Climate Change and Watershed Planning

Hunter-Clyde Watershed Group

Wheatley River Watershed

March 15, 2011

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TEMPERATURE in 2050s

+3 C

+2.5 C

+2 - 3 C

+2.5 C

What Does This Mean?

Longer Growing Season (20 days)
More Frost Free (20 days)

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RAIN / SNOW in 2050s

+0 to 10%

+5 to 15%

-5 to 10%

+0 to 5%

What Does This Mean?

More Rain / Less Snow

More Intense Snow and Rain Events

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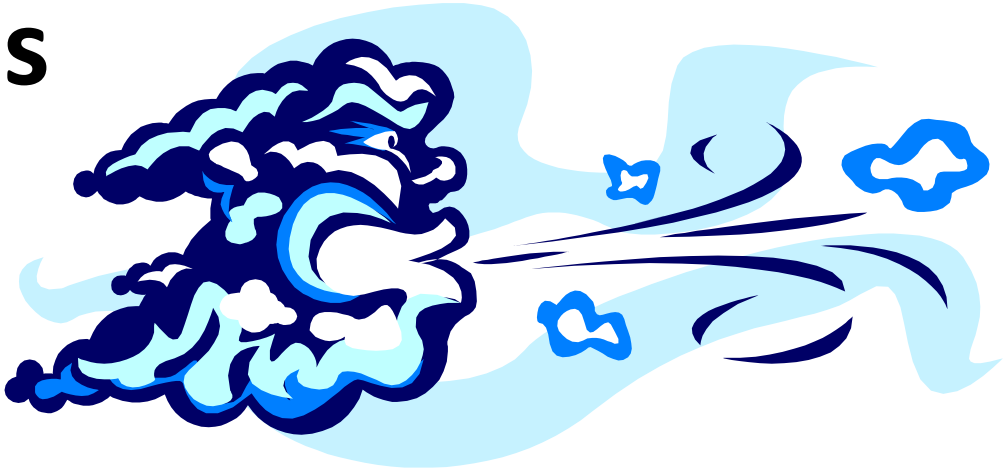
WIND in 2050s



Significant Wave Height: 5 cm (up from 2 cm)
Hurricanes: More Frequent and Intense Events

What Does This Mean?

More Storm Damage

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SEA LEVEL in 2050s

Sea Level Rise: 15 to 25 cm

Storm Surge: 3.6 M 1 in 2 yrs
4.0 M 1 in 40 yrs

What Does This Mean?

More Coastal Flooding
More Storm Damage (Erosion)

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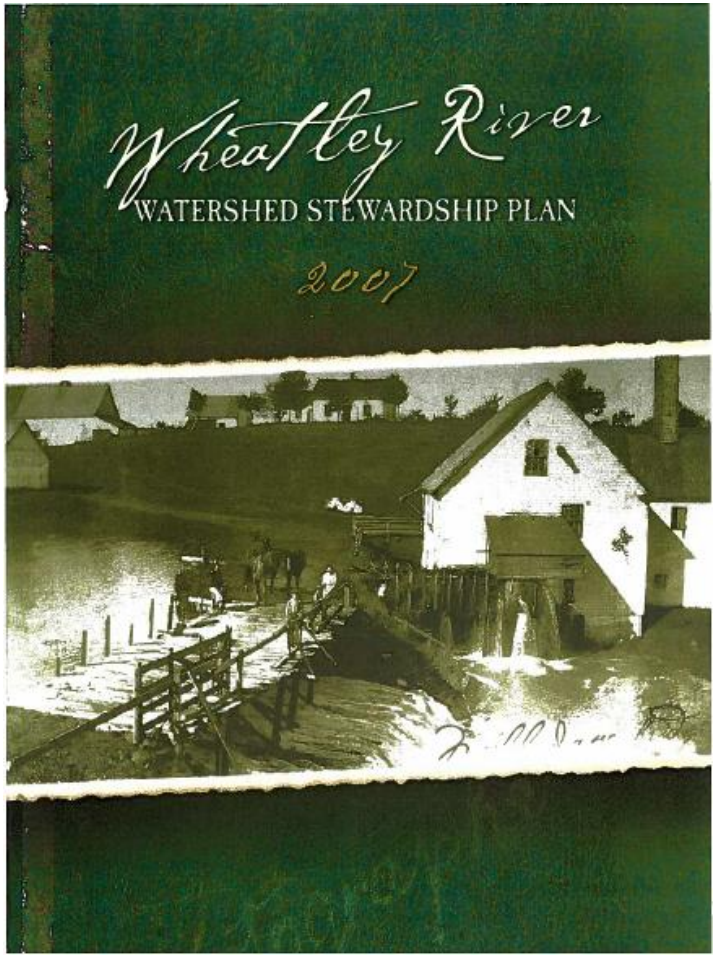
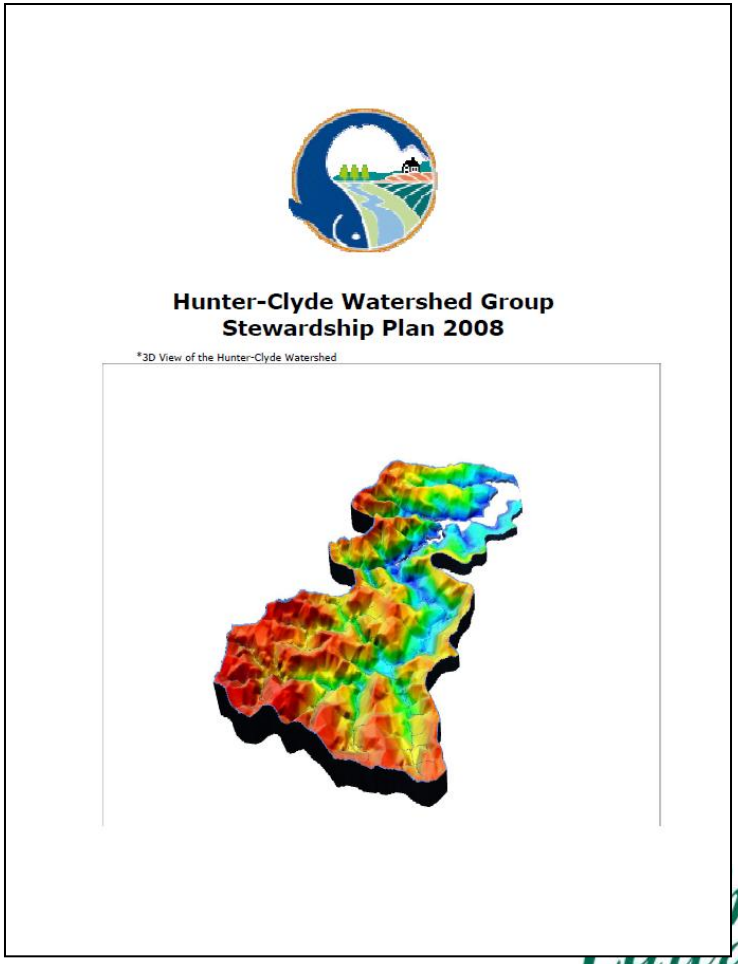
Watershed Planning





Common Critical Issues

Eutrophication & Anoxia

Groundwater and Surface Water Quality

Soil Erosion

Fisheries / Fish Habitat

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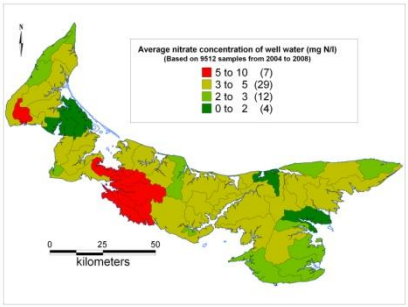
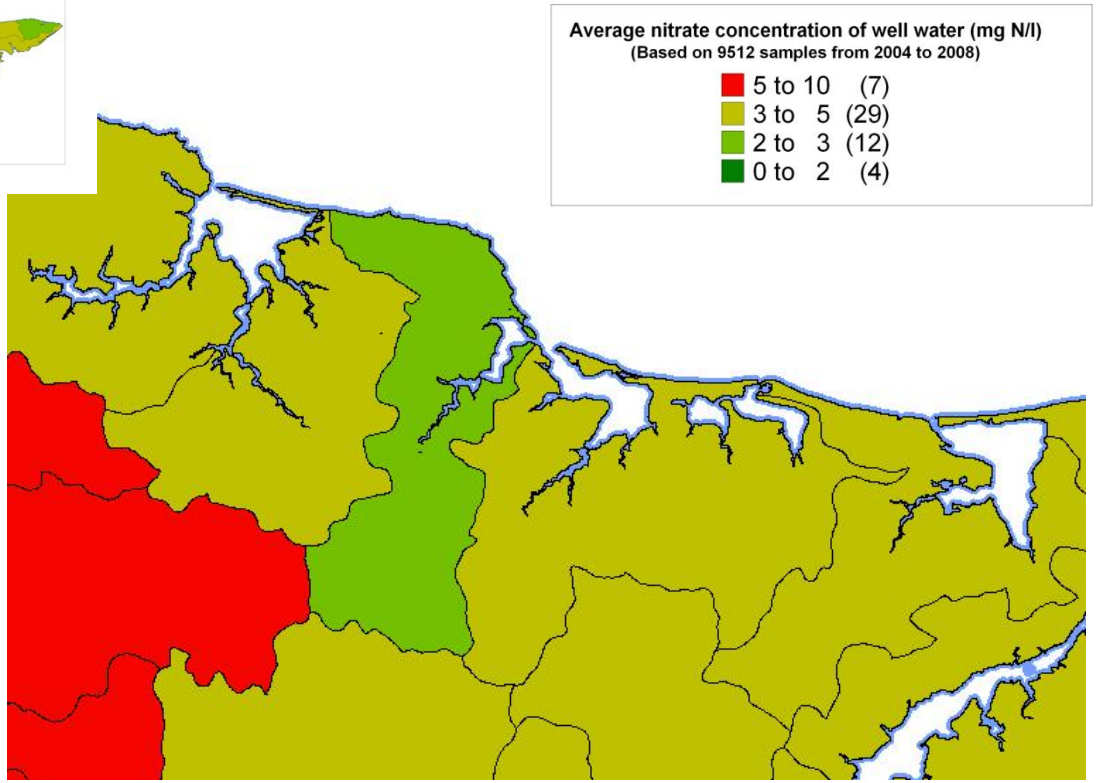
Nitrate Concentration





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Nitrates and Climate Change

- More or Less Nitrates?
  - more evaporation, less drainage **=**
  - more intensive agriculture **+**
  - opportunities for cover crops **–**

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Water Quantity

- more water, but not necessarily when it's needed:
  - more evaporation, less recharge
  - less available when demand is high

Drinking Water
Surface Water

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Other Issues

- Soil Erosion – more intense rainfall
- Exotic Species and Pests
- Forests

Loser

White Spruce

Winner

Red Maple

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Regional Adaptation Collaborative

PEI has partnered with the Atlantic Provinces and the Government of Canada to deliver the *Regional Adaptation Collaborative* (RAC) Program. Projects will help provincial government and communities assess their vulnerability to climate change.

Natural Resources Canada

Ressources naturelles Canada

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Coastal Erosion

- historical photos are being digitized (1968 series)
- coastlines are being created for 2010, 2000 and 1968
- new erosion rates established (Summer 2011)

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Sea Level Rise and Storm Surge

- up-to-date projections for SLR are being gathered
- SLR and storm surge impact will be modelled for entire coastline identifying areas at risk (2011-2012)

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Inland Flooding

- flood risk mapping being completed for Hillsborough River
- will identify areas at risk
- guide design specifications for bridges, culverts and roads (March 2012)

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Groundwater Management

- monitoring salt water intruding into groundwater in Summerside and Lennox Island
- modelling impacts of SLR and future precipitation and water demand

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Community Assessment

- identify vulnerabilities
- tools must be **easy to use**, in **plain language**, **quick** and at **no or low cost**
- NL have developed a tool in concert with Municipalities NL and Professional Municipal Administrators

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