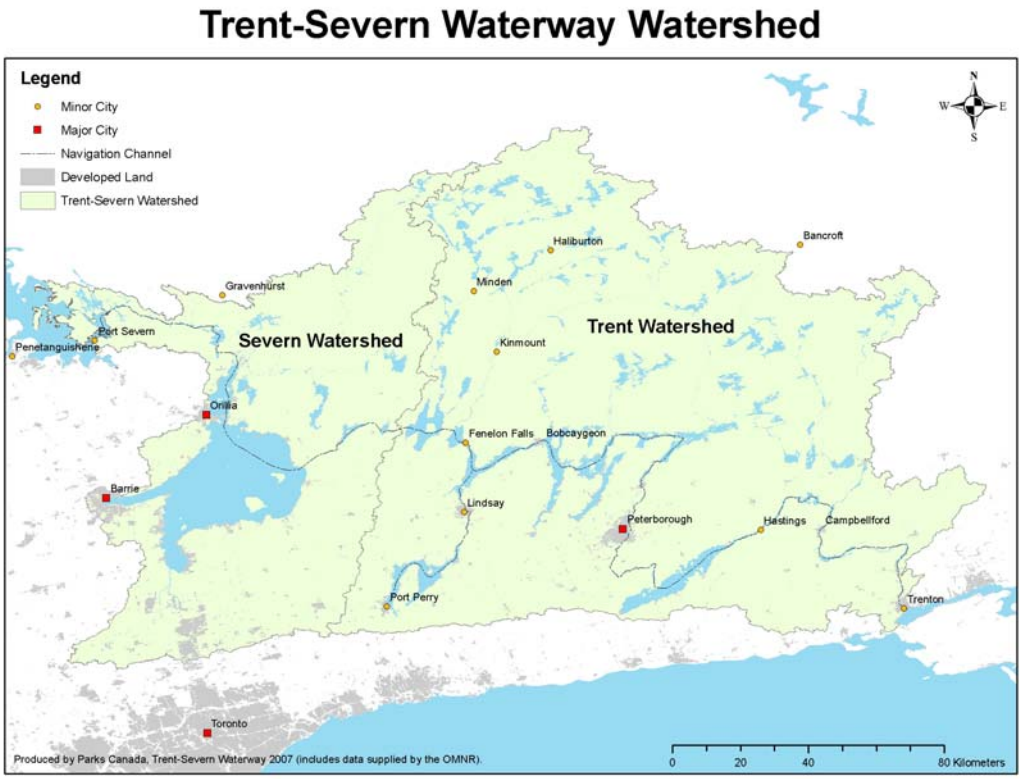
Panel on the Future of the Trent-Severn Waterway
Commission sur l'avenir de la voie navigable Trent-Severn

DISCUSSION PAPER #7
WATER MANAGEMENT

These discussion papers do not represent the conclusions or positions of the Panel. They are intended to stimulate discussion of some of the broad issues facing the waterway.

Context

Parks Canada controls water flows and levels over more than 18,000 square kilometres of the Trent and Severn watersheds, primarily north of the navigation corridor, to maintain navigational draughts along the waterway. This is achieved using 151 water management structures along the waterway and in 44 Haliburton "reservoir" lakes, the latter found in an area of approximately 3,200 square kilometres. The Crowe Valley Conservation Authority manages two dams east of the lower Trent River. Several other small dams, mainly in the Haliburton reservoir lakes, are operated by provincial and private interests.



The beginnings of this remarkable water management network came from the desire to move timber from the Ontario interior to Lake Ontario and thence to far away markets. By the early 20th century, its purpose was to store and distribute the water necessary to maintain navigation levels and operate the locks on the Waterway.

Operation of the system has been a source of controversy virtually since the first dam was built. Many interests have expectations of the management regime that are not always satisfied at least in the perception of the stakeholders. Other interests, particularly government agencies, engage in activities that affect or constrain the regime.

The issues, challenges and opportunities associated with the water management regime have been the subject of much examination – most recently in 2005 at an interagency water management workshop and in a 2007 consultant's report commissioned by Parks Canada. Summaries of these two works are found in the appendices to this paper.[1] The Conference Board of Canada has also examined the broad topic of "water governance and management in Canada." A summary of its 2007 findings is also appended.

Discussion Paper Ideas

Several principles for successful water management emerge from all three initiatives described above:

- Clear, accountable, and open governance, supported by clear policies.
- Up-to-date technology, including real-time monitoring, system modelling, and water level adjustment equipment to guide system adjustments.
- Open and continual involvement of and communications with stakeholders, ranging from input into decision-making to notices of system adjustments.
- Integration of policy objectives (including ground and surface water), with a clear set of priorities and mechanisms for resolving conflicting interests.
- Adequate financial and human resources to manage the system and keep infrastructure in a safe, effective condition.

Incorporating the above principles is not the exclusive domain of any one model of water management – a variety of approaches may be possible. Some models for consideration with respect to the waterway and the reservoirs lakes are offered below.

Enhanced federal government management: In this model, the federal government – through Parks Canada or another existing federal department – retains decision-making authority over water management. However, it formally engages other governments and stakeholders in the setting of policy and protocols that guide its decision making at an operational level. Enhanced communications efforts are made so that all those affected have instant access to system status and planned level and flow adjustments. Formal conflict resolution mechanisms are provided for in this model.

[1] The 2007 Parks Canada study is available at http://www.tswpanel.ca/english/pastpresentfuture.asp. Those wishing more technical details on the water management regime and issues associated with it are referred to the study document entitled "Water Management Program".

The implications of this model include additional long-term federal funding to build up the organisation required to manage the system, and in funding technology and infrastructure upgrades. Decision-making authority remains at an administrative level.
Shared responsibility – a water management council: In this model, a variety of agencies with an interest in water form a "council" to govern water management. The federal government, through Parks Canada or another department, would provide a secretariat and the technical expertise to implement the policies and protocols developed by the council. Communications would be vested in this secretariat. Participating agencies, in addition to Parks Canada, might include at the federal level Environment Canada and Fisheries and Oceans; at the provincial level the ministries of Natural Resources and the Environment; as well as the Trent Conservation Coalition or the individual conservation authorities that comprise the coalition. Counties might also be involved where conservation authority coverage is lacking. First Nations representation would be sought.

The implications of this model are that while the federal government continues to own most water management infrastructure, it would longer have exclusive authority for water management. The federal government would be one of several voices at the table. Federal funding would support the council's operations, with program input from various agencies in the form of information sharing and model development. Basic water management principles would be required to guide the policies and decisions of the council, such as the status of navigation. Stakeholders would have an opportunity to address council meetings.

A dedicated water management agency: In this scenario, a new, independent water management agency is established whose sole responsibility is water management. It could be modelled, for example, on the Lake of the Woods Control Board. The federal and provincial governments, conservation authorities, and key municipalities would appoint board members (the latter two as in the "council" described above). Board members would be appointed based on their technical competency. A formal agreement would be sought with First Nations.

The board would maintain a secretariat to carry out policy development, technical operations, and communications. It would also manage a conflict resolution process. Single representatives of key interests, such as property owners, industry/commercial associations, and counties, would be formally recognized as having standing to participate in board meetings, but would have no vote. Formal agreements would also be made with key natural resource agencies such as Parks Canada and the Ontario Ministry of Natural Resources to provide access to resource advisors.

The implications of this model are that no single existing agency manages water. The federal and provincial governments would jointly fund this new, independent agency, as is the case with the Lake of the Woods Control Board. Infrastructure could remain with the federal government, but its operation would be divested to the new agency.

Conclusion

The challenges associated with water management in southern Ontario's largest watershed are exceedingly complex. The premise underlying this discussion paper is that the status quo is insufficient to meet changing public policy goals or the needs of citizens. The options constitute different ways to strengthen governance, accountability,

citizen input and communication, policy, and technology, by way of varying degrees of centralized or shared responsibility. Variations on these options are equally possible.

Appendix One
Summary
Interagency Workshop on Watershed Management (2005)

In June 2005, Parks Canada and the Ontario Ministry of Natural Resources co-hosted a multi-agency workshop on water management attended by representatives of other government agencies, NGO's, First Nations and municipalities. The objective was to canvass concerns and interests and discuss how a more collaborative approach could be developed.

Challenges

- Water management decisions are made by Parks Canada without the "formalized engagement" of other interests that can be "significantly affected".
- Decisions are made by other agencies that have implications for water management, but these are made without the engagement of Parks Canada.
- Agencies and individuals advocate changes to water management without fully understanding their implications, or having accountability for them.
- The current decision-making framework does not address stakeholder interests.

Observations

- Large quantities of data exist but there is insufficient use of it to make a difference.
- There is a tremendously wide range of jurisdictional interests.
- The system is geographically large and complex.
- There are many competing objectives but no means to resolve conflicts.
- Difficult allocation decisions face the stakeholder community – there is not enough water to satisfy all demands.
- There is a need for all involved and/or affected by water management to recognize the risks and consequences of options, including doing nothing.
- Funding is limited, and concerns exist over downloading.
- Science has not been brought together in a comprehensive plan for the larger area, and there is no one agency with the ability or mandate to put it together.
- There is a need for a leader, a legislative mandate, and an ability to raise money to fund proper water management and projects associated with it.

Conclusions

Participants felt an “extraordinarily complex” challenge lay ahead, but all agreed that integrated watershed management is worth pursuing. They concluded:

- Achieving change will require long-term commitment by all agencies and open communications with (and involving) stakeholders.
- Immediate water management efficiency improvements could be achieved through better collaboration.
- A governance structure should feature shared accountability and mechanisms to resolve conflicts.
- Decisions should be made and priorities set in a transparent manner, supported by a strong policy and legislative framework.

Next steps

It was agreed that an expanded steering committee (beyond the workshop co-hosts) be convened to consider the next steps, including the following:

- Consider models and processes from other jurisdictions.
- Parks Canada should lead, but other interests need to be involved.
- Develop a vision, terms of reference, and communications strategies.

Appendix Two
Summary
2007 Parks Canada Water Management Study

This Parks Canada study was undertaken by the consulting firm Ecoplans between November 2006 and May 2007 to document water resource interests along the waterway and associated reservoir lakes; to examine water resource management and governance models used elsewhere; and to make recommendations on approaches that would better serve citizens. Consultations included cottager associations, commercial interests, government, first nations, and environmental organisations.

Key consultation findings

- **Ecological issues** were the most prominent, particularly with respect to the effects of water draw downs on fish habitat and secondarily wetlands. Erosion and weeds were also cited.

- **Access** was the second most important issue, particularly the navigational effects of draw downs, as well as access and damage to docks and water supply. Unpredictability of water level change was remarked upon.

- A third issue was **public safety**, particularly in terms of low-water navigation hazards.

- **Flood control**, and particularly how water regime changes might increase flood risk, was cited most often by municipalities and conservation authorities.

- **Communications** was a common theme, in terms of the need for public information on how the system works and decisions are made, notification of changes to levels and flows, and information exchange with governments and agencies.

- Green energy, water and sediment quality, economic effects of water management practices (or changes to), and climate change were also identified as concerns.

Other water management organisations

A number of water management organisations were analyzed: Navigation, water access, flood mitigation, fisheries, wildlife, water power generation, and water quality were commonly-cited interests of these agencies. Key attributes of successful organisations are highlighted below:

- *Jurisdiction*: Is clearly established in legislation and policy.

- *Structure*: While models vary (single agency, technical group, consensus body), most separate out technical, policy, and communication/conflict resolution functions.

- *Mandate*: Is clearly articulated and usually tied to legislation, is supported and promoted by senior management, and is readily available to the public.

- *Stakeholder Interests*: While most bodies control decision-making, they ensure stakeholders can express views and obtain information. Stakeholders are embraced as clients, not adversaries, and are addressed proactively and inclusively.

- *Communications and Outreach:* Engagement through formal and informal programs such as websites, regular meetings, conflict resolution processes (e.g., an ombudsman), timely responses, and advance notice/early warnings of system changes.

- *Water Flow/level Decision-making:* Commitment to integrated water management – its principles, organizational structure, human and financial resources. There is little system volatility and unpredictability. Operating procedures are clearly articulated.

- *Conflict Resolution: C*onflicts are minimized with a majority of interests through open and continuing involvement. A formal and understood mechanism exists for raising concerns and having them addressed; managers are trained in dispute resolution techniques. Organisations with stakeholder advisory groups and effective outreach programs appear to experience the lowest level of conflict.

- *Decision Support Tools:* Real-time data on water levels and flows is available and computer models of sufficient sophistication are used and regularly updated.

Study Recommendations

- The waterway should be formally recognized as a nationally and provincially significant recreational and ecological corridor, and mandated in legislation that binds all levels of government to a common set of goals and objectives. Provincial examples include the Niagara Escarpment and Oak Ridges Moraine.

- Clear goals and objectives should be set out in an integrated management plan developed through an open consultation process.

- The waterway should be managed by a board or commission appointed by a senior government.

- A governance model similar to the Lake of the Woods Control Board should be adopted that:
    - Does not duplicate or usurp responsibilities of existing governments.
    - Includes representatives of Canada, Ontario, First Nations, and conservation authorities along the waterway.
    - Uses a formal stakeholder advisory committee.
    - Has access to government technical expertise, and is supported by a secretariat to implement its decisions.
    - Is adequately funded by the federal and provincial governments.
    - Involves partnerships to build data and models, and includes comprehensive stakeholder and public communications.

Appendix Three
Summary
Conference Board of Canada – "Navigating the Shoals: Assessing Water Governance and Management in Canada" (May, 2007)

This recent report addresses the governing and managing of water resources in Canada. Five case studies from across Canada were used to capture the broad scope of water management issues. The report begins with the following premises:

- Water is an important resource and has not been fully appreciated from a policy and management perspective;
- Attention is required because of the numerous pressures on water resources such as population growth, economic development, and climate change, among others.
- Institutions need to find ways to adjust and cope with these and other pressures, while maintaining healthy water systems.

Governance Challenges

- Policy coordination within the same level of government, where competing interests can make it difficult to achieve clear goals and policy on a watershed basis;
- Federal/provincial coordination where overlapping responsibilities can create tensions and difficulties; and,
- Because watersheds do not adhere to political boundaries, institutions must want to work cooperatively and adhere to specific governance arrangements.

Management Challenges

- Competition between regional and local interests;
- Competing demands for limited amounts of water;
- Mutually exclusive consideration of groundwater and surface water;
- Limited information (e.g., on water quality but not on water quantity or *vice versa*).

Recommendations

1) *Clarify Governance Structures*
   Establish consistent and supported policy goals within a watershed.
   - Who owns the resource, who will govern it, and who will manage it
   - Establish a decision-making framework and information feedback process
   - A single water management agency with authority and jurisdiction over all facets of water use, treatment, and conservation would be preferable

2) Encourage a "Nested" Approach to Watershed Governance

Incorporate the knowledge and expertise of managers at all levels into watershed decision-making.

- A high-level governance structure must be agreed upon
- Establish management bodies at appropriate levels
- Form divisions to identify, monitor, and address priorities
- Local groups' participation is important - consider the 'bottom-up' approach

3) Improve Inter-Agency Coordination

Develop consistent policy goals by finding ways to cope with and address competing interests of government departments at all levels.

- Identify and agree on the balance between in-stream flow needs and economic development needs of the region

4) Integrate Groundwater and Surface Water Management

Establish the long-term availability and limitations of a watershed's resources.

- Quality and quantity of source and groundwater are interdependent, and must be considered as such.

5) Set Priorities and Budget for Adequate Information to Support Decision-Making

Monitor and measure for effective and sustainable management and stewardship of water resources.

- Information such as the annual recharge rate of underground aquifers, seasonal consumptive patterns, in-stream needs of the ecosystem, and the long-term economic growth prospects of the watershed is required
- Water managers must set priorities for information collection because of limited financial resources

6) Explore Greater Use of Market-Based Instruments

Allocate increasingly scare resources to their highest social and economic value.

- Water scarcity has not been considered an issue in Canada in the past but is increasingly becoming one. Water pricing and demand management are two complementary tools. By 2004, these tools had reduced average agricultural water demand in a district near Kelowna, B.C. by almost 30 per cent below the 29-year average consumption rate.