



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada

Canada

The National Land and Water Information Service

# Where we're at!

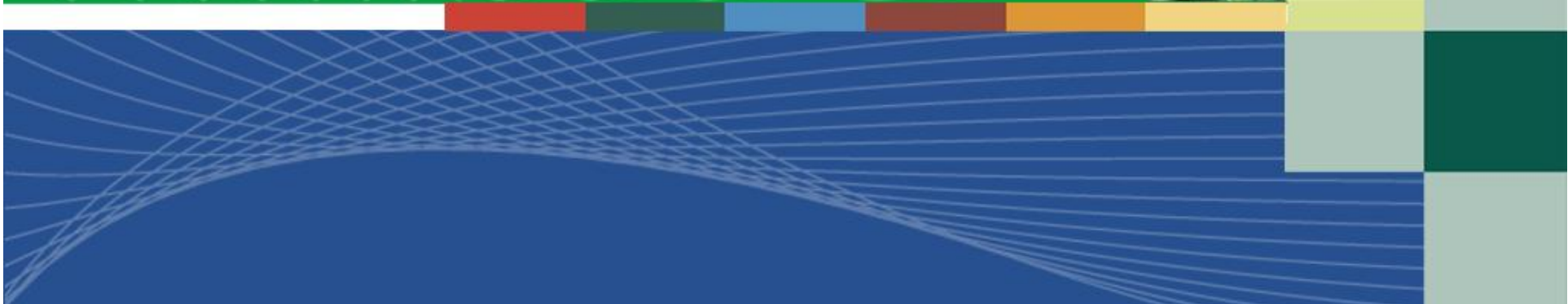
## Project Update

**Canadian Interoperability Day**

April 20, 2007

Dr. Susan Till

ADM, NLWIS Project Leader





# Contents

- What is the National Land and Water Information Service?
- Project Overview
- Enabling the Service
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- Summary



## What is NLWIS?

We're a single-window service provider to make decision tools and environmental information available to land use decision-makers, to support and inform local and regional land-use planning and management:

- Providing access to detailed geospatial data, information, tools, applications and GIS infrastructure to support AAFC;
- Integrating land, soil, water, climate and biodiversity data from different sources using GIS technology and an enterprise NLWIS-GIS;
- Departmental source for agri-environmental geospatial data and information
- Collaborating with other federal government departments, provincial, territorial and municipal governments, NGOs and the private sector;
- Advancing the objectives of the Agricultural Policy Framework.



## How do we get there?

The project is being implemented in four phases over four years. Each phase will produce specific deliverables with increasing levels of service and tangible benefits for a range of users.

### **Phase 1 – Single Window**

Pulls together currently dispersed activities within AAFC and provides single window access to AAFC data mapping services

### **Phase 2 – Geospatial Environment (IT Platform)**

Initial information technology platform for the service

### **Phase 3 – National Source for Agri-Environmental Geospatial Information**

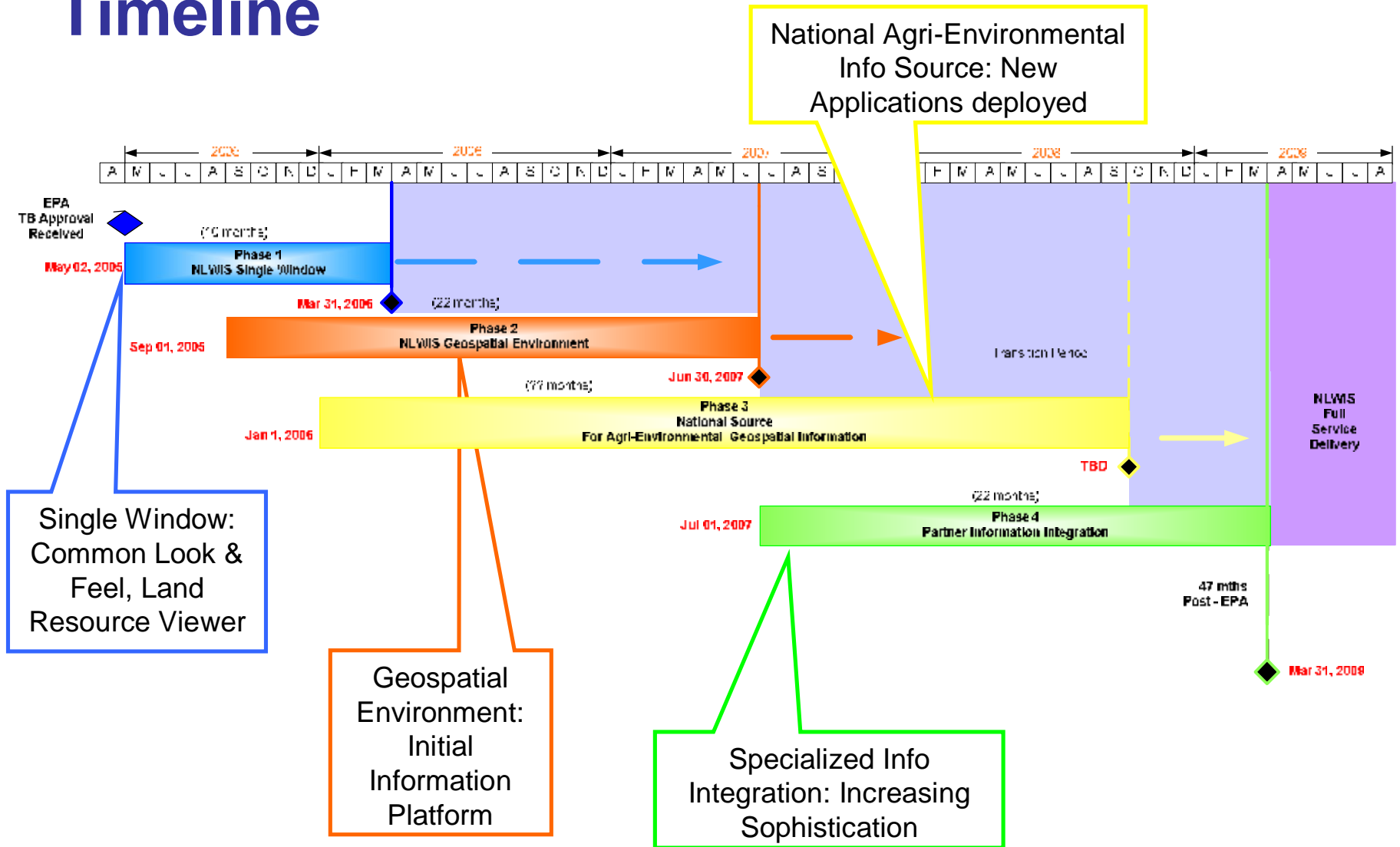
Delivers new GIS services on the new platform

### **Phase 4 – Specialized Information Integration**

Enriches access and linkages to collaborators' information and data



# Timeline



# Phase 1 – Single Window

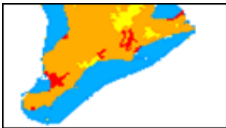
Front Page of  
NLWIS Web site

[www.agr.gc.ca/nlwis](http://www.agr.gc.ca/nlwis)

The screenshot shows the front page of the National Land and Water Information Service (NLWIS) website. At the top, there is a green header with the text "The National Land and Water Information Service" and the Agriculture and Agri-Food Canada logo. Below the header is a navigation menu with links for "Français", "Contact Us", "Help", "Search", and "Canada Site". A main banner features the text "The National Land and Water Information Service" and a large image of a landscape. Below the banner is a section titled "On-line agri-environmental data, information, tools and expertise to support land-use decision making" with a "Launch in a new window" button. The page is organized into several service tiles: "Maps" (Access interactive maps to visualize information), "Data" (Find/access geospatial data), "Expertise" (Find Agri-environmental expertise), and "Tools" (Tools to plan for a sustainable Agri-environment). A sidebar on the left contains a navigation menu with links for "Maps", "Data", "Tools", "Expertise", "NLWIS - CanSIS", "About Us", "A-Z Index", "Latest News", "Publications", "Quick Links", and "Glossary". At the bottom, there is a "Latest News" section.



## Phase 1 - Services Available To Date



**Agri Environmental Indicators (AEI):** NAHARP assesses and reports on the agriculture sector's environmental performance via a set of AEI. Provides reliable, science-based information on the current state and changes in the conditions of the environment in agriculture at a national or regional scale.



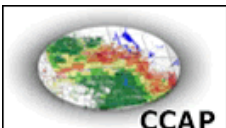
**Alberta Beef North:** This interactive Web mapping application has been designed for the Alberta Beef North Web site, which provides a wide variety of information to people wishing to either establish or relocate livestock operations in northern Alberta.



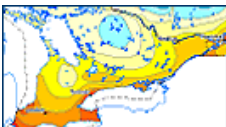
**Alberta Water Quality Awareness Day:** A volunteer water sampling program developed to raise awareness of the quality of lakes, rivers, streams and wetlands in rural and urban areas across Alberta.



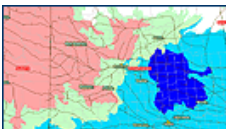
**Canada Land Inventory (CLI):** The CLI is a comprehensive multi-disciplinary land inventory of rural Canada. In the late 1990's, CanSIS converted the original CLI Agriculture datasets to a component-based file structure. Land capability for agriculture, forestry and wildlife recreation were mapped.



**Crop Condition Assessment Program:** CCAP developed and maintained by Statistics Canada in partnership with AAFC Canada, is an interactive application that uses low-resolution, digital satellite data during the growing season to monitor changing vegetation conditions in Western Canada and the US.



**Crop Heat Units:** The Corn Heat Unit system, also known as Crop Heat Units (CHU), was developed in the 1960's and is used to recommend corn hybrids and soybean varieties which are best suited for production in specific CHU zones in eastern Canada.



**Dugout and Pasture Conditions:** An AAFC initiative which allows users to view historical dugout levels and pasture grass growth conditions for the Canadian Prairies. Data can also be viewed as PDF maps, bar graphs or data tables, and are available from May 1, 1998 to November 1, 2005



**Land Resource Viewer (LRV):** Is a generic application meant to provide the basic functionality for viewing and eventually manipulating many forms and sources of geospatial data - all on-line. Many of the NLWIS subsequent tools will be accessed through the LRV.



# Phase 1 - Services Available To Date



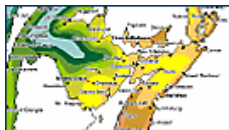
**Manitoba Riparian Health:** This Council's mission is to promote coordinated programs and activities that support the sustainable use of riparian and associated lands in Agro Manitoba . This application helps landowners develop improved grazing and water management systems on their pastures.



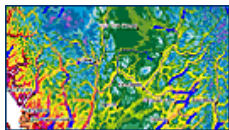
**National Ecological Framework for Canada:** The Ecostratification Viewer site is the result of the commitment and need to think, plan, and act in terms of ecosystems. Its national spatial context within which ecosystems at various levels of generalization can be described, monitored and reported on.



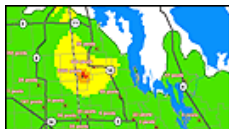
**Oxford County WMS:** As a pilot release, this Web-based service is being tested with the geographic extent of Oxford County. The Soils Description Service allows users to describe soil characteristics in a format that is more easily understood by land-use managers.



**Plant Hardiness Zones 1967:** Outlines the different zones in Canada where various types of trees, shrubs and flowers will most likely survive. The 1967 plant hardiness map was created by Agriculture Canada scientists using Canadian plant survival data and a wide range of climatic variables.



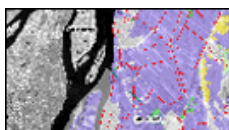
**Plant Hardiness Zones 2000:** Same features and functionality as the 1967 version above. The 2000 plant hardiness map was created by Natural Resources Canada's Canadian Forest Service using the same variables as the 1967 map and includes more recent climate data (1961-90).



**Prairie Pest Management Network (PPMN):** Disease and insect pests cause millions of dollars in damage every year in agriculture. PPMN is comprised of surveyors, researchers and extension people whose goal is to develop an early warning system for field crop pests.



**Quality Farm Dugouts:** An interactive worksheet to enable users to size their farm dugout. A volume calculation based on the amount of water required for use and the users' location. Allows the user to select dugout dimensions which should meet his water supply needs.



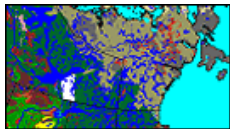
**Quebec Agro-Pedological Atlas:** The Agro-Pedological Atlas is a set of interactive maps which show the characteristics, the fertility, the quality of the water regime, the vulnerability to degradation and the potential of the agricultural soils and land in the Monteregian region of the province of Quebec.



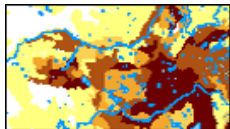
# Phase 1 - Services Available To Date



**Rural Municipality of Hanover:** Since 1998, this Municipality has been steadily developing its GIS to help provide land information to Council and staff. Satellite imagery can be accessed to view agricultural fields and other features. Useful for farmers who are completing nutrient management plans.



**Soil Landscapes of Canada v2.2:** Describes the major characteristics of soil and land for the whole country. SLCs were compiled at a scale of 1:1 million, and information is organized according to a uniform national set of soil and landscape criteria based on permanent natural attributes.



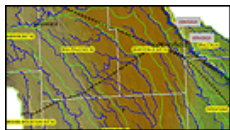
**Soil Landscapes of Canada v3.0:** An update of the Soil Landscapes of Canada, developed by AAFC to provide information about its agricultural soils at the regional and national levels. It provides new soils information at a scale of 1:1 million for the major agricultural regions of Canada.



**Stocking Rate Calculator:** This calculator will provide information that can be used in one of two ways: to determine the number of head a system can carry or to determine how many days a given herd can graze in a system.



**Straw Site Modeling Application:** Allows users to perform spatial queries on the biomass database and get a visual representation of how far one may have to travel to collect the desired amount of inputs.



**West Souris – Western Tributaries:** This application was created in response to the Three Creeks Watershed Study. The interactive application encompasses what is referred to as the "West Souris Watershed Area".



## Phase 2: Enabling the Service

- Accomplished through various activities:
  - Single portal access to agri-environmental data and information
  - Web-based and desktop tools and applications
  - Partnerships and agreements
  - Access to expertise
  - Enterprise architecture and infrastructure
  - Support departmental service delivery

### **NLWIS Geospatial Information System (N-GIS)**



## What is N-GIS?

### **N-GIS will provide:**

- Tools to store, manage, access and analyze geospatial information required by AAFC:
  - An environment to host end-user applications
  - A data warehouse to store and maintain AAFC data
  - Provide access to geospatial data from partners

### **N-GIS will support:**

- User-friendly access to reliable geospatial information
- Web-based and desktop services
- Modeling, data development
- Pre-defined and user-customizable analytical and reporting capabilities



# NLWIS & Interoperability: Development Principles

- GeoConnections / Canadian Geospatial Data Infrastructure (CGDI) principles:
  - Data should be collected once and used many times
  - Data should be managed closest to source
    - i.e., soils data should be managed by AAFC
  - Data housed on individual specialized systems owned by various agencies is shared, in order to reduce duplication of collection and storage



# CGDI standards - implemented

Web Feature Service

Web Map Service

The National Land and Water Information Service

**Data**

- Home
- Maps
- Data
- Tools
- Expertise
- NLWIS - CanSIS
- + About Us
- A-Z Index
- + News
- Publications
- Quick Links
- Glossary
- Wondering where to begin?
- [NLWIS Help](#)
- [Feedback](#)
- Versions**
- [Printer friendly](#)

[Home](#) | [Data](#)

## Geospatial Web Services

The services listed can be used by any WMS and/or WFS-enabled client application. The GetCapabilities link will return a standard XML document describing the particular service. [What are Geospatial Web Services?](#)

<b>Geospatial Web Services</b> <i>(links open a new map window)</i>	<b>GetCapabilities</b>
<a href="#">Agri-Environmental Indicators</a>	<a href="#">WMS - WFS</a>
<a href="#">Agro-Pedological Atlas of South Eastern Montreal Plain, Quebec</a>	<a href="#">WMS - WFS</a>
<a href="#">National Ecological Framework</a>	<a href="#">WMS - WFS</a>
<a href="#">Plant Hardiness Zones of Canada - 1967</a>	<a href="#">WMS</a>
<a href="#">Plant Hardiness Zones of Canada - 2000</a>	<a href="#">WMS</a>
<a href="#">Soil Landscapes of Canada v3.0</a>	<a href="#">WMS - WFS</a>

Date Modified: 2007-03-07

[Important Notices](#)



# **CGDI standards – critical in support of Phase 3 services**

- **Land Management**
- **Soil Condition Analysis**
- **Water Information and Water Infrastructure Planning**
- **Beneficial Management Practices (BMP)**
- **Environmental Conditions Planning and Monitoring**
- **Climate Analysis**
- **Biodiversity**
- **Emergency Response Management**
- **GIS-based Access to Soil and Agri-Environmental data**



# Collaboration is critical to our success

## Who we need to collaborate with:

- Internally within AAFC (branches and regions)
- Other federal government departments and agencies
- Provincial departments and agencies
- Municipal governments and authorities
- Producer and NGO delivery partners
- Industry delivery partners
- Academic institutions



## Phase 4: Enhanced Data Access

- Phase 4 enables the provision of value added information, products and expertise for the land use decision support through a four release process
  - Release 1 – security and personalization
  - Release 2 – implement technologies required to directly access data from external partners and data providers.
  - Release 3 – Builds upon the technologies in release 2 for easier methods initially bringing OGC compliant partners on line who are using the standards.
  - Release 4 – Ability for external clients to upload and use their own data in NLWIS applications through querying and modelling.



## Summary

- NLWIS is a supporter of the CGDI and interoperability as THE crucial technical element to the success of the project.
- Our applications and services are being developed by NLWIS staff who constantly refer to the requirements within CGDI in order to direct their efforts towards the best client based product possible.
- Current and future efforts in interoperability and standards not currently part of CGDI are also on the radar screen of NLWIS as we are aware that such developments may eventually impact what we do and how we do it.



## ***Contacts***

<http://www.agr.gc.ca/nlwis-snite>

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Canada

A stylized logo for the word "Canada" where the final 'a' is replaced by the Canadian flag's design: a white maple leaf centered between two vertical red bars, all on a white background.A series of thin, light blue wavy lines that sweep across the bottom half of the image, creating a sense of motion and depth against the dark blue background.