

Management of Water Levels on Ellison (Duck) Lake



Status of Central Okanagan Watersheds
January 27, 2006

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Acknowledgements

- Habitat Conservation Trust Fund
- Listing/naming all other parties directly or indirectly involved with this project will take approximately an hour

Background



- There was approximately 12,000 kokanee spawners in Middle Vernon Creek in 2005. The average is around 7,500.

Background

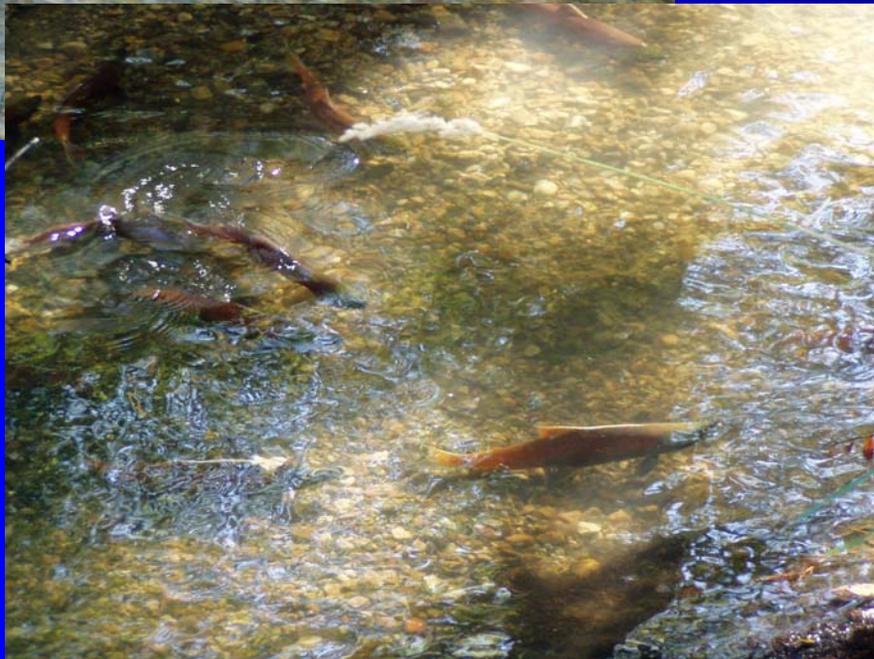
- *“According to a 2004 creel survey, Wood Lake continues to be one of the hottest fresh water fishing destinations in British Columbia”* – Lake Country Calendar newspaper (July 6, 2005).
- The Wood Lake sports fishery is estimated to worth more than \$300,000 each year.

Background



- The OFGC has spent over 20 years protecting and enhancing the local kokanee population.
- A fish ladder was constructed in 2003 and 2004.

Background



- Middle Vernon Creek has extensive natural habitat for spawning kokanee.

Background



- OFGC also runs a kokanee incubator.
- 80,000 kokanee eggs were collected last year.

Background



Middle Vernon Creek watershed is located in multiple jurisdictions

So What is the Problem?

- Middle Vernon Creek went dry in 2003 and 2004
- No water, no fish



What are our Goals?

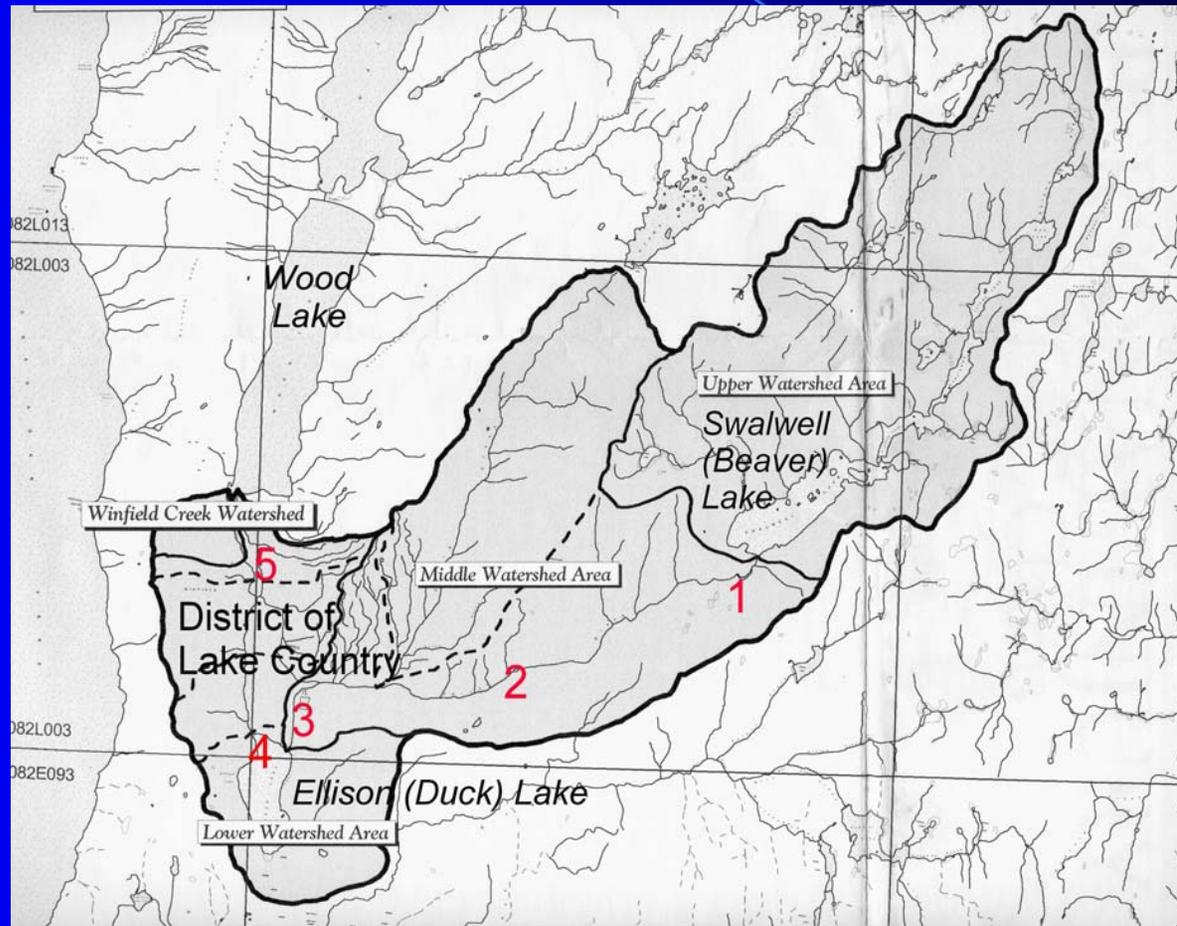
- The sustainability of the Wood Lake kokanee population which spawns in Middle Vernon Creek and Upper Vernon Creek
- Maintaining stream flow year-round in Middle (and Upper) Vernon Creek for instream **and** off-stream users.

Part I - Hydrology

Background

- Installed a network of hydrometric stations to measure the water levels in Upper Vernon Creek, Ellison (Duck) Lake and Middle Vernon Creek.
- Why? Need to make management decisions based on scientific information.

Network of Hydrometric Stations Installed



Basic Water Balance

- Lake Level = Inflows - Outflows
- Inflows: Upper Vernon Creek; and precipitation
- Outflows: Middle Vernon Creek; evaporation; groundwater recharge; water withdrawals

Inflows to Ellison (Duck) Lake



- Dependent on volume of water released from upper plateau area - Beaver (Swalwell) Lake reservoir

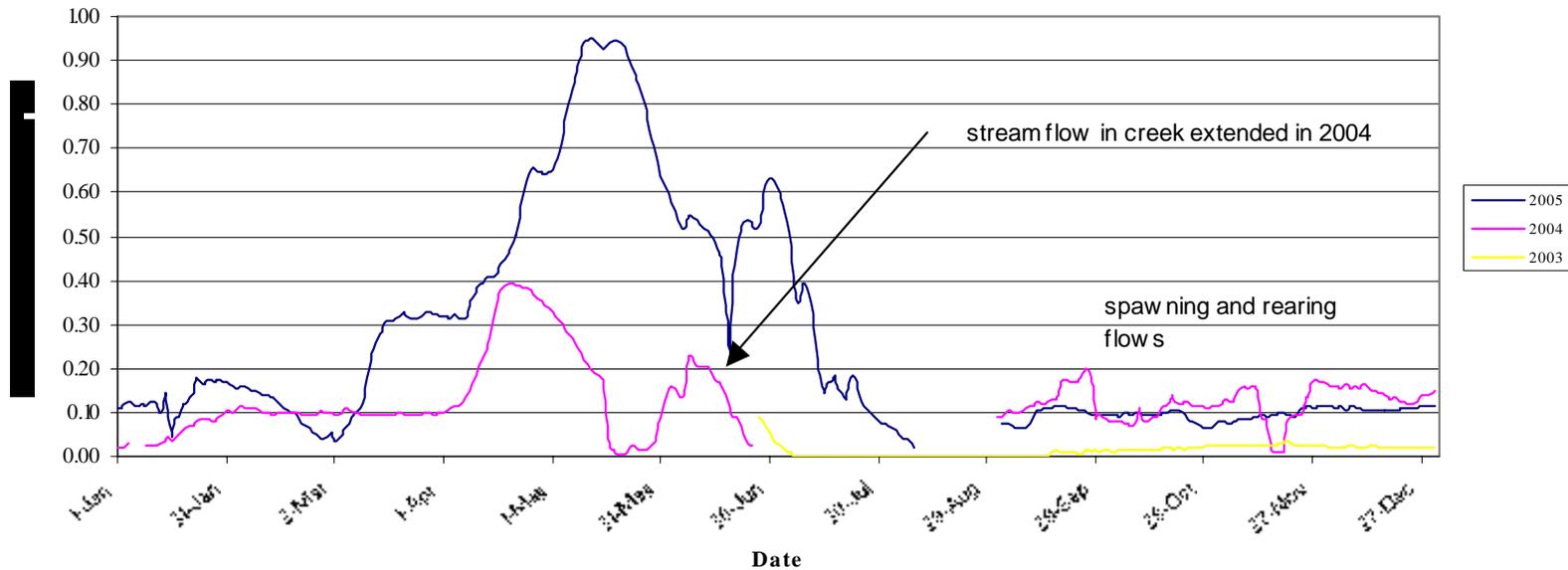
Inflows to Ellison (Duck) Lake



- Dependent on volume of water released past municipal intake.

Outflows from Ellison (Duck) Lake

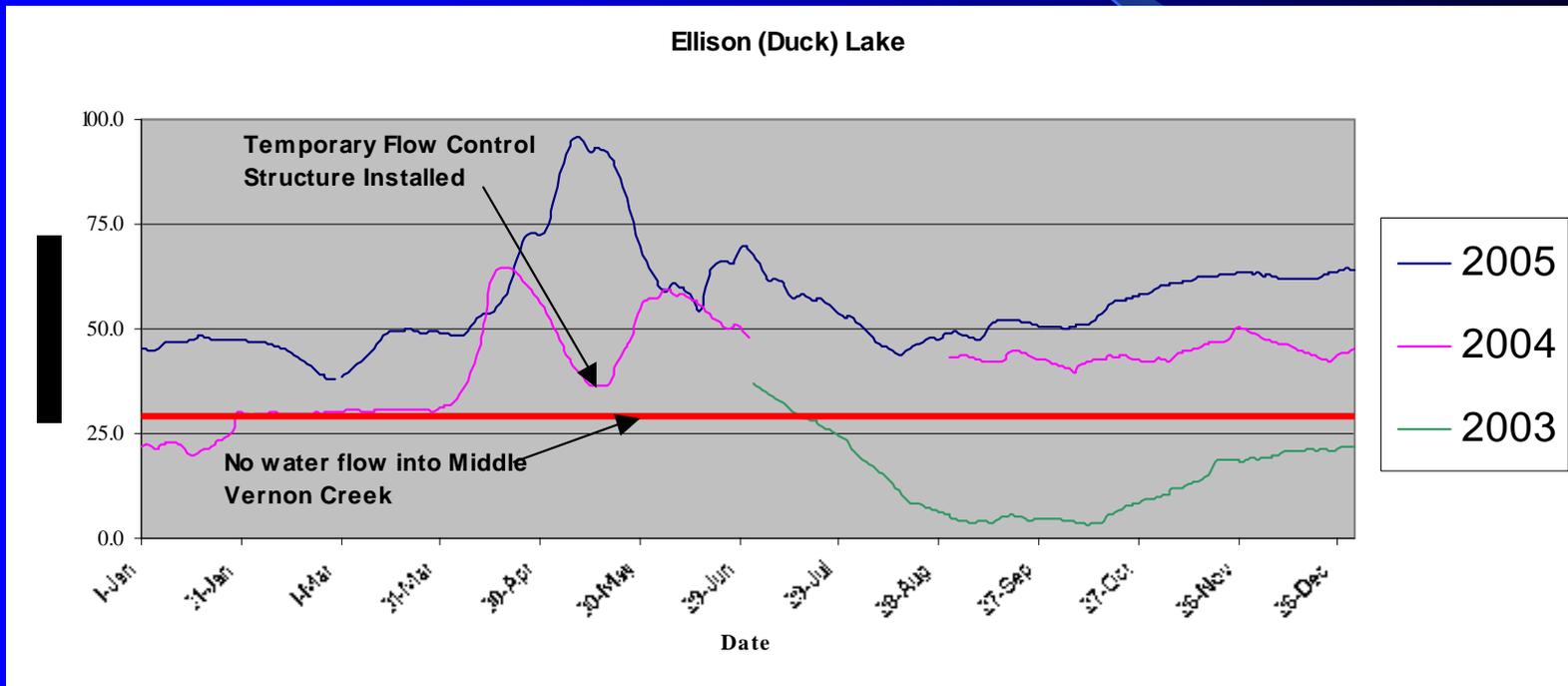
Middle Vernon Creek
(Preliminary Analyses)



Outflows from Ellison (Duck) Lake

- Groundwater was used to supplement surface flows in 2003
- Flow control structure installed in 2004 – extended the period of time in which there was water in the creek

Ellison (Duck) Lake Water Levels



The background is a dark blue gradient. A thin, light blue curved line starts from the top left and arcs towards the center. A larger, semi-transparent light blue triangular shape is positioned in the lower right quadrant, pointing towards the center.

Part II

– Partnership Development

Partnership Development

- Assisted First Nations with installation and monitoring of flow control structure



Partnership Development

- Good working relationship with the District of Lake Country



Partnership Development

- There was loss of surface water in old Hiram Walker concrete spillway. Repaired by City of Kelowna and MacIntosh Properties Ltd. in 2005.



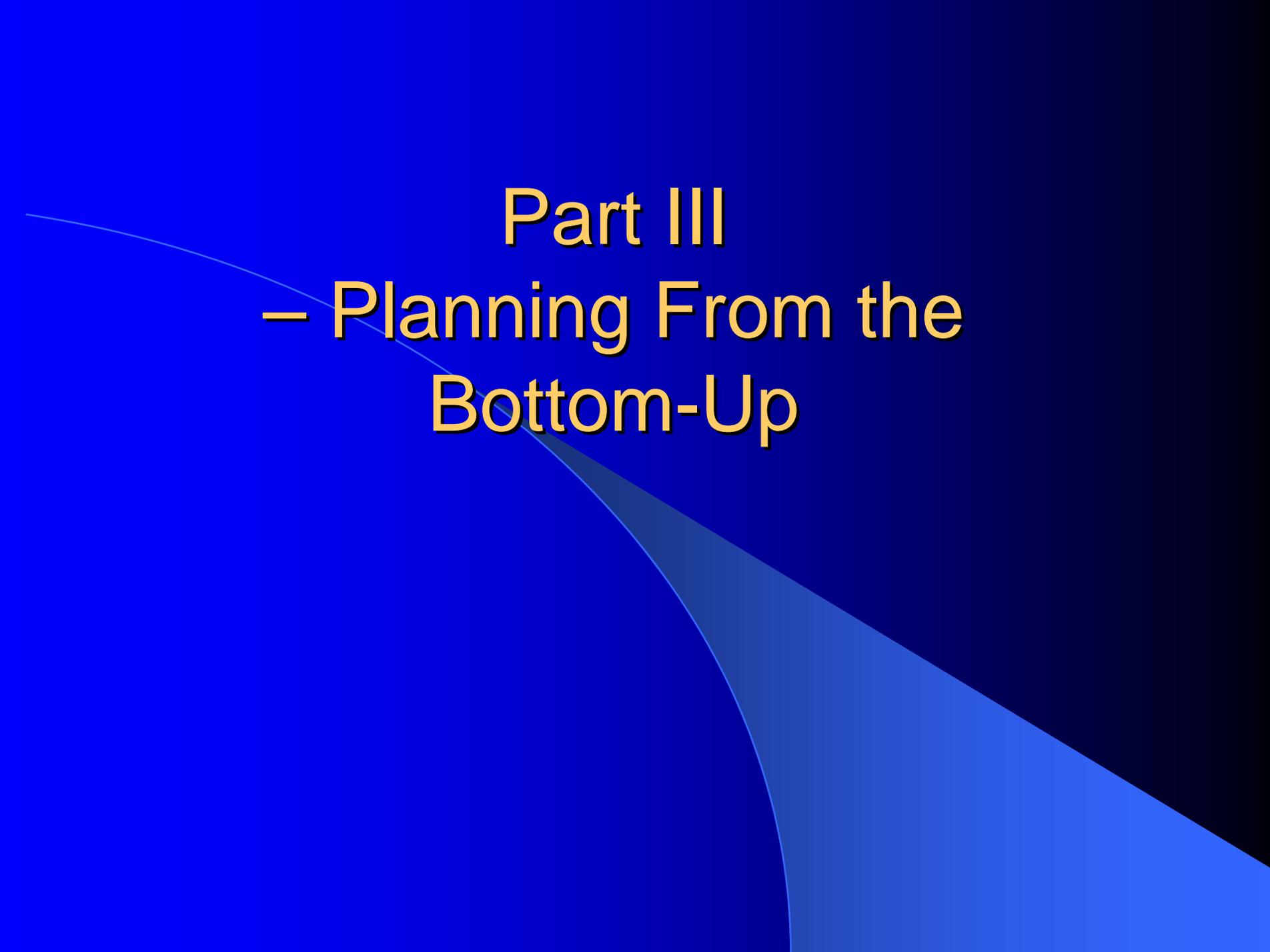
Partnership Development

- Developing relationship with University of British Columbia – Okanagan
 - Field tour with Dr. Adam Wei and student - student used hydrometric data collected by club to complete paper (November/December 2005)
 - Student paper on Middle Vernon Creek completed March 2004
 - OFGC presentation to watershed class – February 2004

Partnership Development

- Others

- Water licences along Middle Vernon Creek
- Property owners
- Private citizens
- Etc.



Part III

- Planning From the Bottom-Up

Planning

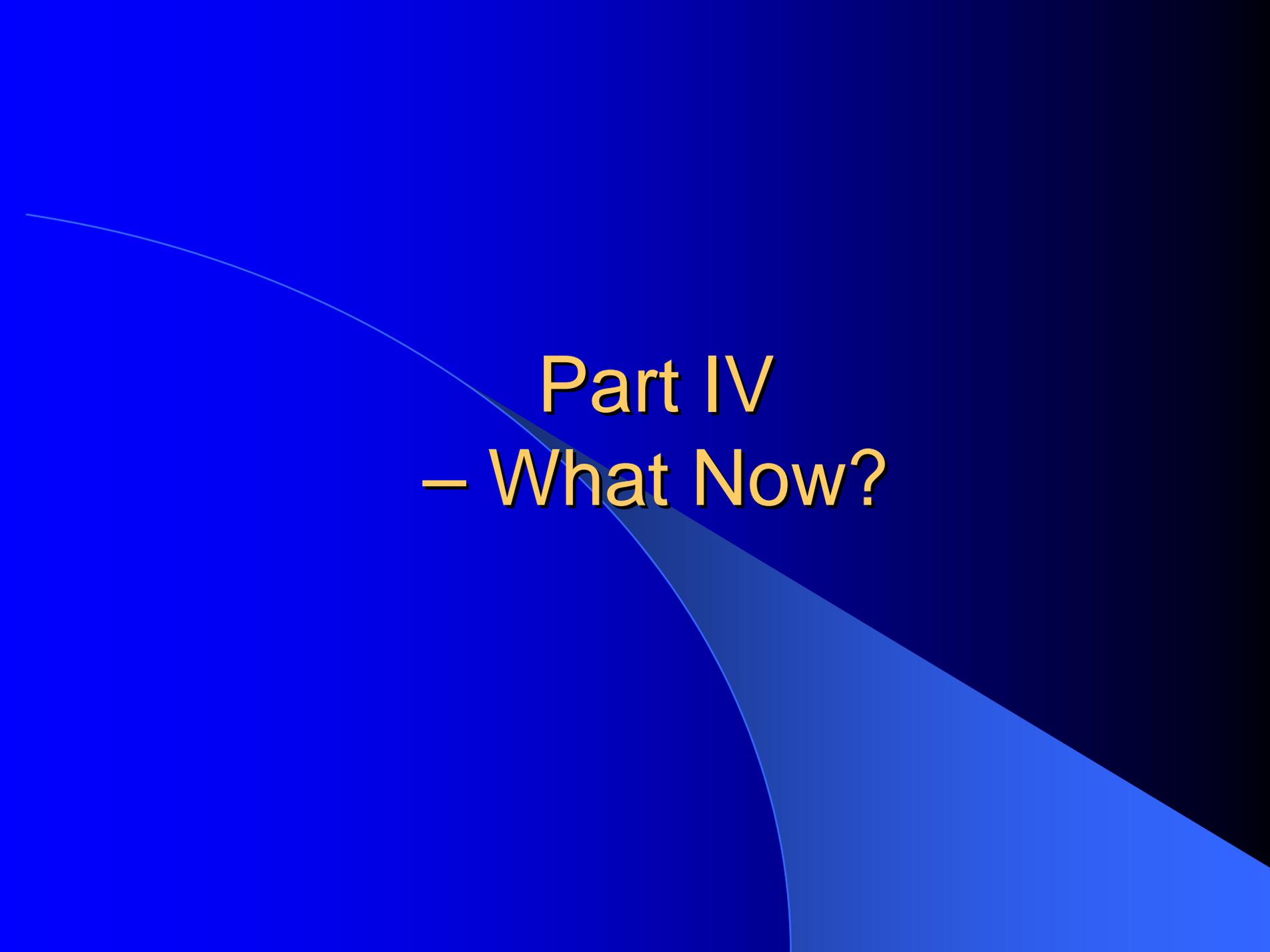
- Planning requires:
 - Both top-down and bottom-up planning;
 - More meaningful participation from community groups who have demonstrated a certain level of influence and importance; and
 - A cyclical planning process that is accompanied by regular evaluation, assessment of the program, and re-planning.

Types of Stakeholder Participation

- Consultation – people participate by being consulted or by answering questions (Currently used by top-down planning processes; results in little or no action)
- Self-mobilization – people participate by taking initiatives independently of external institutions (Reality for OFGC – bottom-up leadership; results in action)
- Interactive – people participate in joint analysis, which leads to action plans (Goal – combination of above two types)

Advantages of Bottom-up Planning

- Community groups:
 - Can operate based on watershed boundaries instead of jurisdictional boundaries;
 - Are an effective channel for communicating to the community;
 - Have a greater understanding of local issues;
 - Are action oriented; and
 - Can catalyze change.

The background is a dark blue gradient. A thin, light blue curved line starts from the left edge and curves downwards towards the center. A larger, light blue shape, resembling a quarter-circle or a sector of a circle, is positioned in the lower right quadrant, overlapping the dark blue background.

Part IV
– What Now?

Main Issues

- Need con-current top-down planning. Some proposed actions such as building a permanent structure at the outlet of Ellison (Duck) Lake need physical, political and/or economic support from watershed stakeholders.
- Propose using the Okanagan Basin Water Board for the above initiative.

Main Issues

- Management of water levels in Ellison (Duck) Lake is integrated with other water management issues. Some of the technical questions that need to be addressed are:
 - Should upper reservoirs be expanded?
 - Does the OFGC have to apply to government to have un-used water licences cancelled and/or transferred?
 - If system is over-licenced what can be done about it?

Recommendations

- Need to stop managing connected lakes and creeks as separate entities – need to manage Beaver (Swalwell) Lake; Upper Vernon Creek; Ellison (Duck) Lake; and Middle Vernon Creek together.
- Need to establish an operational range for water levels in Ellison Lake (like Okanagan Lake).

Next Steps

- Seeking funding from HCTF and/or the OBWB to establish a voluntary working agreement among watershed stakeholders for management of water levels in Ellison Lake.
- This would be a good demonstration project/example on how to address complex water-related problems in the Okanagan.

Conclusion

- As was stated in the Catalyzing Change report (GWP 2004) *“In the end, a strategy’s success or failure depends on its ability to catalyze change. This is what matters – not the specific process, not the form of the strategy document, but whether or not it results in positive action.”*