Weaving Indigenous Knowledges into Sediment Standards

A Practical Discussion on Modernizing BC's Sediment Protection Framework

We acknowledge and respect the **lək□□əŋən** (Lekwungen) Peoples (Songhees and Esquimalt Nations), on whose traditional territories we gather, and whose historical relationships with this land continue to this day.

Bridging from Vision to Action

> Thank you to our inspiring speakers. We've just heard two powerful perspectives that, together, chart a clear path forward.

Foundational vision: the *'why'*. Embrace 'Two-Eyed Seeing' and to recognize that our waters and lands are kin. Modern sediment standards must be holistic, place-based, and respectfully braid Indigenous wisdom with Western science to be truly protective.

Tangible example of this vision in action: the *'how'*. The Tsleil-Waututh Nation's work on the Burrard Inlet Water Quality Objectives is a precedent-setting, Nation-led initiative. It demonstrates a successful government-to-government process that weaves knowledges to create numerical values that protect cultural practices, like the ability to safely harvest shellfish once again.

The Bridge: Our goal in this room is to build on this momentum. We will explore how we can apply these principles to the scientific framework for modernizing BC's sediment standards.

Our Focus: Opportunities for Braiding Knowledge & Science

The Sediment Standards Project is collaboratively developing a scientific framework for modernizing the sediment standards in BC.

Potential opportunities for weaving in Indigenous Knowledges & Science (IK&S) into the Sediment Standards Project.

Holistic Protection Approach

What it is: Protecting the entire ecosystem, including wildlife and people that rely on it.

The IK&S Opportunity: What does it mean to protect Indigenous Uses? Re-visioning the conceptual exposure model. Defining 'health' protection goals to include the well-being of culturally significant species, such as medicinal plants, and the ability for communities to maintain their relationship with the water.

Tiered, Site-Specific Approach

What it is: Recognizing every place is unique and developing a framework for tailoring assessments to local conditions.

The IK&S Opportunity: Would a collaborative study to gather area-based knowledge and scientific data be a good initial step? It could support a cause-effect approach (probabilistic modeling) to understand real-world environmental conditions, including multiple stressors, cumulative effects, complex mixtures, ecosystem characteristics, and Indigenous Uses.

The Questions We Face

This leads us to the core questions for our discussion today, which we hope to explore with your help.

We will be documenting your constructive feedback:

- What has worked well?
- What approaches have you seen succeed?

Your insights will help inform this collaborative process

Presenter Link:
https://scienceadvisoryboard.display.vevox.com#/present/772135/TLJPSJE9QM5MYPJUON2Z

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Poll 1: A Braided Baseline Study

What is the most effective starting point for developing a holistic baseline study that combines co-located sampling (e.g., sediment, porewater, tissue, surface water) with area-based Indigenous Knowledge and Science?

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1. **A co-developed conceptual site model** that uses Indigenous Knowledge to first identify key species, exposure pathways, and areas of cultural significance to guide the scientific sampling plan.
2. **A comprehensive literature and data review** that compiles all existing scientific and Indigenous knowledge for the area to identify critical data gaps that the baseline study must fill.
3. **A pilot-scale field study** conducted collaboratively with community members to test and validate sampling methods and ensure they are effective and culturally appropriate.
4. **A series of collaborative workshops** where knowledge holders and scientists share information to establish a shared understanding of the ecosystem's history, health, and stressors.

Dialogue Prompt for Presenters (Panel topic or Q&A): "These are all crucial steps in a larger process. Based on your experience, which of these starting points has been most successful in building a strong foundation of trust and shared understanding before the main field sampling begins?"

Poll 2: Enhancing Scientific Protection Goals

How can the scientific framework incorporate protection goals related to Indigenous Stewardship principles such as the 'connectedness of all life' and '7-generations'?

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1. By using **food-web models** that scientifically map contaminant pathways between species.
2. By developing **Species Sensitivity Distributions (SSDs)** that must include culturally significant local species.
3. By setting protective **tissue residue guidelines** for key indicator species to ensure long-term safety.
4. By incorporating **ecosystem function metrics** (e.g., nutrient cycling) as formal scientific endpoints.
5. By developing standards to protect the fitness of resources for **various traditional uses**, such as the safety of medicinal plants.

Dialogue Prompt for Presenters (Panel topic or Q&A): "These scientific approaches aim to embed deeper cultural principles. From your experience, how effective are these approaches for moving a risk-based approach beyond just survival endpoints and toward protecting the long-term health and **cultural usability** of an ecosystem?"

Poll 3: A Braided Tiered Approach in Practice

Within a tiered framework, where can place-based Indigenous Knowledge provide the most direct scientific value for modifying a generic baseline value to be more site-specific?

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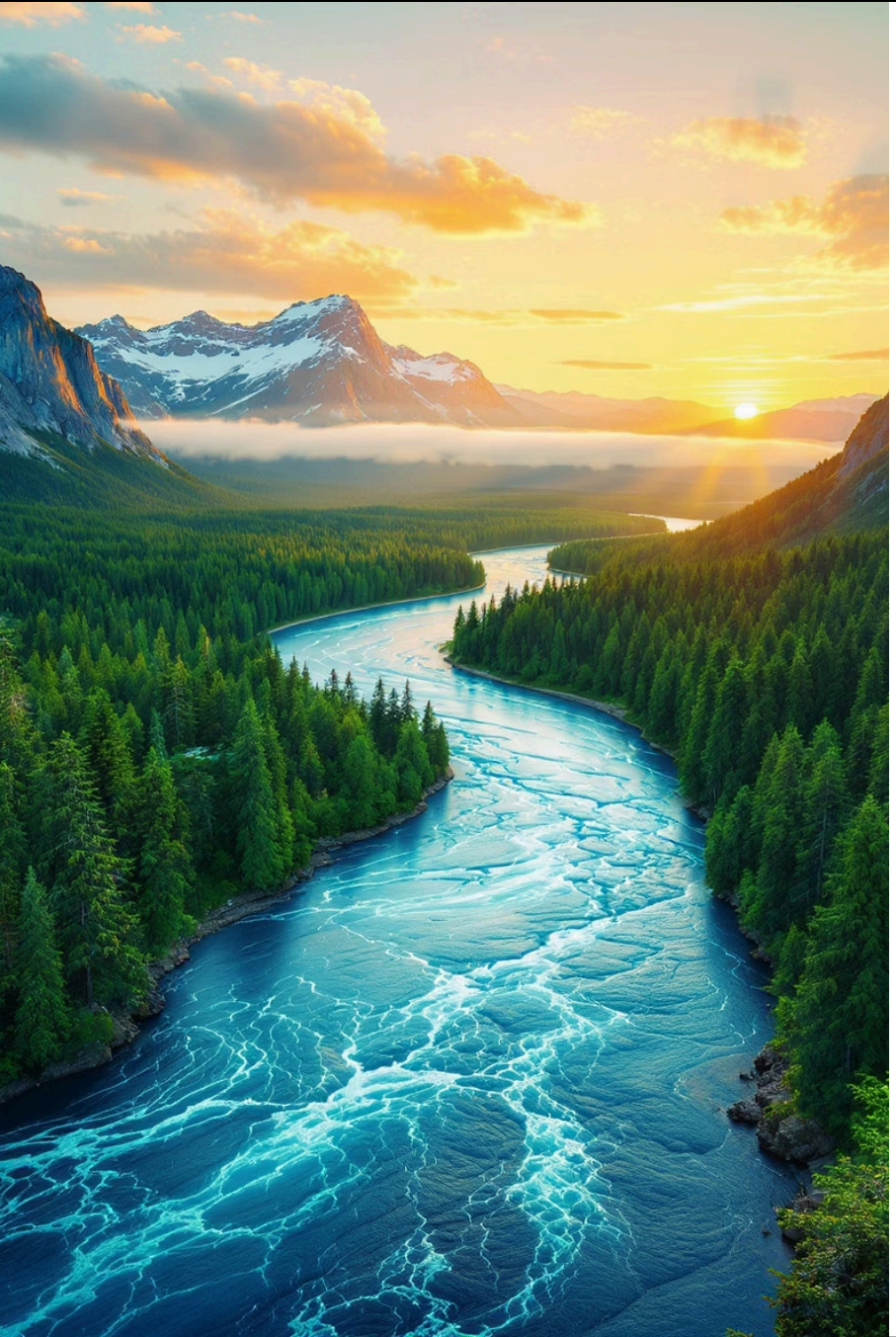
1. Informing **bioavailability models** with specific knowledge of local sediment characteristics and processes.
2. Identifying sensitive local species or life stages not included in the generic models for a more accurate **risk calculation**.
3. Characterizing unique, site-specific **contaminant exposure pathways** that would alter baseline risk model assumptions.
4. Identifying potential confounding environmental factors (e.g., freshwater seeps) influencing **scientific measurements**.

Dialogue Prompt for Presenters (Panel topic or Q&A): "The TWN's work is deeply site-specific to Burrard Inlet. As we consider a provincial framework, this tiered approach is key. From your technical experience, which of these inputs provides the most robust, defensible data to turn a generic provincial value into one that is truly protective of a specific place?"



Thank You & Next Steps

Thank you all for your invaluable insights. This is just the beginning of a much longer conversation.

Your Input Matters

Your contributions today will directly inform the SSTAC's ongoing work and help us find meaningful pathways to weave these essential knowledge systems together.

Continuing the Dialogue

This conversation extends beyond today's session. We welcome your ongoing perspectives as we develop this framework together.

Contact Information

Please reach out with additional insights or questions about the SSTAC Sediment Standards Project.