

# ***Development and Management of Sewage Outfalls Database***

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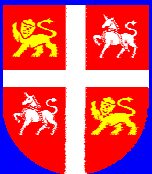


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# ***Topics To Be Covered***

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- **History of the Sewage Outfalls Database**
- **Database Records**
- **Database Information**
- **QA/QC Process and Results**
- **Wastewater Quality Information**
- **GIS Application**
- **Future Direction for Sewage Outfalls Database**

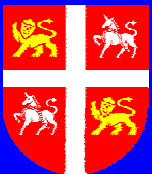


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# ***History/Drivers***

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- **1992 – Collection of data through files and selected site visits to communities/outfalls**
- **1994/95 - Auditor General identified this as a gap**
- **1997 – Sewage Outfalls Database was created**
- **Data in demand by a number of Federal and Provincial Departments (DFO, Coast Guard, Fisheries and Aquaculture)**



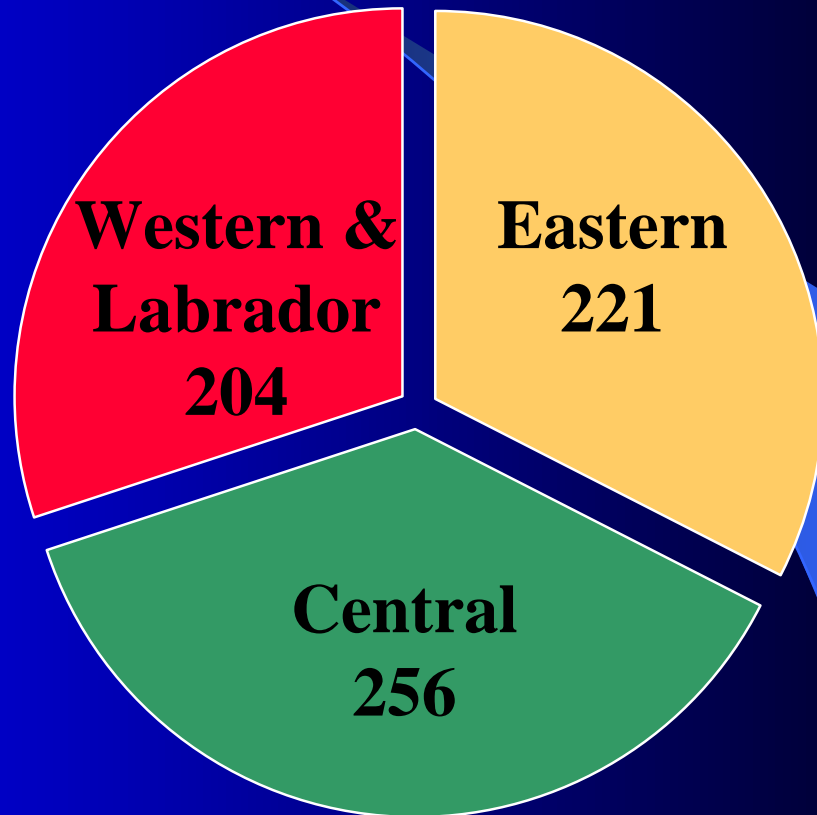
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# ***Database - Records***

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## ➤ **681 Records in the Database**

- **Each record represents a single outfall**



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# ***Database - Information***

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## **➤ Section 1 Outfall – Physical Description**

### **– Location**

- (region, coordinates, map information)

### **– Approval**

- (approval/permit #, drawing location)

### **– Outfall Info**

- (length, grade, water cover, pipe type, diameter)



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# ***Database - Information***

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## **➤ Section 1 Outfall – Physical Description (cont'd)**

### **– Armour**

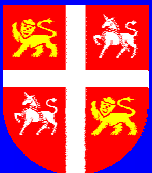
- (type of armour, if applicable)

### **– Flow**

- (hydraulic capacity, pumped/gravity, diffused/straight)

### **– Miscellaneous**

- (# of hook-ups, avg. & peak loadings, outfall condition)



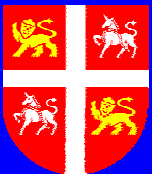
# ***Database - Information***

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## **➤ Section 2 – Sensitivity of Receiving Waterbody**

### **– Water**

- Type of Receiving Water (salt, estuary, freshwater)**
- Type of Receiving Waterbody (open ocean, harbour, bay, lake, stream)**
- Fish Plant Intake Present**



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# ***Database - Information***

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- **Section 2 – Sensitivity of Receiving Waterbody (cont'd)**
  - **Aquaculture/Fishing Present**
    - shellfish, other, and kelp
    - Distance to each, if applicable
  - **Tourism/Recreation**
    - tourist attraction, salmon river, cabins/campgrounds, swimming beach
    - Distance to each, if applicable



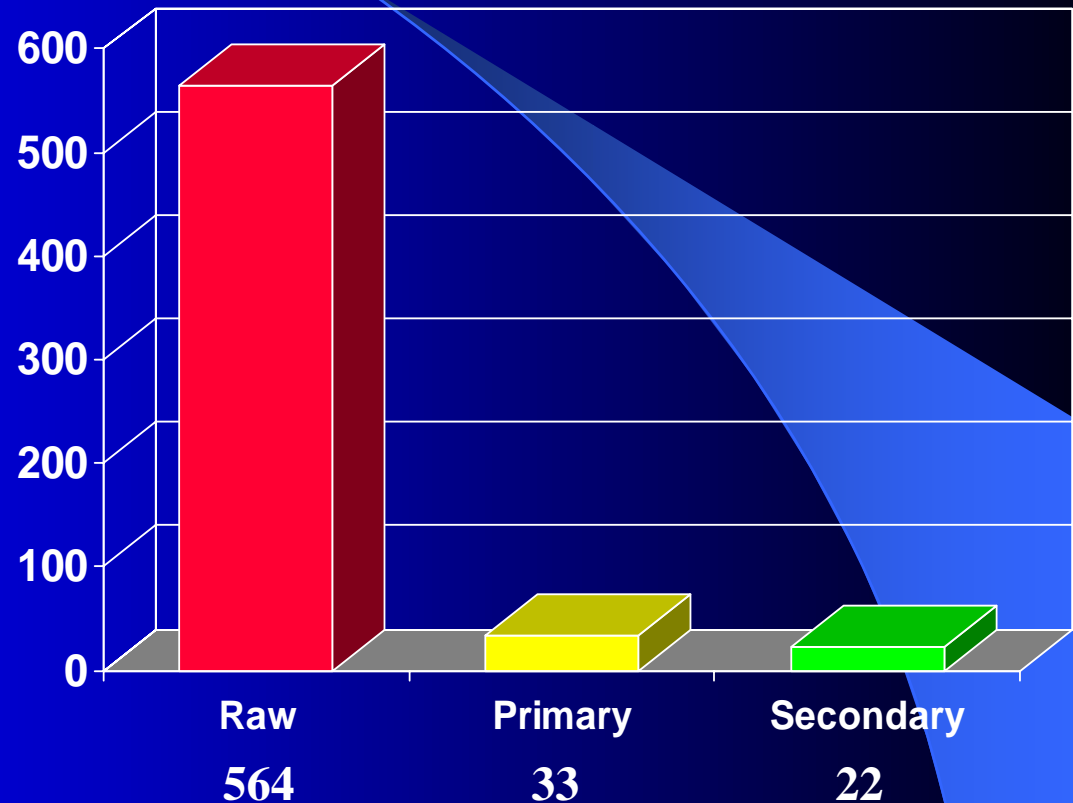
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# Database - Information

## ➤ Section 3 – Treatment Level

- raw,
- primary,
- secondary,
- tertiary,
- chlorinated,
- dechlorinated,
- UV,
- other



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# ***Database - Information***

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## **➤ Section 4 - Remarks**

- This space is available for any additional noteworthy information or comments**

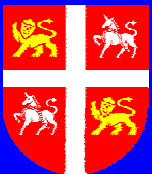


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# ***QA/QC Process***

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- **Joint project between DFO and DOEC**
- **Initiated in March 2004**
- **This Process will verify the following;**
  - **that we have records for all outfalls in the Province**
  - **that the records we have in the database are correct**



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# ***QA/QC Process - Results***

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- **Verification of outfalls in the Eastern Region is nearing completion**
- **Database will now have links to pictures collected by DFO of individual outfalls**
- **The process has resulted in the need for some additional ground-truthing exercises.**

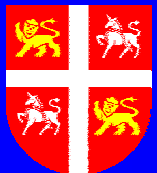


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# ***Wastewater Quality Data***

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- **Historical wastewater influent and effluent data has been collected by Regional Staff at various outfalls;**
  - **pH, TSS, BOD, ammonia, total coliform, fecal coliform, etc.**
- **Available data will be linked to the Sewage Outfalls Database**
- **Emerging need for on-going monitoring due to provincial and federal regulatory tools**

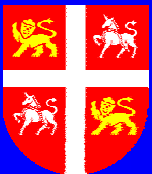


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# ***Information Sharing***

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- **Database will be converted into a GIS Format**
- **Similar to Drinking Water Quality GIS**
- **1<sup>st</sup> phase will be internal**
- **2<sup>nd</sup> phase will be external**

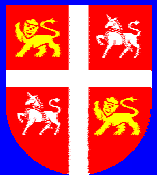


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# ***Need for GIS Application***

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- **Future of Information Sharing**
- **Enterprise Level Database Management**
  - Information security
  - Departmental/Government level sharing
  - Increased processing ability/efficiency
  - Government IT Standards and Protocols

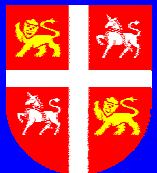


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# ***Need for GIS Application (cont'd)***

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- **Provincial Geomatics Strategy**
  - Obligation
  - Advantage (Data from other agencies)
- **Integrated Resource Management**
- **Spatial Analysis**
  - **Exploit Spatial Nature of Environment Data**



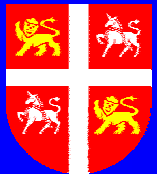
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# ***Need for GIS Application (cont.)***

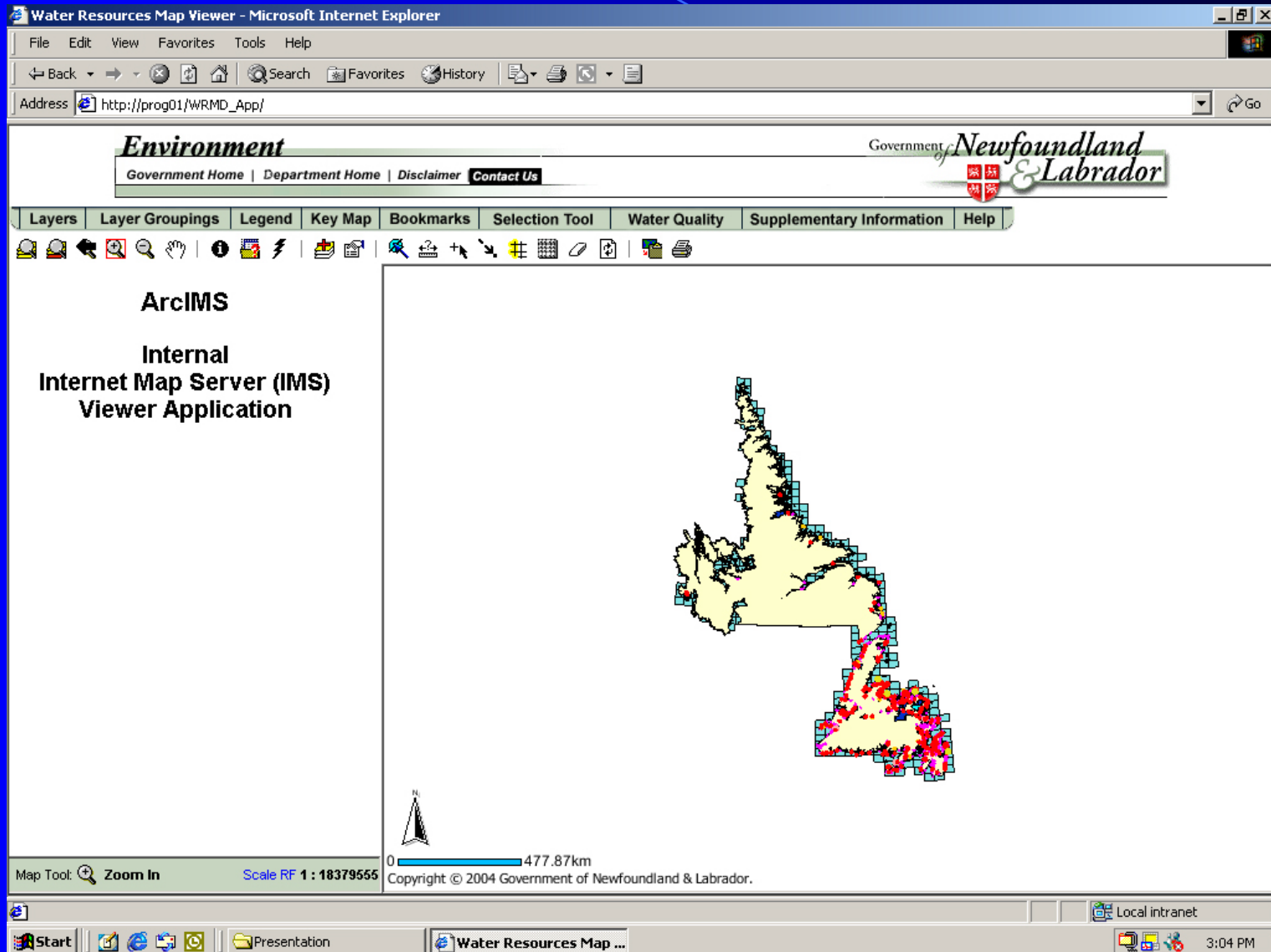
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- **Increased analytical ability for staff**
- **Real Time/Dynamic Public Reporting**
- **Easy access by Regional Offices**
- **Repository for Institutional Knowledge**
  - **Incidents/Historical Information**
  - **Inspections**
  - **Photos**



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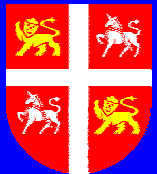
# Examples of Functionalities



# ***Examples of Functionalities (cont'd)***

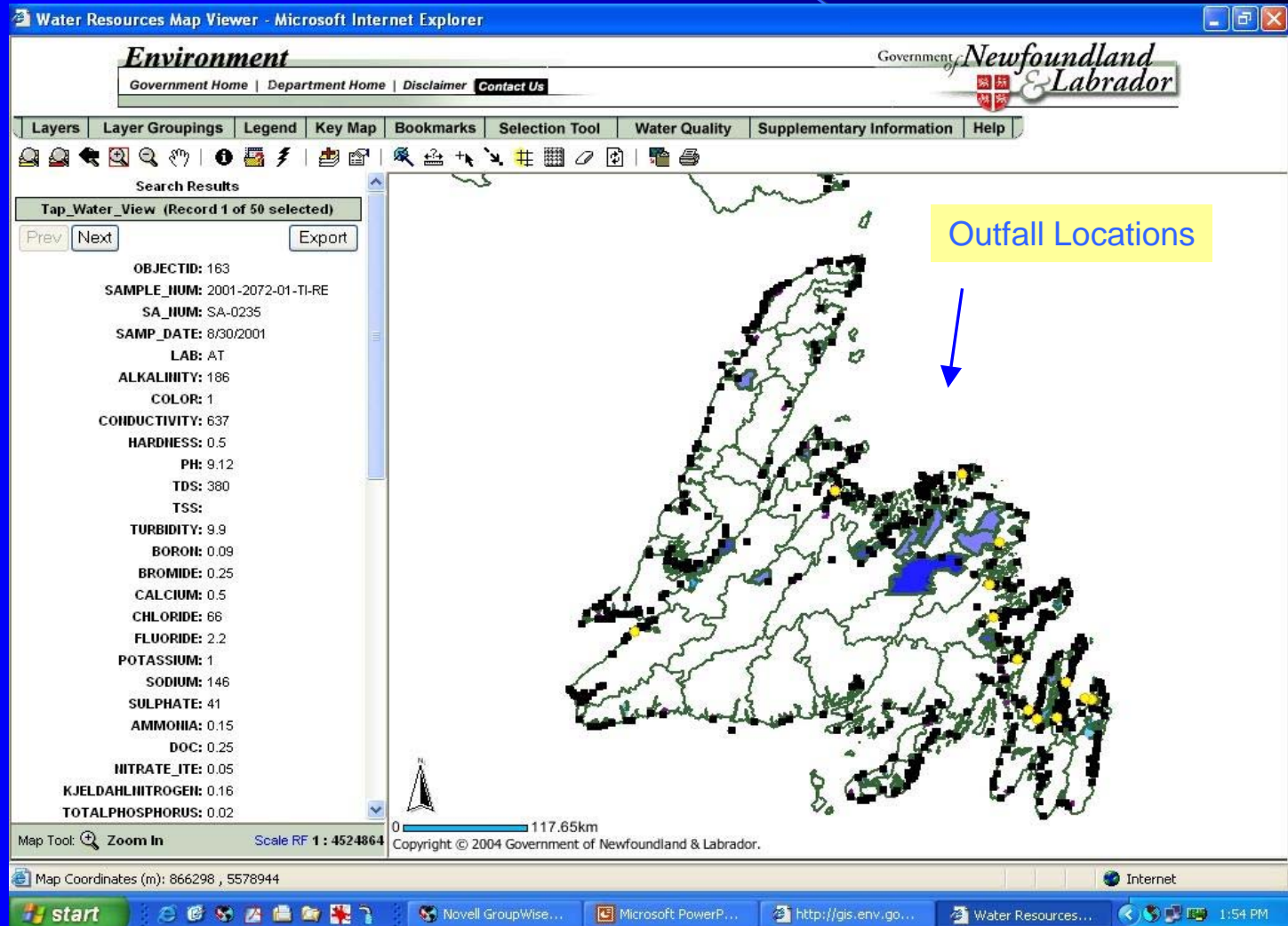
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- It will have a user-friendly custom query tool that allows the user to analyse the data in detail. **Example: “where is pipe diameter >200mm”**
  - The resulting locations will be shown on a map as yellow dots (map can be printed)
  - The relevant locations will be shown in a table and can be exported to Excel



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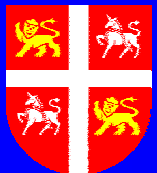
# Locations where Pipe Diameter is >200 mm



# ***Examples of Functionalities***

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- **Photo management system will allow storage and query of digital photos**
- **Store and display historical notes, incident notes, and inspection reports**
  - **Regional Staff will be able to directly enter these notes into the application using the Internet Explorer browser**
- **Display DWQ, tertiary watersheds, climate, hydrometric and WQMA stations**

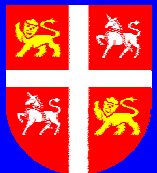


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# ***Examples of Functionalities (cont'd)***

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- **Will have the ability to automatically add GIS information from other agencies like MAPA**
- **For example, topographic maps are available in real time from the Surveys and Mapping Division**



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# Map Service for Topographic Maps

Water Resources Map Viewer - Microsoft Internet Explorer

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Layers | Layer Groupings | Legend | Key Map | Bookmarks | Selection Tool | Water Quality | Supplementary Information | Help

**Add Map Service**

Add Topographic Layer

Server URL or IP Address:

Server Port: 5300

List Services

Available Services

Add Service

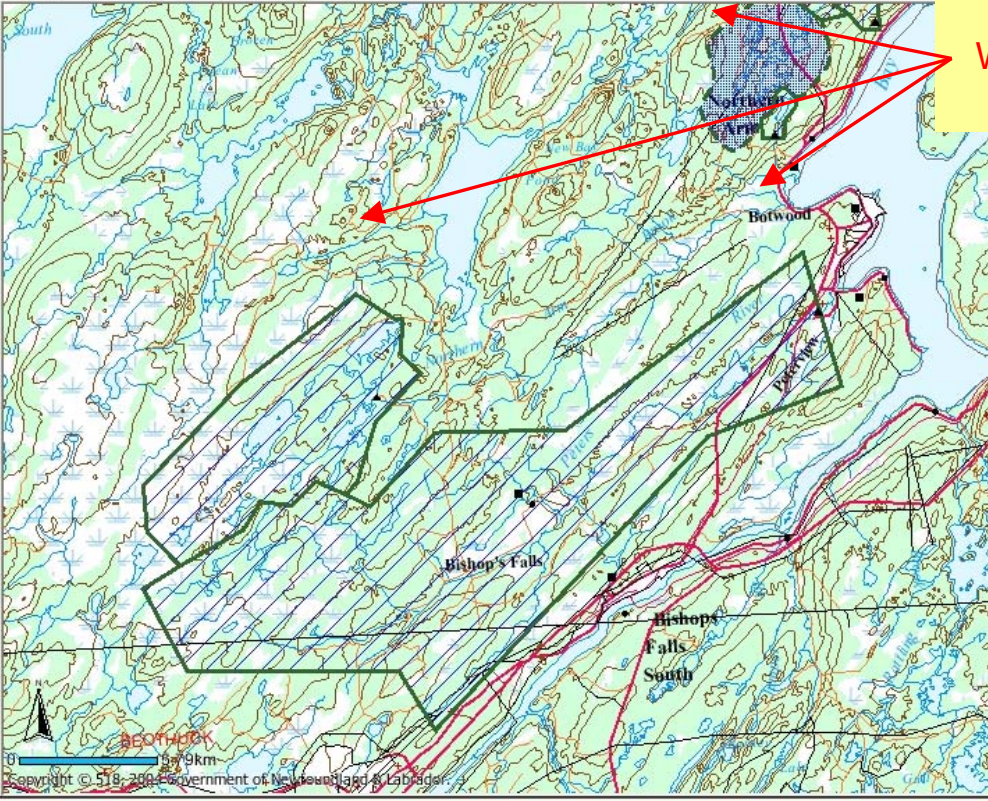
**Service Management**

Environment\_SDE  
SMD\_RESOURCE\_MAPS\_GNL1

Move Up | Move Down | Remove

Map Tool: Zoom In | Scale RF 1 : 222671

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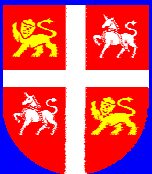
Protected Water Supply Areas

start | DWQ | DWQ-Final : Database | Water Resources Ma... | 2:46 PM

# ***Future Direction***

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- **All records in the database will be verified**
- **Missing data will be collected through ground-truthing activities**
- **Database will be updated on an on-going basis**
- **DOEC and DFO will continue to share information regarding outfalls**
- **Database will be made accessible to the public and any other interested stakeholders**



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# ***Future Direction (cont'd)***

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- **GIS Database**
- **GIS Database available to stakeholders**
- **Database will service as a core source of information for municipal wastewater management (pollution prevention, wastewater treatment)**



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# ***Conclusions***

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**What additional information would you like to see in the Sewage Outfalls Database and GIS Application?**

Questions/Comments



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