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In partnership with the Department of Fisheries and Oceans, Canada, the
State of the Salmon Program welcomes you to:

An Expert Workshop to validate quantitative data gaps:
how well can we assess trends in salmon and steelhead escapement?

July 11-12, 2007
University of British Columbia, Vancouver, OR

INFORMATION PACKET

State of the Salmon | A joint program of Ecotrust and the Wild Salmon Center



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AGENDA

WEDNESDAY, July 11, 2007

Arbutus Room, Ponderosa Centre, UBC campus

8:30 AM | Introductions: Cathy Kellon, State of the Salmon, and Jim Irvine, DFO
Presentations: Blair Holtby, DFO, *Wild Salmon Policy & Conservation Units*
Pete Rand, SoS, *Salmon Monitoring Inventory*
Karl English, *BC and Yukon Inventory*
Workgroup Directions: Cathy Kellon

10:00 AM | Workgroup Session: *Validate key escapement monitoring activities (5.25 hrs total)*

Noon | Lunch, hosted, on-site

1:00 PM | Workgroup Session, cont'd

2:45 PM | Break

3:00 PM | Workgroup Session, cont'd

5:00 PM | Close

6:30 PM | Hosted dinner at Sage Bistro at 6331 Crescent Rd, UBC campus

AGENDA

THURSDAY, July 12, 2007

Arbutus Room, Ponderosa Centre, UBC campus

8:30 AM | Opening remarks and directions

8:45 AM | Workgroup session: *Validate information on key escapement monitoring activities and streams (3 hrs total)*

10:15 AM | Break

10:30 AM | Workgroup session, cont'd

Noon | Lunch, hosted, on-site

1:00 PM | Workgroup session: *Estimate percent wild origin fish (2.25 hrs total)*

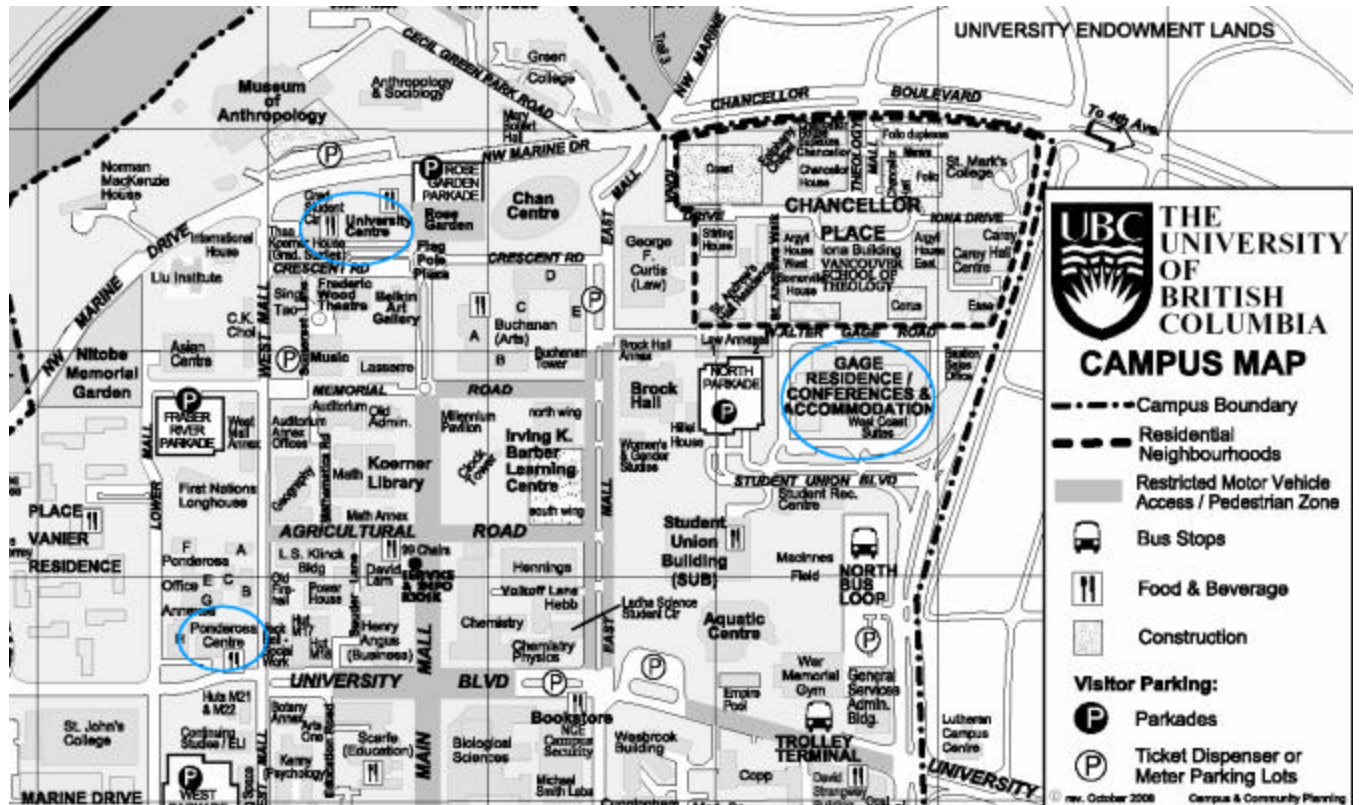
2:15 PM | Break

2:30 PM | Workgroup session, cont'd

3:30 PM | Closing remarks, next steps, and feedback

4:00 PM | End

CAMPUS MAP



Workshop held in the Arbutus Room, Ponderosa Center at 2071 West Mall
Accommodations for workshop participants at Gage Towers at 5959 Student Union Blvd
Dinner hosted at 6:30 pm Wednesday, July 11th at Sage Bistro at 6331 Crescent Rd

More campus maps available at <http://www.ubc.ca/about/directions.html>

A list of campus restaurants is available at
<http://web.phil.ufl.edu/SEP/meeting/2007/documents/campusdining.pdf>

WORKSHOP OVERVIEW

Location

Arbutus Room, Ponderosa Centre, 2071 West Mall, University of British Columbia,
Vancouver, BC

Goals

1. Validate key monitoring activities suitable for reliably estimating status of and trends in escapement for individual conservation units.
2. Validate/add critical information for identified key escapement monitoring activities.
3. Estimate percentage of wild origin fish for each key stream.

Scope

Monitoring activities: Quantitative data obtained from field observations and sampling. Exclude modeled data. Data span a time period that captures at least three generations of species of interest or a minimum of ten years with outlook through 2015.

Species: Chinook, Chum, Coho, Pink, Sockeye, Steelhead

Workgroups

Individuals are assigned to one of the following three regional groups:

1. Yukon Territory, North Coast, and Central Coast
2. South Coast and Vancouver Island
3. Fraser River Basin

Day One Overview

Goal

1. Validate/identify key monitoring activities suitable for reliably estimating trends in escapement for individual conservation units.

Groups

Individuals are assigned to one of the following three regional groups:

1. Yukon Territory, North Coast, and Central Coast
2. South Coast and Vancouver Island
3. Fraser River Basin

Criteria for inclusion as a key monitoring activity

- Adult escapement enumeration activities that produce reliable* quantitative data suitable for estimating trends in escapement for that conservation unit¹. *Note that issues of accuracy and precision are addressed in the field method quality ranking of each monitoring activity (to be discussed day one and edited day two).
- Data** span a time period that captures at least three generations of species of interest or a minimum of ten years with outlook through 2015. Casting forward to 2015 allows for consideration of recently initiated long-term monitoring efforts. Exclude monitoring efforts that are tentative or planned for the future but have not yet begun. ** Where there is at least one year's worth of data and the expectation of 9+ additional years.

Methods

Nominal group techniques are used to solicit and aggregate information on a species by species basis. Facilitator will describe the approach and the very first question will be broken down so participants can familiarize themselves with the methods. Subsequent rounds can be streamlined.

¹ Including steelhead population units

Day One Methods, cont'd

1. Silently review and validate/nominate key streams for those XspeciesX CUs for which you have knowledge.
 - a) Indicate on your worksheet whether the listed “index” activities should (Y) or should not be (N) considered key streams.
 - b) If you do not see an activity listed that you believe should be, add it to your worksheet at the end of the given CU with the population name, stream name, field method, and first year of operation.
 - c) Highlight information for “index” streams that appears to be incorrect. You will have an opportunity to discuss and update this information during tomorrow’s session.
 - d) Please remain silent until all group members are done.
2. Share your list of recommended key streams by CU with the group.
3. Facilitated group discussion.
4. Final opportunity to change your nominated key streams on your worksheet, if desired.
5. Repeat steps 1-4 with each additional species.

At the end of the day we will tally those CUs for which no key streams have been identified.

Day Two Overview

Goals

1. Generate and validate critical information about the identified key escapement monitoring activities.
2. Estimate percentage of wild fish for each identified key stream (i.e., those streams with key monitoring activities).

Groups

Individuals are assigned to one of the following three regional groups:

1. Yukon Territory, North Coast, and Central Coast
2. South Coast and Vancouver Island
3. Fraser River Basin

Methods

- Goal 2 will rely upon a combination of facilitated discussion and individual data entry. See following pages for additional instructions.
- Goal 3 will utilize nominal group techniques to solicit and aggregate information. See following pages for additional instructions.

Goal 2: Generate and validate critical information about identified key escapement monitoring activities.

The purpose of this session is to capture those corrections that were noted during the first day's discussion of key streams as well as ensure that all necessary information for any additional key streams identified during the workshop are recorded. In most cases, one or two individuals will be most familiar with the methods and quality of the surveys conducted on a specific index stream but input from others will be important to ensure that the evaluations are consistent both within and between regions, for each species.

Methods

Utilize a combination of facilitated discussion and individual data entry on provided worksheets and survey forms to edit or add requested information pertaining to key escapement monitoring activities.

Whereas the information should be vetted to the greatest extent possible via discussion, individuals should each submit their scores and information on their own worksheet or survey forms.

Where multiple people submit field quality scores for one monitoring activity, the average will be taken (excluding "0"s).

Location information can be marked directly onto maps – place your initials by any edits made directly to the maps.

Field method quality score guide appears on the following page.

Field Method Quality Scoring Guide

Participants assign a score to each key activity on a scale of 0-5 which describes the quality of survey data given the type of field method used and its application. Multiple scores, excluding “0”s, are averaged to derive a single numeric rank per activity. (Source: LGL Limited)

Table 1. Field method quality: monitoring activities		
Score	Descriptor	Definition
0	Unknown	Individual does not possess the knowledge to score the field method quality of this monitoring activity.
1	Poor	An estimate of low resolution that would most likely exclude Mark & Recapture and Fixed Site estimate methods. A low number of documented surveys (e.g., 1 stream inspection), or vaguely defined, inconsistent, or poorly executed surveys or analyses. An estimate of unknown confidence/certainty. Could be used to record a minimum observed escapement in favor of stating Adults Present.
2	Fair	An estimate of medium resolution based on the documentation of two or more walking, floating, or flying inspections around the peak of spawning containing high adult live estimates and high stream reliabilities; or possibly low reliable weir/fence count records, Mark & Recapture data or low to medium AUC calculations. The estimate uncertainty is believed to be no better than plus or minus 25% of the actual estimate.
3	Good	An estimate of high resolution based on three or more documented inspections of walking, floating, or flying which clearly define the peak of spawning and contain high adult live estimates and high stream reliabilities; or an estimate of medium resolution based on documented data from Mark & Recapture, Fixed site method, or medium to high AUC calculation. The estimate uncertainty is believed to be less than plus or minus 25% of the actual estimate.
4	Very Good	An estimate of high resolution based on documented data from a Mark & Recapture, incomplete (relative) weir/fence count, or highly unreliable AUC calculation with measured observer efficiency and stream or spawning residency time ranges. This does not include estimates based exclusively on walking, floating, or flying inspections. The estimate uncertainty is believed to be more than plus or minus 10% of the actual estimate.
5	Excellent	An estimate of high resolution from an unbreached weir/fence count. This does not include stream estimates based exclusively on walking, floating or flying inspections, AUC calculations, Mark & Recapture estimates, or incomplete weir/fence counts. The estimate uncertainty is believed to be less than plus or minus 10% of the actual estimate.

Goal 3: Estimate percentage of wild fish for each identified key stream.

For each key stream, individuals will estimate the percentage of fish that are of wild origin (see definitions below) as well as provide a confidence score (syn. rigor estimate) for that estimate. The final value will be a weighted average (e.g., higher weight given to estimates with high certainty).

E.g., of those fish enumerated on the spawning grounds of the key stream or at the point of the monitoring activity, what percent were not artificially spawned and/or reared (F₂)? Do not discount for enroute or pre-spawning mortality.

Excerpted from "Canada's policy for the conservation of wild Pacific salmon"
© Her Majesty the Queen in Right of Canada, 2005

What are Wild Pacific Salmon?

The Wild Salmon Policy (WSP) addresses five species of Pacific salmon found in British Columbia and the Yukon (2): *Oncorhynchus nerka* (sockeye), *O. kisutch* (coho), *O. tshawytscha* (chinook), *O. gorbuscha* (pink), and *O. keta* (chum). These species form part of the larger classification of Pacific salmonids, which include steelhead and cutthroat trout. DFO has authority under the federal *Fisheries Act* to manage Pacific salmon and their habitat. The management of steelhead and cutthroat trout has been delegated to the Province of British Columbia, though responsibility for protection of their habitat remains with the Department. The Department will cooperate with BC in the management and enhancement of these species, consistent with the WSP.

Salmon are considered "wild" if they have spent their entire life cycle in the wild and originate from parents that were also produced by natural spawning and continuously lived in the wild.

Salmon that originate directly from hatcheries and managed spawning channels are not considered wild in this policy, and are called "enhanced" salmon.

This term is sometimes also applied to salmon that originate from other enhancement activities, such as habitat restoration and lake enrichment, since their rate of production has been augmented. However, the reproduction of these fish has not been altered, and therefore they are deemed "wild" in this policy.

The requirement in the definition that a **wild salmon must complete more than one full generation in the wild** safeguards against potential adverse effects resulting from artificial culture.

Footnote 2: Wild Pacific salmon in the Northwest Territories are relatively uncommon, not actively managed, and are not included in this policy.

1. Estimate the percentage of fish for each key stream that are of wild origin, selecting from the following options.

Table 2. Percent wild score guide		
Score	Estimate	Descriptor
0	Unknown	Unknown
1	<25%	Low
2	>25% - <50%	Medium Low
3	>50% - <75%	Medium High
4	>75%	High
5	100% wild	Wild Only

2. Identify whether this estimate of wild origin fish is of high, medium, or low uncertainty.

- a. A score of “2”, “3”, or “4” indicates quantitative data are available.
- b. A score of “0” below coupled with any score other than “0” above indicates the estimate above is speculative only.

Table 3. Rigor of percent wild estimate guide		
Score	Descriptor	Definition
0	Unknown	Individual does not possess the knowledge to provide an estimate of % wild.
1	N/A	Quantitative data are NOT available to estimate contributions of enhanced fish.
2	Poor	Quantitative data are available and provide estimates of HIGH UNCERTAINTY . E.g., quantifiable estimate possible but not defensible.
3	Good	Quantitative data are available and provide estimates of MEDIUM UNCERTAINTY . E.g. estimates are not strongly defensible.
4	Excellent	Quantitative data are available and provide estimates of LOW UNCERTAINTY . E.g., high precision data provide the most defensible estimates for the fraction of fish that are of wild origin.

SOURCES AND METHODS

1. Monitoring Activity Information

The *North Pacific Rim Salmon Monitoring Inventory* was initiated in 2004 in Alaska, in British Columbia and the U.S. Pacific Northwest in 2005, and extended to Japan and the Russian Far East in 2006. We embarked on a range-wide inventory of anadromous Pacific salmon monitoring to:

- identify, and facilitate efforts to address, gaps in salmon monitoring and information;
- source data needed to conduct quantitative range-wide salmon trend assessments; and, ultimately,
- provide a transparent and useful information tool to support credible salmon research, management, and conservation decision-making.

Conceptual Approach

To make such an extensive project tractable we developed a conceptual framework to identify and describe monitoring activities around the North Pacific. Key to the success of this effort is to standardize metadata to facilitate accurate automated queries of the resulting data base while preserving enough information to characterize data quality and utility. Our approach is designed to be transferable and reproducible for all anadromous Pacific salmon species across their natural range.

It's important to clarify that we chose to circumvent the full characterization of datasets per se and, instead, describe the data collection efforts. This approach was taken for three important and interrelated reasons:

(1) Raw observational data (field data) are a basic building block for scientific investigations. Documenting raw data is essential for preserving data for future use and for researchers to address new questions or to test new methods which aren't practicable with highly processed datasets. Given their long term value, we chose to focus on observational data collection and, as a result, we can link published derived datasets to their source field surveys.

(2) Data producers are typically the only individuals knowledgeable enough to adequately document any given dataset. The scope of this project precludes interviewing all data producers or reconstructing historical expert knowledge which would be necessary to create comprehensive dataset-level documentation. However, by using publicly available information it is feasible to identify major field collection efforts and describe important features thereof.

(3) Observational data quality and utility can be at least partially evaluated in light of factors such as the statistical sampling design and field methods used. Some of this information is available in published format or can be deduced. We therefore focused on characterizing key components of monitoring activities at a uniform granule to permit transboundary analyses.

The following criteria were used to determine whether a monitoring activity should be included in the Inventory:

where Chinook, coho, steelhead, sockeye, chum, or pink are surveyed, *and*
where these fish are of wild, natural, or mixed origin², *and*
where ten years or more of data have been or will be collected, *and*
where the collected data can be used to assess abundance*, productivity*, survival*,
distribution, or diversity³ (*SoS priority parameters)

A common definition for “monitoring activity” is a fundamental component of this type of project. In order to classify activities or standardize descriptive information – prerequisites to any type of analyses - we have attempted to parse monitoring activities into a uniform granularity. Thus, we define a unique monitoring activity in the following manner:

One species being monitored for a primary objective⁴ using a primary field method.

A good example of how this works is sockeye monitoring in Bristol Bay, Alaska where the Alaska Department of Fish and Game (ADFG) surveys just downstream of each major nursery lake. At the same site they count migrating adult sockeye from a tower and collect individuals with a beach seine to gather information to age fish and determine sex and length (ASL). ADFG calls this one project whereas we parse this into two unique monitoring activities, reflecting the two different methods and objectives. If ADFG were to conduct tower counts and ASL sampling for Chinook at this same site then these are listed as two more unique monitoring activities in the Inventory.

We use a ten-year criterion to establish trends for two principal reasons: ten years capture approximately three generations of an average salmon species and spans a long enough period of time to capture climate cycles (e.g., El Nino/Southern Oscillation and Pacific Decadal Oscillation) that are recognized as influential drivers of population dynamics. There are exceptions to the ten year minimum requirement. Data do not need to be collected over ten successive years so long as there are ten or more years in total and data breaks can be clearly characterized. We also included nascent monitoring activities where there is an expectation they will continue for at least ten years. Certain types of “snapshot” data, such as presence-absence surveys, are not fully represented in the inventory.

Once selected for inclusion, each monitoring activity was georeferenced with the finest resolution location information readily available, including latitude/longitude, routed stream reach, or statistical area used by the lead monitoring agency. See the subsequent section on populations and CUs for additional information on georeferenced data. Each activity was

² We recognize that while much of the monitoring that occurs in this region targets fish of different origins, we are focused on wild fish for this project. State of the Salmon has a separate initiative to build a geodatabase of hatchery facilities and recent releases.

³ The original criteria included certain types of “snapshot” data such as presence/absence surveys and a number of other survey types that contribute to assessing spatial structure and diversity. Unfortunately, we had to further limit the scope of the project in the name of efficiency. As a result, these types of activities are not fully represented in the Inventory. Although we will not be including all listed parameters in the Validation Workshop, they will be made available with the rest of the Inventory results in 2007.

⁴ Objective, as used in the Inventory, is defined by what application the data may be applied towards, not necessarily the original purpose of the activity as described by those conducting the monitoring.

assigned a primary field method (e.g., weir, aerial survey) and at least one of four monitoring objectives (abundance, productivity, distribution, or diversity). Objective, as used in the Inventory, is defined by what application the data may be applied towards, not necessarily the original purpose of the activity as described by those conducting the monitoring. Only escapement monitoring efforts are being reviewed in this Validation Workshop. Additional types of information collected include, species lifestage, field method, and sample design.

Where location, field method, objective, and lifestage information were available, we classified activities into one of three Monitoring Tiers. Tier classification is a hierarchical schema that addresses the fit of a monitoring effort within one of three levels of biological organization: regional grouping (Tier 1), metapopulation (Tier 2) and population (Tier 3). Fisheries agencies may strive to define stocks that represent a natural grouping but these definitions are not universal (Geiger and Gharrett 1997, Ricker 1972). For our purposes, we use the word “stock” to indicate a recognized, managed group of fish and employ our Tier schema to impose a common classification that is based on fundamental, biological criteria.

Tier 1 monitoring, primarily commercial harvest rates, is still the most abundant type of data in some regions in the North Pacific, and was necessary for us to apply our approach range-wide. Tier 2 is meant to represent a group of populations that have likely undergone some degree of regional adaptation, or have a shared, unique ancestry. In general, Tier 2 monitoring occurs in the lower river, using gear intended to estimate fish numbers across a larger river channel or lake where it is likely that individuals from a number of distinct populations are encountered. Tier 2 may capture any “en route” monitoring – between entry to freshwater and spawning grounds - where the destination of targeted fish is uncertain or the observer cannot ascertain whether surveyed individuals hail from a particular population. Conversely, those adult monitoring activities conducted in creeks that are on or in close proximity to the spawning grounds were considered Tier 3. Tier 3 monitoring activities are intended to assess discrete, reproductively isolated populations or demes.

Acquisition of Metadata

State of the Salmon hired contracting teams to carry out the Inventory. The teams relied primarily upon public information sources such as aggregate databases, published literature, and pre-existing surveys to create metadata (data about data) for monitoring activities. In some cases, agency personnel were contacted to identify appropriate activities for inclusion, review information, and supply documentation. Consultants entered metadata directly into spreadsheets or a relational database format. State of the Salmon has migrated all metadata to SQL server format and output is used to develop geodatabases in ArcGIS.

LGL Limited, of Sidney, BC, conducted the Inventory in British Columbia and the Yukon Territory and provided a final dataset to State of the Salmon in the fall of 2006. For a complete list of sources please see Appendices 1 and 2 at the end of this document. Upon receipt, we reviewed the dataset to identify and resolve, where possible, categorical errors and omissions. However, we could not otherwise ascertain the correctness of information without input from those conducting the monitoring. Thus, in this first workshop, State of the Salmon is beginning

the first external review of Inventory results for BC and Yukon. The purpose of this exercise is to resolve significant errors and omissions to the greatest extent possible.

In a workshop setting, participants' exclusive knowledge of monitoring efforts and design and implementation issues can be documented and used to characterize their suitability for assessing Conservation Unit escapement trends. We can also incorporate further edits or additions via an on-line tool. It requires users create a profile so that submitted changes can be evaluated for inclusion. If interested, you can peruse all existing Inventory records for BC, Yukon, Washington, Oregon, California, and Idaho at <http://www.stateofthesalmon.org/mtsplash.php>

2. Population and Conservation Units

Monitoring activities were organized by conservation unit by first linking each monitoring activity to a conservation unit stream. A preliminary list of streams defining each conservation unit is available on the DFO Wild Salmon Policy (WSP) webpage among the consultation documents released in Fall 2006 (http://www.pac.dfo-mpo.gc.ca/species/salmon/wsp/default_e.htm).

We used a GIS point layer that represented the downstream termini of all conservation unit streams in this preliminary list. This GIS layer also included stream names and associated conservation unit names, but lacked appropriate BC Watershed Resources Atlas (BCWRA) stream codes for the individual streams. Using various criteria – name matching, basin matching and spatial proximity – we associated all the listed streams with stream codes and watershed IDs from the BCWRA. Because chinook and sockeye conservation units are differentiated by run timing group, we also used run timing information given for monitoring activities to link activities to conservation units for these species. Using the stream codes and watershed IDs which we had determined for each conservation unit stream, we also developed GIS linework and polygons to represent conservation units, deriving these from the BCWRA lines and watershed units. For those monitoring activities which did not link directly to a conservation unit stream, we associated them with conservation units to which they were most proximate, often using the conservation unit stream lines or watershed polygons to determine proximity.

The DFO WSP conservation units represent chinook, chum, coho, pink and sockeye salmon, but not steelhead. Therefore, we used the conservation units and associated stream lists defined by Ahrens (2004) for classifying steelhead populations.

Ahrens, R. 2004. *The status of steelhead trout (Oncorhynchus mykiss) in British Columbia*. Prepared for Pacific Fisheries Resource Conservation Council, 800 Burrard Street, Vancouver, BC. University of British Columbia, Department of Zoology, 6270 University Blvd. Vancouver, BC.

Outline of Proposed Method to Identify Salmon Conservation Units under Canada's Policy for Conservation of Wild Pacific Salmon. 26 September 2006. Available at <http://www.pac.dfo-mpo.gc.ca/species/salmon/wsp/consultation/wspcumethod.pdf>

Appendix 1: Summary of Salmon Monitoring Inventory sources in BC and Yukon, LGL Ltd.

BC and Yukon Salmon and Steelhead Data Inventory

Table 1. Summary of final database deliverables and in-house datasets readily available to SoS in respect to their completion rates.

Data Item	Areas	Years	Request	Est. Completion Date	Received Draft Data	Received Final Data	ACCESS Database	EXCEL Database	Data Gaps Present	Updates Accessible via	Data Source	Phone No.	Permission
Salmon Inventory Data													
Salmon Program Monitoring Data													
North and Central Coast	Areas 1-10	1952-2005	20-Feb-06	N/A	17-Jul-06	19-Jul-06		X	No	LGL	Dave Peacock	250-627-3467	Dave Peacock
South Coast	Areas 11-29	1926-2005	20-Feb-06	N/A	18-Jul-06	still pending		X	Yes	DS	LeRoy Hop Wo/Wilf Ludeke	250-756-7294	Wild Ludeke
Yukon/Transboundary	Yukon/Transboundary	1959-2005	6-Sep-05	N/A	7-Jul-06	11-Jul-06		X	No	LGL	Sandy Johnston/Ian Boyce	250-393-6729	Sandy Johnston
BC and Yukon Index Stream Data													
North Coast Index Stream	Areas 1-5	1980-2003	23-Feb-06	N/A	24-Feb-06	05-Apr-06	X		No	LGL	Brian Spilsted, Dan Wagner	250-627-3462	Dave Peacock
Central Coast Index Stream	Areas 6-10	1980-2003	24-Feb-06	N/A	06-Apr-06	21-Apr-06	X		No	LGL	Matt Mortimer	250-286-5814	Matt Mortimer
South Coast Index Stream	Areas 11-29	1982-2004	see dates under South Coast TRTC estimates				X		No	DS	see contact info under South Coast TRTC estimates		
Yukon Salmon Index Stream	Yukon/Transboundary	1980-2005	31-Aug-05	N/A	23-Sep-05	23-Jun-06	X		No	LGL	Ian Boyce	867-393-6739	Sandy Johnston
LGL In-house Databases Readily Available													
North/Central Coast Escapement	Areas 1-10	1950-2004	19-Jan-04	N/A	03-Feb-04	16-Jun-06	X	X	No	LGL	Erik Grundmann	250-756-7374	Erik Grundmann
South Coast Escapement	Areas 11-29	1982-2004	18-Apr-05	20-Apr-05	19-Apr-05	16-Nov-05	X	X	No	LGL	Erik Grundmann	250-756-7374	Erik Grundmann
Yukon Escapement	Yukon/Transboundary	1982-2004	18-Apr-05	20-Apr-05	19-Apr-05	16-Nov-05	X	X	No	LGL	Erik Grundmann	250-756-7374	Erik Grundmann
Production Database - sockeye	Fraser River	1952-2005	4-Oct-06	N/A	4-Oct-06	19-Jul-06	X		No	LGL	Keith Forrest	604-684-8081	Keith Forrest
Annual returns by stock - sockeye	Fraser River	1952-2005	12-Jan-05	N/A	12-Jan-05	26-Jul-05	X		No	LGL	Jeff Grout	604-8616	Jeff Grout
Sale Slip Catch	Areas 1-10	1980-2003	20-Jan-04	N/A	18-Feb-04	18-Feb-04	X		No	LGL	Kerna Hoyseth	250-627-3465	Dave Peacock
Commercial Catch (FOS)	Areas 11-29	2001-2005	18-Apr-05	12-May-05	12-May-05	12-May-05	X		No	LGL	Rob Houtman	250-756-7279	Rob Houtman
Sale Slip Catch	Areas 11-29	1993-2005	21-Apr-05	N/A	14-Jul-05	14-Jul-05	X		No	DS	Catch Unit	604-666-6501	Lia Bijsterveld
Commercial Catch (weekly)	Area 29		16-Jun-05	N/A	19-Jul-05	19-Jul-05	X		No	LGL	Brian Riddell	250-756-7145	Brian Riddell
North Coast Sport Catch	Areas 1-10	1980-2003	20-Feb-04	N/A	28-Feb-04	28-Feb-04	X		No	DS	Catch Unit	604-666-6501	Lia Bijsterveld
South Sport Catch	Areas 11-29	1995-2004	20-Apr-05	N/A	20-Apr-05	20-Jul-05	X		No	DS	Catch Unit	604-666-6501	Lia Bijsterveld
Sockeye Sport Catch	Upper Fraser	2001-2004	18-Apr-05	N/A	18-Apr-05	18-Apr-05	X		No	LGL	Cindy Yockey	250-851-4961	Richard Bailey
Chinook Sport Catch	Upper Fraser	1980-2004	13-Apr-05	N/A	18-Apr-06	18-Apr-05	X		No	LGL	Cindy Yockey	250-851-4961	Richard Bailey
First Nations Catch (FSC)	Areas 1-10	1980-2003	20-Feb-04	N/A	17-Mar-04	31-Mar-04	X		No	DS	Catch Unit	604-666-6501	Lia Bijsterveld
Nisga'a Catch	Area 3	1980-2003	20-Feb-04	N/A	3-Mar-04	27-Apr-05	X		No	DS	Catch Unit	604-666-6502	Lia Bijsterveld
First Nation Catch (FSC/Pilot)	Areas 11-29	1992-2004	24-Jan-05	3-Jun-05	24-Jun-05	15-Nov-05	X		Yes	DS	Catch Unit	604-666-6501	Lia Bijsterveld
FN Catch FSC	Upper Fraser	1992-2004	5-Apr-05	3-Jun-05	14-Jun-05	14-Jun-05	X		No	LGL	Cindy Yockey	250-851-4961	Richard Bailey
FN Catch FSC	Lower Fraser	1992-2004	11-Apr-05	12-Apr-05	12-Apr-05	12-Apr-05	X		No	DS	Eamon Miyagi	604-666-3478	Eamon Miyagi
FN Catch FSC	Thompson	1992-2004	26-Apr-05	26-Apr-05	14-Jun-05	14-Jun-05	X		No	LGL	Aaron Gillespie	250-828-2178	Richard Bailey
Total Return to Canada (TRTC) Estimates													
North Coast													
Chinook	Area 3	1980-2002	20-Feb-04	N/A	10-Mar-04	27-Apr-04	X		No	LGL	Nisga'a (Richard A)	250-656-0127	Nisga'a JTC
Chinook	Area 4	1984-2002	2-Mar-04	N/A	5-Mar-04	3-Jun-04	X		No	LGL	Ivan Winther	250-627-3459	Dave Peacock
Chinook	Area 1, 5-10	1980-2002	2-Mar-04	N/A	14-Apr-04	8-Jun-04	X		No	LGL	Dave Peacock	250-627-3467	Dave Peacock

Table 1. (continued) Summary of final database deliverables and in-house datasets readily available to SoS in respect to their completion rates.

Data Item	Areas	Years	Request	Est. Completion Date	Received Draft Data	Received Final Data	ACCESS Database	EXCEL Database	Data Caps Present	Updates Accessible vial	Data Source	Phone No.	Permission
Salmon Inventory Data													
North Coast (continued)													
Coho	Areas 1-10	1980-2002	2-Mar-04	N/A	14-Apr-04	14-May-04	X	No	LGL		Brian Spilsted, Joel S.	250-627-3462	Dave Peacock
Pink Even	Areas 1-10	1980-2002	2-Mar-04	N/A	14-Apr-04	14-May-04	X	No	LGL		Brain Spilsted, Dave P.	250-627-3462	Dave Peacock
Pink Odd	Areas 1-10	1980-2002	2-Mar-04	N/A	14-Apr-04	14-May-04	X	No	LGL		Brain Spilsted, Dave P.	250-627-3462	Dave Peacock
Chum	Areas 1-10	1980-2002	2-Mar-04	N/A	14-Apr-04	14-May-04	X	No	LGL		Brain Spilsted, Dave P.	250-627-3462	Dave Peacock
Sockeye	Areas 1, 5-10	1980-2002	2-Mar-04	N/A	14-Apr-04	14-May-04	X	No	LGL		Brain Spilsted, Dave P.	250-627-3462	Dave Peacock
Sockeye Run Reconstruction	Areas 3,4	1982-2002	9-Jan-04	N/A	9-Jan-04	9-Jan-04	X	No	LGL		NBTC - Karl English	250-656-0127	Dave Peacock
South Coast													
Sockeye	Areas 12-13	1982-2004	29-Jun-05	N/A	18-Nov-05	18-Nov-05	X	No	DS		Diana Dobson	250-756-7227	Leroy HopWo
Sockeye	Areas 16,23	1982-2004	29-Jun-05	N/A	18-Nov-05	18-Nov-05	X	No	DS		Diana Dobson	250-756-7227	Leroy HopWo
Sockeye	Area 29	1982-2004	27-Jun-05	N/A	11-Jul-05	11-Jul-05	X	No	LGL		Keri Benner	250-851-4864	Timber Whitehouse
Sockeye	Interior (29)	1982-2004	27-Jun-05	N/A	11-Jul-05	11-Jul-05	X	No	LGL		Keri Benner	250-851-4864	Timber Whitehouse
Chinook	Areas 11-13, 27	1982-2004	29-Jun-05	N/A	19-Jul-05	18-Nov-05	X	No	LGL		Peter VanWill	250-949-9273	Leroy HopWo
Chinook	Areas 14-19	1982-2004	29-Jun-05	N/A	19-Jul-05	18-Nov-05	X	No	DS		Arlene Thompkins	250-729-8382	Leroy HopWo
Chinook	Areas 20-26	1982-2004	29-Jun-05	N/A	29-Jun-05	22-Nov-05	X	No	DS		Seaton Taylor	250-756-7006	Leroy HopWo
Chinook	Areas 28 and 29	1982-2004	26-Jul-05	N/A	9-Sep-05	25-Nov-05	X	No	DS		Tracey Cone	604-666-7273	Joe Tadey
Chinook	Interior (29)	1982-2004	31-Mar-05	N/A	31-Mar-05	27-Jun-05	X	No	LGL		Richard Bailey	250-851-4814	Richard Bailey
Coho	Areas 11-13, 27	1982-2004	29-Jun-05	N/A	19-Jul-05	21-Sep-05	X	No	LGL		Peter VanWill	250-949-9273	Leroy HopWo
Coho	Areas 14-19	1982-2004	29-Jun-05	N/A	19-Jul-05	18-Nov-05	X	No	DS		Ian Matthews	250-756-7178	Leroy HopWo
Coho	Areas 20-26	1982-2004	29-Jun-05	N/A	19-Jul-05	18-Nov-05	X	No	DS		Steve Baillie	250-756-7227	Leroy HopWo
Coho	Areas 28 and 29	1982-2004	26-Jul-05	N/A	9-Sep-05	25-Nov-05	X	No	DS		Tracey Cone	604-666-7273	Joe Tadey
Coho	Interior (29)	1982-2004	27-Jun-05	N/A	28-Jun-05	28-Jun-05	X	No	LGL		Richard Bailey	250-851-4814	Richard Bailey
Chum	Areas 11-13, 27	1982-2004	29-Jun-05	N/A	19-Jul-05	19-Jul-05	X	No	LGL		Peter VanWill	250-949-9273	Leroy HopWo
Chum	Areas 14-19	1982-2004	29-Jun-05	N/A	19-Jul-05	19-Jul-05	X	No	DS		Ian Matthews	250-756-7178	Leroy HopWo
Chum	Areas 20-26	1982-2004	29-Jun-05	N/A	19-Jul-05	22-Nov-05	X	No	DS		Seaton Taylor	250-756-7006	Leroy HopWo
Chum	Areas 28 and 29	1982-2004	26-Jul-05	N/A	6-Oct-05	6-Oct-05	X	No	DS		Sue Grant	604-666-7112	Joe Tadey
Pink Odd/Even	Areas 12-13	1982-2004	29-Jun-05	N/A	19-Jul-05	19-Jul-05	X	No	LGL		Peter VanWill	250-949-9273	Leroy HopWo
Pink Odd	Interior 29	1982-2004	27-Jun-05	N/A	27-Jun-05	27-Jun-05	X	No	LGL		Keri Benner	250-851-4864	Timber Whitehouse
Steelhead Inventory Data													
Steelhead Monitoring Program Data													
Vancouver Island	East and West	1975-2005	21-Jun-06	N/A	19-Jul-06	25-Oct-06		X	No	LGL	Mike Culloch	250-751-3156	Mike Culloch
South Coast	Includes Lower Mainland	1974-2006	22-Jun-06	N/A	27-Sep-06	still pending		X	Yes	LGL	Greg Wilson	604-582-5365	Greg Wilson
Interior of British Columbia		1972-2005	19-Jun-06	N/A	19-Jun-06	still pending		X	Yes	LGL	Robert Bison	250-371-6244	Robert Bison
Bella Coola		1975-2002	21-Jun-06	N/A	11-Jul-06	still pending		X	Yes	LGL	Mike Ramsay	250-398-4546	Mike Ramsay
Skeena		1955-2005	19-Jun-06	N/A	14-Jul-06	25-Oct-06		X	No	LGL	Dean Peard/Mark Beere	250-847-7297	Dean Peard/Mark Beere
Nass		1997-2005	7-Dec-05	N/A	19-Oct-06	19-Oct-06		X	No	LGL	Richard Alexander	250-656-0127	Karl English

¹ DS = datasource

Appendix 2: Literature cited in Salmon Monitoring Inventory for BC and Yukon, LGL Ltd.

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