expectations for Henderson sockeye return in 2017 are very low. (*2016 Outlook Category was 2.*)
18. WCVI - Other	2	Assessment data are not available to forecast others systems. However, WCVI populations tend to covary. Therefore, expectations are for lower returns similar to Somass and Henderson. (*2016 Outlook Category was 2/3.*)

Outlook Unit Sockeye	**2017 Outlook Category**	**Comments (2016 Outlook category has been retained for reference)**
19. Areas 11 to 13	2/3	Preliminary sockeye returns in 2016 to the Nimpkish River (Area 12) were above average with returns greater than the 2012 brood year. The assessment of the escapement data associated with the Quaste River (Area 12) has not yet been completed, but indications are for below average return abundance. Preliminary 2016 sockeye returns in Area 13, specifically the Phillips River, were average. The only indication of marine survival comes from decreased returns of local pink and coho salmon in 2016 (same 2015 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. (*2016 Outlook Category was 2/3*).
20. Sakinaw	1	171 adult and 1 jack sockeye were enumerated in 2016, coming from a smolt count of 126,000 in 2014. The marine survival of smolt to escaping adult is only 0.1% for hatchery origin and 0.6% 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 Ouillette hatcheries, and a small number of wild origin sockeye. The expectation for 2017 is for a very low number of adults (52) due to fewer smolts observed in 2015 (17,000). *(2016 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 were very good to both Smith and Rivers Inlets in 2016. 2017 returns/expectations are uncertain at this time. (2016 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. *(2016 Outlook Category was 2/4.)*
23. Babine Lake - Enhanced	4	Expecting a record low return in 2017, similar to 2013. Poor sockeye returns age-5 returns expected in 2017 based on 2016 age 4 returns. Poor age 4 returns expected in 2017 based on very low age-3 returns in 2016. *(2016 Outlook Category was 4.)*
24. Skeena - Wild	1/4	Expect poor survival for sockeye that went to sea in 2014 (returning as 5 year olds in 2017). The survival for sockeye that went to sea in 2015 (returning as 4 year olds in 2017) is also expected to be poor based on the poor 2016 jack sockeye return to Babine. Return rates have become more uncertain in recent years, with greater variability among the Skeena stock components. *(2016 Outlook Category was 1/4.)*
25. Nass	3/4	Average to below average returns are expected. Kwinageese returns in 2016 were improved *(2016 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. *(2016 Outlook Category was 2/4.)*
27. Alsek	3	Based on brood year escapements above the MSY target range and stock-recruitment relationships based on historical records, an average run is expected. *(2016 Outlook Category was 3.)*
28. Stikine - Wild	4	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- 2014 were below forecast and in 2015 and 2016 returns exceeded forecasts. Fishing opportunities are expected within the confines of conservation and PST harvest sharing arrangements. *(2016 Outlook Category was 3.)*

Outlook Unit Chinook	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
29. Taku - Wild	4	The 2016 run was above average with record returns in some systems. Fishing opportunities are expected within the confines of conservation levels and PST harvest sharing arrangements. (2016 Outlook Category was 3.)
Chinook		
96. Fraser River Spring Run 4_2	2	Expectations for 2017 are for continued depressed abundance due to low parental escapements in 2013 and ongoing unfavorable and highly variable marine survival conditions. Escapements in 2016 declined compared to the parent brood escapements in 2012. *(2016 Outlook Category was 2.)*
97. Fraser River Spring Run 5_2	2	Expectations are for continued overall low abundance related to depressed parental escapements and continuing unfavorable and highly variable marine survival conditions. Escapements in 2016 were variable, but on average, almost attained the parental brood escapement level. *(2016 Outlook Category was 2.)*
98. Fraser River Summer Run 5_2	2	Expectations are for continued overall low abundance in 2017, related to ongoing depressed parental abundance and unfavorable and highly variable marine survival conditions. Escapements in 2016 failed to meet parental escapement levels. *(2016 Outlook Category was 2.)*
99. Fraser River Summer Run 4_1	3	Instability in smolt to adult survival rates, combined with highly variable escapements temper the outlook for this aggregate. If marine survival conditions improved, abundance in 2017 may attain average levels. Early indication of return in 2016 is poor and similar to parent levels in 2012. *(2016 Outlook Category was 2.)*
100. Fraser River Fall Run 4_1	2	Current marine conditions appear unfavorable, thus expectations for escapements in 2017 are highly uncertain, and are tempered by the low parental brood escapement in 2013. A formal forecast for 2017 will be available in early spring. Escapement programs are underway, however, it is unclear if abundance will achieve parental escapement levels observed in 2012. *(2016 Outlook Category was 2)* Although there are significant hatchery releases in several Lower Fraser tributaries, lower Fraser River fall-run hatchery chinook consists mainly of Chilliwack Hatchery releases. 2016 adult escapement surveys at Chilliwack are ongoing and preliminary results indicate modest returns. Forecasts will be prepared for early spring release. *(2016 Outlook Category was 2.)*
39. WCVI - Hatchery	3	Overall returns in 2017 will likely decline relative to levels observed in 2016. Observed returns of earlier age classes and ocean and leading species indicators of marine survival rate for the 2013 and 2014 brood years are low. In contrast, the survival rate for production from the 2012 brood year was high. Therefore a relatively abundant return of the 5-year old age class is expected. *(2016 Outlook Category was 3.)*
40. WCVI-Wild	1	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 2017. *(2016 Outlook Category was 1)*

Outlook Unit Chinook	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
41. Johnstone Strait Area (including mainland inlets)	2/3	Escapement monitoring on the Campbell/Quinsam system is ongoing and has been heavily impacted by high river levels this year; however preliminary information suggests an improvement over the last few years, and a return similar or better than the 10-yr average for this hatchery indicator. Early results show the enhanced population of the Phillips River produced another strong return; similar to the past few years, and 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). (*2016 Outlook Category was 2/3.)*
42. Georgia Strait Fall (wild and small hatchery operations)	2/3	The 2016 return to Cowichan was higher than the previous year suggesting that the rebuilding is continuing and may reach the 6500 target (MSY). Above average jack returns in 2016 suggest potential improvement in 2017 age 3 returns. For Nanaimo, 2016 returns were lower than the 1 and 3 generational averages; indicating that this stock is low and stable. *(2016 Outlook Category was 2/3.)*
43. Georgia Strait Fall (large hatchery operations)	2	Returns in 2016 to rivers with major hatcheries (Big Qualicum, Little Qualicum and Puntledge) are higher than last year's (2015) returns and have been low but stable over the last 10 years. *(2016 Outlook Category was 2.)*
44. Georgia Strait Spring and Summer	2	Nanaimo spring and summer chinook were not monitored in 2016. Returns of summer run chinook to the Puntledge hatchery are similar to the 1 and 3 generational average and below target escapements. Rebuilding efforts are continuing. The summer run in Cowichan River was monitored in 2016 and preliminary results indicate a run of ~200 adults. *(2016 Outlook Category was 2.)*
45. Areas 7 and 8	3/4	2017 Bella Coola returns are expected to be above average based on the record 2015 and above average 2016 returns. *(2016 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. *(2016 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. *(2016 Outlook Category was 2/3.)*
48. Nass	3/4	Recent average return expected. *(2016 Outlook Category was 3/4.)*
49. Haida Gwaii	ND	No recent assessments of Yakoun chinook. *(2016 Outlook Category was ND.)*
50. Skeena	2/4	Recent average or below average returns expected to summer run stocks. Spring run stocks are expected to be below average. *(2016 Outlook Category was 2/4.)*
51. Alsek	2	Based on brood year escapements outside (above and below) of the MSY target range and a below forecast return in 2016, a below average run is expected. *(2016 Outlook Category was 3.)*
52. Stikine	2	A bilaterally developed pre-season forecast is not yet available but is required by December 01. The 2016 return (<12,000) did not achieve the escapement target. Consequently it is anticipated that the 2017 forecast will be below average and will not support directed fishing in Canada or the US. Escapement Goal: 4,000-28,000. This stock has been subjected to directed commercial fisheries when run sizes have permitted since 2005 due to new provisions under the PST. Since 2011 the run sizes have been well below predictions. This outlook will be updated after the TTC analysis is done (by December 01). *(2016 Outlook Category was 2.)*

Outlook Unit Chinook	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
53. Taku	2	A bilaterally developed pre-season forecast is not yet available but is required by December 01. As with Stikine Chinook, 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). 2016 did not achieve the escapement goal; consequently it is anticipated that the 2017 run will be below average and will not support directed fishing in Canada or the US. *(2016 Outlook Category was 2.)*
54. Yukon	2	The Canadian-origin return of Yukon River Chinook salmon in 2017 is anticipated to be below the long-term average of ~80,000 fish. The current spawning escapement goal endorsed by the U.S. / Canada Yukon River Panel is 42,500 to 55,000 Chinook salmon and has been met only 50% of the time over the last decade. 5 and 6 year-old fish dominate returns. Production resulting from an average spawning escapement in 2011 (46,300 spawners, 47% female) is anticipated to lead to a normal return of 6 year olds, while a below average escapement in 2012 (32,700, 51% female) is likely to lead to a below average return of 5 year olds. Total production observed in Canadian-origin Yukon River Chinook salmon stocks is well below levels observed in the 1980s and 1990s. 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 2017. (*2016 Outlook Category was 2.)*
Coho		
55. Mid and Upper - Fraser	1	The outlook for 2017 is for continued low abundance due to low parental escapement and the current generally 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 2017. Fall 2016 escapement surveys are now underway; and very early information suggests that abundances may be better than observed in 2014 and 2015. *(2016 Outlook Category was 1.)*
56. Thompson	1	The outlook for 2017 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 2017. Fall 2016 escapement surveys are now underway; and very early information suggests that abundances may be better than observed in 2014 and 2015. *(2016 Outlook Category was 1.)*
57. Lower Fraser	1	Fall/winter 2016/2017 escapement surveys are now underway; however, it is too early to determine trends. The outlook for 2017 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 2017. *(2016 Outlook Category was 1.)*
58. WCVI	2/3	Information to forecast coho returns is limited. Therefore, there is considerable uncertainty in this outlook. For 2017, most of the return will be coho originating from the 2014 brood year that smolted in 2016. While most ocean indicators correlated with early marine survival indicated reduced survival for sea entry years 2014 through 2016, the observed marine survival rate and return of WCVI coho for both sea entry years 2014 and 2015 was higher than expected. In addition, for most WCVI areas, coho spawning populations are relatively stable. *(2016 Outlook Category was 2/3.)*

Outlook Unit Coho	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
59. Area 12	2/3	Monitoring of the key indicator streams (Keogh) is still ongoing, but preliminary information suggests very poor returns in 2016. Return levels in 2017 will be influenced by: 1) above average brood year escapement in 2014, 2) average freshwater survival (based on the Keogh River indicator), and 3) indication of poor marine conditions with poor coho returns in 2016. Expectations are for similar to slightly improved returns over 2016 but with high uncertainty. *(2016 Outlook Category was 2/3.)*
60. Area 13 - North	2/3	Escapement monitoring for 2016 is still underway and to date has indicated variable returns to the area, with some indication of a reduction in wild stocks. Lower coho and poor pink returns may indicate poor marine survival for 2015 ocean entry. Early estimates for the 2016 return to the Quinsam River hatchery indicator are moderate and similar to 2015. 2017 expectations are for returns similar to 2016 (below average escapement), but are highly uncertain with wild stocks at category 2 and hatchery stocks at category 3. *(2016 Outlook Category was 2/3.)*
61. Georgia Strait	2	2016 escapements are not complete and to date indicate variability among systems. Preliminary observations suggest improvement over 2015 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, likely driven by both freshwater and marine processes. Recreational fishing results indicate a change in marine rearing areas with Strait of Georgia becoming more important. *(2016 Outlook Category was 2)*
62. Areas 7 to 10	ND	Information not yet available. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2016. *(2016 Outlook Category was 3/4.)*
63. Areas 5 and 6	ND	Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2016. No assessment in 2016. *(2016 Outlook Category was 3/4.)*
64. Area 3	4	Average returns are expected, but depend on the survivals of the juveniles that went to sea in 2016. *(2016 Outlook Category was 4.)*
65. Haida Gwaii -E (Area 2 East)	4	Limited assessments since 2002. Recent returns have been good. *(2016 Outlook Category was 4.)*
66. Haida Gwaii -N (Area 1)	ND	No recent assessments. *(2016 Outlook Category was ND.)*
67. Haida Gwaii -W (Area 2 West)	ND	No recent assessments. *(2016 Outlook Category was ND.)*
68. Skeena	4	Recent returns have been good except unknown for lower Skeena tributaries. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2016. *(2016 Outlook Category was 4.)*
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 2016. *(2016 Outlook Category was 4.)*
70. Alsek	3	Only a partial weir count is carried out. Brood year counts were above average. *(2016 Outlook Category was 3.)*
71. Stikine	ND	Reliable brood year escapement data are limited and ancillary observations are sometimes contradictory. *(2016 Outlook Category was 3.)*
72. Taku	3	Based on preliminary smolt abundance in 2016 combined with recent smolt-to-adult survival rates, an average run is expected for 2017. It is anticipated that the run will be sufficient for directed harvest levels comparable to recent years. *(2016 Outlook Category was 3.)*

Outlook Unit Pink	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
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. No assessment programs are currently undertaken in Canada and the current stock status is unknown. *(2016 Outlook Category was ND.*)
Pink		
74. Fraser - Odd only(CU: Fraser River)	3	Below average returns are expected in 2017 relative to the average of 13.4 million (1959-2013). The 2015 brood year fry abundance for Fraser Pink Salmon (230 million) was half of the long-term average of 450 million fry (1975-2013). This CU is comprised of 100% two year olds. *(2015 Outlook Category was 4; 2016 Outlook Category was ND)*
75. Squamish - Odd only (CUs: East Howe Sound-Burrard Inlet; and, Georgia Strait)	ND	Squamish Pink salmon are rebuilding; however, no run size target has been developed and available quantitative assessment information has not been assessed. *(2015 Outlook Category was ND; 2016 Outlook Category was ND)*
76. WCVI - Odd & Even	ND	No quantitative assessment information is available. (*2015 Outlook Category was ND.*)
77. Areas 11 to 13 - Odd & Even	2/3	Since 2015 Assessment information on pink salmon in this area is limited Even Year: Preliminary information in 2016 for the dominant cycle returns showed a significant decline in abundance over an improving trend the last 3 return years. Odd Year: Indications in 2015 were that returns to the area were below average. Prior to that we had seen an improving trend in the odd cycle returns to this area. With the indications of poor marine survival in the 2016 returns and the below average brood year returns in 2015, expectations are for below to near target returns in 2017. Historically pink returns to this area have been highly variable and expectations are highly uncertain. *(2016 Outlook Category was 2/3; 2015 Outlook Category was 3.)*
78. Georgia Strait - West - Odd & Even	2/3	Preliminary information suggests returns in 2016 were lower than brood returns in 2014. With the indications of poor marine survival in the 2016 pink returns and the well above average brood year returns in 2015, expectations are for below to near target returns in 2017. *(2016 Outlook Category was 2; 2015 Outlook Category was 2.)*
79. Georgia Strait - East - Odd & Even	2/3	Assessment information on pink salmon in this area is limited. With 2016 being an off-year for this stock grouping returns have been very low, as expected. With the large escapement in 2015, the expectation is that returns in 2017 will be higher than average. *(2015 Outlook Category was 2; 2016 Outlook Category was 2/3.)*
80. Areas 7 to 10 - Odd & Even	1/4	Returns are highly dependent on pink survival rates. *(2015 Outlook Category was 3/4; 2016 Outlook Category was 3/4.)*
81. North Coast Areas 3 to 6 - Odd & Even	4	Returns are highly dependent on pink survival rates. *(2015 Outlook Category was 4; 2016 Outlook Category was 4.)*

Outlook Unit Chum	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
82. Haida Gwaii - Odd & Even	3/4	Odd year pink stock. Returns are highly dependent on pink survival rates. *(2015 Outlook Category was NA; 2016 Outlook Category was NA.)*
Chum		
83. Fraser River (CUs: Fraser Canyon and Lower Fraser)	4	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 2015 (2012-2015 estimated escapement averaged 1.1 million spawners). The escapement goal for Fraser Chum is 800,000 spawners. Returns in 2017 will be based largely on the 2013 brood escapement; estimated at 980,000 spawners. Escapement assessments in 2016 are ongoing; an estimate of the 2016 escapement will be available by March 2017. The Oct. 26, 2016 in-season terminal return estimate was 2.00 million Chum salmon (99% probability that the run will exceed the escapement goal). *(2016 Outlook Category was 4)*
84. WCVI	2/3	Similar to WCVI chinook, overall returns of WCVI chum in 2017 will likely decline relative to levels observed in 2016. Observed returns of earlier age classes and ocean and leading species indicators suggest marine survival rate for the 2013 and 2014 brood years was low. In contrast, the 2012 brood year suvival rate was high and produced most of the abundant return observed in 2016. Therefore a relatively abundant return of the 5-year old age class is expected in some areas such as Nitinat or Nootka. In other WCVI areas, chum populations have been relatively depressed in recent years. *(2016 Outlook Category was 2/3.)*
85. Johnstone Strait Area and Mainland Inlets (Areas 11 to 13)	3	Returns in 2016 are still being assessed; however abundance appears to be well above average and above target in most systems surveyed. A strong 4 year old age class was evident this year coming from the average 2012 brood year and 2013 ocean entry. Expectations for 2017 are near target based on the strong parental brood abundances in 2013 (ocean entry 2014 and age 4 in 2017) and below average parental abundance in 2014 (ocean entry 2015 - age 3 in 2017). Marine survival is expected to have declined from the good survival of ocean entry 2013; poor marine condition in 2014 and 2015 (poor pink and coho returns to the local area in both 2015 and 2016). Expect more variability in chum returns. Summer chum stocks in 2016 appear to have done well but were below average throughout the area and expect similar returns in 2017. *(2016 Outlook Category was 3.)*
86. Georgia Strait	3	Preliminary 2016 escapement enumeration data indicate higher abundances and above target escapements. For 2017, returns are expected to be lower than 2016 for the Cowichan, Goldstream and Jervis Inlet stocks, and similar for the Nanaimo and Mid-Island stocks, based on brood year escapement in 2013. *(2016 Outlook Category was 3.)*
87. Coastal Areas 5 & 6	1/4	Modest 2013 brood year escapement. Poor chum returns in recent years but improved in 2016. Kitimat enhanced return strength uncertain; dependent on ocean survivals. *(2016 Outlook Category was 1/4.)*
88. Haida Gwaii	2/4	Generally poor brood year escapements indicate poor returns. *(2016 Outlook Category was 2/4.)*
89. Skeena-Nass	1/2	Ongoing poor returns expected from very poor brood year escapements, although 2016 escapements were improved relative to recent years *(2016 Outlook Category was 1/2.)*
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. *(2016 Outlook Category was 3/4.)*

Outlook Unit Chum	2017 Outlook Category	Comments (2016 Outlook category has been retained for reference)
91. Yukon (mainstem)	3	The Yukon River (mainstem) chum salmon outlook group includes all (Canadian) upper Yukon River stocks outside of the Porcupine River drainage. The current spawning escapement goal endorsed by the U.S. / Canada Yukon River Panel is 70,000 to 104,000 chum salmon and the goal has consistently been met since the early 2000s. Escapements in 2012 and 2013, the principal brood years (5 and 4 year-olds) for the 2017 run, were well above the minimum goal. An above-average run is expected in 2017. *(2016 Outlook Category was 3.)*
92. Yukon (Porcupine)	2	The current spawning escapement goal for the Porcupine River (as assessed at the Fishing Branch River) endorsed by the U.S. / Canada Yukon River Panel is 22,000 to 49,000 chum salmon. 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 2012 and 2013, the principal brood years (5 and 4 year-olds) contributing to the 2017 run, were weak at 22,399 and 25,376 respectively. If conditions contributing to the weak returns persist, a poor run is again expected in 2017 and fishing opportunities could be restricted. *(2016 Outlook Category was 2.)*
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. *(2016 Outlook Category was 2.)*

Appendix 1. Outlook Units and associated Conservation Units.

No.	Outlook Unit Name	Conservation Unit
Sockeye (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
		SEL::Taseko-Early Summer timing
6	Early Summer - Lower Fraser	SEL::Chilliwack-Early Summer timing
		SEL::Nahatlatch-Early Summer timing
		SEL::Pitt-Early Summer timing
7	Summer - Chilko	SEL::Chilko-Summer timing
8	Summer - Late Stuart	SEL::Takla/Trembleur/Stuart-Summer timing
9	Summer - Nechako	SEL::Francois/Fraser-Summer timing
10	Summer - Quesnel	SEL::Quesnel-Summer timing
94	(new) Summer - Harrison	SER::Harrison River
95	(new) Summer - Raft	SEL::Kamloops-Early Summer timing
11	Fall - Cultus	SEL::Cultus-Late timing
12	Fall - Portage	SEL::Seton-Late timing
13	Fall - South Thompson	SEL::Shuswap Complex-Late timing
14	Fall -Birkenhead	SEL::Lillooet/Harrison-Late timing
15	Fall - Lower Fraser	SEL::Harrison-downstream migrating-Late timing
		SEL::Harrison-upstream migrating-Late timing
16	Somass	SEL::Great Central
		SEL::Sproat
17	Henderson	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
		SEL::Nitinat

No.	Outlook Unit Name	Conservation Unit
		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::Freeda/Brodie
		SEL::Hartley Bay

No.	Outlook Unit Name	Conservation Unit
		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
		SEL::Wale Creek

No.	Outlook Unit Name	Conservation Unit
		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
		SEL::Mercer

No.	Outlook Unit Name	Conservation Unit
		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
Chinook		
96	Fraser River Spring Run 42	CK::South Thompson-Bessette 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
45	Areas 7 and 8	CK::Bella Coola-Bentinck

No.	Outlook Unit Name	Conservation Unit
		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
Coho		
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
		CO::Juan de Fuca-Pachena

No.	Outlook Unit Name	Conservation Unit
		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
Pink (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
		PKE::Hecate Strait-Fjords

No.	Outlook Unit Name	Conservation Unit
		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
Chum		
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
		CM::Wannock

No.	Outlook Unit Name	Conservation Unit
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.

Acronymn	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