



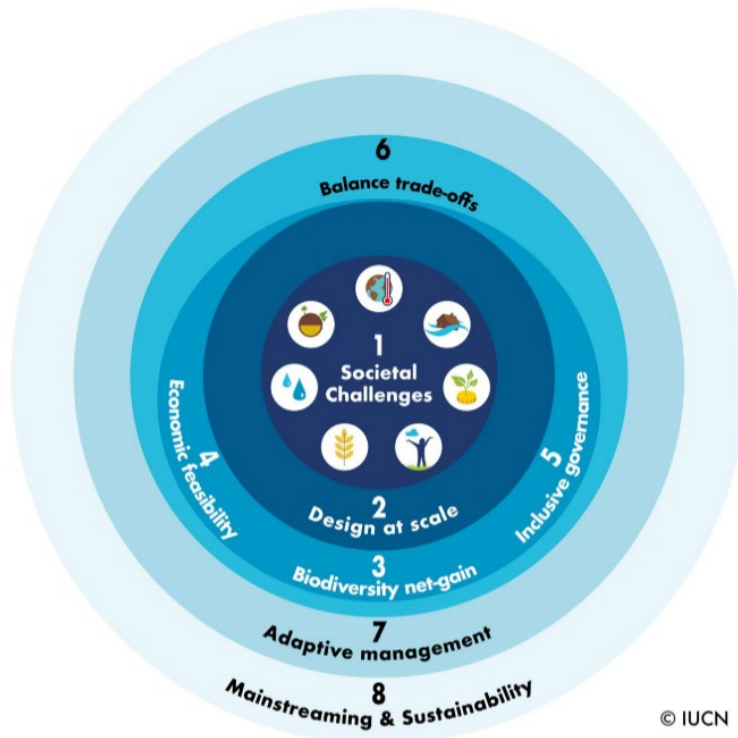
Nature-based solutions: sensitive ecosystems, keystone species, and watershed health in the Boundary

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Prepared for the Regional District of Kootenay Boundary
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Nature-based Solutions

“actions to **protect**, sustainably **manage** and **restore** natural and modified **ecosystems** in ways that address societal challenges effectively and adaptively, **to provide** both **human well-being** and **biodiversity benefits**” (IUCN, 2016)



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Identify a societal challenge



Example: Urban flooding

- Water, sediment, and large wood enter the developed parts of the floodplain
- Man-made objects and pollutants enter the river

Learn which species or ecosystems could help



- Select a species or ecosystem that, when thriving, might ease the societal challenge
- Sensitive ecosystems are rare and threatened, and would benefit from selection e.g. floodplains, wetlands, etc.
- Keystone species have a disproportionate impact on ecosystems and would create multiple benefits if selected e.g. cottonwoods, beavers, etc.

Consider protection, management, and restoration options



- Might be targeted or opportunistic

Example: Floodplain and cottonwood forest restoration

- Remove or set back dikes, reverse channelization, etc.
- Remove built infrastructure from the floodplain
- If necessary, plant target species and remove invasives
- Ensure land use is resilient to flooding (depending on species and techniques may still be partly used for agriculture, rangeland, etc.)

Consider potential benefits



Example: Dynamic floodplain with cottonwood forests at various successional stages

- Water spreads out, slows down, and sinks in, recharging groundwater and reducing downstream flood peak
- Energy is dissipated as the river erodes and transports sediment and large wood, which are then stored in the floodplain
- Self-sustaining habitats are created with benefits for aquatic and terrestrial species

Consider trade-offs



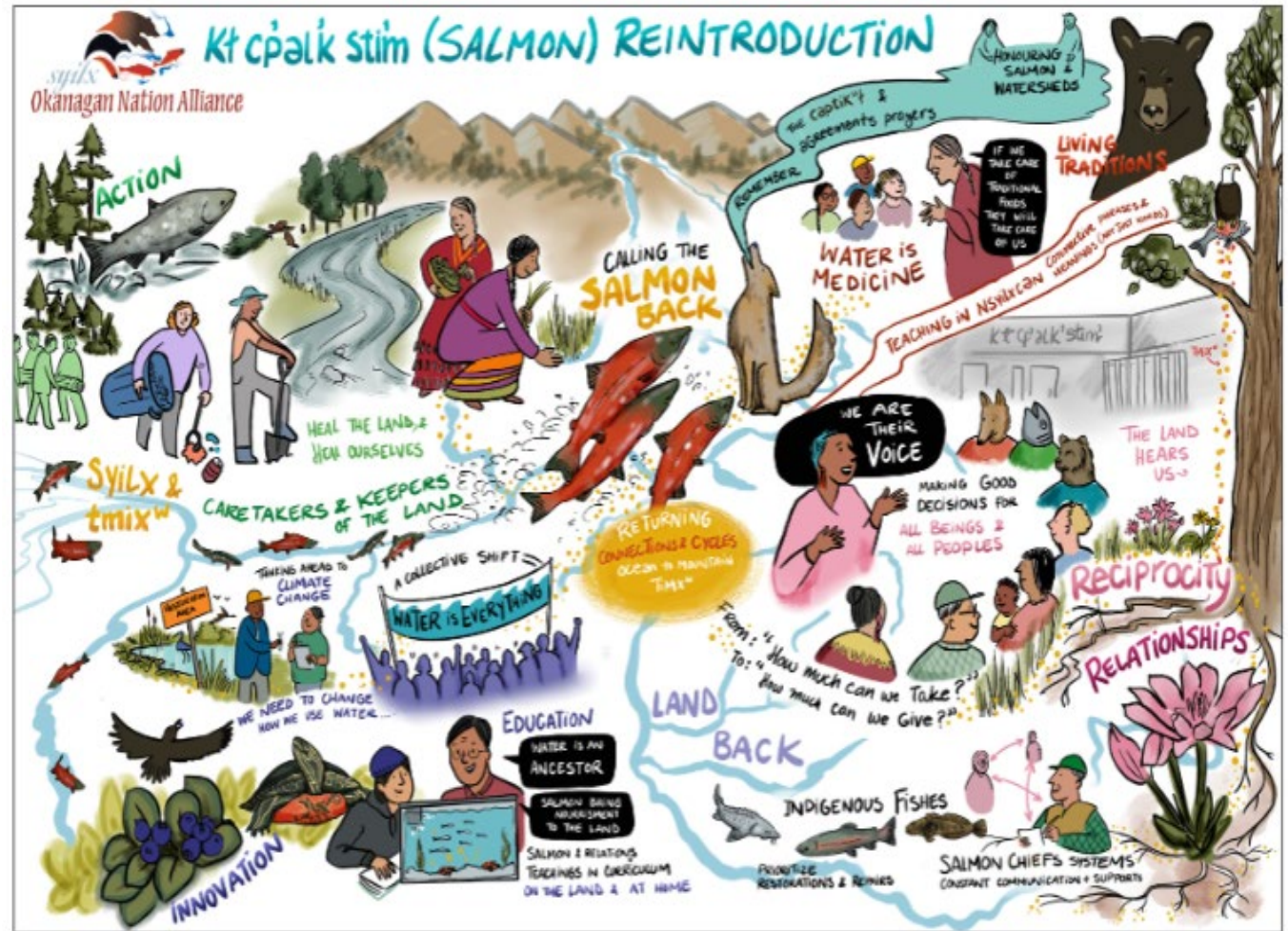
Example: Dikes removed from agricultural area in floodplain

- Changes to private property boundaries as the river moves and changes
- Potential loss of productivity (depending on crop species)
- Possible impacts on food supply and security
- Urban vs rural social discord

Perspective

“The term ‘nature’ perpetuates a separation of humans and nature...[it] overlooks a foundational understanding in Indigenous ways of knowing that see the **humans, spirit, and land as interconnected, relational, and reciprocal**, captured in the near nonexistence of nature in the Indigenous languages shared by the Experts.”

From There is no word for ‘nature’ in our language: rethinking nature-based solutions from the perspective of Indigenous Peoples located in Canada (Reed et al. 2023)



Syilx Water Responsibility Methodology

- TEK-guided process to create community-based watershed management plans inclusive of Indigenous perspectives while developing Syilx (Okanagan) insight, experience, and key concepts into the management planning process
- See *Developing Water Responsibilities Plans Using the Syilx Methodology: A nxwyałpítkw (Kettle River) Watershed Pilot Study* (ONA 2019)



Sources

[Nature-based Solutions | IUCN](#)

[Developing Water Responsibilities Plans Using the Syilx Methodology: A nxwyałpítkw \(Kettle River\) Watershed Pilot Study – Okanagan Nation Alliance](#)

[There is no word for ‘nature’ in our language: rethinking nature-based solutions from the perspective of Indigenous Peoples located in Canada | Climatic Change](#)