

# Newfoundland and Labrador Water Resources Web Portal

Amir Ali Khan and Paul Neary

# What is a Web Portal

- A Internet web page
- “A web portal presents information from diverse sources in a unified way.”
- “Portals provide a way for enterprises to provide a consistent look and feel with access control and procedures for multiple applications, which otherwise would have been different entities altogether.”

[http://en.wikipedia.org/wiki/Web\\_portal](http://en.wikipedia.org/wiki/Web_portal)

- This is a GIS Web Portal

# Geographic Information System (GIS)

- A computer system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically-referenced information
- In other words – Computerized Mapping
- Almost all environmental data has a location that can be shown on a map
  - For example, map coordinates for a sampling location

# Version 1.0

## The DWQ GIS Application

- **Internal** Application “*went live*” in May 2004
  - Original plan was for a public version
- Winner of ESRI Canada 2005 Award of Excellence
- Over the past three years improvements have been made and new water resources datasets have been added
- Was demonstrated in the 2007 Workshop

# The Water Resources Web Portal

- **April 2008**
  - Federal GeoConnections funding was obtained to make a public portal
  - Partners and other funding contributors:
    - Office of the Chief Information Officer (OCIO)
    - Model Forest of Newfoundland and Labrador
  - Other partners:
    - City of Corner Brook
    - Steady Brook Watershed Management Committee
    - Town of Gander
    - Memorial University of Newfoundland and Labrador

# Project Purpose

- Create a web portal to make available to decision makers various location based water resources data for the province.
- Integrate and overlay the various water resources data sources and services, to improve decision making by the Department and various other stakeholders including industry, municipalities, federal agencies, academia, recreational users and special interest groups.

# Project Data

- Examples of water resources data will include:
  - Drinking water quality data, source water protection areas for ground and surface water sources, boil water advisories
  - Background water quality data, station profiles and watersheds
  - Real time Water Quality and Stream Flow data with station locations
  - Dam locations, sewage outfalls and ecozones
  - Topographic maps

# Project Status

- To be completed by March 31, 2009
- At this time in final security review
- The OCIO has a process in place for updates and enhancements
- This portal will be the primary location for release of future datasets such as:
  - Flood Risk Mapping
  - Environmental Permits
  - OETC Infrastructure Information



# Portal Page

## Department of Environment & Conservation Water Resources Portal Home Page


[Map Services](#)
[Reports](#)
[Query](#)
[Help](#)

### Mapping Application

#### [Open Water Resources Map Viewer](#)



The Water Resources Portal displays a wide variety of water resources data to assist in decision making. Water resources data available in the portal includes: drinking water quality data and treatment profiles; protection areas for ground and surface water supplies; boil water advisories; ambient water quality data, station profiles and watersheds; real time water quality data; hydrometric station data and station profiles; climate station profiles; dam locations and sewage outfall locations

### Community Water Resources Reports

Select a community from the drop down list and click "View Community Reports" to see the available water resources reports.

Select Community:

### Current Boil Advisories

#### [Boil Advisories](#)



Current Boil Advisories in effect.

## Community Water Resources Reports

Select a community from the drop down list and click "View Community Reports" to see the available water resources reports.

Select Community:

## Current Boil Advisories

### [Boil Advisories](#)

Current Boil Advisories in effect.

## Public Water Supplies

### [Public Water Supplies List](#)

Report listing all public water supplies.

## Ad Hoc Queries

### [Queries](#)

The ad hoc query function allows the user to select up to three database fields and conditions from the drinking water quality tables and view the results.



## Department of Environment and Conservation Water Resources Map Viewer



### Help with the Department of Environment & Conservation Water Resources Map Viewer

#### Available Help Topics

- [FAQ](#)
- [Help Videos](#)
- [Documents and Manuals](#)
- [Glossary of Terms](#)

## FAQ

- What is the preferred screen resolution for using the Water Resources Map Viewer?  
- 1024 x 768
- What are the supported browsers for the map viewer?  
- Internet Explorer 6, Internet Explorer 7, Mozilla Firefox.
- The export image tool doesn't open, even after pop up blockers are disabled?  
- You will need to change security settings within Internet Explorer. Please see our [help](#) document for instructions.

[Back to Top](#)

## Help Videos

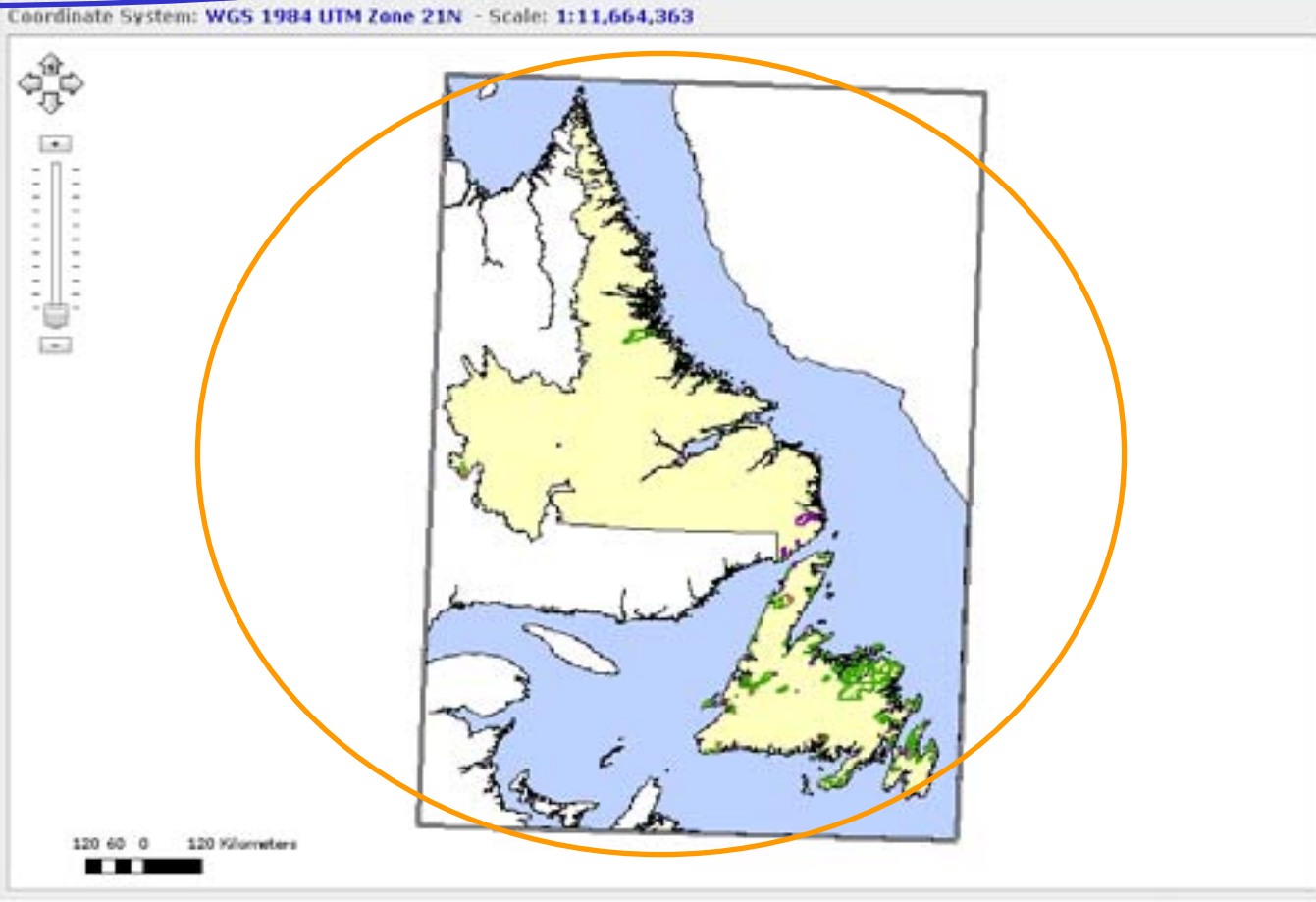
- How to view feature attributes: [Identify](#)
- How to measure point, lines and polygons: [Measure](#)
- How to add a label to the map: [Creating Labels](#)

# Map Page

# Water Resources Portal

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  - Climate Stations
  - Intakes / Wellheads
  - Diversion Pipelines
  - Public Water Supplies
  - WQMA Watersheds
  - Drainage Outside Protected
  - ELUC Water Supplies
  - Tertiary Drainage
- BaseMap
  - Base Map
  - NTS 250K
  - NTS 50K



# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

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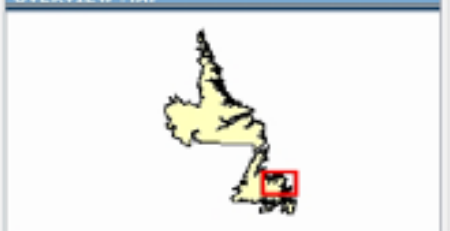
- WaterResources
  - Labels
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  - Communities
  - Dams
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  - WQMA Stations
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- ACCORDIAN MENU
- OVERVIEW MAP
- RESULTS
- REPORTS

Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:986,255



### OVERVIEW MAP





# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

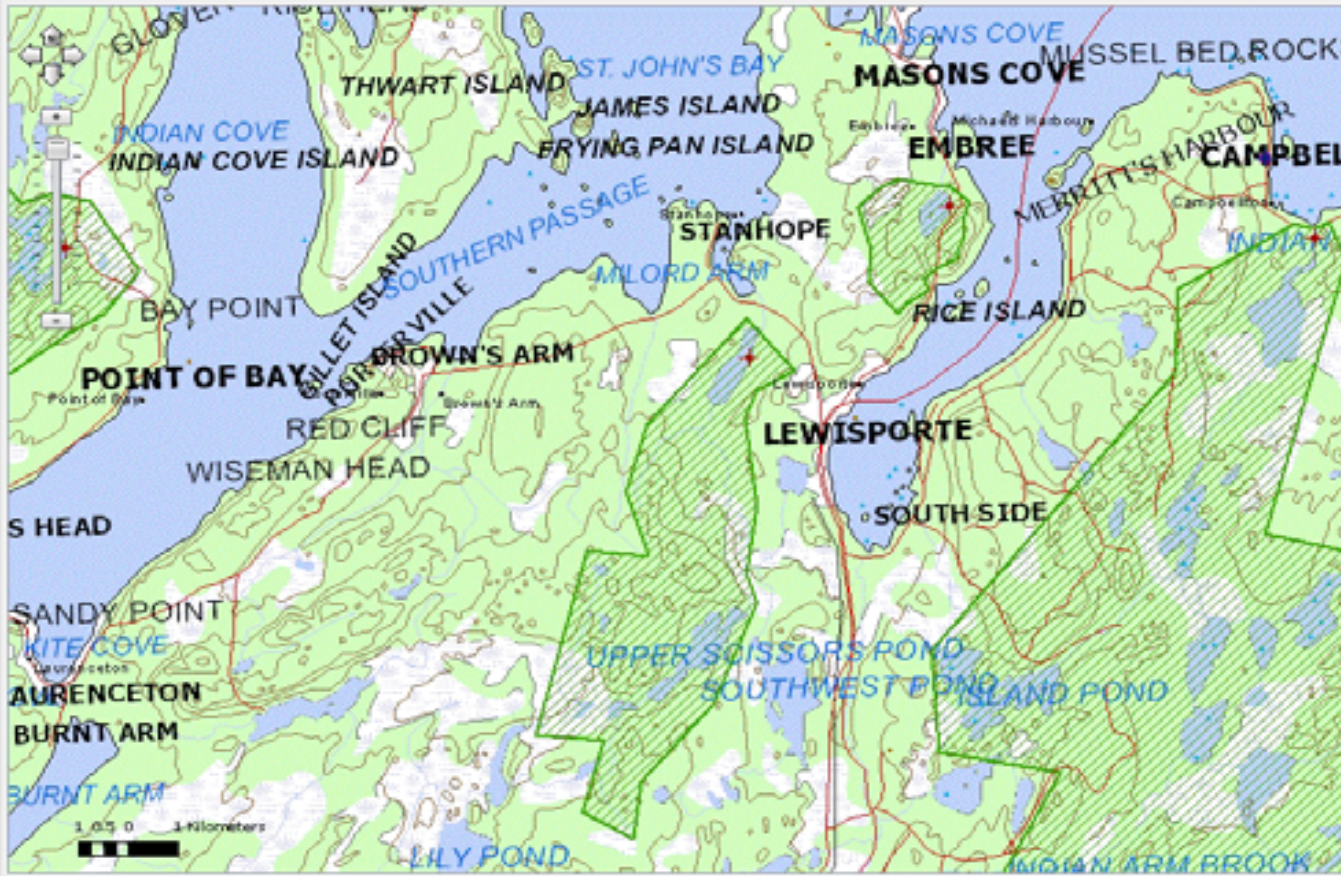
## TABLE OF CONTENTS

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    - Wellheads
    - Intakes
  - Diversion Pipelines
  - Public Water Supplies
  - WQMA Watersheds
  - Drainage Outside Protected
  - ILUC Water Supplies
  - Tertiary Drainage
- BaseMap

## OVERVIEW MAP



Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464

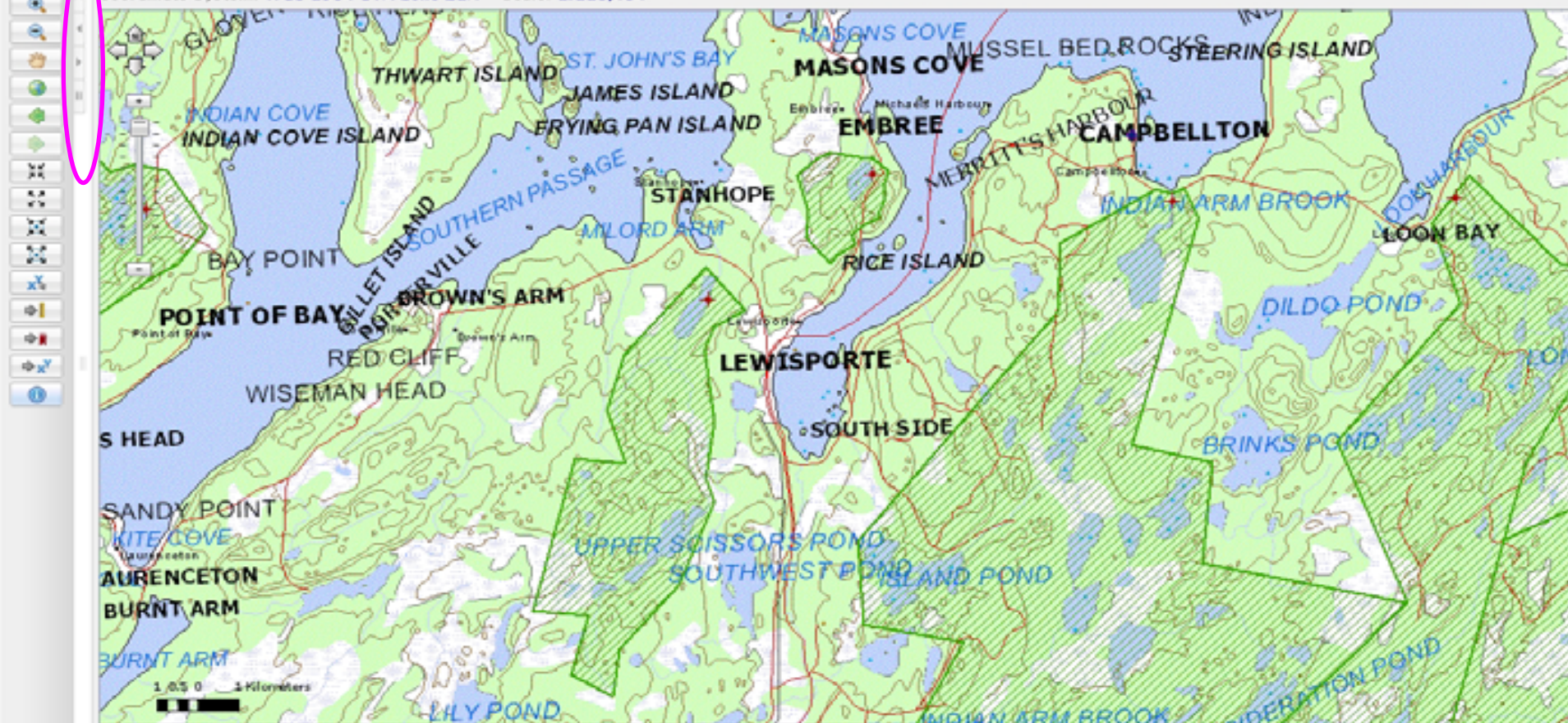




### Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



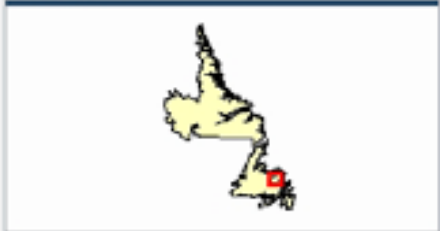
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- RaceMan

## OVERVIEW MAP



Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



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- RaceMan

## OVERVIEW MAP



Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:10,326



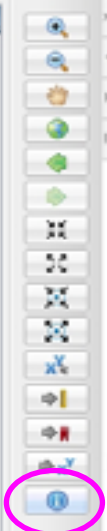
0.1005 0 0.1 Kilometers

# Identify and Reports

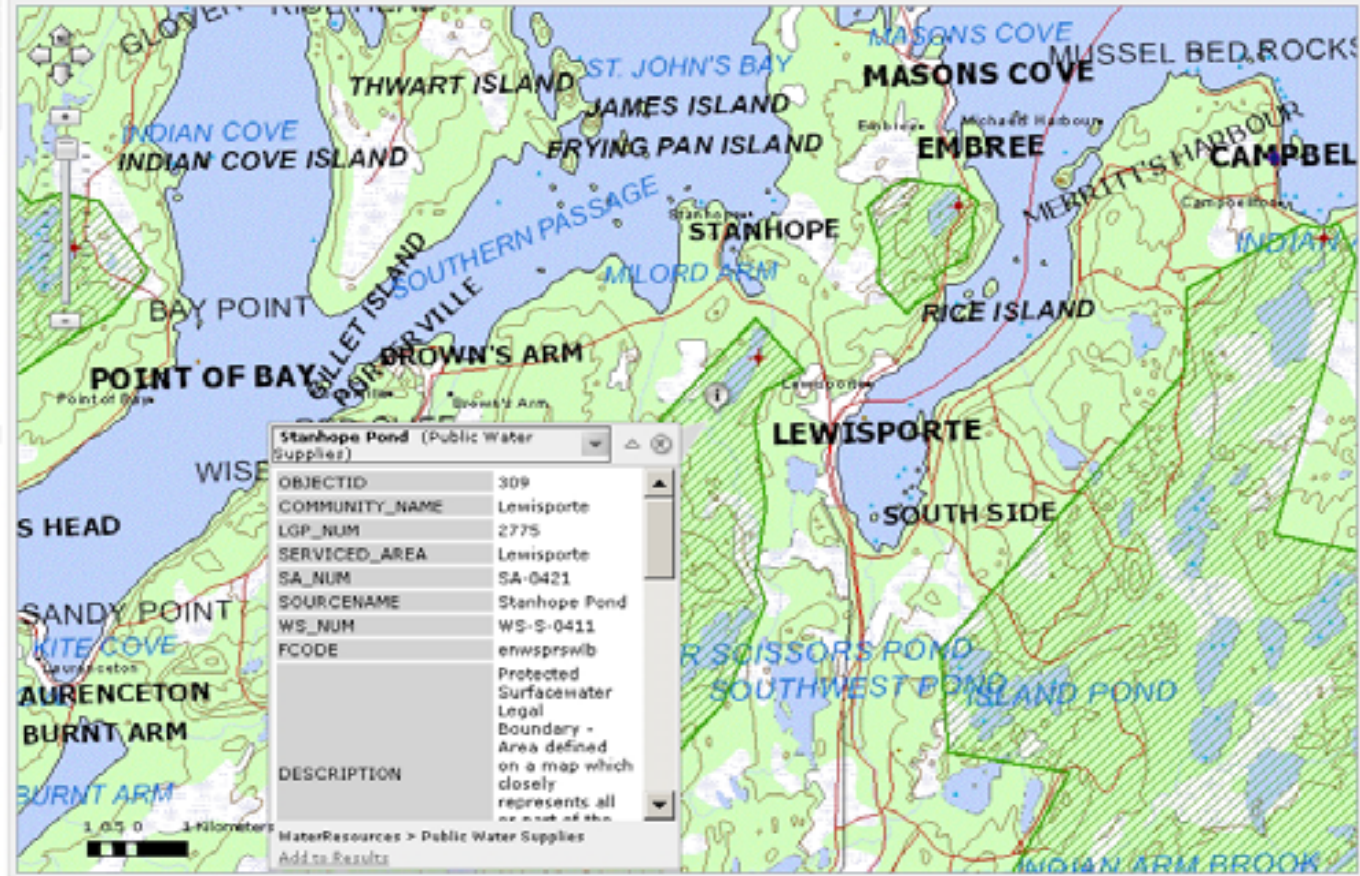
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  - Tertiary Drainage
- BaseMap
  - Base Map
  - NTS 250K
  - NTS 50K



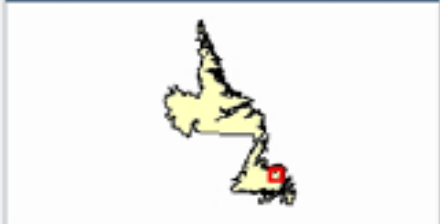
Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



Stanhope Pond (Public Water Supplies)	
OBJECTID	309
COMMUNITY_NAME	Lewisporte
LGP_NUM	2775
SERVICED_AREA	Lewisporte
SA_NUM	SA-0421
SOURCENAME	Stanhope Pond
WS_NUM	WS-S-0411
FCODE	enwsprswb
DESCRIPTION	Protected Surfacewater Legal Boundary - Area defined on a map which closely represents all or most of the

WaterResources > Public Water Supplies  
Add Results

## OVERVIEW MAP



## Water Resources Portal

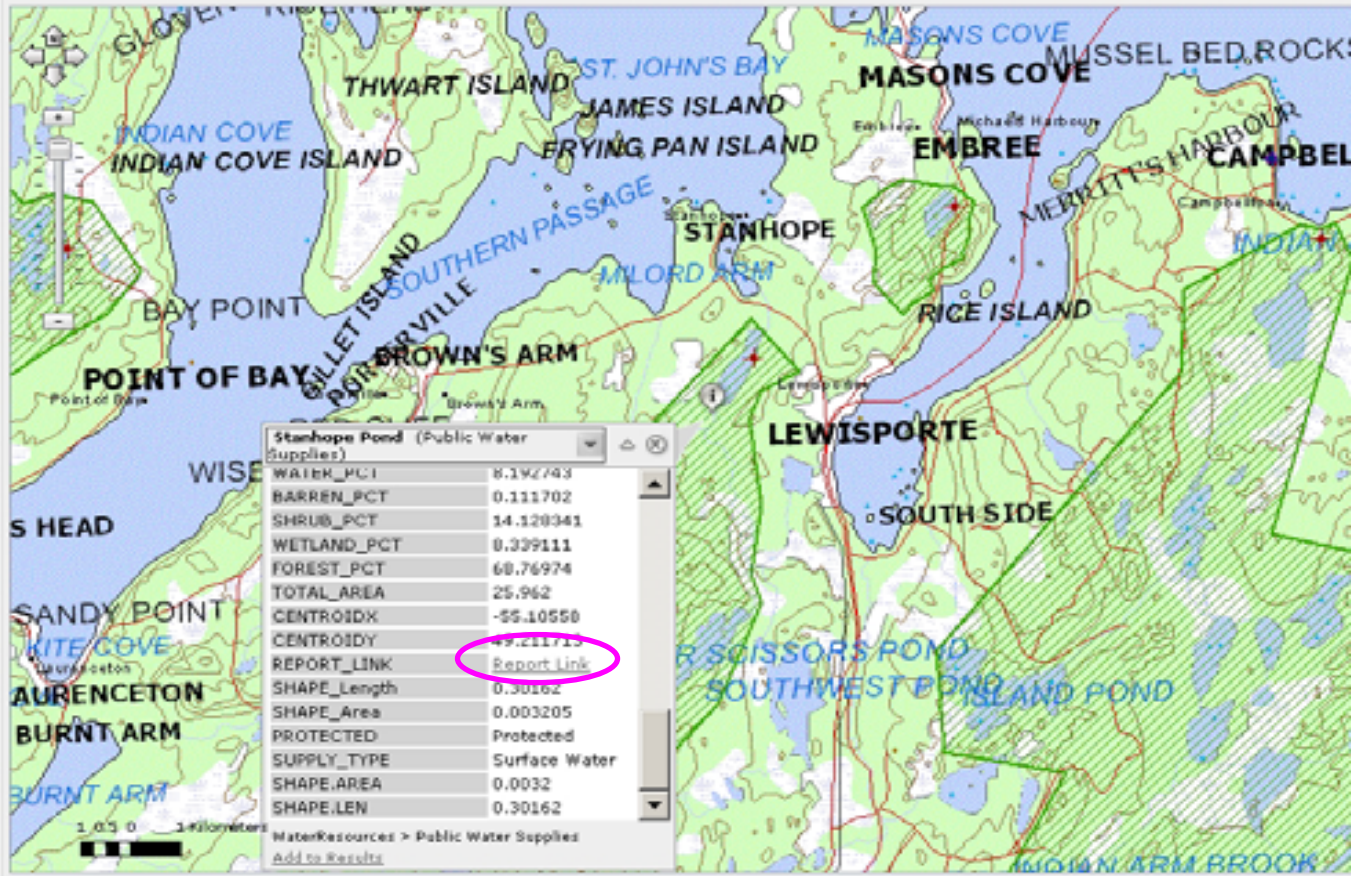
MAP VIEW SELECTION TOOLS PREFERENCES

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OVERVIEW MAP

Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464





# Department of Environment and Conservation Water Resources Portal



Select Report: BDCM All Line Data

View Report

- BDCM All Line Data
- Drinking Water Quality Index
- HAA All Line Data
- HAA's Summary
- Langelier Index
- Source Water Nutrients and Metals
- Source Water Physical Parameters and Major Ions
- THM All Line Data
- THMs Summary
- Tap Water Nutrients and Metals
- Tap Water Physical Parameters and Major Ions

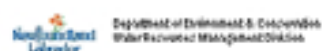


## Department of Environment and Conservation Water Resources Portal

Select Report:

Main Report

Lewisporte



### Tap Water Quality for Public Water Supplies Physical Parameters and Major Ions

Sample Date	Alkalinity	Color	Conductivity	Hardness	pH	TDS	TSS	Turbidity	Boron	Bromide	Calcium
Unit	mg/L	TCU	µS/cm	mg/L		mg/L	mg/L	NTU	mg/L	mg/L	mg/L
Guidelines for Canadian Drinking Water Quality (see Table 1.0, Table 1.1 or Table 1.2)											
Community Name: Lewisporte Service Area: Lewisporte Supply Name: Stanhope Pond											
Nov 10, 2005	15.00	23	52.0	10.00	6.9	31		0.00	0.00	0.00	5.40
May 25, 2005	11.00	30	45.0	14.00	7.0	25		0.00	0.00	0.00	4.30
Jul 17, 2005	10.00	21	61.0	10.00	6.7	28		0.20	0.00	0.00	5.40
Oct 07, 2005	13.00	24	59.0	21.00	6.9	30		0.00	0.00	0.00	6.30



# Identify and Results



# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

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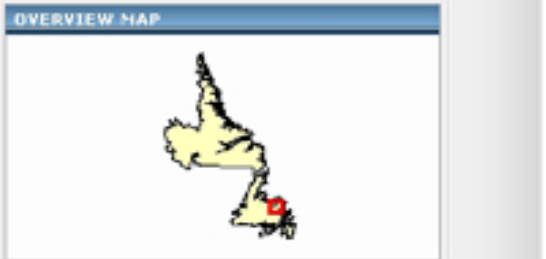
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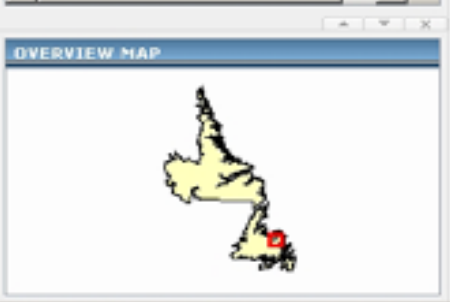
RESULTS TABLE



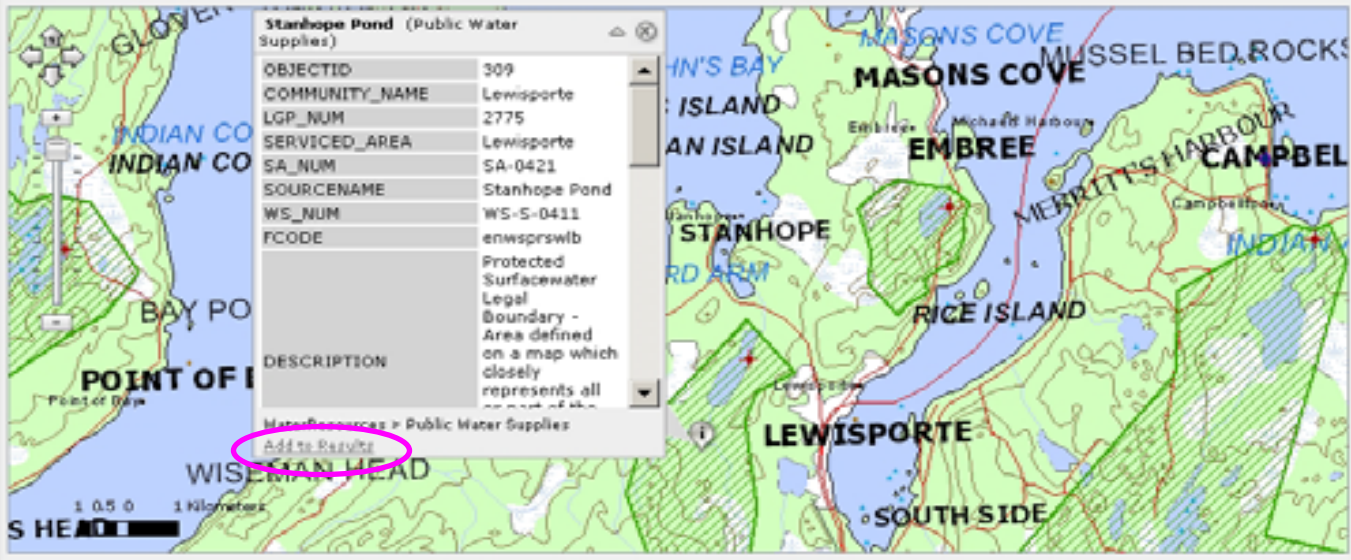
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Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



**RESULTS** TABLE

OBJECTID	COMMUNITY_NAME	LGP_NUM	SERVICED_AREA	SA_NUM	SOURCENAME	WS_NUM	FCODE	DESCRIPTION
309	Lewisporte	2775	Lewisporte	SA-0421	Stanhope Pond	WS-S-0411	enwsprswb	Protected Surfacewater Legal Boundary - Area defined on a map which closely represents all part of the

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Map navigation tools including pan, zoom, and layer controls.

Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464

**Starhope Pond (Public Water Supplies)**

OBJECTID	309
COMMUNITY_NAME	Lewisporte
LGP_NUM	2775
SERVICED_AREA	Lewisporte
SA_NUM	SA-0421
SOURCENAME	Starhope Pond
WS_NUM	WS-S-0411
FCODE	enwsprswb
DESCRIPTION	Protected Surfacewater Legal Boundary - Area defined on a map which closely represents all or part of the catchment area for a



**OVERVIEW MAP**

RESULTS TABLE

Export to: **CSV** [Clear Table](#)

RECORD #	ACTIONS	OBJECTID	COMMUNITY_NAME	LGP_NUM	SERVICED_AREA	SA_NUM	SOURCENAME	WS_NUM	FCODE	DESCRIPTION	SUPPLYST
1		309	Lewisporte	2775	Lewisporte	SA-0421	Starhope Pond	WS-S-0411	enwsprswb	Protected Surfacewater Legal Boundary - Area defined on a map which closely represents all or part of the catchment area for a	Public

# Select by Values

# Water Resources Portal

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- SELECT BY ATTRIBUTE
- SELECT COMMUNITY
- SELECT WATER SUPPLY
- SELECT BY FEATURE BUFFER
- SELECT BY LOCATION
- SELECT BY MULTIPLE POINTS
- SELECT BY POINT BUFFER



WGS 1984 UTM Zone 21N - Scale: 1:115,464



## OVERVIEW MAP



# Water Resources Portal

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  - Climate Stations
  - Intakes / Wellheads
    - Wellheads
    - Intakes
  - Diversion Pipelines
  - Public Water Supplies
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  - Tertiary Drainage
- BaseMap



Coordinate System: NAD83 / UTM Zone 18N Scale: 1:115,464

### Select By Attribute

**Input Layer**  
Layer: Public Water Supplies

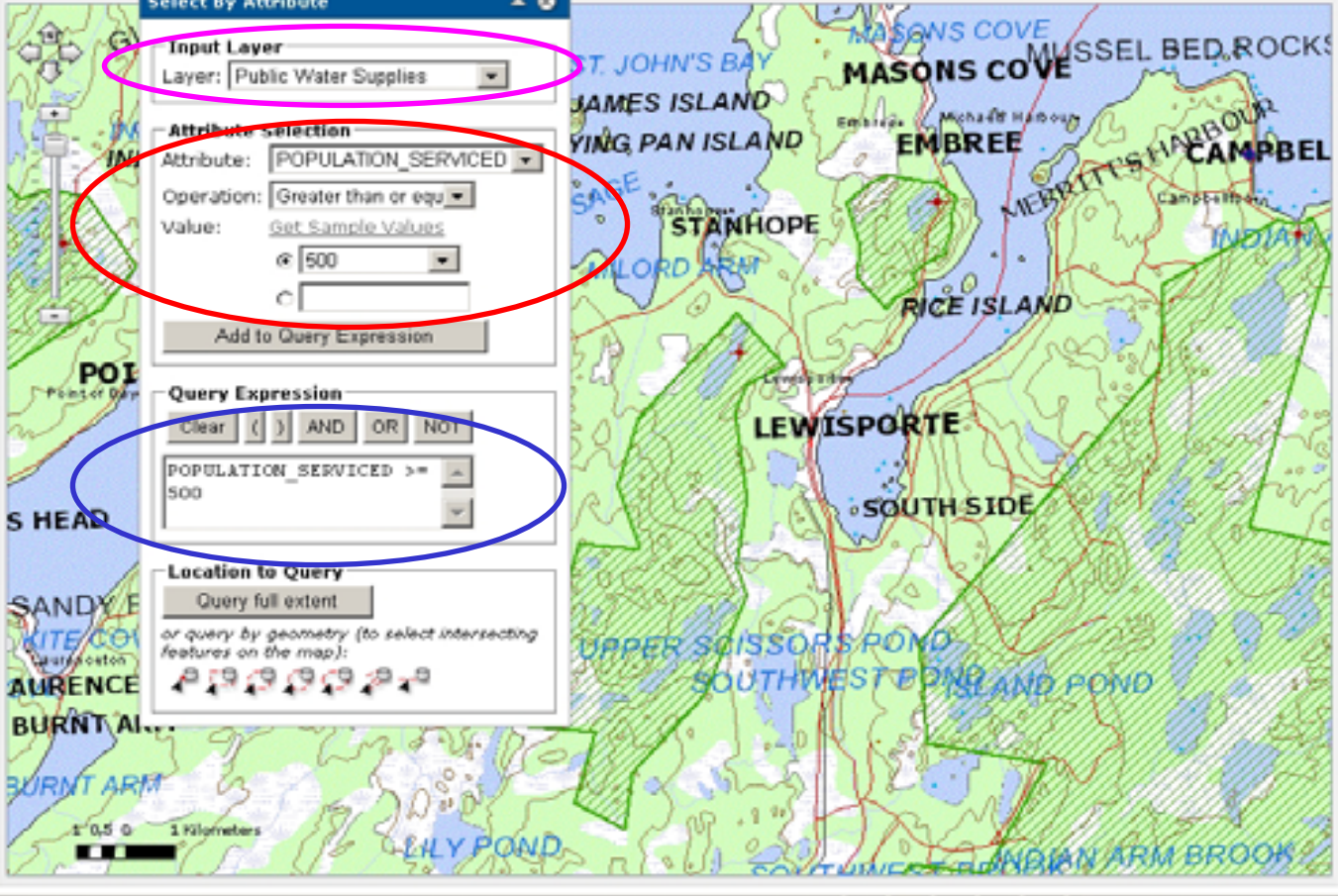
**Attribute Selection**  
Attribute: POPULATION\_SERVICED  
Operation: Greater than or equal  
Value: Get Sample Values  
500

Add to Query Expression

**Query Expression**  
Clear ( ) AND OR NOT  
POPULATION\_SERVICED >= 500

**Location to Query**  
Query full extent

or query by geometry (to select intersecting features on the map):



## Water Resources Portal

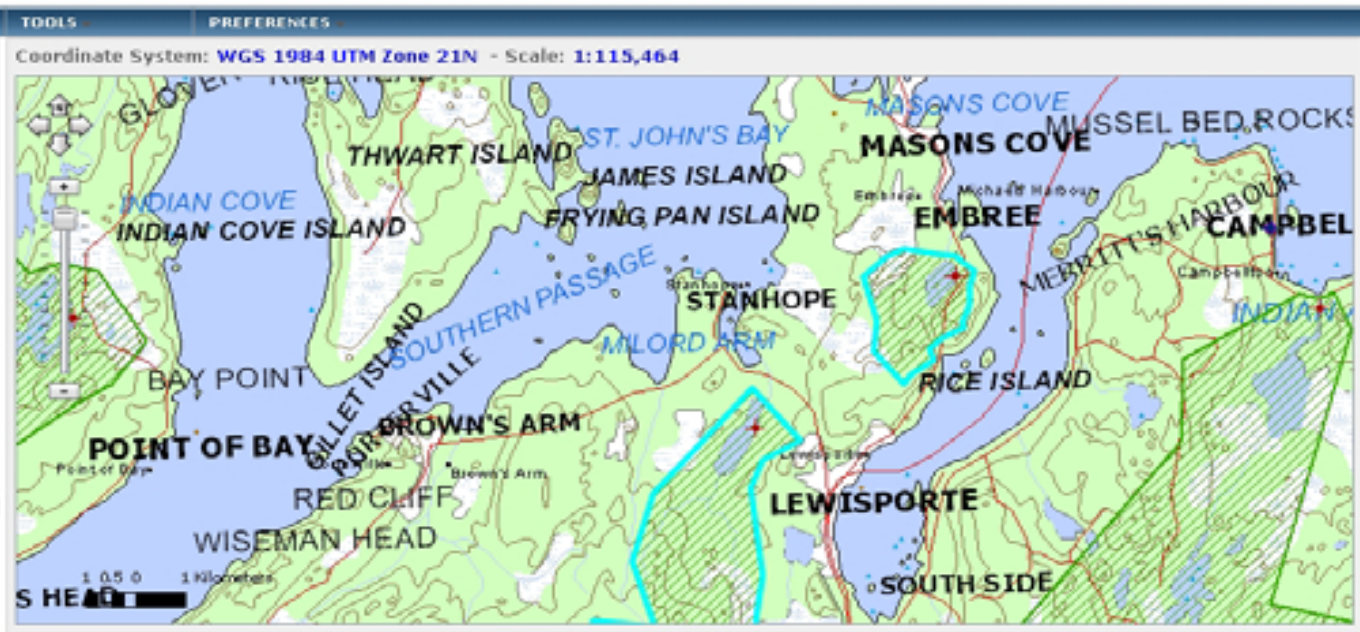
**Select By Attribute**

**Input Layer**  
 Layer: Public Water Supplies

**Attribute Selection**  
 Attribute: POPULATION\_SERVICED  
 Operation: Greater than or equal to  
 Value: Get Sample Values  
 500

**Query Expression**  
 Clear ( ) AND OR NOT  
 POPULATION\_SERVICED >= 500

**Location to Query**  
 Query full extent  
 or query by geometry (to select intersecting features on the map):



**RESULTS TABLE**

17		77	Embree	1515	Embree (4 Little Burnt Bay)	SA-0234	Troke's Cove Pond	WS-0-0226	enwsprrvb	Legal Boundary - Area defined on a map which closely represents all or part of the catchment area for a water supply Protected Surfacewater Panel	Public
----	--	----	--------	------	-----------------------------	---------	-------------------	-----------	-----------	---	--------



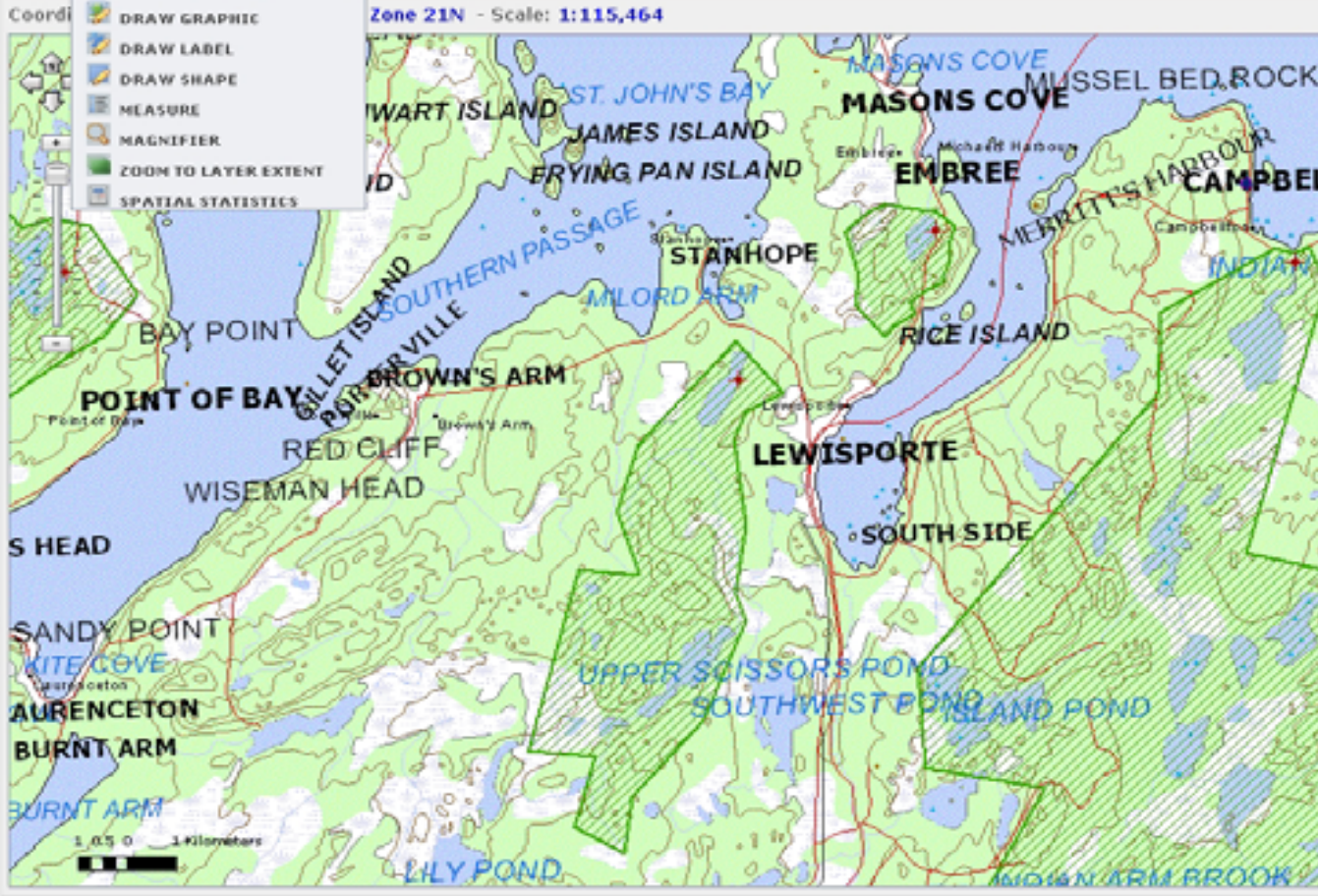
# Draw on the Map

### Water Resources Portal

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## OVERVIEW MAP



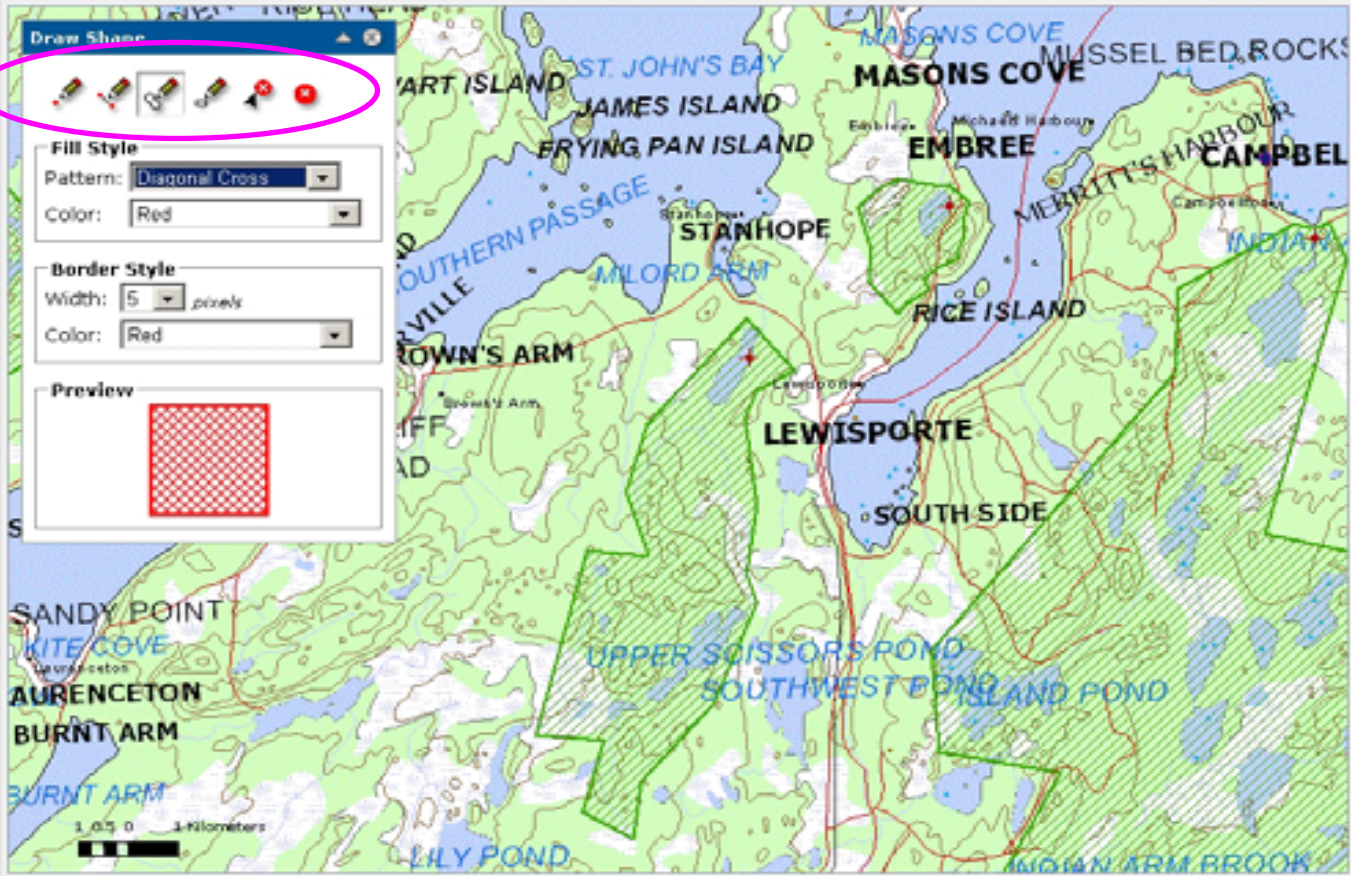
Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464

**Draw Shape**

**Fill Style**  
 Pattern: Diagonal Cross  
 Color: Red

**Border Style**  
 Width: 5 pixels  
 Color: Red

**Preview**



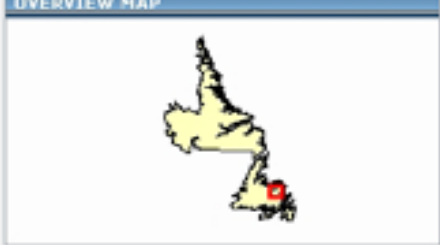
# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

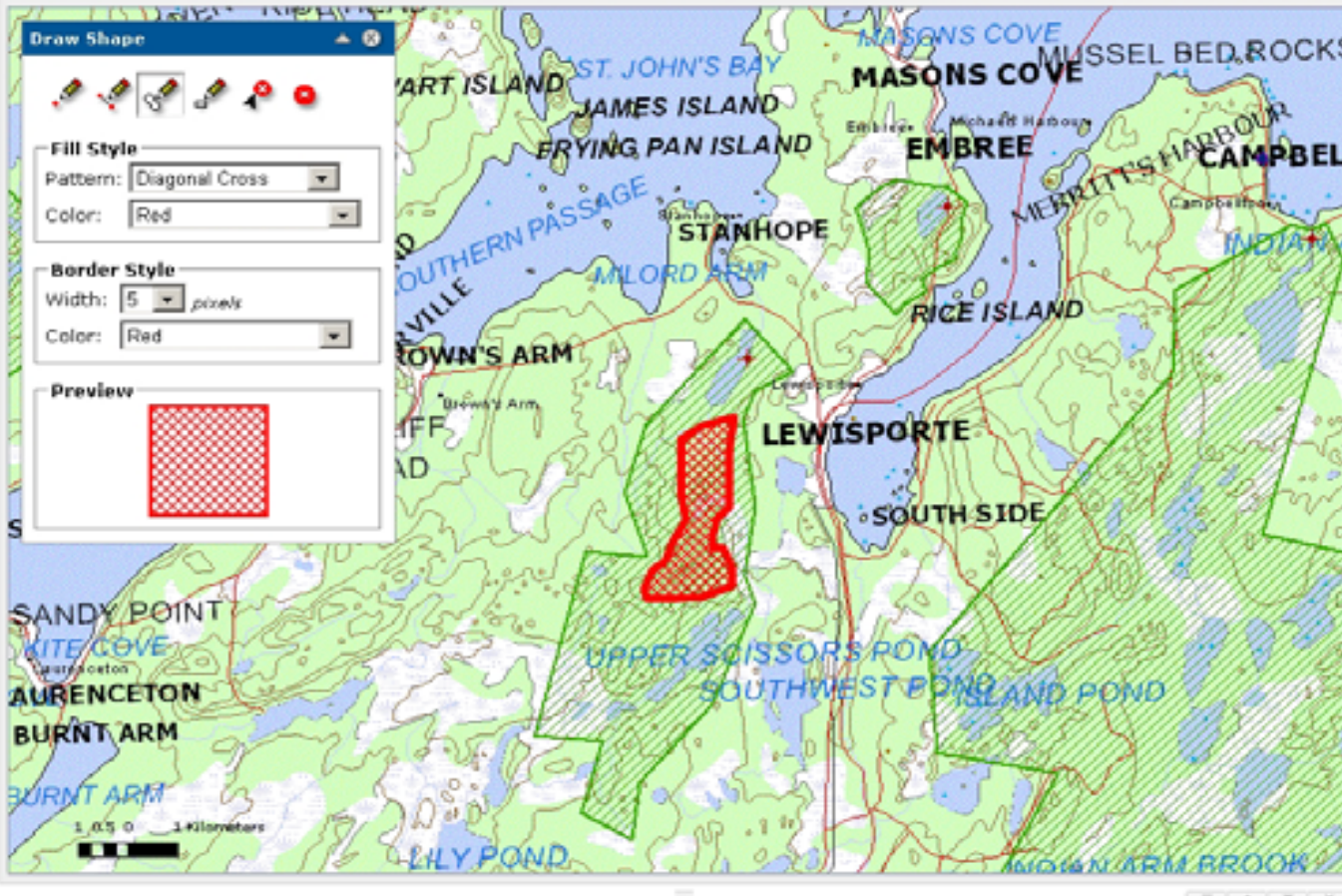
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## OVERVIEW MAP



Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



# Print a Map



# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

- TABLE
- PRINT
- EXPORT (IMAGE)
- ADD MAP RESOURCE
- MANAGE MAP RESOURCES
- Communities
- Dams
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- WQMA Stations
- Climate Stations
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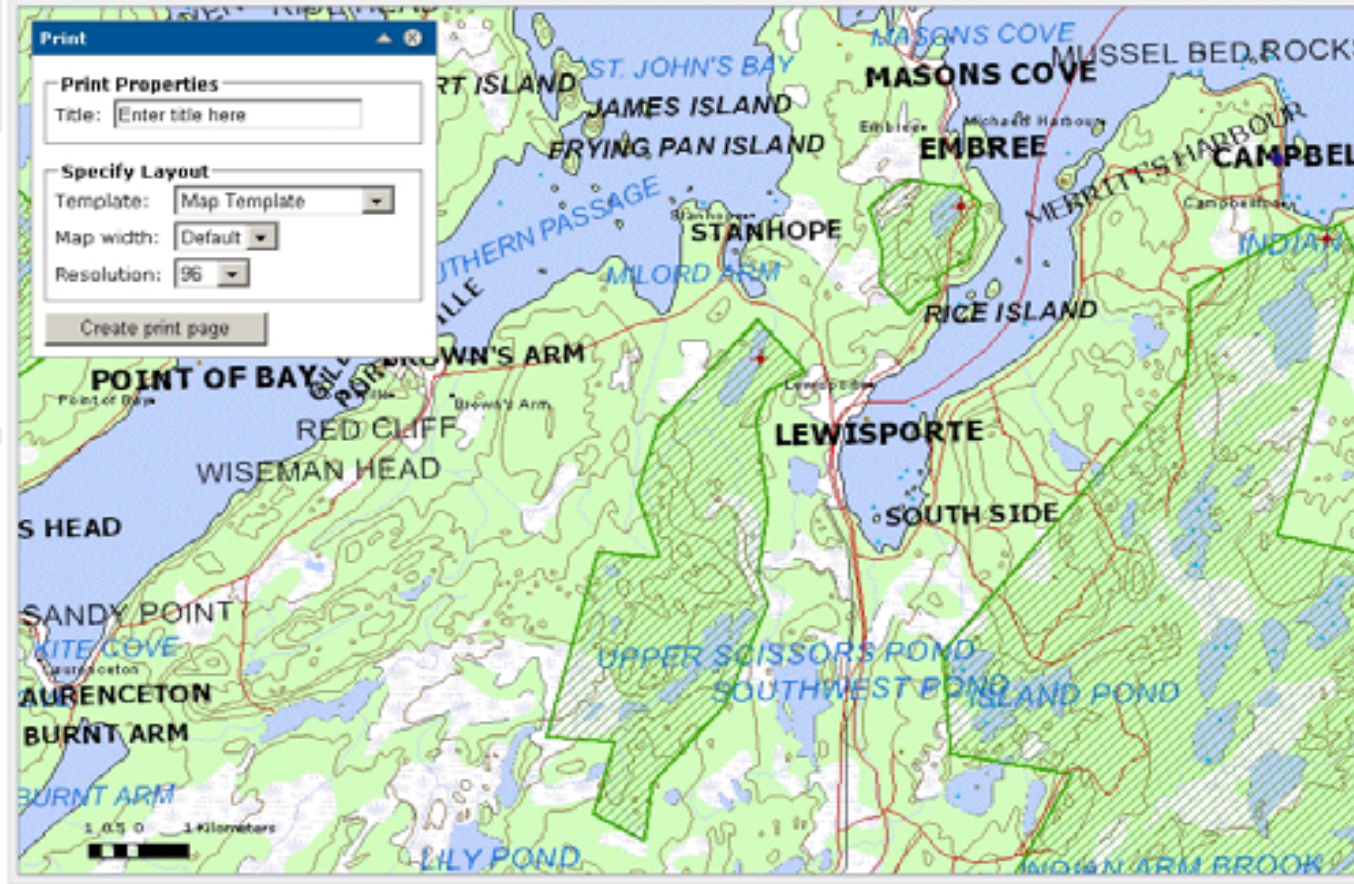
# Water Resources Portal

MAP VIEW SELECTION TOOLS PREFERENCES

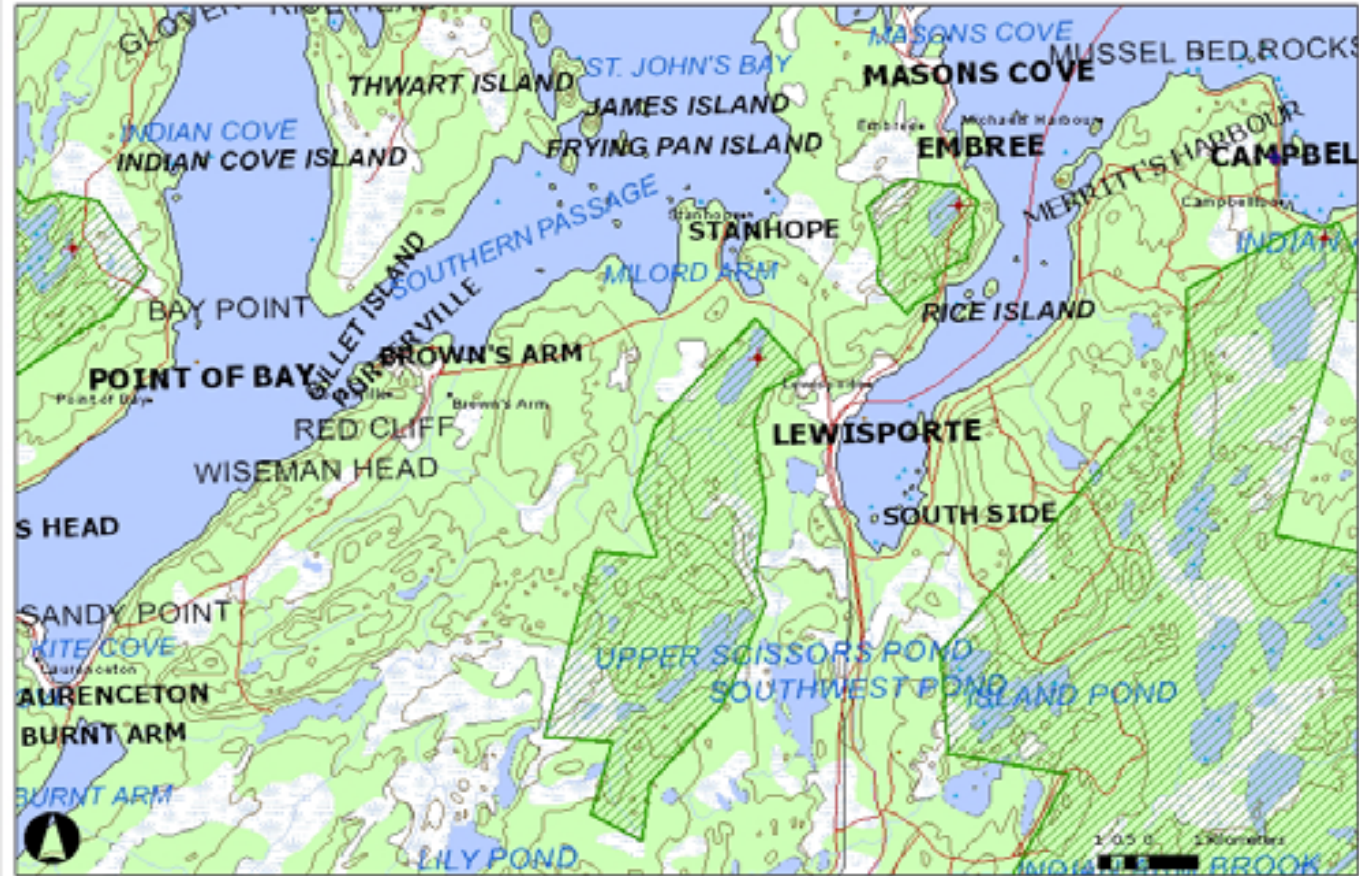
- TABLE** **PRINT**
- EXPORT (IMAGE)
  - ADD MAP RESOURCE
  - MANAGE MAP RESOURCES
  - Communities
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  - Outfalls
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Coordinate System: WGS 1984 UTM Zone 21N - Scale: 1:115,464



# Lewisporte - Stanhope Pond



## Legend

WaterResources

Communities

Intakes / Wellheads

Diversion Pipelines

+ Wellheads

+ Intakes



# Thank You!

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For information on the release

<http://www.gov.nl.ca/env/water>