# COINAtlantic Next Steps

**Report of a Workshop
held on 3-4 February 2009
at the Bedford Institute of Oceanography
in Dartmouth, Nova Scotia**

*Submitted to GeoConnections*

*by the ACZISC Secretariat*

**Atlantic Coastal Zone
Information Steering Committee**

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# COINAtlantic Next Steps Workshop Report

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# INTRODUCTION

## COINAtlantic

COINAtlantic – the **Coastal and Ocean Information Network for Atlantic Canada** (see http://COINAtlantic.ca) is an initiative of the Atlantic Coastal Zone Information Steering Committee (ACZISC) – see http://aczisc.dal.ca. COINAtlantic is working to develop, implement and sustain a network of data providers and users that will support secure access to data, information and applications, for decision-making by coastal and ocean managers and users of coastal and ocean space and resources.

## User-Centred Design

As part of the COINAtlantic user centred design (UCD), a **Next Steps Workshop** was held on February 3-4, 2009 to engage users in reviewing progress to date and to get their input on future directions for COINAtlantic development.

**User-centered design (UCD)** is a design philosophy and a process in which the needs, wants, and limitations of the end user of an interface or document are given extensive attention at each stage of the design process.

User-centered design can be characterized as a multi-stage problem solving process that not only requires designers to analyze and foresee how users are likely to use an interface, but to test the validity of their assumptions with regard to user behaviour in real world tests with actual users. Such testing is necessary as it is often very difficult for the designers of an interface to understand intuitively what a first-time user of their design may experience.

The chief difference from other interface design philosophies is that user-centered design tries to optimize the user interface around how people can, want, or need to work, rather than forcing the users to change how they work to accommodate the system or function - see http://en.wikipedia.org/wiki/User-centered_design.

Developers should decide who the users will be and to involve them at the earliest possible opportunity. A number of ways of becoming familiar with users, their tasks and requirements are suggested:

- Talk with users
- Observe users working
- Learn about work organization
- Get users to think aloud while working
- Include expert users on the design team
- Make use of surveys and questionnaires

- Visit customer locations
- Videotape users working
- Try it yourself
- Participative design
- Perform task analysis
- Develop testable goals

(http://www.ts.mah.se/RUP/RationalUnifiedProcess/process/workflow/requirem/co_ucd.htm)

# PROCEEDINGS

The **COINAtlantic Next Steps Workshop**, organized by the ACZISC Secretariat, was held at the Bedford Institute of Oceanography, Dartmouth, Nova Scotia on Tuesday 3 February and Wednesday 4 February, 2009. Data providers and users were brought together to review the present state of the COINAtlantic online search utility and its functionality and to consider options for additional future development - see Appendix 1 for a list of participants.

Other agenda items included facilitated discussion on the technological components and the institutional aspects of COINAtlantic; and discussion on the COINAtlantic business plan and the sustainability plan, and future COINAtlantic priorities and direction. The detailed agenda is included in Appendix 2.

This document summarizes the Workshop outcomes and conclusions.

**Tuesday Session**

The Workshop commenced with an introduction to COINAtlantic by Michael Butler, Director of the ACZISC Secretariat.

Paul Boudreau, Project Manager, COINAtlantic, provided a brief overview of the COINAtlantic online search utility.

Colin MacDonald, GeoNova, then facilitated a session on the functionality of the COINAtlantic tool. The process included a round table brainstorming session where participants were asked to provide comments and ideas for additional functionality / features, not currently available in the utility.

Following the roundtable, all participants were asked to vote for their priorities.

The results of this process are shown in the following tables.

| | Recommendations Regarding COINAtlantic Functionality | |
|---|---|---|
| | *- Ranked from Highest to Lowest Priority -* | |
| **ID#** | **FUNCTIONALITY / FEATURE** | **# OF VOTES** |
| 1 | Open a saved session, especially "sample sessions" designed for a specific user community | 32 |
| 2 | Export to, or open, COINAtlantic sessions in Google Earth / Oceans | 25 |
| 3 | Download the source data that accompanies the WMS | 22 |
| 4 | Mark-up the map content with Polygons, Lines and Points | 15 |
| 5 | Add a Help button | 14 |
| 6 | Filter Search Results to remove irrelevant entries | 13 |
| 7 | Search any geographic element and conduct a corresponding spatial search for maps | 11 |
| 8 | Write tutorials that accompany community-specific saved sessions | 11 |
| 9 | Limit search results to the extent of the map view window | 9 |
| 10 | Include the WMS service-level metadata in the "Add Layer to Map" dialog box | 9 |
| 11 | Include a worldwide bathymetric map in the default map | 8 |
| 12 | Replace cryptic layer names in WMS with logical names | 8 |
| 13 | Develop a Healthy Service application that will monitor the 'status' of existing services | 8 |
| 14 | Replace the phrase "to find a WMS layer" in the utility with something more intuitive for new users | 8 |
| 15 | Display WMS-based legend graphics | 7 |
| 16 | Automatically adjust to the user's monitor resolution | 7 |
| 17 | Add real simple syndication (RSS) functionality that allows automated news updates to users who subscribe | 6 |
| 18 | Incorporate collaboration tools so users can share map data during sessions | 6 |
| 19 | Allow changes in map projection | 4 |
| 20 | Enable the contribution of user data to the system | 4 |
| 21 | Provide lists of with fewer layers in WMS. | 4 |
| 22 | Add a comment that notifies users that any map service registered in the GDP (not just Atlantic Canada) can be added | 3 |
| 23 | Allow the adjustment of the map size | 1 |
| 24 | Include an Info / Identify tool that would retrieve information from a service | 1 |
| 25 | Allow users to change the layer name in the Legend area | 1 |

| ID# | FUNCTIONALITY / FEATURE | # OF VOTES |
|---|---|---|
| **Recommendations Regarding COINAtlantic Functionality** *- Low Priority -* | | |
| 26 | Provide a mark-up tool that allows direct Lat / Long entry | 0 |
| 27 | Provide all content on the COINAtlantic.ca website | 0 |
| 28 | Allow users to save sessions | 0 |
| 29 | Add a "Display in Google Earth" button | 0 |
| 30 | Allow users to save Service Layer "Favourites" | 0 |
| 31 | Include animations in the mapping utility | 0 |
| 32 | Include links to the COINAtlantic FaceBook group | 0 |
| 33 | Use floating windows for the display of the Search Results, Map, and Legend windows. | 0 |
| 34 | Integrate the National Gazetteer Web Feature Service for data searches by place names | 0 |
| 35 | Access older / archived versions of data through COINAtlantic | 0 |
| 36 | Export a map to an image | 0 |
| 37 | Use open source collaboration tools like VYEW | 0 |
| 38 | Work with data custodians to limit the impact of the issue of potential 2 hour lags when registering services in the GeoConnections Discovery Portal | 0 |
| 39 | Work with data custodians to publish service levels for the WMS, WFS, etc | 0 |

The recommendations regarding COINAtlantic functionality can be grouped as follows:

> **Functionalities / features already implemented:** 1, 7, 23, 28, 33, 34, 36

  o These recommendations have been implemented, but training will have to be developed to ensure that users are aware of these tools and how to use them.

> **Functionalities / features requiring data provider attention:** 3, 7, 9, 12, 20, 21, 24, 38, 39

  o These recommendations can be promoted within COINAtlantic but ultimately progress will rely on the providers. For the core datasets and the COINAtlantic collaborators, significant progress is expected in the short term.

- ➤ **Easy to implement functionalities / features in the next version:** 5, 11, 14, 22, 27, 32

    - o With continued support, future versions of the utility could potentially incorporate these tools.

- ➤ **Functionalities / features that can be achieved with additional resources:** 2, 3, 4, 6, 7, 8, 9, 10, 13, 15, 16, 17, 18, 24, 25, 26, 29, 30, 35, 37

    - o In some cases, there may be ways for COINAtlantic to provide these through other readily available online tools. However, these recommendations can, in general, only be implemented with significant resources.

- ➤ It is **uncertain whether this recommendation can be implemented** with the existing WMS technology: 31

    - o Work is underway to see if WMS can be used to display animations for oceanographic modelling outputs.

Overall the comments supported work to date and provided good guidance on potential future work.


**Wednesday Session**

As an outcome of the first day of the Workshop, metadata was identified as an item for specific discussion. Accordingly, Andy Sherin, Earth Sciences Sector, Natural Resources Canada, facilitated a session on Wednesday on metadata.

Similar to the Tuesday session, a roundtable brainstorming session was followed by participants voting on the identified items for future work.

The results of this process are shown in the following tables:

| High Priority Issues for COINAtlantic Work on Metadata | |
| --- | --- |
| **ISSUE and RECOMMENDATIONS** | **# OF VOTES** |
| **Metadata content needs** | |
| Minimum standard tags / need to decide on how comprehensive they need to be | 48 |
| Identification of a  minimum standard for ACZISC members to implement | |
| Point  to the best practices for tags at the collection and product level | |
| Resolution of problems with the heterogeneous nature of data described by a single metadata record | |
| **User needs** | |
| Deal with the complexity of metadata in a simple way for new users | 37 |
| Metadata templates for the same data, *e.g.*, juvenile salmon | |
| Satisfy the diversity of the different levels of users | |
| Provide support to people who want to document their data including librarians | |
| Address ACAP groups with different levels of expertise and technology | |
| Train more novice groups in adding information | |
| Identify who are COINAtlantic users? Are they primarily the ACZISC members or other groups? We need a mechanism to find out who they are. | |

| ISSUE | # OF VOTES |
| --- | --- |
| **Keyword needs** | |
| Some standard keywords | 23 |
| Specific keywords to highlight COINAtlantic WMS in the search results | |
| Keywords that are most important for COINAtlantic participants | |
| Consider the best balance between "free form" vs. subject standard (*e.g.*, Library of Congress lists), can be used within COINAtlantic. | |
| Deal with plurals, *e.g.*, road vs. roads | |
| Continue to work to implement Google like "smart" searches | |

| ISSUE | # OF VOTES |
|---|---|
| **Wiki idea needs** | |
| Develop a Wiki metadata catalogue that would allow data users to contribute to the development of useful metadata | 22 |
| **Connections to other services needs** | |
| Develop peer-to-peer metadata repository searches to ensure that COINAtlantic searches all relevant catalogues and eliminates duplicate entries in the search results | 21 |
| Link to established geographic names database | 10 |
| Address the disconnect between metadata / data / and geographic location | 5 |
| **Types and priorities for metadata needs** | |
| Consider the appropriate use of three flavours of metadata: *i.e.* layer, data (collection), and services | 14 |
| Consider metadata for different purposes | |
| Focus on discovery metadata | |
| Comprehensive metadata for services | |
| **Data provider needs** | |
| Consider the potential negative implications of free data that may result in the reduction of support for users. There is a continuing need for data providers to provide support to users | 10 |
| Implement more / easier / better feedback to data providers from users | 7 |
| **Organization needs** | |
| Influence data management practices in organizations | 19 |
| Develop mechanism to decide who should be delivering what data; *i.e.* when several organizations are publishing the same data | |
| Clarify the role of COINAtlantic as a metadata provider or just a facilitator | 10 |
| Better define the roles of COINAtlantic and the ACZISC | |
| **Comments on the COINAtlantic utility needs** | |
| Link everything to coinatlantic.ca as opposed to maintaining a number of different communication sites (PLONE, COINAtlantic, FaceBook | |
| Consider implementing COINAtlantic in both official languages | 6 |

| ISSUE | # OF VOTES |
|---|---|
| **Data needs** | |
| Communicate the data remediation efforts by users on unsupported datasets | 6 |
| Allow users to get data through metadata records | |
| Ensure a proper balance of all of the links in the data delivery chain: collection, publication, registration of metadata, functionality of the WMS, user friendly layer names and interface. | |
| Define standard data elements for equivalent types of data | |
| Include observations within metadata | |
| **Miscellaneous needs** | |
| Understand why there are sometime different results from the COINAtlantic search utility and GDP API | 0 |

The last session of the Workshop dealt with identifying the benefits from COINAtlantic to both data providers and users. Due to a time constraints, the ideas presented were not prioritized by participants. As a result, the ideas from this session are shown in the following listing in no particular order.

The following lists outline the benefits – **general, economic, policy and program** – for providers of data and information, as identified by the participants:

**General Benefits:**
- Increase the data providers profile and use of data
- Support justification for data collection and maintenance
- Increase value of data through exposure to new users and through feedback from those users
- Increase exposure and increased value from the use of data and information
- Increase the number of users
- Promote networking, sharing and facilitation of information
- Increase accessibility of data within agency or organization
- Receive feedback from users that will help to improve data products
- Increase the diversity of users
- Increase feedback from a more diverse base of users
- Support and training for novice users of information provided.

**Economic Benefits:**

- Cost savings and increased efficiencies in the delivery of data and information
- Reduced costs in providing information
- Possible identification of data / information that users are willing to pay for
- Increased benefits of working towards a common perspective
- Reduced costs in accessing information for decision making.

**Policy Benefits:**

- Provide a "common mapping language" that levels the playing field for dialog with policy makers and stakeholders. Enhances the expression of ideas.
- Better management, better decisions, increased benefits for Canadians
- The development of use scenarios that inform policy development and implementation
- Provide timely response to rapidly changing issues
- Better decision-making through the improved access to quality data and information for analysis
- Better information to answer specific questions
- The development of use scenarios to demonstrate the value of appropriate information management
- Increased ability to answer questions asked by senior management when dealing with coastal management issues
- Contributing part of the solution in dealing with complex coastal issues.

**Program Benefits:**

- Long-term support for the scientific review of data and gain feedback on how to develop best practices for study methodology
- Improved communication of research needs
- Improved usage of data that has been compiled and used in the past , *e.g.*, for baseline evaluation
- Improved coordination and standardization of information management among partners
- Development of consensus-based standards within national and international standards
- Access to technical assistance to address common problems
- Development of a place to manage archived data
- Development of a place to publish data
- Linking providers to provide better, cheaper and more reliable data sources
- A method of information management that meshes with others and ultimately allows the roll up of information to larger "web".

The following lists summarize the **potential benefits** to users of COINAtlantic, as identified by the participants:

**General Benefits**
- Access to help and coordination within the COINAtlantic Network
- Improved ability to know where information originated, *e.g.*, government department, non-profit, academic
- Access to fast and easy to use search utility
- Intuitive use of existing flexible internet "widgets" such as Google or FaceBook
- Improved knowledge of what data are available
- Improved access and use of web tools for spatial data analysis
- Development of communication and dialogue between users and providers. A common language that will facilitate interaction between novice and experts
- Development of persistent metadata like a "purl"
- Increased data and information integrity
- One stop utility for users to access all levels of government information relevant to mapping
- Increased consistency among data providers
- Increased exchange of data among local, regional and national sources.

**Data Access**
- Improved, easy, user-friendly, simple access to user relevant data and information (*e.g.*, community / watershed level)
- Increased ability to download data along with good metadata, including data schema
- Access to underlying observational data
- Promoting access to data by ALL users
- Easy and user friendly access to user relevant data.

**Data Interoperability, Integration and Interaction**
- Improved integration of data from multiple sources
- Pushing the leading edge of technology.

The Workshop concluded with an invitation to participants to continue their involvement with COINAtlantic and to contribute additional comments to the COINAtlantic Project Office – COINAtlantic@dal.ca.

Further information on the COINAtlantic initiative and follow-up materials from the Workshop will be posted to the COINAtlantic website at http://COINAtlantic.ca.

# CONCLUSION

The ACZISC has proved to be an appropriate and effective incubator for the COINAtlantic concept. Through its members, it has developed an initiative that takes advantage of the latest in web mapping technology, via web mapping services (WMS) and web feature services (WFS), and existing metadata catalogues, via the GeoConnections Discovery Portal. It has developed a powerful and effective user friendly utility that addresses the stated needs identified at the COINAtlantic User Needs Workshops in Halifax, St. John's and Fredericton in March, May and September 2008 respectively. Users can now use a geographic search tool that allows them to search, access and integrate information from a large number of data providers on any internet web browser.

Discussions continue to highlight the challenges of engaging data providers to register their WMS/WFS in a manner that allows the COINAtlantic Utility to display their data together with other information sources. Nevertheless, accomplishments to date provide a useful tool that greatly facilitates information management, access and application to coastal and ocean management. The online utility promotes ongoing interaction with potential data providers and users to encourage their active participation in COINAtlantic.

In terms of the next steps, participants of this COINAtlantic Next Steps Workshop endorsed the following:

➢ Use Scenarios are essential to demonstrate the benefits of COINAtlantic and to engage more contributors and users.

➢ Efforts must continue to secure the necessary funds and resources to support the ongoing work of building a network for searching, accessing and integrating information.

➢ Technological improvements are required to respond to user requests to make the utility easier to use and more effective in presenting search results.

➢ Training and education of new users is an important component to broaden the user community and to guide the ongoing development of COINAtlantic.

# Section 4 ACKNOWLEDGEMENTS

The ACZISC Secretariat would like to acknowledge the GeoConnections Program for its contribution to Phase 1 of COINAtlantic development and implementation.

It must also be acknowledged that the current success of COINAtlantic is a result of the numerous participants in COINAtlantic activities, who have contributed their time, effort and thoughts to this initiative. Their contributions have been critical to the development of a growing network that is addressing real life issues and situations.

# PARTICIPANTS

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# A G E N D A

## COINAtlantic Next Steps Workshop

**Tuesday/Wednesday 3-4 February 2009**
**Location:  Gully Boardroom, 6th Floor Polaris Building**
**Bedford Institute of Oceanography, Dartmouth, Nova Scotia**

### Day 1 – Tuesday, February 3rd

10:30    Welcome, introductions, acceptance of agenda *(Butler)*

10:45    Presentation and discussion on COINAtlantic Search Utility *(Boudreau)*

11:00    Facilitated discussion on technological components of COINAtlantic
*(MacDonald)*
- State of WMS/WFS
- Metadata catalogues
- Client Driven/user friendly development

12:00    Lunch break

14:00    Adjourn for the day due to snow storm

### Day 2 – Wednesday, February 4th

8:30    Discussion on future COINAtlantic priorities and direction

9:00    Facilitated discussion on Institutional aspects of COINAtlantic *(Sherin)*

Business Plan development and Sustainability Plan
- Short term (through until July 2009)
- Medium Term (through until March 2010)
- Long term (Fiscal 2010-2011 and beyond)
  - National Strategy history, partners, etc.
  - Participation in meeting to develop a National Strategy, scheduled for March 3rd 2009 in Ottawa

10:00    Health Break

11:30    Future COINAtlantic priorities and direction
- Discussion on NGO Capacity Building
- Additional user engagement
- Marine Cadastre development

12:00    Lunch Break

13:00    Future COINAtlantic priorities and direction continued
- Organizational and funding requirements

14:40    Next steps

15:00    Adjourn