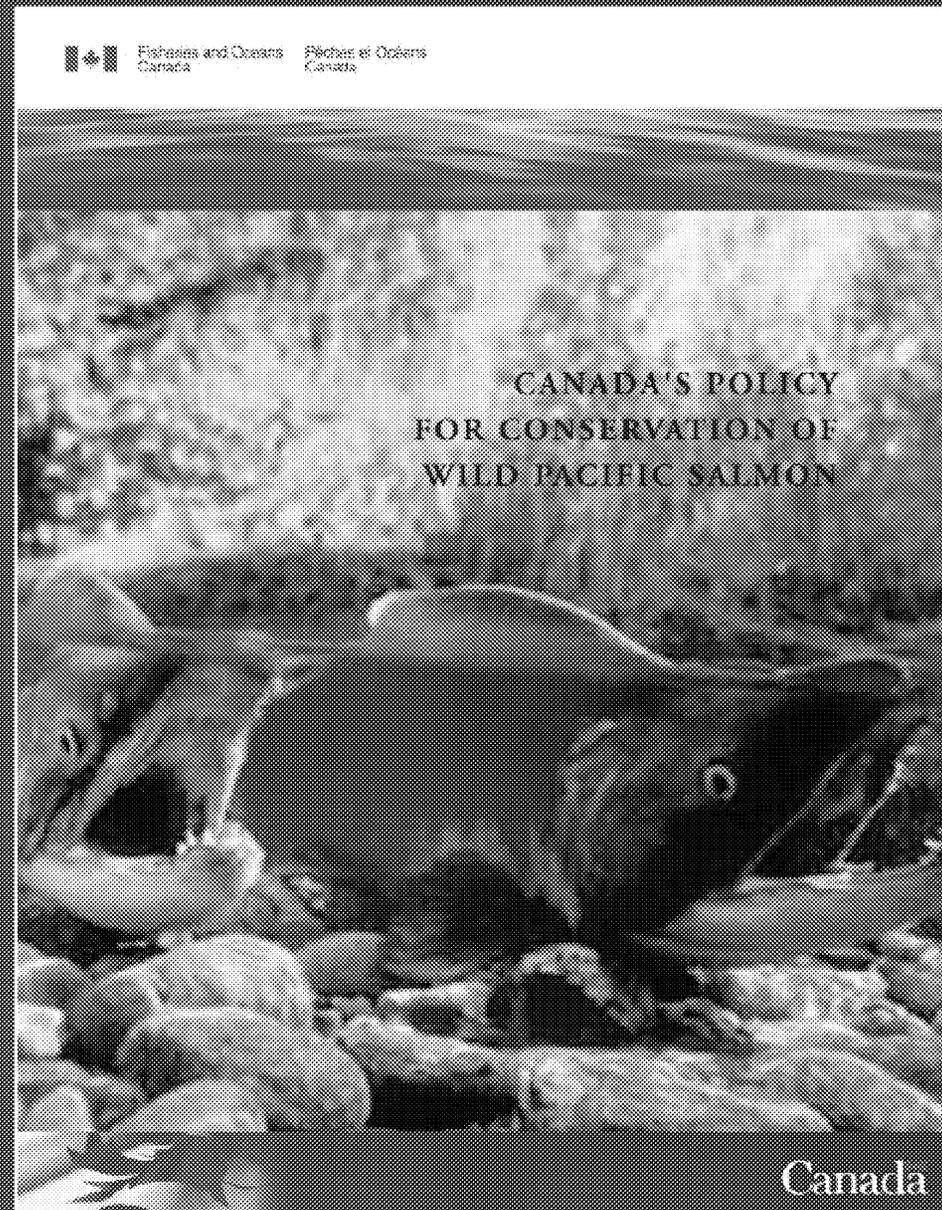


# Operations Committee

## WSP Strategy 2, Assessment of Habitat Status

### *Our Progress and Plan*

Sept. 23/08



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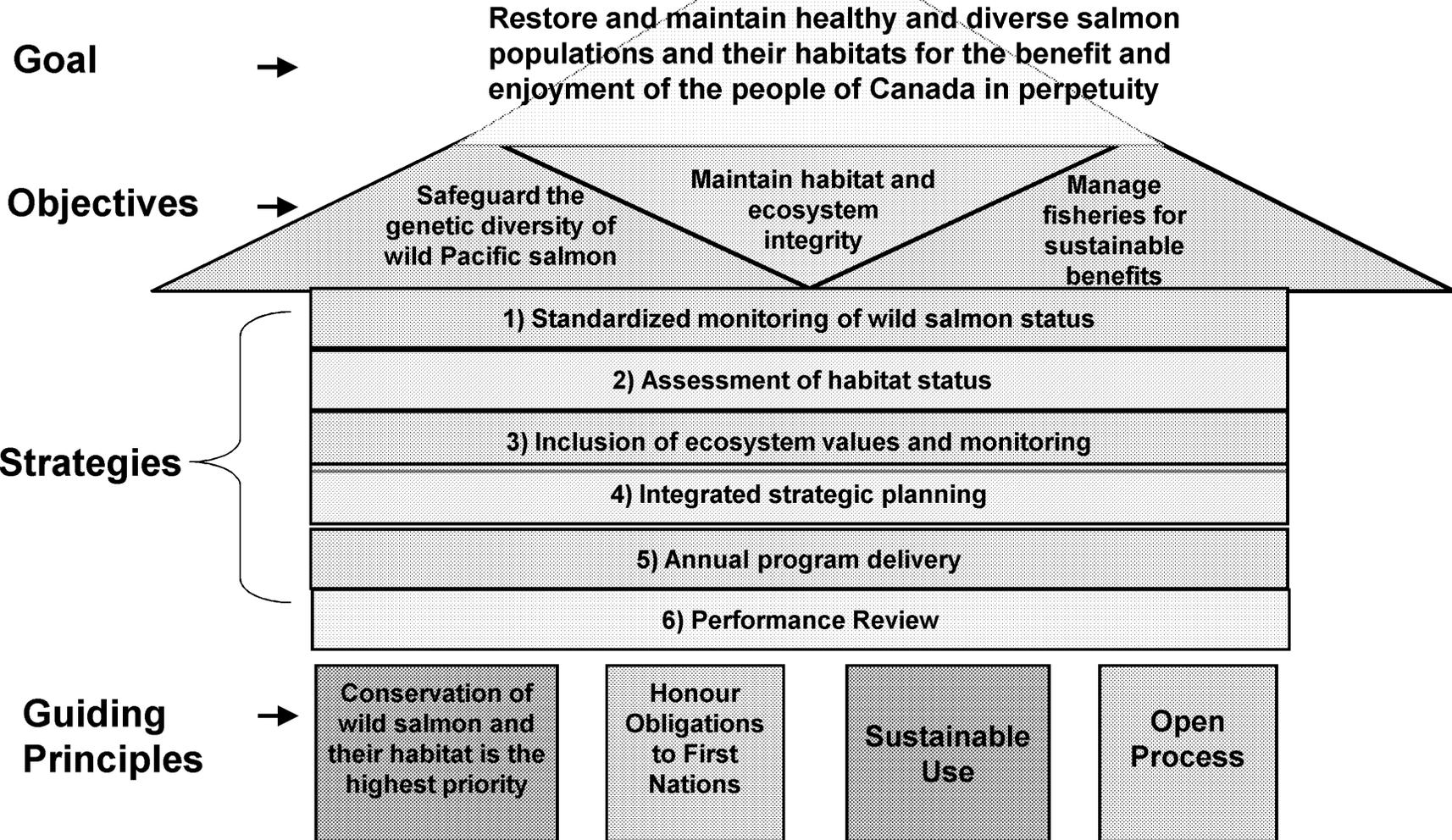


# Session Objectives

1. Provide progress update
2. Identify challenges
3. Seek support for proposed continued approach



# WSP Overview





# National Habitat Management Program

- The National Fish Habitat Management Program (FHMP) is defined by key legislative and policy instruments:
  - *Policy for the Management of Fish Habitat* (the Habitat Policy) in 1986
  - *Canadian Environmental Assessment Act* (CEAA) in 1995
  - *Species at Risk Act* (SARA) in 2004
  
- The Habitat Policy provides guidance through its stated objective of net habitat gain and through its three goals and 8 implementation strategies (Appendix 1). Although a review of the Habitat Policy has been initiated, it continues to define the activities undertaken by habitat staff.
  
- The Environmental Protection Modernization Plan introduced 6 program elements to improve program delivery. Two elements have received new resources:
  - Habitat Compliance Modernization (HCM)(12 FTEs for Pacific Region)
  - Improved management of major projects (MPMO) (11 FTEs for Pacific Region)
  
- Unprecedented resource development in the Pacific Region has stretched FHMP's capacity. Focus is on mandated priorities and the use of partnerships or other approaches to enhance program delivery.



## Strategy 2-Habitat Status, Action Steps

### **Action Step 2.1 Document habitat characteristics within CUs**

- Characterize overall CU habitat health including limiting and highly productive habitats
- This information reported to contribute to watershed planning, habitat protection and planning priorities in Strategies 4 and 5

### **Action Step 2.2 Select habitat indicators and develop benchmarks for habitat assessment**

- Select indicators on watershed scale for CUs to assess quantity and quality of habitat ID'd in 2.1
- Benchmarks developed for desired level of key indicators and to allow action on a preventative basis

### **Action Step 2.3 Monitor and assess habitat status**

- Ongoing monitoring, integrated with salmon assessments and ecosystem evaluations, will be implemented to identify changes in habitat condition over time and provide key input to guide habitat management

### **Action Step 2.4 Establish linkages to develop an integrated data system for watershed management**

- Together with partners, DFO will promote the design, implementation, and maintenance of a linked, collaborative system to increase access to information on fish habitat status



# Commitments—from Inception to Present

- **2005 Launch of Wild Salmon Policy**
  - Culmination of 5 years consultations; high expectations of delivery
- **Pacific Region Implementation Plan- 2006-2010**
  - 1.2 Pacific Fisheries Reform
    - Specific Action-Pacific Salmon Fisheries Reform
      - Implement the WSP
      - Assessment of salmon habitat associated with priority CUs
  - 1.7 Environmental Process Modernization-Pacific Implementation
    - Specific Action-Develop and implement the required risk-management framework
      - Habitat Management staff will spend less time reviewing routine projects and more on monitoring habitat status and on projects posing a higher risk to fish habitat
    - Specific Action-Increase collaboration with a range of partners
      - Habitat priorities will be established on the basis of sensitivity and risk, as determined by biological and physical indicators, and on importance, which will reflect fisheries values and population risks.



# Commitments-from Inception to Present

- **OHEB**

- Nov '05 formed a WSP Habitat Working Group (HWG)
- Dedicated a full-time Strategy 2 coordinator resourced through Mar. '09 (05-06 57.3K, 06-07 146.9K, 07-08 110.6K, 08-09 projected <227K, total <542K)
- Composition and Governance of HWG
  - HWG chaired by coordinator and composed of Science and OHEB staff at various levels of management, with wide-ranging specialties, represent Areas and the Region
  - Purpose to develop approaches and products for Strategy 2 implementation and expand internal WSP network
  - Coordinator reports through OHEB Policy Advisor to OHEB RD where HWG recommendations brought forward for review
  - Coordinator member of Implementation Team where HWG recommendations brought forward for review and integration



# Commitments-from Inception to Present

- **Habitat Led Internal Consultations '06 through '08**
  - Typically gain advice from both an expertise and operational perspective
    - WSP HWG and in-house experts '06-'08
      - Developed and tested both products e.g. indicators, web-mapping application and approaches e.g. two-tier monitoring, two levels of reporting
      - Session co-led with Science Branch '07 wherein gained feedback on approaches e.g. two tier monitoring and recommendations on indicators
    - Series of Regional staff meetings '06-'08 (Hatchery Managers, BCI Area multi-branch, BCI OHEB, Lower Fraser Area and Major Projects, Resource Restoration Group, RHQ plus involvement in Pacific Region all-staff conference call)
      - Presented products e.g. indicators, monitoring outcomes and web-mapping application and approaches e.g. habitat status reports for feedback from Area, Regional and program perspectives
    - OHEB managers '07-'08
      - Present products e.g. indicators, monitoring outcomes, web-mapping application and approaches for feedback and to develop options for program integration
    - Implementation Team '06-'08
      - To ensure products and approaches are consistent with WSP and can integrate with other Strategies



# Commitments—from Inception to Present

- **External Consultations '06 through '08**

- Typically gain advice on developments to-date and upcoming steps in implementation
  - Fall Dialogue Sessions '06
    - Presented approach to developing indicators plus two levels of monitoring and reporting
  - Habitat Indicators Workshop June '07
    - Requested advice on data sources for potential indicators for lakes, streams and estuaries and practical exercise on indicators
  - WSP Stakeholder Forum '08
    - Presented recommended indicators for lakes, streams and estuaries and web-mapping application
    - Requested advice on monitoring framework challenges
  - Series of stakeholder meetings '06-'08 PFRCC, MCC, SEHAB, Streamkeepers, Watershed Watch, SNFC, SFU, FSWP and Strategy 3 sessions with US Scientists and UBC Workshop
    - Gained advice on indicators, two levels of monitoring and reporting, pilots, collaborative monitoring, and monitoring framework challenges



# Progress to-date, Specifically

Action Step	Approach	Products	Status
2.1	-Identify overall habitat health and limiting and highly productive habitats -Utilize LEK and documentation	-Overview and Habitat Status reports (hard-copy attachment) (05-06)	-Piloted partial habitat status reports within 9 CU's across Region (App.2)
2.2	-Utilize two levels of monitoring - pressure and status	-Determined indicators, metrics and benchmarks for rivers, lakes and estuaries (07-08) (Slide 13 and App.3)	-Science Review deferred from June to Dec.08 -Data-source analysis needed to report on many indicators
2.3	-Undertake monitoring  -Conceptual monitoring framework with accountabilities	-Data-sharing MoU with Province (06-07) -Piloted sub-set of indicators in Lower Thompson Coho CU (06-07) (Poster)	-Testing MoU in Barkley -Ranked pilot indicator monitoring outcomes (Slide14) -Framework undergoing internal review process (Slide 18)
2.4	-Present monitoring and report information spatially -Collaborate with FSWP on multi-partner habitat monitoring and data sharing program	-Led DFO development of Web-mapping application (05-08) with Policy, Science and FAM's financial support	-Preparing to launch appl'n with 5 yr multi-branch support (Slide 15) -FSWP continued proposal into this fiscal 08-09



## Product Close-ups

### **Action Step Products**

2.1 Habitat status report structure

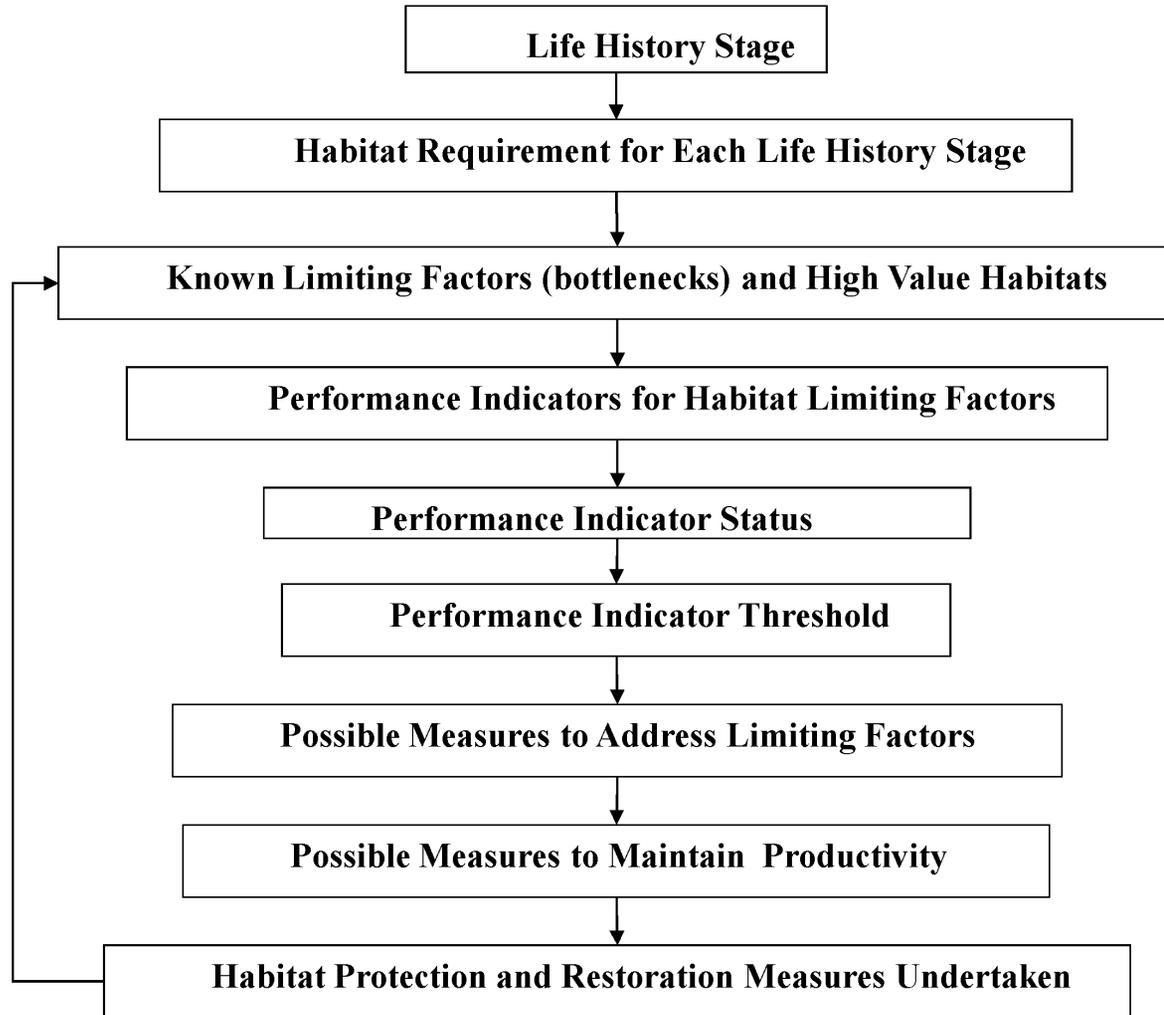
2.2 Example set of habitat indicators

2.3 Outcome of pilot to monitor sub-set of indicators

2.4 Web-mapping application snap-shot



# 2.1 Habitat Status Report Structure\*



\*Attachment-Hard-copy Habitat Status Report



## 2.2 Examples of Habitat Indicators

For Dec. '08 Science Review		
Indicator	Metric	Benchmark
Stream and Lake Pressure <b>Watershed: Total land cover</b>	Roll-up data for sub-indicators and report on total	Relative ranking
Stream Status <b>Stream discharge</b>	m <sup>3</sup> during Jul./Sept	Discharge <20% Natural Mean Annual Discharge for 30 days during Jul./Sept
Lake Quantity <b>Shore spawning area</b>	Total length of spawning area per watershed and roll-up for the CU	N/A
Estuary Pressure <b>Disturbance of riparian, intertidal (e.g. Carex and Typha) and sub-tidal (e.g. eel-grass) habitats</b>	Rate of increase of crown tenures (licences and leases) within all estuaries/ five years	Rate of increase will guide recommendations for possible status monitoring
Estuarine Quantity <b>Estuarine habitat area (riparian, sedge, eelgrass and mudflat)</b>	Hectares	N/A Currently no large scale monitoring on quantity of mudflat, marsh and eelgrass habitats at sufficient resolution. Only riparian available through Provincial CRIS program, done every 5 years.



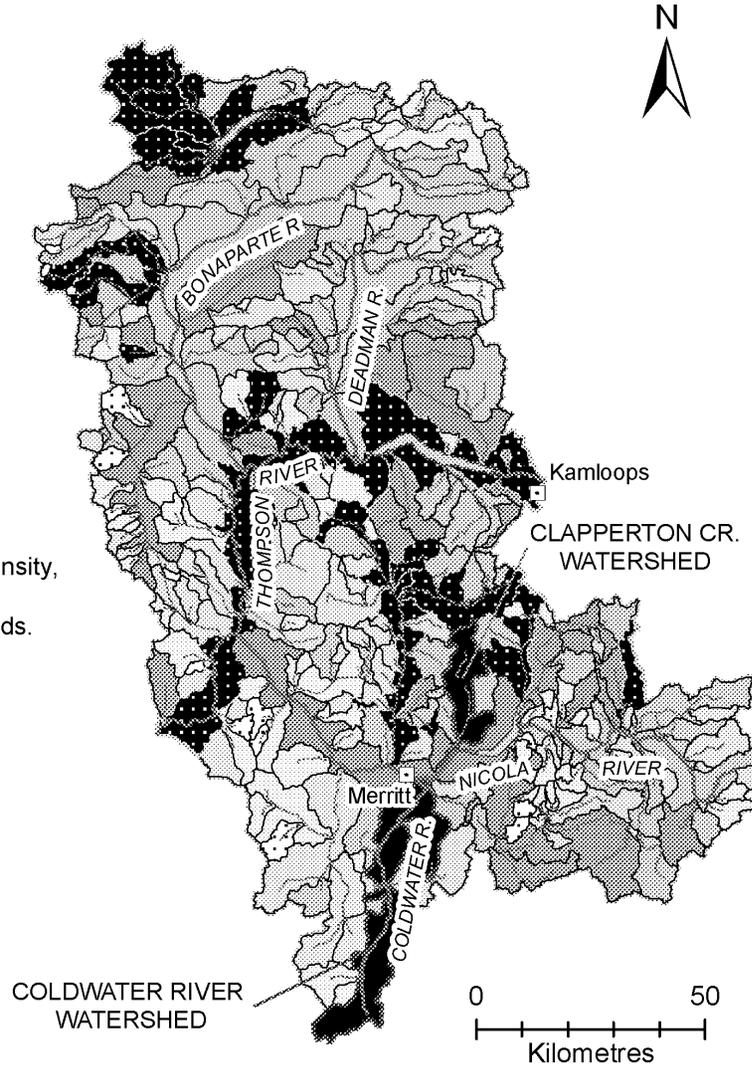
# 2.3 Watersheds Ranked by Indicator Impacts

### LEGEND

#### Cumulative Impact Score (2006)

- 7 (watershed count: 2)
- 6 (watershed count: 16)
- 5 (watershed count: 30)
- 4 (watershed count: 68)
- 3 (watershed count: 70)
- 2 (watershed count: 60)
- 1 (watershed count: 18)
- 0 (watershed count: 0)

Impact Score includes 7 indicators: Road Density, Riparian, Forest Disturbance, Urban, Agriculture, Other, Low-flow Watersheds.



Worst Watersheds (2006)	
Cumulative Impact Score	Watershed Name
7	Clapperton Creek
7	Coldwater River
6	Watershed ID= GRNL007
6	Watershed ID= THOM012
6	Allen Creek
6	Cache Creek
6	Chartrand Creek
6	Clinton Creek
6	Cunningham Creek
6	Eightyseven Creek
6	Eightythree Creek
6	Fiftyseven Creek
6	Guichon Creek
6	Meadow Creek
6	Moore Creek
6	Range Creek
6	Samson Creek
6	Thompson River

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# 2.4 WSP Web-mapping Application

**Map Layers**

[Data Search] [Re-order Layers]

- Wild Salmon Policy Data
  - Conservation Units
    - Chinook Conservation Units
    - Chum Conservation Units
    - Coho Conservation Units
    - Pink Even Year Conservation Units
    - Pink Odd Year Conservation Units
    - Sockeye Ocean Conservation Units
  - nuSEDS
  - Joint Adaptive Zones
  - Watershed Boundaries and Statistics
  - BC Fish Bearing Streams
  - Planning Projects
  - DFO Pacific Region Facilities
  - Salmon Ranges
  - BC Land Cover
  - Administrative Boundaries
  - First Nations
  - SC Base Map Layers
  - CHS Charts
  - Lower Thompson CU Data

Refresh Map

Automatically Refresh Map

**Notes:**

- Click folder to show or hide contents.
- Click the check box to turn layer on and off.
- If the check box is grayed out, the layer is not available at the current scale.
- Click to turn on all layers in the associated folder.
- Click to turn off all layers in the associated folder.

Scale: 1:6,035,954 Map Tool: Zoom In

Cursor Location: 48°7' N, 114°3' W

Trusted sites

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# Specific Challenges

Action Step	Approach/Product	Challenge
2.1	Overview and Habitat Status reports	-Magnitude of undertaking to do all CUs for Overview Report and Habitat Status reports in priority CUs
2.2	-Pressure, Status and Quantity indicators for rivers, lakes and estuaries	-Few data-sources for habitat quantity -Analysing data-sources isn't simple; often incomplete, out-of-date -Monitoring, even remotely, costly
2.3	-Monitoring of Habitat Status	-Gaining monitoring agreements and to specified standards as disparate monitoring of indicators, internally and externally, could provide little insight into limiting factors, overall Habitat Status, and negate comparisons between CUs
2.4	-WSP Web-mapping application	-Requires long-term multi-branch (3 year) maintenance



# Overarching Challenges

## 1. Habitat Program Mandate and Priorities

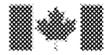
- Collection and monitoring of environmental habitat status indicator information is not a mandate of the National Fish Habitat program
- HCM program focus is predominantly compliance monitoring with some efficacy; the program does not include environmental monitoring

## 2. OHEB Resourcing

- Full scale implementation of Strategy 2 is additional work that cannot simply be added to the already full plates of habitat staff.
- WSP implementation was identified to NHQ as a funding pressure for three FYs: 2005 – 2008; some limited funding provided in 06-07, but no support for continued work
- Development, collection and monitoring work is a costly process: an explicit budget is needed to continue progress. Strategy 2 coordinator due to sunset in April '09; no FTE identified to continue work

## 3. Integration with Strategies 1 and 3

- Close integration between Strategies 1, 2 and 3 is critical to ensure coherence in implementing WSP
- Differing rates of progress in Strategy development may require that Strategy 2 implementation work pause to ensure the approach is properly informed and supported by the other strategies.



# Transition Strategy

- Process for Continued Implementation
  - Internal
    - Strategy 2 coordinator position sunsets Apr. 1/09
    - Focus on operationalizing products and approaches developed to-date within current HMP
    - OHEB integration:
      - Review all related workplan elements and prioritize based on ranking criteria-October 7 and 21 sessions
      - Review proposed monitoring framework and associated implementation plan
      - Utilize ranked priorities to develop program Service Level Agreements with RHQ and Areas
    - WSP Implementation Team
      - Review proposed monitoring framework, associated implementation plan and ranked priorities to enable integration
    - Present outcomes of integration process to Operations Committee in January?

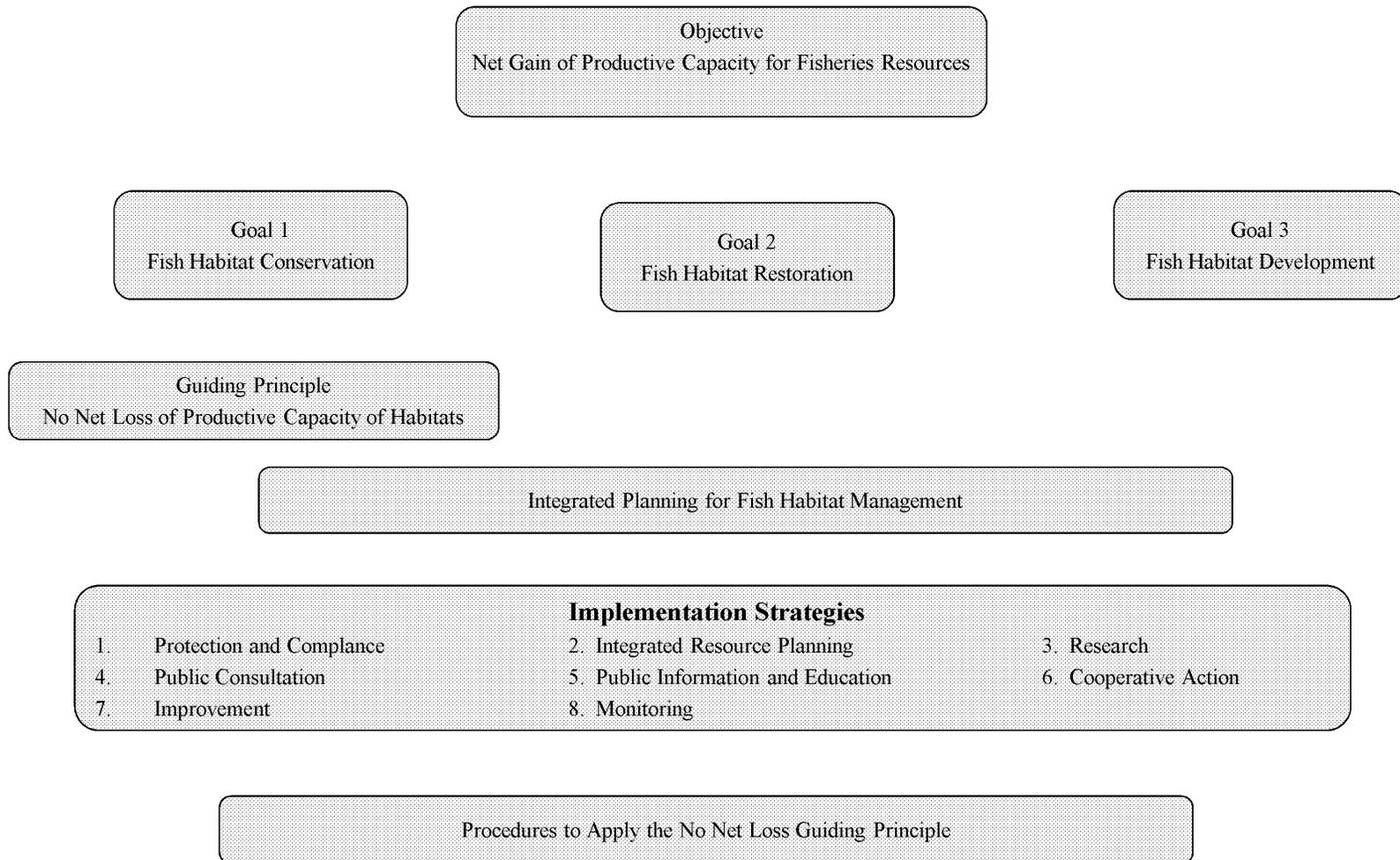


# Transition Strategy

- Process for Continued Implementation
  - External Stakeholders
    - Continue sessions to review proposed monitoring framework, associated implementation plan and OHEB commitments (once determined)
    - Continue to foster long-term partnerships



# Appendix 1: Policy Framework for Fish Habitat Management





## Appendix 2- Habitat Status Reports

- **CUs where Habitat Status Reports tested, 05-06**
  - Partially filled-in using published and unpublished reports and internal DFO staff to identify highly productive and limiting habitats and conservation and restoration options within:
    - BCI- Lower Thompson Spring ch. (4, 2s)
    - BCI- Trembleur Lake Sockeye
    - Lower Fraser -Lower Fraser Fall white ch.
    - Lower Fraser- Cultus sockeye
    - Lower Fraser- Fraser Chum
    - South Coast- South and Vancouver Island summer ch
    - South Coast- Central West Coast Vancouver Island ch.
    - South Coast- East Coast Vancouver Island coho
    - South/North Even yr. pinks
    - Yukon- Porcupine coho
    - Yukon- Yukon mainstem chum



# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
Stream and Lake Pressure <b>Watershed: Total land cover</b>	Roll-up data for sub-indicators and report out on total	Relative ranking
Stream and Lake Pressure <b>Watershed: Road density</b>	Kilometer/km2	<0.4 km/km2 lower risk, > 0.4km/km2 higher risk
Stream and Lake Pressure <b>Riparian disturbance</b>	% aerial basis of development within 30 meters of the shoreline, reported on a watershed basis	5% as first benchmark, subsequent categories determined via distribution curve of watersheds within the CU
Stream Pressure <b>Water extraction</b>	Volume licensed for consumptive use e.g. m3/yr, as a proportion of total yield summarized by watershed	Compare watershed ratios and rank based on proportion
Stream, Lake and Estuary Pressure <b>Permitted Discharges</b>	TBD	TBD



# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
Stream Pressure <b>Sediment</b>	Total Suspended Sediments (mg/l, ppm)	25 mg/L in 24 hours when background is less than or equal to 25 mean of 5 mg/l in 30 days when background is less than or equal to 25 25 mg/ when background is between 25 and 250 10% when background is greater than 250
Stream Status <b>Water Quality</b>	Web-link, no WSP metrics	Web-link, no WSP benchmarks
Stream Status <b>Temperature, Coho juvenile rearing</b>	Maximum Weekly Average Water Temperature	Upper Optimum Temperature Range (UOTR) and Impairment Temperature (IT). Temperatures between UOTR and IT low/medium risk and temperatures above IT high risk. UOTR 15 degrees C IT 20 degrees C



# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
<p>Stream Status</p> <p><b>Temperature, Migration, Spawning all species</b></p>	<p>Maximum Daily Water Temperature during migration/spawning period</p>	<p>Upper Optimum Temperature Range (UOTR) and Impairment Temperature (IT). Temperatures between UOTR and IT low/medium risk and temperatures above IT high risk.</p> <p>Chinook UOTR 14 degrees C IT 20 degrees C</p> <p>Coho UOTR 14 degrees C IT 20 degrees C</p> <p>Sockeye UOTR 15 degrees C IT 18 degrees C</p> <p>Pink UOTR 15 degrees C IT 21 degrees C</p> <p>Chum UOTR 15 degrees C IT 21 degrees C</p>



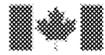
# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
Stream Status <b>Stream discharge</b>	m3 during Jul./Sept	Discharge <20% Natural Mean Annual Discharge for 30 days during Jul/Sept (as per Ron Ptolemy provincial analysis)
Stream Status <b>Benthic Invertebrates</b>	Reporting out on CABIN at current sites	Reference Condition Approach
Stream Quantity <b>Accessible stream length, barriers</b>	Km's	Not Ranked
Lake Quantity <b>Lake Productive Capacity</b>	Nitrogen and Phosphorous x Lake Surface Area.	<i>Relative ranking of sockeye lakes (e.g. low, med, high) of total from distribution curve</i>
Lake Quantity <b>Coldwater refuge zone</b>	Meters deep as measured through Dissolved Oxygen and Temperature profiles	Not Ranked



# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
Lake Quantity <b>Shore spawning area</b>	Total length of spawning area per watershed and roll-up for the CU	Not Ranked
Estuary Pressure <b>Marine vessel traffic</b>	#vessels or density	<i>Develop rate of change for those estuaries where most relevant of the 5 Coast Guard monitoring sites i.e. Tofino, Vancouver, Prince Rupert, Victoria, Comox</i>
Estuary Pressure <b>Disturbance of riparian, intertidal (e.g. Carex and Typha) and sub-tidal (e.g. eel-grass) habitats</b>	Rate of increase of crown tenures (licences and leases) within all estuaries/ five years	N/A, rate of increase will guide recommendations for possible status monitoring
Estuary Status <b>Chemistry e.g. N, P, N:P and Contaminants e.g. Metals, PAHs and PCBs</b>	Reporting out only e.g. links in web-mapping application and in Habitat Status Reports where generated, No WSP Metric	Web-link, no WSP Benchmark



# Appendix 3- Habitat Indicators

Indicator	Metric	Benchmark
<p>Estuary Status <b>Dissolved Oxygen</b></p>	<p>Percent saturation and stratification</p>	<p>Project- In a sub-set of estuaries determine DO saturation and stratification.</p>
<p>Estuarine Quantity <b>Estuarine habitat area (riparian, sedge, eelgrass and mudflat)</b></p>	<p>Hectares</p>	<p>Currently no largescale monitoring on quantity of mudflat, marsh and eelgrass habitats at sufficient resolution. Through Provincial CRIS program, riparian is monitored in sufficient resolution in developed areas. Province plans to do every five years. One estuary FREMP does have status monitoring of marsh and mudflat. May be undertaken by groups on individual estuary basis.</p>