

Stormwater Management in the Okanagan

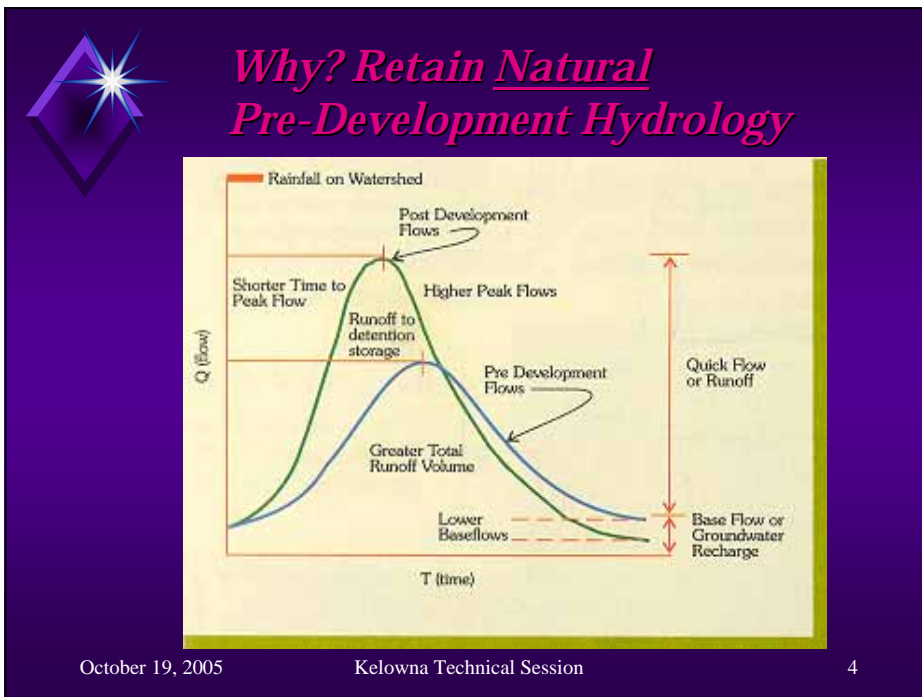
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Ministry of Environment
Penticton BC

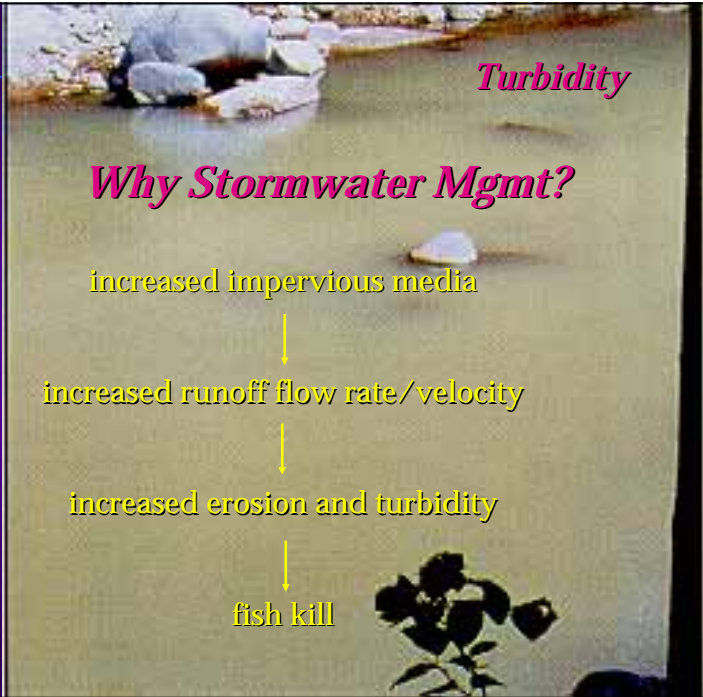


Why Stormwater Mgmt?

In 1985, the Minister of Environment
declared the Okanagan Basin as an
“environmentally sensitive area”

Okanagan Lake water has a 60 year residence



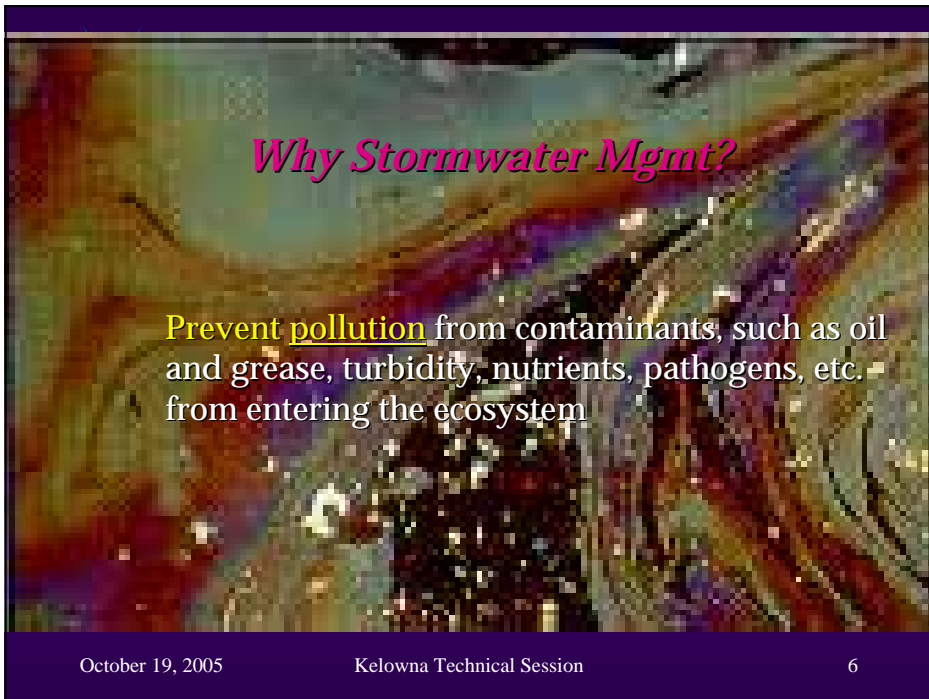


Turbidity

Why Stormwater Mgmt?

increased impervious media
↓
increased runoff flow rate/velocity
↓
increased erosion and turbidity
↓
fish kill

October



Why Stormwater Mgmt?

Prevent pollution from contaminants, such as oil and grease, turbidity, nutrients, pathogens, etc. from entering the ecosystem

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WHY? - septic tank pollution



excess nutrients, BOD, pathogens



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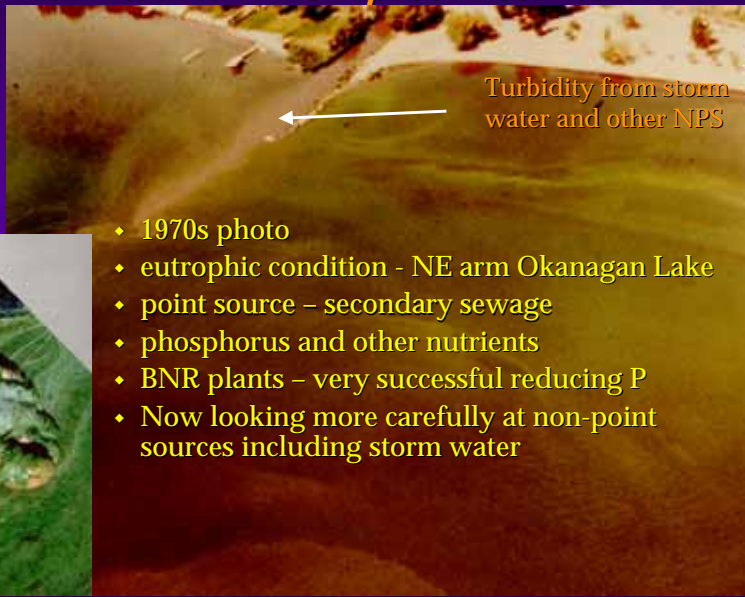
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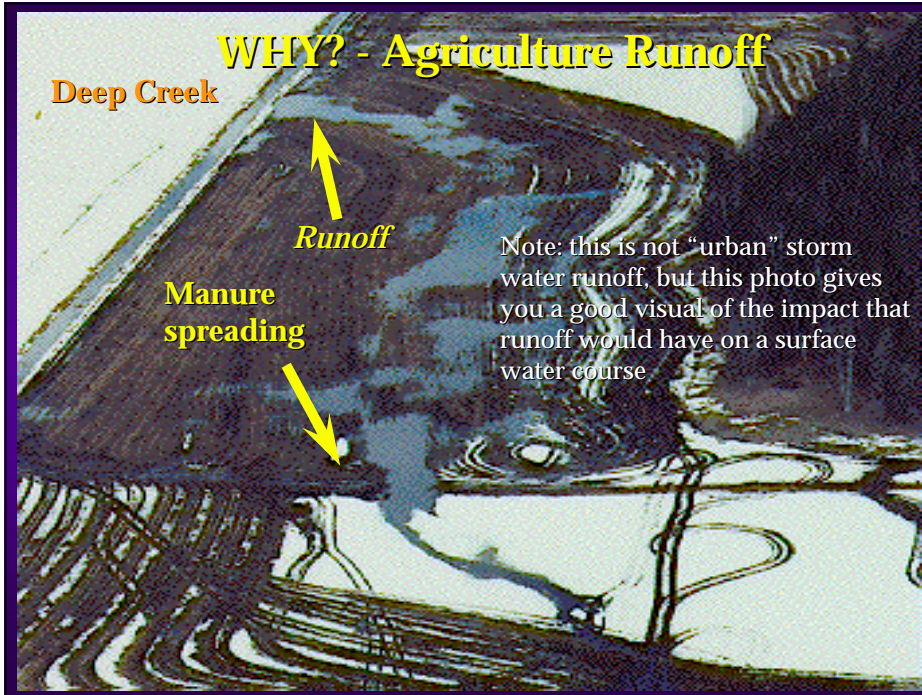
Why?

Can we learn from past mistakes???



- 1970s photo
- eutrophic condition - NE arm Okanagan Lake
- point source - secondary sewage
- phosphorus and other nutrients
- BNR plants - very successful reducing P
- Now looking more carefully at non-point sources including storm water

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*How? Stormwater Mgmt
Liquid Waste Management Plan*

**Stage 1 - Identify existing
storm water infrastructure
& environmental areas**



*How? Stormwater Mgmt
Liquid Waste Management Plan*

**Stage 2 - Identify/prioritize
opportunities/options i.e.: for
managing storm water**



***How? Storm Water Mgmt
Liquid Waste Management Plan***

Stage 3 - Plan implementation. Summary of selected options. Includes policies, bylaws, actions to undertake storm water mgmt.

Ongoing monitoring & continuous improvement.

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How? LWMP Storm Water Mgmt

Possible Stage 3 Actions:

- ♦ land use, zoning restrictions, bylaws, etc.
- ♦ public and private sector education
- ♦ source control programs
- ♦ limits in effective impervious area
- ♦ cluster developments
- ♦ control of construction activities
- ♦ treatment requirements - ICI runoff
- ♦ municipal O & M procedures

14₁₄

<http://wlapwww.gov.bc.ca/epd/epdpa/mpp/gfdalwmp.html>

http://wlapwww.gov.bc.ca/epd/epdpa/mpp/gfdalwmp.html

Ministry Home Government of British Columbia
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 The Minister News Search Reports & Publications Contacts

Guidelines for Developing a Liquid Waste Management Plan

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Internet

How? LWMP Storm Water Mgmt

MINISTRY OF WATER, LAND AND AIR PROTECTION

PROPOSED
 REVISED GUIDELINES FOR PREPARING
 LIQUID WASTE MANAGEMENT PLANS

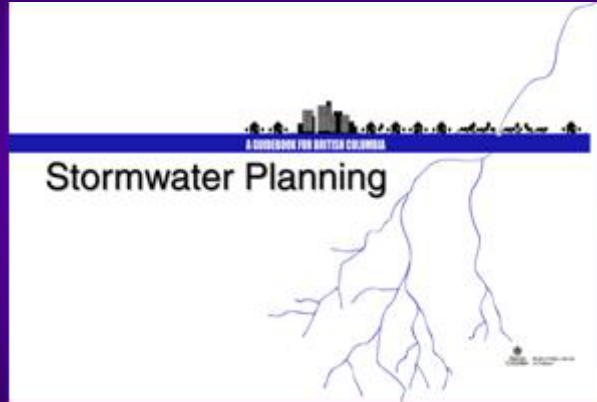
Proposed New LWMP Guidelines
Likely Finalized Late 2005 or Early 2006

MARCH, 2004

**Currently being used by City of
 Penticton for LWMP update**
 DAYTON & KNIGHT LTD.
 Consulting Engineers



Stormwater Planning A Guidebook for British Columbia (2002)



<http://wlapwww.gov.bc.ca/epd/epdpa/mpp/stormwater/stormwater.html>

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The Goal of the Guidebook

Promote a change in thinking so that land use planning will be integrated with volume-based analysis of stormwater management strategies.

Official Community Plan \leftrightarrow LWMP

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MOE Environmental Stewardship Ecosystem BMPS

<http://wlapwww.gov.bc.ca/wld/BMP/bmpintro.html>

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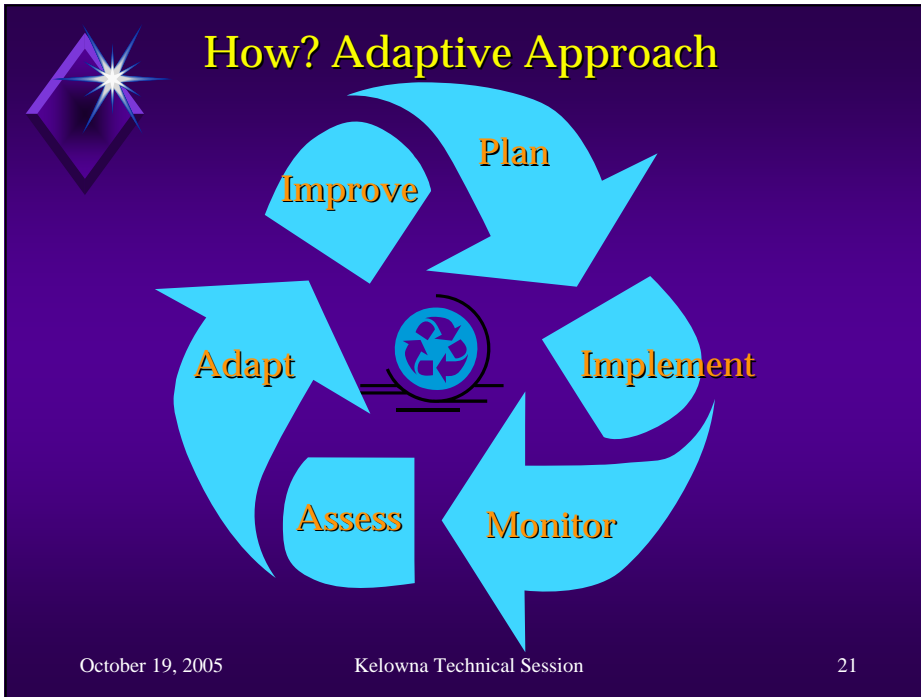


How? LWMP Storm Water Mgmt

- ♦ LWMP sanitary and storm components = combined or separated
- ♦ Storm water mgmt plan developed outside of the LWMP, then include summary in LWMP
- ♦ Minimum to include commitment to initiate storm water mgmt planning in LWMP , and/or to adopt some SWM objectives
- ♦ Supports infrastructure funding?

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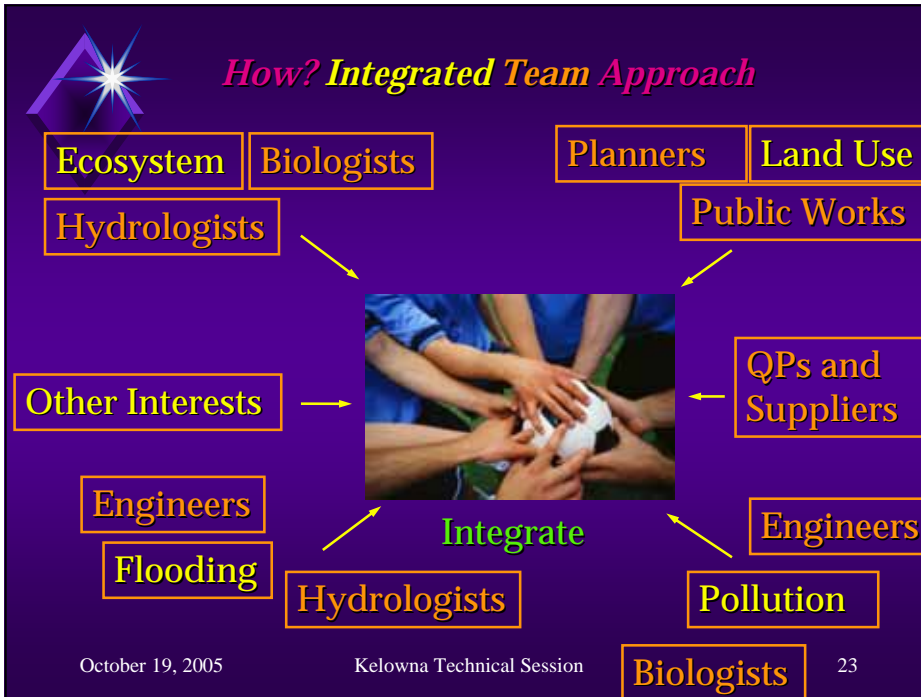
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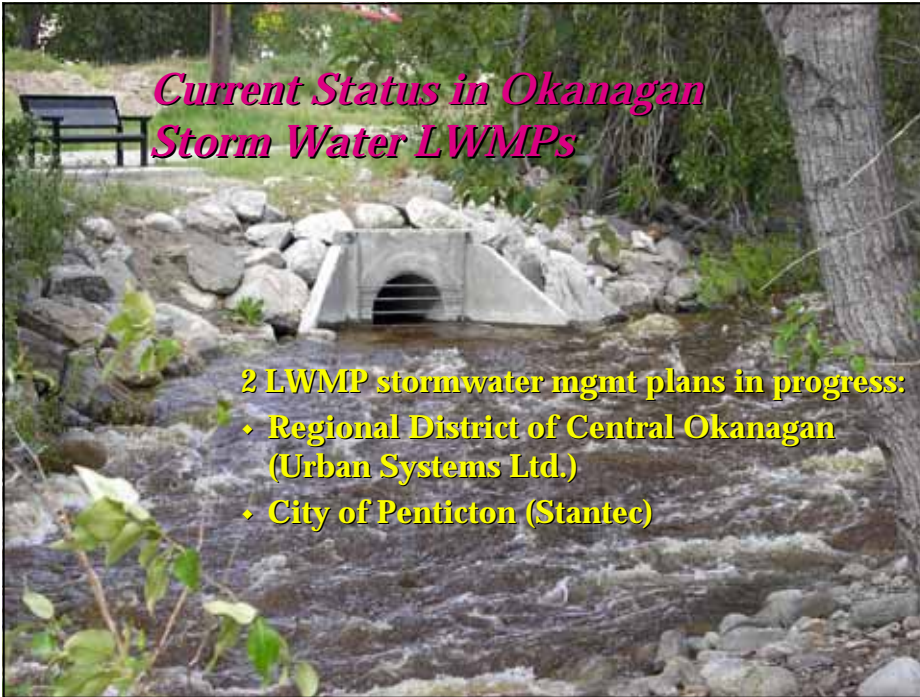
How? Adaptive Management

- ♦ Emphasis placed on preventing adverse impacts to watershed hydrology
- ♦ Absence of hydraulic and monitoring data presents a problem to make good decisions about managing storm water

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- ## *How? LWMP Advisory Committee (typical)*
- ♦ politicians
 - ♦ public advisory reps including NGOs
 - ♦ municipal technical and planning staff
 - ♦ municipality's/RD's consultant
 - ♦ First Nations
 - ♦ MOE -env. protection, water and ecosystem
 - ♦ DFO
 - ♦ Env Canada
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Kudos!
Regional District of Central Okanagan
LWMP Addenda-stormwater only-Westside

- ♦ prepared by Urban Systems Limited
- ♦ political desire by CORD to have a storm water management plan on the Westside
- ♦ comprehensive review of storm water mgmt.
- ♦ decision matrix to select BMPs/policies, based on effectiveness and cost (within study area)

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***Kudos! -City of Penticton
LWMP Update Currently Underway
(san sewer and stormwater)***

- ♦ prepared by Stantec
- ♦ Identify opportunities/policies?
- ♦ Adoption of BMPs?
- ♦ Terms of reference include review of habitat and ecosystem opportunities i.e.: enhancement?
- ♦ possible study within next 5 years to do inventory of problem drainages and sensitive ecosystems?
- ♦ pilot studies to review environmental benefits re: discharging storm water to ox bows with wetland treatment, etc.?

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***Kudos! - City of Kelowna
Ongoing efforts***

- ♦ 1996 -Adopted “integrated” storm water management
- ♦ a leader - benthic invertebrate testing to monitor ecosystem health
- ♦ community involvement in stream stewardship
- ♦ no storm water LWMP at this time

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Summary

Why? PREVENT - PROTECT - ENHANCE our Okanagan Water and Ecosystem Resource.

How? Use LWMP as a tool for inter- disciplinary TEAM to undertake ADAPTIVE approach to storm water mgmt planning. MANAGE storm water resource, striving to retain NATURAL hydrology.

SALUTE team players who have embraced this method of managing the storm water RESOURCE, for present and future generations.



Thank You to the Sponsor of this Technical Session

Thank you to EMCO Corporation - Water Management Solutions for sponsoring this technical session, especially Mr. Keith Lumby, P.Eng., Business Development Manager.