Item No. 12.1.1

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Lake Water Monitoring & Sampling Program Review

Presentation to the Environment & Sustainability Standing Committee

August 3, 2017

Report Overview

- 2017/18 Business Plan initiated a Watershed Management and Water Quality Monitoring Program Review to update HRM's work

- Staff will recommend an updated water quality monitoring framework to ESSC by end fiscal 2017/18

- Broader watershed planning directions and watershed mapping by end fiscal 2018/19

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Review Objectives

- clarify and update the Municipality's water quality management objectives and program – How can lake-based monitoring lead to more effective decision-making?
- assess past and present water quality monitoring efforts for effectiveness, gaps, and cost benefits
- understand current watershed planning policy and delivery for strengths, weaknesses and opportunities for improvement
- develop options for responding to undesirable conditions in lakes and rivers and understand the sources of WQ deterioration
- develop recommendations to improve land-use planning and development in response to WQ issues and WS objectives
- recommend an updated water quality monitoring program

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Review Origins

- Desire for outcomes-based WQ program and more strategic application of watershed study recommendations
- Incorporate new information such as Dalhousie study of Papermill Lake Watershed Assessment to better understand sources of phosphorous loading and indicators of WQ
- Recognition of the importance of water quality monitoring to advance Regional Planning outcomes
- Interest in regional landscape planning for ecosytems health - Halifax Green Network Plan – multiple functions of Watersheds
- Emerging issues:
  - Growth of nuisance weeds (Banook, Micmac, Little Albro)
  - Increasing reports of algae growth (blue-green & others)
  - Impacts of Road Salts on Lakes
  - Surface run-off from development and tree removal

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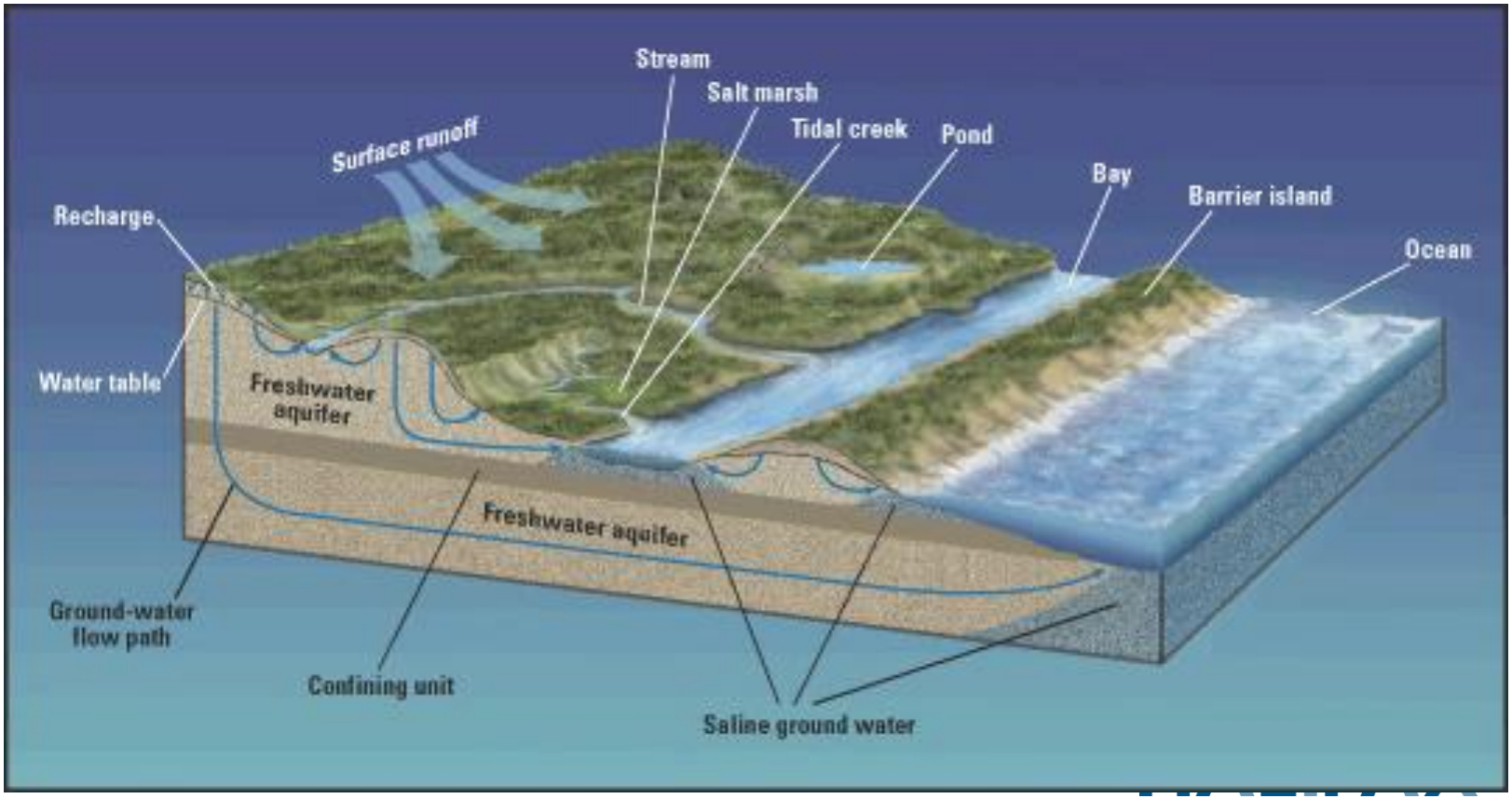
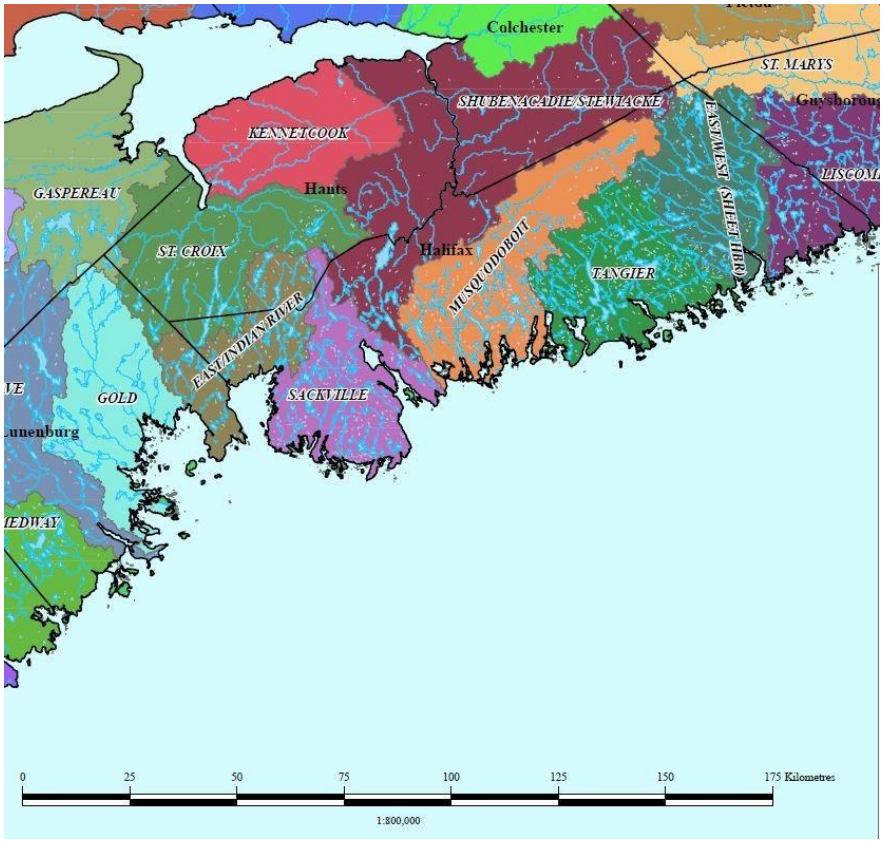
Watersheds in HRM

Watersheds are areas of land draining into a watercourse (river, lake, dam, estuary, etc.). The watercourse of interest defines the boundaries of the associated watershed.



Watersheds in HRM – cont'd



- Defined by river basins
- 9 Primary Watersheds in HRM (of 46 in Nova Scotia)
- 44 Secondary Watersheds in HRM (249 In Nova Scotia)
- 10 Watershed studies completed to date by HRM through contractors

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Current Scope Watershed Management – per RMPS (2014)

- Section 2.3, Water Resources:
  - Potable water supply (s. 2.3.1);
  - Riparian buffers (s. 2.3.3)
  - Coastal inundation (s. 2.3.5)
  - Wetlands protection (s. 2.3.2)
  - Floodplains (s. 2.3.4)

- Section 2.4, Watershed Planning
  - Policy E-23: Watershed studies
  - Policy E-24: Water quality monitoring protocol

- Water, Wastewater, and Stormwater Services (Chapter 8)
  - Municipal role for stormwater management (s. 8.4)
  - Water service areas (s. 8.5.1)
  - Private on-site sewage disposal systems (s. 8.5.2)
  - Groundwater supplies (s. 8.5.3)

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Water Quality Monitoring Framework

- 2003: Water Resources Management Strategy
- 2006: Water Quality Monitoring Program initiated
- 2006: RMPS Created Key Policies
  - Policy E-16: Watershed Studies Program
  - Policy E-18: WQM Functional Plan
- 2010: WQM Service Review
- 2012: WQM Program Suspended
- 2017: Current WQ Monitoring Activities

  - Municipal Beaches Program – 19 public beaches

  - Developer funded WQ monitoring under dev. agreement to track eutrophication process (Bedford West, Russell Lake, & Brunello Estates)

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Watershed Studies Framework

- Watershed Studies Program
  - Regional Plan designated development areas
  - 10 studies completed to date;
    - Sandy Lake, Preston Area, Shubenacadie River (Fall River & Port Wallace), Birch Cove Lakes, Tantallon, Porters Lake, Lake Echo, Musquodoboit Harbour, Hubbards
  - Each recommended water quality monitoring objectives and associated monitoring programs
  - Used as background technical information for community planning as needed

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Program Review Outcomes

- evidence-based decision-making for water quality monitoring
- more consistent application of watershed studies
- inform future Regional Plan and Secondary Plan updates
- clear water quality objectives with responsive monitoring program resourced accordingly
- WQ data management initiative to monitor effect of watershed protection measures over time
- Updated WQ measures and indicators
- More transparent and effective allocation of financial resources measured against policy outcomes

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