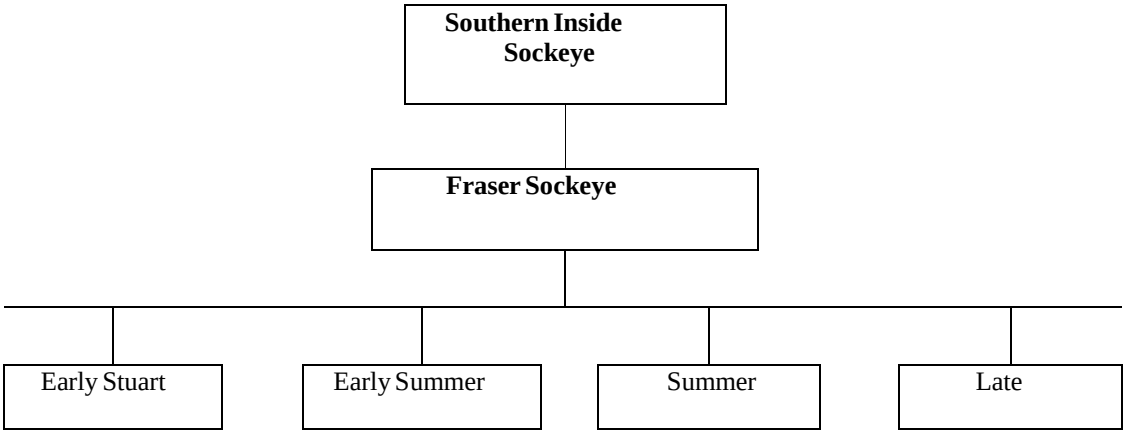
Background Information on Fraser Sockeye and Pink Salmon for FORUM Participants

Fraser Sockeye

Snapshot Overview and Map of Management Unit



Conservation Unit	Conservation Units	Conservation Units	Conservation Units
Takla-Trembleur-Estu	North Barriere - ES Shuswap Complex - ES Anderson-Seton-ES Bowron - ES Chilko-ES Francois- First Run-ES Francois- Second Run-ES Indian/Kruger-ES Nadina/Francois-ES Taseko-ES Chilliwack - ES Nahatlatch-ES Pitt - ES	Chilko-S Takla-Trembleur-Stuart-S Francois-Fraser-S Quesnel-S *Harrison - River Type* *Kamloops-ES* *Widgeon- River Type*	Cultus-L Seton-L Shuswap-Complex-L Lillooet-Harrison-L Harrison (D/S)-L Harrison (U/S)-L

Note: *italicized* CUs have been managed as part of the Summer run aggregate since the 2012 season.

Fraser River sockeye are managed based on four management groups (Early Stuart Run, Early Summer Run, Summer Run, and Late Run). However, management actions for specific populations within the four management groups may be considered. Spawning escapement targets and harvest rules are developed annually for each management group.

Currently there are 24 WSP Conservation Units identified for Fraser Sockeye

Generally Fraser Sockeye that rear in lakes return predominantly as 4 year olds spending two years in freshwater and two years in the marine environment (4_2). Some stocks can exhibit strong 5 year old components (5_2) (i.e. Pitt River). Some Fraser sockeye stocks that rear temporarily in the estuary of the Fraser River return predominantly as three year olds (3_1) or four year olds (4_1) where less time is spent in freshwater (Harrison).

Pre-season

Pre-season forecasts of run size at a range of probability levels are developed for all individual Fraser sockeye stocks, and then aggregated into the four management (run timing) groups. Fraser sockeye run size forecasts are highly uncertain, largely due to the wide variability in annual survival rates and the lack of indicators to predict this variation.

The 2018 Fraser Sockeye forecast will be presented at the February Forum.

Prior to each fishing season a spawning escapement plan and conservation constraints are determined through the Salmon Outlook and IFMP consultations. A pre-season fishing plan is then developed by the bilateral US-Canada Fraser River Panel process (FRP) that takes into consideration pre-season forecasts of abundance, timing, diversion rate and environmental conditions and/or values based on historical data when forecasts are not available.

The draft IFMP is expected to contain at least two potential escapement plans. These will be presented at the February Forum and your feedback on the plans will be requested.

Escapement Strategy

The sockeye escapement plan specifies escapement requirements that vary with run size for each run timing aggregate and includes an abundance below which there are very limited directed harvests allowed and a total mortality cap.

At low sockeye aggregate abundances, low abundance exploitation rates (LAERs) are implemented to protect the majority of the run timing aggregate while allowing for fisheries on more abundant co-migrating run timing groups and/or species

In-season assessments of run size, timing and environmental conditions and concerns for other sockeye stocks and species directly influence harvest opportunities

During the fishing season, in- season estimates of run size and management adjustments (pMAs) are used in conjunction with the escapement plan to determine the total allowable harvest for a given management group at a given time.

Proportional management adjustments (pMA) and/or proportional difference between estimates (pDBEs) are adopted by the Fraser River Panel to assist in the achievement of escapement goals. Management adjustments (pMA x escapement goal) are added to the escapement goal when necessary to account for historic differences between Mission hydroacoustic estimates of fish passage (plus catch upstream of the hydroacoustics site) and spawning ground escapement estimates. That is, sometimes more fish are needed to be counted going upstream at Mission (in the lower Fraser River) than the escapement goal (plus expected catch upstream of Mission) in order to achieve the escapement goal on the spawning grounds. Differences between estimates at Mission and the spawning grounds (DBEs) occur for many reasons, including measurement errors in the number of fish estimated at Mission, on the spawning grounds, caught along the way, stock ID error, en-route losses due to migration difficulties, and unaccounted for removals (e.g., predation).

In-season

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.

In-season information derived from catch in test and other fisheries, and in-river hydro-acoustic estimates of salmon passage are provided by the Pacific Salmon Commission (PSC) staff to the DFO and the Fraser River Panel (FRP) for consideration when planning fisheries.

The Fraser River Panel meets regularly from early July to mid-September to review information as it becomes available over the course of the sockeye and pink migration. During this period in-season information is regularly updated by the Fraser River Panel to set spawning escapement objectives, management adjustments, and calculate Total Allowable Catch (TAC). The availability of the TAC to harvesters will be affected by other factors, including migration pathways and conservation requirements for co-migrating stocks or species.

There are three First Nations members on the Fraser Panel. They are Ken Malloway, Marcel Shepert and Tony Roberts Jr.

In-season information including fishery openings is posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the following web sites:

Weekly PSC News Release: http://www.psc.org/news_frpnews.htm

Aboriginal, Commercial and Recreational Fishery Notices: http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?

Sockeye Test fisheries
FRP approved test fishery results are available from the PSC at:
http://www.psc.org/info_testfishing.htm

Other test fishery results are available from DFO at:
http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html

Fraser River Pink Salmon

Fraser pinks migrate out to sea in the spring immediately following the adult return and return as 2 year old adults. Fraser Pinks mainly return on odd calendar years.

Pre-Season

Run size forecasts are expressed as a range of values that largely reflect the both the density-dependant and independent survival (such as environmental and biological conditions) stocks have historically experienced.

In even years, there are no fisheries planned to target directly on Fraser pink salmon. In odd years, pink salmon are managed to the decision guidelines in the table below.

Table 4-1: Fraser Pink Salmon Odd Year Decision Guidelines

Run Size	Escapement Plan
Less than 7.059 M	The allowable exploitation rate (ER) increases linearly from zero percent at a run size of zero to 15% at a run size of 7.059M. (For run sizes less than 7.059M, the allowable % ER is the run size expressed in millions multiplied by (15%/7.059)
between 7.059M & 20M	The allowable ER increases from 15% to 70%. The escapement goal is 6M, the remainder is harvestable surplus.
Greater than 20M	The allowable ER is 70%. The escapement goal increases as the run size increases beyond 20M.

In-Season

In-season assessments of run size, timing, and concerns for other stocks and species directly influence harvest opportunities. Information is gathered from test fisheries and the hydro acoustic sites and provided by the Pacific Salmon Commission to the Fraser Panel.

Fraser Pinks are managed as one aggregate.

Similar to Fraser Sockeye, the Fraser Pink escapement plan is abundance based. Unlike the FR SK escapement plan, however:

- directed exploitation rate is allowed at all run sizes (i.e., no LAER)
- there is no management adjustment applied

In-season information is posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the web sites listed above.