

Impact Statement: STAD Budget Challenge 2002/03, BCIA - Fraser River
Sockeye Enumeration.

OVERVIEW

A significant funding shortfall associated with the 2002/03 Program Challenge allocation will have major impacts on the scope of Fraser River sockeye enumeration activity that can be delivered from the BC Interior Area. The primary operational impacts of working within the reduced allocation are identified below. It is noteworthy that notional allocations have not yet been approved and the earliest expected approval is late June.

Insufficient salary dollars have been allocated to staff the minimum CFT contingent required to deliver sockeye enumeration projects in BCIA.

Staffing Status: Organization Chart funded at 4 FTE positions at \$233.2K S&W;
Unfunded 6.7 FTE positions requiring \$266.8K S&W;
5.7 FTE positions on-strength currently funded O&M for cost of \$320.2K,
1.0 FTE vacancy needing funding of \$58.8K (S&W) or \$70.6K O&M.

Impact

- Immediate O&M cost of \$320.3K required to maintain current core program staff.
- Additional cost to staff vacant at a Manager position (58.8K S&W or 70.6K O&M). Without this position BCIA unable to deliver on biweekly reporting requirements, data requests and timely in-season/post season field data evaluation and assessment.

Allocated O&M funds are insufficient to implement the complete Fraser River sockeye enumeration protocol as required to fulfil Canada's obligations associated with Pacific Salmon Treaty. Working within the allocation requires the cancellation of major program components.

Operational Program Impact: Funded at \$1238.8K (A-base and PST). Staffing impact (identified above) reduces program funding availability to \$918.6K. Within the remaining allocation, priority is assigned to stocks with specific conservation concerns and then to indicator stocks. The funding shortfall for implementation of the standard Fraser sockeye enumeration program (BCIA component) is \$1120.0K.

- This allocation represents a severe reduction to the overall assessment program. At these funding levels several major components of the 2002 Fraser River sockeye escapement will not be enumerated or assessed this year.
- No Early Summer Run enumeration/assessment: 30+ stocks will not be assessed in 2002.
- No enumeration/assessment on three major Summer run components (Quesnel, Stellako and Late Stuart): Major stock complexes with over 60+ distinct populations will not be assessed in 2002.
- Reductions of this magnitude will have a marked negative impact on management and assessment of Fraser River sockeye fisheries and population dynamics in the immediate and long term. The current configuration fails to meet Canada's obligations under the PST, some aspects of which have already been agreed to for 2002/03 field season (spawning ground sample collection). Failure to adequately deliver the Fraser River sockeye enumeration program mandate will seriously erode client and stakeholder confidence in the Department.

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Background

Significant cuts to operational budgets for Pacific Region Stock Assessment activities have placed major constraints on program delivery in all Pacific Region Areas. Funding reductions have been large for all Areas and major program cuts have been proposed Region-wide. BC Interior Area (BCIA) programs experienced funding shortfalls on the order of 50% relative to required levels. Two Challenge interpretations play a significant role in the current funding pressures experienced by the BCIA sockeye assessment program. Evaluation of each suggests a disproportionately larger shortfall for BCIA sockeye programs relative to the general funding reductions.

First, failure to provide adequate S&W funding to staff the approved organization chart for BCIA sockeye program (associated with the move to area based delivery) results in a shortfall of \$325.3K (S&W). Current on-strength staffing levels, funded by O&M conversion, cost the program \$320.2K which represents a premium of \$53.4K over S&W cost. An additional cost would be associated with staffing the vacant Data Manager position (+\$58.8K S&W or \$70.6K O&M). The BAT reference for the BCIA sockeye program was zero positions because this program was delivered out of the Lower Fraser in 2000/01. The total BCIA sockeye staff complement is 10.7 FTE of which 9.7 FTE are on-strength. At BAT the Fraser Sockeye program staff complement based out of Lower Fraser Area was 14.0 FTE (8.0 S&W funded CFT; 6.0 O&M funded). Four LFA CFT positions were transferred to BCIA with salary dollars, the remainder of the BCIA organization chart remains unfunded and requires program O&M resources to fund. The current freeze at existing staffing levels and distribution seriously handicaps the BCIA sockeye program. The S&W shortfall represents a \$320.2K pressure against O&M funding. This allocation has already been significantly impacted by a disproportionate (and large) reduction identified below. Without adequate staffing levels and resources to support the program, key functions cannot be delivered in 2002/03.

Most pressing is the need to staff the sockeye Data Manager. Failure to staff this position represents significant disparity with respect to organization structures in other Pacific Region Areas, all have staffed Data Manager/Coordinators. This means that capacity for bi-weekly in-season reporting of BCIA Fraser River sockeye project data is non-existent in 2002/03. Failure to deliver on these expectations would represent a major reduction in expected levels of program delivery.

Second, the Challenge failed to acknowledge the operational reality of cyclical patterns in Fraser sockeye spawner abundance on the cost of implementing spawning grounds enumeration programs. Both the BAT and 2001/2002 reference points represent O&M allocations for non-dominant (low abundance) Early and Late South Thompson River stocks. The cost associated with these projects rises from \$75K on the off cycle years (BAT and BAT+1) to \$609.8K this year. Failure to accept and support the reality of increased costs associated with these large dominant year escapements immediately handicapped the BCIA sockeye enumeration program and placed significant and unrealistic constraints on the configuration of the program that could be delivered. Working within the current funding levels will facilitate the implementation of a program that represents a major reduction in expected levels of program delivery.

2002/03 Program Profile: Proposed

Enumeration project proposals were developed for BCIA Fraser River sockeye populations consistent with established survey protocol and standards of program delivery. The adult enumeration proposal included 11 mark-recapture programs, 8 on escapements expected to exceed 100K spawners (range 100K – 1000K; Chilko, Adams, Little, Horsefly, Mitchell, Stellako, Lower Shuswap and Tachie rivers) and three on populations in the 50-70K range (Seymour, Eagle and Middle rivers). Seven fence enumerations were proposed for escapements ranging in size from 2K – 200K (Forfar, Gluske, Kynoch, Fennell, Stellako, McKinley, and Kuzkwa). All remaining enumeration activities consisted of cyclic visual surveys, including work on population aggregates in the Early Stuart complex (39 populations) North and South Thompson River tributaries (23 populations), Quesnel Lake tributaries (>45+ populations), Shuswap Lake tributaries (25+ populations), plus five additional miscellaneous populations (Nahatlatch, Gates, Nadina, Bowron and Portage). Survey methodology, intensity and the scope of the proposed assessments conformed to well established Fraser River adult sockeye enumeration standards.

Four juvenile programs were proposed, Chilko smolt enumeration, downstream fry programs at Nadina and Early Stuart, and hydroacoustic surveys in Okanagan Lake. The total package also included a proposal to continue funding for spawning grounds water temperature monitoring, representing continuous monitoring that extends back >30 years for some systems.

Three additional supplementary programs associated with Late Run mortality were also included in the proposal. These included a tagging program in the mainstem Thompson River, mainstem Thompson and South Thompson River migratory route carcass recovery, and a Seton/Portage Late run mortality tagging study.

The budget submission for the standard suite of enumeration activity, required to satisfy on-going Fraser River sockeye enumeration study objectives, totalled \$2038.6K (\$1874.9K adult, \$147.9K juvenile, \$15.8K temperature monitoring). Additional funds totalling \$374.5K for supplementary programs resulted in a total request of \$2413.1K. Supplementary projects were requested in response to specific issues but do not form a component of the standard on-going Fraser River sockeye spawning grounds enumeration program. The Thompson River tagging project, a supplementary component, to evaluate late run mortality is expected to be funded through alternate sources. Okanagan juvenile surveys were rated "Must Do" but are unfunded. The remaining supplementary projects are given no further consideration herein because all were identified as "Should Do" or "Could Do" and thus were not supported as defensible funding pressures this year. Budget submissions, by project, are detailed in Appendix 1.

Program Delivery

Staffing

The staff complement required to deliver the core BCIA sockeye assessment mandate includes 10.7 FTE positions. Fully staffed this organization requires a S&W allocation of \$558.8K. Currently, there is one vacant position (Data Manager) in the program, reducing S&W requirements to \$500.3K. The Data Manager plays a critical role in program delivery and the current vacancy leaves a major gap in capacity. Approval to staff the Data Manager has been frozen pending the outcome of the Regional Program Challenge.

Salary and wage allocation to the BCIA sockeye program in 2002/03 totals \$233.2K for 4 positions (2 EG-5, 1 BI-2, 1 BI-3). The remaining 6.7 FTE positions designated NEW (2 EG-5), or O&M funded (4.7 EG-3), represent required S&W allocations. However, barring an appropriate S&W allocation, the only option available to fund these positions is conversion of project O&M funds. The cost associated with the on-strength unfunded (S&W) staff complement is \$266.8K, representing an O&M cost of \$320.2K (\$53.4K premium for conversion costs). Approval to staff the Data Manager position would require an additional \$58.8K S&W, or \$70.6K O&M (\$11.8K

conversion premium). Total O&M cost to fully fund the required program staff is \$390.8K (premium of \$65.2K). These costs represent an immediate pressure on project allocations.

Operational Program Funding Levels

The combined A-Base/PST O&M allocation to the BCI Fraser sockeye assessment program was \$1238.8K. The allocation was determined based on proportional distribution (using the 2001/02 proportional profile) of the 2002/03 allocation to the total Fraser River system (both BCIA and LFA programs). Funding at this level represents a shortfall of \$799.8K relative to the BCIA Fraser sockeye program funding request of \$2038.6K. Because S&W allocations do not cover off necessary staffing costs there is an immediate cost to the program O&M allocation of \$320.2K. This cost has been taken out of the 2002/03 O&M allocation off the top. The resulting effective project budgets total \$918.6K for 2002/03, a shortfall of \$1120.0K. In the absence of S&W funding, an additional \$70.6K O&M cost would be associated with staffing the Data Manager position (there is no approval to proceed presently).

Project Profile: Budget Impact

Viable options to deliver on the complete BCIA Fraser River sockeye assessment mandate, to expected delivery standards, within the current budget allocation **DO NOT EXIST**. The recommended configuration, both proposed for 2002/03 and by the current funding status, is shown in Table 1. This proposed profile manages within the allocated budget for 2002/03. Potential impacts of the reductions are discussed below.

Table 1. Program Challenge (15-17MAY02) impact on BCIA Fraser River sockeye stock assessment program profile.

Management Group	Component of 2002/03 BCIA Sockeye Proposal	Percentage B.Y. Group Escapement	2002/03 Status
Early Stuart (Brood esc. = 32.6K)	1. Early Stuart Fry	NA	Cancel
	2. Early Stuart Enumeration	65%	Proceed
	3. Driftwood R. Enumeration	35%	Proceed
Early Summer (BCIA Brood Esc. = 150.2K Fraser Brood Esc. = 228.2K)	1. Nadina Fry	NA	Cancel
	2. N/S Thompson/ Fraser Roving	28.9%	Cancel
	3. Fennel Creek Fence	(5.8%) ¹	Cancel
	4. Eagle R. MR	19.0%	Cancel
	5. Seymour R. MR	22.2%	Cancel
	6. Nadina R. Visuals	(2.5%)	Cancel
	7. Bowron R. Visuals	(3.2%)	Cancel
Summer (BCIA Brood Esc= 2385.3K Fraser Brood Esc=2391.3K)	1. Chilko Smolts	NA	Proceed
	2. Chilko R/L MR	36.9%	Proceed
	3. Horsefly R./Quesnel L MR	36.9%	Cancel
	4. Mitchell R. MR	12.6%	Cancel
	5. Stellako R. MR	7.8%	Cancel
	6. Middle R. MR	1.8%	Cancel
	7. Tachie R. MR	4.0%	Cancel
Late (BCIA Brood Esc= 1389.6K Fraser Brood Esc=1750.3K)	1. L. Adams/Shuswap L. MR	76.5%	Proceed
	2. L.&M. Shuswap R. MR	21.7%	Proceed
	3. Thomson R. Tagging	N/A	Proceed ²
	4. En-route Recovery	N/A	Cancel
	5. Seton Dam Tagging (Portage Cr.)	1.8%	Cancel
All	1. Water Temperature Monitoring	NA	Cancel

¹ The fence program is part of a calibration component recommended by FRSPRB and is additional to core program suite.

² Proceeding under funding from Committee for Scientific Cooperation.

Funding Priorities

Within the combined A-base + PST allocation for 2002/03, priorities were assigned to projects based on conservation concern issues and assessment priority. Note that all adult Fraser River sockeye enumeration program components were rated "MUST DO" within the Challenge process. Due to the significant funding shortfall, all "MUST DO" programs could not be funded within the resource allocations made available to the Challenge process. Table 2 identifies the proposed allocation of provided funding. The impacts identified below are by no means a complete list, they represent the most immediate effects or information losses. Implications regarding client and stakeholder impacts will go far beyond the issues identified here.

Table 2. Proposed funding level allocation based on the combined A-base and PST allocations from Challenge process to BCIA Sockeye program in 2002/03.

Program Element		O&M Cost	Cumulative Total
Program Staff		320.2K	320.2K
Chilko River Indicator:	Juvenile	78.0K	398.2K
	Adult	199.5K	597.7K
Late South Thompson:	Adams River/Shuswap Lake MR	240.9K	838.6K
	Lower Shuswap/Middle River MR	186.5K	1025.1K
Early Stuart:	Adult Enumeration (not Driftwood)	167.1K	1192.2K
	Driftwood River system	46.6K	1238.8K

Allocation Rationale:

Program Staff: the 5.7 FTE positions currently on-strength and unfunded in the S&W allocation are required for ongoing program implementation, even within the context of the drastically reduced program configuration. The vacant Data Manager position represents a further 70.6K O&M cost pressure and has not been included because authorization to staff has been withheld. The DM position function is URGENTLY required and represents a potential for further O&M project cost pressure if salary dollars are not identified. Without the Data Manager position, BCIA cannot deliver on the bi-weekly Fraser Panel update schedule. This represents a significant reduction in program service.

Chilko River juvenile and adult enumerations: these projects comprise the only sockeye indicator stock in the Fraser system and are one of only three on the coast. Together they provide critical assessment capability to partition marine and freshwater survival for Fraser sockeye stocks. This stock belongs to the Summer run management group which will be the primary focus of harvest opportunities in 2002. Both projects represent > 50 year time series data sets.

Late South Thompson – Adams/Shuswap L. and Lower/Middle Shuswap R. MR's: the Late Run mortality issue, associated with early migration timing of Fraser River Late Run sockeye, is a significant conservation issue. Mortality, possibly approaching 90% for certain run timing components, may potentially affect both stock complexes. Regionally significant resources (\$1.3M) are being directed at Late Run mortality investigations and these investigations are inextricably linked to the successful implementation of spawning grounds enumeration projects. This is the dominant cycle year for this grouping and represents the only viable opportunity to conduct mortality assessments due to relative run size comparisons (Summer and Late runs) over the next four years.

Early Stuart – Early Stuart and Driftwood enumeration: 2002 is the weakest cycle year for this stock complex and represents a conservation concern. Expected run size is below rebuilding/interim escapement target for this group resulting in no expected fishing opportunities to provide run protection. This stock will not be assessed by the PSC (Mission Hydroacoustic Facility) due to low abundance. Spawning grounds programs are mandatory to collect information to determine the stock status and defend management decisions.

General Impacts

Area Based Delivery: The ability of BCIA Sockeye Stock Assessment Program to deliver on its complete mandate is seriously compromised due to funding shortfalls in both S&W\$ and O&M\$. The most significant issue is the inability to staff the approved BCIA Stock Assessment organization due to S&W shortfall and the impact of O&M\$ conversion to S&W\$ for staffing purposes. The Sockeye Data Manager position is critical for managing inseason data flow from field programs and summarization and distribution to client groups. Without this position BCIA is in no position to meet in-season or post-season reporting requirements. Prolonged organizational instability may erode the confidence of short and long term temporary staff regarding future employment opportunities. Since the program is dependant on this short term workforce for discharging program responsibilities the inability to provide employment stability may create staff retention problems.

Pacific Salmon Commission: PSC staff rely on data collected by the sockeye program for in-season and post-season assessment and evaluation of Fraser Sockeye management options. Data sources include: terminal area arrival timing inseason abundance estimates, adult escapement estimates by sex and age, jack escapement estimates and spawning grounds scale and otolith samples. Loss of these data will impact multiple facets of the Fraser River sockeye management/assessment framework.

Terminal area arrival timing – timing indices provide the PSC with early indication of migratory conditions, migratory success and of potential escapement failures. Loss of this information would remove capacity to respond inseason and would increase management risk;

Inseason abundance estimates – inseason abundance estimates provide the relative stock specific abundance information for selected stocks. Loss of this information would remove ability to compare Mission hydroacoustic estimates with terminal arrival timing and in-season abundance. Systematic bias at Mission would be undetectable inseason;

Adult escapement estimates by sex and age – post-season accounting processes are based on stock-specific estimates of total catch and escapement. Without escapement, stock identification data and age composition from spawning ground samples, which are required to validate the inseason stock discrimination results, the PSC will be unable to conduct post-season review or evaluate the 2002/03 management plan;

Jack escapement estimates – jack escapement estimates and scale data collected from the spawning grounds are required to calibrate the 2003 models. Without jack data this capability is lost;

Scale and otolith samples – samples collected on the spawning grounds are used to characterize stock identification and determine age specific contribution to the spawning population and brood year production. Without stock identification and age data stock specific production models and run reconstruction will not be possible.

Fishery Management: Credible spawning escapement estimates are required to determine annual Total Allowable Catch, from this international and domestic catch share is determined. Under the current configuration FOC will be unable to meet its commitment under the PST to provide escapement estimates for all populations that have been assessed historically. As a result run strength and TAC will not be determinable.

Specific conservation concerns have been identified for Early Stuart, Early Summer and Late run sockeye in 2002. Fishery closures have been identified or proposed to protect specific stocks and meet escapement objectives. Project cancellation will reduce or eliminate the Departments ability to demonstrate that closures were necessary, or that escapement objectives were being met for the Early Summer group. Since the Early Summer run cannot be reliably estimated by the

hydroacoustic facility there would be no ability to estimate run size in-season for this group. Managers would be unable to evaluate the impact of en-route fisheries or mortality, or accuracy of the hydroacoustic estimates made in-season.

Stock Assessment: Failure to implement the spawning grounds programs would negatively impact analytical capability by interrupting the continuity of the Fraser sockeye data set time series, and by providing only partial management group escapement information. These data are crucial to the evaluation of stock dynamics and production, particularly for those stocks that are experiencing marked growth, as well as for several large stocks approaching production limits. Loss of these data will limit ability to establish and defend escapement goals and rebuilding objectives. The interruption of the data series will seriously erode the forecast capability for the 2006 escapement year – additionally, forecasts would only be possible for a subset of the total Fraser River return in 2006.

AFS: Partnerships between sockeye program staff and Fraser basin First Nations have been actively developed over the past 10-12 years. Stock assessment co-management commitments have been formalized in numerous AFS contribution agreements. Project cancellation may erode the positive working relationships that have been fostered with numerous FN groups. We have been working to build capacity within the FN communities throughout the watershed by partnering our escapement programs with FN fisheries programs. Cancellation of projects will directly and negatively impact these efforts. The trust and working relationships developed between FOC and FN groups may be destroyed where programs are cancelled. There is a possibility of political response if programs are cancelled.

Run-timing Specific Impacts

Early Stuart Run

- Standard enumeration protocol/standards are fulfilled for this run timing group.

Early Summer Run

- Impacts are severe and represent a significant reduction in expected levels of program delivery.
- There will be no escapement estimation on any Early Summer Fraser sockeye.
- This cycle represents dominant year production for Early South Thompson stocks.
- Poor capability to estimate escapement at Mission = no estimate of Early Summer run size.
- Consists of numerous stocks of very high interest to FN's from harvest and conservation perspective.
- Neither total Early Summer run nor stock specific escapement estimated.
- Inability to calibrate in-season models for Early Summer runs.
- Inability to undertake post-season run reconstruction.
- No forecast capability in 2006.
- Inability to deliver on PST escapement estimation obligations.
- No spawning grounds samples (samples stock identification and ageing) will be collected to deliver on PST obligations already signed off for 2002/03.

Summer Run

- Impacts are severe and represent a significant reduction in expected levels of program delivery.
- No escapement estimates for Quesnel River system (Horsefly, Mitchell, Quesnel Lake tributaries).
- No escapement estimates on any Late Stuart stocks (Middle, Tachie River, and 8 smaller tributaries).
- No escapement estimate for Stellako River stock.
- No run size estimation for total Summer run, or three major components thereof.
- Inability to calibrate in-season models for Summer runs.

- Inability to undertake post season run reconstruction.
- No forecast capability for 2006.
- Reduced forecast capability for 2003/04 (no jack estimates or data).
- Inability to deliver on PST escapement estimation obligations.
- No spawning grounds samples (stock identification and ageing) will be collected to deliver on PST obligations already signed off for 2002/03.
- Inability to meet co-management obligations entered into with several Fraser River First Nations (CSTC, CTC, TNG).

Late Run

The majority (98.2%) of the Late Run spawning grounds estimation protocol is being implemented as per Fraser River sockeye project enumeration standards. The major exception is the Portage Creek population, which will not be assessed in 2002/03. The cancellation of the Portage Creek assessment is problematic because like all Late Runs it has experienced high enroute mortality recently. This failure to assess will result in inability to identify the certainty of a conservation concern for the Portage stock.

Summary

The cuts proposed to the 2002/03 operating budget for BCIA Fraser River sockeye stock assessment activities warrant serious and considered review. Ultimately, Departmental credibility is at stake. Consider that the cuts to this year's budget are impacting only the second return from the 1994 "crisis" year when hundreds of thousands of Fraser sockeye went "missing". The 1994 crisis spawned an extensive public review process, of which, one result was the validation of the importance of the existing spawning grounds escapement programs. The 1994 review made specific recommendations regarding enhanced coverage of Fraser sockeye spawning grounds in general, and for a number of specific stocks in particular. Generally, the review recommended enhanced sockeye spawning grounds coverage throughout the Fraser system. Budget reductions in 2002/03 move far from maintaining, or even meeting, the public review recommendations, let alone long standing Fraser sockeye enumeration standards. The magnitude of the budget reductions erodes Fraser sockeye spawning ground enumeration capacity to levels far below required or expected standards. The cuts extend well beyond measures that can be managed by the application of program adjustments or across-the-board incremental cuts. These reductions require the cancellation of entire projects. The impact of the cancellations will be far reaching and, if proceeded with, will seriously erode stakeholder and public confidence.

Cost to implement the remaining unfunded projects (to protocol standards) and a reprofile to meet minimum assessment needs have been included below. Both the full and reprofiled configurations will provide data that will meet Canada's obligation under PST to deliver escapement estimates that are consistent with established Fraser River sockeye management/program standards.

Project Costs: Cancelled and reprofiled Fraser River sockeye assessment projects 2002/03.

Costs have been broken out into their respective run timing group. Reported costs under Full Program are those associated with full implementation of the cancelled projects to historic program standards. The optional reprofile identifies savings that can be realized while still meeting the primary sockeye enumeration objectives.

Option 1 - Full Program: implement cancelled Fraser River sockeye projects to historic standards.

Early Summer Run:	North/South Thompson and Fraser River Roving	53.5K	
	Seymour River MR	86.7K	
	Eagle River MR	92.8K	
	Nadina River Visual	9.8K	
	Bowron River Visual	<u>12.5K</u>	
	Total	255.3K	
Summer Run:	Mitchell River MR	106.8K	
	Horsefly/Quesnel Lake MR/Visual	315.0K	
	Stellako River	106.0K	
	Tachie River MR/Fence/Visual	134.9K	
	Middle River MR/Visual	<u>113.3K</u>	
	Total	776.0K	
Water Temperature:	Watershed-wide Data Logging	Total	15.8K

Option 2 - Reprofile: implement projects to meet basic assessment needs (savings = \$46.5K Early Summer Run projects; \$140.4K Summer Run projects; Total \$186.9K).

Early Summer Run:	North/South Thompson and Fraser River Roving	53.5K	
	Seymour River MR	65.0K ¹	
	Eagle River MR	68.0K ²	
	Nadina River Visual	9.8K	
	Bowron River Visual	<u>12.5K</u>	
	Total	208.8K	
Summer Run:	Mitchell River MR	106.8K	
	Horsefly/Quesnel Lake MR/Visual	283.9K ³	
	Stellako River	40.0K ⁴	
	Tachie River MR/Fence/Visual	134.9K	
	Middle River MR/Visual	<u>70.0K</u> ⁵	
	Total	635.6K	
Water Temperature:	Watershed-wide data logging	Total	15.8K

Project Adjustments in Reprofile

¹ Seymour River MR: mark-recapture program maintained with reduced levels of effort in tag application and recovery sampling. Potential Late Run timing overlap must be assessed.

² Eagle River MR: mark-recapture program must be maintained due to poor visibility in Eagle River below Perry River confluence (glacial turbidity). Spawner distribution in dominant year is expected to be >75% below Perry. Reduce levels of effort in application and recovery sampling. Potential Late Run timing overlap must be assessed.

³ Horsefly/Quesnel Lake MR/Visual: major mark-recapture program adjusted to reduce recovery sample frequency in Horsefly and survey frequency in Quesnel Lake tributaries and McKinley Creek. Cancel Likely Bridge counts and replace with Horsefly R. counts.

⁴ Stellako River MR: Cancel Stellako mark-recapture and provide technical supervision and support to the CSTC owned and staffed fence. Without FOC technical supervision the program will have negligible assessment value.

⁵ Middle River MR: Maintain visual surveys and implement reduced levels of effort in the tagging and recovery samples of the MR.

Appendix 1. Budget request, allocation and long range planning projection (\$K's) for FY2001/02 and FY 2002/03 – Fraser River sockeye spawning grounds assessment BCIA implementation.

Project Name	Requested 2002/03	LR Budget Projection 2002/03	Funded 2001/02	LR Budget Projection 2001/2002
Early Stuart				
Early Stuart Fry Enumeration	49.2	39.2	45.8	38.6
Early Stuart Adult Enumeration	167.1	185.0	166.6	316.2
Driftwood River Enumeration	46.7	Incl. in above	52.7	Incl. in above
Early Summer Run				
Nadina River Fry Enumeration	20.7	70.0	24.5	70.0
N/S Thompson/Fraser Roving	53.5	54.3	54.3	53.5
Fennell Creek Fence ¹	41.1	n/a	40.5	n/a
Seymour River MR ¹	86.7	68.7	0.0	20.0
Eagle River MR ²	92.8	60.5	0.0	0.0
Nadina River Visual	9.8	8.2	10.0	8.1
Bowron River Visual	12.5	13.5	11.7	12.8
Summer Run				
Chilko Lake Smolt Enumeration	78.0	75.2	78.6	74.1
Chilko River/Lake MR	199.5	157.3	201.1	160.0
Horsefly River/Quesnel Lake MR	315.0	195.2	283.9	191.4
Mitchell River MR	106.8	85.6	105.4	90.0
Stellako River MR	106.0	92.5	99.1	109.3
Tachie River MR	134.9	210.5	126.8	215.4
Middle River MR	113.3	Incl. in above	95.9	Incl. in above
Late Run				
Adams River/Shuswap Lake MR ³	240.9	210.3	30.0	31.0
Lower Shuswap River MR ⁴	189.4	168.5	40.0	42.0
Thompson River Tagging ^{5, 7}	150.0	n/a	N/a	n/a
Thompson/S. Thompson Recovery ^{5, 7}	94.6	n/a	N/a	n/a
Portage Creek Mortality ^{5, 7}	58.8	n/a	44.0	n/a
Water Temperature	15.8	15.6	15.3	15.3
Okanagan Lake Juvenile Surveys ⁷	30.0	30.0	30.0	30.0
Total - All components	2413.1	1740.1	1586.2	1477.7
Total - Standard Fraser Sockeye Only	2038.6	1710.1	1471.7	1447.7

¹ No MR program 2001/02 due to off cycle year - included in N/S Thompson Roving.

² No MR program 2001/02 due to off cycle year - included in N/S Thompson Roving.

^{3, 4} No MR program 2001/02 due to off cycle year.

⁵ No tagging program 2001/02 due to off cycle year.

⁶ Unfunded program implemented on Area Chief Authority.

⁷ Non-standard Fraser River sockeye assessment projects – costs here are in addition to standard assessment protocol.