Sustainable Rainwater Management: What Does It Look Like?

The 'Cowichan Valley Regional Team' presents:

Rainwater Management in the Cowichan Valley

Rainwater Management in Central Saanich

Rainwater Management in a Watershed Sustainability Context

An Introduction to the Rebuilt Water Balance Model

The Province is going down a pathway that will integrate regulatory compliance and collaboration

"Regulatory requirements provide a driver for local governments to protect and/or restore watershed health over time. We also recognize that solutions will be achieved through partnerships, collaboration and regional alignment of efforts."

Avtar Sundher
Government and Compliance Section Head
Environmental Protection Division, South Coast
Ministry of Environment

October 2011

"When we tug on a single thing in nature, we find it attached to everything else" *John Muir*

Linking Water Quality to Land Use

John Deniseger, Ministry of Environment
for Cowichan Water Balance Forum
March 28th, 2012


POPULATION
GROWTH,
URBANIZATION

Why is this important?

- Economic impacts – recreation, tourism, shellfish, fisheries, drinking water....
- Priceless impacts
  - First Nations values
  - Our environment is part of our cultural identity – it is what draws us here and keeps us here

Cumulative Effects

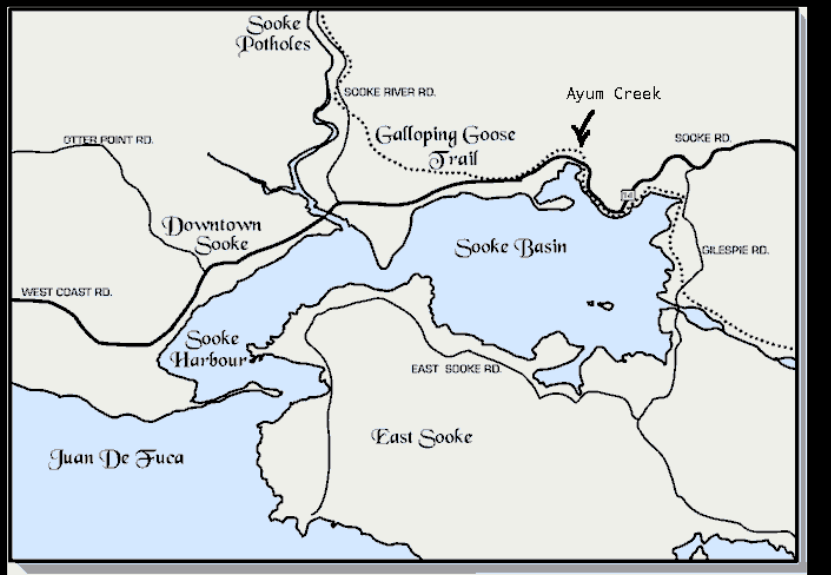
- In the past - environmental drivers were "point sources"
- Today – cumulative effects of multiple land uses – "non point sources" often dominate
- Goal: Restore, maintain, protect the ecosystem – we need to do things differently

Cowichan Bay

- Not just the “Bay” but also rivers, estuary, and storm drains *i.e. “water flows downhill”*
- Potential Water Quality concerns
  - Point sources – Duncan, Lake Cowichan, Lambourn WWTPs
  - Land Use – Non point sources
    - Urban development
    - agriculture
    - Marinas
    - Failing septic
    - Stormwater
- 2000 MOE report

Sooke

- Community of ~10 000
- Sooke Basin- centerpiece to the community
- Rapid development, land clearing
- Rainwater impacts – streams, stormwater to Basin
- Shellfish closure



Sooke

- Liquid Waste Management Plan – wastewater and rainwater management
  - Step 1: New WWTP in 2005 – servicing core of community - **Discharges 1700m out into Sooke Bay**

Step 2: Proactive approach to rainwater management – *'linking water quality to land use'*

- Shellfish
- Stream health
- Water quality objectives
- TSS/Turbidity
- Land use
- Bylaws/zoning

WATER QUALITY OBJECTIVES

- Collaborative partnership – District of Sooke, MOE, Env.Canada, DFO, CRD, T'Souke FN, Camosun College
- Year One (2008) – Marine (28 sites)
  - Focused on shellfish – fecal contamination
- Year Two (2009) – Freshwater (15 sites)
  - **TSS/turbidity,** nutrients, fecal contamination
  - **Biomonitoring** in key streams – benthic invertebrates

Policy and Bylaw Development

- Integration of land use and development within OCP
- New developments must hook up to community WWTP - i.e. no more discharges allowed into Sooke basin
- Bylaws being tailored for Sooke – targeting TSS and turbidity =>"keep the water clear"
- Set stormwater TSS/turbidity limits linked to WQO's and biomonitoring
- Education and awareness

} Performance indicators

LWMP process

- Consultation
- Community buy-in
- Shared stewardship
- Resources – taxation, bylaws, grants
- Timelines, commitments, performance indicators
- Signed off by Minister
- review cycle

Conclusion:

- What has contributed to the initial and continued success of the process?

- *Integration* of a regulatory framework, collaboration, community buy in, education, data (science) and funding opportunities

Sustainable Rainwater Management: What Does It Look Like?

The 'Cowichan Valley Regional Team' presents:

Rainwater Management in a Watershed Sustainability Context

- Ministry of Environment
- Ministry of Transportation and Infrastructure
- Department of Fisheries & Oceans

Provincial requirements for drainage design in Electoral Areas are spelled out in the *BC Supplement to TAC Geometric Design Guide 2007 Edition*

A KEY MESSAGE:

The Ministry of Transportation and Infrastructure has adopted drainage requirements for land development that are aligned with the desired outcomes for the Province's Living Water Smart and Green Communities initiatives. Both are about adaptation to a changing climate. Both encourage shared responsibility.

Chapter 10 in the BC Supplement…..

References both:

- *Stormwater Planning: A Guidebook for British Columbia, 2002*
- *Water Balance Model for British Columbia*

Makes a distinction between highway drainage design and land development drainage design

This distinction provides the Ministry with the capability to:

- align its efforts with municipalities and regional districts
- support a consistent watershed-based approach to rainwater management

The language in Chapter 10 mirrors the objectives in Beyond the Guidebook 2010

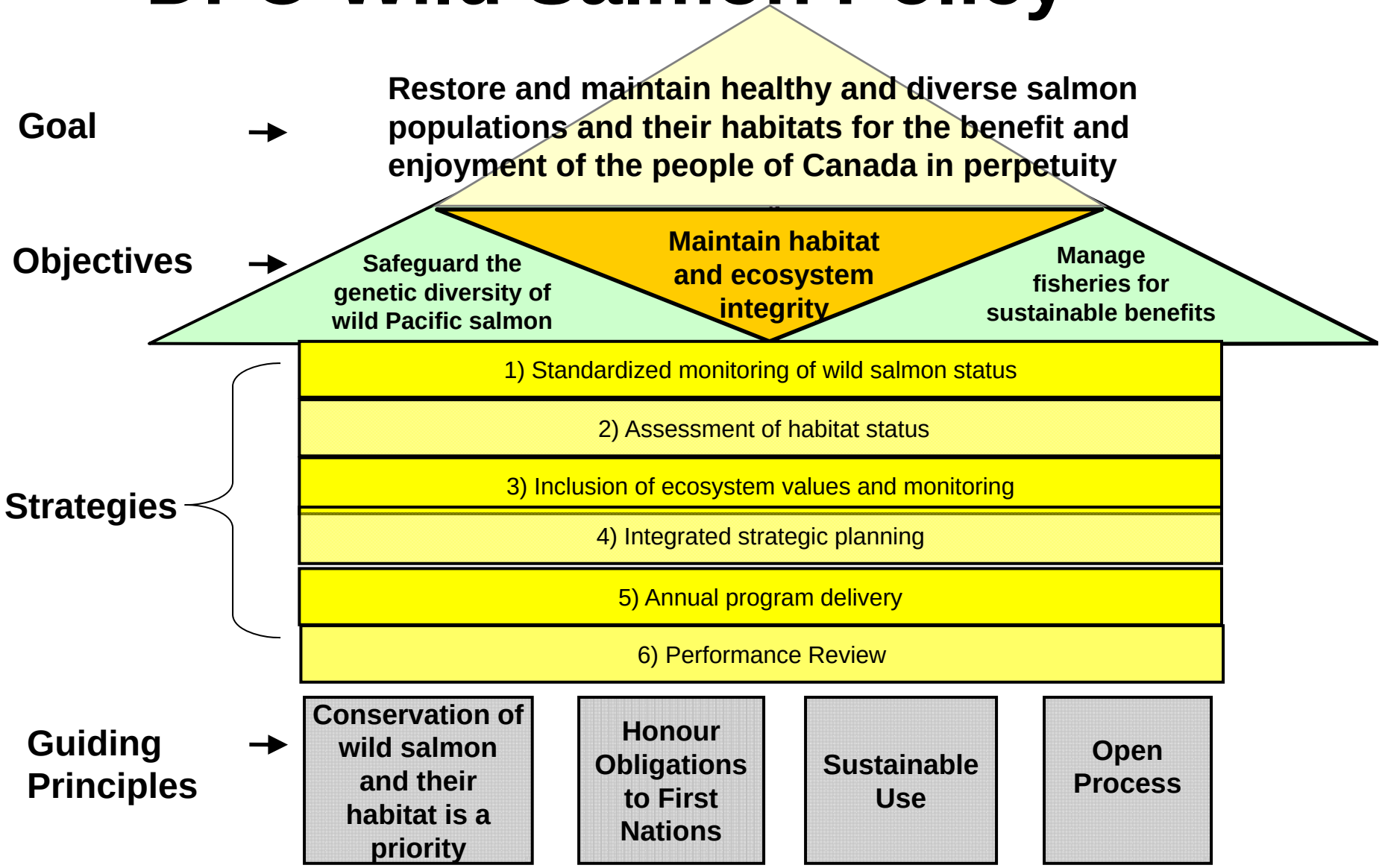
In particular, Chapter 10 states that ***"flows must be managed to ensure that no increase in flooding and stream erosion occur as a result of development storm drainage***."

“Rainwater management is about protecting streams, not how much volume you can infiltrate”

Corino Salomi, Area Manager
Department of Fisheries & Oceans

at the Beyond the Guidebook Seminar
November 2007

DFO Wild Salmon Policy



DFO Wild Salmon Policy in context of local community and government

- Salmon are a keystone indicator of ecosystem health.
- Salmon provide social, economic, and cultural benefits.
- The Wild Salmon Policy provides a buffer to avoid Species At Risk Act.

Using chinook salmon as an keystone indicator of stream health on the Cowichan River.

Connecting habitat and stock science.

Factors limiting stream health

Hydrology
Instream habitat
Riparian corridor
Water quality
….Biological interaction
….other?

Operational Ecosystem Unit	Salmon Life History Phase	Salmon mortality rate	Example numbers of chinook salmon
Uplands - river	spawners		1,000
Uplands - river	spawning - eggs		2,000,000
Uplands - river	egg incubation	90%	200,000
upper-lower river	fry rearing	40%	120,000
lower river-estuary	smolt migration	20%	96,000
nearshore marine	ocean yr1	95%	4,800
coastal	ocean yr2	15%	4,080
continental shelf	ocean yr3	15%	3,468
continental shelf	ocean yr4	15%	2,948
coastal	ocean return migration, fisheries	40%	1,769
nearshore marine	terminal migration, fisheries	35%	1,150
lower -upper river	in-river migration	10%	1,035
Uplands - river	spawning	5%	1,000

Ricker type assessment of chinook health

capacity
Ricker beta

productivity
Ricker alpha

Spawner goal
6,500

Town-Hall Sharing

What Do You Wonder?

What Story Would You Like to Tell?

View the Watershed through an Asset Management Lens

"The legislative authority for integration of land use planning and asset management, including financial management, already exists. Local governments can develop a truly integrated Asset Management Strategy that views the watershed though an environmental lens."

Glen Brown, Executive Director
Ministry of Community , Sport & Cultural Development