

**POST-SEASON REPORT FOR
2009 SOUTHERN BC FISHERIES**

Fisheries and Oceans Canada
January 15th, 2010



DFO-44097

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1 INTRODUCTION

Fisheries in 2009 were conducted according to Annex IV of the Pacific Salmon Treaty. The arrangements contained in Annex IV include those initially agreed to between Canada and the United States in June, 1999 as well as additional agreements reached by the Commission and/or Panels since that time (e.g. Transboundary, chinook, coho and chum arrangements). The conservation-based approach commits the two Parties to abundance-based management for all stocks covered by the Treaty.

Catches reported below provide the best information available to date, and may change once all catch information for 2009 has been reviewed. The catches are based on in-season estimates (hailed statistics), on-grounds counts by Fisheries and Oceans Canada management staff and independent observers, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), and creel surveys, logbooks and observers (sport and commercial).

2 FRASER RIVER SOCKEYE

2.1 OBJECTIVES AND OVERVIEW

The 2009 sockeye run-size forecast at the 50% probability level of abundance was approximately 10.5 million. A majority of the total return (~82%) was expected to be Summer-run sockeye. Pre-season planning indicated harvest opportunities would be available for all fishery sectors if the pre-season run size forecasts materialized.

Pre-season planning incorporated provisions to meet escapement objectives and meet conservation objectives for stocks of concern while considering international and domestic objectives. Although there was significant effort put into developing a pre-season plan for anticipated fisheries there was no bilaterally agreed upon pre-season plan in 2009. Pre-season modelling indicated that achieving each country's share would be difficult considering pre-season model inputs (aggregate run sizes, timing overlaps and diversion rate) as well as escapement and conservation objectives. It was decided that more discussion was needed to occur bilaterally in order to agree on a final plan prior to the initiation of fisheries. Although there was no bilaterally agreed to plan, pre-season planning models included the following assumptions and guiding principles in no particular order:

- In March 1985, the United States and Canada agreed to co-operate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). The U.S. share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was

set at 16.5% as per the PST Annex IV Chapter IV agreement. There were no catch overages of Fraser River sockeye from previous years to address in 2009.

- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE), shall be allocated to management groups as follows: The Early Stuart sockeye exemption shall be up to 20% of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution for the most recent three cycles and modified annually as required to address concerns for Fraser River sockeye stocks and other species and as otherwise agreed by the Fraser River Panel.
- To the extent practicable, the Fraser River Panel (FRP) shall manage the United States fishery to spread the United States harvest proportionately to the TACs across all Fraser River sockeye stock management groupings (Early Stuart, Early Summer, Mid-Summer, and Late Run).
- For 2009 pre-season planning purposes, the FRP agreed to use the 75% probability level of abundance forecast for Early Stuart sockeye and the 50% probability level of abundance forecasts for the other run timings groups;
- That although the capability to assess in-season run size and migration timing would be good for Summer-run and Late-run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks. As a result the harvest impacts on Cultus Lake sockeye would be assessed using other Late-run stocks (excluding Birkenhead and Harrison) as a proxy;
- Birkenhead sockeye do not endure the same migratory conditions as other Late-run sockeye and will therefore be managed to the same ER as the Summer-run with no MA;
- Canada's escapement plan implements escapement requirements that vary with run size for the Early Stuart, Early Summer, and Summer run aggregates, while a 20% minimum exploitation rate limit for Late-run and Cultus sockeye would be implemented; and
- Under 2009 harvest rules for Late-run sockeye, the Total Allowable Catch (TAC) would be incidentally accessed while harvesting other sockeye run timing groups that had surplus returns (e.g. Summer-run TAC).

In past years, Fraser River sockeye spawning targets were based upon a Rebuilding Strategy which was developed in 1987. Due to some shortcomings in this approach, in 2005 the Department adopted a new escapement strategy for Fraser River sockeye known as the Fraser River Sockeye Spawning Initiative (FRSSI). This annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical

analyses with qualitative judgment. The annual exploitation rate targets are adjusted based on expected run sizes and environmental conditions. This escapement strategy has been modified as a result of a series of yearly consultation workshops beginning in the spring of 2006 which continued through 2009. The Department is continuing to seek feedback on this approach and plans are in the works to review model changes and updates via the Pacific Advice Review Committee process (PSARC) as soon as May 2010.

Late-run sockeye have historically delayed in the Strait of Georgia for 4-8 weeks prior to entering the Fraser River. Beginning in 1996, this behaviour has changed to one where there has been a shorter delay and occasionally immediate river entry. Concerns for Late-run early entry and the associated elevated rates of en-route and pre-spawn mortality continue. Management objectives and actions implemented in 2009 placed priority on conserving Fraser River Late-run sockeye (which include Cultus Lake sockeye) by permitting a low exploitation rate (20%) on Late-run stocks while providing anticipated opportunities to harvest expected surplus Summer-run sockeye.

Conservation concerns for other sockeye stocks and species may impact sockeye fisheries in 2009. The following are a list of relevant conservation concerns where specific action may be taken in fisheries to meet conservation objectives: Early Stuart sockeye, Cultus Lake sockeye, Late-run sockeye, Nimpkish sockeye, Sakinaw Lake sockeye, Interior Fraser River coho and Interior Fraser River Steelhead.

2.2 PRE-SEASON ASSESSMENT

In addition to Canada's escapement plan, estimates of run size, diversion rate, run timing and assumptions about in-season environmental conditions are key inputs required to seed the pre-season Harvest Planning Model prior to observing in-season information. The main objective of the model is to identify potential fishing opportunities while attempting to meet conservation, international and domestic objectives.

Run Size Forecasts Used For Planning

Fraser sockeye forecasts are uncertain. Sockeye forecast tables express this uncertainty by providing probability distributions of the forecast ranging between the 10% probability level of abundance and the 90% probability level of abundance. Forecast uncertainty for sockeye has been compounded in recent years due to low and variable observations of marine survival (smolt-to-adult) relative to average. Chilko smolt-to-adult survival rates are used as a proxy for marine survival in Fraser sockeye. This measurement includes a freshwater downstream migration component encompassing the movement of smolts downstream from a counting fence at Chilko Lake to the mouth of the Fraser River. In the 2008 return (2004 brood year) marine survival was estimated to be ~1.8% which is the lowest observation since 1952. Trends in average marine survival are the following: 1948-2008 ~9%, 1990-2008 ~6%. The smolt-to-adult survival in which would be required to produce the 2009 pre-season forecast for Chilko was well below the historical average and below the recent average (~5%).

As outlined in the Pacific Salmon Treaty (PST), the mid-point of the forecast provided by Canada will be used for management purposes unless the Panel adopts a more precautionary or optimistic forecast until in-season updates of run size are available. In 2009, as recommended by the Department of Fisheries Oceans (DFO) science staff, the FRP elected to adopt the 75% probability level of abundance for the Early Stuart run timing group and the 50% probability level for the other aggregates and stocks for planning purposes. The 2009 75% probability forecast for Early Stuart and the 50% probability forecasts for the other three management aggregates including Birkenhead were as follows: Early Stuart 165,000; Early Summer 739,000; Summer-run 8,677,000; and Late-run 907,000, of which 334,000 were Birkenhead type, for a total of 10,488,000 Fraser sockeye. Comparing forecasted stocks with the historic cycle line run sizes averages (1980-2005), the Early Stuart forecast was 32% of average, Early Summers (excluding miscellaneous stocks) 140% of average, Summers 78% of average, Lates (excluding Birkenhead and miscellaneous stocks) 102% of average, and Birkenhead 65% of average. Overall, the 2009 forecasted stocks were 77% of the cycle line average (excluding miscellaneous stocks).

Diversion Rate

The pre-season forecast of the proportion of Fraser sockeye diverting through Johnstone Strait was 32%. The estimate is based on the relationship between the average daily sea surface temperature measured at the Kains Island (Quatsino) lighthouse in May and June and the estimated post-season northern diversion for 1977-2008. The median water temperature at Kains Island for May & June 2009 was 11.0°C, which is very close to the time series median (11.3°C).

Timing Forecasts

The forecast of the 50% date (peak timing) for Early Stuart and Chilko sockeye arriving to the Fraser River (A20) is July 2nd and August 3rd respectively. Forecasting methods use a linear multiple regression model with two predictor variables: 1) Gulf of Alaska eastward current speed (OSCURS) in May, and 2) Gulf of Alaska mean sea surface temperature (SST) in the previous November and December (2008). The primary predictor of timing is the May OSCURS sea current index. The following are the pre-season estimates of timing in Area 20.

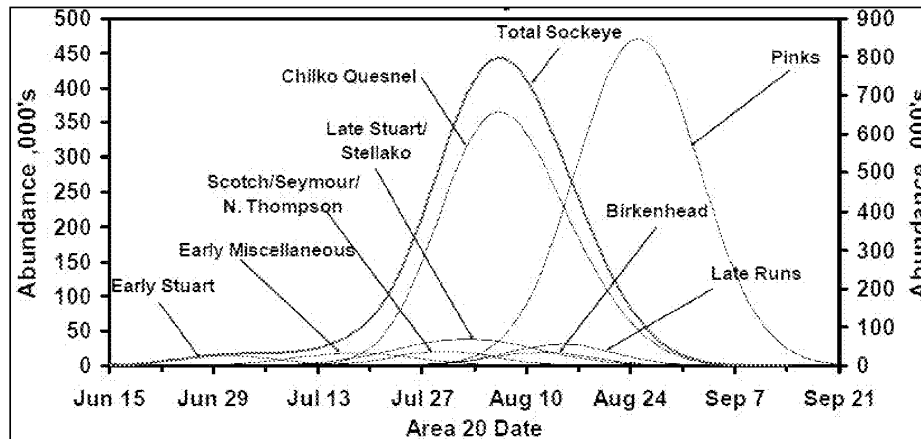
Table 2-1: Timing Estimates Used for Pre-Season Planning in Area 20

| | 2009 Area 20 Timing |
|----------------------|----------------------------|
| Early Stuart | July 2 |
| Early Summers | July 26 |
| Summer-run | August 5 |

| | |
|-------------------|-----------|
| Birkenhead | August 5 |
| True Lates | August 11 |

The following figure graphically illustrates the relative run size forecasts and run timing overlaps expected in 2009.

Figure 2-1: Relative Run Size Forecasts and Run Timing Overlaps Expected in 2009



Environmental Conditions and Management Adjustments

Management Adjustments (MAs) are the addition of fish above the spawning escapement targets for the purpose of increasing the likelihood of achieving the spawning escapement targets. The general concept is that extra fish are allowed to escape upriver of Mission to account for anticipated differences between in-season versus post-season estimates of catch plus spawning escapement which may be due to a number of factors, including (but not limited to): critically high temperatures and/or discharge in the Fraser River, bias in estimates at Mission hydroacoustics and/or spawning ground escapement estimates, unreported catch, escapes from fishing gear, natural mortality, and/or predation. While all of these factors are included in the difference between estimates, the inputs used to estimate MAs are temperature and discharge for Early Stuarts, Early Summer and Summer-run sockeye and the 50% migration timing at Mission for Late-run sockeye.

For the Early Stuart, Early Summer and Summer-runs, MA estimates can be updated in-season as river conditions become known for management purposes. The pre-season MA expressed as a percentage of the spawning escapement goal and the number of sockeye this represents for 2009 pre-season run sizes are outlined below.

Table 2-2: MA Estimates used for Pre-Season Planning in 2009

| | Pre-season Run Size | MA (%) | MA |
|------------------------------|---------------------|--------|-----------|
| Early Stuarts | 165,000 | 59% | 92,000 |
| Early Summers | 739,000 | 42% | 123,000 |
| Summers | 8,677,000 | 7% | 243,000 |
| Birkenhead Type | 334,000 | 0% | 0 |
| True Lates (excl. Bi) | 573,000 | 604% | 2,535,000 |

2009 Escapement Plan

The *Fraser River Sockeye Spawning Initiative* has been a multi-year collaborative planning process to develop a long-term escapement strategy. The annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. A plan is developed every year and is vetted through consultative processes prior to the fishing season. In general the annual exploitation rate targets are adjusted based on expected run size and environmental conditions. The table below outlines the final pre-season escapement plan for 2009.

Table 2-3: 2009 Fraser River Sockeye Escapement Plan – Pre-Season Run Estimates

2009 Fraser River sockeye escapement plan using pre-season run size estimates (in thousands of fish).

| Stock Group | Run Size Estimate of forecasted stocks | Run Size Reference Points | Total Mortality Rate Guideline | Total Allowable Mortality at Run Size | Escapement Target at Run Size | Management Adjustment (a) | Exploitation Rate after MA |
|--|--|---------------------------|--------------------------------|---------------------------------------|-------------------------------|---------------------------|----------------------------|
| Early Stuart | 165 | - 156 390 | 0% 0 - 60% 60% | 5% | 156 | 59% | 92 0% |
| Early Summer | 739 | - 200 500 | 0% 0 - 60% 60% | 60% | 296 | 42% | 123 43% |
| Summer | 8,677 | - 520 1,300 | 0% 0 - 60% 60% | 60% | 3,471 | 7% | 243 57% |
| Birkenhead and Birkenhead-type Lates (b) | 334 | - 420 1,049 | 0% 0 - 60% 60% | 60% | 134 | | 60% |
| true-Late (excl. Birk. Type) | 573 | - 420 1,049 | 20% 20 - 60% 60% | 27% | 420 | 604% | 2535 20 - 60% |
| Cultus | | | | | | | 20% |
| Sockeye Totals | 10,488 <i>Est. Return</i> | | | | 4,476 | | 2,993 |

2.3 IN-SEASON ASSESSMENT

The main challenges facing the FRP in 2009 was the extremely low levels of returning sockeye from all stock groups, with the exception of Harrison River sockeye, compared to pre-season expectations. Also determining the peak of the Early Summer and Summer-runs was difficult due to a protracted multimodal migration in Early Summers and a very flat migration in the Summer-run return. Additional challenges were the delay of Late-run sockeye in the Gulf of Georgia co-migrating with a very large pink return. In addition to the much lower than expected returns of sockeye, near record high temperatures in the Fraser River during the Early Summer and Summer-run migration heightened the concern of not meeting escapement objectives for some stock groups.

Migration and Timing

Determining the peak of the run is important. Timing is informative to models used to estimate run size and is also key to in-season estimates of MA. The following graphs illustrate the protracted multimodal migration for Early Summer-run sockeye and the small flat migration of Summer-runs which made it difficult to estimate the peak of the runs in-season.

Figure 2-2: 2009 Early Summer Sockeye Migration Graph

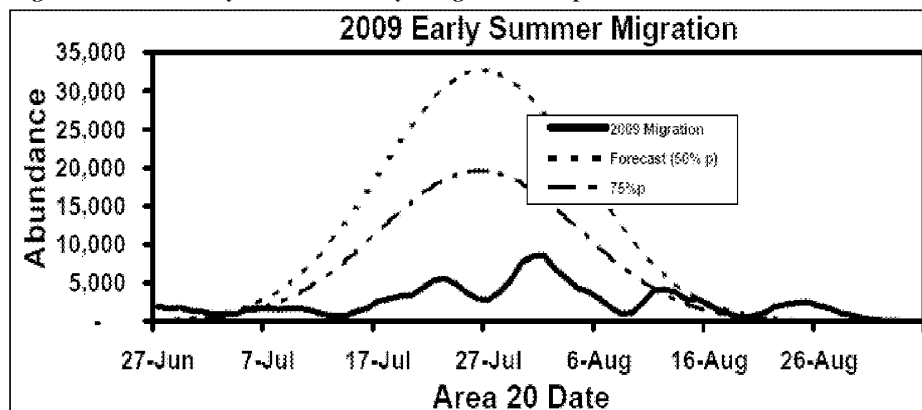
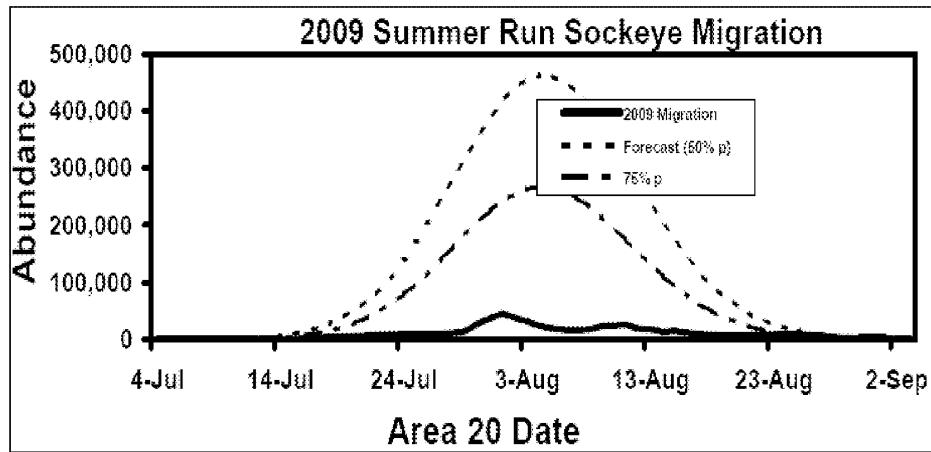


Figure 2-3: 2009 Summer Run Sockeye Migration Graph



As in-season information was made available, it appeared that some runs were either very late or not materializing. In 2005 (the 2009 brood year) the timing was very late and returns that appeared to be very weak relative to expectations early in the season materialized much later on. However, in 2009 there were no indications that the runs were late. The age composition and the expected vs. observed relative stock contributions in test fishery samples were consistent with a weak return, not a late return. The table below illustrates expected age contributions compared to in-season observations. It was fairly clear that the 4₂ component of the return was much lower than expected, and due to the poor return of sockeye in 2008, it was highly unlikely that the low percentage of 4 year olds was due to a higher than expected return of 5 year olds.

Table 2-4: Expected vs. Observed Age Contributions

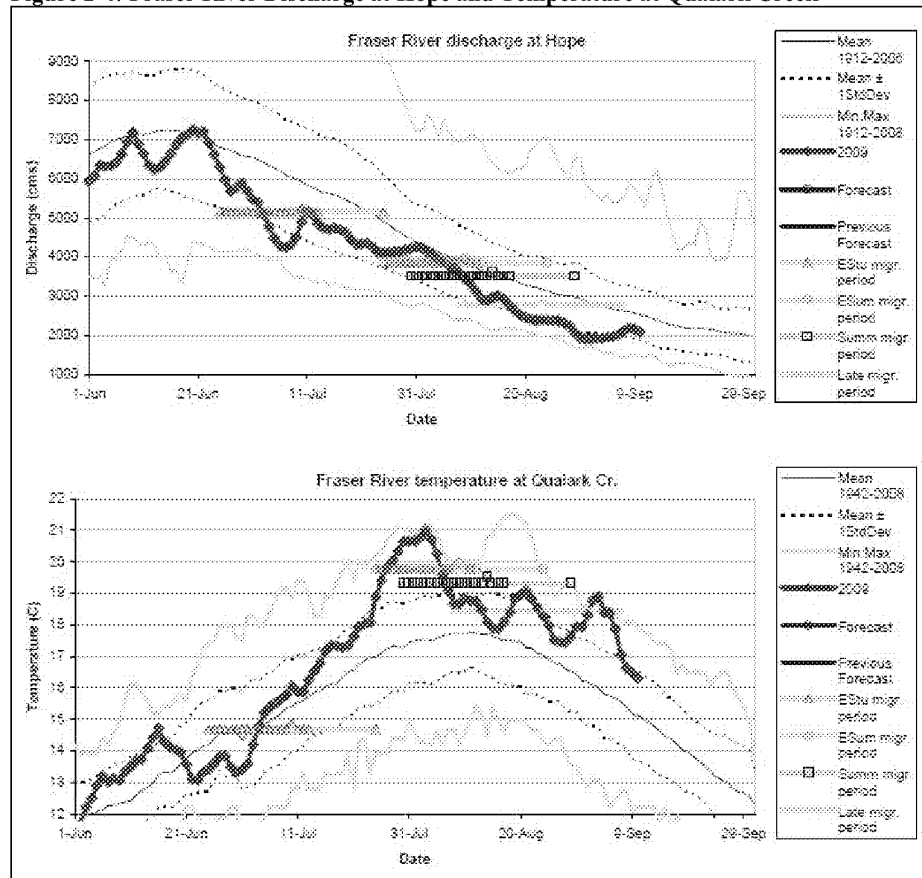
| | Expected | Observed In-season ^a |
|---------------|------------|---------------------------------|
| Early Stuart | 99% | 93% |
| Early Summers | 75% | 43% |
| Summers | 97% | 81% |
| Birkenhead | 67% | 36% |
| Lates | 79% | 49% |
| Total | 94% | 63% |

^a Samples collected in gillnet test fisheries may underestimate 4₂ contributions due to gear selectivity. Also the observed samples are not weighted for passage.

Fraser River Environmental Conditions and MA

In 2009 the Fraser River water temperature was above average for most of the sockeye migration while discharge was lower than average. Temperatures were extreme and near historical maximum observations for significant portions of the Early Summer and Summer-run migration. High water temperatures can cause serious adverse effects on resident and migratory fish, including: increased energy expenditure; reduced swimming performance; increased susceptibility to disease; reduced reproductive success; and mortality. The figures below illustrate observed Fraser River temperatures at Qualark Creek and discharge at Hope as well as the corresponding estimated stock aggregate migration periods.

Figure 2-4: Fraser River Discharge at Hope and Temperature at Qualark Creek



Management Adjustment models use both environmental conditions as well as adjustments to run timing as inputs. The in-season MA for Summer-run sockeye was very sensitive to

changes in timing due to the addition or removal of observed data (used to inform the MA models) in the period of extreme high temperature. If the Summer run timing shifted later by one day, one extreme temperature day on the front end was replaced by a moderate temperature day on the back end and vice versa (See above). In addition, due to the small flat migration observed, the run size and the migration peak of Summer run was highly uncertain in-season. This resulted in MA estimates that were uncertain and sensitive to change in-season.

Late-run Delay

Prior to 1995 a three to six week delay in Late-run migration into the Fraser River was a regular occurrence. Since 1995 Late-run sockeye have been observed entering the Fraser River with little or no delay in most years resulting in large difference between estimates in most years and was associated with elevated levels of pre-spawn mortality in some of the earlier years. In 2009, it was apparent there may be some delay in Late-run migration as escapement projections for Late-run sockeye generated from approach area test fisheries were not being observed at Mission while other stock groups using similar projection methods were being observed at Mission. To confirm the presence of a delay a non-retention Gulf of Georgia troll test fishery was implemented. The in-season estimate of delaying True Late-run sockeye was 100,000. This unexpected pattern of marine delay may result in increased en-route survival of Late-run sockeye in 2009.

Run Size

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission and Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information. The following table highlights a timeline of run size changes that were adopted by the FRP. Changes in run size are bolded.

Table 2-5: Timeline of Run Size Changes Adopted by FRP in 2009

| | Pre-season | Jul-17 | Jul-24 | Jul-28 | Aug-11 | Aug-18 | Aug-25 | Aug-28 |
|-------------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| E. Stuart | 165,000 | 110,000 | 85,000 | 85,000 | 85,000 | 85,000 | 85,000 | 85,000 |
| E. Summer | 739,000 | 739,000 | 264,000 | 150,000 | 175,000 | 175,000 | 175,000 | 175,000 |
| Summer | 8,677,000 | 8,677,000 | 8,677,000 | 8,677,000 | 600,000 | 700,000 | 650,000 | 650,000 |
| Birkenhead | 334,000 | 334,000 | 334,000 | 334,000 | 334,000 | 100,000 | 60,000 | 60,000 |
| Harrison | 69,000 | 69,000 | 69,000 | 69,000 | 69,000 | 200,000 | 200,000 | 200,000 |
| L. Lates | 573,000 | 573,000 | 573,000 | 573,000 | 573,000 | 450,000 | 450,000 | 400,000 |

It should be noted that the significant decreases in in-season run sizes eliminated any Total Allowable Catch (TAC) that was identified pre-season for most groups with the exception of a small amount of TAC available for a short period of time between August 21st and August 25th for Summer-run sockeye. During this time an estimated 52,800 Summer-run sockeye TAC was identified as a result of a change to the Summer-run proportional Management Adjustment (pMA) from .32 to .21. There was a great deal of uncertainty with the Summer-run run size, timing and the MA at this time and as more information became available in the

coming days the run size was downgraded from 700,000 to 650,000 and the pMA increased to .28 from .21 which eliminated the Summer-run TAC on August 25th.

The final 2009 in-season estimates of run size were much lower than the pre-season forecasts for the management aggregates and Birkenhead. All aggregates were well below the 90% probability abundance forecast with the exception of the Late-run (excluding Birkenhead) which was estimated to be higher than the 75% probability abundance forecast. This can mostly be attributed to the good return of Harrison River sockeye which was estimated to have returned above the 25% probability abundance forecast. Preliminary results from the 2009 Harrison return indicate that the 3 year old age class (2007 ocean entry year) is strong relative to expectations and the 4 year old age class returned poorly relative to expectations. Harrison River sockeye are unique in that they have a different life history (they are immediate migrants and do not reside in a freshwater lake for 1 year or more) relative to other Fraser sockeye stocks.

Table 2-6: Pre-Season Forecasts vs. Final In-Season Estimates

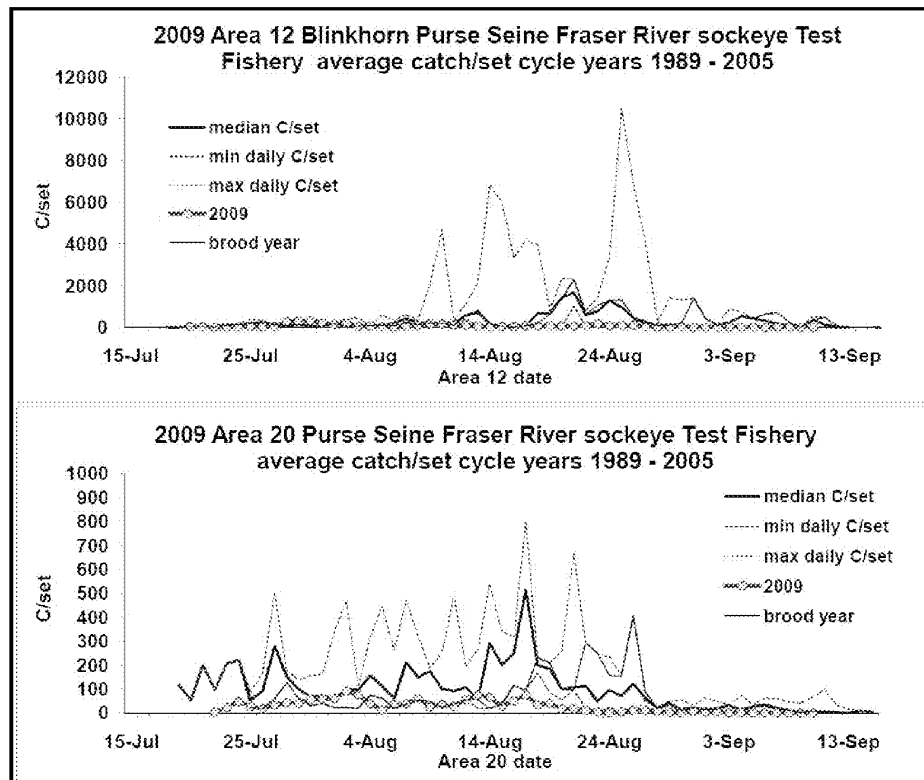
| Run | Pre-Season Forecast | | | Final In-Season Estimate (Sep 23) |
|--------------|---------------------|------------------|------------------|-----------------------------------|
| | 50% Probability | 75% Probability | 90% Probability | |
| Early Stuart | 255,000 | 165,000 | 107,000 | 85,000 |
| Early Summer | 739,000 | 443,000 | 264,000 | 175,000 |
| Summer | 8,677,000 | 4,914,000 | 2,858,000 | 650,000 |
| Birkenhead | 334,000 | 194,000 | 130,000 | 60,000 |
| Harrison | 69,000 | 46,000 | 33,000 | 200,000 |
| L.Late* | 504,000 | 277,000 | 164,000 | 200,000 |
| Total | 10,578,000 | 6,039,000 | 3,556,000 | 1,370,000 |

*Excluding Birkenhead (which includes Big Silver, Cogburn, Poole, Samson, Railroad, Green R., Douglas) and Harrison

Diversion Rate

The diversion rate of sockeye through Johnstone Strait was higher than forecast and was estimated to be ~44% in 2009. Diversion rate can have significant impacts on harvest opportunities of marine fisheries. The figure below describes 2009 test-fishery CPUE compared to historical CPUE in both approach areas over time.

Figure 2-5: Test Fishery Average Catches in Area 12 and Area 20



2.4 FISHERIES

There were no directed sockeye openings for commercial or recreational fisheries in Canada or the United States in 2009. In Canada, a significant proportion of Fraser sockeye were captured as by-catch in FSC fisheries directed at other species. As well, there were limited FSC fisheries directed on Fraser sockeye, during a short period of time. A small number of sockeye were retained in US Treaty Indian ceremonial and subsistence (C&S) fisheries.

The table below outlines final in-season estimates of Fraser River sockeye catch in Canada and the US. Not included in the table is by-catch mortality associated with releases of sockeye in FSC, commercial and recreational fisheries directed at other species.

Table 2-7: Final In-Season Estimates of Fraser River Sockeye Catch in Canada & US

| | |
|---|----------------|
| Total Fraser Sockeye Caught * | 107,080 |
| Test fisheries (incl. Albion and Qualark) | 34,033 |
| Canadian Catch | 68,850 |
| Canadian First Nation FSC fisheries- Marine | 9,920 |
| Canadian First Nation FSC fisheries- Fraser | 58,930 |
| Canadian commercial fisheries (includes commercial selective & FN economic) | 0 |
| Canadian recreational fisheries | 0 |
| | |
| United States Catch | 4,200 |
| U.S. non-Treaty Indian fisheries | 0 |
| U.S. Treaty Indian ceremonial fisheries | 4,200 |

* Catch as of November 4th, 2009.

Total Allowable Catch

Pre-season TAC for sockeye was calculated using pre-season information such as pre-season run size forecasts and escapement goals. International sharing also took into account the Fraser River Aboriginal Fisheries Exemption (AFE), anticipated test fish catch as well as expected Management Adjustments (MA) for the run timing groups. Fisheries would not likely be initiated until in-season assessments provided updates to the pre-season information used to determine the TAC for each country. It should be noted that the TAC available for Late-run would not be accessed directly. In 2009 the Late-run TAC would be caught incidentally when fisheries were to be directed at other run timing groups that would have available TAC, such as the Summer-run. Unfortunately, in-season information indicated that there was no TAC available for the other run timing groups early on in the migration so the Late-run TAC could not be accessed. The following table describes changes to the anticipated TAC as in-season information was made available as well as the final in-season catch by aggregate.

Table 2-8: Final In-season Estimates of Fraser River Sockeye Catch in Canada and US

| | Pre-season TAC | Final In-season TAC | Final In-season Catch |
|---------------------|---------------------------|--------------------------------|----------------------------------|
| Early Stuart | 10,000 | 0 | 8,590 |
| Early Summer | 316,800 | 0 | 18,840 |
| Summer-run | 5,155,600 | 0 | 59,340 |
| Birkenhead | 198,500 | 10,500* | 3,970 |
| Late Lates | 112,600 | 74,000* | 16,370 |
| Total | 5,793,500 | 84,500* | 107,100 |

* note: BK & LL TAC are identified for the purpose of pursuing fisheries on more abundant Summer run stocks, and not for fisheries targeted on BK or LL

The following table outlines the final in-season TAC and catch for each country as of September 23, 2009. Note the table does not include release mortalities associated with fisheries directed at other species.

Table 2-9: Final In-Season TAC and Catch as of September 23, 2009

| | Early Stuart | Early Summer | Summer- run | Birken- head | Late Lates | Total |
|------------------------------------|-------------------------|-------------------------|------------------------|-------------------------|-----------------------|---------------|
| Test Fisheries ^a | 1,940 | 5,520 | 15,760 | 1,580 | 7,340 | 32,140 |
| US Catch | | | | | | |
| Commercial | 0 | 0 | 0 | 0 | 0 | 0 |
| C&S | 0 | 480 | 2,080 | 660 | 990 | 4,210 |
| US Total | 0 | 480 | 2,080 | 660 | 990 | 4,210 |
| US TAC | 0 | 0 | 0 | 0 | 0 | 0 |
| CDN Catch | | | | | | |
| Commercial | 0 | 0 | 0 | 0 | 0 | 0 |
| Recreational | 0 | 0 | 0 | 0 | 0 | 0 |
| Other ^b | 60 | 260 | 1,260 | 60 | 260 | 1,900 |
| FSC | 6,590 | 12,580 | 40,230 | 1,670 | 7,780 | 68,850 |
| CDN Total | 6,650 | 12,840 | 41,490 | 1,730 | 8,040 | 70,750 |
| CDN TAC ^c | 0 | 0 | 0 | 10,500 | 74,000 | 84,500 |

^a Panel approved test fisheries

^b Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark)

^c BK & LL TAC are identified for the purpose of pursuing fisheries on more abundant Summer run stocks, and not for fisheries targeted on BK or LL

Fraser Sockeye Exploitation Rates

Due to the low return of Fraser sockeye in 2009, considerable efforts were made in-season to reduce fishing impacts on migrating sockeye while providing some opportunity for First Nations to harvest other salmon species, and in some cases, sockeye for FSC or C&S purposes. Although the return of sockeye was unexpectedly low, a considerable proportion of the total sockeye return migrated to terminal spawning areas. The in-season estimate of exploitation rate was the lowest recorded in the recent historical record (1952-2009) for Fraser sockeye and is estimated to be ~8% in 2009.

The table below outlines potential exploitation rates based on 2009 TAM rules and pre-season and in-season information as well as the actual observed preliminary post-season estimate of exploitation rates by aggregate and in some cases stock.

Table 2-10: Potential Exploitation Rates

| | pre-season * | in-season TAM+MA ** | prelim. post-season |
|----------------|--------------|------------------------|------------------------|
| E. Stuart | 0% | 0% | 10% |
| E. Summer | 43% | 0% | 11% |
| Summer | 57% | 0% | 9% |
| Birkenhead *** | 60% | 20% | 7% |
| Late Lates *** | 20% | 20% | 4% |
| Cultus *** | 20% | 20% | < 3% |

* Pre-season allowable exploitation rates are based on the 2009 Total Allowable Mortality (TAM) rules developed in the FRSSI process

** In-season allowable exploitation rates are based on the final in-season run size, MA and the 2009 TAM rules

*** Birkenhead, Late Lates and Cultus exploitation rates for the purpose of catching available Early Summers and Summer-run sockeye- not for targeting fisheries on Late-run groups

2.5 POST-SEASON

Sockeye Migration and Escapement Estimates

Fraser River water temperatures were extreme for much of the Early Summer and Summer-run migration while Fraser River discharge was below the historical mean for most of the sockeye migration. Fraser River temperatures exceeded levels that are thought to have impacts on fish health and migration ($>18.0^{\circ}\text{C}$) and approached levels that are thought to be lethal to sockeye ($\sim 21.0^{\circ}\text{C}$) for a short time period at the end of July. Conditions on the spawning grounds were reported as good with the exception of some low water conditions observed in the South Thompson and Quesnel watersheds. Low water levels were reported to be restricting or limiting access to the spawning grounds in some cases; however, there were no reports of any significant delay to any of the major tributaries that experienced low water conditions in 2009. Other reports from stock assessment staff indicated that fish health on the spawning grounds was good and there were no reports of significant pre-spawn mortality observed in any systems in 2009. The table below outlines preliminary escapement information to date relative to the escapement goals at the final in-season run sizes. A summary of preliminary spawning ground assessments for Summer-run, Birkenhead and Late-run sockeye will be available in January, 2010.

Table 2-11: Preliminary Escapement Information to Date

| Management Group | Escapement Goal at final in-season run size | Potential Spawning Escapement Target ^a | Projected Escapement ^b | Preliminary Spawning Escapement ^c | Pre-Spawn Mortality (PSM) ^c |
|--------------------------------|--|--|--|---|---|
| Early Stuart | 85,000 | 76,410 | 55,370 | 45,327 | 5.0% |
| Early Summer | 175,000 | 156,160 | 97,600 | 103,716 | 4.6% |
| Summer-run | 520,000 | 590,660 | 461,450 | 482,819 | 0.7% |
| Birkenhead ^d | 48,000 | 56,030 | 56,030 | — | — |
| Late-run | 320,000 | 383,630 | ^e | — | — |
| Total | 1,148,000 | 1,262,890 | — | — | — |

^a Potential spawning escapement = total run size minus catch-to-date.

^b Projected Escapements = (run size- catch)*(1-projected DBE)

^c As of December 1st 2009

^d Includes other Birkenhead type stocks

^c pMA and DBE estimates are available only for non-Harrison component of Late run, and so are unavailable for Late-run aggregate.

Payback

The U.S. share shall be adjusted annually for harvest overages and underages in accordance with annual guidance provided by the Commission.

3 SOMASS RIVER SOCKEYE

3.1 OBJECTIVES AND OVERVIEW

Harvest rates for Somass River sockeye stocks are proportional to abundance. Harvest rates range from 8% at the lowest fishable return of 200,000 up to 67% at the highest historic return of 1.8 million. The objectives of this management plan include:

- to provide an interim lower bound to harvesting;
- to provide contrast in escapement levels to learn more about the potential productivity of the stocks;
- to provide more consistent fishing opportunities with reduced annual variability of catch;
- to ensure First Nations food, social, and ceremonial (FSC) requirements are met;
- to provide predictable sport fishing opportunities even when returns are low;
- to provide opportunities to commercial fishing sectors according to harvest gear allocations given the forecast return;
- to recover in-season assessment (test-fishing) costs.

When developing fishery plans, an additional objective is to provide consideration for stocks of concern. For 2009, wild WCVI chinook and B. C. Interior coho stocks were again forecast to be at low levels. Actions were required to ensure that Area 23 sockeye fisheries did not negatively impact these stocks. In addition, there is growing concern over the status of Henderson Lake sockeye, which are potentially harvested in Barkley Sound sockeye fisheries. The provincial government has also expressed concern for a number of years over by-catch of steelhead in the net fisheries.

In 2008, the pre-season forecast return of Somass sockeye was 150,000; significantly below the fishable threshold. As a result, no Barkley Sound sockeye fisheries for First Nations nor other stakeholders were planned in 2008. The sockeye return was monitored in-season which was consistent with previous years; weekly estimates of abundance were generated. All of the in-season reforecasts indicated a return consistent with expectation which afforded no fishable surplus.

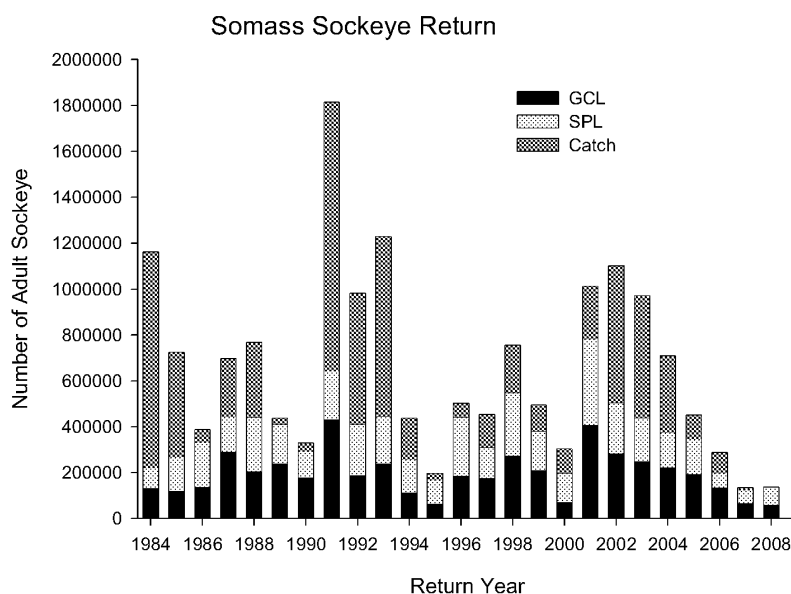


Figure 3.1 Annual estimates of Somass sockeye catch, and return to Great Central Lake (GCL) and Sproat Lake (SPL) by return year.

3.2 FIRST NATIONS FISHERIES

Barkley Sound sockeye are harvested by Nuuchahnulth First Nations resident in Barkley Sound and Alberni Inlet and also by bands from other areas on the West Coast of Vancouver Island. Under the Somass River Sockeye Management Plan, the expected catch in this fishery is 20,000 sockeye, which does not account for catch by Hupacasath and Tseshahat whose allocation has in the past been covered by the Tsu ma uss Economic Opportunity Fishery. Excluding the Tseshahat and Hupacasath First Nations fishing is primarily done by seine boats, either band owned or contracted, and through some gill netting and a minor amount of hook and line effort. Reporting for seine caught fish is generally believed to be good, while for gill net and hook and line catch it is poor. In 2009, the total estimated catch for food, social and ceremonial purposes for all Nuuchahnulth First Nations was 21,907 sockeye (13,013 SK Barkley Sound, 8894SK Muchalaht Inlet).

Tsu ma uss Economic Opportunity Fisheries

In 2009 the Somass First Nations starting fishing sockeye in mid May. During the May fishery fishing occurs throughout the week but catches are generally low during this period. Commencing June 01 Somass First Nations invoke their weekly fishing plan. This plan includes a 48 hour gill net opening, from noon Sunday to noon Tuesday and drag seining fishing at Papermill Dam Thursday (Hupacasath), Friday, Saturday and Sunday (Tseshahat). This fishing pattern continue until June 28th. The Tseshahat and Hupacasath First Nations did not fish from June 29 – July 04. This voluntary closure was in response to a request for First

Nations to reduce their catch rate. The gill net fishery started again on Sunday July 05, and continued until July 27. Fishing effort and catches declined significantly after July 12 primarily due to environmental conditions. The 2009 total estimate sockeye catch for Somass First Nations 55,640.

3.3 RECREATIONAL FISHERIES

The recreational fishery for Somass Sockeye occurs in Alberni Inlet. In 2009 the recreational fishery commenced June 15 and daily limits remained at 2 sockeye until July 03. The daily limit was increased to 4 in response to the July 2nd in-season forecast increased. The recreational fishery remained at full limits throughout the fishery. The recreational catch estimate for June 15 to August 15 was ~ 55,600 sockeye (~51,100 Alberni Inlet + 4500 Somass River (Papermill Dam)). Catches in the sockeye fishery were higher than would be expected for the forecasted run size.

3.4 COMMERCIAL FISHERIES

Fishing Plan Development

Commercial fishing sector advisors held pre-season meetings with the local fishery managers to discuss potential fishing opportunities in 2009. The commercial sockeye net allocation is split between seine (60%) and gill nets (40%). The commercial TAC is derived from the Somass sockeye harvest strategy. Based on the preseason run-size estimate of 350,000 there was no commercial TAC identified during pre-season discussion but fisheries may occur if the July 02 in-season run size reforecast indicated a larger return than the pre-season forecast. If TAC was available as a result of the July 02 in-season run size reforecast fishing plans would be developed during the July 02 Area 23 Salmon Harvest Committee meeting.

Annual Considerations

In mid to late July and early August, commercial fishing was restricted to the upper Alberni Inlet due to concern regarding presence of weak stocks, such as Henderson Lake sockeye, in the 'outside' Barkley Sound fishing areas.

Weekly fishing plans are designed to provide maximum probability of each gear type achieving their catch target while providing minimal interference with other fishing groups. In-season conference calls were used to develop fishing plans in the following weeks.

Starting in 2002, the harvest plan developed for the seine fleet departed significantly from previous years when the Barkley seine fishery was open to all Area B seines boats when the seine TAC exceeded 100,000. Typically, this fishery usually occurred after mid-July once the department had confirmed the run-size. However, in 2002, a pool-type fishery was organized by industry. Under this regime, the number of vessels designated to fish in Barkley Sound each week is dependent on the seine catch target for that week. By limiting vessels the fishery manager has a better control of catch. This allows the seine fleet opportunity for Barkley

sockeye at lower run sizes and earlier in the season. Seines are required to count the sockeye as they are caught and also to have their catch validated at landing.

Measures to minimize the impacts on coho, chinook and steelhead stocks in the sockeye commercial fishery include:

- Non-retention of coho, steelhead (and chinook once local adults were expected to be in the area).
- No net fishing seaward of a line from Aguilar Point to Sanford Island to Swale Rock to Howard Point.
- Daylight fishing only for gill nets in Barkley Sound – until the fishery is restricted to Alberni Inlet
- Maximum gill net soak time of 1 hour
- Mandatory use of revival tanks while fishing
- Brailing of all seine sets
- Limited onboard monitoring program (DFO funded)
- Mandatory logbooks with daily hail-in requirements

Commercial Harvest

In 2009 commercial net opportunities for sockeye in Area 23 were not determined until the first in-season run size reforecast on July 02. As a result of the July 02 in-season forecast increase to 450,000 commercial seine and gill net fishery were scheduled to harvest the available TAC. A one day gillnet opening on July 07 and a 2 day seine opening on July 7th and 8th. 22 gill net vessels participated in the opening harvesting 4695 sockeye. 2 Area B seines harvested 6500 sockeye. On July 23 the in-season forecast was increased to 500,000. A second gill net opening occurred on July 24th and 25th with 15 gill net vessels harvesting 4518 sockeye. The total Area D gill net sockeye catch for the season was 9213 sockeye. Two Area B seines commenced fishing on Sunday July 26. The fishery was completed on Monday afternoon. The total catch for the 2 vessels was 8,539 sockeye. The total seine catch for the season was 15,039.

3.5 STOCK STATUS

The estimated total return of Somass sockeye in 2009 was approximately 480,000, which although below the long term average of 760,000 was greater than pre-season expectations and an improvement over recent years. The preliminary escapement estimate to the Henderson system is approximately 20,000 sockeye, also a significant improvement over recent years. Information from other sockeye stocks on the WCVI is limited. However, continuing low numbers of spawners have been observed in the Kennedy Lake population as well as other WCVI sockeye populations, such as Hobiton Lake.

4 SOUTHERN BC MAINLAND PINKS AND FRASER RIVER PINK

4.1 FRASER RIVER PINK

The 2009 50% probability forecast and escapement goal for Fraser pink salmon was 17,535,000 and 6,000,000, respectively. The final in-season run size estimate for Fraser River pink salmon was 19,500,000 which is near the 25% probability level of abundance forecast.

The U.S. share of the annual Fraser River pink salmon TAC, harvested in the waters of Washington State is set at 25.7% as per the PST Annex IV Chapter IV agreement.

In 2009 there were concerns expressed by Canada and the US around sockeye by-catch in directed pink fisheries as there was no TAC available for sockeye when pink fisheries were anticipated. The Parties were unable to come to agreement on a single method for determining when Pink directed fisheries could begin. As such, the Parties both stated their rule for starting Pink fisheries and the PSC assessed their fishing plans against each Party's stated rules. The US proposed a 5% stock composition rule, that is, that their fisheries could begin when the abundance of Fraser sockeye in the area where the Pink fisheries would occur was below 5%. Canada proposed a 1% mortality rule in order to implement directed pink fisheries, that is sockeye stock composition and sockeye by-catch release mortality rates were assessed to ensure overall mortality was <1% . The rule was calculated by gear type and area and can be described by the following:

$$\text{Release Mortality}_{\text{gear}} \times \text{Sockeye/Pink Ratio}_{\text{area}} < 1\% \text{ Mortality}_{\text{sockeye, gear, area}}$$

The sockeye/pink ratio can be defined as sockeye/sockeye+pink and was generally determined by taking the most recent three day average of the ratio by area observed in test fisheries. The following outlines the sockeye release mortality by gear type used in 2009.

Table 4-1: Sockeye Release Mortality by Gear Type Used in 2009

| | |
|-------------|-----|
| Seine | 25% |
| Troll | 10% |
| Gillnet | 60% |
| Reefnet | .5% |
| Beach Seine | 5% |

For the Parties to work towards achieving their share of pink salmon in directed pink fisheries, all commercial fishers were required to release all sockeye with the least possible harm. The exception was the US Treaty Indian Fisheries where harvesters were allowed to keep sockeye by-catch for C&S purposes. Due to these special circumstances, this fishery required timely reporting of catch in order to confirm sockeye impacts were at expected low levels.

Although the shares by both parties were not achieved, effort and catch was high in comparison to recent years due to the lack of sockeye opportunities, new directed pink opportunities, a high abundance Fraser pinks, and an unusually high abundance of non- Fraser pinks in 2009. However, concerns for by-catch, market conditions and a low diversion rate through the northern entry in late August reduced additional harvest opportunities. The table below outlines preliminary Fraser pink catch estimates in Canada and the United States in 2009.

Table 4-2: Preliminary Fraser Pink Catch Estimates in Canada and US in 2009

| | |
|---|------------------|
| Total Fraser Pink Caught * | 4,302,150 |
| Test fisheries (incl. Albion and Qualark) | 19,440 |
| Canadian Catch | 1,556,480 |
| Canadian commercial fisheries (includes commercial selective & FN economic and demonstration fisheries) | 1,442,840 |
| Canadian First Nation FSC fisheries | 11,860 |
| Canadian recreational fisheries | 101,780 |
| United States Catch | 2,726,230 |

* Fraser pink catch as of January 5th, 2010.

The final estimate of escapement in recent years is calculated as the final run size minus catch (spawning ground estimates for pink salmon have not been undertaken since 2001). The net escapement for the 2009 return was 15,225,000 pink salmon. The next odd year pink run forecast will be based on a fry estimate assessment program that will be conducted in the spring of 2010.

4.2 SOUTHERN BC MAINLAND PINKS

This was the off cycle year for Mainland Inlet pink salmon. Expectations for 2009 were highly uncertain due to extremely variable returns throughout the historic time series. The survival trend for the 2007 returns was up slightly from the previous brood year in 2005. However, preliminary assessments in 2009 are showing some significant improving trends in off-cycle pink salmon returns in some areas. The better than expected returns to the Glendale

River allowed for a small directed pink salmon gill net fishery in lower Knight Inlet in the Glendale River area.

The objective for managing these stocks was to meet target escapement levels. If surpluses were identified, then fisheries could be conducted terminally. The fisheries that occurred were structured to minimize the by-catch of non-target species and following the domestic sharing arrangements set out in the IFMP.

As in 2008, the assessment plan entailed extensive visual coverage of the key Area 12 Mainland Pink systems with a focus on improved escapement and smolt studies. Flights over the Phillips River in Area 13 were also conducted in 2009.

Pink catch and release information from all fisheries can be found in Appendix 2.

4.3 FIRST NATIONS

First Nations fishing opportunities for pink salmon were not restricted; however, there was little to no directed pink harvest in terminal areas this year. There is normally very little effort on Mainland Inlet pinks in terminal areas due to the availability of fishing opportunities in other more desirable locations such as Johnstone Strait.

4.4 RECREATIONAL

Recreational effort on Mainland Inlet pink stocks in the terminal areas is traditionally very low. Pinks are open year round at 4 per day, minimum 30 cm in size. In 2009, there are no mainland pink catch estimates due to budgetary constraints but catches in this area are typically low. The recreational catch of pink salmon in Johnstone Strait on mixed pink stocks is 13,960.

Non-Tidal Sport

There were no targeted pink fisheries in non-tidal waters on Mainland Inlet pink stocks.

4.5 COMMERCIAL

The Glendale River area (12-27 to 12-29) was open to commercial gill net, seine and troll beginning Monday August 31. There was no seine or troll interest in the opportunity; only three gill net vessels participated for a catch of 746 pinks. The area closed on Friday September 4. No further commercial opportunities occurred.

4.6 STOCK STATUS

A fairly cautious approach to the in-season management was employed for 2009 due to the high variability in the returns encountered over the recent years for these stocks. In keeping

with plans for this year, there were very limited commercial fisheries on Mainland Inlet pinks. Preliminary assessments of the pink returns to the Mainland Inlet systems demonstrated generally higher returns in relation to the 2007 brood year. Preliminary 2009 pink escapement estimates for some key systems in the Area 12 Mainland Inlets are: Kakweiken –270,000 (36,850 brood), Glendale –297,000 (264,227 brood), Ahnuhati –9,200 (4,926 brood), Kingcome (index clear tributaries) –350 (175 brood) and Wakeman (index clear tributaries) –1,400 (739 brood). These estimates are preliminary and are subject to change pending further post season analyses.

In 2009, better than expected pink returns were seen in a number of areas including the Mainland Inlets.

5 SOUTHERN BC AABM CHINOOK

5.1 OBJECTIVES AND OVERVIEW

Chinook fisheries are managed by either an AABM (aggregate abundance-based management) or ISBM (individual stock-based management) regime. Allowable harvest impacts in AABM areas are determined by provisions in the Pacific Salmon Treaty (PST) and subject to domestic considerations, such as conservation and allocation. In Southern BC, all AABM chinook fisheries are located off the WCVI, including components of the recreational fishery, First Nations fisheries, and the WCVI Area G troll fishery.

For the period October 2008 through September 2009, the forecast chinook abundance index was 0.72 of the PST base period. Therefore, under treaty provisions, the maximum allowable catch was 107,800 chinook for WCVI AABM fisheries; an overall 30% reduction consistent with the new treaty provisions that came into effect in January 2009. Further considerations for managing chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS), and early-timed Upper Fraser River chinook and Interior Fraser coho populations.

Ocean fisheries in Canada that intercept WCVI origin chinook are limited to a 10% exploitation rate, even if PST provisions allow for a higher catch. Management measures are in place to reduce the impact of fisheries on WCVI chinook while still providing harvest opportunities.

Additional efforts were made in 2009 to reduce the marine harvest rate of fisheries that intercept a number of low status chinook populations. Further constraints in the form of time and area limits were introduced in the troll fishery to protect early timed Upper Fraser chinook stocks.

AABM chinook catch and release information from all fisheries can be found in Appendix 3.

Table 5-1: Pre-Season and Post-Season Total Allowable and Preliminary Catch Estimates for October 2008 - September 2009 WCVI AABM Chinook

| | Pre-Season | Post-Season |
|-----------------------------|---------------------------|----------------|
| WCVI AABM Abundance Index | 0.72 | under review |
| WCVI AABM Chinook TAC | 107,800 | under review |
| Offshore Recreational Catch | 50,000 | 68,916 |
| First Nations Catch | 5,000 | 3,381 |
| Area G Troll Catch | 52,800^a | 53,191 |
| Total AABM Catch | | 125,488 |

^a The total Area G troll TAC is calculated as the difference between the WCVI AABM chinook TAC less offshore recreational catch and First Nations catch. For 2009, this resulted in a reduction to the Area G troll TAC to comply with the 2008 PST.

5.2 RECREATIONAL

Fishing regulations in WCVI recreational AABM areas include barbless hook requirements to lower post-release mortality on sub-legal size chinook (less than 45 cm), and a daily limit of two chinook. Additional conservation measures include the '77 cm maximum size limit', imposed in those portions of Areas 124-127 that lie shoreward of a line drawn 1-mile seaward of the surfline. This area is commonly referred to as the 'Chinook corridor', and is in place to protect migrating WCVI origin chinook. In 2009, in the area seaward of the 'Chinook corridor' recreational harvesters were permitted to retain 2 chinook per day with no maximum size limit while in the 'Chinook Corridor' recreational harvesters were permitted to retain 2 chinook between 45 and 77 cm in length per day.

Catch in the WCVI recreational fishery is estimated through a creel survey, which collects effort (number of boat trips), and catch per unit effort (CPUE) data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

Total recreational catch and release in the 2009 WCVI AABM fishery was approximately 68,775 and 35,584 chinook, respectively, during the survey period (June-Sept). There was some additional catch during winter fisheries that occurs in near-shore areas. However, catch

was very low in the winter period because inclement weather deters anglers. Overall, previous sampling has indicated that there is virtually no effort during this period.

Figure 5-1: Recreational WCVI Chinook AABM Catch and Effort, 1995-2009

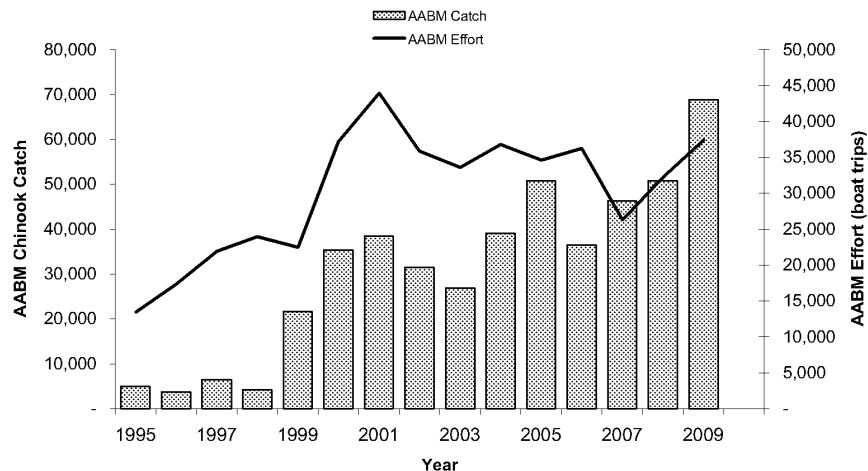


Table 5-2: Estimated WCVI Recreational AABM Effort, Chinook Catch, and Chinook Releases by PFMA, 2009

| Area | | AABM Effort (Boat Trips) | AABM Chinook Catch | AABM Total Chinook Releases |
|----------|--------------------|-----------------------------|--------------------------|-----------------------------------|
| | Port Renfrew (21) | 184 | 202 | 53 |
| | Alberni Inlet (23) | 10,747 | 68 | 17 |
| | Barkley Sound (23) | 6,863 | 10,125 | 8,419 |
| | Clayoquot (24) | 436 | 21 | 95 |
| | Nootka (25) | - | - | - |
| | Kyoquot (26) | 7 | - | - |
| | Quatsino (27) | 218 | 46 | 80 |
| Offshore | Area 121 | 2,449 | 7,691 | 2,320 |
| | Area 123 | 5,917 | 26,837 | 12,544 |
| | Area 124 | 2,751 | 10,084 | 8,566 |
| | Area 125 | 3,236 | 5,765 | 1,658 |
| | Area 126 | 1,595 | 3,530 | - |
| | Area 127 | 2,952 | 4,406 | 1,833 |
| WCVI | Total | 37,353 | 68,775 | 35,584 |

5.3 FIRST NATIONS

The 2009 First Nations AABM chinook catch was estimated to be 3,381.

5.4 COMMERCIAL

After the completion of the 2009 CTC chinook model calibration, the AABM Canadian allowable harvest was 107,800. It was anticipated that the FSC harvest would be 5,000; and that the recreational catch would be 50,000, leaving 52,800 available to plan for commercial harvest by Area G troll.

For the 2008/2009 chinook year, fisheries continued to be shaped by conservation concerns for the following domestic stocks: early-timed Fraser River chinook, Interior Fraser River coho, WCVI origin chinook salmon, and LGS chinook. As well, additional management measures were introduced in-season to protect spring and summer-run Fraser River chinook stocks that were observed to be returning at very low levels. The following management measures were used to protect these domestic stocks:

- **October to March period**

During the period from October 1 to March 15, a harvest was limited to no more than 20% of the Area G annual TAC based on the preliminary forecast.

- **March 16 to April 19 period**

For the 2008/09 year, a full time-area closure was maintained from March 15 to April 20 to avoid interception of early-timed Fraser chinook.

- **Late April/mid June period**

During the period from April 20 to June 15, a harvest of no more than 40% of the Area G annual TAC was allowed. In addition, effort was limited to recent year averages, and areas of SWVI were closed until May 15 (partial openings from May 2-15) in order to avoid interception of early-timed Fraser chinook.

- **June 16 to July 31 period**

For the 2008/09 year, a full time-area closure was maintained from June 16 to July 31 to avoid interception of spring/summer run Fraser chinook.

- **August period**

During the August period, a harvest of no more than 20% of the Area G annual TAC was recommended based on the PST chinook model calibration and assigned harvest levels for the outer WCVI area. In addition, the fishery was managed to minimize mortality on wild coho through: i) a maximum interception of coho and ii) the mandatory use of large plugs. As well, the fishery was managed to minimize mortality of WCVI origin chinook through the use of closures during time and near shore areas where WCVI chinook stocks were prevalent.

- **September period**

During the September period, a planned harvest of 20% of the Area G annual TAC is recommended based on the PST chinook model calibration and assigned harvest levels for the outer WCVI area. The harvest level may increase if there is available remaining WCVI AABM TAC after accounting for First Nation and recreational fisheries. Any harvest opportunities prior to September 15 must be managed to avoid interception of coho and WCVI origin chinook. After September 15, retention of adipose fin clip (AFC) hatchery origin coho would have been permitted however during the 2008/2009 season there was no available WCVI AABM TAC thus no commercial troll fishery occurred.

For all troll fisheries, selective fishing practices were mandatory, including single barbless hooks and revival tanks for resuscitating non-retention species prior to release.

Since 1999, a major objective for the management of the WCVI troll fishery has been to distribute the catch throughout the fall-winter-spring-summer periods. This objective was continued in 2008/2009.

Fisheries were also monitored to determine encounter rates of other species and estimate numbers of released chinook. Biological sampling was conducted for size distributions, and stock compositions (via CWT, DNA and otolith samples).

Table 5-3: Post-Season Preliminary Monthly Catch Estimates for 2005/06 to 2007/08 WCVI AABM Chinook Troll Fisheries

| | 2008/2009 | 2007/2008 | 2006/2007 | 2005/2006 |
|--------------|------------------|------------------|------------------|------------------|
| October | 1,882 | 3,137 | 16,000 | 12,198 |
| November | 1,209 | 0 | 1,200 | 2,156 |
| December | 1,107 | 0 | 800 | 1,689 |
| January | 3,394 | 1,634 | 5,500 | 1,468 |
| February | 1,540 | 1,911 | 2,600 | 5,154 |
| March | 586 | 0 | 2,300 | 7,883 |
| April | 3,616 | 1,717 | 5,200 | 20,561 |
| May | 18,062 | 11,105 | 23,500 | 7,078 |
| June | 12,165 | 15,944 | 25,000 | 20,807 |
| July | 0 | 0 | 0 | 0 |
| August | 9,630* | 9,099* | 0 | 886* |
| September | 0 | 45,157 | 6,000 | 24,098 |
| Total | 53,191 | 89,704 | 88,100 | 103,978 |

* Plug fishery

6 SOUTHERN BC ISBM CHINOOK

6.1 OBJECTIVES AND OVERVIEW

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian origin chinook and to meet domestic allocation requirements. These chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2009 to protect WCVI, LGS, early-timed Upper Fraser River chinook stocks, and spring/summer-run Fraser River chinook stocks. Specific management actions were taken to protect WCVI origin chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which was restricted to an exploitation rate of 10%. Most Southern BC commercial fisheries were regulated so that impact on WCVI wild chinook stocks was minimized. Robertson Creek hatchery-origin chinook were harvested in the terminal area of Alberni Inlet by First Nations, recreational and commercial net fisheries.

LGS chinook stocks are experiencing a period of low productivity and management measures continued to be in place throughout 2009 to protect these stocks. As in recent years, recreational chinook non-retention areas and finfish closures were in place throughout the Strait of Georgia to reduce impacts at critical times and in key areas and commercial retention of chinook was not permitted in the Strait of Georgia and in Johnstone Strait.

In addition to these specific restrictions, in 2009 area and time closures were in place to protect returning early-timed Upper Fraser River chinook and spring/summer-run chinook stocks during sport and commercial fisheries. There was a general requirement in all commercial fisheries to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks. Catch monitoring included requirements for daily catch reporting, mandatory logbooks, hailing catches on a regular basis, and independent on-board observers on vessels when requested. Post-release mortality information for chinook included in ISBM management was determined from studies conducted in 2000-2001 and detailed in the Canadian Stock Assessment Secretariat, Research Document 99/128 (CSAS, Doc 99/128).

ISBM chinook catch and release information from all fisheries can be found in Appendix 4.

6.2 RECREATIONAL

West Coast Vancouver Island

The WCVI ISBM chinook sport fishery was regulated using minimum/maximum size limits, possession limits and area closures to reduce impacts of the recreational fishery on natural (un-enhanced) WCVI chinook stocks. Daily limits were two chinook per day. Regulations in 2009 required chinook retained within the chinook corridor (one nautical mile seaward of the surfline) to exceed a minimum fork length of 45cm, and be smaller than the maximum size limit of 77cm. This restriction was in effect commencing July 15th for those waters north of Estevan Point and commencing August 1st for those waters south of Estevan Point. However,

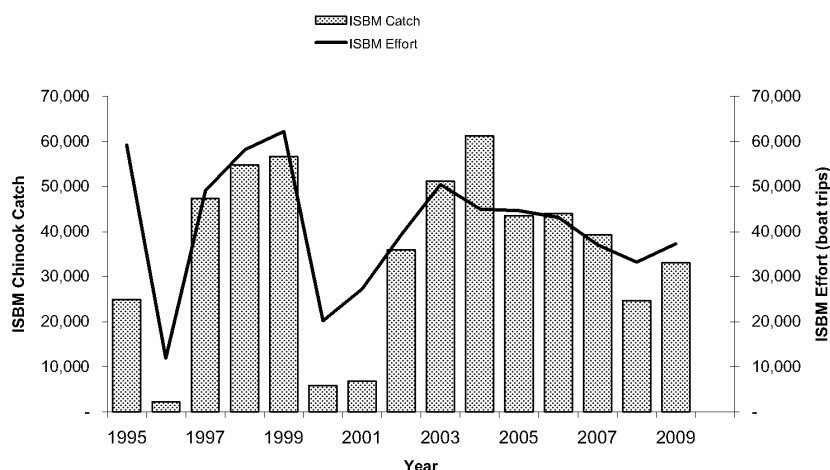
retention of chinook greater than 77cm was permitted in some terminal areas with a high percentage of returning hatchery origin fish. Area restrictions include areas “closed to salmon fishing” or “closed to all fin fishing”, depending on the vulnerability of local stocks of concern. These closed areas continued in 2009.

Total recreational chinook catch for the 2009 WCVI ISBM fishery was approximately 33,135 fish, which is an increase from the 2008 catch of 24,381 chinook. The 2009 effort was 37,447 boat trips which is an increase from the 2008 effort level of 33,113 trips.

Table 6-1: Estimated WCVI Recreational ISBM Effort, Chinook Catch and Release by PFMA, 2009

| | Area | ISBM Effort (Boat Trips) | ISBM Chinook Catch | ISBM Total Chinook Releases |
|----------|--------------------|-----------------------------|-----------------------|-----------------------------------|
| Inshore | Port Renfrew (21) | 545 | 1,229 | 119 |
| | Alberni Inlet (23) | 6,451 | 2,907 | 195 |
| | Barkley Sound (23) | 12,026 | 16,013 | 10,916 |
| | Clayoquot (24) | 779 | 54 | 89 |
| | Nootka (25) | 13,350 | 11,090 | 6,578 |
| | Kyoquot (26) | 442 | 330 | - |
| | Quatsino (27) | 3,854 | 1,512 | 2,925 |
| Offshore | Area 121 | - | - | - |
| | Area 123 | - | - | - |
| | Area 124 | - | - | - |
| | Area 125 | - | - | - |
| | Area 126 | - | - | - |
| | Area 127 | - | - | - |
| WCVI | Total | 37,447 | 33,135 | 20,822 |

Figure 6-1: Recreational WCVI Chinook ISBM Catch and Effort, 1995-2009



Inside Areas: Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait

For Johnstone Strait and the Strait of Georgia north of Cadboro Point, sport catch regulations included an annual limit of 15, a daily limit of two and a minimum size limit of 62 cm. For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the daily limit was two chinook over 45 cm and a seasonal limit of 20 chinook was in effect.

In those waters near Victoria between Cadboro Point and Sheringham Point (Areas 19-1 to 19-4 and Area 20-5), retention regulations were adjusted from March 2 to May 14 to minimize the harvest of wild, early-timed chinook stocks of concern returning to the Fraser River. Recreational harvesters were permitted to retain two chinook per day which may be wild or hatchery marked between the size limit of 45cm and 67cm or hatchery marked only chinook over 67 cm in length.

In 2009 marine recreational fisheries were monitored by creel surveys in three main areas; 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through PFMA 20-1; 2) Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, 28 and 29 and 3) Johnstone Strait including Areas 11 to 13. Monitoring of the Strait of Georgia sport fishery (April to October) and Juan de Fuca Strait sport fishery (January to December) has been fairly consistent from year to year using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. The Johnstone Strait creel survey commenced in Area 13 in June and continued through until end of September; and from June through August to include Areas 11 and 12.

Overall, effort in the Strait of Georgia increased by about 50% from 2008 to 2009. The corresponding catch increased by about 78%. Juan de Fuca Strait effort also increased by approximately 40% and the catch increased by about 28%. As part of these creel surveys, encounter rate information was also collected for legal and sub-legal chinook and coho. Releases of chinook in the Strait of Georgia and Juan de Fuca Strait were significantly higher in 2009.

Table 6-2: 2009 Catch and Effort For Inside Recreational ISBM Fisheries

| Fishing Area | Survey Period | Chinook Kept | Chinook Released | Effort (Boat Trips) |
|---------------------|----------------------|---------------------|-------------------------|----------------------------|
| Strait of Georgia | May - Sept | 8,899 | 15,194 | 58,965 |
| Johnstone Strait | June - Aug | 19,482 | 22,765 | 16,807 |
| Juan de Fuca Strait | Jan-Sept | 28,265 | 34,371 | 60,150 |
| Fraser River | May - Oct | 21,579 | 16,160 | n/a |
| TOTAL | | 78,225 | 88,490 | 135,922 |

6.3 FIRST NATIONS FISHERIES

WCVI FSC and Economic Opportunity Fisheries

An agreement was reached in 2009 with the Hupacasath and Tseshah First Nations for an economic fishery targeting Somass chinook (Area 23). Hupacasath and Tseshah First Nations harvested 7,622 chinook in upper Alberni Inlet. WCVI First Nation's (excluding Tseshah and Hupacasath FN's) catch reports indicate a combined ISBM chinook harvest of 1,404. Total WCVI First Nations ISBM catch estimate is 9,026.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, preliminary catch is estimated at 977 chinook. There were no economic opportunity fisheries.

Cowichan Tribes conduct a spear fishery in the lower Cowichan River. Data provided by Cowichan Tribes show a preliminary 2009 estimate of 475 adult and 30 jack chinook. Additional biological data was collected from this fishery, including collection of heads from CWT/AD marked chinook.

Fraser River FSC and Economic Opportunity Fisheries

FSC fisheries, as well as economic opportunity fisheries took place in the Fraser River in 2009 harvesting ISBM chinook in the both the upper and lower reaches of the Fraser River. Approximately 3,241 chinook were harvested by First Nations in the upper river FSC and economic opportunity fisheries, and approximately 29,460 chinook were harvested in the lower river; for a total chinook harvest of 32,701.

6.4 COMMERCIAL FISHERIES

In 2009 several commercial fisheries targeted ISBM chinook including gillnet and seine fisheries in Alberni Inlet (Barclay Sound) and Tlupana Inlet (Nootka Sound).

Area B seine

In 2009, seine fisheries occurred on August 24th, 25th, and 31st in upper Alberni Inlet targeting Somass chinook. Three vessels fished during these openings with a total chinook catch of 2,598 chinook.

Area D gill net

In 2009, gill net fisheries occurred in Alberni Inlet and Tlupana Inlet. These fisheries target hatchery returns to Robertson Creek and Conuma River hatcheries. On August 24th, 25th, 31st and September 09th in upper Alberni Inlet (Area 23) targeting Somass chinook. An average of 77 vessels participated in the first three openings, with 18 vessels participated in the final openings. The total gill net chinook catch in these opening was 3,671. On August 18 there was an Area D gillnet opening in Tlupana Inlet. The total chinook catch in that fishery was 3,496. The total Area D WCVI ISBM chinook harvest was 7,167 chinook.

The total WCVI commercial net ISBM harvest was 9,799 chinook.

6.5 STOCK STATUS

Fraser River and Area Chinook

Interior Fraser

Spring chinook returns to the Fraser continue to be of concern. Returns to the Spring 5₂ (stream-type or yearling) aggregate were mixed. Some stocks exceed parental escapements such as Slim Ck. (3,173) and the upper Fraser at Tete Jaune (2,755), however many others failed to reach parental levels and in aggregate, returns were approximately 85% of the parental brood. Returns to the Spring 4₂ aggregate were very poor and of concern for the aggregate as a whole. Returns averaged only 22% of parent brood escapements. Of particular concern were Nicola (440), Coldwater (26) and Louis (10).

Yearling (stream-type) summer chinook returns were also poor and averaged only 65% of brood year escapements. Chilko (8,548) and Quesnel ~1,944 averaged about 55% of parental escapements, while Clearwater (5,982) exceeded brood. In contrast, the late South Thompson ocean-type aggregate was relatively strong again, and while performance of escapements varied, in aggregate, levels were roughly equivalent to those of the parental brood. South Thompson declined from brood (45,049), whereas Lower Adams (6,399) and Lower Shuswap (24,654) both exceeded parental escapements.

Lower Fraser River

Spring-run: Lower Fraser Spring chinook returns were mixed. Returns to Birkenhead River (625) were much improved compared to 2008, however, escapement to the upper Pitt River (Blue Creek) were very poor at only 90. Information for other populations is unavailable at this time.

Summer-run: Summer-run chinook returns to Maria Slough were assessed visually in 2009. The escapement of ~546 is very slightly less than the parental brood year (574). Information for other summer populations is not available at this time.

Fall-run: Annual lower Fraser River fall-run chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group is chinook returning to the Harrison River, and Harrison River transplants to the Chilliwack River. For both the Harrison and Chilliwack Rivers, the field study portions of the escapement assessments are complete; however, analyses are ongoing. Extreme rain events significantly raised water levels in these systems make in-season assessments difficult. Preliminary escapement estimates are not yet available.

Howe Sound/Squamish River

No information is available at this time.

Burrard Inlet

No information is available at this time.

Boundary Bay

Escapement data are unavailable at present.

Strait of Georgia Chinook

Fall Stocks

Total returns to Strait of Georgia streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last seven to ten years (Puntledge and Englishman) or eighteen years (Big Qualicum and Little Qualicum). In general, all have had recent escapements near or above target.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns. There are a few very small wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jervis Inlet, where assessment data are poor or not available. Historically, a large proportion of the chinook stock aggregate originating from rivers north of Nanaimo migrates into central and northern BC and Alaska. Exploitation rates on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

In the southern Strait of Georgia, returns to the Nanaimo River have been generally stable since 1995 at slightly higher levels than those recorded back to 1975. The area of most concern is further south, where chinook stocks returning to the Chemainus, Cowichan, and Goldstream Rivers have experienced continued declines. Unlike the central and northern Strait stocks, these southern populations historically rear within the Strait of Georgia. However, there appears to be an increasing proportion rearing off the west coast of Vancouver Island.

In particular, Cowichan River chinook (a wild chinook indicator stock) has been in decline since 1995-1996. The status of this population continues to be a stock of concern. According to preliminary estimates, the 2009 escapement is the lowest on record since 1953. Exploitation rates on Cowichan chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and then have steadily increased to 75% on the 2000 and 2001 brood years. Various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia chinook. Additional conservation measures were introduced in 2005 to reduce the harvest of Cowichan chinook by the Strait of Georgia sport and WCVI troll fisheries. First Nations harvest of Cowichan chinook has been substantially reduced in recent years. The declining returns to various southern Strait of Georgia rivers are attributed to high exploitation rates, a drastic decline in marine survival, and in some cases, freshwater habitat issues.

The preliminary 2009 escapement to Cowichan River is 1250 adult and 300 jack chinook. Of these approximately 300 adults and 50 jacks were used for brood and about 475 adults and 50 jacks were caught in local FSC fisheries. The low number of age 2 jack chinook indicates that the 2010 escapement may be even lower.

Spring/Summer stocks

Of the three early runs in the Strait of Georgia, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data are not available for that stock. Efforts to recover Puntledge Summers to viable levels have resulted in improved returns to the river since 1999. The 2006 and 2007 natural spawning

escapements range from 200 - 500 adults (not including brood capture), which is down from the record high in 2005 of approximately 2,500 adults, but substantially higher than escapements recorded in the previous decades. The preliminary estimate for 2009 escapement is approximately 1200 adults (including 412 brood removals). Of concern is the exploitation rate which climbed sharply from a low of approximately 30% in 2001 to 55-60% in 2003-2004. Monitoring of Nanaimo spring and summer chinook escapement has occurred less frequently. This year's escapement is estimated to be around 200 chinook which is at the low end of the range in recent years.

West Coast Vancouver Island Chinook

The status of WCVI origin chinook has remained low for several years. Those populations that are not enhanced have remained well below target or declined since major El Nino events in the mid 1990s. Populations in the SWVI area (e.g. Area 24 and southward) tend to be lower status than those populations in NWVI.

2009 salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Observations indicate escapement to NWVI systems were at or above recent year averages whereas SWVI systems were well below average. In particular, escapements to Clayoquot Sound (Area 24) and the Nahmint River (Area 23) remain very low. In two un-enhanced systems in Clayoquot Sound (Megin and Bedwell-Ursus) less than 70 spawners were observed. Similarly, in the Nahmint River less than 70 spawners were observed and only limited brood stock was collected to support the stock enhancement program there.

For WCVI hatchery stocks, the terminal return is defined as total catch (First Nation, recreational and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners). In these approach areas, catch is dominated by the hatchery stock (e.g. >95%), therefore, higher exploitation rates are permitted than in times and areas dominated by naturally produced WCVI chinook stocks.

The preliminary total terminal return of Stamp River/Robertson Creek hatchery chinook was approximately 34,500 adults, below the pre-season forecast of 57,000. The preliminary escapement through Stamp Falls was approximately 12,000 adult chinook (expected to increase slightly as data are reviewed). The total terminal return and escapement to the Conuma River hatchery system was approximately 25,000 and 8,600, respectively. The total terminal return and escapement to the Nitinat River hatchery system was approximately 7,000 and 6,000, respectively.

Johnstone Strait/Mainland Inlet Chinook

Currently only two systems are monitored consistently in Areas 12 and 13. The Nimpkish River is assessed using standardized swim surveys and stream walks by hatchery staff and an intensive mark-recapture program is carried out by Quinsam Hatchery to estimate escapement on the Campbell/Quinsam system. Other systems are covered using intermittent visual surveys.

Nimkish River

Preliminary observations from the swim surveys indicate a continued low abundance of chinook to the Nimkish Watershed, similar to recent years. At this time approximately 100% of the brood target has been obtained by the hatchery. Final estimates are not available at this time.

Campbell/Quinsam System

Lower than normal river levels in early fall, initially provided good conditions for the mark-recapture program, however, a series of rain events in November resulted in extremely high water on both rivers and disruptions to the program. The favourable river conditions of early October permitted installation of a floating fence on the Quinsam River (for brood stock capture) and the chinook target to be attained by the hatchery. Normal chinook migration timing was observed on both systems. Abundance estimates are not available at this time, however preliminary indications suggest the total return to be slightly less than that of 2008, but remaining above the historical average.

7 SOUTHERN BC COHO

7.1 OBJECTIVES AND OVERVIEW

In 2009 the abundance forecast indicated that the status of Interior Fraser River (including Thompson River) coho remained critically low. The lower Fraser, Georgia Basin (east and west), and the Johnstone Strait coho management units were all forecast as either critically low or low status.

In 2009, Interior Fraser coho were a primary concern when implementing fisheries. Under the Abundance Based Management provisions in the Pacific Salmon Treaty, the US was limited to a maximum 10% exploitation on Interior Fraser coho. In Canada, the management objective for these coho was to limit the total mortality to a ceiling of 3% across all Canadian fisheries. The total exploitation on Interior Fraser coho was therefore limited to a maximum of 13%.

To ensure this limit was not exceeded in Canadian fisheries, retention of wild “unmarked” coho was not permitted in all recreational and commercial fisheries operating in areas of southern BC where Interior Fraser coho were known to be prevalent. Wild coho retention was permitted in some terminal areas along the west coast Vancouver Island (WCVI), in the Mainland Inlets, and in a small portion of upper Johnstone Strait, and Queen Charlotte Strait.

Table 8.1 Preliminary coho catch and release estimates of the recreational, First Nations (FSC, economic opportunity and ESSR), and commercial fisheries for 2009.

| | Catch | Release |
|----------------------|----------------|----------------|
| Recreational | 117,320 | 178,551 |
| First Nations | 53,136 | 1,997 |
| Commercial | 934 | 40,283 |
| Total | 171,390 | 220,831 |

Coho catch and release information from all fisheries can be found in Appendix 5.

7.2 RECREATIONAL

Sport fisheries can be categorized as occurring in mixed stock areas where specific coho stocks (such as Interior Fraser River coho) could not be avoided and terminal areas where local stocks dominate the catch. The table below outlines the areas in Southern BC where these mixed stock fisheries occurred and the general regulations pertaining to them.

Table 8.2 Southern BC coho fishery regulations.

| Mixed stock fishing area | Daily Limit (marked or unmarked) | Size Limit | Coho Season |
|--|---|-----------------------|--------------------|
| WCVI offshore areas 121-127 and areas 21 and 26 | 2 marked | 30 cm. | Jun 1 – Aug 31 |
| WCVI offshore areas 121-127 and areas 21 and 26 | 4 marked | 30 cm. | Sept 1 – Dec 31 |
| WCVI inshore area 23,24,25 and 27 | 2 | 30 cm. | Jun 1 – Aug 31 |
| WCVI inshore area 23,25, and 27 | 4, | 30 cm. | Sept 1 – Dec 31 |
| WCVI inshore area 24 | 4, 2 may be wild | 30cm | Sept 1 – Dec 31 |
| Juan de Fuca: areas 19-20 | 2 marked | 30 cm. | Jun 1 – Dec 31 |
| Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas and times. | 2 marked | 30 cm. | June 1 – Dec 31 |

| | | | |
|--|----------|--------|-----------------|
| Johnstone Strait – Queen Charlotte Strait: all areas | 2 marked | 30 cm. | June 1 – Dec 31 |
|--|----------|--------|-----------------|

The table below outlines coho catch and release information for recreational coho fisheries in Southern BC. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary).

Table 8.3 2009 recreational coho catch and release in Southern BC.

| Area | Coho Kept | Coho Released | Effort (Boat Trips) |
|---------------------------------|-----------|---------------|---------------------|
| WCVI – Outside Coho Boundary | 40,952 | 85,962 | 18,900 |
| WCVI – Inside Coho Boundary | 48,181 | 24,441 | 55,901 |
| Strait of Georgia (June – Sept) | 521 | 3,221 | 58,963 |
| Fraser River | 7,633 | 9,045 | NA |
| Juan de Fuca (Jan – Sept) | 9,521 | 26,382 | 60,150 |
| Johnstone Strait | 10,512 | 29,500 | NA |

Mixed Stock Areas

In 2009, hatchery selective mark fisheries (SMF) fisheries in southern BC allowed hatchery coho retention starting June 1st in most areas.

Release of wild “unmarked” coho was required in all sport fisheries operating in areas of southern BC where Interior Fraser River coho were known to be prevalent, including the mixed stock areas of the WCVI (Statistical Areas 21-27, 121-127), Strait of Juan de Fuca (Statistical Areas 19-20), Strait of Georgia (Areas 14-19, 28, 29), and the majority of Johnstone Strait and Queen Charlotte Strait (Statistical Areas 11, 12 and 13). Some wild “unmarked” retention opportunities were provided in terminal areas of WCVI and Areas 11, 12 and 13 with catch limit, time and area constraints (Details in Pacific Region Integrated Fisheries Management Plan, Salmon Southern B.C. 2008). In addition, the use of barbless hooks was mandatory in all these areas.

West Coast Vancouver Island

In offshore and rearing areas off the WCVI, SMF regulations are in effect in order to protect weak coho stocks of concern, such as those originating from the Interior Fraser River. The

daily limit is 2 marked coho (i.e. hatchery-origin coho with an adipose clip). For 2009, total catch in offshore areas was estimated at 40,952, about a three-fold increase from 2008 levels.

Inside Areas: Strait of Georgia, Juan de Fuca Strait, and Johnstone Strait

Recreational catch monitoring occurs year-round in portions of the Strait of Georgia but operates mainly from May-October. Coho catch, release, and mark rates are derived from two main sources; creel surveys and guide logbooks. The total coho catch in Strait of Georgia mixed stock and terminal areas was approximately –Strait of Georgia– 521, Juan de Fuca Strait– 9,521, Johnstone Strait– 10,512.

Terminal Fishing Areas

West Coast Vancouver Island

In WCVI terminal fishing areas, retention of adipose clipped hatchery origin coho was permitted as well as retention of wild “unmarked” coho in some portions of inshore areas where WCVI origin stocks dominate (portions of Port San Juan (Area 20), Alberni Inlet and portions of Barkley Sound (Area 23), portions of Clayoquot Sound (Area 24), portions of Nootka Sound and Esperanza Inlet (Area 25), and portions of Quatsino Sound (Area 27). Where retention of wild coho was permitted, the seasonal daily limit was 2 coho after June 1st with the exception of portions of Alberni Inlet, Tlupana Inlet and Nitinat Lake (Tidal) where the bag limit was increased to 4 coho after August 1st. In 2009, the total coho catch from the inshore WCVI terminal area was approximately 48,181, almost a four-fold increase from 2008.

Strait of Georgia

Terminal coho SMF were implemented in most areas in the Strait of Georgia in 2009 where impacts on other species or stocks were not a concern. In some of these areas special management actions, including changes in daily limits or size limits, were implemented depending on the situation.

7.3 NON-TIDAL RECREATIONAL FISHERIES

Strait of Georgia

During 2009 there were limited non-tidal openings throughout the Strait of Georgia. No directed coho opportunities were permitted in Big Qualicum River.

Johnstone Strait

In Johnstone Strait, non-tidal openings for coho were initially available on the Campbell/Quinsam River from October 1st to December 31st where 4 coho were permitted, which included jacks. Other non-tidal opportunities were provided, but limited to where hatchery marked coho were available and limited to 2 per day.

West Coast Vancouver Island

During 2009 there was a non-tidal opening for the Somass/Stamp Rivers (Area 23-1) open from August 25, 2009 to December 31, 2009. The daily limit was four salmon per day. Anglers were allowed to retain two coho (marked or unmarked) and two chinook (of which only one may be greater than 77cm in length). The Somass/Stamp Rivers were not monitored by creel survey during 2009.

7.4 FIRST NATIONS FISHERIES

Somass Economic Opportunity Fishery

Tseshah and Hupacasath Bands both signed a Fisheries Agreement for chinook, coho and chum. There were directed fishery on both coho and chum salmon in upper Alberni Inlet from mid September through October. The total coho catch in these fisheries was 737.

The remainder of the WCVI First Nations in fisheries statistical Area 21 to 26 reported a total coho catch of 2,626.

Lower Fraser

Total FSC, EO and ESSR catch in 2009 for the Lower Fraser River was 16,754 coho, the majority of which was caught in ESSR fisheries (15,807).

Strait of Georgia

Data are still being compiled on various First Nations catches in the Strait of Georgia, however, the total preliminary catch is estimated to be 5,065 coho, of which 2,458 was caught in FSC fisheries and 2,607 in ESSR fisheries. There were no economic opportunity fisheries.

7.5 COMMERCIAL FISHERIES

In 2009, Southern BC commercial fisheries were generally regulated so that impacts on coho, and especially Interior Fraser coho stocks, were minimized. Terminal opportunities to retain coho by-catch during directed chinook and chum fisheries were available to Area B seine, Area D gill net and Area G Troll.

WCVI Terminal Area Coho

In 2009, commercial gill net and seine fisheries occurred in Alberni Inlet while only gill net fisheries occurred in Thupana Inlet. These fisheries when targeting hatchery chinook returns encounter and retain coho by-catch. In 2009 the total coho by-catch in commercial net fisheries on the WCVI was 909.

In years of chum abundance, coho by-catch is also retained in targeted chum gill net fisheries on the WCVI in Fisheries Statistical Areas 23, 24 and 25. In 2009 because of low chum abundances there were no chum fisheries on the WCVI.

Area G troll fisheries were permitted to retain incidentally caught SHM coho in October 2008 and in any fisheries that would occur until January 2009 and from the middle of September until the end of September 2009. For the 2008/09 AABM chinook fishing periods, the estimated total coho retained was 1 and releases during this period were estimated at approx. 12,667.

7.6 STOCK STATUS

Upper Fraser

Field programs to estimate escapements have just concluded, analysis is underway, and only very preliminary results are available. Early returns to the Interior Fraser River indicate an improvement over 2008 returns and likely a significant improvement over the 2006 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 20,000 and 30,000; however, preliminary estimates are not yet available for many systems, and near final estimates will not be available until late January or early February, as some field studies are not yet completed.

Lower Fraser

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River, Howe Sound/Squamish River, Burrard Inlet and Boundary Bay.

Lower Fraser River

Escapement studies are currently underway, and many populations have not reached peak spawning at the time of writing. Preliminary escapement estimates for the surveyed systems should be available by early February, 2010.

A hatchery coho indicator stock is provided by Inch Creek Hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated, these estimates are not yet available. Adult coho visual surveys are conducted for a number of systems within the lower Fraser River sub-area as part of multi-species assessments; however estimates are not yet available as the programs are not complete.

Howe Sound/Squamish River

Assessments for Howe Sound and Squamish River are incomplete at this time. Tenderfoot hatchery staff will be taking brood stock until February, 2010.

Burrard Inlet

An assessment of the returns to Capilano Hatchery is not yet complete, and therefore, the 2010 abundance and status of this stock group is not known at this time.

Boundary Bay

Community-run SEP projects contribute significantly to coho returns to this sub-area. The 2009 data will not be available until late February 2010.

Strait of Georgia

The observed 2008 marine survivals for hatchery Coho were similar to the previous year (0.3% - 0.7% hatchery) and lower for wild Coho (0.7%). These levels remain very low. The forecast models predicted continuing low levels of marine survival in 2009, 0.2% - 0.7% for hatchery stocks and 1.4% for wild stocks.

Hatchery stocks

The 2009 coho escapement estimate to Puntledge River and Lang Creek were substantially higher than the previous year (2008) and the previous brood return (2006). Conversely, Qualicum River, and Goldstream Hatcheries saw similar escapements than the previous year and previous brood year.

Wild stocks

There are two wild indicators in the Strait of Georgia, at Black Creek and Myrtle Creek.

Myrtle Creek

The Myrtle Creek escapement is estimated to be 25 adults which is much higher than last year (10) and similar to the previous brood return in 2006 (21). The fence count was hampered by several high water events however bypass coho were monitored throughout the event.

Black Creek

Creek conditions throughout September and half way through October were very dry with extremely low water levels. Several reports of coho holding in the approach waters/estuary indicated a significant burst of fish migration would occur as soon as some precipitation occurred. Adequate discharge due to an initial rainfall event that started on October 16th brought about the beginning escapement of adult coho to Black Creek. Two pulses of fish migration, one in the third week of October (16th-20th) and another in late October and early November (Oct 29th – Nov 6th) made up the bulk of adult coho escapement to Black Creek in 2009. Heavy rainfall beginning on the 29th of October and continuing until mid November caused water levels to rise to a point on Nov 6th where the fence was under water and remained that way until almost the end of the month. A total of 3,316 coho were enumerated through the fence; of those 1,053 (32%) were male, 1,531 (46%) were female, and 732 (22%) were jacks. The deadpitch program commenced on November 17th and recovered a total of 362 coho carcasses of which 231 had a floy tag number and/or opercular punch (therefore sampled at the fence) and 131 had neither a tag nor an opercular punch. Both fence

enumeration and deadpitch programs have concluded for the year. Analysis of data is still in progress and a final escapement estimate is currently unavailable.

Overall, stock status of Coho in the Strait of Georgia continues to be very low. The observed Creel CPUE from the west coast of Vancouver Island indicated an increase in the number of Coho present in those waters. This was confirmed by the early escapement data from monitored systems. This population increase was likely due to an improvement in the marine survival however actual survival rates will not be determined until early 2010.

West Coast Vancouver Island

There are two indicators in WCVI, Robertson Creek Hatchery (RCH) and Carnation Creek. Both are located in DFO Statistical Area 23. In 2009, preliminary escapement to Robertson Creek Hatchery is estimated at about 69,000, which would suggest coho from the 2006 brood year experienced about an average survival rate. Escapement to the Carnation Creek indicator system was also above the long term average. Similarly, preliminary estimates of escapement to other WCVI systems suggest average to above average escapement. Although recent year WCVI coho escapements are about average, the overall abundance of WCVI coho has been low given the relatively limited harvest of these populations relative to historic periods. Therefore, the status of WCVI coho remains low to moderate at best.

Johnstone Strait and Mainland Inlet

The Keogh River plays an important role as the wild coho indicator stock for the Upper Johnstone Strait Area. Smolt production in 2008 was around 72,000, significantly higher than the long term average of 55,000. Preliminary indication from the resulting adult escapement in 2009 is that marine survival has improved relative to the last few years (~5-6% smolt to adult survival). Smolt production from the Keogh in 2009 of approximately 77,000 was again significantly higher than the long term average.

The marine survival indicator for Area 13 is the Quinsam River Hatchery. Early information from Quinsam indicated improved smolt to adult survival relative to the last few years.

Current extensive escapement reports are also indicating higher than expected returns of coho throughout Johnstone Strait and the Mainland Inlets. At this time it is still too early to provide an indication of stock status.

8 JOHNSTONE STRAIT CHUM

8.1 OBJECTIVES AND OVERVIEW

The Johnstone Strait chum fisheries primarily target chum that spawn in Johnstone Strait, Strait of Georgia, and Fraser River areas. In order to improve the management of Johnstone Strait chum fisheries and to ensure sufficient escapements, a 20% fixed exploitation rate strategy, independent of run size, was implemented in 2002 for Study Area Chum in

Johnstone Strait. This year constituted the 7th year of the fixed exploitation rate harvest strategy. Of the 20% exploitation rate, 16% is allocated to the commercial sector; the remaining 4% is set aside for the First Nations and recreational harvesters, and to provide a buffer to the commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the chum return.

For commercial fisheries, the pre-season fishing schedule was developed based on expectation of effort, exploitation levels by gear group, and historical run timing (peak estimated as October 9th). The fishing schedule was developed to achieve the commercial allocation sharing guidelines of 77% for seine, 17% for gillnet and 6% for troll. In-season adjustments to the fishing plan are made in-season if warranted.

In 2009, the Area B (seine) and Area D (gill net) fisheries did not opt to participate in chum demonstration fisheries; full derby fisheries were held for both gear types.

The Area H (troll) fleet opted to participate in an effort based ITQ demonstration fishery for the second year (2008 and 2009). A total number of 325 boat-days were modeled to correspond to the troll share of the harvest rate described above, and two time periods were defined to spread the catch over a 36 day period. Each Area H licence holder was assigned 3 boat-days in period 1 and 2 boat-days in period 2. Boat-days from each period could be transferred to other licence holders within each period but not between periods. A maximum of one third of the total number of boat days in period 1 could be carried over to fishing period 2, provided that day was not fished.

Data are still being compiled and analyzed to determine the final harvest rate estimates.

Chum catch and release information from all fisheries can be found in Appendix 6.

8.2 FIRST NATIONS

First Nations fisheries for chum were not restricted. The preliminary estimated catch by First Nations in the Johnstone Strait area is estimated at 12,341 chum salmon.

8.3 MARINE RECREATIONAL

The marine recreational daily limits for chum are 4 per day and a possession limit of 8. The recreational catch in Johnstone Strait, Areas 12 and 13, was estimated at 109 chum. This estimate represents catch from July through September from a directed creel survey. This year there was no creel survey in the month of October where the majority of chum catch occurs in Area 13. The catch in 2008 was estimated at 2,892 chum.

8.4 NON-TIDAL RECREATIONAL

There were no directed chum fisheries in non-tidal waters in the Johnstone Strait area.

8.5 COMMERCIAL

Seine, gillnet and troll fisheries were conducted in Johnstone Strait between September 28 and November 5. The total commercial chum catch from Johnstone Strait is estimated at 510,708 pieces. A description of each fishery is provided below.

There was a general requirement to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks in all commercial fisheries. Catch monitoring included requirements for catch reporting and mandatory logbooks.

Area B Seine

In 2009, there were two commercial seine openings for chum salmon in portions of Areas 12 and 13. The first opening took place on October 5th for 12 hrs, the second on October 19th for 10 hrs. The total Area B catch is estimated at 316,185 chum.

Area D Gillnet

In 2009, there were three commercial gillnet openings for chum salmon in portions of Areas 12 and 13. The first opening took place from 1600h September 30 to 0900h October 2; the second opening was from 1600h October 8 to 0900h October 10; and, the third opening was from 1600h October 22 to 1700h October 24. The total Area D catch is estimated at 126,625 chum.

Area H Troll

In 2009 there were two commercial troll fishing periods. Period 1 of the effort-based troll ITQ fishery opened on September 28th and closed on October 11th, although it was closed for a 24 hr period on October 5 during the commercial seine opening. A maximum of 40 vessels participated in the opening and the total catch was 29,394 chum. Period two opened on October 13th and ended on November 5th, although it was closed for a 24 hr period on October 19th during the commercial seine opening. A maximum of 37 vessels participated in the second opening and the total catch was 38,504. In total, 349 boat days were fished with a total catch of 67,898 chum.

Table 8-1: Johnstone Strait Commercial Catch and By Date and Gear Type**Johnstone Strait Fisheries (Areas 12 and 13)**

| Fishery Date | Gear type Effort Catch | | |
|---------------------|-------------------------------|------|---------|
| Oct 5 | B - SN | 102 | 170,200 |
| Oct 19 | B - SN | 105 | 145,985 |
| Sept 30 to Oct 2 | D- GN | 130 | 27,900 |
| Oct 8 to 10 | D- GN | 173 | 63,425 |
| Oct 22 to 24 | D- GN | 111 | 35,300 |
| Sept 28 to Oct 11 | H-TR | 2-31 | 29,394 |
| Oct 13 to Nov 5 | H-TR | 2-26 | 38,504 |

Table 8-2: Johnstone Strait Fisheries (Area 12 and 13)

| Gear Type | Total Catch | % of catch | J.S. Allocation Plan |
|---------------------|--------------------|-------------------|-----------------------------|
| Area B | 316,185 | 69.1% | 77% |
| Area D | 126,625 | 24.8% | 17% |
| Area H | 67,898 | 13.3% | 6% |
| Total Catch: | 510,708 | | |

Nimpkish River

Conditions for monitoring chum returns to the Nimpkish watershed have been hampered by heavy rain events during November. Chum return estimates to the Nimpkish River are incomplete at this time but appear to be low. There was no chum harvest other than removals for Nimpkish River Hatchery brood stock.

8.6 STOCK STATUS**Mixed Stocks**

The pre-season expectation for Study Area chums suggested average to below average returns to the area. The main component to the return was expected to be the Fraser River stocks,

although both Fraser and non-Fraser components of the return were originating from below average brood returns in 2005.

The Johnstone Strait test-fishery provided timing and spread information of the 2009 return which is important for assessing the performance of the 20% harvest strategy implemented in the Johnstone Strait fisheries. Age composition derived from the test-fishery samples demonstrated a dominant 4-year old brood component as expected. Preliminary information on escapements and catches to date suggest returns were average to below average for Inside Study Area chum stocks. In-season information is still being collected and analyzed in regards to total stock size.

Terminal returns

Most summer run chum returns in Area 12 were varied, with stronger than expected returns to the Viner and stable returns to other systems (Ahta and Ahnuhati Rivers). Summer chum returns to the Orford River (Bute Inlet) were well below brood returns, as has been the case in recent years.

It is still too early to assess the status of fall run chum in the Johnstone Strait Area. Preliminary information indicates returns are average to below average for a variety of systems within the area. Initial observations on the Nimpkish River, under poor assessment conditions, indicate some abundance of returning chum. The assessment of the Nimpkish system will continue into late December.

9 FRASER RIVER CHUM

9.1 OBJECTIVES AND OVERVIEW

The escapement objective for Fraser River chum is 800,000. Conservation measures for co-migrating stocks of concern delays in-river chum fisheries from the peak of the run (mid-October) to the end of the run (late October – early November). Chum escapements to the Fraser have been estimated to be above the escapement objective for return years 1998 to 2008, with the exception of the 2000 return. Fraser River chum salmon spawning locations are predominately located in the Fraser Valley downstream of Hope, BC; no spawning locations have been identified upstream of Hells Gate. Small numbers of short fishery openings have prevented adverse impacts on local chum populations.

Chum catch and release information from all fisheries can be found in Appendix 6.

9.2 GENERAL OVERVIEW OF FISHERIES

Fraser River chum are harvested in Johnstone Strait, in the Strait of Georgia, in Juan de Fuca Strait, in US waters of 7 and 7A, as well as in the Fraser River.

Fraser River chum returns coincide with Interior Fraser coho and Interior Fraser steelhead runs. Therefore, commercial Gillnet Chum fisheries in the Fraser River are severely limited by conservation concerns for Interior Fraser (including Thompson River) coho and Interior Fraser steelhead.

9.3 FIRST NATIONS

FSC gill-net fisheries commenced October 10 (below Mission) following closures to protect co-migrating Interior Fraser coho. The estimated catch from all fisheries (FSC and economic opportunity) below Sawmill Creek to the end of November is 81,275. The FSC catch was 13,118 and the economic opportunity catch was 68,157. ESSR harvests are ongoing for 2009. As of December 11th there have been 8,458 chum reported harvested through ESSR fisheries.

9.4 RECREATIONAL

In 2009, the major Fraser River watershed recreational salmon fisheries impacting chum salmon were assessed, including significant salmon fisheries occurring in the lower Fraser River mainstem and the Chilliwack River (a tributary to the Fraser River in the lower Fraser Valley). Two minor recreational fisheries that occurred on the Harrison River and the Nicomen Slough/Norrish Creek drainage were also assessed (both are tributaries to the Fraser River in the lower Fraser Valley).

The lower Fraser River mainstem recreational fishery was open to the retention of chum salmon from May to December with a bag limit of 2 chum per angler per day. In 2009, this mainstem fishery was assessed from May 1st to October 15th; preliminary estimates of 44 and 890 chum were kept and released, respectively. The Chilliwack River recreational fishery was open to the retention of chum salmon from July to March. The Chilliwack River fishery was assessed from September 15th to November 15th in 2009; preliminary estimates of 2,404 and 11,238 chum were kept and released, respectively.

The Harrison River recreational fishery was open to the retention of chum salmon year round. In 2009, the assessment of this fishery began on September 1st and was ongoing at the time of this report. In-season estimates to Nov. 15th are 742 and 8,839 chum kept and released, respectively. Although historically not directed at chum, Nicomen Slough was open to the retention of chum salmon year round. The Nicomen Slough/Norrish Creek fishery was assessed from October 10th to November 30th in 2009. In-season estimates to November 15th of 10 and 1,116 chum were kept and released, respectively.

In total, for assessed recreational fisheries occurring in the Fraser River in 2009, preliminary estimates of 3,200 and 22,083 chum were kept and released, respectively.

9.5 COMMERCIAL

Chum test fishing began on September 1st and was conducted every alternate day until October 21st when chinook test fishing was terminated and chum test fishing then continued on a daily basis. Chum catches in the 6.75" chum test net from September 1st to November 23rd, representing 56 test fishing days, totalled 7,003 chum.

Commercial fisheries in the lower Fraser River (below Mission) were closed from September 8th to October 9th to protect Interior Fraser coho. Further restrictions on commercial fisheries were in place until late October to protect Interior Fraser steelhead. Due to these constraints, only one Area E (gill net) commercial opening took place in Area 29 during the 2009 fishing season. This opening occurred on October 27th for 24 hours in portions of Area 29. The total catch from this opening was estimated at 42,000.

9.6 STOCK STATUS

Terminal run-size to the Fraser River (at Albion) is estimated in-season using a Bayesian model (CSAS Res.Doc. 2000/159, Gazey and Palermo) and Albion test fishing catch per unit effort data (CPUE). In 2009, a terminal run-size of 1.725 million was estimated using Albion CPUE data to November 3rd.

Fraser River chum return to many spawning locations in the lower Fraser River. Spawning escapement to five of the largest chum producing populations and to a small number of lesser producing populations is assessed annually. Projects assessing the escapements to these systems in 2009 are ongoing and therefore estimates are currently not available.

While there have been substantial returns in recent years (e.g. 1998) concern has been raised over the recent timing of the run; the late run component appears to be truncated compared to historical run distribution. In the past, chum returned to the Fraser River and its tributaries well into December. The run is now predominately over by mid-late November. Additionally, although estimated escapement to the Fraser continues to be greater than the 800,000 objective (e.g. the 2008 preliminary escapement was estimated at approx. 1M); estimated escapement over the last 10 years is trending downwards. Whether these observations are the result of fishing practices, habitat changes to the spawning areas that were used by late returning fish (e.g. mainstem spawning areas), freshwater production changes, marine environment affects or other currently unidentified factors, has yet to be determined.

10 STRAIT OF GEORGIA CHUM

10.1 OBJECTIVES AND OVERVIEW

Strait of Georgia chum fisheries consist of terminal opportunities for chum returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies

consist of monitoring and assessing stocks (escapement and returning abundance) with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

Area 14

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum Rivers. The Qualicum River is often referred to as the 'big' Qualicum River, to better distinguish it from the Little Qualicum River. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three river systems. The escapement goals for the three river systems are 60,000 for Puntledge River, 130,000 for Little Qualicum River, and 100,000 for Qualicum River, adding up to an overall escapement goal of 290,000 chum not including enhancement facility requirements (about 10,000 chum bringing the total escapement goal to 300,000).

This fishery has a specific harvest strategy, implemented since 1981. The strategy consists of limited early harvest prior to escapement occurring. The allowable early chum harvest is calculated from 65% of the predicted surplus (terminal return run size minus escapement (300,000) and buffer 100,000. The buffer safeguards against errors in forecast stock abundance. The surplus within the 100,000 buffer and remaining 35% of the surplus may be harvested provided that escapement targets have been achieved. Since 2002, Puntledge River stock returns have been above average resulting in terminal fisheries focusing on this slightly earlier timed stock. This fishery continued in 2009.

Area 16

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured. Fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2009

Area 17

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River Hatchery (supplementation is on a sliding scale), where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 60,000.

Area 18

This fishery is directed primarily at Cowichan River stocks, however Goldstream chum are also harvested. Fishery openings in mid to late November are limited to Satellite Channel in order to minimize impacts on the earlier timed Goldstream stocks. Chemainus River stocks could also be impacted if the fisheries are earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter and information from a test fishery. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Mid Vancouver Island (MVI) Chum Subcommittee. The overall escapement goal for the Cowichan River is currently 140,000 Chum counted by the DIDSON counter.

Area 19

This fishery is directed primarily at Goldstream River stocks although some Cowichan River Chum are also harvested. Fishery openings set for mid to late November are limited to the portion of Saanich Inlet (Sub area 19-8) which is outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream chinook and coho stocks.

Fisheries are planned in-season based on escapement estimates and a test fishery. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000.

Chum catch and release information from all fisheries can be found in Appendix 6.

10.2 FIRST NATIONS

The preliminary estimated catch by First Nations in the Strait of Georgia is estimated to be approximately 5,478 chum; additional catch data are currently being compiled. In addition, there was an ESSR fishery at the Puntledge hatchery where approximately 2,856 chum were harvested.

10.3 RECREATIONAL

The recreational creel survey extends from the marine area of Discovery Passage, (outside of Campbell River) to Saanich Inlet. The majority of recreational effort directed at chum salmon occurs in the Discovery Passage area. The total creel catch estimate for the recreational fleet in the Strait of Georgia area is approximately 1,000 chum, most of which were caught in Area 13 (reported in the tables as Johnstone Strait) during the month of October.

Tidal recreational fisheries are subject to the normal daily and possession limits (daily limit four per day/possession eight) and are open throughout the area.

Occasionally recreational in-river fisheries occur where surpluses or target escapements will be met. These fisheries are almost exclusively where enhancement facilities are present.

10.4 COMMERCIAL

Strait of Georgia chum are managed as a component of “mixed-stock harvest strategy” chum for Johnstone Strait and the northern Strait of Georgia. Fishing opportunities are guided by commercial allocation targets for chum salmon in the south coast. Management is guided by advice from the MVI Chum Subcommittee.

Strait of Georgia commercial chum fisheries for seine, gillnet and troll were conducted between October 13th and November 16th. The total commercial chum catch from Strait of Georgia is estimated at 59,116 pieces (see table 11.1 below). A description of each fishery is provided below.

Area 14

Area D gill net openings occurred on October 13th to 16th, October 19th to 21st, October 22nd to 23rd, October 29 to November 1st and November 3rd to 5th in upper Area 14 (Puntledge area). There were no openings in lower Area 14 (Qualicum and Little Qualicum areas) due to low escapements. There was a total of 11 days fished for a catch of 46,609 chum. The troll fishery opened from October 13th to November 6th in the same area as for gill net; there was almost no effort nor catch in this fishery. An Area B limited opportunity seine fishery occurred on October 28 to November 1st, and on November 3rd to 5th with a total catch of approximately 2,030 chum.

Area 16 – Jervis Inlet

No commercial fisheries occurred in Jervis Inlet as no surplus was identified.

Area 17 - Nanaimo

Two gill net openings occurred for 48 hours on November 1st and November 7th, with a total catch of 6,731 chum.

Area 18 - Cowichan

There were 3 gill net openings in Area 18, one on November 10th, 11th and the 16th for 12 hours. The total estimated catch is approximately 3,731 chum.

Area 19 - Goldstream

No commercial fisheries occurred in the Goldstream area as there was no surplus available for commercial fisheries.

Table 10-1: Strait of Georgia Commercial Chum Catch by Date and Gear Type

| Fishery Date | Gear type | PFMA | Effort | Catch |
|---------------------|------------------|-------------|---------------|--------------|
| Oct. 13-16 | D | 14 | 69 | 19,760 |
| Oct. 13 - Nov. 5 | H | 14 | 1 | 15 |
| Oct. 19-21 | D | 14 | 99 | 19,654 |
| Oct. 22-23 | D | 14 | 20 | 574 |
| Oct. 29-Nov. 1 | D | 14 | 51 | 4,642 |
| Oct. 28 | B | 14 | 3 | 1,830 |
| Oct. 29-Nov.1 | B | 14 | 0 | 0 |
| Nov. 1-3 | E | 17 | 51 | 4,603 |
| Nov. 3-4 | B | 14 | 1 | 200 |
| Nov. 3-5 | D | 14 | 32 | 1,979 |
| Nov. 7-9 | E | 17 | 43 | 2,128 |
| Nov. 10 | E | 18 | 42 | 2,110 |
| Nov. 11 | E | 18 | 25 | 1,216 |
| Nov. 16 | E | 18 | 15 | 405 |

10.5 STOCK STATUS

A below average chum return to the Strait of Georgia was forecast for 2009. The forecast was based on below average brood year escapements (primarily 2005) and anticipated average to below average survival. Historically however, chum returns have been highly variable relative to brood year escapements. Conditions for returning chum migration and spawning were good with water flows ample for most of the season. Spawning escapements continue to be monitored and are currently being compiled. To date, returns have been variable with some areas achieving their escapement goal while others are below target (Table 11.2), although estimates are preliminary and subject to change.

Two marine test-fisheries were conducted, one off the Cowichan River and the other adjacent to the Goldstream River. The Cowichan seine test-fishery commenced on October 27th and continued until November 30th for a total of 6 fishing days. Test catches totaled 1,054 chum and 20 coho. The Goldstream River (Saanich Inlet) seine test-fishery commenced on October 28th and continued until December 1st for a total of 6 days. Test catches totaled 311 chum and 0 coho. Each test fishing day generally consists of six sets; all captured fish were released.

Spawning escapements continue to be monitored and are currently being compiled.

Table 10-2: Strait of Georgia Preliminary Spawning Escapements

| River System | Preliminary Escapement | Escapement Goal |
|---------------------|-------------------------------|------------------------|
| Puntledge | 76,000 | 60,000 |
| Little Qualicum | 37,000 | 130,000 |
| Qualicum | 36,500 | 100,000 |
| Nanaimo | 58,000 | 60,000 |
| Cowichan | 140,000 | 140,000 |
| Goldstream | 18,000 | 15,000 |

11 WEST COAST VANCOUVER ISLAND CHUM

11.1 OBJECTIVES AND OVERVIEW

Commercial chum salmon fisheries occur from late September to early November in WCVI fishing areas in most years. The majority of chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21), and in Nootka Sound and Esperanza Inlet (Area 25). Commercial fisheries target both wild chum stocks returning to local streams, and enhanced chum stocks from Nitinat and Conuma hatcheries.

With the exception of Nitinat and Tlupana Inlet where hatchery stocks dominate, WCVI chum fisheries are managed to a 20% harvest rate. Fishery managers consider run timing, fishing effort, and fleet distribution when implementing in-season management measures. In-season management measures, such as limiting fishing effort to one or two days per week, are implemented to ensure that target harvest rate objectives are not exceeded.

Both the Area D and Area E commercial gillnet fleets, and the Area B commercial seine fleet target WCVI chum. Seine opportunities generally occur once surplus to escapement/brood requirements have been identified (Nitinat and Conuma).

There were no commercial net fisheries on WCVI in 2009 due to very low abundance of most wild and hatchery stocks. Since 2004, there were limited-fleet gillnet fisheries in both Esperanza Inlet (Area 25) and Barkley Sound (Area 23). A limited-fleet assessment fishery was initiated for Clayoquot Sound (Area 24) in 2007 and operated again in 2008.

First Nations FSC fisheries remain a priority, and primarily occur in terminal areas. FSC fishing effort and catch was approximately 1,700 for WCVI in 2009. An ESSR fishery, operated by the Ditidaht First Nation, took place at Nitinat Lake targeting hatchery surplus production.

In-river recreational fisheries generally have low effort, but recently effort has increased in some terminal area rivers (i.e. Nitinat River). Directed effort and catch of chum in recreational marine fisheries off WCVI is relatively low.

Chum catch and release information from all fisheries can be found in Appendix 6.

11.2 FIRST NATIONS

The Ditidaht First Nation conducts FSC and ESSR fisheries in Nitinat Lake and at Nitinat hatchery. In 2009 the FSC chum harvest was 900 and ESSR chum harvest was 14,491.

Tseshah and Hupacasath First Nations signed an Economic Opportunity Fisheries Agreement for chinook, coho and chum. Combined harvest was 1,332 chum during directed FSC chum and coho fisheries.

11.3 RECREATIONAL

The WCVI recreational fishery is open year-round with a limit of four (4) per day. WCVI recreational anglers kept approximately 87 chum during the 2009 WCVI sport fishery.

11.4 COMMERCIAL

Nitinat

There was no commercial fishery in 2009 due to lower than expected chum abundance. The Nitinat commercial chum fishery is typically the largest on the west coast and targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st to November 15th. The fishery is managed to achieve a minimum escapement target of 225,000 and maximum escapement target of 325,000 chum salmon. The commercial TAC is based on the pre-season forecast.

This fishery has provided opportunities for both seine and gill net fleets. Gill net and seine fishing opportunities are dependent on reaching established in-lake escapement milestones by specific dates. Fleet size has varied over the past 15 years, largely due to pre-season forecasts and fish value. The size of the gill net fleet in the 1990s ranged as high as 240 vessels. From 2004 to 2008 the gill net fleet size fluctuated between 30 and 90 vessels. The seine fleet size typically varies from 20 to 100 vessels.

In-season abundance observations by a test-fishing vessel, by First Nations collecting broodstock for Nitinat hatchery, and by the hatchery staff counting adult chum in Nitinat River concurred on a maximum return of approximately 85,000 chum. No commercial harvest opportunity was provided at this run size. Bi-weekly calls were held with industry representatives to update on test-fishing results.

Areas 23, 24 and 25 Chum Fisheries

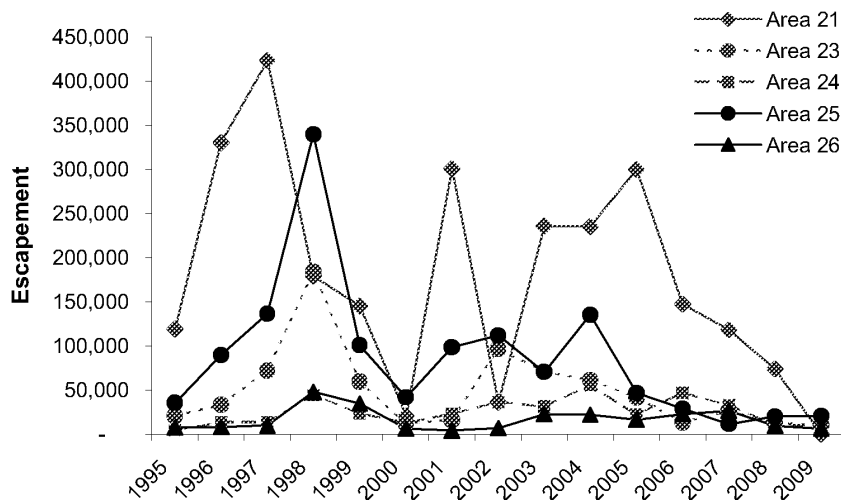
Commercial chum fisheries in Areas 23, 24 and 25 are typically managed using weekly in-season effort estimates. This harvest rate approach is designed to maintain a harvest rate of 20% or less on all stocks.

In 2009, the Department met with Area D advisors to discuss the probability of no gill net openings in 2009 on WCVI chum stocks due to low predicted abundance. Additional funds were provided to the Charter Patrol in Area 25 to increase observations of escapement in all known chum streams in Nootka Sound and Esperanza and Muchalat Inlets. The Department's Stock Assessment staff and contractors provided escapement counts for chum in Areas 23, 24 and 25. Escapements in most systems were lower than predicted. There was an insufficient abundance of Conuma River chum to trigger a gill net fishery in Tlupana Inlet.

11.5 STOCK STATUS

All salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Peak live plus dead observations indicate escapement of chum to most natural systems was similar in 2009, relative to 2008, in the WCVI conservation unit (CU). Overall, preliminary return estimates across PFMA's were only 20 to 40% of long term (1995 – 2008) average returns. Similarly, the Nitinat hatchery (Area 21/22) total return is currently estimated at about 85,000, which is well below average, and the 2008 return of 130,000. Pending further analysis of catch composition and escapement data, the status of chum returns in 2009 to WCVI populations is low to very low across the WCVI CU. Low returns were influenced by poor returns of age 4 and 5 fish, resulting from poor survivals from the 2004 and 2005 sea entry years.

Figure 11-1: Escapement of WCVI Chum Stocks, by PFMA and Return Year (1995-2009)



12 APPENDICES

Appendix 1: Preliminary 2009 South Coast Sockeye Catch By Fishery and Area

| SOCKEYE | | | | | |
|-------------------------------|----------------|--|---------------------|-------------|---------------------|
| | | | Numbers | | |
| Fishery | Gear | Fishery (Area) | Non-Fraser Kept | Fraser Kept | All stocks Released |
| Commercial | Area G Troll | WCVI AABM Chinook (23 - 27, 123 - 127) | 0 | 0 | 14 |
| | Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 | 0 |
| | Area H Troll | MVI Chum (14) | 0 | 0 | 0 |
| | Area H Troll | Fraser Chum (29) | 0 | 0 | 0 |
| | Area H Troll | JST Chum (12,13) | 0 | 0 | 2 |
| | Area H Troll | Fraser Pink (13,18) | 0 | 0 | 364 |
| | Area H Troll | Fraser Pink (29) | 0 | 0 | 0 |
| | Area B Seine | Somass Sockeye (23) | 15,039 | 0 | 0 |
| | Area B Seine | Somass Chinook (23) | 0 | 0 | 4,841 |
| | Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 | 0 |
| | Area B Seine | JST Chum (12,13) | 0 | 0 | 1 |
| | Area B Seine | MVI Chum (18) | 0 | 0 | 0 |
| | Area B Seine | Fraser Pink (12,13) | 0 | 13 | 9,978 |
| | Area B Seine | Fraser Pink (29) | 0 | 0 | 34 |
| | | Area D Gillnet | Somass Sockeye (23) | 9,213 | 0 |
| Area D Gillnet | | Tlupana Chinook (25) | 0 | 0 | 0 |
| Area D Gillnet | | Somass Chinook (23) | 0 | 0 | 69 |
| Area D Gillnet | | Mainland Inlet Pinks (12) | 0 | 0 | 11 |
| Area D Gillnet | | JST Chum (12,13) | 0 | 0 | 0 |
| Area D Gillnet | | MVI Chum (14) | 0 | 0 | 0 |
| | | Area E Gillnet | Fraser Chum (29) | 1 | 0 |
| | Area E Gillnet | MVI Chum (17/18) | 0 | 0 | 0 |
| Total Commercial Catch | | | 24,253 | 13 | 15,319 |
| | | | | | |
| Recreational | Sport | Juan de Fuca (19,20) | - | 152 | 1,091 |
| | Sport | Strait of Georgia (14-18,28,29) | - | 0 | 1,095 |
| | Sport | Johnstone Strait (11-13) | - | 49 | 367 |
| | Sport | WCVI - Inside (21-27) | 56,500 | - | NA |
| | Sport | Fraser River | 0 | 29 | 21,213 |
| Total Recreational Catch | | | 56,500 | 230 | 23,766 |
| | | | | | |
| First Nations FSC | | Johnstone Strait | | 10,124 | 0 |
| | | Strait of Georgia | 475 | 20 | 0 |
| | | WCVI | 77,547 | 91 | 0 |
| | | Fraser River | | 59,873 | 1,315 |
| Total First Nations FSC Catch | | | 78,022 | 70,108 | 1,315 |
| | | | | | |
| First Nations EO | | Johnstone Strait | | - | - |
| | | Strait of Georgia | - | - | - |
| | | WCVI | 0 | 0 | 0 |
| | | Fraser River | | 44 | 244 |
| Total First Nations EO Catch | | | | 44 | 244 |
| | | | | | |
| TOTAL - ALL FISHERIES | | | 158,775 | 70,395 | 40,644 |

Appendix 2: Preliminary 2009 South Coast Pink Catch by Fishery and Area
PINK

| Fishery | Gear | Fishery (Area) | Numbers | |
|---------------------------------------|----------------|--|------------------|----------------|
| | | | Kept | Released |
| Commercial | Area G Troll | WCVI AABM Chinook (23 - 27, 123 - 127) | 98 | 112 |
| | Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area H Troll | MVI Chum (14) | 0 | 0 |
| | Area H Troll | Fraser Chum (29) | 0 | 0 |
| | Area H Troll | JST Chum (12,13) | 1 | 8 |
| | Area H Troll | Fraser Pink (13,18)* | 16,728 | 0 |
| | Area H Troll | Fraser Pink (29)* | 0 | 19 |
| | Area B Seine | Barkley Sockeye (23) | 0 | 0 |
| | Area B Seine | Somass Chinook (23) | 0 | 0 |
| | Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area B Seine | JST Chum (12,13) | 3 | 0 |
| | Area B Seine | MVI Chum (18) | 0 | 0 |
| | Area B Seine | Fraser Pink (12,13)* | 1,295,095 | 53 |
| | Area B Seine | Fraser Pink (29)* | 98,461 | 0 |
| | Area D Gillnet | Barkley Sockeye (23) | 0 | 0 |
| | Area D Gillnet | Tlupana Chinook (25) | 0 | 0 |
| | Area D Gillnet | Somass Chinook (23) | 0 | 0 |
| | Area D Gillnet | Mainland Inlet Pinks (12) | 746 | 0 |
| | Area D Gillnet | JST Chum (12,13) | 7 | 4 |
| | Area D Gillnet | MVI Chum (14) | 0 | 0 |
| | Area E Gillnet | Fraser Chum (29) | 1 | 73 |
| | Area E Gillnet | MVI Chum (17/18) | 0 | 0 |
| Total Commercial Catch | | | 1,411,140 | 269 |
| Recreational | Sport | Juan de Fuca (19,20) | 50,917 | 15,560 |
| | Sport | Strait of Georgia (14-18,28,29) | 2,595 | 1,093 |
| | Sport | Johnstone Strait (11-13) | 38,897 | 17,118 |
| | Sport | WCVI (21-27, 121-127) | 924 | 738 |
| | Sport | Fraser River | 66,093 | 272,189 |
| Total Recreational Catch | | | 159,427 | 306,698 |
| First Nations FSC | | Johnstone Strait | 22,501 | 0 |
| | | Strait of Georgia | 211 | 0 |
| | | WCVI | 133 | 0 |
| | | Fraser River | 1,893 | 217 |
| Total First Nations FSC Catch | | | 24,738 | 217 |
| First Nations EO | | Johnstone Strait | - | - |
| | | Strait of Georgia | - | - |
| | | WCVI | - | - |
| | | Fraser River | 512,185 | 61,265 |
| Total First Nations EO Catch | | | 512,185 | 61,265 |
| First Nations ESSR | | Johnstone Strait | - | - |
| | | Strait of Georgia | - | - |
| | | WCVI | - | - |
| | | Fraser River | 12,312 | 0 |
| Total First Nations ESSR Catch | | | 12,312 | 0 |
| TOTAL - ALL FISHERIES | | | 2,119,802 | 368,449 |

* Note: includes non-Fraser pink catch

Appendix 3: Preliminary 2009 South Coast AABM Chinook Catch By Fishery and Area

AABM Chinook

| PST Regime | Fishery | Month | Numbers | |
|---------------------|-------------------|--------|---------|----------|
| | | | Kept | Released |
| WCVI-AABM | Area G Troll | Oct-08 | 1,882 | 758 |
| | | Nov-08 | 1,209 | 157 |
| | | Dec-08 | 1,107 | 136 |
| | | Jan-09 | 3,394 | 351 |
| | | Feb-09 | 1,540 | 134 |
| | | Mar-09 | 586 | 13 |
| | | Apr-09 | 3,616 | 87 |
| | | May-09 | 18,062 | 1,144 |
| | | Jun-09 | 12,165 | 1,169 |
| | | Jul-09 | 0 | 0 |
| | | Aug-09 | 9,630 | 801 |
| | | Sep-09 | 0 | 0 |
| Troll Total | | | 53,191 | 4,750 |
| | | | | |
| Sport Total | | | 68,775 | 35,584 |
| | | | | |
| First Nations | Johnstone Strait | | | |
| First Nations | Strait of Georgia | | | |
| First Nations | WCVI Offshore | | 3,381 | 0 |
| First Nations | WCVI Inshore | | | |
| First Nations | Fraser River | | | |
| First Nations Total | | | 3,381 | 0 |
| | | | | |
| All Total | | | 125,347 | 40,334 |

Appendix 4: Preliminary 2009 South Coast ISBM Chinook Catch By Fishery and Area

ISBM CHINOOK

| Fishery | Gear | Fishery (Area) | Numbers | |
|---------------------------------------|----------------|---------------------------------|----------------|----------------|
| | | | Kept | Released |
| ISBM | Area G Troll | WCVI Chinook | 0 | 0 |
| | Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area H Troll | MVI Chum (14) | 0 | 0 |
| | Area H Troll | Fraser Chum (29) | 0 | 0 |
| | Area H Troll | JST Chum (12,13) | 0 | 10 |
| | Area H Troll | Fraser Pink (13,18) | 0 | 21 |
| | Area H Troll | Fraser Pink (29) | 0 | 1 |
| | Area B Seine | Barkley Sockeye (23) | 0 | 0 |
| | Area B Seine | Somass Chinook (23) | 2,598 | 0 |
| | Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area B Seine | JST Chum (12,13) | 0 | 9 |
| | Area B Seine | MVI Chum (18) | 0 | 0 |
| | Area B Seine | Fraser Pink (12,13) | 0 | 506 |
| | Area B Seine | Fraser Pink (29) | 0 | 0 |
| | Area D Gillnet | Barkley Sockeye (23) | 0 | 6 |
| | Area D Gillnet | Tlupana Chinook (25) | 3,496 | 0 |
| | Area D Gillnet | Somass Chinook (23) | 3,671 | 0 |
| | Area D Gillnet | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area D Gillnet | JST Chum (12,13) | 0 | 14 |
| | Area D Gillnet | MVI Chum (14) | 0 | 2 |
| | Area E Gillnet | Fraser Chum (29) | 33 | 48 |
| | Area E Gillnet | MVI Chum (17/18) | 1 | 0 |
| Total Commercial Catch | | | 9,799 | 617 |
| Recreational | Sport | Juan de Fuca (19,20) | 28,265 | 34,371 |
| | Sport | Strait of Georgia (14-18,28,29) | 8,899 | 15,194 |
| | Sport | Johnstone Strait (11-13) | 19,482 | 22,765 |
| | Sport | WCVI (ISBM areas) | 33,135 | 20,822 |
| | Sport | Fraser River | 21,579 | 16,160 |
| Total Recreational Catch | | | 111,360 | 109,312 |
| First Nations FSC | | Johnstone Strait | 344 | 0 |
| | | Strait of Georgia | 977 | 0 |
| | | WCVI | 1,404 | 0 |
| | | Fraser River | 28,541 | 33 |
| Total First Nations FSC Catch | | | 31,266 | 33 |
| First Nations EO | | Johnstone Strait | - | - |
| | | Strait of Georgia | - | - |
| | | WCVI | 7,622 | - |
| | | Fraser River | 4,160 | 72 |
| Total First Nations EO Catch | | | 11,782 | 72 |
| First Nations ESSR | | Johnstone Strait | - | - |
| | | Strait of Georgia* | 3,273 | - |
| | | WCVI | 607 | - |
| | | Fraser River | 5,000 | 0 |
| Total First Nations ESSR Catch | | | 8,880 | 0 |
| TOTAL - ALL FISHERIES | | | 173,087 | 110,034 |

*Number includes both adults and jacks; FSC & ESSR combined.

Appendix 5: Preliminary 2009 South Coast Coho Catch By Fishery and Area
COHO

| Fishery | Gear | Fishery (Area) | Numbers | |
|---------------------------------------|----------------|--|----------------|----------------|
| | | | Kept | Released |
| Commercial | Area G Troll | WCVI AABM Chinook (23 - 27, 123 - 127) | 0 | 12,667 |
| | Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area H Troll | MVI Chum (14) | 0 | 0 |
| | Area H Troll | Fraser Chum (29) | 0 | 0 |
| | Area H Troll | JST Chum (12,13) | 6 | 396 |
| | Area H Troll | Fraser Pink (13,18) | 0 | 634 |
| | Area H Troll | Fraser Pink (29) | 0 | 0 |
| | Area B Seine | Barkley Sockeye (23) | 0 | 0 |
| | Area B Seine | Somass Chinook (23) | 531 | 0 |
| | Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area B Seine | JST Chum (12,13) | 0 | 717 |
| | Area B Seine | MVI Chum (18) | 0 | 4 |
| | Area B Seine | Fraser Pink (12,13) | 7 | 22,759 |
| | Area B Seine | Fraser Pink (29) | 0 | 0 |
| | Area D Gillnet | Barkley Sockeye (23) | 0 | 8 |
| | Area D Gillnet | Tlupana Chinook (25) | 1 | 0 |
| | Area D Gillnet | Somass Chinook (23) | 377 | 8 |
| | Area D Gillnet | Mainland Inlet Pinks (12) | 0 | 22 |
| | Area D Gillnet | JST Chum (12,13) | 1 | 1,196 |
| | Area D Gillnet | MVI Chum (14) | 1 | 133 |
| | Area E Gillnet | Fraser Chum (29) | 10 | 1,651 |
| | Area E Gillnet | MVI Chum (17/18) | 0 | 88 |
| Total Commercial Catch | | | 934 | 40,283 |
| Recreational | Sport | Juan de Fuca (19,20) | 9,521 | 26,382 |
| | Sport | Strait of Georgia (14-18,28,29) | 521 | 3,221 |
| | Sport | Johnstone Strait (11-13) | 10,512 | 29,500 |
| | Sport | WCVI - Inshore (21-27) | 48,181 | 24,441 |
| | Sport | WCVI - Offshore (121-127) | 40,952 | 85,962 |
| | Sport | Fraser River | 7,633 | 9,045 |
| Total Recreational Catch | | | 117,320 | 178,551 |
| First Nations FSC | | Johnstone Strait | 1,448 | 0 |
| | | Strait of Georgia | 2,301 | - |
| | | WCVI | 2,626 | 0 |
| | | Fraser River | 304 | 26 |
| Total First Nations FSC Catch | | | 6,679 | 26 |
| First Nations EO | | Johnstone Strait | - | - |
| | | Strait of Georgia | - | - |
| | | WCVI | 737 | 0 |
| | | Fraser River | 643 | 1,971 |
| Total First Nations EO Catch | | | 1,380 | 1,971 |
| First Nations ESSR | | Johnstone Strait | - | - |
| | | Strait of Georgia | 2,607 | 0 |
| | | WCVI | 26,663 | 0 |
| | | Fraser River | 15,807 | 0 |
| Total First Nations ESSR Catch | | | 45,077 | 0 |
| TOTAL - ALL FISHERIES | | | 171,390 | 220,831 |

Appendix 6: Preliminary 2009 South Coast Chum Catch By Fishery and Area

Chum

| Fishery | Gear | Fishery (Area) | Numbers | |
|---------------------------------------|----------------|--|----------------|---------------|
| | | | Kept | Released |
| Commercial | Area G Troll | WCVI AABM Chinook (23 - 27, 123 - 127) | 167 | 4 |
| | Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area H Troll | MVI Chum (14) | 15 | 0 |
| | Area H Troll | Fraser Chum (29) | 1 | 0 |
| | Area H Troll | JST Chum (12,13) | 67,898 | 841 |
| | Area H Troll | Fraser Pink (13,18) | 44 | 0 |
| | Area H Troll | Fraser Pink (29) | 0 | 0 |
| | Area B Seine | Barkley Sockeye (23) | 0 | 0 |
| | Area B Seine | Somass Chinook (23) | 0 | 0 |
| | Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 |
| | Area B Seine | JST Chum (12,13) | 316,185 | 0 |
| | Area B Seine | MVI Chum (14) | 2,030 | 0 |
| | Area B Seine | Fraser Pink (12,13) | 6,215 | 487 |
| | Area B Seine | Fraser Pink (29) | 0 | 0 |
| | Area D Gillnet | Barkley Sockeye (23) | 0 | 0 |
| | Area D Gillnet | Tlupana Chinook (25) | 0 | 0 |
| | Area D Gillnet | Somass Chinook (23) | 8 | 0 |
| | Area D Gillnet | Mainland Inlet Pinks (12) | 0 | 2 |
| | Area D Gillnet | JST Chum (12,13) | 126,625 | 5 |
| | Area D Gillnet | MVI Chum (14) | 46,609 | 15 |
| | Area E Gillnet | Fraser Chum (29) | 42,115 | 22 |
| | Area E Gillnet | MVI Chum (17/18) | 10,462 | 0 |
| Total Commercial Catch | | | 618,374 | 1,376 |
| Recreational | Sport | Juan de Fuca (19,20) | 127 | 54 |
| | Sport | Strait of Georgia (14-18,28,29) | 0 | 0 |
| | Sport | Johnstone Strait (11-13) | 186 | 74 |
| | Sport | WCVI (21-27, 121-127) | 87 | 0 |
| | Sport | Fraser River | 3,200 | 22,083 |
| Total Recreational Catch | | | 3,600 | 22,211 |
| First Nations FSC | | Johnstone Strait | 12,341 | 0 |
| | | Strait of Georgia | 5,478 | - |
| | | WCVI | 2,600 | 0 |
| | | Fraser River | 13,118 | 30 |
| Total First Nations FSC Catch | | | 33,537 | 30 |
| First Nations EO | | Johnstone Strait | - | - |
| | | Strait of Georgia | - | - |
| | | WCVI | 1,332 | 0 |
| | | Fraser River | 68,157 | 348 |
| Total First Nations EO Catch | | | 69,489 | 348 |
| First Nations ESSR | | Johnstone Strait | - | - |
| | | Strait of Georgia | 2,856 | 0 |
| | | WCVI | 14,491 | 0 |
| | | Fraser River | 8,458 | 0 |
| Total First Nations ESSR Catch | | | 25,805 | 0 |
| TOTAL - ALL FISHERIES | | | 750,805 | 23,965 |

Appendix 7: Preliminary 2009 Southern BC Commercial Catch Totals By Gear and Area

| Gear | Fishing Area | Sockeye Kept | Sockeye Released | Coho Kept | Coho Released | Pink Kept | Pink Released | Chum Kept | Chum Released | Chinook Kept | Chinook Released |
|----------------|-----------------------------|---------------|------------------|------------|---------------|------------------|---------------|----------------|---------------|---------------|------------------|
| Area G Troll | WCVI AABM Chinook (23 - 27, | 0 | 14 | 0 | 12,667 | 98 | 112 | 167 | 4 | 53,191 | 4,750 |
| Area H Troll | Mainland Inlet Pinks (12) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Area H Troll | MVI Chum (14) | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 |
| Area H Troll | Fraser Chum (29) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Area H Troll | JST Chum (12,13) | 0 | 2 | 6 | 396 | 1 | 8 | 67,898 | 841 | 0 | 10 |
| Area H Troll | Fraser Pink (13,18) | 0 | 364 | 0 | 634 | 16,728 | 0 | 44 | 0 | 0 | 21 |
| Area H Troll | Fraser Pink (29) | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 1 |
| Area B Seine | Barkley Sockeye (23) | 15,039 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Area B Seine | Somass Chinook (23) | 0 | 4,841 | 531 | 0 | 0 | 0 | 0 | 0 | 2,598 | 0 |
| Area B Seine | Mainland Inlet Pinks (12) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Area B Seine | JST Chum (12,13) | 0 | 1 | 0 | 717 | 3 | 0 | 316,185 | 0 | 0 | 9 |
| Area B Seine | MVI Chum (18) | 0 | 0 | 0 | 4 | 0 | 0 | 2,030 | 0 | 0 | 0 |
| Area B Seine | Fraser Pink (12,13) | 13 | 9,978 | 7 | 22,759 | 1,295,095 | 53 | 6,215 | 487 | 0 | 506 |
| Area B Seine | Fraser Pink (29) | 0 | 34 | 0 | 0 | 98,461 | 0 | 0 | 0 | 0 | 0 |
| Area D Gillnet | Barkley Sockeye (23) | 9,213 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 6 |
| Area D Gillnet | Tlupana Chinook (25) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3,496 | 0 |
| Area D Gillnet | Somass Chinook (23) | 0 | 69 | 377 | 8 | 0 | 0 | 8 | 0 | 3,671 | 0 |
| Area D Gillnet | Mainland Inlet Pinks (12) | 0 | 11 | 0 | 22 | 746 | 0 | 0 | 2 | 0 | 0 |
| Area D Gillnet | JST Chum (12,13) | 0 | 0 | 1 | 1,196 | 7 | 4 | 126,625 | 5 | 0 | 14 |
| Area D Gillnet | MVI Chum (14) | 0 | 0 | 1 | 133 | 0 | 0 | 46,609 | 15 | 0 | 2 |
| Area E Gillnet | Fraser Chum (29) | 1 | 5 | 10 | 1,651 | 1 | 73 | 42,115 | 22 | 33 | 48 |
| Area E Gillnet | MVI Chum (17/18) | 0 | 0 | 0 | 88 | 0 | 0 | 10,462 | 0 | 1 | 0 |
| TOTALS | | 24,266 | 15,319 | 934 | 40,283 | 1,411,140 | 269 | 618,374 | 1,376 | 62,990 | 5,367 |

*Oct08-Sept09

Appendix 8: 2009 Southern BC Recreational Catch Totals By Area

| Fishing Area | Sockeye Kept | Sockeye Released | Coho Kept | Coho Released | Pink Kept | Pink Released | Chum Kept | Chum Released | Chinook ISBM Kept | Chinook ISBM Released | Chinook AABM Kept | Chinook AABM Released |
|-------------------|---------------|------------------|----------------|----------------|----------------|----------------|--------------|---------------|-------------------|-----------------------|-------------------|-----------------------|
| Juan de Fuca | 152 | 1,091 | 9,521 | 26,382 | 50,917 | 15,560 | 127 | 54 | 28,265 | 34,371 | | |
| Strait of Georgia | 0 | 1,095 | 521 | 3,221 | 2,595 | 1,093 | 0 | 0 | 8,899 | 15,194 | | |
| Johnstone Strait | 49 | 367 | 10,512 | 29,500 | 38,897 | 17,118 | 186 | 74 | 19,482 | 22,765 | | |
| WCVI | 56,500 | 1,726 | 89,133 | 110,403 | 924 | 738 | 87 | 0 | 33,135 | 20,822 | 68,775 | 35,584 |
| Fraser River | 29 | 21,213 | 7,633 | 9,045 | 66,093 | 272,189 | 3,200 | 22,083 | 21,579 | 16,160 | | |
| Total | 56,730 | 25,492 | 117,320 | 178,551 | 159,427 | 306,698 | 3,600 | 22,211 | 111,360 | 109,312 | 68,775 | 35,584 |

All totals are preliminary.

JDF totals are from Jan to Sept; the program is still running and will end Dec31.

SoG totals are from May to Sept.

Appendix 9: 2009 Southern BC First Nations Catch Estimates By Area

| Fishery type | Fishing Area | Sockeye | | Coho | | Pink | | Chum | | Chinook ISBM | | Chinook AABM | |
|--------------|-------------------|---------|----------|--------|----------|---------|----------|---------|----------|--------------|----------|--------------|----------|
| | | Kept | Released | Kept | Released | Kept | Released | Kept | Released | Kept | Released | Kept | Released |
| FSC | Johnstone Strait | 10,124 | 0 | 1,448 | 0 | 22,501 | 0 | 12,341 | 0 | 344 | 0 | - | - |
| FSC | Strait of Georgia | 495 | 0 | 2,301 | - | 211 | 0 | 5,478 | - | 977 | 0 | - | - |
| ESSR | Strait of Georgia | - | - | 2,607 | 0 | - | - | 2,856 | 0 | 3,273 | - | - | - |
| FSC | WCVI | 77,638 | 0 | 2,626 | 0 | 133 | 0 | 2,600 | 0 | 1,404 | 0 | 3,381 | 0 |
| EO | WCVI | 0 | 0 | 737 | 0 | - | - | 1,332 | 0 | 7,622 | - | - | - |
| ESSR | WCVI | - | - | 26,663 | 0 | - | - | 14,491 | 0 | 607 | - | - | - |
| FSC | Fraser River | 59,873 | 1,315 | 304 | 26 | 1,893 | 217 | 13,118 | 30 | 28,541 | 33 | - | - |
| EO | Fraser River | 44 | 244 | 643 | 1,971 | 512,185 | 61,265 | 68,157 | 348 | 4,160 | 72 | - | - |
| ESSR | Fraser River | - | - | 15,807 | 0 | 12,312 | 0 | 15,807 | 0 | 5,000 | 0 | - | - |
| Total | | 148,174 | 1,559 | 53,136 | 1,997 | 549,235 | 61,482 | 136,180 | 378 | 51,928 | 105 | 3,381 | 0 |

Appendix 10: 2009 South Coast Test-Fishery Catches

| Test-Fishery | Sockeye retain | Sockeye release | Coho retain | Coho release | Pink retain | Pink release | Chum retain | Chum release | Chinook retain | Chinook release | GRAND TOTAL |
|------------------------------|-------------------|--------------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|-------------------|--------------------|----------------|
| Albion Chinook Gillnet | 1003 | 10 | | 55 | 67 | | 2239 | 14 | 1995 | 0 | 5383 |
| Albion Chum Gillnet | 171 | 2 | | 328 | 362 | | 7010 | | 271 | | 8144 |
| Area 12 Chum Seine | | 13 | | 643 | | 196 | 1007 | 60265 | | 26 | 62150 |
| Naka Creek Sockeye Gillnet | 1508 | | 48 | 72 | 227 | | 21 | 289 | 2 | 1 | 1879 |
| Area 13 Sockeye Seine | 4322 | 17176 | 2 | 465 | 3861 | 146535 | 1 | 1 | | 237 | 172888 |
| Area 23 Sockeye Seine | 696 | 12632 | | 12 | | | | | | 45 | 13386 |
| Blinkhorn Sockeye Seine | 5387 | 18897 | 48 | 2328 | 3224 | 250485 | 2 | 1238 | | 545 | 282154 |
| Cowichan Chum Seine | | | | 20 | | | | 1055 | | | 1075 |
| Saanich Chum Sein | | | | | | | | 295 | | | 295 |
| Nitinat Lake Chum Gillnet | | | | 72 | | | 4755 | 66 | | | 4893 |
| Round Island Sockeye Gillnet | 902 | | 191 | 78 | 574 | | 46 | | 30 | 25 | 1846 |
| San Juan Sockeye Seine | 2130 | 922 | | 4112 | 8312 | 86027 | | 89 | | 385 | 101977 |
| San Juan Sockeye Gillnet | 7774 | | | 2194 | 887 | | 38 | | 115 | 18 | 11026 |
| Whonnock Gillnet | 2001 | | | 117 | 3372 | | 103 | | 807 | 16 | 6416 |
| Cottonwood Gillnet | 1276 | | | 146 | 1449 | | 8 | | 155 | 5 | 3039 |
| Area 29 Gulf Troll | 133 | | | 4 | 752 | | | | | 5 | 898 |
| Grand Total | 27303 | 49652 | 289 | 10646 | 23087 | 483243 | 15230 | 63312 | 3380 | 1307 | 677449 |