



Pacific Salmon
Strategy Initiative

Initiative de la Stratégie
relative au saumon du Pacifique



Somass Estuary Symposium Restoration Center Of Expertise

SEP – Community Workshop

May 2023

Compiled by Dale Desrochers and Scott Northup

Presented by Jenna Sutherst



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada



Agenda

- 1) SEP Transformation – Restoration COE
Why are we here?
- 2) Who are We / What's New?
- 3) How do we affect you?



Why? Rationale?

- Why now – have an Estuary Management Plan that has been developed
- Why?
 1. WFP purchase by City
 2. Sewage lagoon restoration / WQ improvements.
 3. Restoration COE – increased DFO capacity / low hanging fruit
 4. Values of estuaries in providing resiliency to climate change?

SEP Transformation in the Context of the Pacific Salmon Strategy Initiative (PSSI)

SEP Continues as a Program

Now Guided by PSSI Mandate and Transformative Agenda



PSSI Mandate

PSSI is the federal government's long-term strategy to stop serious declines in key Pacific salmon populations through a series of science-based approaches, achieved through collaboration across governments, partners, stakeholders and interested parties to protect and rebuild stocks.



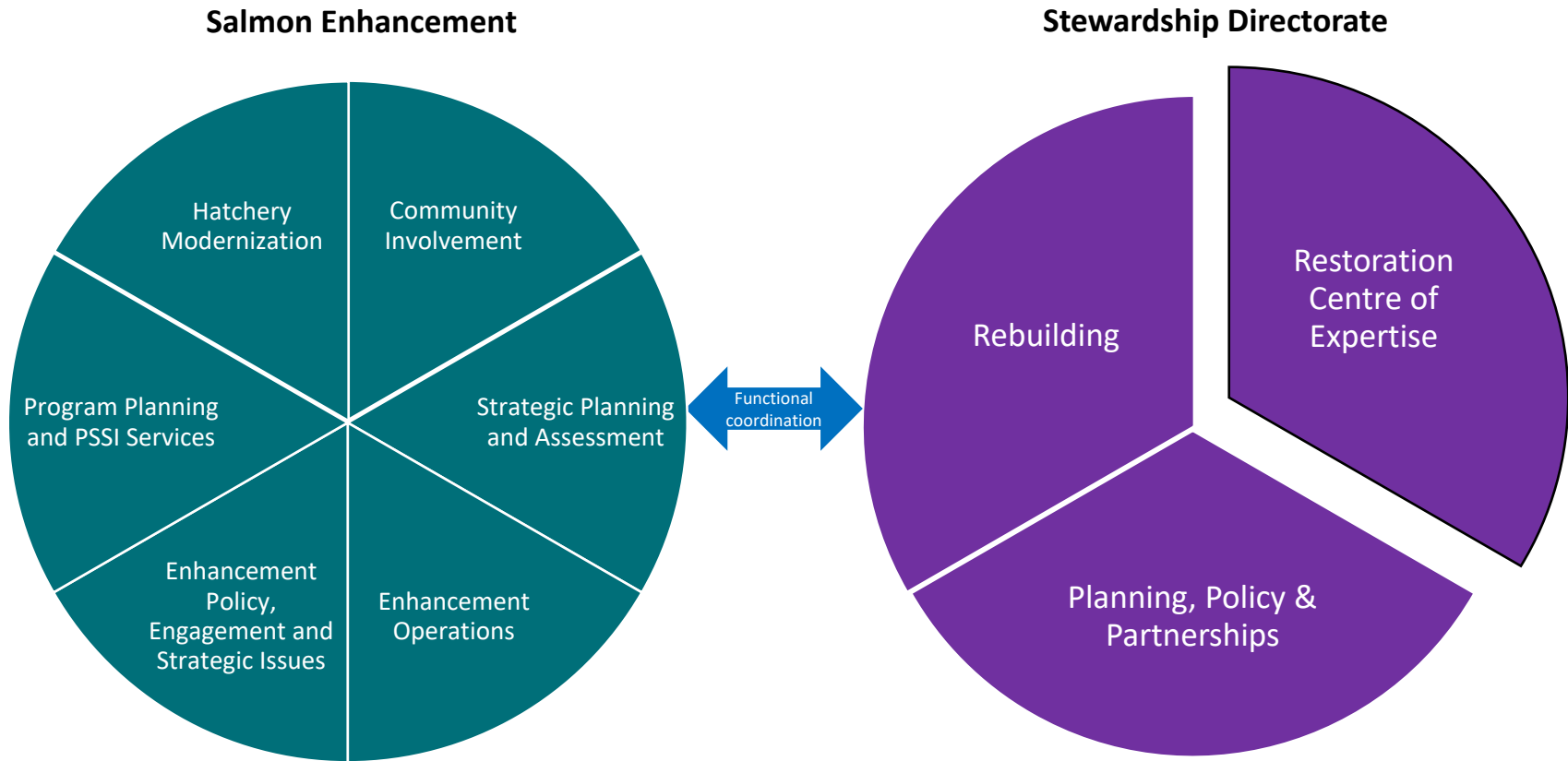


SEP Organization – Pre-PSSI





SEP Organization under PSSI



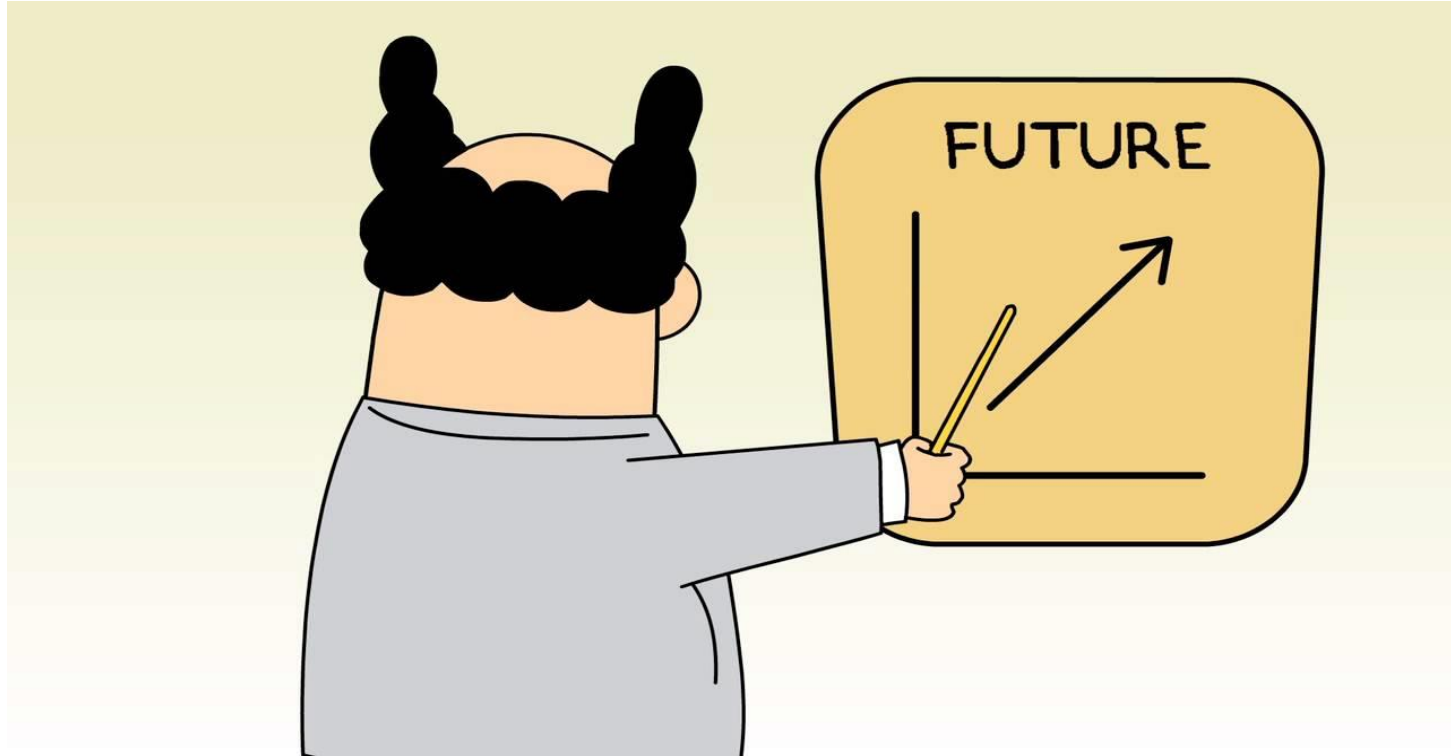
All program streams in the Enhancement and Stewardship Directorate are considered an expansion of existing SEP



Why are we here?



VÍSIÓN



“To Conserve and Restore important Pacific salmon populations and their Ecosystems”



Restoration COE Deliverables

Treasury Board Commitments

Under the Budget 2021 announcement, the *creation of a Centre of Expertise for Salmon Habitat Restoration* was highlighted as a clear deliverable under PSSI to **develop a strategic direction** to support integrated approach to habitat restoration linking actions to long term recovery and conservation of salmon stocks.



We Were Funded To

- **Develop a Center of Expertise for Restoration** led by DFO with expanded management and technical expertise to strategically direct restoration efforts to make long term and measurable differences.
- **Increase opportunities to build partnerships and capacity** in others to contribute to and sustain restoration efforts for Pacific salmon.
- **Improve coordination and transparency** of resources to strategically deliver priority restoration actions.
- **Develop innovative and effective solutions** to restore impaired processes in watersheds and nearshore coastal areas through targeted restoration, experimentation, monitoring and science.
- **Enable adaptive management of restoration** efforts by building shared knowledge and improved understanding of approaches needed to sustain salmon populations through monitoring and research activities.
- **Ensure progress is documented, shared and accessible.**



PSSI – COE Outcomes

Salmon Habitat Restoration is Delivered in a Structured and Coordinated Way

- Develop program structure, roles and expectations of the COE
- Identify and develop strategies, guidelines to support program implementation
- Improve restoration coordination
- Promote and support restoration through engagement and partnerships
- Support effective funding decisions and use of resources

Advance Habitat Restoration Actions to Support Salmon Conservation and Rebuilding Priorities

- Develop tools to improve data collection and analysis, project tracking and reporting
- Establish clear salmon restoration goals, action plans, and methods
- Implement, maintain, and monitor priority restoration projects
- Supports emergency response to environmental disasters to remediate and restore damaged salmon habitat
- Training and capacity building

Salmon Habitat Restoration Efforts are Based on Science, Innovative and Effectiveness

- Review state of restoration science to develop and inform assessment frameworks and study designs
- Establish science-program interface for operational delivery to improve scientific collaboration and engagement
- Develop collaborative science and research studies to improve restoration effectiveness
- Implement restoration effectiveness monitoring
- Improve information and knowledge sharing (e.g., communities of practice, techniques)



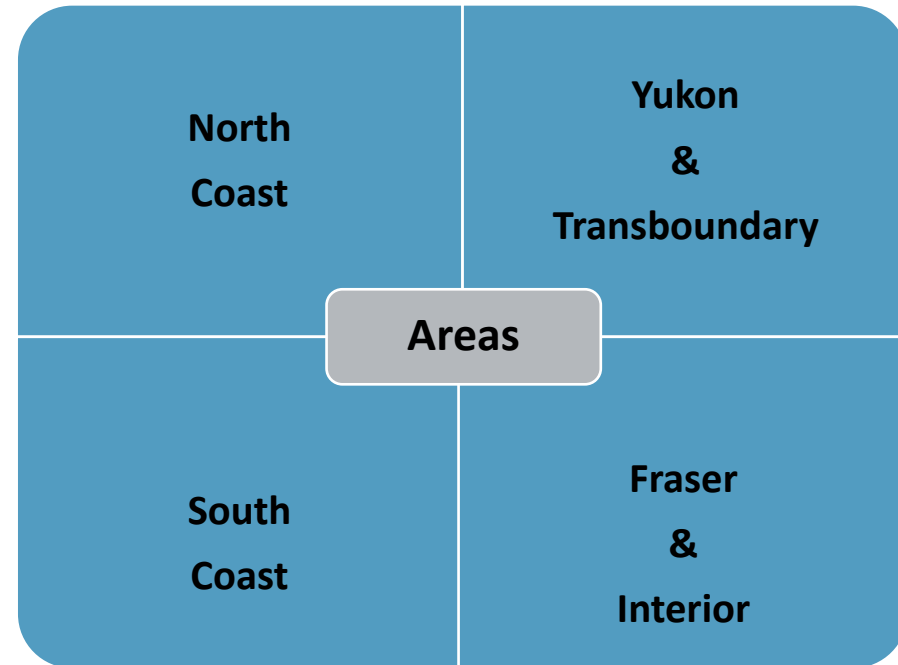
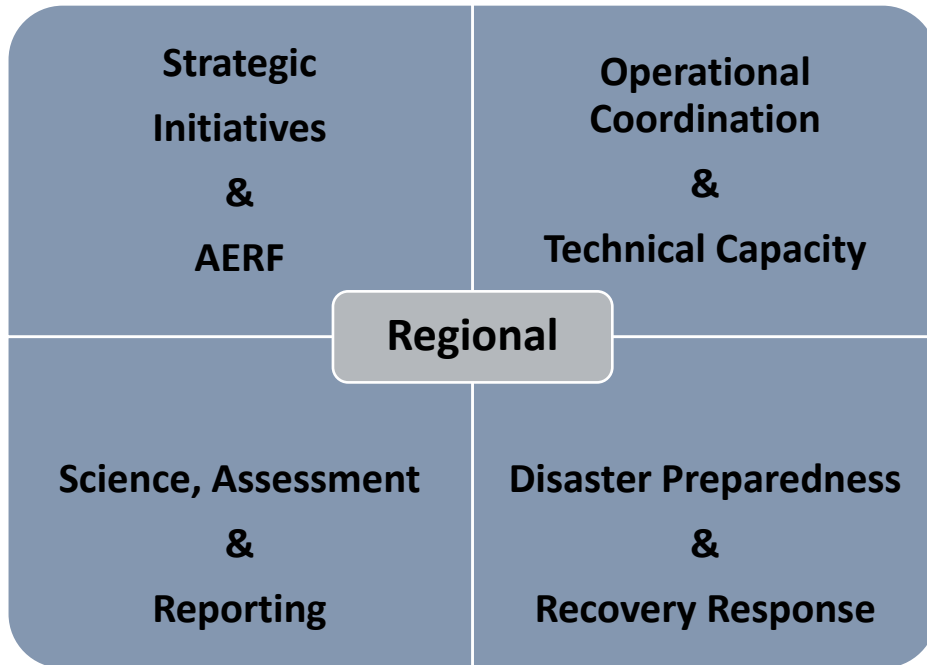


Who are we? What's New?



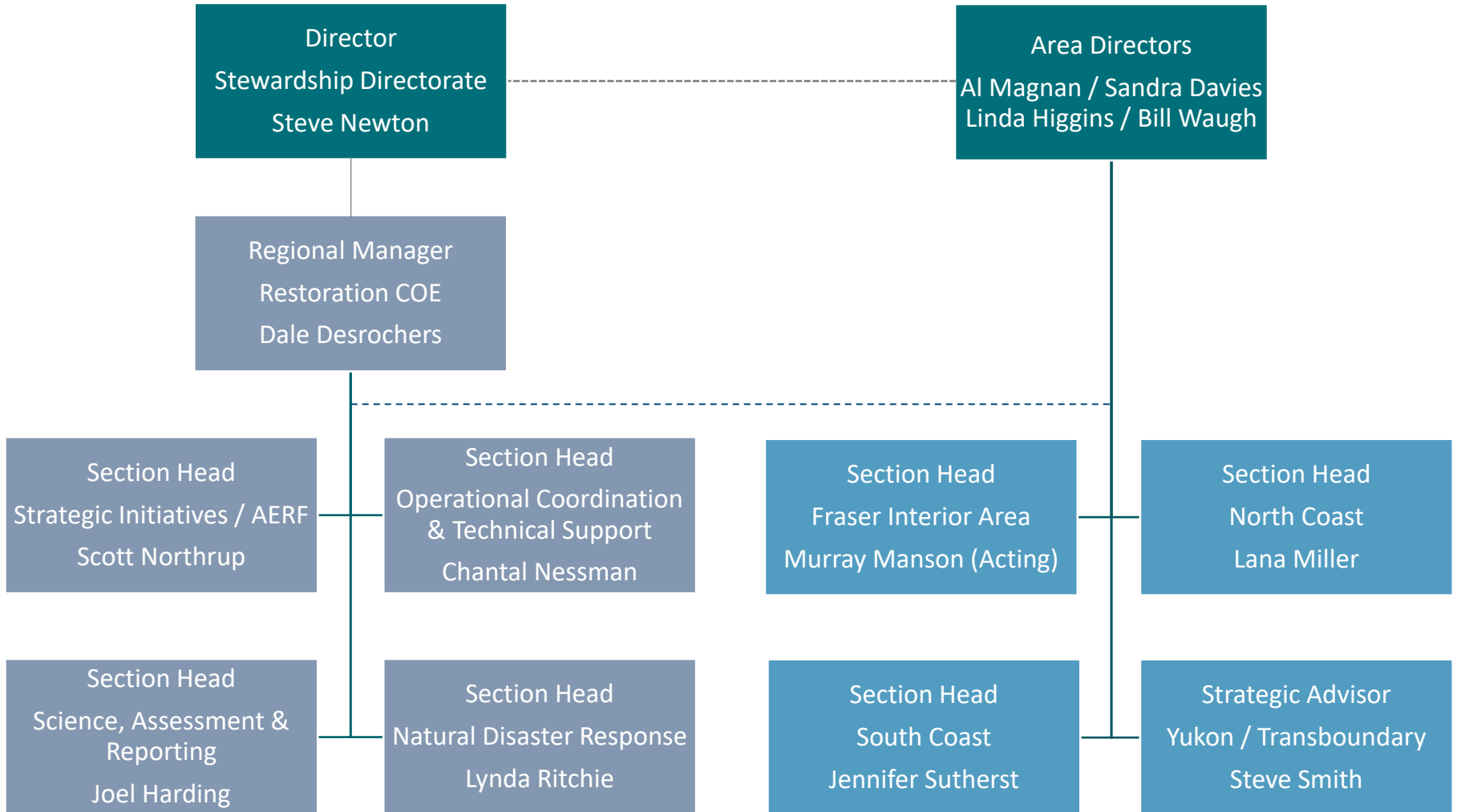


Salmon Habitat Restoration Centre of Expertise





Restoration COE Managers





Strategic Initiatives & Aquatic Ecosystems Restoration Fund





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Strategy Initiative

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relative au saumon du Pacifique



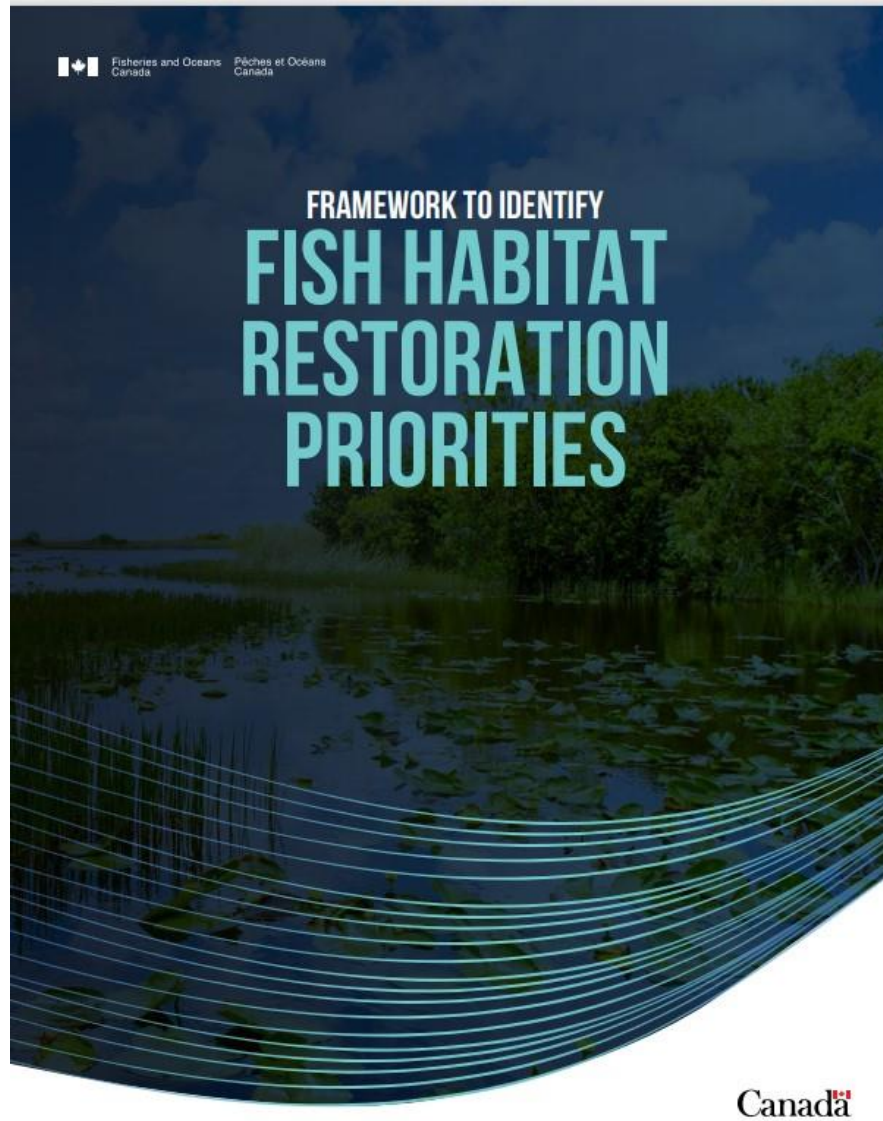
Restoration Priorities Plan for Pacific Region



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada



National Framework is the template for the regional plan

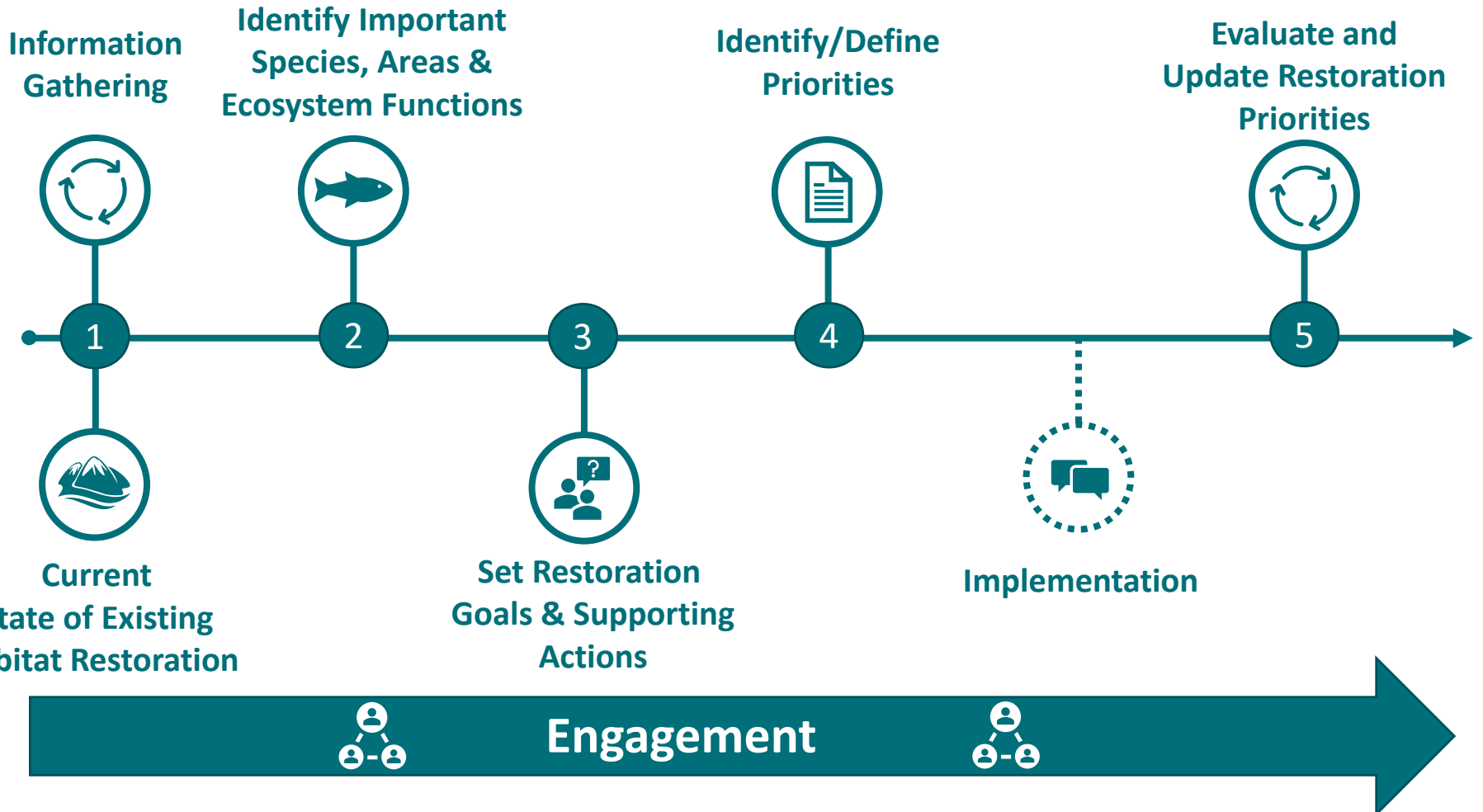
Each regional plan will identify **habitat restoration** goals, supporting actions, and priorities using regionally applicable criteria

The **Restoration Priorities Plan for Pacific Region (RPP)** will undergo extensive engagement with the restoration community

Canada

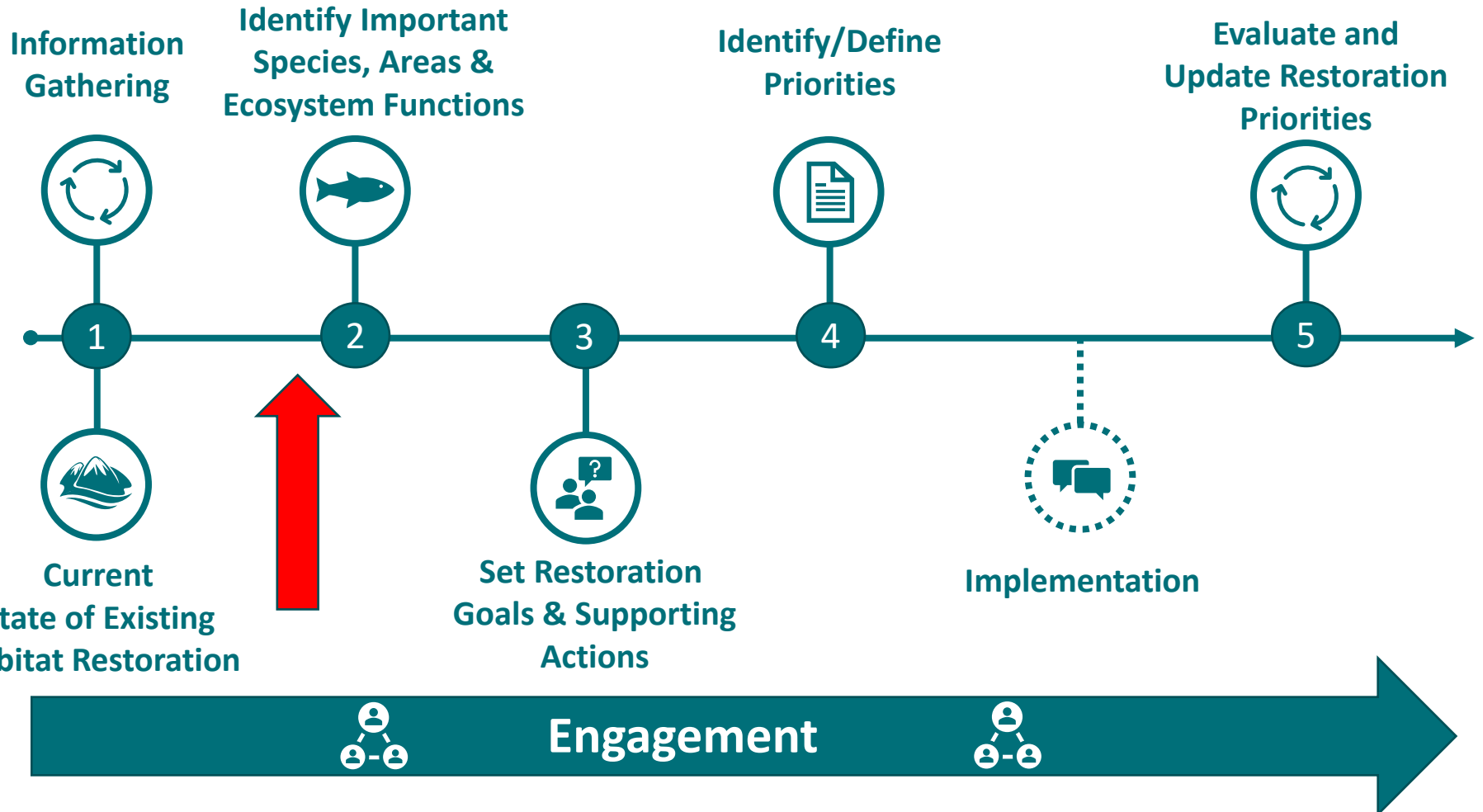


Pacific Region Prioritization



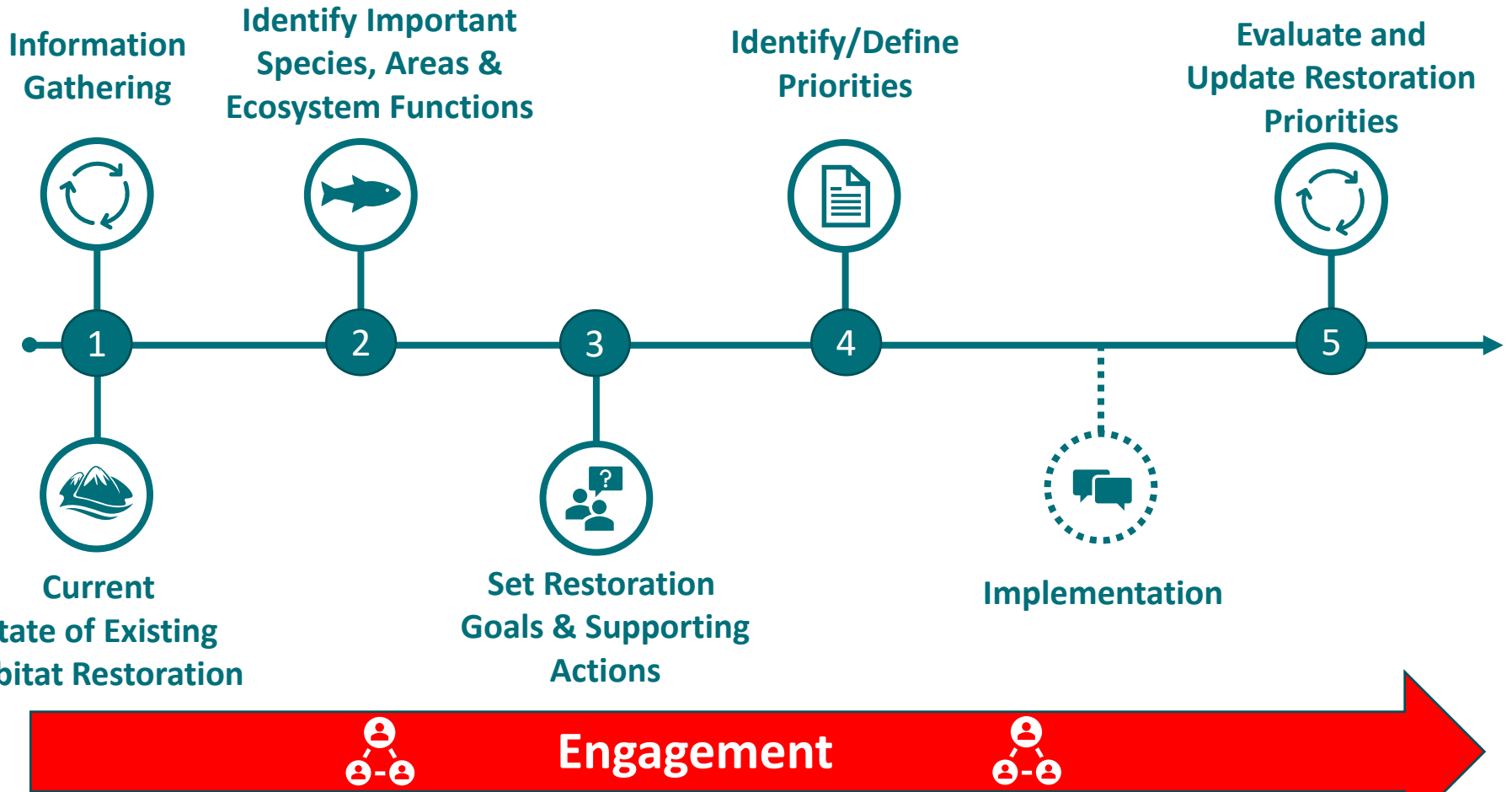


Where are we in the process?





Engagement





How can you help?



Restoration Priorities Plan for Pacific Region *DFO Internal Engagement Survey*

What is it? The *Restoration Priorities Plan for Pacific Region* will establish priorities for fish habitat restoration throughout Pacific Region. It is intended to enhance the coordination of restoration planning for aquatic resources, and improve restoration decision-making across the region. The *Regional Plan* is supported by the *Framework to Identify Fish Habitat Restoration Priorities (the National Framework)*, a guidance document applicable to all DFO regions.

<https://letstalkpacificsalmon.ca/>

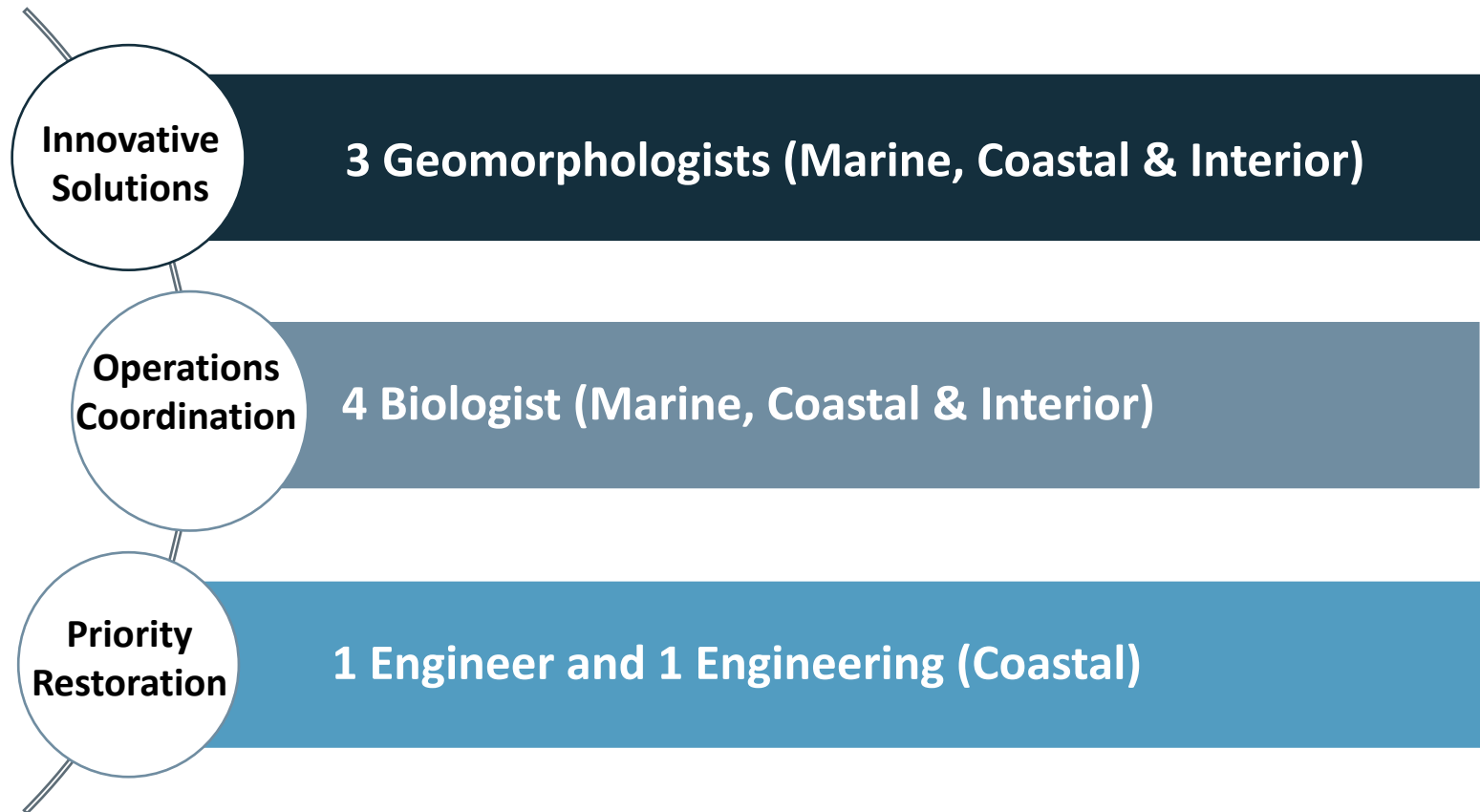
Or email:

Scott.Northrup@dfo-mpo.gc.ca

Jennifer.Harding@dfo-mpo.gc.ca



Operational Coordination & Technical Support





Restoration Outreach

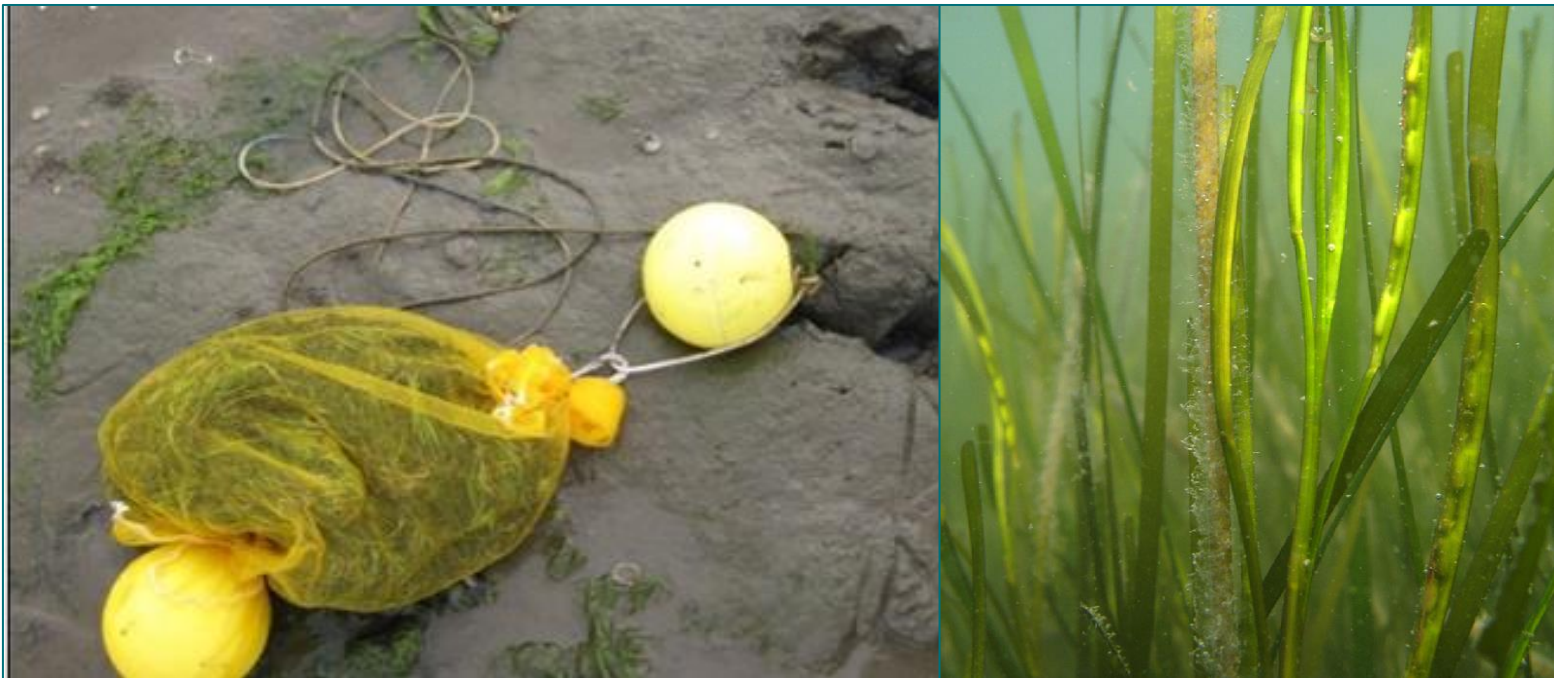
The screenshot shows a website header with a yellow fish icon and navigation links: STATE OF SALMON, ABOUT US, OUR WORK, LEARN, GET INVOLVED, DONATE, and a search icon. Below the header is a large image of water with salmon. The main content area features the title "KNOWLEDGE EXCHANGE WORKSHOP - RESTORATION MONITORING" and the date "March 14th, 2023 9:00am to 3:00pm PST". A paragraph of text follows: "DFO and PSF are pleased to provide an opportunity to share knowledge on practices and standards for restoration effectiveness monitoring from a diverse panel of researchers, scientists and field professionals working in the Pacific Region and beyond." Below this is a video player showing a man speaking, with the title "Opening Remarks: Knowledge Exchange Worksho..." and a "Share" button. The video player includes a "Watch on YouTube" button and a "RESTORATION MONITORING" banner with the text "TO ASK QUESTIONS, GO TO SLIDU.COM AND ENTER CODE #RESTORATION". Logos for Fisheries and Oceans Canada and Pacific Salmon Foundation are also visible.

Partnering with Pacific Salmon Foundation
November 2022 - Zero Stage Restoration
March 2023 – Restoration Monitoring
3 Knowledge Exchange Workshops planned for 2023/24





Eelgrass Buoy Deployed Seeding (BuDS) Pilot Project

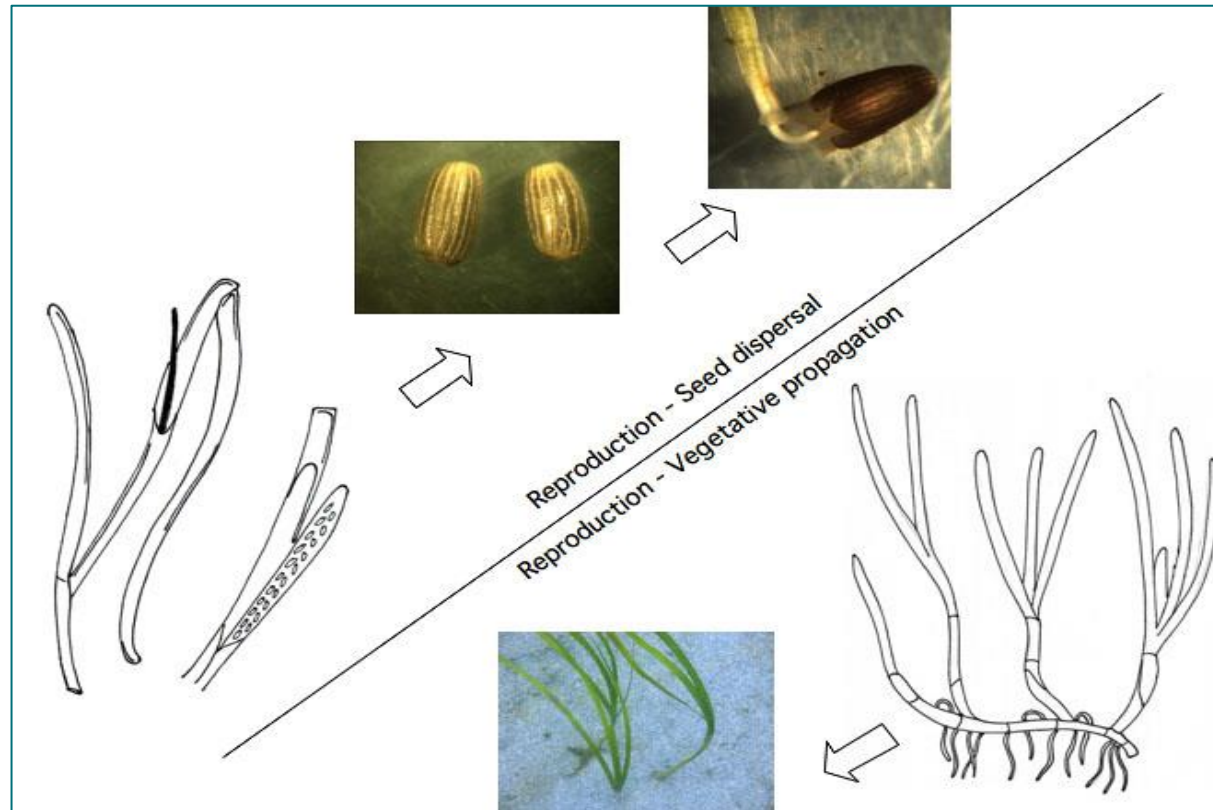


**Restoration Marine Biologist Piloting Use of BuDS System for Eelgrass Reproduction
Method Simple to Use – Anchor, float line, 2 small buoys and 6mm mesh bag
Fill Nets with reproductive seed shoot and let naturally drop seeds to propagate eelgrass**





Eelgrass Buoy Deployed Seeding (BuDS) Pilot Project

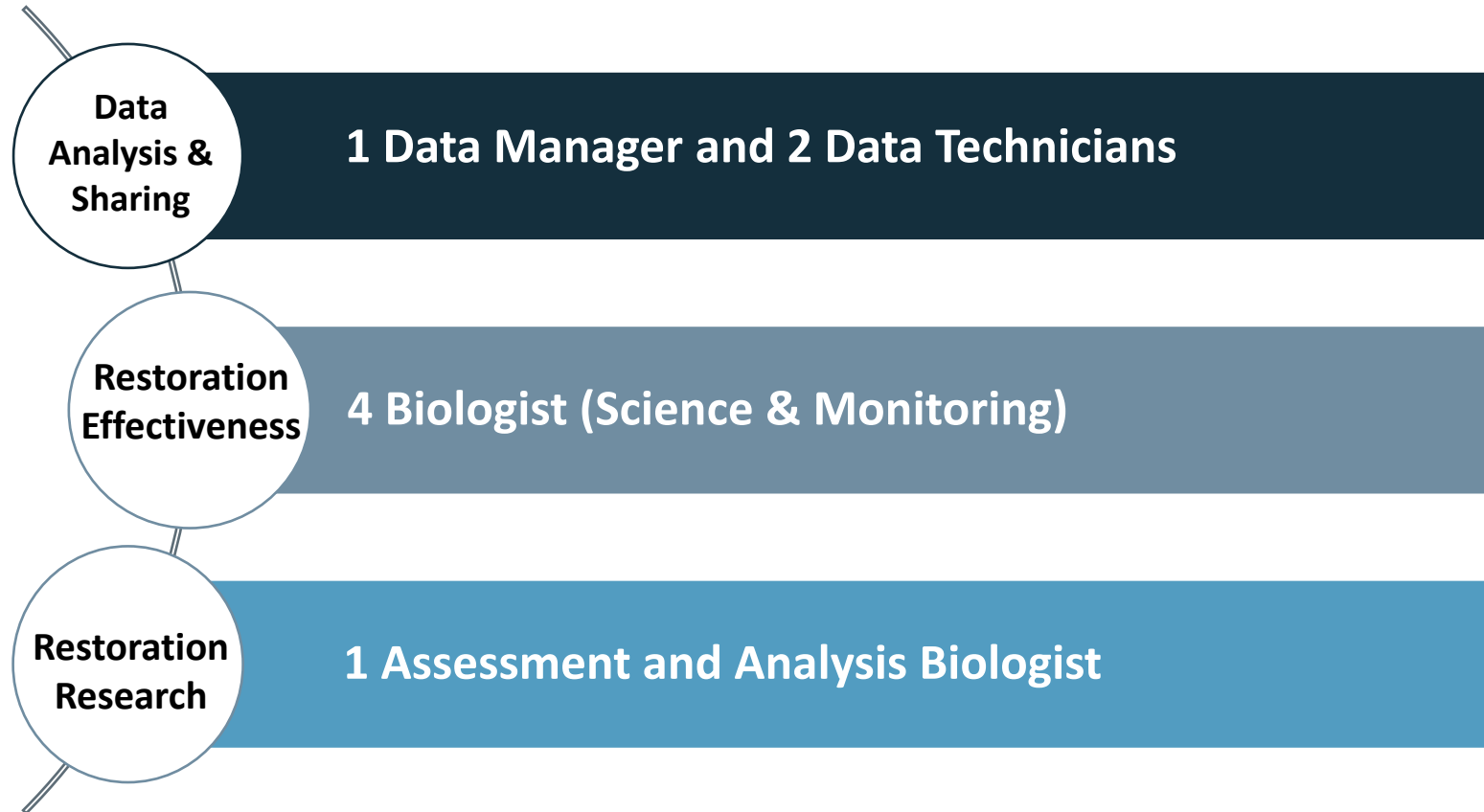


2023 - Three Sites will be Tried.

**2024 – Additional Restoration Sites will be identified along BC Coast for Trials
Monitoring and Reporting will occur throughout**



Science, Assessment & Reporting





Placement of Large Woody Debris



Constructed Logjam on the Bank of Tranquil River





Innovative Techniques to Restoration



**View of the Criss creek watershed
Watershed nearly entirely Burned during an intense fire in 2021**





Beaver Dam Analogues



**Ponds formed by artificial beaver dams (BDAs) along Howarth Creek, B.C.
These structures were built in 2021.**





Disaster Preparedness and Recovery Response





Coldwater River Logjam – Before Restoration

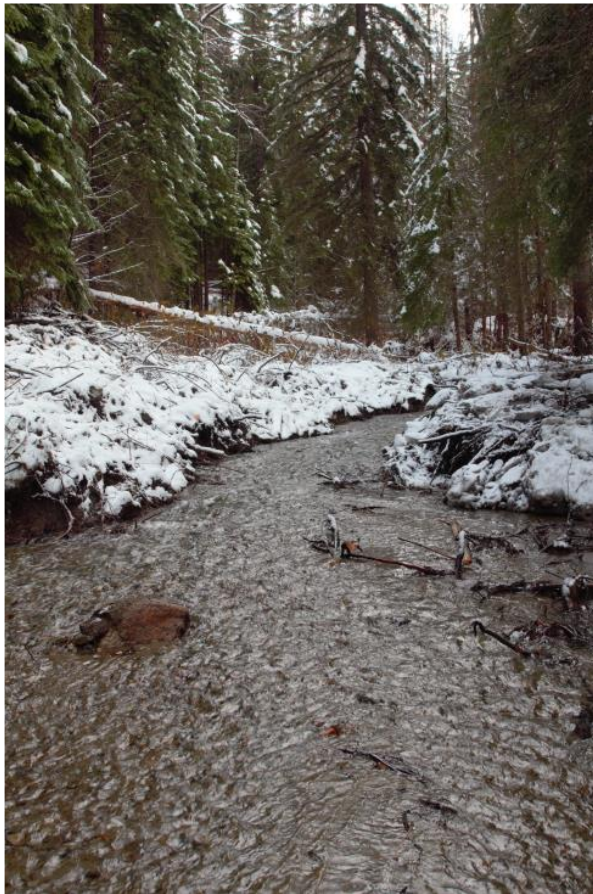


2021 Atmospheric Event
Observed Massive Logjam in Coldwater River
2022 Blocked passage of Coho Salmon





Coldwater River Logjam – After Restoration



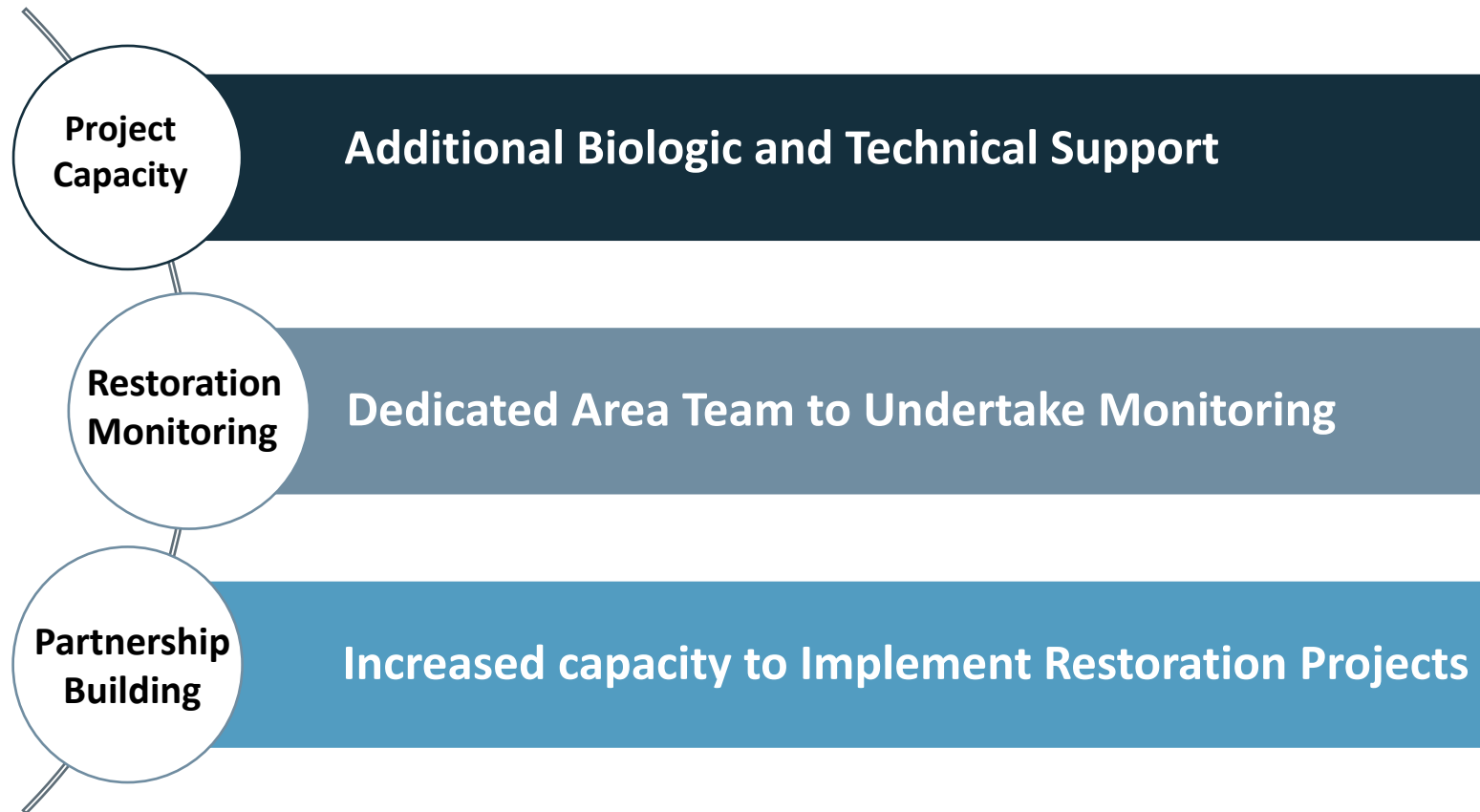
Summer 2022 - Worked with Scwexmx Tribal Council and Nicola Fish Emergency Response Group to develop plan

Fall 2022 – Removed Woody Debris to provide upstream access
Pooling Coho immediately moved upstream to quality spawning habitat





Increased Resources to Existing Restoration Teams within Areas





Increased Resources to Existing Restoration Teams within Areas

Area	Senior Biologists	Biologists	Monitoring Technicians	Engineering Technicians
North Coast	-	1	2	1
South Coast	-	2	2	1
Yukon & TB	1	-	1	-
Fraser & Interior	4	4	4	2



Ishkeenichk FSR Wood Box Culvert Replacement



**Wood Box Culvert long standing fish passage issue adjacent Nass River
Structure confined channel causing flooding, fish stranding and fish mortality**





Ishkeenichk FSR Wood Box Culvert Replacement



**BCSRIF Funded Project - Canadian Wildlife Federation Proponent
Restoration Team worked with CWF, MOF and the Nisga's Lisims Government
Wood Box Culvert replaced with Clear Span Bridge**





Cross Creek Culvert Replacement



**Cross Creek – Tributary to Babine Lake
Identified as partial barrier to sockeye by Lake Babine Nation
Debris build up and low flows impact migration of spawning sockeye**





Cross Creek Culvert Replacement



**Diversion channel constructed to isolate construction site.
Lake Babine Nation and Pinkut Hatchery Crew supported Restoration Team
More than 1000 sockeye adults passed through diversion channel**





Cross Creek Culvert Replacement



**Cross Creek Culverts – Replace with Open Bottom Arch
Channel constructed to maintain passage during both low and high flow conditions**





Brandt Channel – Before Restoration

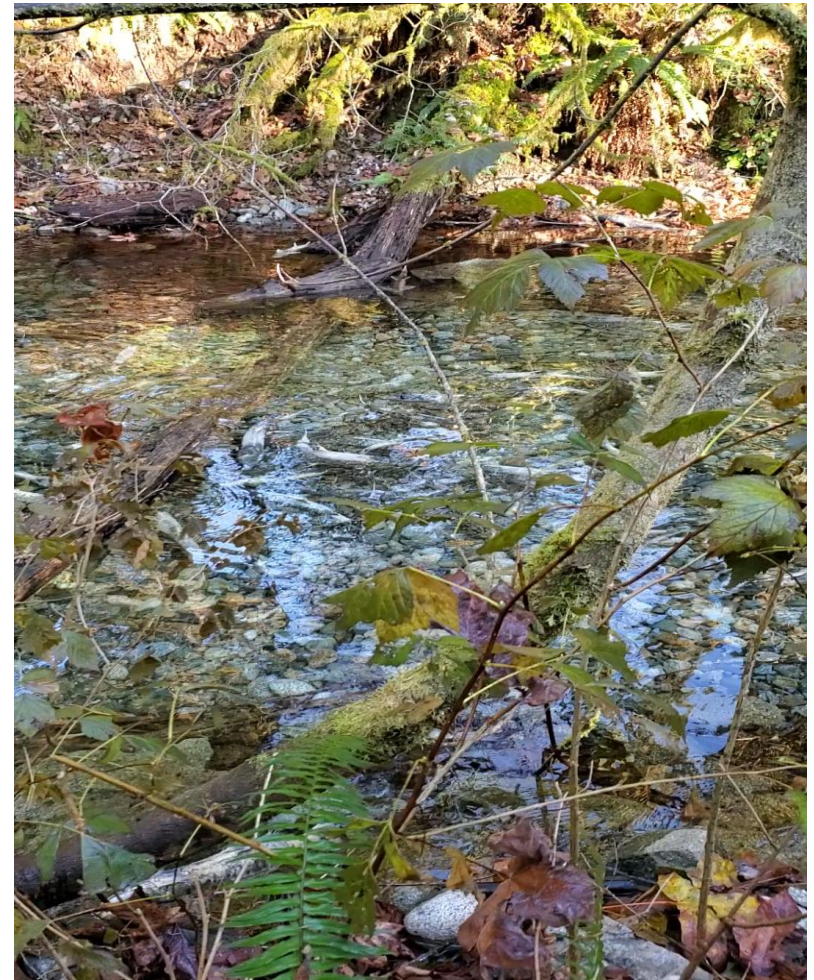


Brandt Channel – Tributary to Indian River
1980 Constructed Groundwater Chum spawning channel
Changes in Indian River Flows deposited approx. 2 meters of sand/gravel





Brandt Channel - After Restoration



Fall 2021 - Worked with Tsleil-Waututh Nation to develop plan
Summer 2022 - Reconstructed outlet and rebuilt upstream where required
Fall 2022 observed chum moving back into channel – 2600 spawned





Upper Pitt River – Alvin Patterson Channel



Fall 2021 - Worked with Katzie Nation and Partners to develop plan
for Alvin Patterson Channel extension





Upper Pitt River – Alvin Patterson Channel



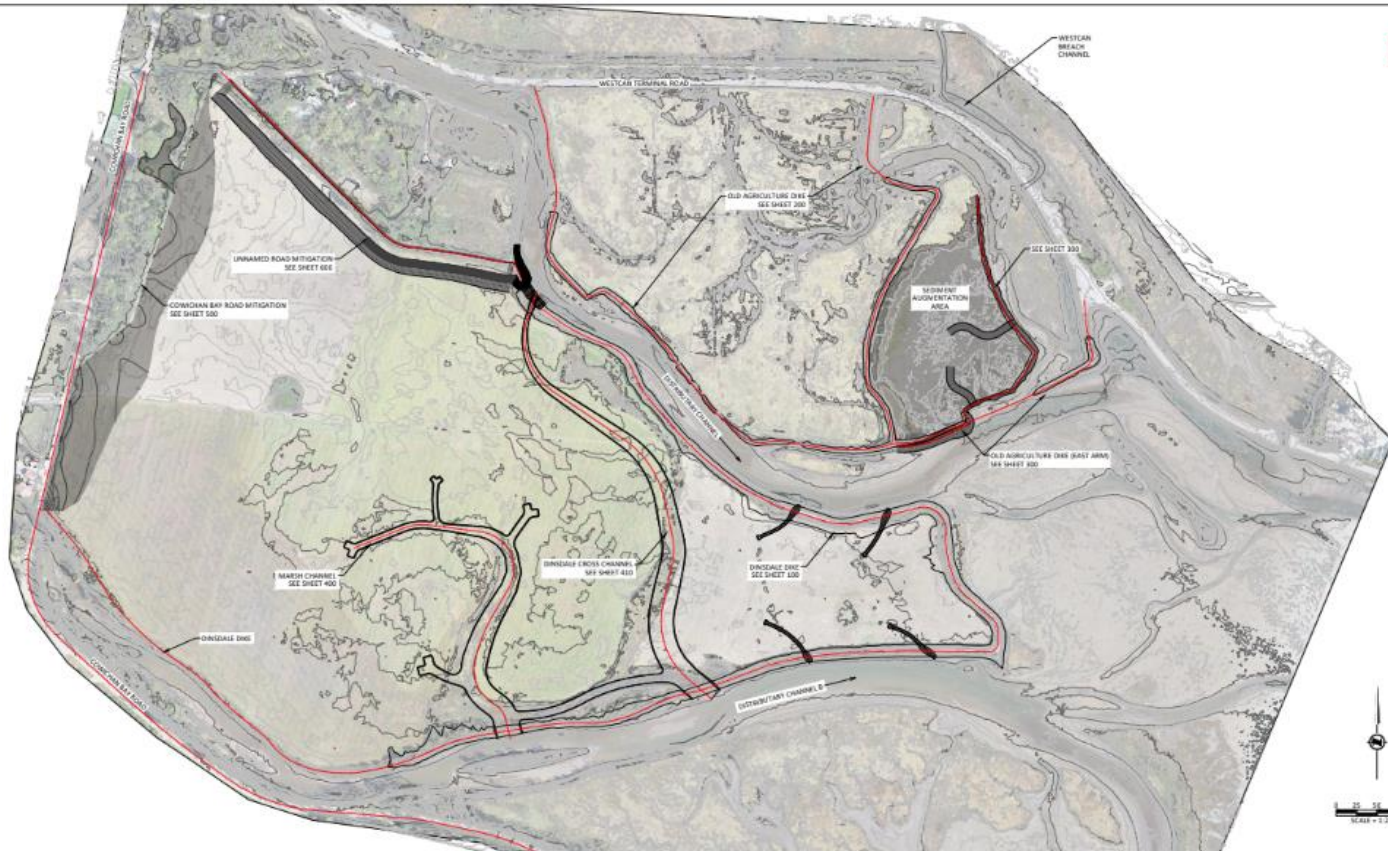
Summer 2022 - Constructed sockeye and coho spawning channel
Fall 2022 observed sockeye chum moving back into channel





Cowichan Estuary Restoration Project

DRAFT



COWICHAN ESTUARY OVERALL PLAN
SCALE 1:2,500

LEGEND

- PROJECT SPECIFIC UNIFORMS
- ASSOCIATED PROJECT ALIGNMENTS

THE NATURE TRUST OF BC
2380 LABURN ROAD
NANAIMO BC V9T 6P9

NATURE TRUST
BRITISH COLUMBIA

REV	DATE	DESCRIPTION
1	18 APR 2022	ISSUED FOR PERMITTING - LEAD
2	18 APR 2022	ISSUED FOR PERMITTING - DESIGN

nhc
northwest
hydraulic
consultants

COWICHAN ESTUARY MARSH RESTORATION
COWICHAN ESTUARY OVERALL PLAN

DESIGNED BY: I. DUNBAR, N. LINDSEY
DRAWN BY: C. ZAKAL, C. WICKHAM
CHECKED BY: S. HILL, G. SANDERSON
APPROVED BY: N. LINDSEY

SHEET NO: 3006743-4-EP-DET-COINVEST-RAC-002-002-001
STATUS: ISSUED FOR PERMITTING
DATE: 29 APR 2022

SHEET NO: 002
REV NO: 01

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Re-establish natural estuary form and function
Support ecosystem and climate resiliency



How Do We Affect You?





Examples of Connections with Community Undertaking Restoration





Thank You

