

# Rethinking Our Water Ways



*A Forum for BC Community Leaders on Water and Watershed Planning*



Fraser Basin Council



# Re-Thinking Our Water Ways - Agenda

- **Welcome and Introductions** - Marion Town, FBC
- **Water, Watersheds, Climate Change and Planning in BC**  
Steve Litke, FBC
- **Local and Regional Issues, Perspectives and Initiatives**
  - David Hocking, Metro Vancouver
  - Christianne Wilhelmson, Georgia Strait Alliance
  - Tamsin Mills, City of Vancouver
  - Jesse Baltutis, The POLIS Project for Ecological Governance
- **Lunch and Networking**
- **Roundtable Discussions**  
Key issues, challenges, barriers, and opportunities
- **Looking to the Future**  
Future collaboration, priorities, actions and strategies



# About This Workshop





# Acknowledgements





## Workshop Objectives

- Discuss key water and watershed issues
- Raise awareness and capacity for water planning
- Raise awareness and understanding of climate impacts on water and how to adapt through planning
- Learn about local and regional perspectives, initiatives and success stories
  - Prince George (Sept 23)
  - 100 Mile House (Oct 24)
  - Salmon Arm (Nov 1)
  - Chilliwack (Dec 7)
  - New Westminster (Jan 18)





## Fraser Basin Council

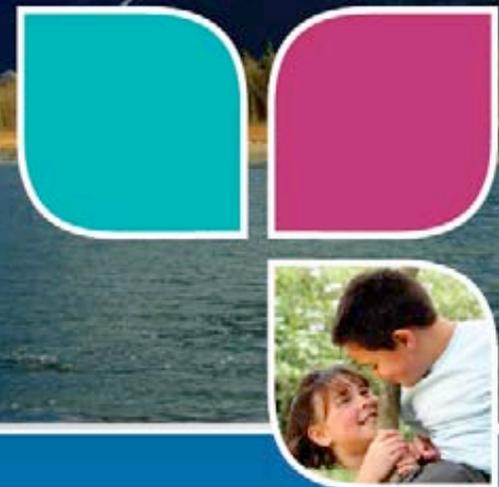
- A non-profit, NGO to advance sustainability in BC with a focus on the Fraser Basin
- Primary roles include educator and impartial convenor and facilitator
- Guided by a collaborative Board representing:
  - Federal, Provincial, Local and First Nations governments
  - Private sector
  - Civil society





# The Fraser Basin Council Vision

*Social well-being, supported by a vibrant economy and sustained by a healthy environment*





# FBC 5-Year Strategic Plan (2011-2016)

- Taking action on climate change and air quality
- **Supporting healthy watersheds and water resources**
- Building sustainable and resilient regions and communities
- Increasing organizational strength and resilience



# About This Guide





# Purpose of the Water and Watershed Planning Guide

The purpose of this guide is to help communities, stakeholders, organizations and individuals:

- Understand the value of water and watershed planning
- Navigate through current and emerging water issues
- Integrate climate change adaptation into watershed planning
- Understand the range of planning options available in BC
- Build capacity to develop and implement plans that will strengthen watershed health, community resilience and sustainability





# Outline of the Guide

1. About This Guide
2. Planning for Water and Watersheds
3. Climate Change and Water
4. Who Does What in Water?
5. Managing Water Supply and Demand
6. Protecting Drinking Water Quality
7. Integrating Water, Land and Watersheds
8. Learning from Experience
9. Tools and Resources





# Planning for Water & Watersheds



## Why is Water / Watershed Planning Important?

We need planning, management and governance arrangements to effectively manage water and watersheds, including:

- Managing the use and allocation of water
- Resolving conflicts among diverse interests
- Mitigating pressures on water from diverse sources





# Preparing for Climate Change & its Impacts



# Climate Change & Water

Key questions to consider include:

- What extent and magnitude of climate impacts, in terms of changes in temperature and precipitation, are projected to occur within the geographic area of interest?
- How will projected changes in temperature and precipitation impact snowpack, glaciers, sea level, frost-free days, rain intensity and hydrology (e.g., river flows, groundwater recharge) both on an annual basis and a seasonal basis?





## Climate Change & Water

Projected changes are highly dependent upon location, topography, and watershed type, including:

- Rain-dominated watersheds
- Snow-dominated watersheds
- Transition watersheds
- Coastal watersheds (rain and transition, but with the added impact of sea level rise)





# Climate Change & Water

## Hydrology and Geomorphology

- Changes in the hydrology of rivers, streams and watersheds, (e.g., volume and timing of flows, increased frequency and magnitude of both peak [flood] flows and low [drought] flows)
- Changes in the geomorphology of rivers, streams and watersheds, including the volume, sources and destinations of sediment transport (e.g., increased rates and shifting locations of erosion and sedimentation processes)





# Climate Change & Water

## Water Quantity

- Increasing water shortages and competition among water uses (e.g., hydroelectricity, irrigation, communities, recreation and instream flow needs for aquatic ecosystems), with implications for transboundary agreements in some cases

## Water Quality

- Increased water turbidity and water-borne pathogens from increased flooding, erosion and sediment
- Saltwater intrusion in coastal communities





# Climate Change & Water

## Aquatic and Marine Ecosystems

- Stresses on fish migration and survival due to warming water temperatures, low freshwater flows, degradation of spawning and rearing habitat, and changes to food availability and predators in the marine environment

## Infrastructure

- Increased risk of damage and disruption to infrastructure due to flooding and erosion





## Preparing for Climate Change and its Impacts

- Acquire locally / regionally specific information about climate change impacts (e.g. reduced precipitation; increased temperature)
- Assess climate-related vulnerabilities and risks (e.g. reduced water supply; increased demand for irrigation)
- Identify risk management strategies (e.g. water conservation and water use efficiency; rainwater management; increased storage capacity)



# Who Does What in Water?





# Water and Watershed Planning Who's Playing and Who's on First?

- It depends on the nature and scope of the issue(s)
- It depends on the planning / policy / decision making process:
  - Water or watershed planning?
  - Water quality or quantity or both?
  - Local or regional?
  - Private or Crown Lands





# Collaborative Watershed Planning **Who's Playing and Who's on First?**

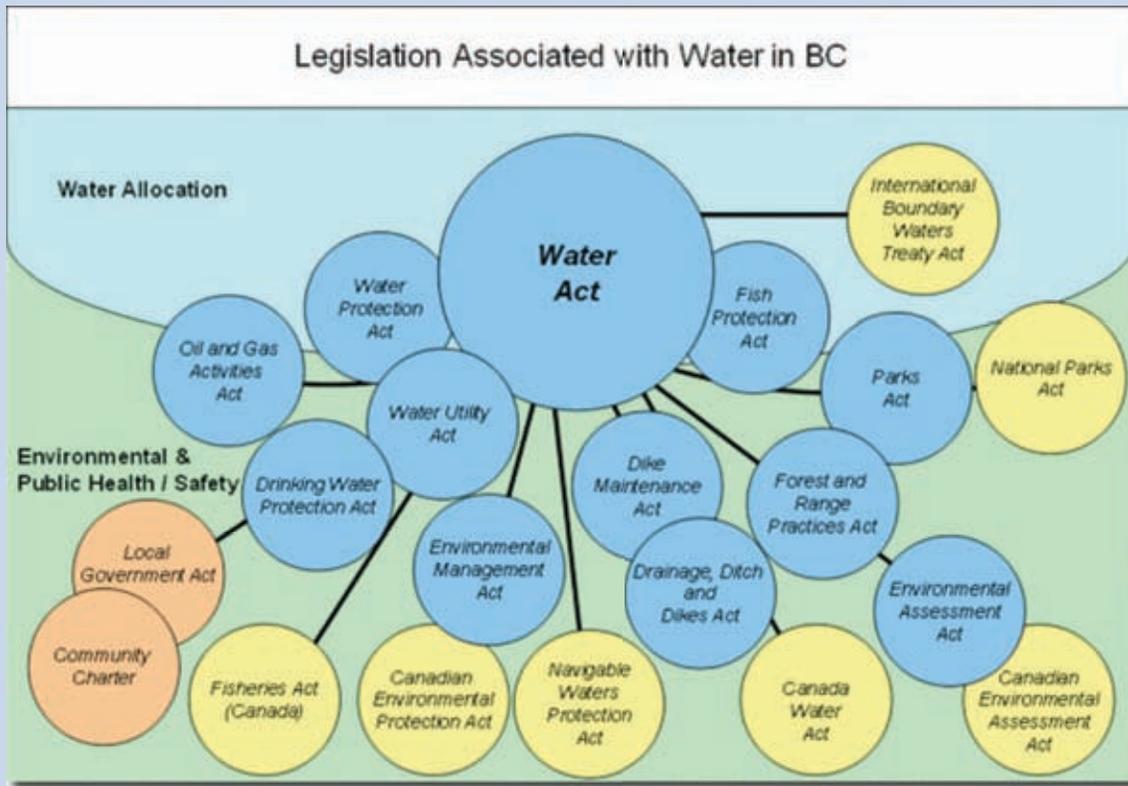
- Those with jurisdictional authority / mgt responsibilities:
  - All orders of government (Provincial, Federal, First Nations, Local (municipalities and regional districts))
  - Water suppliers
- Those with title, rights, interests and impacts:
  - Aboriginal title and rights
  - Water licensees
  - Water use “sectors” such as agriculture, industry, hydroelectricity, recreation
  - Water and watershed stewards
  - Water and watershed stressors





# Water Governance in British Columbia

– A complex web with distributed roles & responsibilities





# Managing Water Supply & Demand



# Managing Water Supply & Demand

Characteristics, Benefits and Applications  
Key Elements and Steps

- Water Conservation Plans
- Drought Management Plans
- Water Use Plans
- Water Allocation Plans





# Drought Management Plan – An Example

## **Characteristics, Benefits and Applications**

- To minimize the impacts of drought
- Focus on managing demand, reducing consumption and improving water use efficiency

## **Key Elements and Steps**

- Establish a local drought management team
- Develop clear definitions of local drought stages and responses

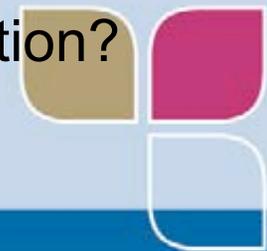




# Integrating Climate Change Into Planning for Water Supply & Demand

Climate science, risk and vulnerability analysis might raise the following questions in planning:

- Water Conservation Plans – are more aggressive water conservation or efficiency targets appropriate?
- Drought Management Plans – are different drought stages, triggers and responses relevant?
- Water Use Plans – could reservoir operations help mitigate reduced water supplies or low instream flows?
- Water Allocation Plans – are different assumptions needed about the available water for future allocation?



# Protecting Drinking Water Quality





# Protecting Drinking Water Quality

Characteristics, Benefits and Applications  
Key Elements and Steps

- Well / Aquifer Protection Plans
- Source Water Assessments and Assessment Response Plans
- Drinking Water Protection Plans





# Aquifer Protection Plan – An Example

## **Characteristics, Benefits and Applications**

- Focus on protection of groundwater quality from pollution sources on the land surface

## **Key Elements and Steps**

- Define the capture zone / recharge area
- Map potential sources of pollution in the capture zone
- Develop and implement protection measures





# Integrating Climate Change Into Protecting Water Quality

Climate science, risk and vulnerability analysis might raise the following questions in planning:

- Aquifer Protection Plans – is groundwater quality at risk of saltwater intrusion or increased flood frequency due to wellheads located in floodplains?
- Assessment Response Plans and Drinking Water Quality Protection Plans – is water quality at risk of increased peak flows and turbidity, increased water temperature and/or associated impacts on water-borne pathogens?



# Integrating Land, Water & Watersheds





# Integrating Water, Land & Watersheds

Characteristics, Benefits and Applications  
Key Elements and Steps

- Water Management Plans (*Water Act*, Part 4)
- Watershed Management Plans
- Rainwater and Stormwater Management Plans





# Watershed Management Plan – An Example

## **Characteristics, Benefits and Applications**

- Unique to each watershed (features, uses, impacts)
- Holistic, iterative and adaptive

## **Key Elements and Steps**

- Develop a clear vision, goals, objectives and actions
- Ensure representation of all affected parties
- Provide access to relevant information resources





# Integrating Climate Change Into Planning for Water, Land & Watersheds

Climate science, risk and vulnerability analysis might raise the following questions in planning:

- Water / Watershed Management Plan – are there threats to water quantity and quality such as increased peak flows, turbidity or reduced recharge
- Rainwater / Stormwater Management Plan - what magnitude or frequency of rainfall and extreme storm events are anticipated with climate change?



# Learning From Experience







## Learning from Experience

- Rethinking Our Water Ways
  - Integrating Watershed Thinking with Planning
- Community Collaboration and Engagement
  - Partners, Stakeholders, Jurisdictions, Champions, Public and Political Support
- Regional Approaches
  - CAVI, OBWB, FBC
- Resourcing Water and Watershed Planning Initiatives
  - Human and Financial Resources
- Data, Information and Knowledge Resources
  - Public Education and Informed Decision Making





# Tools & Resources



## Tools and Resources

- Tools and Resources for Climate Change, Water and Watersheds

[www.retooling.ca/](http://www.retooling.ca/)

<http://plan2adapt.ca/>



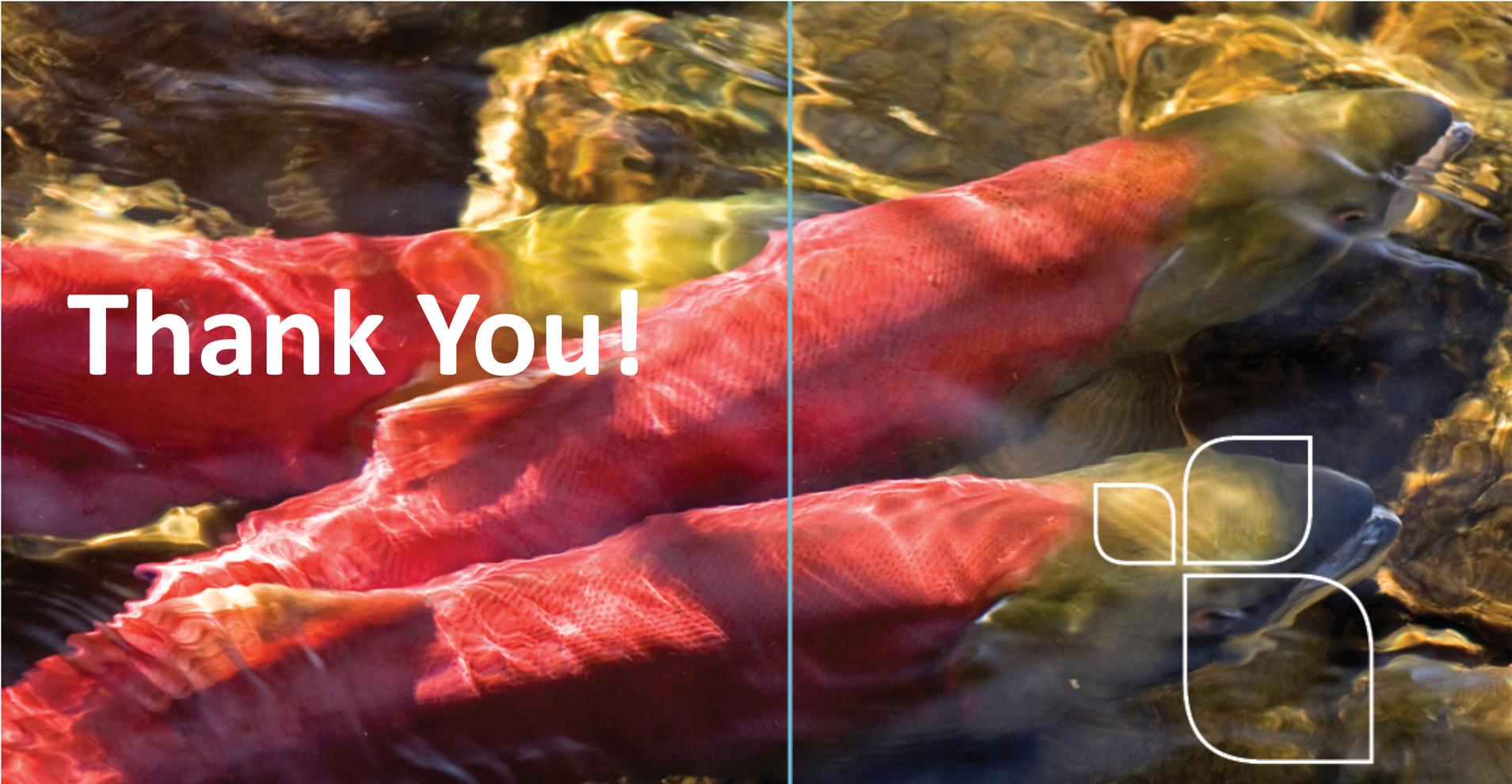


## Web Version – [www.rethinkingwater.ca](http://www.rethinkingwater.ca)

More details on:

- Climate Change
- Learning from Experience
- Tools and Resources:
  - Glossary
  - References
  - Overview of Legislation





# Thank You!



Fraser Basin Council

**Steve Litke**

**604-488-5358 [slitke@fraserbasin.bc.ca](mailto:slitke@fraserbasin.bc.ca)**