



Fisheries and Oceans
Canada

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Canada

**PACIFIC SALMON OUTLOOK
PACIFIC REGION
2004**

Canada 

2004 SALMON STOCK OUTLOOK

Beginning with the 2002 Outlook, DFO Stock Assessment has been developing a categorical outlook for salmon stock status. The intent of providing such an outlook is to provide an objective and consistent context within which to initiate fisheries planning. In particular, the broad outlook provides a preliminary indication of potential fishing opportunities and the stocks of concern around which fisheries might be shaped. Annual provision of this outlook is part of ongoing development of an effective, objective and timely salmon fisheries planning process in the Pacific Region. The Salmon Stock Outlook for 2004 has further developed this process by adding clarity to the definition of the status categories and by expanding the number of stocks for which an outlook is provided.

For each outlook stock group a status outlook is provided on a categorical scale of 1 to 4 (please see the following Table). The category assigned to a stock group reflects interpretation of available quantitative and qualitative information and forecasts as well as expert opinion of its status. In many cases stock targets have not been formally described. In those cases targets were either historical levels or expert opinion.

Stock status implies consequences to fisheries where that 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 following Table. Stock groups that are forecast to be in category “2” are considered to be “sensitive” and in general, fisheries will be planned to reduce impacts on these groups where possible.

| 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. |
| ND | No Data | Insufficient data to determine an outlook category. | |

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.

Salmon outlook for 2004

A total of 93 stock groups were considered and outlooks have been provided for 87 of those groups. Forty-six of the stock groups are forecast to be at or above target abundance. Of the remaining 37 stock groups 11 (1 chinook, four chum stocks and 6 sockeye stocks) are forecast to be of some conservation concern (category 1 or 1/2). For clarity some adjacent stock groups have been grouped in the following table where their outlooks were similar.

The outlook should be regarded as very preliminary and is subject to change as more information becomes available and as statistical forecasts and assessments are completed and reviewed.

| Species/Stock | Outlook status | Comments |
|-------------------------------|----------------|--|
| sockeye | | |
| Okanagan | 3 | Expectation is for the recent trend of improved marine survival rates to continue, resulting in increases to the terminal area. Improvements to fish passage facilities in Columbia River system dams are resulting in improved migratory success. |
| Early Stuart | 3 | Forecast performance assessment is based on in-season run strength estimates, which will be updated in Jan. 2004. Preliminary 2003 spawning grounds escapement estimate is 13,300, less than half the in-season estimate of 30,000 and only 1/3 of the 90% pre-season forecast of 38,000. This escapement is well below the target of 75,000. Difficult passage conditions in 1999 appear to have had significant negative impact on production. The 50% forecast for 2004 (216,000) is 14% higher than the cycle line mean (1980-2002) of 189,000. The forecast at the 75% level is 137,000. The 2000 brood year escapement experienced high discharge in the Fraser canyon, leading to difficult migratory conditions. As seen in 1999, migratory difficulty may be linked to weaker than expected returns. |
| Early Summer – North Thompson | 3 | Forecast performance is based on the in-season run strength estimate for the aggregate Early Summer run. |
| Early Summer – South Thompson | 3 | The increasing trend for the cycle line is attributable to the rebuilding of the Upper Adams River stock. |

| Species/Stock | Outlook status | Comments |
|-----------------------------|----------------|---|
| Early summer – upper Fraser | 3 | The Increasing trend for this cycle line is attributable to increases in the Nadina River stock. The very large escapement in 2000 spawned predominantly in the Nadina River, compared with recent distribution which is dominated by spawning channel spawners. Lack of data on expected riverine fry production, resulting from unprecedented numbers of river spawners introduces additional uncertainty to the forecast for this stock. |
| Early Summer – lower Fraser | 3 | Forecast performance is based on in-season spawning ground escapement estimates. The 2004 Upper Pitt forecast (50% prob.) of 66,000 is 38% larger than the mean cycle year return of 48,000. |
| Summer – Chilko | 3 | The 50% forecast of 1,200,000 is 45% below the cycle line mean (1980 - 2002) of 2,100,000. The 75% forecast is 842,000. Lower than average smolt survival was observed in the spring of 2002. |
| Summer – Late Stuart | 3 | Escapement for the 2004 cycle line has exhibited continuous increase since the mid 1970's. The 50% forecast for 2004 is 989,000 which is 4.5 times the cycle line mean (1980 - 2002) of 221,000. The 75% level forecast is 432,000. The increasing trend in run size may be tempered somewhat if unidentified factors similar to those resulting in significantly lower than expected returns on the 2002, and 2003 cycle lines persist and impact the 2004 Late Stuart run. |
| Summer – Nechako | 3 | The 50% forecast for Stellako is 737,000 which is 13% greater than the 1980 -2002 cycle line mean of 652,000. The 75% forecast is 475,000. |
| Summer – Quesnel | 3 | This is the second off-cycle year for Quesnel stocks with the lowest expected abundance in the cycle. There has been continuous growth on this cycle line since the mid-1970's. The 50% forecast is 611,000 which is 12 times greater than the 1980 - 2002 cycle line mean of 51,000. The 75% forecast is 329,000. |
| Fall – Cultus | 1 | 2003 was the dominant year, the total run to date is 1,859 fish (counts will continue into Dec) compared to the 50% forecast level of 6,000. 2004 is an "off-year", the 50% forecast level is <500 fish. In 2002, Cultus smolt outmigration was assessed 5,681 smolts were observed, lowest smolt count on record. A recovery plan is currently being developed for this stock. The identified threats to this population are fishing, habitat alterations in Cultus Lake, environmental fluctuations, and impacts related to parasites (early migration) and predators (freshwater predation). |
| Fall – Portage | 2 | Too early to assess forecast performance. |

| Species/Stock | Outlook status | Comments |
|-----------------------|----------------|---|
| Fall – South Thompson | 2 | 2004 is a low abundance off-cycle year for South Thompson stocks. The 50% forecast (10,000) is well below the cycle line mean (1980 - 2002) of 44,000. The 75% level forecast is 5,000. Escapement during the brood year was impacted by high en-route mortality. |
| Fall – Birkenhead | 2 | The 2004 Birkenhead forecast (50% prob.) of 172,000 is 53% of the mean cycle year return of 324,000. |
| Fall – lower Fraser | 2 | The forecast (50% prob) for Weaver is 56,000 or 14% of the mean cycle year return of 410,000. Weaver channel fry survival has been above average for three consecutive years. In 2000, Weaver sockeye experienced abnormally early migration, high levels of pre spawn mortality and low spawning success. Other LF stocks in this aggregate are small (<10,000) but appear to be stable. |
| Sakinaw | 1 | This stock was designated as ENDANGERED by COSEWIC in 2003. Three fish entered the lake in 2003. A recovery plan is currently being developed. Fishing pressure, spawning habitat loss, and migration passage are thought to be the significant threats to recovery. |
| Area 11-13 | 1/2 | Formal assessments of Johnstone Strait sockeye stocks are under development. Although data are sparse some stocks are clearly of concern (Quatse, Village Bay) while others are depressed.. The threats to these populations have not been determined. Further detailed work is required to understand the status of these stocks. |
| Barkley Sound | 3 | 2004 expectations are for a decline resulting from poor escapements in 2000. Run size should still be sufficient (600,000) to permit some fisheries. Should see improvement in 2005 and 2006. Stocks first declined but now improving within the past 2 generations. |
| Henderson | 2 | Recent escapement been below expectations however good smolt output from 2002 should provide reasonable returns. |
| WCVI-other | 1/2 | Jantzen, Hobiton, Kennedy. Data are sparse but indicate that Jantzen (Kyuquot Sound) is very depressed. There are currently no sockeye fisheries in the area. |
| Area 7-10 | 1/2 | Poor returns are forecast for Rivers Inlet (Area 9) and Smith Inlet (Area 10) in 2004 based on extremely low brood years in 1999 and 2000. Returns to Areas 7 and 8 have been depressed but are improving. |
| coastal 3/6 | 2/3 | Forecast is highly uncertain. Very limited assessment base for evaluation. |
| Babine Lake enhanced | 4 | Forecast for poor 5 year old return from low 1999 brood year escapement, poor jacks and 4 year old returns from this brood. Modest 4 year old return forecast from 2000 escapement and modest jack return. Total return < 2,000,000 |

| Species/Stock | Outlook status | Comments |
|---|----------------|---|
| Skeena wild | 1/2 | PSARC review in 2003 indicated broadly based issue of severely depressed and declining stocks. Escapement in 2003 showed large increases in almost all stocks. 1999 and 2000 brood years generally poor for most wild stocks. |
| Nass | 4 | Strong brood year escapements in 1999 and 2000. Total return in the order of 800,000 |
| QCI | 2/3 | Stock specific forecasts are not prepared. |
| Alsek | 2/3 | |
| Stikine-wild | 2/4 | Stikine sockeye had been declining since 1995, however a major improvement in sockeye production occurred in 2003 which could be attributed to improved marine survival conditions. Overall this stock is predicted to return in healthy numbers in 2004, although the mainstem component of the group is predicted to be below average and below the escapement target of 30k. Seasonal closures or restrictions may be implemented to protect this component of the run. |
| Taku-wild | 2/3 | Outlook for Tatsamenie stock in 2004 is low hence moderate conservation concern for this stock |
| Chinook | | |
| Early spring – upper & mid-Fraser, North Thompson | 2 | Populations of concern are Upper Chilcotin, Westroad River, Chilako River. Other earlier returning populations are OK such as Finn Ck., Goat River. No indicator stock |
| Late summer – South Thompson | 4 | Indicator is Lower Shuswap. Large returns are expected to continue |
| Spring – upper & mid-Fraser, North Thompson | 3 | Indicator is Dome Creek. Good returns throughout range in 2003 (Bowron > 10000). Good returns are expected to continue.. |
| Summer – upper & mid-Fraser, North Thompson | 3 | No indicator. Strong returns to Chilko, Quesnel, Clearwater are expected to continue in 2004. |
| Spring – lower Thompson | 3 | Indicator is Nicola. Nicola > 13000, Bonaparte > 9000. Good returns are expected to continue in 2004. |
| Fall – lower Fraser natural | 3 | Harrison River late-run escapement numbers are not yet available. The forecast return for 2003 is near the lower end of the range of escapement goal. The 4-year olds in 2004 are from the 2000 brood year which was the smallest escapement in the last 6 years. |
| Fall – lower Fraser hatchery | 3 | Escapement data from the current year are not available. The terminal run size in 2003 is expected to be less than the average of the past three years in part due to a reduction the number of brood-year 2000 smolts released from Chilliwack. The 2003 terminal run-size forecast for this stock is less than the average of the last 3 years, partly due to a reduction in the number of 2000 brood-year smolts released from the Chilliwack hatchery which are expected to return as 3-year olds in 2003. Although returns have increased over the last three generations, returns in 2004 will be reduced due the same reduction in smolt releases. |

| Species/Stock | Outlook status | Comments |
|---|----------------|---|
| Early spring – lower Fraserr | 1/2 | Early-run chinook returns (Birkenhead and upper Pitt Rivers) remain low. There has been no assessment of the early-run upper Chilliwack River (Dolly Varden Creek) population. Birkenhead escapement in 2003 was close to the 5-year average (<500 fish), and down for the second straight year. No increase in returns is anticipated. |
| Summer – lower Fraser | 2 | Summer-run chinook in the lower Fraser River do not have a reliable time series of escapement information. |
| Georgia Strait – Fall run timing | 2/3 | Enhanced stocks somewhat down from peak in 2001 but still near historic high levels. Natural stocks unchanged or declined from 2002. Limited information from mainland inlets suggests populations are at low levels. |
| Georgia Strait– Spring/summer | 2 | Enhanced stocks have shown improvement in recent years but are still at relatively low levels. For Squamish, limited information suggests stock will remain depressed. Anecdotal information from other populations suggests they are at low levels but there is insufficient assessment information to determine their status or provide an outlook. |
| Johnstone Strait area including mainland inlets | 3 | In DFO management areas 11 to 13 indicator stocks such as Klinaklini and Quinsam are showing fairly stable returns with a slight increasing trend. Nimpkish chinook continue to show signs of poor returns compared to historic data but do not appear to be trending. |
| WCVI-hatchery | 4 | Should be good contribution from all brood years. Excellent initial jack return in 2003. Stocks first declined but now improving within the past 2 generations. |
| WCVI-wild | 2/3 | Escapements appear to be increasing in 2003 but some systems still with <100 females. 2001 brood similar to 2000. Should continue to see some improvement with better survival rates (improved jacks in 2003). Stocks first declined but now improving within the past 2 generations. |
| Area-7-10 | 3/4 | 2003 escapements have not been finalized, however, preliminary indications suggest chinook escapements to the Dean River, Bella Coola, and Atnarko will be similar to last year while returns to Rivers Inlet appear to be lower than last year. The Wannock dead pitch program will not be completed until the end of November. |
| coastal Areas 3 to 6 | 2 | Poor assessments except for Kwinamass escapement indicator. Stocks generally depressed but stable. |
| Nass | 4 | Strong return expected based on informal forecasts of brood year abundance and sibling strength. |
| QCI | 4 | Stock shows strong increasing trend. Assessment capacity diminishing. |
| Skeena | 4 | Strong return expected based on informal forecasts of brood year abundance and sibling strength. |
| Alsek | 4 | |
| Stikine | 3 | This stock is presently protected from targetted fisheries under the PST. Canada, in concert with the US, are obliged to develop an abundance based management regime due for implementation in 2005 |
| Taku | 3 | Escapements at/near low end of target range for past cycle. Previous cycle escapements >25% higher. |

| Species/Stock | Outlook status | Comments |
|------------------|----------------|--|
| Yukon | 2 | The Yukon chinook conservation unit involves approximately 100 spawning populations. The 2003 return involved above average escapement due to precautionary fisheries management in both Alaska and Canada and some improvement in run strength that is likely attributed to increased marine survival. Below average to poor run sizes have persisted since 1998. |
| Coho | | |
| Mid/upper-Fraser | 2 | Current-year data are not complete. Preliminary indications are that escapement is less than forecast. Rebuilding is constrained by marine survival, which continues to be poor and is not expected to improve. |
| Thompson | 2 | Current-year data are not complete. Preliminary indications are that escapement is less than forecast. Rebuilding is constrained by marine survival, which continues to be poor and is not expected to improve. |
| Lower Fraser | 2 | Current-year data are unavailable. Smolt output in 2003 decreased >60% from previous year; assuming similar smolt-to-adult marine survivals to recent years the outlook for 2004 returns is poor. |
| Area-12 | 2/3 | 2003 Status preliminary. Preliminary information from indicators (Klinaklini/Keogh) is mixed. 2004 outlook is based on indicators brood year escapement and smolt information. |
| Area-13 North | 2/3 | 2003 status is preliminary. Information from Heydon indicator that stocks continuing to rebuild - final escapement estimates won't be available until end of November. 2004 outlook forecast is based on brood year escapement and smolt information from indicators. |
| Georgia Strait | 2 | Status is constrained by marine survival, which is not expected to improve in 2004. |
| WCVI | 3 | Escapement to wild indicator (Carnation Creek) were strong in 2003 including abundant jacks, which suggests good marine survival in the smolt year. Smolt output from the indicator was also good. |
| Area-7-11 | 3/4 | Preliminary indications that returns in 2003 to intensive indicators (Atnarko Tower, Docee River, Martin River) are average/above average. Final estimates TBD after field season. Forecast status 2004 based on brood year strength (same indicators). |
| Area 5/6 | 2 | Strong increasing trend and relatively good brood year escapements. |
| Area-3 | 4 | Recent returns and informal forecast for stocks to continue fluctuate at or above productive capacity. |
| QCI-E | 3 | Stocks fluctuating around capacity. Assessment capacity severely reduced in 2003. |
| QCI-N | 3 | Stocks fluctuating around capacity. Assessment capacity severely reduced in 2003. |
| QCI-W | 3 | Stocks fluctuating around capacity. Assessment capacity severely reduced in 2003. |
| Skeena | 3 | Strong increasing trend expected to continue from increasing escapements. |

| Species/Stock | Outlook status | Comments |
|--|----------------|---|
| Skeena – high Interior | 2 | Slower, mixed success in rebuilding. |
| Alsek | 4 | |
| Stikine | 3 | As with Stikine CN, Canada and the US are obliged to develop ABM regimes for this stock. |
| Taku | 3 | Improved marine survival in last 2-3 years coupled with low exploitation has resulted in large in-river run sizes. |
| Yukon | ND | Little is known about the status of Yukon coho salmon. Harvest data from the US portion of the drainage indicates utilization has been decreasing over the past 3 cycles. However it is unknown how reflective this is of overall stock status. The general feeling in Alaska is that coho exploitation is low and has been reduced in recent years due to conservation actions taken to protect fall chum. |
| Pink | | |
| Lower Fraser-even | ND | No quantitative assessment information is available for this stock. |
| Georgia Strait - east | ND | No quantitative assessment information is available for this stock. |
| Squamish-even | ND | No quantitative assessment information is available for this stock. |
| Area-11/13-even | 2/3 | The preliminary assessment of the returns to the Bond/Knight component of this stock indicate that abundance was lower than in the 2001 brood year. Preliminary analysis suggests that survivals of the 2001 brood were well above those of the 2000 brood, which were extremely low in some of the systems of this stock group. Historically, pink populations in the mainland inlets have been highly variable and the survivals observed for the 2001 brood are within the observed range of odd-year returns (e.g. 1985 and 1975 brood returns). DFO is continuing to investigate pink populations in this area and is developing an action plan for further work |
| Georgia Strait - west | 2/3 | |
| WCVI-even | 2 | |
| Area-7/10-even | 3 | Average returns are expected based on brood-year returns. |
| North Coast - Areas-3/6-even | 4 | Strong return expected. |
| QCI-even | 2/3 | Mixed generally poor returns |
| Chum | | |
| Fraser River | 4 | 2003 in-river Albion test-fishery catches indicate a run-size exceeding the escapement goal (50% probability level is 1.5 million). 2004 brood-year escapements of fish returning as 3 and 5 year-olds exceeded the escapement goal and brood year escapement of 4-year old returns were near the escapement goal. |
| Johnstone Strait area and mainland inlets (Area-11-13) | 3 | Preliminary info for 2003 suggests high marine survivals. Weak brood year in 2000 with possible improved marine survival |
| Georgia Strait | 2/3 | Substantial variation in brood year spawners will likely mean below average returns in most areas. Survival rates appear to be improving. Limited fishing opportunities are expected. |

| Species/Stock | Outlook status | Comments |
|-------------------|----------------|---|
| WCVI | 2/3 | Poor brood year escapements and likely below average survival rates will likely result in below average returns to wild systems. Returns to hatchery systems will also be below average but may still provide less than average fishing opportunities. |
| Coastal Areas 5/6 | 1/2 | Long term broadly base decline among small and medium wild stocks. Brood year escapements relatively poor. |
| QCI | 2/3 | Mixed generally poor expectations based on brood year escapements. |
| Skeena-Nass | 1/2 | Long term broadly base decline among wild stocks. Brood year escapements relatively poor. |
| Area-7-10 | 3 | 2003 escapements have not been finalized; however, Areas 7 and 8 had substantial catches and preliminary escapements at or near target levels. For Areas 9 and 10, there are indications from some of the larger systems (Chuckwalla, Kilbella, and Nekite Rivers) that escapement trends are improving. |
| Taku | 1 | Taku chum stocks considered to be depressed since 1991. Good information on stock status is lacking. |
| Yukon | 2 | The Yukon chum conservation unit involves the upper mainstem Yukon populations. The 2003 return involved improved escapement to the upper Yukon spawning areas due to precautionary fisheries management in both Alaska and Canada and some improvement in run strength that is attributed to increased marine survival. Some recent returns involved below average escapement. |
| Porcupine (Yukon) | 1 | The Porcupine chum conservation unit includes stocks of the Porcupine River drainage, a major tributary of the Yukon River. The 2003 run included improved escapement into the Porcupine system due to precautionary fisheries management in both Alaska and Canada and some improvement in run strength that is likely attributed to increased marine survival. The main indicator stock, Fishing Branch River chum, has been depressed at least since 1997. |

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