
SUMMARY REPORT
of the
NATIONAL WORKSHOP ON
WETLAND DATA INTEGRATION

*The Opinicon - Chaffey's Locks
Elgin, Ontario
October 6-8, 1993*

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Compiled by
Pauline Lynch-Stewart
and
Clayton Rubec

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**North American Wetlands
Conservation Council (Canada)**

CONTENTS

<i>INTRODUCTION</i>	1
Why the workshop was held	1
<i>THE ISSUE</i>	2
Issue statement	2
Background	2
<i>SUMMARY RESULTS OF SESSIONS</i>	4
Session 1: Applications of integrated wetland data bases	4
Session 2: What can be done? Technical opportunities and challenges	6
Session 3: How can it be done? Key steps and recommendations	7
<i>SPECIFIC PROJECT PRIORITIES</i>	8
<i>APPENDICES</i>	9
Appendix 1: Agenda	10
Appendix 2: List of participants	13

INTRODUCTION

Why the workshop was held

The Canadian Wildlife Service, the State of the Environment Reporting, and the Ecosystem Science and Evaluation Directorate — all of Environment Canada, and the North American Wetlands Conservation Council (Canada), jointly funded the organization of the *National Workshop on Wetland Data Integration*, held October 6-8, 1993.

This workshop brought together over 20 experts in the fields of wetland inventory, monitoring, and/or wetland conservation policy and program implementation. Each participant was invited not to represent any particular jurisdiction or agency, but to draw upon their own expertise and experience. Participants represented a cross-section from technical data base management to policy implementation and reflected the geographic diversity of the nation.

The workshop was designed to answer major questions being faced in Canada concerning wetland inventory and monitoring including:

- ▶ What are the priority applications for an integrated wetland inventory and monitoring database at the national/regional scale? In what priority of geographic areas?
- ▶ What can be done in the short-term, using existing data sets, technically and practically? And,
- ▶ What are the key steps to an "action plan" for developing and implementing a national/regional wetland inventory and monitoring database?

This report summarizes the major results and recommendations of the workshop. The workshop *Agenda* and *List of Participants* are provided in Appendices 1 and 2. The Secretariat of the North American Wetlands Conservation Council (Canada) is committed to the distribution of this summary report to all partners in wetland conservation in Canada.

THE ISSUE

Issue Statement

Participants were asked to consider the Issue Statement below as the starting point for discussion in the workshop.

Many surveys across Canada have inventoried wetland occurrence and monitored change to this resource. Yet this fragmented picture of Canadian wetlands fails to adequately support and direct wetland conservation programs at a regional or national level. Comprehensive wetland inventory data bases at regional or national scales are needed to ensure that the significant resources devoted to wetland conservation are allocated wisely. For example, the North American Waterfowl Management Plan, alone, has already spent in excess of \$150 million on habitat conservation in Canada, primarily wetlands.

Background

The fact is, in Canada, we have considerable wetland inventory information, and are doing an inadequate job of using this information. Extensive wetland surveys have been undertaken for areas of Canada under the greatest pressure for habitat loss. Surveys have been conducted using varying geographic scales, varying wetland classification systems, different rationale and applications. No national attempt has been made to integrate these data with a view for creating a comprehensive wetland inventory data base using a common wetland data classification scheme.

However, much of the existing survey data on wetlands are available in digital form suggesting the possibility of compiling them into a master data set, either nationally or regionally. Technically, Canada has proven its ability to create large, integrated data sets, such as those produced of Eastern Canada for the Acid Rain Program Assessments in the mid-1980s.

Canada has national and international commitments that require complex application of wetland data. Wetland inventory and monitoring of the national wetland resource is one of the ongoing commitments Canada supports by its accession to the Convention of Wetlands of International Importance (Ramsar). The *Federal Policy on Wetland Conservation* also articulates the Government of Canada's commitment to effective wetland science and monitoring of these resources, as well as the need to ensure conservation of biodiversity through integrated program and resource management. The provinces of Alberta, Saskatchewan and Ontario are implementing wetland policies and most other provinces have wetland management strategies. The core principle of NAWMP with the United States and Mexico is sustainable wise use of wetland resources in North America.

There are specific national recommendations that justify the need for wetland data integration and require a clear response by all parties involved in wetland management in Canada. The Final Report of the Canadian Wetlands Conservation Task Force entitled *Wetlands — A Celebration of Life*, published in 1993, recommends that "Environment Canada integrate the existing information and data bases for the wetland resource of Canada...". A similar recommendation was made by a National Science Workshop in their 1991 publication entitled *Wetland Science Research Needs in Canada*. The August 1993 *Draft Update Report* on the North American Waterfowl Management Plan recommends that a habitat monitoring capability be established for wetlands and uplands in priority areas of the Plan. Most recently, the October 1993 *Canada — Ontario Strategic Plan for Wetlands of the Great Lakes Basin* calls for creation of a single wetland inventory data base for the Basin.

SUMMARY RESULTS OF SESSIONS

As outlined in the Agenda (Appendix 1), three separate workshop sessions were held:

- (1) Applications of integrated wetland data bases;
- (2) What can be done? Technical opportunities and challenges; and
- (3) How can it be done? Key steps and recommendations.

A summary of each session follows.

Session 1: Applications of integrated wetland data bases

Participants were asked to consider, "What are the priority applications for an integrated wetland inventory and monitoring data base at the national/regional scale? In what priority of geographic areas?"

Participants agreed that the current **major users of wetland data** in Canada are:

- 1) government agencies at all levels;
- 2) forest, fishing, and agricultural industries (including companies, associations, and boards);
- 3) land stewardship agencies and land trusts;
- 4) educators; and
- 5) international agencies or committees.

All have different data requirements; hence, identification of specific user needs is important.

Participants identified four major types of **priority applications** requiring integrated regional/national wetland data sets. That is, integrated wetland data sets would assist in the following areas:

- 1) Wetland policy and legislation, to:
 - ▶ guide and support wetland conservation and management and program implementation;
 - ▶ evaluate the effectiveness and effects of policy (e.g. the federal policy goal of "no net loss", the Biodiversity Convention, modified national agricultural policy and subsidies under GATT and NAFTA), and legislation and programs (such as the NAWMP, National Forest Strategy) on the quality and quantity of wetlands; and
 - ▶ assist federal land managers in carrying out their responsibilities under the *Federal Policy on Wetland Conservation*.

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- 2) Planning and impact assessment, to:
- ▶ provide focal points for discussion, and to encourage and direct participation of governments and industry (e.g. forest companies, oil and gas developers) in wetland conservation during land use or development planning;
 - ▶ facilitate cumulative effects assessment and monitoring;
 - ▶ establish priorities for wetland protection;
 - ▶ direct wetland rehabilitation, restoration, and development efforts; and
 - ▶ provide data elements for integrated resource management or landscape planning.
- 3) Environmental monitoring and reporting, to:
- ▶ answer basic questions such as *how much wetland do we have?; how much is protected?; how is the resource changing?; what is the status of the resource?; what areas are most at risk?; what do we know about the resource — what data bases are available and at what scale? and where are the gaps in our knowledge?*;
 - ▶ serve as a comparative framework, for demonstrating how the wetland resource in local areas/regions, and efforts to conserve it, compares to the national picture, and how Canada's efforts and successes compare to global wetland conservation;
 - ▶ effectively communicate the status of the wetland resource to Canadian citizens;
 - ▶ encourage the development of national standards and approaches, to improve "information architecture", allowing comparison/integration of data across the country; and
 - ▶ encourage the rationalization of wetland data management among the many agencies involved (sharing, cooperation, partnerships).
- 4) Scientific research, to:
- ▶ increase our understanding and ability to communicate global or national issues such as the role of wetlands in water quality and quantity, soil salinity, carbon storage, and the response of wetlands to such phenomena as climate change.

Session 2: What can be done? Technical opportunities and challenges

Workshop participants were asked to consider what could be done in the short-term, using existing data sets, technically and practically. They defined the following four major **products**:

- 1) **An Umbrella Framework to:**
 - ▶ encourage standardization of data sources with a national approach;
 - ▶ identify the lowest common denominators (LCDs) of wetland attribute files, specifically wetland:
 - location
 - size
 - wetland form/type
 - status
 - management responsibility
 - data sources;
 - ▶ promote common data base fields and definitions; and
 - ▶ facilitate agreements for data sharing, partnerships, and cooperation.

- 2) **A Data Source Book**, a summary of descriptive "meta" data on existing wetland data sets, including the sources and methods used to create such wetland data sets, and building upon existing data base directories if available, to:
 - ▶ act as a catalogue, shopping list, or road map of what exists; "a directory of wetland information holdings"; and
 - ▶ possibly be presented in "bulletin board" format.

- 3) **National Data Sets:**
 - ▶ derived using existing wetland data bases across country;
 - ▶ based on stratified existing data or used "as is";
 - ▶ should explore use of National Topographic Series digital map files as a source of information for wetland distribution to complete national coverage;
 - ▶ should examine the Wetland Registry established at Agriculture Canada (Land Resource Research Institute) as a source of information; and
 - ▶ evaluate the issue of whether the "answers" are worth the effort required to integrate such data.

- 4) **Inter-agency Partnerships:**
 - ▶ would be promoted by standardization and availability of national or regional "integratable" data sets.

Session 3: How can it be done? Key steps and recommendations

Workshop participants felt that the following actions must be taken to set the stage for development of regional/national data sets:

- 1) Continue to foster existing partnerships, and pursue new ones, for data development and integration regionally/nationally by:
 - ▶ seeking input from those players/partners absent from the workshop (e.g. additional provinces, agencies);
 - ▶ initiating consultations with industry stakeholders to confirm target user groups, objectives for wetland data development/ integration, and identify required formats for national data base; and
 - ▶ distributing the workshop results to partners in wetland conservation across Canada.

- 2) Develop/refine the list of questions that define both the requirements of regional/national data sets and the criteria for integrating data sets. An initial list follows:
 - ▶ Where are the wetlands?
 - ▶ What size are they?
 - ▶ What state are they in (quality, health, condition)?
 - ▶ What class or type are they?
 - ▶ What is their ownership?
 - ▶ What is their protective status?
 - ▶ What are the stresses/risks/threats to them?
 - ▶ How is the resource changing over time?

- 3) Identify the lowest common denominator (LCD) attributes for a national or regional data base(s), according to current user needs and anticipated future applications.

- 4) Promote standardized wetland classification, specifically by accelerating the publication of *The Canadian Wetland Classification System*. This publication is out of print; a revised edition is currently being prepared by the National Wetlands Working Group.

- 5) Define geographic priorities for the creation of a wetland data base, including both crisis areas and areas where integrated wetland data is desirable in the long-term.

SPECIFIC PROJECT PRIORITIES

- 1) Create an integrated data base using existing data sets in priority (e.g. settled, southern) areas of Canada by:

Short-term priority

- ▶ examining the existing data bases including: Fraser Lowland (Canadian Wildlife Service), Prairies (Ducks Unlimited Canada), Ontario (Ontario Ministry of Natural Resources), Maritimes including New Brunswick and Nova Scotia peatland data bases (Canadian Wildlife Service and provincial ministries), Newfoundland (peatland data base) (Newfoundland ministry). Do these existing data bases currently provide sufficient information on LCDs? Can they answer the basic questions being asked, as identified above? What are the geographic deficiencies?
- ▶ compiling a national source data book of existing wetland inventory/data base holdings with special reference to inclusion of meta data on sources, methods and quality of the original data.

Medium-term priority

- ▶ initiating, if existing data are acceptable, the integration of existing data bases in priority areas of Canada.

Longer-term priority

- ▶ where data do not exist in priority areas, initiating 1:50 000 scale or better (i.e. detailed) inventory of gaps in these priority areas.

- 2) Evaluate and initiate the creation of a wetland data base for the remainder (i.e. northern and boreal regions) of Canada by:

Medium-term priority

- ▶ assessing the accuracy and value of use of the new National Topographic Survey (NTS) digital data base for a first-order wetland identification, (a suggested complete NTS map sheet would be for the Queen Maud Gulf Migratory Bird Sanctuary in the Northwest Territories).
- ▶ answering technical questions regarding digital integration (difficulty, time, cost) of such data with detailed integrated information for southern priority regions.
- ▶ evaluating the establishment of standardized national or regional wetland data bases in centres of wetland expertise.

APPENDICES

1. Agenda
2. List of Participants

APPENDIX 1

AGENDA
NATIONAL WORKSHOP ON WETLAND DATA INTEGRATION

WEDNESDAY, OCTOBER 6

6:00 p.m. Arrive Opinicon Hotel

8:00 **Opening Remarks**

Workshop Overview and Objectives

Ken Cox, Executive Secretary, NAWCC (Canada), Ottawa

Status of Wetland Inventory in Canada

Clayton Rubec, Environment Canada, Hull

Discussion: Wetland Data Integration - Opportunities and Challenges

All Participants

THURSDAY, OCTOBER 7

8:30 a.m. **Session 1: Applications for integrated wetland data**

Wetland Inventory and Monitoring in Northern and Boreal Regions

Tony Turner, State of Environment Reporting, Environment Canada, Ottawa

Managing Wetland Resources: Data Needs and Challenges

Caroline Caza, Wildlife Habitat Canada, Ottawa

The Fraser Lowland Wetland Data Base, British Columbia

Peggy Ward, Canadian Wildlife Service, Qualicum Beach

9:45 Break

THURSDAY, OCTOBER 7 (continued)

- 10:00 **Session 1 Workshop**
Facilitator: Rick Bryson, R. Bryson and Associates, Nepean
- Open Discussion
- 12:30 Lunch
- 1:30 p.m. **Session 2: What can be done? Technical opportunities and challenges**
- Considerations for an Integrated Wetland GIS Data Base
Connie MacDonald, Environment Canada, Hull
- Wetland Information in Manitoba Peatland and Soil Inventories
Hugo Veldhuis, Agriculture Canada, Winnipeg
- 2:30 Break
- 2:45 **Session 2 Workshop**
Facilitator: Rick Bryson
- Open Discussion
- 6:00 Dinner
- 8:00 **Presentations**
- Wetland Monitoring for the North American Waterfowl Management Plan and Northern Regions
Glen Adams, Canadian Wildlife Service, Saskatoon
- Priorities for Creating Integrated Wetland and Peatland Data Bases for the Atlantic Provinces
Randy Milton, Nova Scotia Department of Natural Resources, Kentville and Al Hanson, Canadian Wildlife Service, Sackville
- The Eastern Canada Lakes Data Base for the LRTAP Acid Rain Impact Assessment
Robert Hélie, Environment Canada, Hull

FRIDAY, OCTOBER 8

8:45 a.m. **Session 3: How can it be done? Key steps and recommendations**
Facilitators: Rick Bryson and Pauline Lynch-Stewart

Development of Specific Recommendations and Follow-up Actions

11:30 An action plan for national/regional integration of wetland data
Rick Bryson

12:00 Lunch

1:00 p.m. Departure to Ottawa

APPENDIX 2

LIST OF PARTICIPANTS NATIONAL WORKSHOP ON WETLAND DATA INTEGRATION

1. Glen Adams, Canadian Wildlife Service, Environment Canada, 115 Perimeter Road, Saskatoon, Saskatchewan, S7N 0X4. Phone (306) 975-4093; fax (306) 975-4089. *Speaker.*
2. Michal Bardecki, Geography Department, Ryerson Polytechnic University, 350 Victoria St., Toronto, Ontario, M5B 2K3. Phone (416) 979-5000, extension 6175; fax (416) 979-5273.
3. Rick Bryson, R. Bryson and Associates, Suite 200, 38 Auriga Drive, Nepean, Ontario, K2E 8A5. Phone (613) 228-3367; fax (613) 224-6055. *Facilitator.*
4. Caroline Caza, Wildlife Habitat Canada, Suite 200, 7 Hinton Avenue North, Ottawa, Ontario, K1Y 4P1. Phone (613) 722-2090; fax (613) 722-3318. *Speaker.*
5. Ken Cox, Secretariat, North American Wetlands Conservation Council (Canada), Suite 200, 1750 Courtwood Cres., Ottawa, Ontario, K2C 2B5. Phone (613) 228-2601; fax (613) 228-0206. *Workshop Chairman.*
6. Graham Dorn, Saskatchewan Wetland Conservation Corporation, 2151 Scarth Street, Regina, Saskatchewan, S4P 3Z3. Phone (306) 787-0726; fax (306) 787-0780.
7. David Gierman, Canadian Wildlife Service, Environment Canada, Room 300 - Park Plaza, 2365 Albert Street, Regina, Saskatchewan, S4P 4K1. Phone (306) 780-6400; fax (306) 780-5311.
8. Al Hanson, Habitat Section, Canadian Wildlife Service, Box 1590, Sackville, New Brunswick, E0A 3C0. Phone (506) 364-5061; fax (506) 364-5062. *Speaker.*
9. Robert Hélie, Ecosystem Science and Evaluation Directorate, Environment Canada, Ottawa, Ontario, K1A 0H3. Phone (819) 953-1451; fax (819) 997-8701. *Speaker.*
10. Kevin Loftus, Aquatic Ecosystems Branch, Ontario Ministry of Natural Resources, P.O. Box 7000, Peterborough, Ontario, M2N 3A1. Phone (705) 740-1375; fax (705) 740-1536.

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11. Pauline Lynch-Stewart, Lynch-Stewart and Associates, 39 Glengarry Rd., Ottawa, Ontario, K1S 0L4. Phone/fax (613) 567-1116. *Facilitator.*
 12. David Keys, Maritime Groundwater Inc., Box 46, Site 16, RR 6, Fredericton, New Brunswick, E3B 4X7. Phone (506) 458-1248; fax (506) 450-3170.
 13. Connie MacDonald, Ecosystem Science and Evaluation Directorate, Environment Canada, Ottawa, Ontario, K1A 0H3. Phone (819) 953-1527; fax (819) 994-1691. *Speaker.*
 14. Ian Marshall, State of Environment Reporting, Environment Canada, Emerald Plaza, Ottawa, Ontario, K1A 0H3. Phone (613) 941-9617; fax (613) 941-9646.
 15. Laurie Maynard, Canadian Wildlife Service, Environment Canada, 70 Fountain St. East, Guelph, Ontario, N1H 3N6. Phone (519) 766-1593; fax (519) 766-1750. *Speaker.*
 16. Sean McMurray, Ontario Forest Research Institute, Box 969, Sault Ste. Marie, Ontario, P6A 5N5. Phone (705) 946-2981; fax (705) 946-2030.
 17. Randy Milton, Wildlife Division, Nova Scotia Department of Natural Resources, 136 Exhibition Street, Kentville, Nova Scotia, B4N 4E5. Phone (902) 679-6091; fax (902) 679-6176. *Speaker.*
 18. Marilyn Rayner, Resource Information Design and Development Branch, Alberta Environment, Petroleum Plaza, North Tower, 4th Floor, 9945 -108 St., Edmonton, Alberta, T5K 2G6. Phone (403) 427-7222; fax (403) 422-4190.
 19. John Riley, Regional Ecologist, Central Region, Ontario Ministry of Natural Resources, 50 Bloomington Rd. West, RR #2, Aurora, Ontario, L4G 3G8. Phone (416) 841-9348; fax (416) 841-9386.
 20. Clayton Rubec, Canadian Wildlife Service, Environment Canada, Ottawa, Ontario, K1A 0H3. Phone (819) 953-0485; fax (819) 994-4445 or (613) 228-0206.
 21. Tony Turner, State of Environment Reporting, Environment Canada, Emerald Plaza, Ottawa, Ontario, K1A 0H3. Phone (613) 941-9620; fax (613) 941-9646. *Speaker.*

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22. Hugo Veldhuis, Centre for Land and Biological Resources Research, Agriculture Canada, Room 362A, Ellis Bldg., University of Manitoba, Winnipeg, Manitoba, R3T 2N2. Phone (204) 474-6124; fax (204) 275-5817. *Speaker.*
 23. Peggy Ward, Canadian Wildlife Service, Environment Canada, 3567 Island Highway West, Qualicum Beach, British Columbia, V9K 2B7. Phone/fax (604) 752-9611. *Speaker.*