

Okanagan hydrologic connectivity: Managing one water

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LGMC, BSc (freshwater), MA candidate (water governance)*



"When the well is dry, we learn the worth of water."

Benjamin Franklin



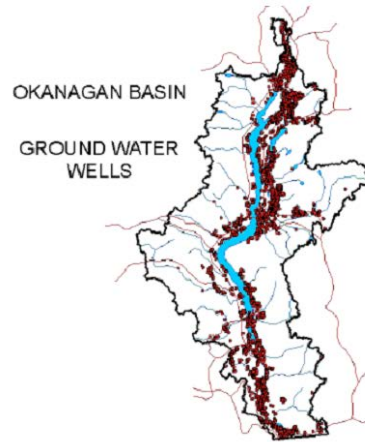
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Water connects everyone and everything in the valley



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Guiding Principles

1. *Think regionally and think long-term.*
2. *Protect nature for the benefit of all.*
3. *Anticipate change - Plan accordingly.*
4. *Balance multiple priorities.*
5. *Clear communications.*



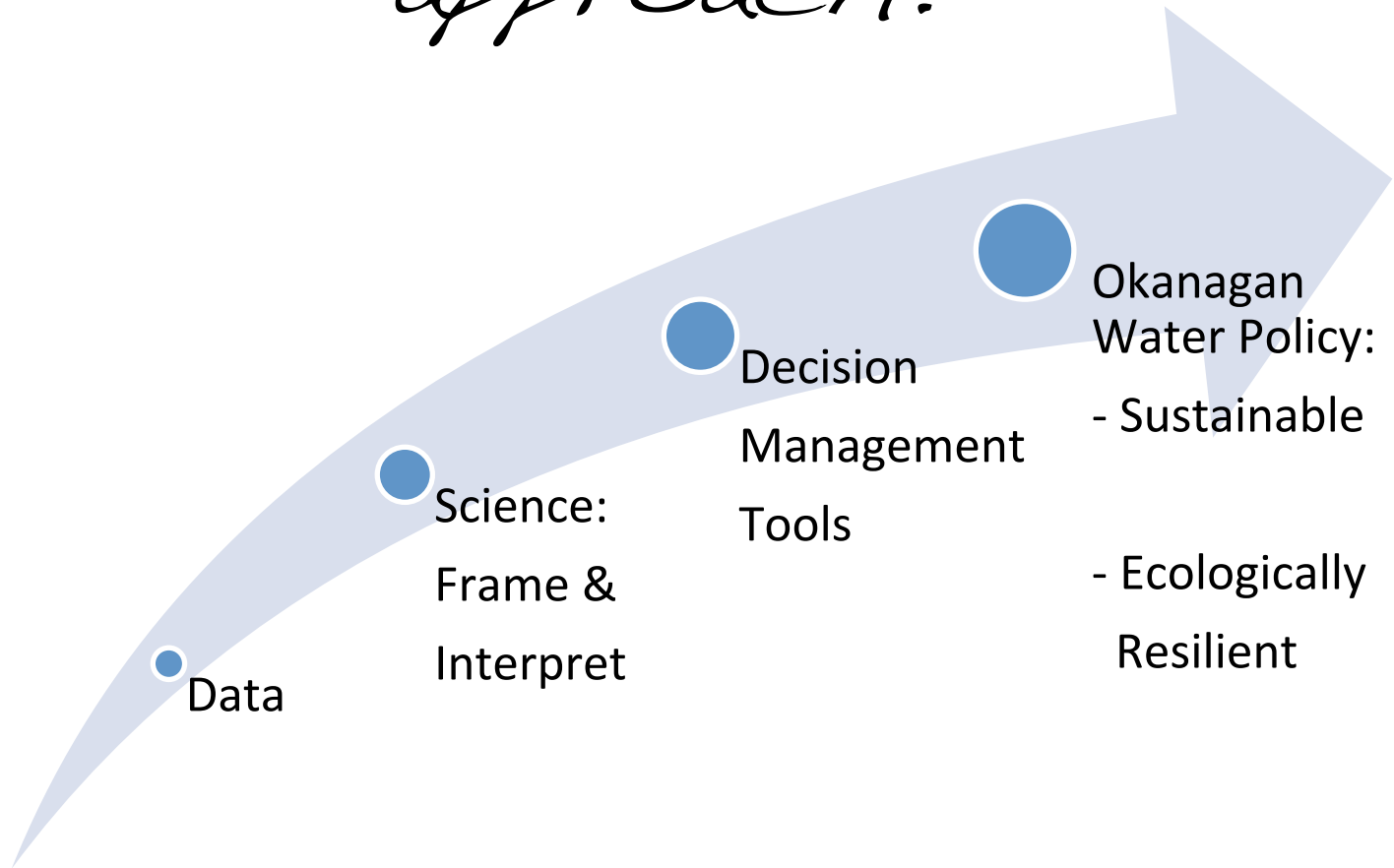
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Science-based. Basin approach.

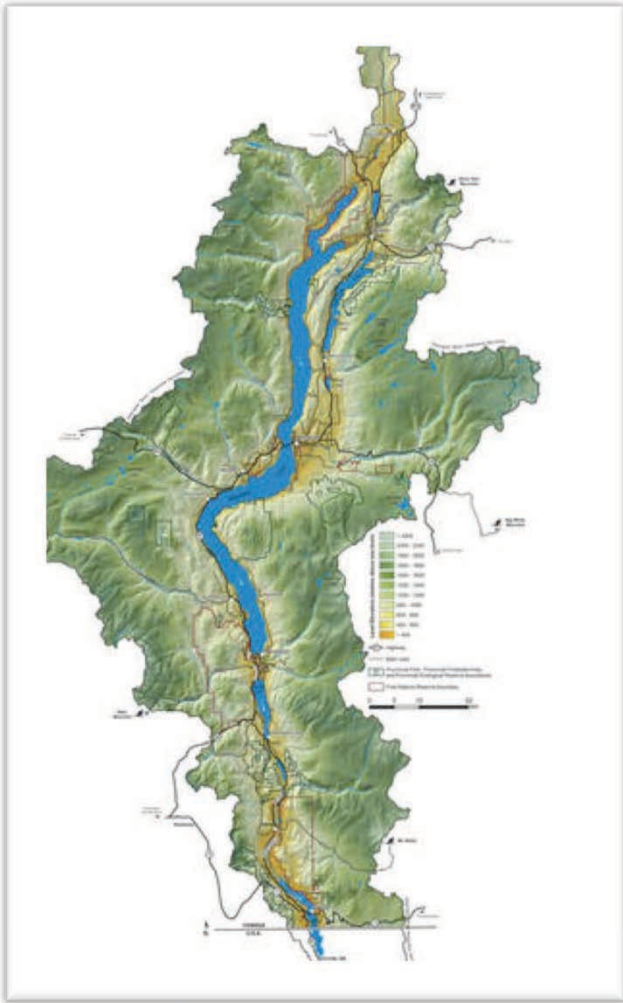


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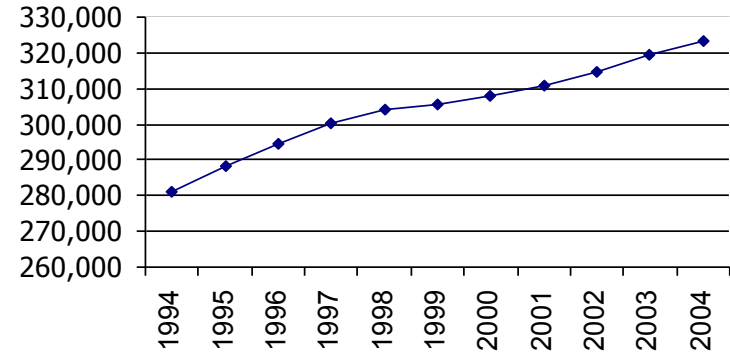
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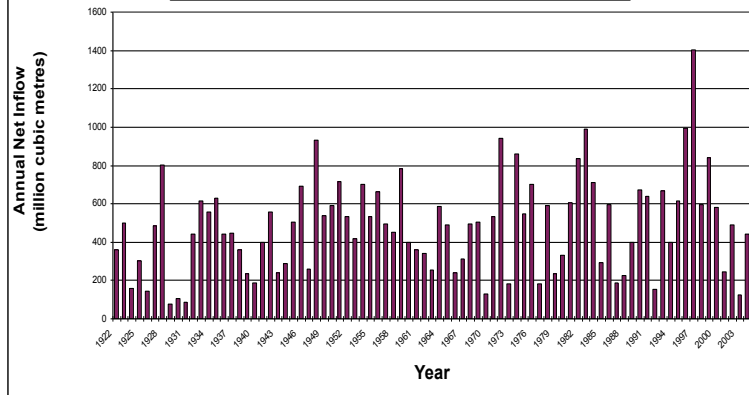
Managing water in the Okanagan



**Population Growth in Okanagan
(1994 - 2004)**



**Okanagan Lake - Annual Net Inflow Volume
(1921-2004)**



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Challenges facing sustainable water management

- Climate change
- Mountain Pine Beetle
- Wildfires



www.cbc.ca/news/background/yearinreview2003/news08.html

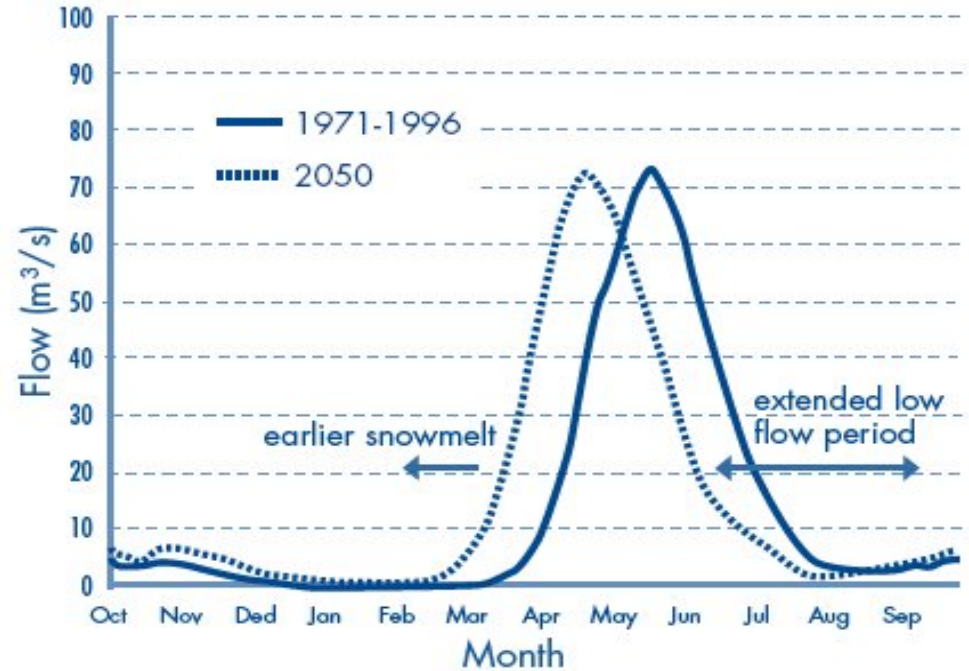


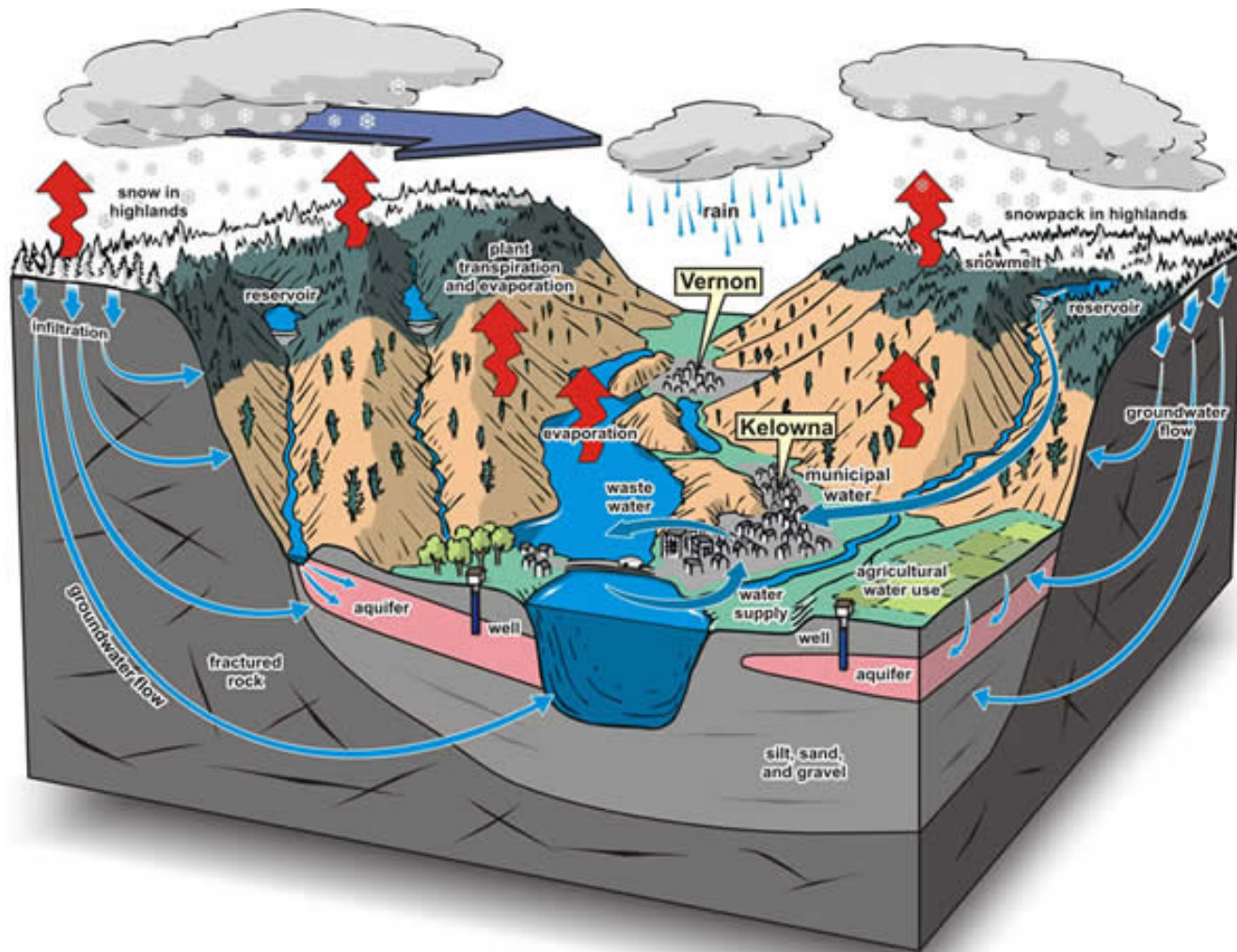
Figure 1-16
Past and projected water flows in Whiteman Creek, which enters Okanagan Lake near Vernon. (adapted from Cohen & Kulkarni, 2001)



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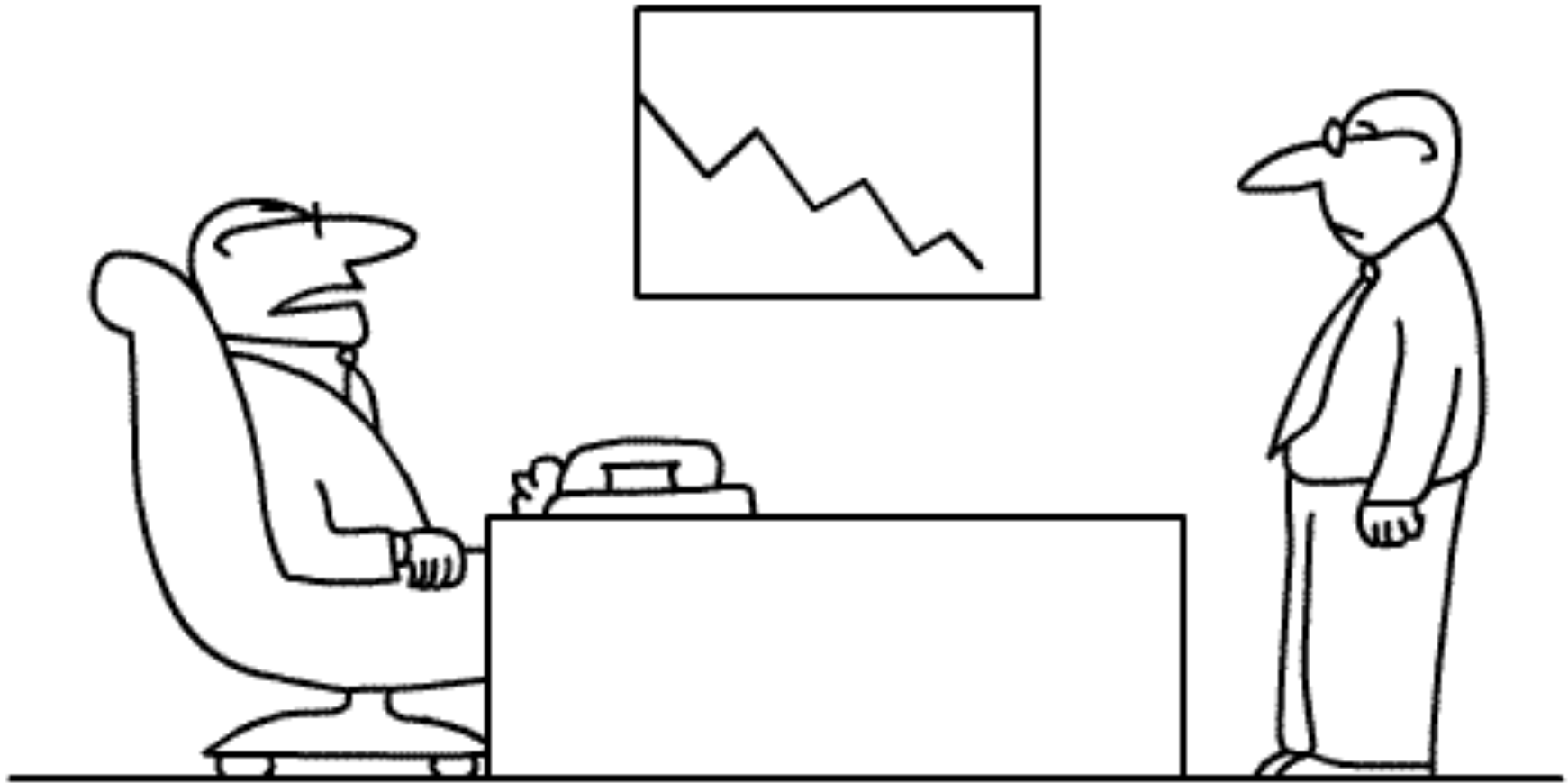
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"It would appear, Hopkins, that your gut feel was only indigestion"



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FAIL



failblog.org



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How might hydrologic connectivity affect local governments?

- Public confidence
- Risk management a legal liability
- Emergency planning
- Need for new expertise, information, data
- Training/education for staff
- Need for new revised plans, policies, bylaws, codes, procedures, etc
- Municipal infrastructure
- Economy and local tax base
- Budgeting
- Project design and tendering
- Operations
- Land use planning / OCP
- Funding and grant opportunities
- Community visioning



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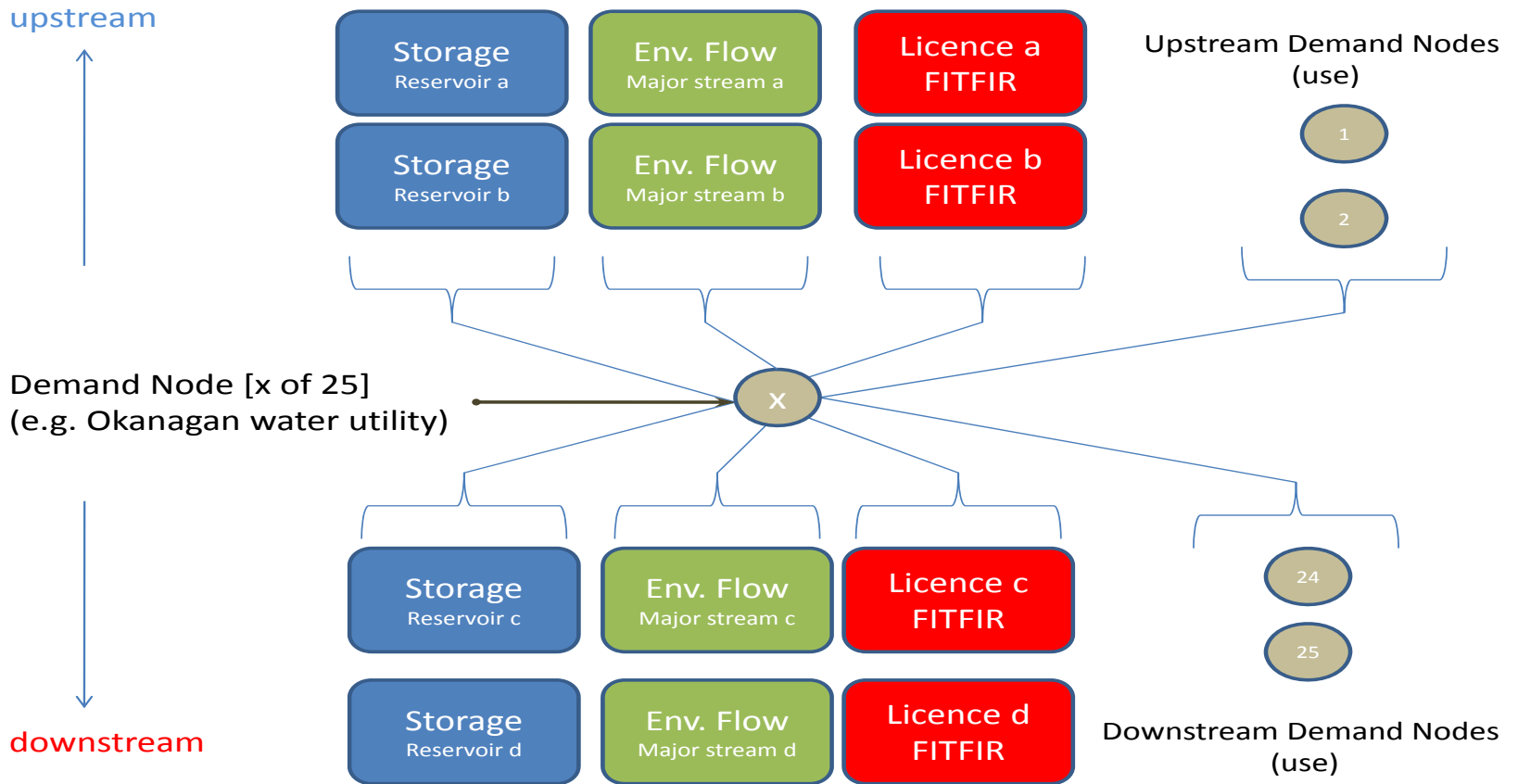
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Analyzing sensitivity of water demand and supply (monthly) during drought years from the perspective of any given demand node



Project Team

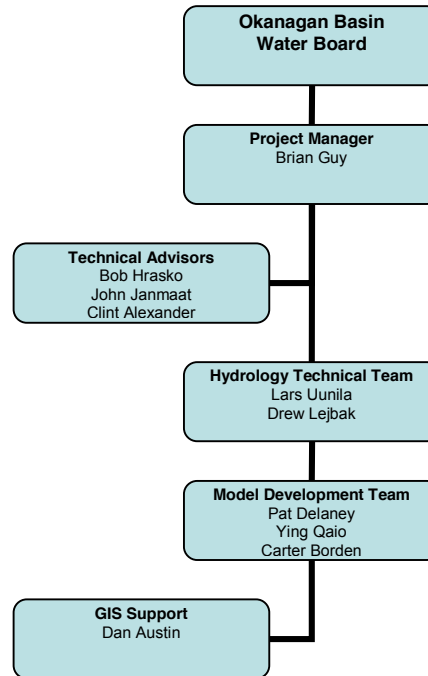


Figure 2-1 Organizational structure of the proposed Project Team.



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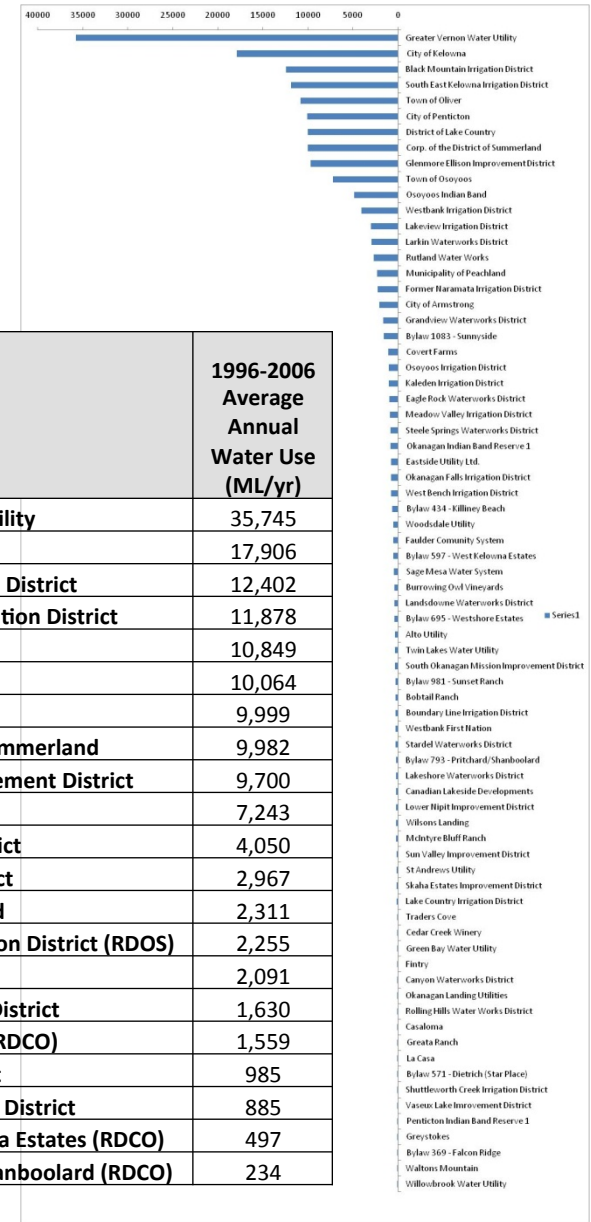
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Okanagan water users

Identified the largest 21 water suppliers according to estimated water use (Phase 2).

These suppliers extract water from 12 tributaries plus the valley lakes & Okanagan River



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How are we connected: Hydrologically? Licenses? FITFIR?

- *Water Suppliers*
 - **Assessment based upon:**
 - **Total licensed volume**
 - **Total licensed volume in the Okanagan only**
 - **Total volume actually used**
 - **Estimated streamflow extraction**

Water Supplier	Licensed Offstream Volume (ML)	# of Licences
City of Kelowna	47,585	21
SEKID	28,436	12
District of Summerland	27,783	12
BMID	27,783	15
Greater Vernon Water	27,763	44
District of Lake Country	27,492	35
Westbank First Nations	26,461	18
City of Penticton	25,432	10
GEID	19,658	16
Naramata Water Utility	14,742	16
District of Peachland	11,011	40
WID	10,559	20
LID	9,684	5
Okanagan Indian Band	8,508	17
Osoyoos Indian Band	7,035	16
RDCO	4,514	62

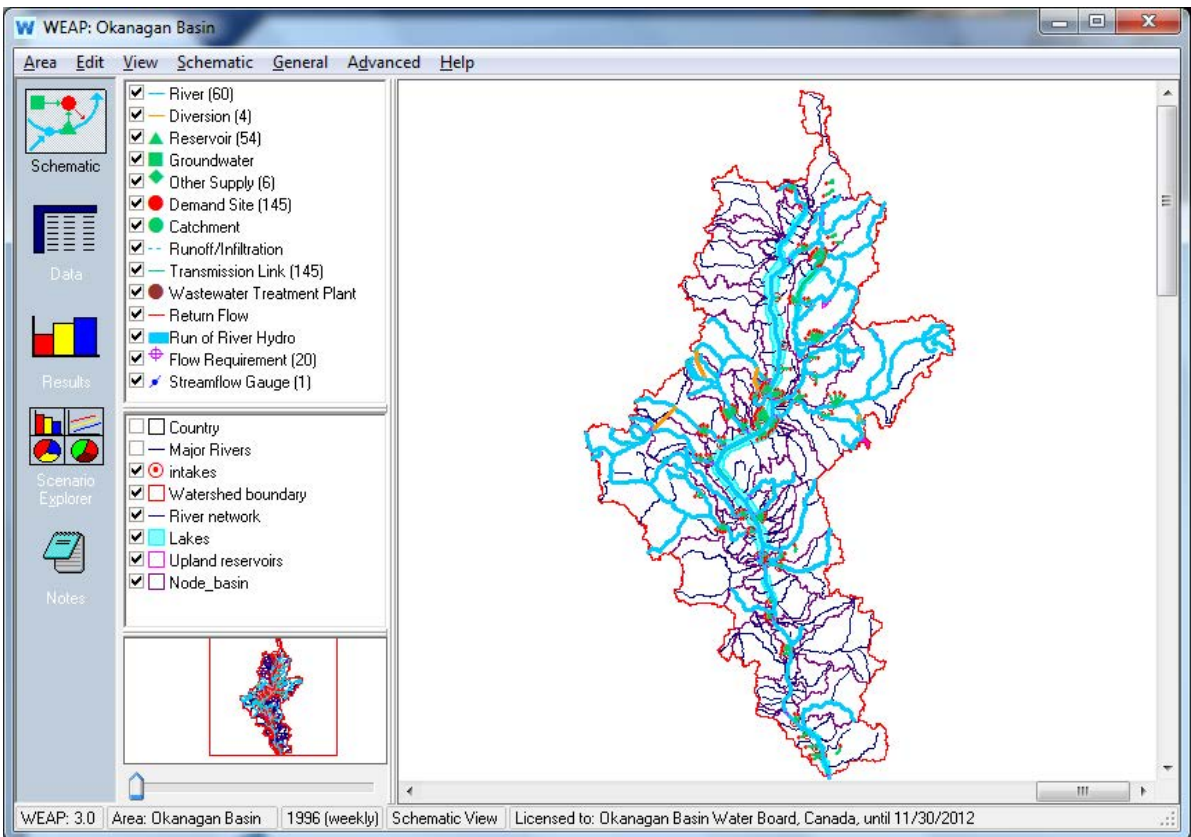


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Water Evaluation And Planning



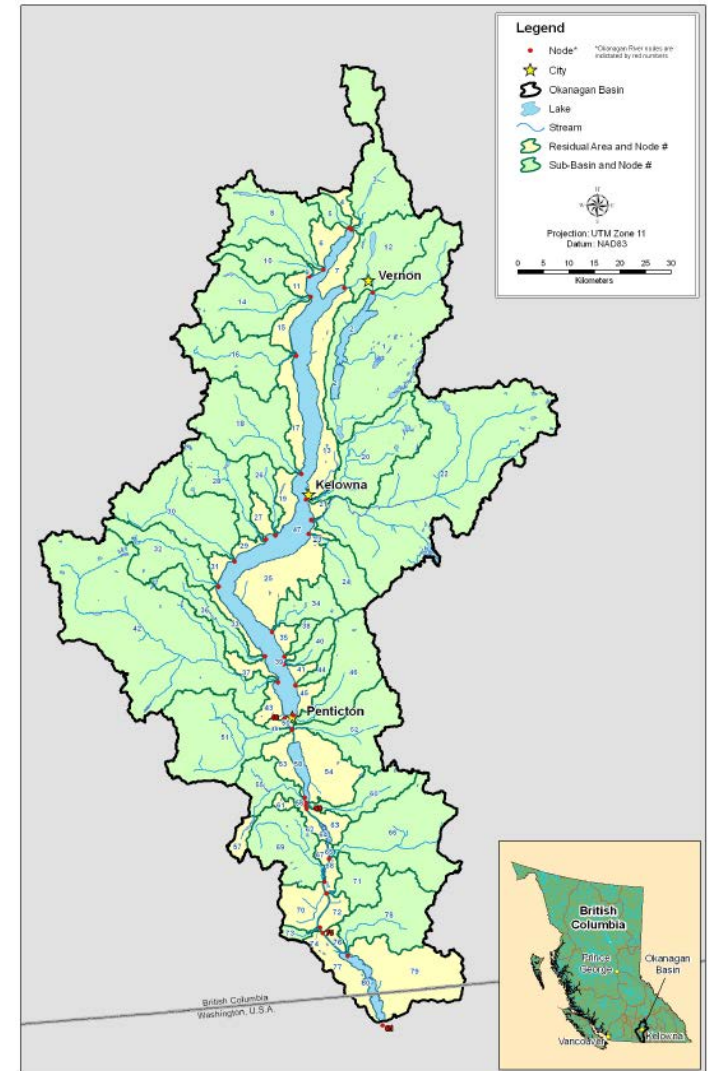
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Application to Okanagan Basin

- Demonstrate water allocation to stakeholder
- Investigate drought management
- Simulate population growth
- Plan for effects of climate change

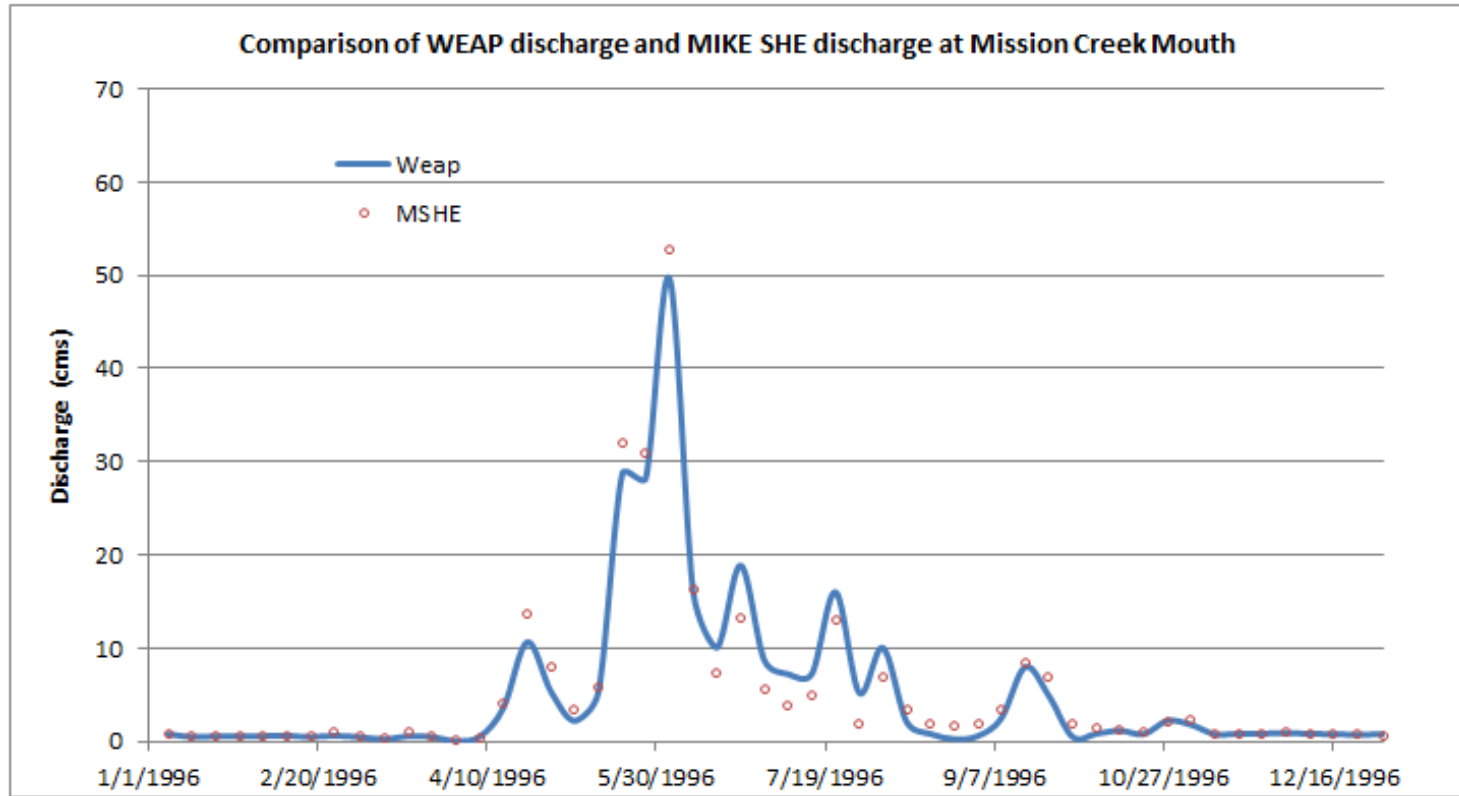


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Model Development: Review

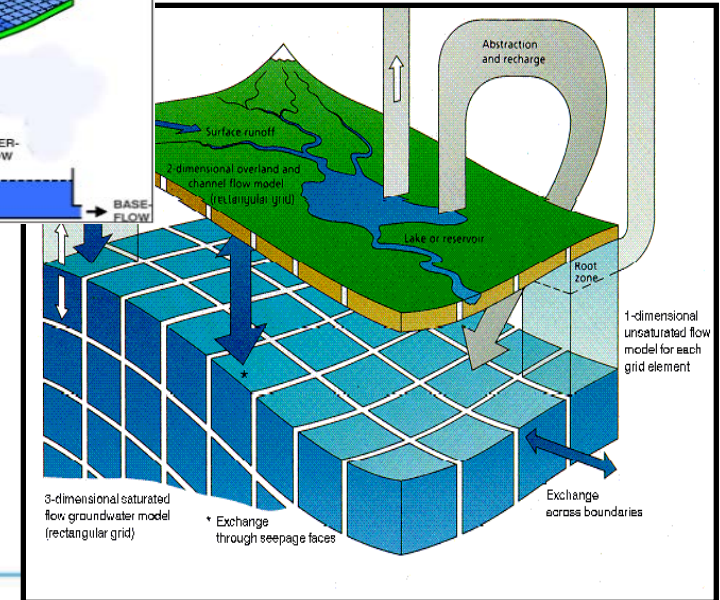
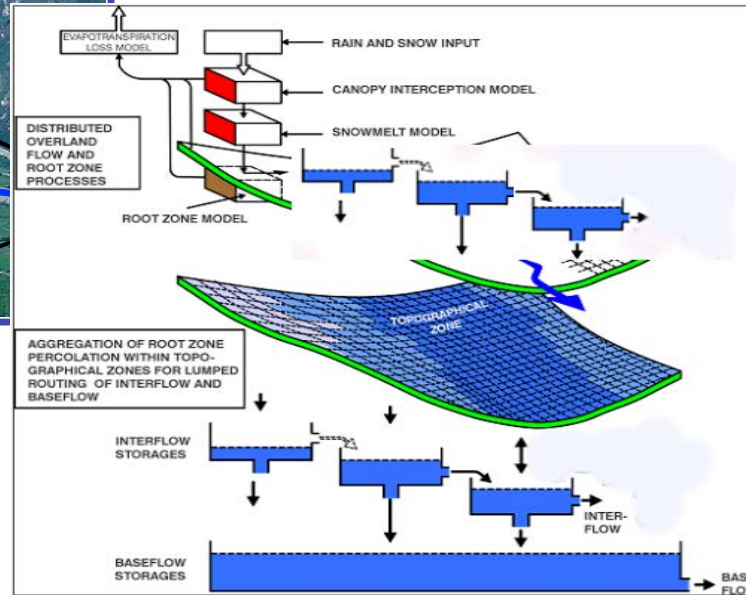
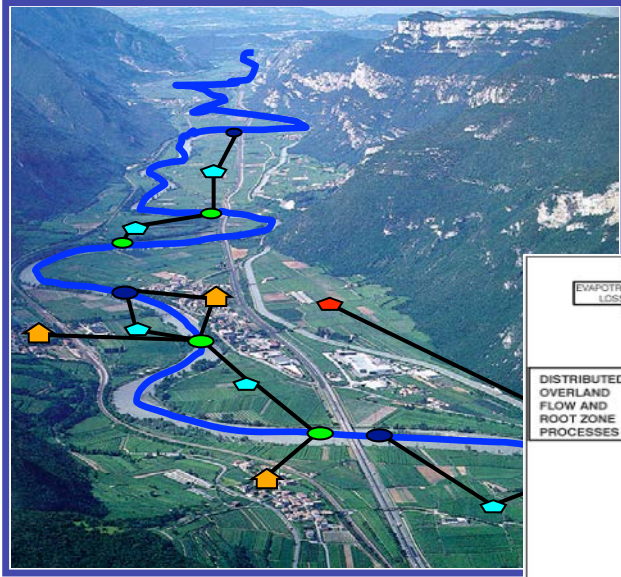


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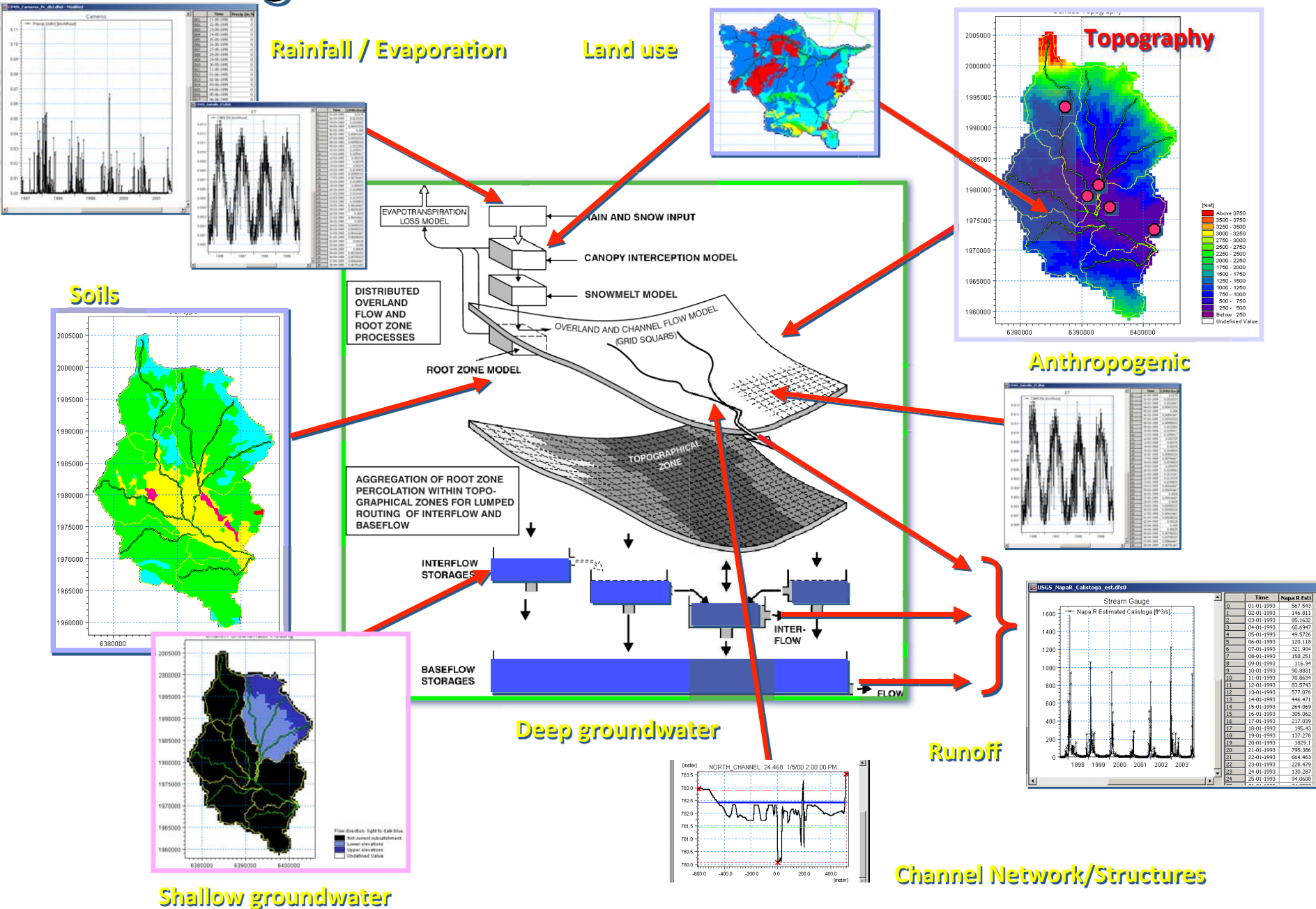
Water Resource Models



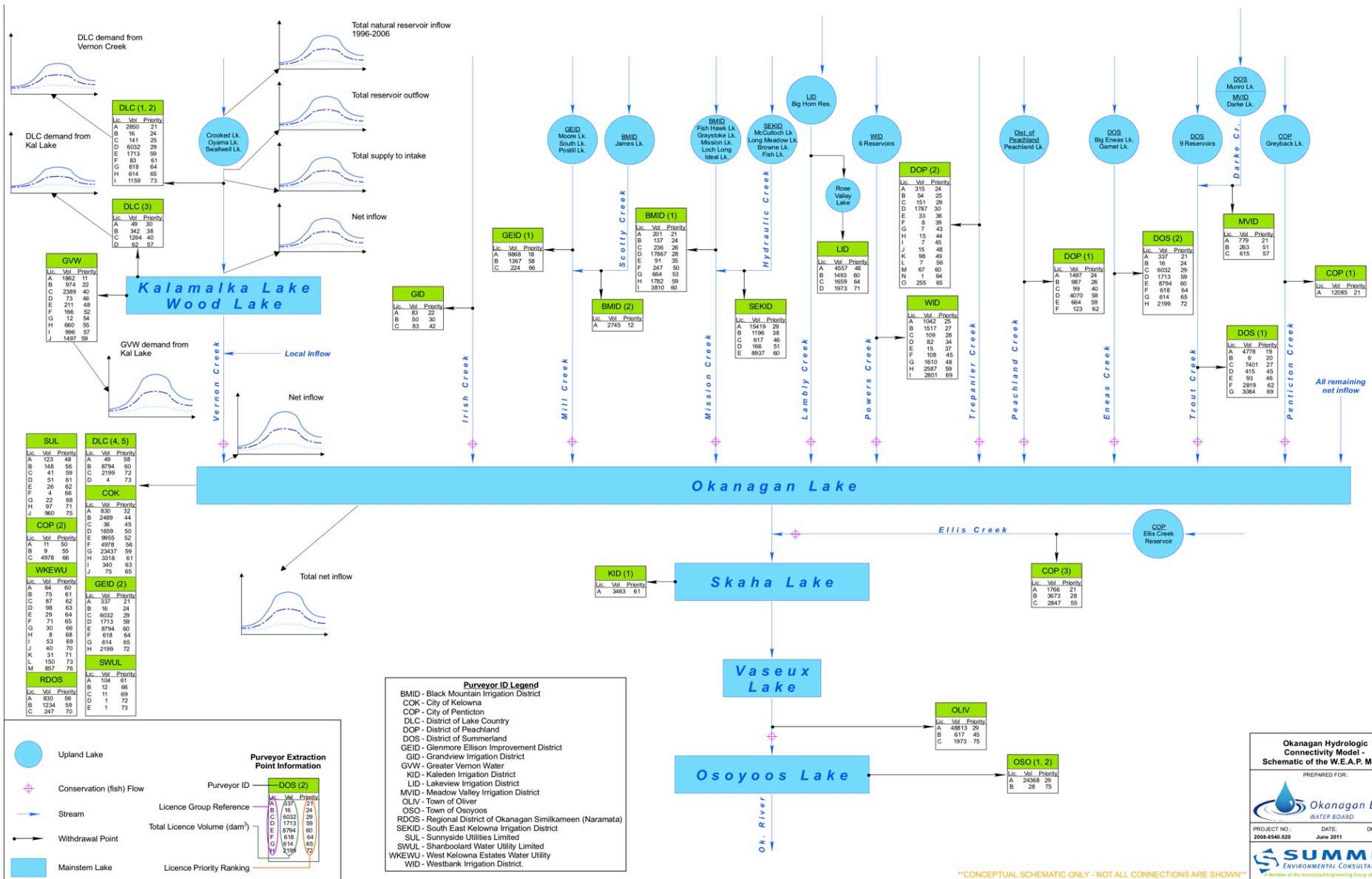
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Integrated Ground/Surface Water

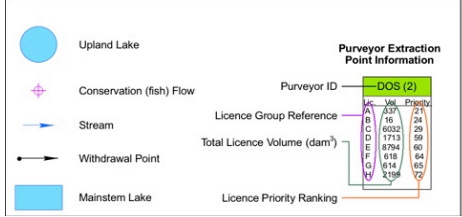


Okanagan hydrologic connectivity model



Purveyor ID Legend

- BMD - Black Mountain Irrigation District
- COK - City of Kelowna
- COP - City of Pentiction
- DLC - District of Lake Country
- DOP - District of Peachland
- DOS - District of Summerland
- GEID - Glenmore Irrigation Improvement District
- GID - Grandview Irrigation District
- GWV - Greater Vernon Water
- KID - Kaledon Irrigation District
- LID - Lakeview Irrigation District
- MVID - Meadow Valley Irrigation District
- OLV - Town of Oliver
- OSO - Town of Osoyoos
- RDOS - Regional District of Okanagan Similkameen (Naramata)
- SEKID - South East Kelowna Irrigation District
- SUL - Sunnyside Utilities Limited
- SWUL - Shanbould Water Utility Limited
- WKEWU - West Kelowna Estates Water Utility
- WID - Westbank Irrigation District.



"CONCEPTUAL SCHEMATIC ONLY - NOT ALL CONNECTIONS ARE SHOWN"

Okanagan Hydrologic Connectivity Model - Schematic of the W.E.A.P. Model

PREPARED FOR: Okanagan Basin WATER BOARD

PROJECT NO: 2008-0540-020 DATE: June 2011 DRAWN BY: DA

SUMMIT ENVIRONMENTAL CONSULTANTS INC. A Member of the Associated Engineering Group of Companies

Thank you.

Contact info:

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