2009 SALMON STOCK OUTLOOK

Since 2002, Pacific & Yukon Region, Stock Assessment staff have provided a categorical outlook for the next year's salmon status. 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 (a stock group). While ocean conditions have shown some improvement, it is not possible to predict changes to specific stocks with any certainty.

For each stock group, a status outlook is provided on a categorical 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 Area 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 proceeding on defining methods to determine of benchmarks of status under the Wild Salmon Policy and will be consulting on these over the next year.

Status categories may have consequences to fisheries where a stock group is caught directly or incidentally. In the context of this outlook the probable fishery consequences associated with each of the four status categories are identified in the table. Stock groups forecast in category "2" are considered "sensitive" and fisheries should be planned to reduce impacts on these groups.

Status Category	Category Definition	Criteria	Fishery Consequences
1	Stock of concern	Stock is (or is forecast to be) less than 25% of target or is declining rapidly.	Directed fisheries are unlikely and there may be a requirement to avoid indirect catch of the stock.
2	Low	Stock is (or is forecast to be) well below target or below target and declining.	Directed fisheries are uncertain and likely to be small if permitted. Allocation policy will determine harvest opportunities.
3	Near Target	Stock is (or is forecast to be) within 25% of target and stable or increasing.	Directed fisheries subject to allocation policy.
4	Abundant	Stock is (or is forecast to be) well above target.	Directed fisheries subject to allocation policy.

It is important to note that the fishery consequences implied by any of the status categories do not include interactions with other stocks. Consequently, conservation requirements for stocks in status categories 1 and 2 may limit fishing opportunities for stock groups for which there are no concerns. Where possible the comments associated with each stock identify such potential

constraints. A range of status categories indicates significant geographic variation in status within the stock group and fisheries may be shaped in response to that variation.

This 2009 outlook should be regarded as an early scan of salmon production, as very preliminary information, and is subject to change as more information becomes available. The outlook will be periodically up-dated as statistical forecasts and assessments are completed and reviewed.

Summary of Pacific Salmon Species/Stock groups for 2009

A total of **93** species/stock groups were considered and status categorized for **87**, six were data deficient (ND). Thirty-one (**31**) stock groups are likely to be at or above target abundance (category 3, 4, 3/4), while **32** are expected to be of some conservation concern (category 1, 2, 1/2). The remaining **24** stock groups had mixed status levels (1/4, 2/3, 2/4). Overall, the outlook for 2009 is slightly improved relative to the 2008: 20 stock groups improved in status (many within the Fraser sockeye stocks, plus Fraser River pink salmon), while 12 declined in status (mostly in the South Coast and in the Transboundary and Yukon Areas). Please note that enumeration programs for southern BC chum and coho salmon, and some Fall-run Chinook, are incomplete at this time and these data will be revised later.

Species/Stock	2009 Outlook status	Comments (2008 Outlook status has been retained for reference)
Sockeye		
1. Okanagan	3	Return expectations for 2009 are for between 60,000 and 120,000 depending on the variable influence of post smolt survival. If the stock just replaces itself returns should be on the order of 60,000. However, return rates on the 2004 brood year were more than double the all-year average as freshwater migration and ocean conditions changed from unfavourable to favourable survival conditions. Ocean conditions in the California current system that Okanagan sockeye enter were all highly survival-favourable in the 2007 ocean entry year (DFOs 2007 State of the Ocean Report), so returns as high as 120,000 (not including supplemental Skaha hatchery-origin smolt returns) are possible. We conservatively expect to see 90,000 wild Okanagan origin sockeye pass through Wells Dam in 2009. This converts to roughly 72,000 expected in the terminal spawning area in the Okanagn River. For 2008, sockeye counted past Wells Dam were 165,332 and entering Okanagan Lake (Zosel Dam video counts) was 75,532 (preliminary values to mid-October). *(2008 Outlook status was also 3.)*
2. Early Stuart	2	The median (50% probability level) return forecast for Early Stuart is 254,000 sockeye. The 2009 cycle is the dominant cycle for Early Stuart. The 2005 brood year escapement (99,000 adults) was 40% below the previous generation (2001) of 170,000 adults, was the lowest on the cycle for the past four decades, and was 55% below the recent cycle average (1981-2001). *(2008 Outlook Status was 1)*

3. Early Summer – North Thompson	3 / 4	The median (50% probability level) return forecast for Raft, Fennell and the North Thompson (including miscellaneous North Thompson stocks) combined is 350,000 sockeye. The 2005 brood year escapement to this system was 100,000 adults. By stock, the 2005 brood year escapement for Raft (26,000 adults) was 20% below the previous generation (2001) of 32,000 adults, Fennell (4,000 adults) was 30% below the previous generation escapement (5,700 adults) and North Thompson (74,000 adults) was almost 10x greater than the previous generation escapement (7,500 adults). Overall, escapements to this system have been trending upwards since the 1980's. Brood year escapement for Raft is triple the recent cycle average (19812001), Fennell is similar to the cycle average, and North Thompson is forty-five times greater than the cycle average. *(2008 Outlook Status was 2/3)*
4. Early Summer – South Thompson	2	The median (50% probability level) return forecast for Scotch and Seymour (including miscellaneous South Thompson stocks) is 56,000 sockeye. The 2005 brood year escapement for this system was 9,400 adults. By stock, the 2005 brood year escapement for Scotch (4,000 adults) was double the previous generation (2001) of 2,000 adults and Seymour (3,500 adults) was 40% below the previous generation of 6,000. The brood year escapement for Scotch is almost 40% below the recent cycle average (1981-2001) and Seymour was 44% below the recent cycle average. *(2008 Outlook Status was 2)*
5. Early summer – mid/upper Fraser	2	The median (50% probability level) return forecast for Gates, Nadina and Bowron combined is 157,000 sockeye. The 2005 brood year escapement for this aggregate was 39,000 adults. By stock, the 2005 brood year escapement for Gates (15,000 adults) was 1.2 x greater than the previous generation (2001) of 13,000 adults, Nadina (22,000 adults) was 60% below the previous generation escapement (55,000 adults) and Bowron (1,600 adults) was 70% below the previous generation escapement (6,000 adults). Brood year escapement for Gates was 1.4 x greater than the recent cycle average (1981-2001), Nadina was 1.2x greater than the cycle average, and Bowron was 70% below the cycle average. *(2008 Outlook Status was 1/2)*
6. Early Summer – lower Fraser	3	The mean (50% probability level) return forecast is for Pitt River and Chilliwack Lake-Dolly Varden Creek is 168,000 sockeye. The 2005 brood year escapement for these stocks was 65,000. Pitt River escapement has been trending upwards since the mid-1990's. Although the 2005 brood year escapement for Pitt River (62,000 adults) was 50% below the previous generation (2001) of 132,000, the previous generation was a peak year for this cycle over the entire time series. Overall, the brood year escapement for Pitt River is 1.5 times greater than the recent cycle average (1981-2001). For Chilliwack Lake-Dolly Varden Creek the time series is relatively short (2001-present), escapements exhibit considerable inter-annual variability and the age-structure has not been fully assessed. As a result, abundance trends cannot currently be assessed for this stock. *(2008 Outlook Status was 3)*

7. Summer – Chilko	4	The median (50% probability level) return forecast for Chilko River is 4,175,000 sockeye. The 2005 brood year escapement (540,000 adults) was 22% lower than the previous generation escapement (700,000) but 1.4 x greater than the recent cycle average (1981-2001). Freshwater survival for the 2005 brood year (6%) was double the time series average (3%) and, as a result, the number of outmigrating smolts (77 million) was unprecedented for this system in 2007 (2005 brood year). Smolt body sizes in 2007 (88 mm) were also above average (82 mm). *(2008 Outlook Status was 3)*
8. Summer – Late Stuart	2 / 3	The median (50% probability level) return forecast for Late Stuart is 553,000 sockeye. The 2009 cycle is the dominant cycle for Late Stuart. The brood year escapement (290,000 adults) is 20% below the previous generation (2001) of 350,000 adults and 50% below the recent cycle average (1981-2001). Over the entire times series (1948-2001), the cycle escapement has been relatively consistent (average: 400,000) with the exception of a period between 1985 and 2001 where escapement increased to a peak in 1993 of 1.8 million adults. *(2008 Outlook Status was 2)*
9. Summer – Nechako	3	The median (50% probability level) return forecast for Nechako is 374,000 sockeye. The 2005 brood year escapement was the largest on record for this cycle (180,000 adults) and was 1.2 x greater than the previous generation escapement (150,000) and 6 x greater than the recent cycle average (1981-2001). The Nechako system has been trending upwards since the mid-1980's. *(2008 Outlook Status was 3)*
10. Summer – Quesnel	3 / 4	The median (50% probability level) return forecast for Quesnel is sockeye is 3,575,000. The 2009 cycle is the dominant cycle for Quesnel. The 2009 cycle experienced remarkable growth starting in the 1980's through to the early 1990's and has subsequently declined. The 2005 brood year escapement (1.4 M) was 60% below the previous generation escapement of 3.5 million and 30% below the recent cycle average (1981-2001). There have been similar declines across all cycles raising concerns with respect to juvenile rearing capacity limitation in Quesnel Lake as a result of the large annual escapements since 1993. Discontinuities in terminal area spawner assessments have introduced higher levels of uncertainty into the Quesnel system data from the forecasting and cycle line perspective. *(2008 Outlook Status: 2)*
11. Fall – Cultus	1	The median (50% probability level) return forecast for Cultus is 5,000 sockeye. Escapement has been trending downward and the brood year escapement (2005) of 112 adult spawners was 75% below both the previous generation (2001) of 500 adults and the recent cycle average (1981-2001). The brood year escapement is considerably below (35 x) the long term cycle average (1948-2005). Despite this downward trend in escapements, hatchery enhancement activities have produced an above average number of smolts outmigrating in recent years (in 2007: 100,000 smolts versus the cycle average from 1981-2001 of 50,000 smolts); most smolts that outmigrated in 2007 (2005 brood year) are hatchery origin fish. On-going recovery actions (e.g. predator removal and hatchery

		enhancement) for this COSEWIC listed species ('endangered') are expected to continue in 2009. *(2008 Outlook Status: 1)*
12. Fall – Portage	2 / 3	The median (50% probability level) return forecast is 66,000 sockeye. The 2005 brood year escapement (12,000) was 4 x greater than the previous generation (2001) of 3,000 adults and 1.5 x greater than the recent cycle average (1981-2001). Portage sockeye continue to be a concern as they are impacted by early Fraser River entry timing related mortality exhibited by Late Run stocks since 1995. *(2008 Outlook Status: 1/2)*
13. Fall – South Thompson	2	The median (50% probability level) return forecast is 97,000 sockeye. The 2005 brood year escapement (21,000) was 4.2 x greater than the previous generation (2001) of 5,000 adults and 7 x greater than the recent cycle average (1981-2001). Concerns continue with respect to early entry timing related mortality for all Fraser Late Run stocks. *(2008 Outlook Status: 1/2)*
14. Fall – Birkenhead	3	The median (50% probability level) return forecast is 297,000 sockeye. The 2005 brood year escapement (54,000 adults) was 1.2 x greater than the previous generation (2001) of 44,000 adults. Although the brood year escapement was 22% below the recent cycle average (1981-2001), this difference is largely attributed to a large escapement in 1993 of 250,000; when compared to the long term average (1948-2005) the brood year escapement is similar. *(2008 Outlook Status: 3)*
15. Fall – lower Fraser	4	The median (50% probability level) return forecast for Harrison River (plus tributaries) and the Weaver Creek system combined is 442,000; 106,000 sockeye to Harrison and 336,000 sockeye to Weaver. The 2005 brood year escapement to Weaver (49,000 adults) was 2.5 x greater than the previous generation (2001) of 20,000 adults and 1.4 x greater than the recent cycle average (1981-2001). The 2005 brood year escapement to Harrison (400,000 adults) was 25x greater than the previous generation (2001) of 15,000 adults and 9x the recent cycle average (19812001). Concerns continue with respect to early entry timing related mortality for all Fraser Late Run stocks. *(2008 Outlook Status: 3)*
16. Somass	2	Expectations for 2009 are likely higher than in the last two recent years. However, the 4-year old return in 2008 was low suggesting that the production from the 2004 brood year was poor, potentially as a result of delayed escapement that year.
		Therefore, we expect a poor return of 52 year old fish in 2009. Normally, this age group contributes to about 35% of the return. *(2008 Outlook Status was 1/2)*

17. Henderson	2	In each of the last two years escapement to Henderson has been higher than expected at about 10K. However, there were low numbers of spawners in at least one brood year (2004) that will contribute to the 2009 return. *(2008 Outlook Status was 1)*
18. WCVI-other	1/ 2	Assessment data are not available to forecast others systems. However, Hobiton, Kennedy and Jantzen Lake stocks are depressed. *(2008 Outlook Status was 1/2)*
19. Area 11-13	1 / 2	For many of the small Johnstone Strait stocks, assessment data are sparse, but most systems surveyed appear to be low and stable (Quatse River and Heydon Creek). Preliminary information for 2008 escapement to Nimpkish indicate a return close to the average of the last 10 years and just over half the long term average escapement. Nimpkish in 2009 will likely contribute another low but stable return based on the fairly weak 2004 and 2005 parental brood years and continued poor marine survival. 2009 expectations are for low and stable abundances with some stocks of concern. *There is no change in the outlook status from 2008 to 2009*.
20. Sakinaw	1	Zero adult fish were enumerated in 2008. The 2006 smolt production which is the main component of this years' return was approximately 11,000. The 2007 smolt production which will be the main component of next years return was estimated at 4,000. Based on this year's unexpected zero adult return, the expectation for 2009 is forecasted to be similar to 2008. *The 2008 outlook status was also 1*.
21. Area 7-10	1 / 2	Returns are expected to be very low. Area 9 returns appear to have stabilized while Area 10 returns could decline further coming off very weak brood years in 2004 and 2005. Sockeye returns to Areas 7 and 8 continue to be depressed. *There is no change in the outlook status from 2008 to 2009*.
22. Coastal 3/6	2 / 4	Status is uncertain. Very limited assessment data for evaluation. *There is no change in the outlook status from 2008 to 2009*.
23. Babine Lake enhanced	3	Very low abundance forecast for age-4 fish based on 2008 jack returns. Average age-5 return expected from age-4 returns in 2008. *(2008 Outlook Status was 3)*
24. Skeena wild	1 / 4	Non-Babine sockeye status continues to be variable. Babine wild tributaries remain strong; however the Babine river spawners were poor again in 2008. Generally expect poor survival for sockeye that went to seas in 2007 and better survival for sockeye that went to seas in 2006. *There is no change in the outlook status from 2008 to 2009*.
25. Nass	2 / 4	Below average returns are expected. Stock specific status of non-Meziadin sockeye uncertain. *There is no change in the outlook status from 2008 to 2009*.
26. QCI	2 / 4	Status uncertain for some systems, limited assessment work. *There is no change in the outlook status from 2008 to 2009*.
27. Alsek	2 / 3	Based on brood year escapements and the historical stock-recruitment relationship, a slightly above average run is expected. However, both early and late runs have been well below expectations (record low in 2008) recently and survivals appear to have been low. Hence the outlook has been downgraded to a 2-3 for 2009. *(2008 Outlook Status was 3)*

28. Stikine-wild	3	Stikine sockeye production has varied dramatically since 1985. Low production periods occurred in the mid 1980(s) to early 1990(s). From 2003 through 2006 production was relatively good believed to be due to improved marine survival. However, runs in 2007 and 2008 were below forecast suggesting a downturn in marine survival. For 2009, the Tahltan Lake component is predicted to be above average due to the high number of smolts which emigrated from the lake in 2006. However, the mainstem component is expected to be below average. As a result, more restrictive fishing regime may be implemented during the overlap with the
		latter part of the Tahltan run to conserve the early segment of the mainstem run. *(2008 Outlook Status was 3 / 4)*
29. Taku-wild	3	Although the principle brood year escapement was high, production is expected to be below average based on stock-recruitment analysis. Fishing opportunities are expected within the confines of conservation and PST requirements. Special measures may be needed to achieve the egg-take goal for Tatsamenie enhancement. *(2008 Outlook Status was also 3)*
Chinook		
30. Early spring – upper & mid-Fraser, North Thompson	1	Populations of concern are upper and lower Chilcotin, Westroad, Cottonwood, and Chilako rivers. Very poor marine survival has resulted in continued poor to very poor escapements in 2008. Escapements averaged approximately 35% of brood year escapements in 2003. There is no exploitation rate indicator stock for this group. *(2008 Outlook status: 1)*
31.Late summer – South Thompson	4	Indicator is Lower Shuswap. Returns in 2008 were on average, almost 50% above brood year escapements in 2004. Large numbers of jacks were observed in these systems, also indicating the likelihood of strong returns in future years. South Thompson (74,462), Little River (9,088) and Lower Thompson (16,898) were all strong. *(2008 Outlook status: 3)*
32. Spring – upper & mid-Fraser, North Thompson	1	Returns throughout the range in 2008 continued to be poor, averaging roughly 70% of brood year escapements in 2003. Very poor marine survival continues to be observed. No indicator stock. *(2008 Outlook status: 1)*
33. Summer – upper & mid-Fraser, North Thompson	1	Returns throughout range in 2008 were poor, except for Nechako which achieved brood year escapement levels. Across the group, escapements in 2008 averaged only 36% of brood escapements. Very poor marine survival continues to be a concern. There is no exploitation rate or escapement indicator stock for this group. *(2008 Outlook status: 1)*
34. Spring – lower Thompson	1	Exploitation rate indicator for this group is Nicola River. Continued poor to very poor returns in 2008. Continued decline in escapements from brood year (2004) in most populations. Returns averaged ~58% of brood year escapements in 2004, but only 10% of brood in Spius Creek (escapement estimate 168). *(2008 Outlook status: 1)*
35. Fall – lower Fraser natural	3	Four year old returns expected to be stronger in 2009. Too early to note status of 2008 returns. *(2008 Outlook status: 2)*

36. Fall – lower Fraser hatchery	3	Although there are significant hatchery releases of Harrison fall-run chinook stock into the Harrison & Stave Rivers, lower Fraser River fall-run hatchery chinook consists mainly of Chilliwack Hatchery releases. Early indications of 2008 adult spawning escapements to Chilliwack are encouraging. Better escapements of 4 year-olds expected in 2009. Forecasts will be prepared for mid-winter release. *(2008 Outlook status: 2/3)*
37. Early spring – lower Fraser	1	Birkenhead River escapement was very poor (~250 adults) in 2008, and well below brood year (2003) escapement of 427 adults. This sharp decline is in contrast to the previous two years that experienced escapements in excess of 1000. Parental brood year escapements (BY 2004) for the 2009 escapement were also poor (180 adults). No indicator stock or hatchery production for this stock group. Freshwater and marine survival trends remain unclear. *(2008 Outlook status: 2)*
38. Summer – lower Fraser	2	Maria Slough escapements in 2008 (574 adults) were slightly lower than those observed in the previous year (650). Big Silver escapement was poor, and estimated at only 20. Expectations are for nearer target abundance levels for 2009
		but very little is known about the productivity of these small populations. The small size of these populations increases their vulnerability. *(2008 Outlook status: 2)*
39. WCVI-hatchery	2 / 3	2008 returns were below expectations. For 2009, returns are also expected to be low based on anticipated low returns of age-5 fish resulting from poor survival of the 2004 brood. As well, early data suggest low numbers of 'jacks' (age 2 fish) in 2008, which may result in few 3-year old in 2009. *(2008 Outlook Status: 3)*
40. WCVI-wild	1	Escapements in recent year have generally been well below target for wild origin WCVI Chinook. In 2008, escapements remain below target but show small improvement over 2007. Final escapements and age composition data are currently unavailable. Expectations are for continued low returns in 2009. The *(2008 Outlook Status: 1)*
41. Johnstone Strait area including mainland inlets	2 / 3	Preliminary 2008 returns to the Quinsam River hatchery indicator show a slight reduction in returns relative to recent years. Escapement monitoring is ongoing and preliminary information suggests a return of between 4000 and 6000 chinook to Quinsam River. Data is sparse for most of the Mainland Inlet Chinook stocks, but most systems surveyed with Chinook populations are well below historic abundances. *Outlook is similar to 2008 with wild stock at low level (2) and hatchery stocks likely near target (3).*
42. Georgia Strait Fall (wild and small hatchery operations)	1	Outlook is for a stock of concern. The 2008 Cowichan River terminal returns are currently being enumerated, however, projected adult returns (2,000 to 2,500) appear similar to last year, while jack returns are less abundant than 2007. Returns to Chemainus River are estimated to be low, probably less than 100. The returns to Nanaimo River are projecting to be similar to 2007 (2,000 range). *(2008 Outlook Status: 1)*

43. Georgia Strait Fall (large hatchery operations)	3	Returns in 2008 to rivers with major hatcheries (Big Qualicum, Little Qualicum and Puntledge) are projected to be similar to last year's (2007) returns. Based on these preliminary 2008 returns, 2009 projections are for slightly reduced returns. *(2008 Outlook Status: 4)*
44. Georgia Strait Spring and Summer	2	2008 returns to Nanaimo River (spring and summer) are similar to 2007 and returns to Puntledge (summer) hatchey are below last year's return, both are below target escapements. Rebuilding efforts are continuing. *(2008 Outlook Status was also 2)*
45. Area 7-8	3 / 4	Dean River returns are expected to be below average based on low brood year escapements and suspected poor survivals from the 2004 brood. Bella Coola returns are expected to provide an average return. *(2008 Outlook Status was the same)*
46. Area 9-10	2 / 3	Although the Wannock River escapement program is not yet complete returns are expected to be average. Age data will provide additional insight into survivals from the 2004 brood which will contribute 5-yr old fish to the 2009 escapement. The spring-run stocks including the Owikeno tributary stocks and Chuckwalla/Kilbella are expected to be below average as brood year escapements were poor. *(2008 Outlook Status was the same)*
47. Coastal Areas 3 to 6	2 / 3	Stocks generally depressed and variable and this pattern is expected to continue. Poor quality assessments except Khutzeymateen river. *(2008 Outlook Status was the same)*
48. Nass	3 / 4	Average return expected (pending detailed review of the 2008 return age structure). *(2008 Outlook Status was the same)*
49. QCI	3 / 4	Stock appears stable at relatively high levels. *(2008 Outlook Status was the same)*
50. Skeena	3 / 4	Variable ocean survivals for Skeena chinook in recent years make the outlook uncertain. Average returns similar to recent years are anticipated. *(2008 Outlook Status was the same)*
51. Alsek	2	Brood year escapements were within what is considered to be the optimal range. Based on the historical stock recruitment relationship, an above average run would be expected. However, it should be noted the brood year escapements are similar to those which produced the runs in 2006 through 2008 which were the three lowest on record. Hence there is much uncertainty over the 2009 run outlook. It appears Alsek chinook are in a state of poor productivity and therefore the 2009 outlook has been downgraded to reflect this. *(The 2008 Outlook Status was slightly better at 2 / 3.*)

52. Stikine	2 / 3	This stock has been subjected to directed commercial fisheries since 2005 as a result of new provisions under the Pacific Salmon Treaty. Renewed arrangements for 2009 allow for directed fisheries if the preseason forecast is greater than 28,100 large chinook (chinook > 659 mm mid-eye to fork length). Inseason projections of total run size must be >24,500 large chinook for directed fisheries to continue. The preliminary 2009 sibling-based forecast of approximately 31,500 large Chinook suggests production will be below average but slightly above the preseason trigger for conducting a directed fishery. A directed Canadian commercial fishery will occur in 2009 providing the updated forecast from the Transboundary Technical Committee, which should be available before February 1, is above the trigger. Once inseason projections become available (likely starting the third week in May), the fishery will continue providing run projections are greater than 24,500 large Chinook salmon. *(The 2009 Outlook Status is slightly poorer than the 2008 which was rated as 3.)*
53. Taku	2 / 3	Taku chinook salmon have also been managed under a new PST fishing regime which was implemented in 2005, and has been renewed for the 2009-2018 period with some minor modifications. The Transboundary Technical Committee has been tasked to review the Taku chinook escapement goal and have a revised goal, if appropriate, in place for the 2009 season. Changes in the escapement goal will affect the trigger point for implementing directed fisheries. The preliminary run outlook, based on sibling returns suggests that the run will be below average. Subject to the outcome of the TTC escapement goal analysis and to a bilaterally developed forecast, it is possible that only a very limited assessment fishery will be conducted initially, similar to 2008, to gather data upon which to base inseason run size projections. In-season projections are not expected to be available until after May 17. *(The 2009 Outlook Status is slightly better than 2008 which was rated as 2.)*
54. Yukon	2 / 3	The Yukon Chinook salmon database was revised in the spring of 2008 and an Interim Spawning Escapement Goal of 45,000 was set for the 2008 season. The IMEG, which was assessed using a sonar program located near Eagle Alaska, was not achieved despite US and Canadian conservation measures. Although brood year escapements were good to excellent, the 2007 and 2008 Chinook salmon runs were weak. A below average run is expected in 2009. Revised estimates of the total upper Yukon spawning escapements from 2002 to 2004, the three primary brood years contributing to the 2009 run, were close to, or exceeded, the 2008 IMEG of 45,000 Chinook salmon. However, total production has not yet returned to the levels observed prior to 1998. The 2007 and 2008 runs were unexpectedly weak and conservation measures were required (i.e. there were no commercial or domestic fishery openings and Chinook retention was varied to zero in the recreational fishery). If the factors which contributed to the weak 2007 and 2008 runs persist, fishing opportunities may also be limited in 2009. (*The 2008 Outlook Status was also 2 / 3.)*

Coho		
55. Mid/upper-Fraser	1	Too early in the fall to determine 2008 returns. Rebuilding will continue to be affected by marine survival, which may be improving. Parental brood escapements were poor. *(2008 Outlook status: 1)*
56. Thompson	1	Too early in the fall to determine 2008 returns. Rebuilding will continue to be affected by marine survival, which may be improving. Parental brood escapements were poor. *(2008 Outlook status: 1)*
57. Lower Fraser	1 / 2	Too early in the fall to determine 2008 returns. Rebuilding will continue to be affected by marine survival, which may be improving. Parental brood escapements were poor. *(2008 Outlook status: 1/2)*
58. WCVI	2	The 2008 forecast for marine survival rate was 0.7% (hatchery stocks) and 3.8% (wild stocks). Assessment is ongoing but preliminary escapement data for Carnation Creek (wild) and Stamp Falls (hatchery) indicate a higher than forecast return for both indicators. *(2008 Outlook Status: 2)*
59. Area-12	2 / 3	Monitoring to the Keogh River indicator is ongoing and it is too early to provide any indication of marine survival for that indicator. Extensive coverage in the area of certain key streams is still ongoing but preliminary data suggest returns are at or above our 2008 expectations of low to near target. In 2008, Keogh smolt production was well above average and the 3rd highest since 1997. Expectations are for returns similar to the last 3 years but are highly uncertain. *(2008 Outlook Status was the same as for 2009)*
60. Area-13 North	2	Still too early in the monitoring of these stocks to provide any indication of abundance for 2008. Anticipation of continued low marine survival and low overall abundance for 2009. *(Expectations for 2009 are the same as 2008: 2).*
61. Georgia Strait	1 / 2	Last year's marine survivals ranged from 0.3% to 0.7% for hatchery stocks and 2.6% for the wild indicator (Black Creek). Smolt production from Black Creek in 2007 was slightly below average, however, early indications of 2008 returns are projecting to be slightly better than 2007 returns. The 2009 forecast is for continuing low returns similar to last year. *(2008 Outlook Status: 1)*
62. Area-7-10	2	The outlook continues to be for lower than average returns with poor brood year strength and survivals in many areas. Bella Coola returns are expected to be below average based on a low escapement in 2006. Rivers Inlet coho returns are uncertain as final escapement estimates were not attainable in 2006. Management plans will rely on in-season abundance data. *(2008 Outlook Status: 2 / 4)*
63. Area 5/6	2 / 4	Stocks at higher levels than the 1990's but below recent averages in recent years in Area 6. Area 5 not assessed (no data). *(2008 Outlook Status was the same as 2009)*
64. Area-3	3 / 4	Strong return is expected from relatively abundant brood year spawners, and a recent pattern of variable but relatively good survival. *(2008 Outlook Status: 3 / 4)*
65. QCI-E (Area 2E)	3 / 4	Assessments limited to two populations since 2002 (Tlell weir and Deena intensive escapement surveys). 2008 Outlook was same as 2009.

66. QCI-N (Area 1)	ND	No recent assessments. 2008 status was based on 2002 assessments, but there are currently no annual escapement surveys. Assessment changed to data deficient.
67. QCI-W (Area 2W)	ND	No recent assessments. 2008 status was based on 2002 assessments, but there are currently no annual escapement surveys. Assessment changed to data deficient.
68. Skeena	3 / 4	Outlook is good for the middle and upper Skeena stocks, although ocean survivals are tracking downward based on the Toboggan indicator. Outlook for lower Skeena tributaries is less certain, based on poor quality assessments. 2008 Outlook Status: 3 / 4)
69. Skeena – high Interior	2 / 3	Stocks continue to fluctuate around a higher abundance in the last decade*. (same comment and Outlook Status assessment as in 2008)*
70. Alsek	2 / 3	A well below average run is expected based on low weir counts in the Klukshu River for 2005 and 2006 and what appear to be recent poor marine survivals. *(2008 Outlook Status was also 2/3)*
71. Stikine	3	An ABM regime has not yet been developed for this stock. Under the current PST arrangements, Canada is permitted to harvest 5,000 coho in a directed fishery. Reliable brood year escapement data is limited and available information is contradictory: extrapolated test fishing indices were well above average, yet results from limited aerial surveys were below average. Marine survival of coho salmon in other nearby locations (Taku River, SEAK Hatcheries) was well below average in 2007 and 2008. If this continues in 2009, the run size may only be average. *(2008 Outlook Status was also 3)*
72. Taku	2 / 3	Excluding 2007 and 2008, favorable marine survival combined with low exploitation resulted in large in-river run sizes and spawning escapements since 2000. However during the last two years, the run was well below average as a result of poor marine survival. For 2009, a below average run is expected based on the estimated smolt abundance in 2008 combined with recent smolt-adult survival data. However, it is anticipated that the run will be sufficient to allow the harvest 3,00010,000 fish in a directed fishery, plus the potential excess to spawning escapement requirements, as identified in the new PST arrangements. *(2008 Outlook Status was also 2/3)*
73. Yukon	ND	Little is known about the stock status within Canadian portions of the Yukon River drainage. Harvest data from the U.S. portion of the drainage indicates spawning abundance decreased since 1984-91 but has recently been increasing. The general sense in Alaska is that recent exploitation is low and has been influenced by conservation actions to protect co-migrating fall chum particularly during the 1998 to 2004 period.
Pink		

74. Fraser – Odd	4	The 2009 median (50% probability level) return forecast for Fraser River pink salmon is 14 million. The 2009 forecast is above the long term average return for Fraser River pink salmon (1961-2007: 12 million). The abundance of out-migrating fry from the 2007 return year (500 million) was greater than the long term average of 400 million (1961-2005). The most recent spawning escapement program occurred in 2001; subsequent escapement estimates are based on final in-season run-size estimates minus catch. *(2008 Outlook status: n/a - no pink return to Fraser in even numbered years)*
75. Squamish - Odd	ND	No qualitative assessment information is available. *(2008 Outlook status: ND)*
76. WCVI-Odd	ND	No quantitative assessment information is available.(2008 Outlook status: ND)
77. Area-11/13-Odd	2 / 3	2008 returns demonstrated another decline in escapements to virtually all systems monitored, a trend continuing from the 2006 low returns (a similar trend has been encountered in areas north of Johnstone Strait). Only systems in the southern portions of the area (Phillips River, Salmon River, Adam/Eve River and Amour de Cosmos, Quinsam River) demonstrated improvements over parental brood return in 2006. Odd year is typically an off-cycle year for most systems in the area. With current declining trends in the upper portion of the area the expectation for 2009 are to be low to near target abundance. Historically, the mainland inlets populations have been highly variable *but expectations for 2009 are similar to what we projected in 2008.*
78. Georgia Strait-west	2 / 3	Preliminary information suggests returns in 2008 are low. Similarly there were poor returns of natural spawners in 2007. Seapen returns in 2007 were better than average in some areas. Outlook is for highly variable returns, (natural returns low, seapen returns average to good). *(2008 Outlook Status was also 2/3)*
79. Georgia Strait – east	2	Assessment information on pinks in this area is limited. The expectation for this area is for low returns with the exception of seapen returns which may experience higher survivals. *(2008 Outlook Status was also 2)*
80. Area-7/10 Odd	3	2007 brood year escapements were generally poor although some areas showed average returns. Expectations are for average to below average returns. *(2008 Outlook Status was also 3)*
81. North Coast Areas-3/6 Odd	3 / 4	2007 brood year escapements variable. Expect average to good returns for most stocks, with the caution that ocean survival has been lower in recent years. *(2008 Outlook Status: 3 f or Even year Pink)*
82. QCI-Odd	ND	Off cycle year, very limited returns.
Chum		

83. Fraser River	4	Quantitative forecasts are not prepared for Fraser chums (catch-by-stock and escapement info is limited). On average, the largest contributing chum age class to escapement is 4 year olds (~70%). The 2005 brood year (age-4) escapement for assessed populations (1.3 M) is about 60% of the recent average (1998-2007 average: 2.1 M). Since chum salmon are immediate fry migrants, moderate ocean conditions in 2006 could result in average marine survival and subsequently below average returns of age-4 chum in 2009. On average, age-3 and age-5 chum contribute a combined 30% to annual chum escapements. Age-3 and -5 brood year escapements, 1.9 M in 2006 and 2.6 M in 2004, are 90% and 120% of the recent escapement average, respectively. With favourable ocean conditions in 2007 (affecting the survival of age-3 chum) and poor ocean conditions in 2005 (affecting the survival of the age-5 chum), the combined age 3-5 return in 2009 is likely to be average. Combining the qualitative forecast for age-3, 4 and 5 year olds, a below average return is expected for Fraser River chum in 2009. *(2008 Outlook status: 3)*
84. WCVI	2	The 2008 chum returns appear well below average across WCVI stocks. Return expectations for 2009 are low. The escapement of chum to brood years contributing to the 2009 return (BY2004, 2005 & 2006) were average to above average for WCVI stocks. However, juvenile chum entering the ocean in 2005 (returning as age 5 adults in 2009) have experienced very low ocean survival and are expected to show very poorly. Preliminary assessment suggests that age 4 returns will also be low in 2009. *(2008 Outlook Status was 2 / 3)*
85. Johnstone Strait area and mainland inlets (Area-11-13)	2 / 3	The usual dominant year class (4 year old) associated with study area chum contributing to the 2008 return out migrated to the ocean in 2005, a year of poor marine survival. In season Test Fishery data indicated lower contribution of age 4 fish as anticipated. Taking that preliminary data into account, 2008 returns of the Study Area chum are expected to be below average. Expectations for 2009 are low to near target based on the below average returns encountered in 2008 (preliminary), the low parental brood composition of the 2005 return, and the high variability in chum returns. 2008 summer-run stocks demonstrated low returns in both Area 12 Mainland Inlets (Ahnuhati and Viner) and Bute Inlet (Orford River, Area 13) but stable relative to the brood returns in 2004. These factors contribute to the below average expectations assigned to summer run chum in Area 12 and 13 for 2009. *(2008 Outlook Status was slightly better: 3)*
86. Georgia Strait	3	Brood year (2005) escapements were low. Survival rates appear average to low. Preliminary 2008 returns are projecting to be higher than the pre-season forecast. For 2009 a below average return is expected, however, chum forecasts remain highly uncertain. *(2008 Outlook Status was also 3)*
87. Coastal Areas 5/6	1 / 4	Low returns expected to areas other than Kitimat. Long term widespread decline among small and medium wild stocks. Good return of enhanced fish expected at Kitimat as well as 'wild' chum from a strong brood year escapement. *(2008 Outlook Status also covered the full range of values from 1 to 4)*
88. QCI	2 / 3	Variable brood year escapements may result in local surpluses. *(2008 Outlook Status: 2 / 4)*

89. Skeena-Nass	1 / 2	Poor returns expected. Brood year escapements relatively poor. Long term depression among wild stocks. *(2008 Outlook Status was also 1 / 2)*
90. Area-7-10	3 / 4	Brood year strength indicates average returns in most areas. *(2008 Outlook Status was also 3 / 4)*
91. Yukon	3 / 4	This stock group includes upper Yukon River populations (excluding Porcupine drainage stocks). Spawning escapements have exceeded the targets since 2002; this has been attributed to reduced in-river exploitation and improved marine survival. The escapements in 2004 and 2005, the principle brood years contributing to the 2009 run, were well above the minimum goal established for a rebuilt stock; escapement in 2005 was exceptional, the highest ever observed. An above average run is expected in 2009; however the 2005 escapement was such an outlier that there is some uncertainty with respect to what level of production may result from this exceptional brood year. *(2008 Outlook Status: 3)*
92. Porcupine (Yukon)	3	An Interim Management Escapement goal of 22,000 to 49,000 was set for the Fishing Branch River for the 2008-2010 period based on revised analyses. This goal range is substantively less that the longstanding goal of 50,000 to 120,000. The escapements in 2004 and 2005, the principle brood years contributing to the 2009 run, were 20,274 and 121,413, respectively. The 2009 run is expected to be average. Similar to the Upper Yukon outlook, there is uncertainty with respect to what level of production may result from the exceptional escapement in observed in 2005. *(2008 Outlook Status was also 3)*
93. Taku	2	The stock has been depressed since 1991, although little information is available. The inriver run abundance index for the primary brood year was low but similar to the recent 10-year average. Non-retention provisions are expected to continue. *(2008 Outlook Status was also 2)*