Source Protection and Climate Change

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The Project

- Pollution Probe and the Canadian Water Resources Association
- Where and how can climate change be incorporated into Drinking Water Source Protection Plans (DWSPP)?

Rationale

- DWSPP → an opportunity to *mainstream* climate change?
- Numerous opportunities exist in proposed DWSPP system

Audience

- People involved in DWSPP
- Varying technical backgrounds expected
- Varying understanding, awareness, acceptance of climate change

Tasks for White Paper – Body

1. Climate change impacts in Ontario
2. Key climate drivers at watershed scale
3. Implications for ecosystems & human uses of surface and groundwater
4. Links to planning and management
5. Adaptive strategies
6. Cases and examples

Tasks for Appendix

1. Describe current state of climate change modelling at global and regional scales; implications for watersheds

2. Advice for CAs and others involved in hydrological modelling for source protection planning

Climate Change in Southern Ontario *

- Increased air temperature
- Longer, more intense heat waves
- Increased evapotranspiration
- Slight increase in precipitation
- Changes in timing, intensity of precipitation expected

* Less known about Northern Ontario. Predictions are scenario dependent!

Selected Anticipated Hydrologic Impacts – GLSB *

- Declining lake levels
- Reduced runoff
- Reduced groundwater levels and recharge
- Increased water temperature

* Much uncertainty!

Source Protection

- Watershed-based planning
- Source protection regions
- Collaborative and locally-driven
- Provincial plan approval
- Relationship to Municipal OPs, Provincial instruments – uncertain
- Major implementation challenges

Incorporating Climate Change…

- Water budgets
- Vulnerability analysis
- Threats and issues
- Responses

… In Water Budgets

- Model of “inputs” and “outputs” of water in a region
- Quantifiable information regarding:
  - Temporal/spatial water availability
  - Environmental needs
  - Human uses and needs (or wants)
  - Impacts of future land use changes
  - Sensitive areas

… In Vulnerability Analyses

- Identify and delineate vulnerable areas needing protection
  - Wellhead Protection Areas
  - Intake Protection Zones
  - Highly Vulnerable Areas
  - Areas of Significant Recharge

…In Assessment of Threats and Issues

- Assess current and potential threats to drinking water
- Identify issues that affect drinking water quality and quantity

… In Responses and Actions

- Mainstream climate change in planning, decision making
  - Land use plans
  - Water supply and wastewater master planning
  - Permit to Take Water decisions

Conclusion

- Drinking Water Source Protection Planning our best shot to mainstream climate change
- Political and social challenges exceed technical challenges
- Guidance needed

Feedback

- Feedback on the draft Probe/ CWRA White Paper will be welcome!
  - Written comments
  - Participation in focus groups
- Please contact Rob de Loë
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