DEVELOPING AN ENVIRONMENTAL MANAGEMENT PLAN FOR THE BRAS D'OR LAKES WATERSHED – AN ANALYSIS OF ITS SCOPE AND APPROACH FOR ADDRESSING ISSUES

by

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Submitted in partial fulfillment of the requirements for the degree of Master of Urban and Rural Planning

at

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DALHOUSIE UNIVERSITY

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Dedication

To My Family -

Especially Anne Marie who almost never begrudged me the time to do this

and

Anna and Jake who I was rewarded with sometime between

Rural Studio and Planning Law

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Abstract

The purpose of this thesis was to analyse whether the scope and approach being taken to develop an environmental management plan for the Bras d'Or lake and its watershed is broad enough to address the environmental issues identified for this area. This plan is being developed by a collaborative body known as the Collaborative Environmental Planning Initiative (CEPI). CEPI consists of federal, provincial, municipal, and First Nation governments, industry, NGOs, academics, and community members who are working together to develop and foster the implementation of this plan. Interviews were conducted with managers from various government departments that have a legal responsibility for the issues. These interviews were undertaken to assess the general way that each issue is currently being managed, and how their management could be improved to better address the issues. These recommendations were then compared to the scope and approach being advanced by CEPI for their plan. In general, the current approach appears sound and should assist in addressing the issues, although a number of areas where the scope could be expanded were identified. Based on this research, a number of specific recommendations were made to CEPI to assist in the overall planning and management process taking place in the Bras d'Or.

List of Abbreviations

CBRM	Cape Breton Regional Municipality
CEPI	Collaborative Environmental Planning Initiative
CIP	Canadian Institute of Planners
DFO	Department of Fisheries and Oceans
EC	Environment Canada
EDPC	Eastern District Planning Commission
INAC	Indian and Northern Affairs Canada
MSX	*Haplosporidium nelsoni* (oyster parasite)
NGO	Non Governmental Organization
NSAFA	Nova Scotia Agriculture, Fisheries and Aquaculture
NSDNR	Nova Scotia Department of Natural Resources
NSDOEL	Nova Scotia Department of Environment and Labour
SIMBOL	Science for the Integrated Management of the Bras d'Or Lakes
SCI	Sustainable Communities Initiative
TC	Transport Canada
UINR	Unama'ki Institute of Natural Resources

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Finally, I would like to thank the Oceans and Coastal Management Division of Fisheries and Oceans Canada who have helped support this work.

Chapter 1: Introduction

Setting:

The Bras d'Or Lake occupies the central portion of Cape Breton Island and is located at the north-eastern end of the province of Nova Scotia as shown on Figure 1. The Lake and surrounding watershed, with a total area of approximately 3 600 km^2, are recognized by many as one of the greatest natural assets on Cape Breton Island[1]. They provide recreational opportunities for seasonal and permanent residents, including cottage use, boating, hiking, and fishing, and are the location of numerous cultural activities throughout the year. These activities attract thousands of tourists annually who value the area's natural beauty and contribute significantly to the island's economy. Commercial fishing and aquaculture, as well as other resource industries such as forestry and mining, provide livelihoods for Bras d'Or residents. Approximately 22 000 people reside within the watershed in numerous small communities surrounding its shores[2]. In addition, the lakes and surrounding watershed and their natural resources have historical, cultural, and spiritual significance to its first inhabitants, the Mi'kmaq people. Although population numbers in the Bras d'Or communities have been declining over the past ten years, the five Mi'kmaq communities surrounding the lakes have been experiencing significant growth[3] and currently comprise approximately twenty percent of the watershed's population[4].

[1] Petrie, B. and G. Bugden. The Phyisical Oceanography of the Bras d'Or Lakes. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 9-36, 2002.
[2]McReady, Rick. 2004 (Planner: Cape Breton Regional Municipality) Personal Communication
[3] Parker, M., M. Westhead, P. Doherty and J. Naug. 2007. Ecosystem Overview and Assessment Report for the Bras d'Or Lakes, Nova Scotia. Can. Manuscr. Rep. Fish. Aquat. Sci. 2789: xxii + 223 pp.
[4]McReady, Rick. 2004 (Planner: Cape Breton Regional Municipality) Personal Communication.

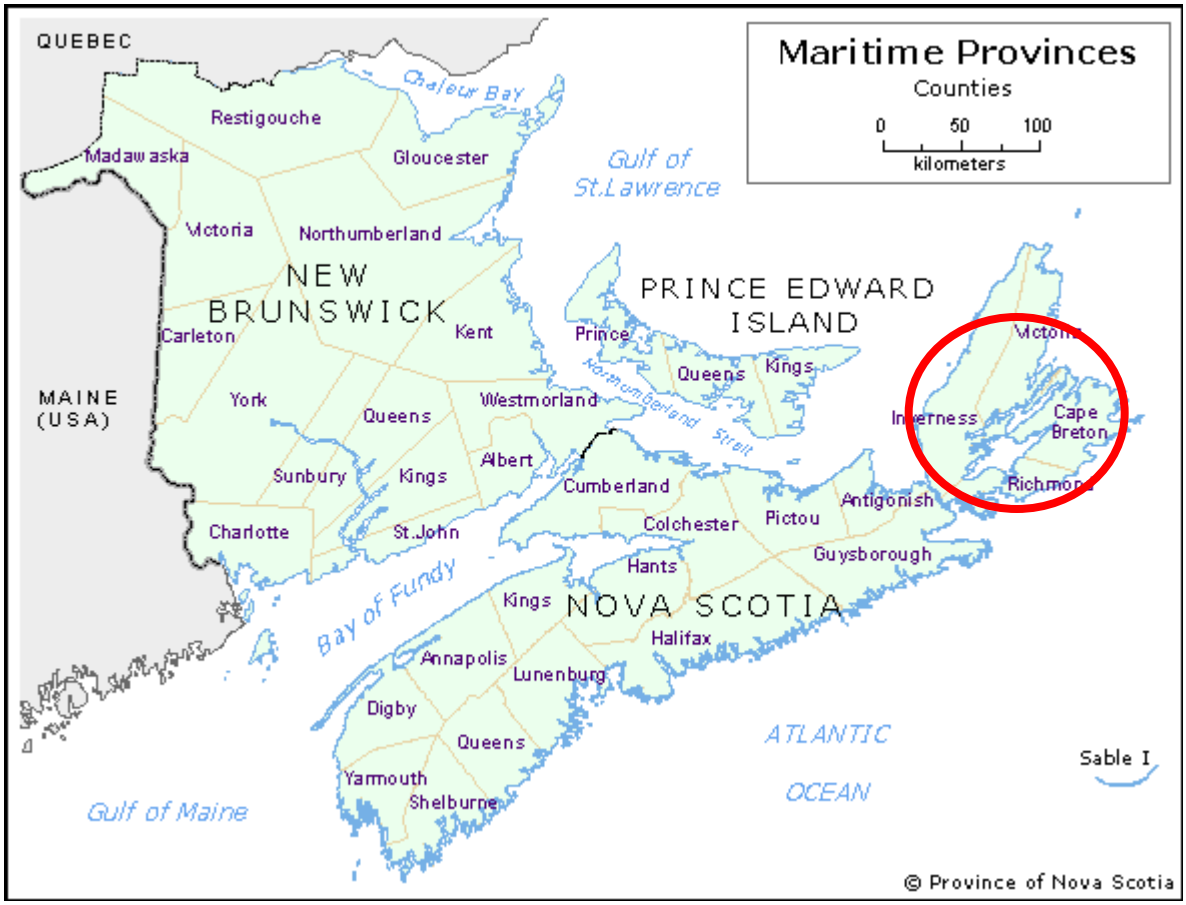


Figure 1. Location of the Bras d'Or Lake within Cape Breton Island, Nova Scotia[5].

Marine Environment:

The Bras d'Or Lake is also a rich marine ecosystem with unique characteristics of water chemistry, energy inputs, and animal life. The lake has a complex geometry and contains a wide variety of physical environments. Although the average depth is approximately 30 m, there are shallow and flat bottomed bays and inlets with depths of 5 m, as well as deep steep-sided areas, reaching to depths of 280 m.[6] The Bras d'Or Lake contains rocky, sand, gravel and mud habitats, as well as Barachois ponds along its perimeter. There are three connections between the lakes and the surrounding ocean (St. Peter's Canal, Little Bras d'Or Channel and Greater Bras d'Or Channel) with most of the exchange of water

[5] Government of Nova Scotia Online Maps. Accessed July 21, 2007. URL: http://www.gov.ns.ca/snsmr/land/online/images/MaritimesFree.gif

[6] Strain, P. and P. Yeats. The Chemical Oceanography of the Bras d'Or Lakes. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 37-64, 2002.

occurring through the Greater Bras d'Or Channel[7]. While considered by many as a lake, a series of lakes, as well as an in-land sea, the Bras d'Or system is most accurately characterized as an estuary, with a mixing of marine and freshwater inputs that produces a salinity approximately one third less than the surrounding ocean[8]. Although the species in the lakes are generally characteristic of those found along Nova Scotia's Atlantic coast, the Bras d'Or are also home to a diversity of species including glacial relict species inhabiting the lakes from the last ice-age, as well as warm water species typically found in waters as far south as Virginia[9]. The characteristics of this system, particularly the slow flushing rate of water through its many bays and inlets, make it vulnerable to human disturbance. The health and prosperity of the communities surrounding the Bras d'Or are tied to the health of the Bras d'Or Lake and surrounding landscape.

[7] Petrie, B. and G. Bugden. The Phyisical Oceanography of the Bras d'Or Lakes. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 9-36, 2002.
[8]Strain, P. and P. Yeats. The Chemical Oceanography of the Bras d'Or Lakes. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 37-64, 2002
[9] Lambert, T. Overview of the Ecology of the Bras d'Or Lakes with Emphasis on the Fish. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 65-99, 2002.

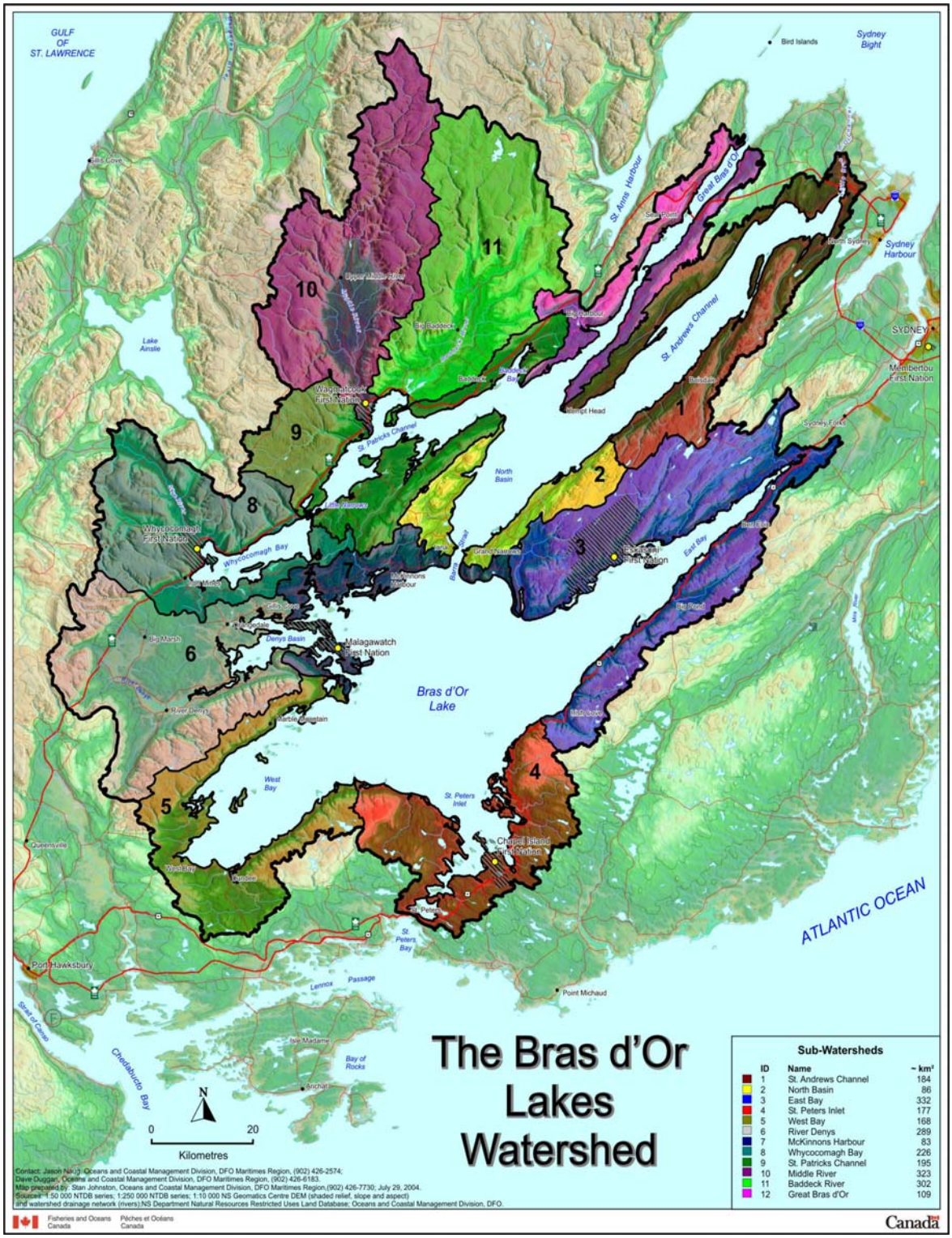


Figure 2. Bras d'Or Lake Watershed showing sub-watersheds[10].

[10] Johnston, S. Fisheries and Oceans Canada. 2005.

Terrestrial Environment:

The terrestrial watershed surrounding the Bras d'Or Lake is approximately 2400 km^2 in area with the majority of the land being in the north and western portions of the lake[11]. The watershed is itself the extent of the land base that drains into the Bras d'Or. There are four major rivers flowing into the Bras d'Or, including the River Denys, Skye River, Baddeck River, and Middle River. The watershed as a whole is highly forested with the various sub-watersheds having 74 to 86 % tree cover[12]. Some of the major terrestrial mammals that frequent this area include the moose, black bear, deer, bobcat, lynx, snowshoe hare, skunk, coyote and racoon. The Bras d'Or watershed is also home to a large population of bald eagles with provincial estimates in 1994 of more than 800 birds[13]. There are several species of plant and animal located in this watershed that are listed under the federal *Species at Risk Act* or the provincial *Endangered Species Act*. These include the Bicknell's Thrush (bird), Prototype Quillwort (plant), Canada Lynx, American Marten and Gaspe Shrew (mammals) and the Wood Turtle (reptiles)[14]. Freshwater wetlands, which are important ecological areas containing greater levels of biodiversity, comprise approximately 100 km^2 of the total watershed. The approximately 1000 km of shoreline around the Bras d'Or is the transition area between the marine and terrestrial environments[15]. In this area, the ecological linkages between upland areas, the shore, and offshore areas occur. This linkage is facilitated by the drainage of the terrestrial watershed through various streams and rivers down to the Bras d'Or Lake.

Planning and Management Context:

Given the unique and valued nature of the Bras d'Or Lake environment, a number of attempts have been made to develop a better overall planning and management regime for the lakes and watershed lands over the past 30 years. Taken together these efforts reflect the recognized value of the Bras d'Or ecosystem and the fact that there have been, and

[11] Lambert, T. Overview of the Ecology of the Bras d'Or Lakes with Emphasis on the Fish. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 65-99, 2002.
[12] Parker, M., M. Westhead, P. Doherty and J. Naug. 2007. Ecosystem Overview and Assessment Report for the Bras d'Or Lakes, Nova Scotia. Can. Manuscr. Rep. Fish. Aquat. Sci. 2789: xxii + 223 pp.
[13] As above.
[14] As above.
[15] Petrie, B. and G. Bugden. The Phyisical Oceanography of the Bras d'Or Lakes. Proceedings of the Nova Scotia Institute of Science, Vol. 42, pp. 9-36, 2002.

continue to be, a number of threats to this system. These efforts also represent the view that a greater degree of coordination is required to better manage this area. While none of the previous efforts have resulted in the development of an overall management plan for this area, each has included a number of approaches for developing a better management regime for the Bras d'Or. These previous efforts have included assessments of the environmental issues present, natural asset inventories, proposed management structures, public information programs, and public consultations. A list of the planning and management efforts over this time are included in Table 1.1 below and detailed further in Chapter 3.

Table 1.1: Previous Planning and Management Efforts for the Bras d'Or

Year	**Effort**
1975	*Proceedings of the Bras d'Or Lakes Aquaculture Conference, College of Cape Breton Press, 1975.*
1987	*A Proposal Concerning An Integrated Resource Management Planning Process for the Bras d'Or Lake Watershed - E.M. Cressman, 1987.*
1992	*Bras d'Or Lake Watershed: Integrated Resource Management Plan Study - UMA Group 1992.*
1995	*Taking Care of the Bras d'Or: A New Approach to Stewardship of the Bras d'Or Watershed – University College of Cape Breton, 1995.*
1999	*Bras d'Or Lakes Ecosystem Workshop, October 22-24, Fisheries and Oceans Canada and Enterprise Cape Breton Corporation, 1999.*
2001	*River Denys Integrated Management Report, EastCoast Aquatics for Fisheries and Oceans Canada, 2001.*
2001	*Defining the Problem, The Pitupaq Committee, 2001.*
2002	*Sustainability Issues: Bras d'Or Region – Final Report, EastCoast Aquatics for the Sustainable Communities Initiative, 2002.*
2003	*Collaborative Planning Initiative, Bras d'Or Lakes Workshop Proceedings, 2003.*
2004	*Collaborative Environmental Planning Initiative, Bras d'Or Lakes Workshop Proceedings, 2004.*

2005	*. Developing a Strategic Action Plan for the River Denys Basin Watershed, Masters Thesis. School for Resource and Environmental Studies, Dalhousie University, S. Barrington, 2005.*
2005	*Sustainable Communities Initiative, Bras d'Or Field Team Report on Community Meetings, 2005.*

There are a number of government departments (municipal, provincial, federal, and First Nation) operating in the Bras d'Or lakes and watershed with responsibilities for the management of various aspects of the environment. In addition, in recent years a number of other organizations have formed to address specific concerns in this area. Examples of these include:

Unama'ki Institute of Natural Resources (UINR)
Nova Scotia Sustainable Communities Initiative (SCI) Cape Breton Field Team
The Pitu'paq Committee
Science for the Integrated Management of the Bras d'Or Lakes (SIMBOL)
Bras d'Or Collaborative Environmental Planning Initiative (CEPI)

Despite the many government departments with responsibilities for the management of the environment in the Bras d'Or area, a number of persistent environmental issues have been identified through the various studies and consultation exercises. Some of the main issues identified include fishery declines, sewage contamination, invasive species, and erosion and sedimentation from land-based development[16, 17, 18]. In response to this, the Bras d'Or Collaborative Environmental Planning Initiative (CEPI) has been formed and are beginning work toward the development of an overall management plan for the Bras d'Or lakes and watershed lands.

CEPI is a partnership of federal, provincial, municipal and First Nation governments, industry, non-governmental organizations, academia, and community members that are exploring how to better manage the activities occurring within the environment of the

[16] . *Bras d'Or Lake Watershed: Integrated Resource Management Plan Study - UMA Group 1992*
[17] . *Bras d'Or Lakes Ecosystem Workshop, October 22-24, Fisheries and Oceans Canada and Enterprise Cape Breton Corporation, 1999*
[18] *Sustainable Communities Initiative, Bras d'Or Field Team Report on Community Meetings, 2005*

Bras d'Or using a collaborative approach. The purpose of CEPI, as articulated in its Terms of Reference, is to develop an overall management plan for the Bras d'Or lakes and watershed lands and facilitate its implementation by governments and other relevant stakeholders. Much effort was spent at the beginning of this initiative, in which this author was involved, in engaging and developing a common agreement among the partners involved on this approach. It was recognized that building these relationships and understandings would help form a strong foundation for future efforts and be a prerequisite for the involvement of the range of partners required. It was hoped that by working collaboratively toward one vision under a management plan, that there would be efficiencies gained, priorities identified, and efforts undertaken that may not have been possible by working as separate organizations. CEPI has developed an organizational model to help facilitate the planning needed that includes a multi-sector and departmental Steering Committee to oversee the planning process, Task Teams to undertake issue specific work, a Senior Council consisting of senior level leaders from each government department and First Nation Band to provide endorsement and support, and a Secretariat to help organize and coordinate the process. CEPI suggests that an overall management plan for this area is required to better address these issues by providing a more coordinated approach. A framework document entitled, *Toward a Bras d'Or Lakes and Watershed Environmental Management Plan* has recently been prepared by CEPI that highlights the specific approach and benefits that an overall management plan, developed in collaboration with all stakeholders, would have for addressing these issues. See Appendix A for a summary of this framework document. This document, which is the roadmap for the overall plan, suggests that management, and by implication the environmental issues, would be improved by focussing attention on a number of distinct areas. These areas can be broadly grouped as relating to reaching consensus (vision, issues, targets for environmental health, etc.), sharing (information, resources, expertise, etc.), and coordination (work planning, policy, enforcement, etc.), among the various bodies responsible for the management of the Bras d'Or[19]. All three of these aspects are related to working better together toward a common goal. Emphasis therefore is placed

[19] *Toward a Bras d'Or Lakes and Watershed Environmental Management Plan: Draft Discussion Document*. Prepared by the Bras d'Or Collaborative Environmental Planning Initiative's Management Plan Task Team. 2006.

less on issue specific concerns and more on this process of working together. Consensus requires these groups to agree on specific areas where and how the work will be directed, sharing allows the partners to make use of all the resources available, and coordination will allow the work to be both strategically and efficiently carried out. The underlying assumption in this document is that improving the general management conditions through the various forms of consensus building, sharing and coordination will help address the environmental issues present and help prevent new ones from occurring.

Scope of the Current Management Plan for the Bras d'Or:

The elements described below in Table 1.2 have been agreed to by the CEPI as those things that when identified, agreed to, and developed, would comprise an overall management plan for the Bras d'Or Lake and watershed lands. These elements describe both the scope and approach to be taken by the CEPI and place an emphasis on a process of working together to address issues generally rather than specific methods to deal with any given issue. In discussions of the CEPI, of which this author was a part, it was thought that many of the issues were complex enough or would require multiple partners and approaches to address them that the initial focus should be on finding ways to work together toward common goals. In this way the main elements described can be seen in terms of building consensus, sharing, and coordination. Table 1.2 below describes each of these elements.

Table 1.2 Areas of Emphasis for Overall Management Plan for the Bras d'Or[20]

Theme	***Element***
Consensus and Coordination	Agree to and develop a common vision, purpose, goals, objectives and principles for improved management Identify and agree on the environmental issues and their priority Determine and agree on the environmental conditions Identify and agree on information needs Agree on and describe the roles and responsibilities of partners to implement the plan Agree on and develop common communication and public participation strategies Agree on and develop targets and indicators of environmental health

[20] Toward a Bras d'Or Lakes and Watershed Environmental Management Plan. Collaborative Environmental Planning Initiative (CEPI). July 2006.

	Agree on and develop an evaluation and review mechanism Agree on and develop common policies Agree on and develop common work plans Agree on and develop a common funding strategy Agree on and develop an evaluation and review mechanism
Sharing	Information Expertise Research capacity Planning processes Financial resources Linkages between projects and overall objectives

Problem Statement:

The current planning efforts of the CEPI suggest that the various environmental issues for the Bras d'Or lakes and watershed lands will be better addressed through the development of an overall management plan where effort will be directed toward a number of areas of working together. These areas can be seen in terms of consensus building, sharing, and coordination among the partners involved. This thesis wishes to evaluate this premise by assessing the relationship between the environmental issues, and the challenges for addressing them, and the main areas where effort will be directed in developing this plan. This will be done by assessing areas where the management of these issues should be improved and comparing these to the main elements of the plan as outlined in Table 1.2. If a lack of consensus building, sharing, and coordination, and the elements that comprise these, are in fact the areas where greater attention is required to address the environmental issues, the direction outlined for the overall management plan would then appear sound and effective for addressing the issues identified. If however, the areas where management needs to be improved to address the issues are not related to what is proposed in the scope and approach for the overall plan, then adjustments may be required to the scope and approach of this plan to ensure that it is relevant to addressing the issues identified. In addition, any lessons learned from previous planning and management studies that took place will be explored.

Key Question:

This thesis will try to answer the following key question:

Is the current scope and approach being proposed for a management plan in the Bras d'Or Lake and watershed broad enough to address the environmental issues identified?

Chapter 2: Approach and Methodology

Purpose:

The purpose of this thesis is to analyse whether the scope and approach of a management plan being developed for the Bras d'Or Lakes and watershed lands is broad enough to address the environmental issues identified. This will be done based on comparing insights from the existing environmental managers, as those with a legal role and responsibility to manage the environmental issues, against the scope of effort that will be undertaken through the development of this overall management plan. In addition, lessons learned from previous management efforts will be examined in this context. This plan is currently being developed through a multi-stakeholder and intergovernmental planning and management process in the Bras d'Or called Collaborative Environmental Planning Initiative (CEPI). The CEPI suggest that the environmental issues within the Bras d'Or will be better addressed when effort is directed at a number of areas, generally grouped as consensus, sharing and coordination, as outlined in the framework document, *Towards a Bras d'Or Lakes and Watershed Environmental Management Plan*. Recommendations from this research will be presented to CEPI for their consideration in the development of this management plan.

Methodology:

The research has been divided into the following main areas described below. Figure 2.1 provides an overview of this process.

Scope for Current Bras d'Or Management Plan: A review was made of the framework document developed by CEPI, entitled, *Toward a Bras d'Or Lakes and Watershed Environmental Management Plan*, which outlines the scope and approach of the overall management plan for the Bras d'Or. The key aspects of this plan and approach that are purported to improve the overall management of the Bras d'Or were described. A table was created that outlined the specific aspects where effort is to be directed in developing this plan.

Previous Planning and Management Efforts: A review was made of previous planning and management efforts directed at the Bras d'Or. These documents were gathered and analysed. As these efforts did not result in the development of a plan or the resolution of issues, possible reasons for such were explored. Tables were created that summarized each initiative, listed the environmental issues identified, actions proposed, and the likely outcomes.

Environmental Issues: A review was made of the environmental issues identified for the Bras d'Or lakes and watershed lands from the planning studies and consultation exercises described above. These issues were summarized and then sorted to examine any obvious relationships, including their root causes and pathways of effect. Emphasis was placed on trying to identify those issues and activities that may be the cause other environmental issues. For example, forestry, erosion and siltation have all been identified as environmental issues, but forestry would be identified as a key issue since it may cause erosion and siltation. This sorting was done with the consideration that management effort would be most effective if directed at the causes rather than the effects of these issues.

Environmental Mandates: A review was made of the existing government departments working to manage various components of the environment in the Bras d'Or lakes and watershed lands. Government departments included those from municipal, provincial, and federal levels, as well as First Nations Bands as they apply to reserve lands. Particular attention was focussed on the legislative, policy, and program responsibilities of each of these departments as they relate to the issues identified. Organizing the management regime on an issue basis helped maintain focus on the issues in the Bras d'Or, given the broad range of responsibilities most government departments have. Information was gathered largely from contacting these departments and web-based searches of their legislation, policies and programs. Any gaps in legislation, regulations, policies and programs were noted. A summary table of these organizational responsibilities was completed relative to each of the issues identified. Detailed descriptions of these mandates are included in Appendix B.

Issue and Environmental Mandate Verification: The results of the issue identification and environmental mandates research were summarized and given to staff people from the relevant government departments for verification. Any required changes to either the issues or mandates were made based on this feedback. A list of primary contacts from each of these departments was generated.

Survey: Interviews with managers and staff in various government departments were conducted to determine what the general management efforts area related to the issues and where in their opinion management efforts could be improved to better address the issues. As staff people with direct responsibility for these issues, it is suggested that they would have the greatest knowledge, experience and insight into them. In addition, insights into previous planning and management efforts that have taken place over the years within the Bras d'Or were sought for lessons learned to apply to the current process. A questionnaire and interview protocol was developed and used with the managers and staff by the author in person or by telephone. Each of the comments and recommendations made by the managers were compared in tables to the various elements described for an overall management plan. Comments and recommendations that did not fall under these areas were also noted. A summary of the number of comments that fell within and outside the scope and approach of the overall management plan was made. In addition, the areas emphasized for improved management by the managers was noted.

Management Analysis: The major outcomes from each of the stages taken during this research were reviewed to determine if the key question for this thesis was answered. Once the input from the staff people associated with each issue was gathered, it was compared to the scope and approach being pursued for the overall management plan for this area. This comparison assessed the effectiveness of the approach being pursued by CEPI to deal with the issues identified and identified relevant gaps in the current approach.

Conclusion and Recommendations: Based on a synthesis of the scope and approach for the management plan, review of previous planning and management efforts, the environmental issues, the responsibilities of each government department for these issues, and the opinions of where management could be improved for each issue, specific recommendations were developed to help advance the current CEPI process. Where improvements to management were described that did not correspond to areas to be addressed under the management plan, specific recommendations to alter the scope of this plan were made. In this way, this research helps assess and support the approach currently proposed for the future management of the Bras d'Or.

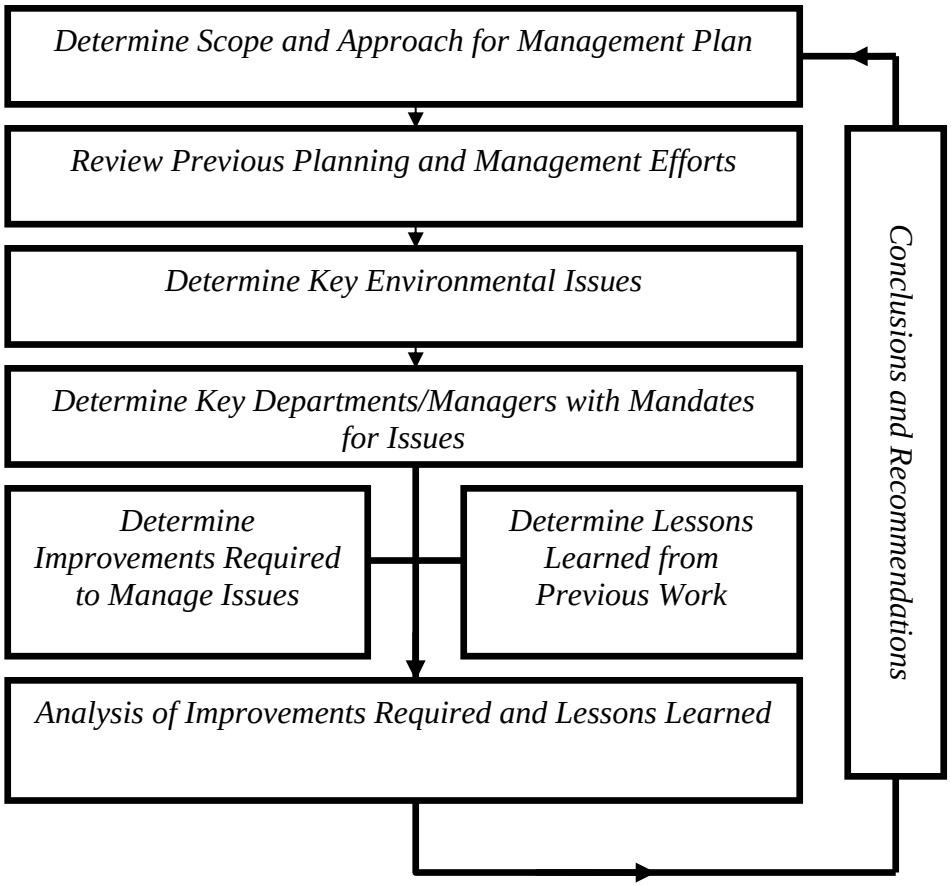


Figure 2.1 Generalization of Methodology Undertaken

Chapter 3: Environmental Concerns in the Bras d'Or

There is a long history of efforts to better manage the Bras d'Or Lake. Various studies, consultation exercises and initiatives to develop new management bodies over the past 30 years have taken place with the support of the local university, First Nation Bands, various government departments, and local businesses. This chapter reviews these previous efforts to provide a history and context for the current efforts. Included in this review is a summary of the approaches taken, issues identified, actions proposed, and outcomes achieved. From this review a list of the environmental issues, sorted on a cause and effect basis, is proposed. The history of these management efforts highlights the long-standing nature of some of these issues. While none of these efforts resulted in the successful development of an overall management plan, and many issues remain, an analysis of their approach and scope provides some useful insight into the direction that a current management plan and process may take. In addition, the history of these efforts highlights the changes to the context of planning in which the current efforts of CEPI occur.

Previous Efforts:

Table 3.1 summarizes the planning and management efforts that have taken place in the Bras d'Or over the past 30 years.

Table 3.1: Previous Planning and Management Efforts for the Bras d'Or

Year	Effort
1975	*Proceedings of the Bras d'Or Lakes Aquaculture Conference, College of Cape Breton Press, 1975.*
1987	*A Proposal Concerning An Integrated Resource Management Planning Process for the Bras d'Or Lake Watershed - E.M. Cressman, 1987.*
1992	*Bras d'Or Lake Watershed: Integrated Resource Management Plan Study - UMA Group 1992.*
1995	*Taking Care of the Bras d'Or: A New Approach to Stewardship of the Bras d'Or Watershed – University College of Cape Breton, 1995.*
1999	*Bras d'Or Lakes Ecosystem Workshop, October 22-24, Fisheries and Oceans Canada and Enterprise Cape Breton Corporation, 1999.*

2001	*River Denys Integrated Management Report, EastCoast Aquatics for Fisheries and Oceans Canada, 2001.*
2001	*Defining the Problem, The Pitupaq Committee, 2001.*
2002	*Sustainability Issues: Bras d'Or Region – Final Report, EastCoast Aquatics for the Sustainable Communities Initiative, 2002.*
2003	*Collaborative Planning Initiative, Bras d'Or Lakes Workshop Proceedings, 2003.*
2004	*Collaborative Environmental Planning Initiative, Bras d'Or Lakes Workshop Proceedings, 2004.*
2005	*Barrington, S. Developing a Strategic Action Plan for the River Denys Basin Watershed, Masters Thesis. School for Resource and Environmental Studies, Dalhousie University, 2005.*
2005	*Sustainable Communities Initiative, Bras d'Or Field Team Report on Community Meetings, 2005.*

The following boxes, as presented in chronological order, provide further detail on many of the efforts to both identify environmental issues within the Bras d'Or and propose methods to better address them. Included within each table below is a summary of the overall effort, the environmental issues identified, the actions proposed, and the apparent outcomes. Further tables are provided that summarize the environmental issues, their relationships, and pathways of effect.

The Proceedings of the Bras d'Or Lakes Aquaculture Conference, College of Cape Breton Press, 1975.

Summary:
A large multi-day conference was organized by the Bras d'Or Institute (of the College of Cape Breton) and the Atlantic Provinces Inter-University Committee on the Sciences, to develop a comprehensive picture of aquaculture in Altantic Canada and to discuss major concerns and problems which need more attention. Specifically the conference hoped to exchange scientific and technical information, report research results, and identify problem areas where more research must be done. The conference also hoped to explore how science and technology can relate to other aspects of the aquaculture business and learn what each interest group plans to do in the immediate future. Approximately 190 researchers, industry, and government staff attended this event with a strong focus on the Bras d'Or Lakes including calls for Coastal Zone Management to help protect potential aquaculture operations.
Environmental Issues Identified:
In addition to specific technical issues associated with aquaculture, the workshop also discussed the following environmental issues: Sewage from boats, campgrounds, outhouses, etc. Lack of effective land-use planning Air pollution from Port Hawkesbury

Mining (gypsum)
Potential mining of metallic deposits
Siltation
Potential petroleum development
Pulping operations

Actions Proposed:

Two recommendations were made with respect to the Coastal Zone Management aspect of the discussion during this conference:

That the province of NS define the Bras d'Or coastal zone by its watershed limits rather than some fixed distance from the coast.

That the Bras d'Or Lake is considered a special management area because of its character and current rapid expansion of aquaculture. It should also be given special consideration as a pilot area for aquaculture.

There were also two resolutions introduced and passed relating to:

A clearing house be established to make all scientific data available to any interested parties

Holding another workshop to exchange information between scientists and marine farmers.

Outcomes:

Uncertain

A Proposal Concerning An Integrated Resource Management Planning Process For The Bras d'Or Lake Watershed - E.M. Cressman, 1987

Summary:

This study provided a good outline of what an overall integrated resource management planning process should include for the Bras d'Or Lakes, including important principles to follow. It recognized the need for high levels of federal and provincial support and commitment before the actual planning process could begin, and a similarly high level of approval of a final plan. While the overall objectives of the process were defined as "ensuring the long term social and economic well being of the people of the planning area", the focus was directed at the co-ordination of land and water uses.

Environmental Issues Identified:

Water quality / lack of sewage treatment
Siltation of streams

Actions Proposed:

An organizational/governance framework to undertake planning was proposed which included:

A federal/provincial agreement be reached to provide the basis for planning in the Bras d'Or Watershed before any efforts are undertaken;

A Steering Committee of senior federal and provincial representatives be established to direct the planning team as necessary;

A Local Advisory Committee be established to advise the Steering Committee (consisting of representatives of the municipalities, First Nations, and others);

A small (two planners and one support staff) Planning Team be assembled to conduct the planning process and produce a plan;

A Plan Management Team (including at least one Planning Team member and others from lead agencies) be established to implement, monitor and revise the plan as necessary.

Outcomes:

No direct outcomes

Bras d'Or Lake Watershed: Integrated Resource Management Plan Study - UMA Group 1992.

Summary:

A consultant was contracted by the Bras d'Or Institute at UCCB to prepare the following for implementing an integrated resource management program for the entire Bras d'Or:

Information Base

Planning Framework

Public Information Program

Management Structure

This work was directed by a Task Force including representatives from: NSDOE, DFO, EC, ECBC, Bras d'Or Institute, Grand Narrows District Board of Trade, and the Highland Heights Inn.

As part of the Information Base, Development Issues and Opportunities were presented that included:

Environmentally sensitive development opportunities and constraints (based on interviews with industry, community, special interest groups, and government officials)

Description of the current and projected economic conditions in the watershed

Economic and demographic indicators for various conditions in 11 sub-areas of watershed

Environmental Issues Identified:

Water Quality;
Impacts from renewable and non-renewable resource extraction

Actions Proposed:

The last section of the report provided a brief overview of a potential Planning Framework. It included:

The overall objective ("To manage the watershed to meet the future demands of a growing economy while maintaining the health and productivity of the watershed's natural environment") and a number of objectives under which it should operate (including, "working within the statutory restrictions of existing government departments and agencies.")

A description of a Public Information Program

A description of a Management Group whose functions included:

- A referral role to ensure the effective flow of information and maintenance of information systems, permit existing agencies to make more informed and timely decisions with a wider base of public, special interest group and private sector input.
- Coordinate the collection and referral of information between the various and necessary jurisdictions in the watershed
- Ensure that environmental and integrated resource planning aspects of development projects or resource activity are considered in the approval process.

Outcomes:

No direct outcomes

Taking Care of the Bras d'Or: A New Approach to Stewardship of the Bras d'Or Watershed – University College of Cape Breton 1995.

Summary:

Enterprise Cape Breton Corporation (ECBC) funded the University College of Cape Breton (UCCB) to undertake a study looking at developing a new management system for the Bras d'Or Lakes. An Advisory Committee of several community leaders was formed. The group consisted of stakeholders from around the Lakes, representatives of UCCB, and a staff person each from the provincial and federal government. The report and approach proposed was endorsed by the First Nations Chiefs of Cape Breton.

A preliminary round of public consultations occurred at Baddeck, Eskasoni, Iona and St. Peter's to identify issues and concerns regarding the watershed and its management. The two major issues identified were protecting water quality in the Lakes, especially from human sewage, and improving public access to the Lakes.

The roles of the community based management system for the Bras d'Or Lakes watershed were articulated, including

- Promote public awareness of the environmental, social and cultural values of the watershed and importance of personal stewardship
- Promote the programs and activities that support sustainable development of the watershed
- Plan for the controlled development and protection of the watershed
- Provide a mechanism to coordinate government review and control of selected activities within the watershed
- Monitor activities within the watershed
- Inform the public on the watershed
- Advise governments where necessary

Environmental Issues Identified:

- Water Quality (especially from sewage)

Actions Proposed:

It was recommended that a Steering Committee, appointed by the Government of Nova Scotia in consultation with community leaders in the watershed establish a Commission. The Commission would have one member (locally elected) for each of seven geographic areas represented by major river basins (all voting), five members from each of the Mi'kmaq bands selected by each Chief (all voting), and four members from each of the municipalities, and one member each from the provincial and federal governments (non-voting).

Responsibilities for the Commission were detailed to be:

- Development of Action Plans to address urgent and high priority issues;
- Drafting a Charter for the Bras d'Or Lakes watershed;
- Planning for the future development and use of land and water resources;
- Promotion and Public Education;
- Management for sustainable development, including an inventory of resources and values, setting of objectives, and cooperative decision making with government agencies;
- Enforcement, including compliance monitoring, reporting and laying of charges;
- Public reporting; and,

Periodic review and adjustment of the watershed plan.

The Commission was intended to be a "one-window" agency that would expedite inter-agency cooperation and not be another layer of government. Achieving this was proposed through an appropriate delegation of authority for specified activities and a transfer of resources from federal, provincial and municipal governments. The Environment Act (Bill 115, Section 105) was considered to provide the necessary legislative authority for the Minister of the Environment to assign responsibility for watershed management to organizations such as the Commission.

A number of final recommendations were made, including:

- That the federal and provincial governments undertake surveys to determine the sources, types, extent and severity of water pollution in the Lakes;
- That the government of Nova Scotia take the legislative steps required to establish the Commission with a specific mandate, authority and responsibilities;
- That the federal government coordinate discussions among federal, provincial, municipal and First Nations to transfer the required authority to the Commission;
- That UCCB and the five Cape Breton Bands develop programs to increase the technical abilities of the Mi'kmaq people;
- That UCCB and the First Nations Bands conduct public information sessions to explain the Commission to the public;
- The Commission, once established, give immediate attention to:
  - Drafting Charter
  - Drafting plan for sustainable development
  - Determine the health of the natural resources to establish safe conservation standards
  - Develop a remedial action plan to eliminate the discharge of sewage into the Lakes
  - Address the issue of public access to the Lakes
- That UCCB work with the Commission to provide knowledge and technical services, information technology, public education, research, etc.
- That UCCB and the Cape Breton Chiefs be asked to serve as a Secretariat for the proposed Commission; and,
- That the Commission arranges an independent audit of its effectiveness and performance.

Outcomes:

No direct outcomes were achieved, as a Commission with delegated authority was not established. The issue of delegating authority to another management body was determined to be unfeasible.

Bras d'Or Lakes Ecosystem Workshop, October 22-24, 1999, Fisheries and Oceans Canada and Enterprise Cape Breton Corporation.

Summary:

The main objective of this workshop was to determine the scientific priorities for the Bras d'Or Lakes and their watershed so that ecosystem considerations can be incorporated into any future integrated management plans for the area. This workshop was organized by the Department of Fisheries and Oceans and the Enterprise Cape Breton Corporation and sought the input from First Nations, schools, universities, community organizations, industry and other government organizations at the federal and provincial level. This was to be done in the context of the recently passed *Oceans Act* (1997) and its programs, including Integrated Management.

Environmental Issues Identified:

The need for scientific information related to:

Water Quality
Siltation
Benthic Habitat
Physical Oceanography
Measuring of biological events
Lake productivity
Inventories of baseline information
Aquaculture monitoring
Fisheries catch information

Actions Proposed:

Group work was undertaken to assess issues and develop a series of proposals for action in the four main theme areas.

Outcomes:

A series of research programs were established to address the objectives from this workshop between, DFO, NRCAN, and the Eskasoni Fish and Wildlife Commission. Results of this research have been published in a volume of the NS Institute of Science and presented at a number of public meetings in the area.

River Denys Integrated Management Report, 2001. EastCoast Aquatics for Fisheries and Oceans Canada.

Summary:

This report contracted for the Department of Fisheries and Oceans, proposes a scientifically based management system for the Denys Basin watershed focused on the freshwater streams and estuary. Different aspects of the watershed ecosystem were chosen for examination (water quality, sediment sources, etc.). The conditions of these components were then evaluated, primarily by examining aerial photos and from other studies in the area. Areas potentially impacted by human activity were identified. Target levels were then established for these ecosystem components and relevant indicator species. Atlantic Salmon, Brook and Brown Trout were selected for the freshwater streams, and American Oyster and Winter Flounder were selected for the Denys Basin itself.

Management actions would be necessary when target levels for the indicator species are impacted from their normal range (e.g. water temperature, turbidity, etc.). This method requires that specific environmental parameters be monitored to ensure that they fall within the target levels for the various indicator species.

Environmental Issues Identified:

Mining
Logging
ATV use
Agriculture
Shoreline development
Gravel extraction
Sewage

Actions Proposed:

A series of potential actions related to each ecosystem component were developed and prioritized. Based on the information assessed, a reduction in fecal contamination from farmland and residential sources is required to achieve shellfish openings. Significant stream habitat and riparian improvements will be required in order to re-establish nutrient cycling and fish populations. Finally, sediment sources will need to be stopped in the mid to lower portion of the watershed to stop the ongoing impact to both freshwater and estuary habitat. The top actions recommended in this report therefore were: reduce fecal coliform impacts, stop sediment sources, restore stream habitat and riparian zones, and develop guidelines for shoreline development.

Outcomes:

This work has been built upon, including gathering public input, in the development of a sub-watershed management plan for this area. Some restoration activities have taken within this area to decrease sediment sources and restore stream and riparian habitats.

Defining the Problem, 2001, The Pitu'paq Committee.

Summary:

In July 2001 the political leaders of the five municipal units in Cape Breton came together to discuss the state of the Bras d'Or Lakes with respect to sewage contamination and to develop a plan of action. Several concerns were identified including those related to enforcement, tracking and management of on-site systems, and the need to address all potential sewage sources (on-site, boating, central treatment systems).

As a result of this discussion, the municipal units identified ten commitments on their part, and ten reciprocal commitments that would be required on the part of provincial and federal governments. The Pitupaq Committee committed to:

- View the sewage management issue affecting the Bras d'Or Lakes from three perspectives: Sewage treatment plants, on-site sewage disposal systems, and boating.
- Act as a unified body to develop a plan for implementation and seek funding to support it - i.e (MOU among municipalities and First Nations).
- Identify priority areas where on-site sewage disposal systems are malfunctioning.
- Co-operate with the responsible regulatory agencies to perform a current audit of sewage treatment plants and provide an action plan to address any identified deficiencies.
- Ensure treatment plant operators receive all required training.
- Recommend to government agencies the regulatory changes they feel are required to ensure the health of the Bras d'Or Lakes with respect to sewage.
- Ensure on-going education and awareness of the public with respect to the care and maintenance of on-site sewage disposal systems.
- Public education directed at the risks associated with the dumping of raw sewage into the Bras d'Or Lakes from recreational and other marine craft.
- Review and establish, where applicable, "Deed Transfer Regulations" which will provide for upgrading of on-site sewage disposal systems at the point of a property sale.
- Commitment to create "waste management districts" to manage pump-out and on-going maintenance and repair of on-site sewage disposal systems with a view to stimulating private sector growth in this area while ensuring environmental protection.

By fall 2001, the five First Nation communities in Cape Breton became partners in this process.

Environmental Issues Identified:

Sewage from on-site systems
Sewage from faulty treatment systems
Sewage from boats

Actions Proposed:

Participated in process to have Bras d'Or lakes designated as a non-discharge zone for sewage from marine vessels under the *Canada Shipping Act* in partnership with the Bras d'Or Sustainable Communities Initiative.

The current workplan (2007/08) of the Pitu'paq Committee consists of efforts directed at:

Whycocomagh Sewage Treatment Plant (assessing suitability of current system and potential for new system)
Certificates of Status at Point of Sale (assess potential to implement a system relating to condition of on-site septic system when a property is sold).
Green Municipal Fund Application (a proposal for funding to assess and evaluate sites for potential Wastewater Management Districts)
Joint Enforcement Team/Public Awareness CSA Designation (to ensure enforcement and public awareness requirements of the Canada Shipping Act designation are met)
Chapel Island Mission (develop a plan to help address sewage issues associated with annual Mission Day events)
Chapel Island Sewage Lagoon (assess status of sewage management system)

Outcomes:

The Lake was designated as a non-discharge zone for sewage from marine vessels in 2006. Joint patrols in Bras d'Or for one week in August to inform boaters of impending changes relating to the discharge of sewage.

Sustainability Issues Bras d'Or Region: Final Report, 2002. EastCoast Aquatics for the Sustainable Communities Initiative.

Summary:

A report was commissioned by the Nova Scotia Sustainable Communities Initiative to synthesize issues identified through forty-two planning reports, studies, public meetings and community workshop reports in the Bras d'Or Lakes area that involved community consultation and input. The issues identified were considered to be complex enough to warrant multiple partnerships, shared resources and in-depth planning and approaches.

Environmental Issues Identified:

Disposal of sewage into lakes
Erosion and siltation from forestry roads
Water contamination
Declining fish stocks
Need for baseline data on water quality, species, etc,

Actions Proposed:
None, just a review of issues.
Outcomes:
Public consultation sessions were held to confirm identified issues.

Collaborative Planning Initiative, 2003 Bras d'Or Lakes Workshop Proceedings.

Summary:
A workshop was held to develop a common understanding and approach among the three levels of government and First Nations to advance an overall environmental planning and management initiative for the Bras d'Or Lake and its watershed. This was done to address the present and future well being of the Lakes and the communities surrounding them. This workshop was held to begin the process to ensure that existing efforts are coordinated and supported, so problems can be addressed. The focus of the discussion was on the process of working together (collaboratively) to address the many issues present, rather than the specific environmental issues themselves.
Environmental Issues Identified:
Invasive Species
Actions Proposed:
Continue to seek involvement of government partners and engage broader public into this process. Support the Unama'ki Institute of Natural Resources (UINR) to help coordinate efforts toward the development of an overall management plan for this ecosystem.
Outcomes:
Agreement among government and First Nation partners to work together to advance initiative, engage broader public and support UINR to coordinate efforts.

Collaborative Environmental Planning Initiative, 2004 Bras d'Or Lakes Workshop Proceedings.

Summary:
The 2004 workshop was to engage citizens into the process of planning for the the Bras d'Or Lakes and ecosystem that was begun the previous year among government and First Nation leaders. During the workshop participants learned about the challenges facing the Bras d'Or through presentations on water quality, invasive species, land development, and forestry. The workshop discussed several initiatives which are taking place in the Bras d'Or including that of the Sustainable Communities Initiative, the Pitu'paq Committee, Science for the Integrated Management of the Bras d'Or Lakes, and the Unama'ki Institute of Natural Resources. Participants developed a vision for a healthy, sustainable Bras d'Or and then described areas where action is needed to achieve the vision. Participants then developed a range of potential actions related to the issues.

Environmental Issues Identified:

Water quality
Forestry
Land based development
Fisheries
Invasive species
Climate change

Actions Proposed:

A wide range of potential actions were identified related to the issue areas and other areas of emphasis.

Outcomes:

Broader community more aware of Collaborative Environmental Planning Initiative. A wide range of priorities/actions have been developed for inclusion in overall management plan.

Barrington, S. 2005. Developing a Strategic Action Plan for the River Denys Basin Watershed – Masters Thesis, School for Resource and Environmental Studies, Dalhousie University.

Summary:

This work developed a draft environmental Action Plan for this area based on the conditions present and the views of all local residents. This work began by reviewing previous studies and information on this area to create socio-economic and ecological overviews. Local residents were contacted to capture their knowledge and concerns. Assessing the local information from residents was important to supplement the published information and to ensure that the draft Plan was based on the characteristics and concerns of the whole community. A detailed questionnaire was sent to all permanent and seasonal homeowners (over 300 homes) and interviews were conducted with a range of residents in the area to ensure representative views from the whole area were considered in developing the draft Action Plan.

Environmental Issues Identified:

Sewage
Drinking water
Chemicals (landfill dumpsites)
Biodiversity
Decline in fish stocks
Sedimentation
Clearcutting
Invasive species

Actions Proposed:

The Action Plan outlined a number of potential actions to take to address the various conditions and issues raised during the research phase of the study. Nine different groups of actions were proposed ranging from those that were of high importance and easy to implement to those that were of varying degrees of

importance and ease of implementation.
Outcomes:
Results of this work and previous work were presented to the community to identify priority actions. Based on this, a number of detailed action plans were developed within the final Denys Basin Sub-Watershed Management Plan.

Sustainable Communities Initiative, 2005. Bras d'Or Field Team Report on Community Meetings.

Summary:
The Bras d'Or Field Team of the Sustainable Communities Initiative held a series of community meetings throughout the Bras d'Or watershed during 2003 and 2004. Nine community meetings were held with five of them taking place in First Nation communities. The goals of the meetings were to introduce the SCI concept and the Bras d'Or Field Team to the communities and to validate the results of the sustainability issue research conducted by EastCoast Aquatics in 2002. A range of themes were explored that including culture and heritage, women, transportation, social services, development/economy, natural resources, etc. After reviewing the issues described in the EastCoast Aquatics research, participants were given the opportunity to add and then prioritize the issues under each theme area.
Environmental Issues Identified:
Sewage Water quality Declining fish stocks Forestry practices Land development Invasive species
Actions Proposed:
None, as the intent was only to confirm and prioritize issues.
Outcomes:
A "Natural Resources" task team was struck by the Bras d'Or Field Team of the SCI to examine several of the environmental issues.

Based on the review of these efforts, it is apparent that much time and effort has been directed at studying, consulting on and examining issues within the Bras d'Or area. A number of workshops, studies, discussions, and consultations have taken place in the Bras d'Or to identify issues and propose solutions over the past several decades. There has also been considerable thought put into developing management systems to address

these issues; the last formal one proposed but not adopted in 1995. However, there appear to be few direct outcomes related to addressing the environmental issues identified, with many of the same issues being identified as concerns over this time period. While it may not be possible to determine exactly why further progress against these issues was not made, several challenges appear to have existed for doing so. These challenges relate to the complexity of jurisdictions involved, the need for dedicated staff to oversee a planning and management process, the need for senior level buy-in to broad management approaches, and inabilities to transfer legislative authority to new management bodies. These issues may also require substantial financial resources committed to be fully addressed. Many of these challenges, and the requirements to overcome them, have been proposed as actions in these previous efforts that described new management systems. Table 3.2 below highlights what may be needed to better address the issues identified. Although the direct outcomes from some of these previous efforts were not apparent, it should be considered that they may have had more indirect outcomes by influencing the need and direction of efforts that followed them.

Table 3.2 Summary of Recommendations for Improved Management from Previous Planning and Management Efforts

Reference	***Recommendation for Improved Management***
The Proceedings of the Bras d'Or Lakes Aquaculture Conference, College of Cape Breton Press, 1975.	Use the entire watershed for management planning considerations
A Proposal Concerning An Integrated Resource Management Planning Process For The Bras d'Or Lake Watershed - E.M. Cressman, 1987	Ensure high level support for planning from federal and provincial governments before efforts are underway Establish an organizational and governance framework to undertake and oversee planning Ensure dedicated planners are available to undertake planning process
Bras d'Or Lake Watershed: Integrated Resource Management Plan Study - UMA Group 1992.	Include a public information program Establish a management group to ensure more integrated resource management decisions are made based on a wider base of input
Taking Care of the Bras d'Or: A New Approach to Stewardship of the Bras d'Or Watershed –	Create a representative Commission to oversee planning process including First

University College of Cape Breton 1995.	Nation members from each Band Develop a Bras d'Or Charter Ensure promotion and public education Have secretariat function for Commission be served by local university and First Nation Chiefs. Work within existing legislative authorities.

Summary of Environmental Issues:

In addition to providing a number of recommendations for improved management, the history of previous planning and management efforts in the Bras d'Or also provides a good review of the environmental issues identified for this area. Table 3.2 provides a summary of these environmental issues identified in the Bras d'Or based on the previous planning studies and efforts.

Table 3.3 Summary of Environmental Issues

Reference	***Environmental Issues***
College of Cape Breton Presss, 1975. *Proceedings of the Bras d'Or Lakes Aquaculture Conference.*	Sewage from boats, campgrounds, outhouses Air pollution Mining Pulping operations Siltation
Cressman, 1987. *A Proposal Concerning an Integrated Resource Management Planning Process for the Bras d'Or Lake Watershed.*	Water quality Lack of sewage treatment Siltation of streams (road construction, logging) Development
UMA Group, 1992. *Bras d'Or Lake Watershed: Integrated Resource Management Plan Study*.	Water quality Impacts from renewable and non-renewable resource extraction
University College of Cape Breton, 1995. *Taking Care of the Bras d'Or*.	Water quality impacts from human sewage
Department of Fisheries and Oceans and Enterprise Cape Breton Corporation, 1999. *Bras d'Or Ecosystem Workshop*.	The need for scientific information related to: Water quality Siltation Benthic habitat Physical oceanography Measuring of biological events Lake productivity Inventories of baseline information Aquaculture monitoring Fisheries catch information

EastCoast Aquatics, 2001. *River Denys Integrated Management Report.*	Mining Logging ATV use Agriculture Shoreline development Gravel extraction Sewage
The Pitu'paq Committee, 2001. *Defining the Problem.*	Sewage from on-site systems Sewage from faulty treatment systems Sewage from boats
EastCoast Aquatics, 2002. *Sustainability Issues: Bras d'Or Region: Final Report. Prepared for the Bras d'Or Field Team of the NS Sustainable Communities Initiative.*	Disposal of sewage into lakes Erosion and siltation from forestry roads Water contamination Declining fish stocks
Collaborative Planning Initiative, 2003. *Bras d'Or Lakes Workshop Proceedings.*	Invasive species
Collaborative Environmental Planning Initiative, 2004. *Bras d'Or Lakes Workshop Proceedings*.	Water quality Forestry Land-based development Fisheries Invasive species Climate change
Barrington, S., 2005. *Developing a Strategic Action Plan for the Denys Basin Watershed – Masters Thesis, School for Resource and Environmental Studies, Dalhousie University.*	Sewage Chemicals (landfills, dumpsites) Declining fish stocks Sedimentation affecting fish and oyster habitat Clear-cutting Drinking water Invasive Species Biodiversity Erosion from roads
Sustainable Communities Initiative (SCI), 2005. *Bras d'Or Field Team Report on Community Meetings*.	Sewage Water quality Declining fish stocks Forestry practices Land development Invasive species

Based on the various documents reviewed above, there has been range of issues identified for the Bras d'Or over the past thirty years. Several of the environmental issues identified in previous years such as sewage and siltation remain, while new ones such as declining

fish stocks and invasive species have arisen in more recent years. Table 3.4 has been developed to arrange and highlight the relationships among the various issues, including possible pathways of effect. These issues are listed as primary, second, third, and forth order depending on this pathway of effect. This ordering is not done to assign a relative importance to these issues but rather to draw attention to their relationships including how one issue may be the cause of another. It was felt that management attention would be best directed at causes rather than effects. This table does not exhaust all the possible root causes of the issues presented nor validate their extent or severity. This thesis will focus on the *Primary Issues* identified below.

Table 3.4 Relationship of Bras d'Or Environmental Issues

Primary Issue	***Second Order Effect***	***Third Order Effect***	***Fourth Order Effect***
Environmental Issues			
Forestry clear-cutting logging roads	Erosion Siltation Habitat destructionl	Water quality impacts Terrestrial habitat impacts	Impacts to fish habitat and fish Impacts to wildlife habitat and wildlife
Sewage on-site systems (malfunctioning or absent) faulty central treatment systems boats	Bacterial contamination Excess nutrients	Water quality impacts	Impact to fish habitat Impacts to human health Impacts to recreation
Land Use mining/gravel extraction agriculture shoreline development ATV use Landfills/dumpsit	Erosion Siltation Habitat destruction Contaminants	Water quality impacts Terrestrial habitat impacts	Impacts to fish habitat Impacts to wildlife habitat and wildlife Impacts to human health

es roads			
Invasive Marine Species MSX Green Crab Tunicates	Competition and predation on endemic species	Impacts to aquatic species	Ecosystem disruption Financial impacts
Declining Fish Stocks Oysters Lobster Herring	Ecosystem disruptions	Loss of fishery	Financial impacts

Summary:

From the information presented in this chapter, it is apparent that there has been a long history of environmental concerns expressed in the Bras d'Or and discussions regarding how to address them through improved management. A review of these historical discussions reveals few direct outcomes in terms of older issues being addressed or improved management systems. These efforts may however provide the Bras d'Or Collaborative Environmental Planning Initiative, with useful insights to apply to their process of developing an overall management plan for this area. In addition, these previous workshops, studies, discussions, and consultations have provided a good review of the environmental issues discussed in the Bras d'Or over the years. These issues, including forestry, sewage, various forms of land-use, marine invasive species, and declining fish stocks, will form the basis of discussions for this thesis research, including having a clearer understanding of which government departments are responsible for managing them.

Chapter 4: Mandates and Responsibilities

Government Departments:

A range of government departments are involved in the management of the environment of the Bras d'Or lake and watershed lands. Many have agreed to work together through the CEPI in the development of an overall management plan for this area. The need for this diversity of departments reflects the wide ranging environmental issues present and the recognition that an overall management plan to address these issues will require input and cooperation from the various departments with a jurisdiction and management responsibility. These departments have been engaged largely as a result of their general environmental mandates and represent the federal, provincial, municipal and First Nation levels of government. The main departments involved include:

Federal Government: Environment Canada, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, Transport Canada.

Provincial Government: Environment and Labour, Natural Resources, Agriculture Fisheries and Aquaculture

Municipal Government: Cape Breton Regional Municipality, Inverness County, Richmond County and Victoria County.

First Nation Government: Band Councils from the communities of Eskasoni, Wagmatcook, Wycobah, Chapel Island, and Membertou[21].

Other Organizations:

In addition to the government departments listed above that have a role to play in the management of the environmental issues in the Bras d'Or, in recent years there have been a number of other initiatives and organizations formed to support the better management of this area. Examples of these include:

[21] Note: Although Membertou is located outside the watershed of the Bras d'Or, they share a common seasonally used reserve with the other Cape Breton bands at Malagawatch that is within the Bras d'Or watershed.

Unama'ki Institute of Natural Resources (UINR). Since 1999 the UINR has represented the five First Nation Bands and communities in Cape Breton on natural resource and environmental concerns. The UINR promotes and contributes to an understanding and protection of the Bras d'Or marine ecosystem and watershed, assists in the development of monitoring programs, undertakes data collection, education and other matters essential to the protection of the natural resources of this area. UINR takes its direction from the five First Nation Chiefs who represent its Board of Directors.

Nova Scotia Sustainable Communities Initiative (SCI) Cape Breton Field Team. The SCI is an intergovernmental initiative with First Nation, federal, provincial and municipal government departments and agencies, formed in 2001 to support sustainable communities. It has operated in two general areas within Nova Scotia – the Annapolis Valley and Cape Breton Island. In 2005, the Cape Breton Field Team finalized a comprehensive consultation exercise to identify sustainability issues (economic, social, environmental and cultural) within both First Nation and non First Nation communities. In 2007 the SCI as an organization ceased to exist due to a lack of financial support.

The Pitu'paq Committee. The Pitu'paq Committee was formed in 2001 and is composed of the five municipal mayors and wardens and the five First Nations Chiefs in Cape Breton. The primary mandate of this organization is to promote addressing sewage related issues as they affect the Bras d'Or lake from on-site systems, sewage treatment plants, and marine sources.

Science for the Integrated Management of the Bras d'Or Lakes (SIMBOL). The SIMBOL group was formed in 1999 as a partnership of scientists from Fisheries and Oceans Canada, Natural Resources Canada, the Unama'ki Institute of Natural Resources, and the Eskasoni Fish and Wildlife Commission to study the ecology of the Bras d'Or lakes and watershed. This work is undertaken to provide a scientific basis for decision-making in support of integrated management. Results of the first phase of this work were published

in a dedicated volume of the Nova Scotia Institute of Science (Vol. 42, 2002). Research activities are ongoing.

Collaborative Environmental Planning Initiative (CEPI). The CEPI arose in 2003 in response to the First Nation Chiefs in Cape Breton requesting to develop an overall management plan for the Bras d'Or Lake and watershed lands. It was recognized that while there were a number of government departments working in the Bras d'Or relating to the environment, that many of the issues were not being addressed or worsening. Initial work involved reaching a common understanding and agreement to work toward an overall management plan among the various levels and relevant departments of government. The mandate of CEPI is to develop this plan and facilitate its implementation by government departments and other relevant organizations. Work to date is overseen by a Steering Committee represented by government departments at all levels, First Nation organizations, industry, academics and community members. A committee of senior government officials (First Nation Chiefs, municipal Mayors/Wardens, provincial Deputy Ministers, and federal Regional Directors General) provide support and direction to this work. Coordination is provided by the Unama'ki Institute of Natural Resources. The work of this thesis is directed at analysing the approach being taken by the CEPI as it advances the development of an overall management plan for this area.

While each of these organizations has a mandate relating to environmental issues within the Bras d'Or, only the CEPI is currently pursuing the development of an overall management plan to address all of these issues. The CEPI has recognized several of the challenges associated with previous management attempts in the Bras d'Or, as described above, and are trying to overcome them in their current approach.

The remainder of this chapter provides an overview of which level and department of government is responsible for management of the environmental issues within the Bras d'Or Lakes and watershed, as identified in Chapter 3. By focussing around the issues, it is hoped that the review of mandates can be more targeted to the work that is needed in

this area. This information will in turn be used in this thesis to gain insights from managers associated with these departments and issues on whether the needs to address these issues are currently covered by the scope of the proposed management plan for the Bras d'Or. For each issue, information has been presented that identifies the responsible government department(s) and relevant branches/divisions within these departments, the legislative basis for this responsibility including acts and regulations, and any relevant policies or programs currently in place to address it. For each issue, the organizations responsible for working with the First Nation communities are also reviewed. Determining the specific departments and respective managers responsible for each issue will help target research to better understand the areas where management of the issues needs to be improved. Table 4.1 below provides a summary of this information, while the further detailed information, including web links to departments and legislation, is provided in Appendix B. Given the complexity of responsible departments, branches within the departments, legislation, regulations, policies and programs for each issue, a collaborative approach would seem beneficial.

Table 4.1 Summary of Environmental Mandates by Issue within the Bras d'Or

Issue (Activity)	**Departmental Responsibility**	**Applicable Legislation/ Regulations**	**Applicable Policies/ Programs**
Forestry (clear cutting, logging roads)	NS Department of Natural Resources	*Crown Lands Act* (1989) *Forests Act* (1998) Forest Sustainability Regulations (2000) Wildlife Habitat and Watercourses Protection Regulations (2002)	NS Forest Strategy NS Code of Forest Practice Stora Enso Port Hawkesbury Limited (SEPH) Forest Management Licence
	Indian and Northern Affairs Canada (INAC): (*First Nation Communities*)	*Indian Act* (1985) Indian Timber Harvest Regulations (2002) Indian Timber Regulations (2006)	Permit from INAC.
	Other:		Stora Enso – Unamaki

	(*First Nation Communities*)		Institute of Natural Resources Forestry Agreement (2002) Confederacy of Mainland Mikmaq: Community Forestry Management Plan Program
	NS Department of Environment and Labour	*Environment Act* (1994-95)	
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
Sewage (faulty or absent on-site systems	NS Department of Environment and Labour	*Environment Act* (1994-95) On Site Sewage Disposal Systems Regulations	Sewage Disposal Permit Handbook: *Before You Construct an On-Site Sewage System: Facts a Homeowner Should Know* Brochure: *Taking Care of Your Home Sewage Disposal System*
	Municpal Government	*Municipal Government Act* (1998) Part XIV Municipal Government Act	
	Health Canada, Environment Canada, Indian and Northern Affairs Canada (*First Nation Communities*)	*Canadian Environmental Protection Act* (1999)	First Nations Water Management Strategy
Sewage (faulty treatment systems)	NS Department of Environment and Labour	*Environment Act* (1994-95) Water and Wastewater Facilities and Public Drinking Water Supplies Regulations Activities Designation Regulations (2005)	Atlantic Canada Standards and Guidelines Manual for the Collection, Treatment and Disposal of Sanitary Sewage
	Municipal Government	*Municipal Government*	

		Act (1998) Part XIV Municipal Government Act	
	Health Canada, Environment Canada, Indian and Northern Affairs Canada (*First Nation Communities*)	*Canadian Environmental Protection Act* (1999)	First Nations Water Management Strategy
Sewage (from boats)	Transport Canada	*Canada Shipping Act* (2001) Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals (2007)	
Land Use (gravel/mineral extraction)	NS Department of Natural Resources	*Mineral Resources Act* (1990) Mineral Resources Regulations Activities Designation Regulations (2005)	Minerals: A Policy for Nova Scotia (1996) 'One Window' Process for Mine Development Approvals.
	Indian and Northern Affairs Canada (*First Nation Communities*)	*Indian Act* (1985) Indian Mining Regulations	Permit from INAC.
	NS Department of Environment and Labour	*Environment Act* (1994-95)	
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
Land use (agriculture)	NS Department of Agriculture, Fisheries and Aquaculture	*Agriculture and Marketing Act* (1989) *Farm Practices Act* (2000)	Environmental Farm Plan Program Environmental Regulations Handbook for Nova Scotia Agriculture: 2nd Edition (2004) Codes of Practice for the Application of Non

			Agricultural Organic Wastes (NAOW) on Agricultural Land (2005) Manure Management Guidelines (2006)
	NS Department of Environment and Labour	*Environment Act* (1994-95)	
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
	Indian and Northern Affairs Canada (*First Nation Communities*)	*Indian Act* (1985)	
Land Use (shoreline development)	Service Nova Scotia and Municipal Relations Municipal Governments	*Municipal Government Act* (1998)	Municipal Planning Strategies and Land Use Bylaws Statements of Provincial Interest
	NS Department of Environment and Labour	*Environment Act* (1994-95) Activities Designation Regulations (2005)	Policy Respecting the Alteration of Wetlands Wetland Alteration Approval
	NS Department of Natural Resources	*Beaches Act* (1989)	Permits
	Indian and Northern Affairs Canada (*First Nation Communities*)	*Indian Act* (1985) *First Nations Land Management Act* (1999)	Band Council Bylaws (Housing, Landuse) Permit from INAC.
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
Land Use (landfills/ dumpsites)	NS Department of Environment and Labour	*NS Environment Act* (1994-95) Solid Waste-Resource Management Regulations (2002) Municipal Solid Waste Landfill Guidelines (1997)	Solid Waste-Resource Management Strategy (1995)

	Indian and Northern Affairs Canada (*First Nation Communities*)	*Indian Act* (1985)	
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
Land Use (roads)	NS Department of Transportation and Public Works	*NS Environment Act* (1994-95) Activities Designation Regulations	Best Management Practices for Erosion and Sediment Control
	Fisheries and Oceans Canada	*Fisheries Act* (1985)	Policy for the Management of Fish Habitat (1986)
Marine Invasive Species (MSX, Green Crab, Tunicates)	Transport Canada	*Canada Shipping Act* (2001) Ballast Water Control and Management Regulations (2006)	A Guide to Canada's Ballast Water Control and Management Regulations (2006)
	Fisheries and Oceans Canada	*Fisheries Act* (1985) Fishery (General) Regulations (1993) Atlantic Fishery Regulations (1985) Maritime Provinces Fishery Regulations	
	Environment Canada	Convention on Biological Diversity	An Invasive Alien Species Strategy for Canada
	NS Department of Fisheries and Aquaculture		Tunicate Survey
Declining Fish Stocks (Oysters, Herring, Lobster)	Fisheries and Oceans Canada	*Fisheries Act* (1985) Fishery (General) Regulations (1993) Atlantic Fishery Regulations (1985) Maritime Provinces Fishery Regulations	Species Advisory Boards

		Management of Contaminated Fisheries Regulations Aboriginal Commercial Fishing Licence Regulations	
	Nova Scotia Department of Agriculture, Fisheries and Aquaculture	*Fisheries and Coastal Resources Act* (1996) Aquaculture Licence and Lease Regulations Recreational Fishing Regulations	Nova Scotia Aquaculture Environmental Monitoring Program

Summary:

There are a number of government departments with responsibility for managing the environment of the Bras d'Or. In recent years there have been a number of organizations formed to help address specific issues. The Collaborative Environmental Planning Initiative has taken the broadest approach and is pursuing the development of an overall management plan to help address all issues. There appears to be a level or department of government with relevant legislation, regulations, policies and programs in place to deal with all of the environmental issues identified. In many cases, there are a number of organizations with responsibilities for each of the environmental issues presented. Given this complexity, a coordinated effort to address issues seems appropriate. The number of departments responsible for these issues may reflect both the complex nature of these issues as well as the role that the departments play in managing different aspects them. For example, the issue of land-use includes a range of activities such as mining, agriculture, and shoreline development, each of which is managed by different departments. In addition, some departments have a role in the management of multiple issues such as Fisheries and Oceans Canada, which is seen to have a role in the management of issues such as forestry, agriculture, and mining. However, this role pertains more to managing potential consequences/effects from these activities, as they impact fish habitat, than the original activity itself. The Nova Scotia Departments of Natural Resources or Agriculture would be the primary managers of forestry, agriculture and mining. In addition, although the *Municipal Government Act* is in place and allows

the creation of Municipal Planning Strategies and Land Use Bylaws within a municipality to help address the issue of shoreline development, these are not mandatory and therefore this issue may not be addressed in all jurisdictions through this regulatory mechanism.

Owing to the nature of the relationship between First Nation communities and the federal government, separate reviews were done for the issues as they pertain to the First Nation communities located within the Bras d'Or. The *Indian Act* and its regulations, as administered by Indian and Northern Affairs Canada, pertain to issues such as forestry, sewage, mining, and shoreline development within the boundaries of the communities themselves. First Nation organizations such as the Unama'ki Institute of Natural Resources and the Confederacy of Mainland Mi'kmaq also support the management of issues both on and off the First Nation communities on their behalf.

Chapter 5: Survey:

This chapter provides an analysis of the interviews which took place with the departmental managers around the Bras d'Or that have some responsibility for the issues. The questionnaire used and detailed transcripts from these interviews are included in Appendices C and D respectively, and provide further information on the issues and efforts underway. In total, twenty-five interviews were conducted regarding the issues identified with fourteen different managers. The intent of the interviews was to determine from people with a mandate, expertise, and experience in dealing with each issue what the current management conditions are like, and where, in their opinion, improvements are needed in this management to better address the issue. These recommendations for improvement were then compared in matrices below to the main elements described for the management plan as detailed in Table 1.2. By determining if the recommended improvements to the management of each issue fell within the current scope and approach being considered for the management plan for CEPI, this thesis will determine if this scope and approach is broad enough or where additional areas of focus may be needed.

The information collected and summarized in Table 4.1 was used to help identify the departmental staff/managers to speak with regarding the issues under their jurisdiction. These contacts were organizational representatives on CEPI. They were considered knowledgeable and experienced with the issues being discussed and representative of their organization's perspective. The intent of these discussions was to determine whether the scope of the current management plan is adequate to address each issue and whether there are any lessons that they may be aware of from previous planning and management efforts that could be applied by CEPI. Table 5.1 below includes a list of managers that were targeted for interviews.

Table 5.1 Departmental Managers Interviewed

Issue	Activity	Department	Contacts
Forestry	Clear Cutting, Logging Roads	NS Natural Resources	Brian MacSween

		Indian and Northern Affairs Canada	Jerry Wolchuck
		Unama'ki Institute of Natural Resources*	Lisa Young
		Union of Nova Scotia Indians*	Kim Paul
Sewage	Faulty On-Site Faulty Central	NS Environment	Sharon Carter
		Indian and Northern Affairs Canada	Jerry Wolchuck
		Union of NS Indians*	Kim Paul
	Boats	Transport Canada	George Anderson
Land Use	Mining/Gravel Extraction	NS Natural Resources	Brendan Mackenzie
		Indian and Northern Affairs Canada	Jerry Wolchuck
		Union of Nova Scotia Indians*	Kim Paul
	Agriculture	NS Agriculture, Fisheries and Aquaculture	Gary Koziel
		Indian and Northern Affairs Canada	Jerry Wolchuck
	Shoreline Development	CB Regional Municipality	Rick McCready
		Rural Cape Breton District Planning Commission	John Bain
		Indian and Northern Affairs Canada	Jerry Wolchuck
		Union of Nova Scotia Indians*	Kim Paul
	Landfills/Dumpsites	NS Environment	Sharon Carter
	Roads	NS Transportation	
		Union of Nova Scotia Indians*	Kim Paul
Invasive Species	MSX, Green Crab, Tunicates	Transport Canada	George Anderson
		Fisheries and Oceans Canada	Paul Gentile/ Lorne Penny
		Unama'ki Institute of Natural	Lisa Young

		Resources* Environment Canada	
Declining Fish Stocks	Oysters, Lobster and Herring	Fisheries and Oceans Canada NS Agriculture, Fisheries and Aquaculture Unama'ki Institute of Natural Resources*	Paul Gentile/ Lorne Penny John McGinnis Lisa Young
* Note: these organizations are not formal government departments but play a role with respect to the management of the resource/issue in question.			

Survey Findings:

The tables below compare on an issue basis the input of what is needed to better address the issue in question to the main elements in an overall management plan, as described in Table 1.2. CEPI has suggested in this document that the various environmental issues in the Bras d'Or will be better addressed through the development of an overall management plan where effort will be directed toward these elements. These elements include things such as developing common objectives, understanding the environmental conditions, and sharing information, as detailed in the left hand column of the tables below. The tables highlight where input from the managers from the relevant departments is consistent with what is included in the scope of the management plan, and where input and advice on addressing these issues falls outside of the scope of the management plan, as indicated in the "Other" portion of the tables. The specific comments provided can be incorporated into the future management of these issues. Where the input and advice falls outside the scope of the management plan, this plan may need to be expanded to ensure that the plan can be as comprehensive as possible. A synopsis of how these issues are currently being managed is provided in the paragraphs immediately preceding each table based on the interviews conducted. Specific information has also been collected and is presented on how these issues are managed in the First Nation communities located around the Bras d'Or.

Issue: Forestry

Synopsis: NS Natural Resources felt that forestry is generally well managed. There have been great improvements in how forestry work has taken place over the past fifteen years to minimize impacts associated with road construction, culverts, erosion control, etc. The harvesting process has also changed to limit the size of clear-cuts, develop riparian buffers and provide corridors for wildlife. There is currently a "Code of Practice" established by NS Natural Resources which Stora Enso, the main forestry company in Cape Breton are required to adopt. In addition, forestry will be done in relation to the Department's "Integrated Resource Management Project" and "Long Range Management Framework" that will outline how various areas should be managed using an ecosystem based planning system. Stora also develops "Work Procedures" for their contractors to ensure best management practices are followed and there are auditing processes of forestry work conducted by DNR and Stora. Private citizens however, do not need to meet any regulations when cutting trees on their own land if it is not part of a forestry operation, and so there is a need for increased public education for these citizens related to the potential impacts.

For First Nations people, some of the treaty rights discussions currently underway may lead to new ways of managing the forestry resource outside of reserves. For forestry on reserves, forestry management plans are prepared with support of the Confederacy of Mainland Mikmaq and managed by the Band Councils. Permits are required from Indian and Northern Affairs Canada (INAC) for all on-reserve harvesting jobs and are only issued if a five year Forest Management Plan is in place. Operational requirements are included as part of a permit to deal with buffers, stream crossings, erosion potential, and other environmental considerations, and inspections of cutting jobs are also often included. An Environmental Assessment is also required under the Canadian Environmental Assessment Act for all on-reserve harvesting jobs. The permit process with INAC ensures that royalties from the sale of the timber is provided back to the community. The Unama'ki Institute of Natural Resources (UINR) is trying to better incorporate their concerns associated with the environmental impacts of forestry (i.e. monoculture), as well as their social/cultural concerns (protection of medicinal plants,

archaeological sites, etc.) by forming an agreement with Stora Enso for areas outside of reserves. UINR relies on anecdotal information from elders as well as scientific studies related to forestry.

Table 5.2 Comparison of Survey Results to Scope of Management Plan for Forestry

	Organization Interviewed		
Area of Emphasis for Overall Management Plan	*NS Natural Resources*	*Indian and Northern Affairs Canada*	*Unama'ki Institute of Natural Resources*
Reach Consensus and Coordination of:			
Common vision, purpose, goals, objectives and principles for improved management			Need to incorporate social and cultural objectives of FN into forestry planning.
Environmental issues and their priority			
Environmental conditions			
Information needs	Better understanding of wildlife aspects of forestry. Would like better field testing of data that is interpreted from aerial photography.	Need increased monitoring of harvesting jobs on reserves as INAC are understaffed.	Need for more comprehensive TEK
Roles and responsibilities of partners to implement plan			
Common communication and public participation strategies	Public awareness of best practices needed.		
Targets and indicators of environmental health			
Common policies			
Common work plans			
Common funding strategy			
Evaluation and review mechanism			
Sharing:			
Information	Share general	Could use some	

	information about what has improved with forestry with public.	better public education of the permitting requirements and process. Need to ensure as new Band Councils are elected that they are aware of the permitting requirements of INAC.	
Expertise			
Research capacity			
Planning processes			
Financial resources			Some staff capacity issues to deal with some broader issues.
Linkages between projects and overall objectives			
Other:			
Regulatory	Private landowners not subject to forestry regulations and standards.		
First Nation Rights Issues			Federal, Provincial and First Nation negotiation process is currently addressing FN rights issues which will affect forestry management.
Traditional Ecological Knowledge (TEK) and Anecdotal Information Collection			Need to collect TEK and anecdotal information as part of forestry planning.

Issue: Sewage (Faulty On-site, Faulty Central, and Boats)

Synopsis: The Department of Environment and Labour's (NS DOEL) focus is on sewage related to on-site systems and sewage treatment plants. The Department feels that the sewage programs are the most comprehensive in the department in terms of legislation, policy and program efforts. Concerns about sewage go back to the mid 1970's before there were design standards for on-site disposal systems. Prior to the mid 1970's there

were not any on-site treatment system standards. For properties with faulty on-site systems, the homeowners are often considered by the NS DOEL to be on low or fixed incomes and therefore a simple enforcement and legal process is not considered effective. The Province will not try to recover funds where they are not deemed available through the Court system. Therefore alternative funding arrangements through Wastewater Management Districts and available Home Assessment Funds are being pursued. Information about faulty on-site systems is gathered mainly from complaints which lead to compliance investigations. The shellfish classification data on fecal coliform is used by the Department of Environment to determine the extent of the problem with faulty on-site systems. However, there isn't a good sense of the number/locations of properties which are likely culprits with faulty on-site systems. All new on-site systems require a construction (not operational) approval, but it is rare that they are not constructed and installed properly as there is a certification process in place for installers.

There are two central treatment plants in the Bras d'Or. The plant in Baddeck is about 7 years old and the plant in Whycocomagh is about 14 years and at capacity. With the exception of the First Nation community of Wycobah, which has its sewage treated at the Whycocomagh plant, the other First Nation communities have their own treatment systems with public works operators and are regulated by the federal government. Treatment plants are classified by system type and audited for compliance against pre-established standards, including discharge parameters by NS DOEL every 6 months to 2 years.

In the First Nation communities within the Bras d'Or, almost all the homes are connected to central treatment systems. Indian and Northern Affairs Canada's (INAC) role is through its Capital Program to provide money for facilities, their operation and maintenance. Band members are trained and hired to operate the central treatment systems. Problems that have been identified with these systems relate to broken equipment and staff turnover. The Band formally submits reports on the system's performance to INAC's engineer.

The issue of the release of sewage from boats has also been a concern in the Bras d'Or. An application to have the Bras d'Or designated as a non-discharge zone for sewage was recently submitted and approved by Transport Canada under the *Canada Shipping Act*. New regulations came into effect in 2007 entitled, "Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals". The Bras d'Or is specifically referenced within these as a "designated sewage area". Within a designated sewage area, the discharge of sewage from ships is authorized if the discharge is passed through a marine sanitation device and the effluent has a fecal coliform count that is equal to or less than 14/100 mL. For sewage management, the larger ships are rarely a concern as they have the infrastructure to manage it, whereas the smaller pleasure craft may be more of a potential concern. Of the three potential sources of sewage to the Bras d'Or, it would appear that the on-site systems pose the greatest threat compared to central treatment systems and boats.

Table 5.3 Comparison of Survey Results to Scope of Management Plan for Sewage

	Organization Interviewed		
Area of Emphasis for Overall Management Plan	*NS Environment and Labour*	*Transport Canada*	*Indian and Northern Affairs Canada*
Reach Consensus and Coordination of:			
Common vision, purpose, goals, objectives and principles for improved management	Establish Waste Water Management Districts for areas where on-site systems may not be feasible.	TC used information sources such as the application to have the Bras d'Or designated as a non-discharge zone for sewage from boats as rationale for advancing changes in their regulations.	
Environmental issues and their priority			
Environmental conditions			
Information needs	Need better sense of which properties may potentially have faulty on-site treatment systems.		

	Part of system relies on complaints to identify a malfunctioning system. Need for a more comprehensive assessment of the extent of fecal coliform contamination in the Bras d'Or as currently relying on Shellfish Classification System that only monitors part of the Bras d'Or.		
Roles and responsibilities of partners to implement plan		TC undertook work within its own mandate in bringing in these new regulations to meet the objectives established in the Bras d'Or.	
Common communication and public participation strategies	Need to increase public awareness and education about sewage related issues.		
Targets and indicators of environmental health			
Common policies			
Common work plans			
Common funding strategy			
Evaluation and review mechanism			
Sharing:			
Information	Develop and share information on Best Management Practices related to on-site systems with the public.	Public education of pleasure craft owners will be required related to new regulations.	
Expertise			

Research capacity			
Planning processes			
Financial resources	Home Assessment Program has been funded to help homeowners with on-site system upgrades.		More funding for treatment system upgrades.
Linkages between projects and overall objectives			
Other:			
Enforcement		May continue to share enforcement responsibilities with other agencies during joint patrol for one week in August.	
Increased internal funding required			Increase funding for treatment plant operators to reduce staff turnover.

Issue: Land-Use (Mining/Gravel Extraction)

Synopsis: There is not a lot of mining activity within the Bras d'Or watershed (four main operations: Red Marble Mine, Melford Gypsum Mine and Sugar Camp Mine, and Little Narrows Gypsum Mine) and several closed sites. NS Natural Resources (NS DNR) feels that mining is generally well managed. Former mines were developed, operated, closed and reclaimed to the standards of the day. Monitoring of current mining operations is done by NS Environment and Labour (NS DOEL). All surface mines require an environmental assessment (EA) prior to the issuance of permits. This EA process includes broad planning considerations including identifying sensitive species, assessing pre-existing conditions, input from other government departments, and public consultation. NS DOEL issues an Operational Approval and therefore needs to monitor the operational aspects of the mine. Three of the mines in the Bras d'Or are inspected once a year (based on an assessment of risk) with an inspector, engineer and staff from NS DNR. There is a "One Window Standing Committee" with representatives from NS DNR and NS DOEL that deals with all mining related issues. It meets monthly to discuss

and describe issues associated with various mines, exploratory sites, and reclamation sites.

For First Nation communities, there are no mines within the reserves although there is a large and a small gravel pit within Eskasoni. Any gravel pits require a permit issued from INAC to quantify amounts being taken, ensure that royalties from the sale of the gravel are paid back to the community, and to ensure compliance of the operation to the environmental conditions attached to the permit. Within Eskasoni, there is a very large pit that has been operated for the past 20 years without a permit. There is also a much smaller one at the edge of the community. Gravel from the larger pit has been used for construction projects in the community but also outside of it. There are a number of environmental concerns associated with the larger pit including reclamation issues and the illegal dumping of materials and garbage in it. INAC is in the process of preparing a permit for this site which will also ensure that royalties from the use of the material are paid back to the community. INAC suggests that the RCMP have been considered reluctant to get involved in permit violation cases as the fines given to anyone found in the wrong are very low in relation to the cost for the RCMP to pursue such cases.

Table 5.4 Comparison of Survey Results to Scope of Management Plan for Land-Use (Mining/Gravel Extraction)

	Organization Interviewed		
Area of Emphasis for Overall Management Plan	*NS Natural Resources*	*NS Environment and Labour*	*Indian and Northern Affairs Canada*
Reach Consensus and Coordination of:			
Common vision, purpose, goals, objectives and principles for improved management			
Environmental issues and their priority			
Environmental conditions			
Information needs			
Roles and responsibilities of partners to implement plan			

Common communication and public participation strategies			
Targets and indicators of environmental health			
Common policies			
Common work plans			
Common funding strategy			
Evaluation and review mechanism			
Sharing:			
Information	Need to improve public awareness associated with future mines so that concerns can be addressed early. People often have misinformation about mining related developments and therefore need clear and proper information and contact people for the public.	Can improve communication between company and community as companies are often doing a good job with compliance.	Need to share information about permit process for gravel within community.
Expertise			
Research capacity			
Planning processes			
Financial resources			
Linkages between projects and overall objectives			
Other:			
Application of existing permitting program			Need to complete permitting process for the large gravel pit in Eskasoni.

Issue: Land-Use (Agriculture)

Synopsis: There has been a significant decrease in agriculture in Cape Breton over the past 25 years so that there is now only a fraction of agricultural activity that there once was. Although there is not a lot of agricultural activity within the Bras d'Or watershed, even compared to the other areas of Cape Breton, there are a range of agricultural practices present including both livestock and horticulture. Any violations associated with impacts from agriculture are enforced by the NS Department of Environment and Labour with the NS Department of Agriculture, Fisheries and Aquaculture playing an advisory role. The NS Agriculture, Fisheries and Aquaculture department run an Environmental Farm Plan Program to identify impacts from farms through an audit process which is voluntary and confidential. Related funding programs are available for the farmer at both the provincial and federal level to help mitigate any impacts identified from the Environmental Farm Plan Program. The Department of Agriculture, Fisheries and Aquaculture also plays an outreach function by visiting farms on an as needed basis.

There is no agricultural activity associated with the First Nation communities in Cape Breton as the land base is not large enough to support farming.

Table 5.5 Comparison of Survey Results to Scope of Management Plan for Land-Use (Agriculture)

	Organization Interviewed
Area of Emphasis for Overall Management Plan	*NS Agriculture, Fisheries and Aquaculture*
Reach Consensus and Coordination of:	
Common vision, purpose, goals, objectives and principles for improved management	
Environmental issues and their priority	
Environmental conditions	Conduct audits of farms within watershed to identify environmental impacts.
Information needs	
Roles and responsibilities of partners to implement plan	
Common communication and public participation strategies	Need to increase awareness of environmental affects associated with agriculture.
Targets and indicators of environmental	

health	
Common policies	
Common work plans	
Common funding strategy	
Evaluation and review mechanism	
Sharing:	
Information	Need to share more information with farmers.
Expertise	Need for more staff resources to provide expertise related to agricultural activities.
Research capacity	
Planning processes	
Financial resources	
Linkages between projects and overall objectives	
Other:	

Issue: Land-Use (Shoreline Development)

Synopsis: Shoreline development has long been expressed as a concern in the Bras d'Or, although it is not occurring at a rapid pace and the watershed is not becoming urbanized like larger areas in the US. Currently shoreline development is unregulated within the Bras d'Or without any municipal landuse by-laws restricting potential impacts to the lake. Although there is zoning and by-laws for all of Cape Breton Regional Municipality, they don't address environmental impacts from shoreline development. Shoreline development is likely having impacts on the lakes but there are significant gaps in the information to illustrate that current development has harmed them. Without this information, it will be difficult to make a case for restrictive land-use planning, although precautionary restrictions may be a good idea. The communities and residents around the Bras d'Or seem divided by those who would welcome greater restrictions and those who would

oppose them. The municipal councils will need to be more aware of these concerns and the need for greater restrictions.

In First Nation communities, most construction work such as roads, sewer lines, water lines, and subdivisions, would require a Land Permit from INAC. This triggers an Environmental Assessment under the *Canadian Environmental Assessment Act*. Conditions for construction, including required mitigation, are established for the project through these processes. Most construction projects on reserves however are relatively well done with little environmental impact. INAC feels that this issue is relatively well addressed through the processes that are in place.

Table 5.6 Comparison of Survey Results to Scope of Management Plan for Land-Use (Shoreline Development)

	Organization Interviewed	
Area of Emphasis for Overall Management Plan	*Cape Breton Regional Municipality*	*Eastern District Planning Commission*
Reach Consensus and Coordination of:		
Common vision, purpose, goals, objectives and principles for improved management	Need to make a case to Municipal Councils on the benefits of adopting some restrictive land-use planning.	Does not feel that the issue of unregulated shoreline development is "on the radar" of Municipal Councils in Inverness, Richmond and Victoria Counties.
Environmental issues and their priority		
Environmental conditions	Would like to collect environmental data at least for the beaches.	
Information needs	Need data on the effects and impacts of shoreline development.	There is no quantification of information related to this issue.
Roles and responsibilities of partners to implement plan	Any new land-use rules will require some internal departmental cooperation and coordination to administer.	The EDPC would have few resources currently to devote to this issue unless directed by Councils.
Common communication and public participation strategies		

Targets and indicators of environmental health		
Common policies	Need proper by-law that considers the effects of shoreline development.	
Common work plans		
Common funding strategy		
Evaluation and review mechanism		
Sharing:		
Information	Will need public participation and awareness before by-law is approved and then will need to build further awareness.	Will need political will and education of Councils before municipalities will start to move on this issue. Public are often resistant to the idea of land-use restrictions (based on an experience with developing a plan for Sporting Mountain area of the Bras d'Or).
Expertise		
Research capacity	CBRM have fewer staff per capita than HRM and therefore have some staff capacity issues (for example, currently don't have an Environmental Engineer).	
Planning processes		
Financial resources		
Linkages between projects and overall objectives		
Other:		

Issue: Land-Use (Landfills/Dumpsites)

Synopsis: There are two first generation landfills within the Bras d'Or watershed. One landfill is in Baddeck and one near River Denys. Both were prevented from accepting municipal solid waste after January 1, 2007, but are allowed to accept construction debris

and compost. The landfill in Baddeck is accepting construction debris and compost, while the one in River Denys is closed. All municipal solid waste in Cape Breton is currently going to Guysborough County and it is unlikely that there will be a new landfill on the island in the near future. The NS Department of Environment and Labour issue an Operating Approval for landfills and require monitoring programs be established. The results of the monitoring program are reviewed by the local inspector as well as the department's hydrogeologist and engineer. The River Denys landfill has thirteen groundwater monitoring wells, six surface monitoring sites, a leachate collection system, surface water treatment lagoons, and a methane venting system. There has not been any known compliance issues associated with the River Denys site. Specifics were not known about the Baddeck site. In addition to the landfills however, there may be one hundred illegal dumpsites around the watershed. It is very difficult to prosecute anyone for these. It was felt that the environmental impacts from these may not by significant as they tend to be hard-goods such as appliances and furniture.

Table 5.7Comparison of Survey Results to Scope of Management Plan for Land-Use (Landfills/Dumpsites)

	Organization Interviewed	
Area of Emphasis for Overall Management Plan	*NS Environment and Labour*	*Indian and Northern Affairs Canada*
Reach Consensus and Coordination of:		
Common vision, purpose, goals, objectives and principles for improved management		
Environmental issues and their priority		
Environmental conditions		
Information needs		
Roles and responsibilities of partners to implement plan		
Common communication and public participation strategies		
Targets and indicators of environmental health		

Common policies		
Common work plans		
Common funding strategy		
Evaluation and review mechanism		
Sharing:		
Information	Can improve communication and information exchange between owner/operators and community to reduce some unnecessary concerns.	Continue to educate public about the illegal dumping of garbage in the grave pit in Eskasoni.
Expertise		
Research capacity		
Planning processes		
Financial resources		
Linkages between projects and overall objectives		
Other:		

Issue: Marine Invasive Species

Synopsis: The three primary marine invasive species within the Bras d'Or Lakes which are impacting the ecology and resource use of this area include MSX, Green Crab, and Tunicates. Although the method by which they entered the lakes is not confirmed, a potential source is the release of ballast water containing these organisms from bulk carrier ships that load gypsum from within the Lakes. MSX, caused by the single celled protozoan *Haplosporidium nelsoni*, is a natural parasite of the oyster and has had devastating effects on the oyster industry within the lakes. Its presence was confirmed in 2002[22]. Much effort has directed to better understanding and managing it since then. Green Crab has been observed in numbers within the Lakes for the past ten years. Star

[22] McCall, Robin. Situation Analysis of the Oyster Industry in Cape Breton: Importance, Impact, of MSX, and Management Considerations Toward a Sustainable End. Masters of Marine Management. 2004.

Tunicate has been in the lakes for years as well, largely around St. Peter's although the more destructive Club Tunicate has not been confirmed. Information about these marine invasive species comes from anecdotal Traditional Ecological Knowledge from recreational users such as boaters and scuba divers, phone calls, advisory board meetings, and day to day interactions with fishers. New scientific research has been directed at MSX over the past five years to assist with management, but little toward Green Crab or Tunicates. There is currently an interest in developing a fishery for Green Crab. The Unama'ki Institute of Natural Resources (UINR) has been doing its own research and monitoring of Green Crab as well as monitoring of tunicates. UINR is currently also trying to develop an MSX resistant oyster stock but are challenged by the lack of long-term funding and laboratory capacity. The loss of millions of filter feeding oysters due to MSX could have devastating water quality impacts to the Bras d'Or.

Transport Canada, under the *Canada Shipping Act*, has responded to the concerns associated with marine invasive species by bringing in new regulations entitled, "Ballast Water Control and Management Regulations" in 2006. These regulations require ships to exchange their ballast water within offshore exchange zones in order to prevent the introduction of these invasive species from various other ports known to contain them into Canada's coastal waters. Ships are now required to report where they exchanges ballast and inspectors will be able to confirm whether the exchange actually took place (based on testing salinity of ballast water). Ballast water is taken up and released from a ship primarily to stabilize and balance it as other material is loaded and unloaded. In 2006 there were 53 trips to Little Narrows Gypsum within the Bras d'Or from 8 different ships.

Table 5.8 Comparison of Survey Results to Scope of Management Plan for Marine Invasive Species

	Organization Interviewed		
Area of Emphasis for Overall Management Plan	*Fisheries and Oceans Canada*	*Unama'ki Institute of Natural Resources*	*Transport Canada*
Reach Consensus and Coordination of:			
Common vision, purpose, goals, objectives and principles for improved management			

Environmental issues and their priority			
Environmental conditions			
Information needs	Need to fund and support a long-term knowledge program including scientific and Traditional Ecological Knowledge.		
Roles and responsibilities of partners to implement plan			
Common communication and public participation strategies		Can use public education of recreational fishers to prevent them from intentionally introducing species into the Bras d'Or.	
Targets and indicators of environmental health			
Common policies	Will need a policy and program discussion of what to do with the displaced commercial and recreational fishers.		
Common work plans			TC will be training their inspectors to ensure that they can properly inspect for ballast water under the new regulations.
Common funding strategy			
Evaluation and review mechanism			
Sharing:			
Information	Need public education campaign related to marine invasive species.		Need to educate the pleasure craft owners about invasive species.
Expertise			
Research capacity	Need ongoing	Looking to develop	

	funding of current distribution and dynamics of oysters affected by MSX.	an MSX resistant oyster stock but are challenged by the need for research funding and laboratory capacity.	
Planning processes			
Financial resources			
Linkages between projects and overall objectives			
Other:			
Collection of Anecdotal/TEK information	Need to collect, record, and use anecdotal information within a management process. Anecdotal information appears to be a major portion of knowledge base associated with marine invasive species.		

Issue: Declining Fish Stocks (Oysters, Herring and Lobster)

Synopsis: The three fish species within the Bras d'Or Lakes which have had noted population declines include oysters, herring and lobster. For oysters, their decline appears to be the initial result of over-fishing beginning in the late 1990's when the value of oysters increased and public oyster beds were stripped. The MSX parasite has had an additional impact to the remaining populations in more recent years. For herring, the issue is no longer one of decline as the fishery has been closed for some time now and the populations may actually be increasing. Herring fishery declines appear related to a winter large vessel seine fishery that existed in the early 1990's off the Bird Islands (offshore Cape Breton). This fishery was much more impacting than the inshore gillnet fishery within the Bras d'Or as an entire spawning population was exploited, including portions of the Bras d'Or stock. Lobster populations within the Bras d'Or have shown declines based on catch per unit effort data. Lobster declines may be attributed to impacts to habitat from land use, industrial influences, ecological impacts from marine invasive species such as the Green Crab, and poaching. There is little good scientific information

on the status of these stocks. Eels have been identified by the First Nation Elders as a species of concern whose fishery should be closed due to changes in size, location, lack of management regime, and length of time to maturity. The Unama'ki Institute of Natural Resources is developing its own management guidelines for First Nation fishers through the Aboriginal Fishery Strategy with DFO.

Table 5.9 Comparison of Survey Results to Scope of Management Plan for Declining Fish Stocks (Oysters, Herring, and Lobster)

	Organization Interviewed		
Area of Emphasis for Overall Management Plan	*Fisheries and Oceans Canada*	*NS Agriculture, Fisheries and Aquaculture*	*Unama'ki Institute of Natural Resources*
Reach Consensus and Coordination of:			
Common vision, purpose, goals, objectives and principles for improved management			
Environmental issues and their priority			
Environmental conditions			
Information needs	Better integration of scientific information between UINR and Eskasoni Fish and Wildlife Commission and DFO Science into the management planning process. There is very little data to base management of stocks on.	Need data on status of stocks, perhaps a sentinel fishery.	Need better understanding of species, pressures and changes in habitat to incorporate into management plans.
Roles and responsibilities of partners to implement plan			
Common communication and public participation strategies	Need increased public awareness especially with regard to illegal activities such as poaching.	Need to engage people at the local level with any initiative.	

Targets and indicators of environmental health			
Common policies		May need some regulatory changes to the Environmental Assessment process to support the oyster industry.	
Common work plans			
Common funding strategy			
Evaluation and review mechanism			
Sharing:			
Information		Need a common portal for people to find readable information about the Bras d'Or.	
Expertise			
Research capacity	Need current research on populations.	Need research on spat production areas for oysters.	
Planning processes			
Financial resources			
Linkages between projects and overall objectives			
Other:			
Use of Anectotal /Traditional Ecological Knowledge		Relies heavily on anecdotal information with regard to status of species with this information being fed into the management process.	Eels have been recognized in need of protection by the FN Elders. Anecdotal information is needed since scientific approach is time consuming and expensive. However we must check anecdotal information against motives of

			those providing it.
Enforcement			Need greater enforcement of illegal fishing activity.

Table 5.10 below provides a brief summary and analysis of the survey results made during the interviews discussed above. This table assesses whether the input from the interviews fell within the scope of the plan being developed by CEPI, or outside of it. For comments that fell within the scope of the overall management plan being developed by CEPI, they reaffirm that the scope and approach is generally sufficient to address these issues. For comments that fell outside the scope of the plan, the CEPI will need to determine how this overall management plan can be expanded to include the recommendations made.

Table 5.10: Summary of Survey Results by Issue

Issue	General	Areas of Emphasis within Scope of Plan	Areas of Emphasis Outside Scope of Plan.
Forestry	NSDNR thinks practices have significantly improved and forestry is generally well managed. First Nation treaty discussions may influence future management.	10 comments about improvement to management within scope of plan.	3 comments for improvement to management outside scope of plan. These include: Regulatory improvements for private landowners. Influence of evolving First Nation rights discussions. Need for formal collection of anecdotal /Traditional Ecological Knowledge.
Sewage	NSDOEL feels sewage programs are some of the most comprehensive in department. New regulations are now in place to prevent the release of sewage from	10 comments about improvement to management within scope of plan.	2 comments for improvement to management outside scope of plan including: Need for

	boats. Some First Nation central treatment systems are at capacity.		improved enforcement. Increased funding for First Nation jobs through INAC to reduce turnover of operators..
Land Use			
Mining/Gravel Extraction	NSDNR and NSDOEL feel that mining is generally well managed	4 comments about improvement to management within scope of plan.	1 comment for improved management outside scope of plan: Need to apply existing regulatory process.
Agriculture	Significant decrease in agriculture in Cape Breton over the past 25 years. NS Agriculture has programs in place to address environmental concerns with farms. There is no agriculture in the First Nation communities.	4 comments about improvement to management within scope of plan.	No comments for improved management outside scope of plan.
Shoreline Development	Shoreline development is not occurring at a rapid pace but there are no regulations to control its effects on the Bras d'Or or data to support the need to develop stringent regulations. Development within First Nation communities is generally well managed with permits and environmental assessments required from INAC.	12 comments about improvement to management within scope of plan.	No comments for improved management outside scope of plan.
Landfills	There are two landfills in the Bras d'Or watershed that are regulated and monitored by NSDOEL. However there are also numerous illegal dumpsites.	2 comments about improvement to management within scope of plan.	No comments for improved management outside scope of plan.
Marine Invasive Species	MSX, Green Crab and Tunicates are the main marine invasive species in the Lakes. There are new regulations under the	8 comments about improvement to management within scope of plan.	1 comment for improved management outside scope of plan: Need further use

	Canada Shipping Act that prevent the exchange of ballast water in the lakes.		of anecdotal/ Traditional Ecological Knowledge
Declining Fish Stocks	Impacts to fisheries (oyster, herring and lobster) appear to have resulted from over-fishing but their recovery may be influenced by invasive species and habitat impacts. Little scientific information on current status of stocks within lakes.	10 comments about improvement to management within scope of plan.	4 comments for improved management outside scope of plan. These comments relate to: Need further use of anecdotal/ Traditional Ecological Knowledge Need greater enforcement of illegal fishing activity.

Table 5.10 above reveals that the majority of input received from the managers relating to the issues in fact fall within the scope and approach of the plan. However, there were also a number of comments regarding how the issues can be better addressed which fall outside these areas as envisioned by CEPI. The most prevalent of these was the need and importance of collecting anecdotal/Traditional Ecological Knowledge about the Bras d'Or and its resources. This information is often gathered from resource users informally and already forms a source of information on which some current management is based. It has been recognized that a detailed scientific understanding of many of these issues is challenged by time and funding requirements and that anecdotal/Traditional Ecological Knowledge is often the best information available. The formal collection and use of this information is called upon. A second area where the scope of the management plan may need to be expanded will be in accommodating changes that arise regarding clarification of First Nation rights and how these may affect the management of issues such as forestry. As issues regarding the rights of First Nations are clarified through the negotiation processes currently underway, the current management regime will likely change and CEPI may need to adapt its role within this new regime. Other comments that fell outside the scope of the management plan can be grouped together as a need for specific departments to better manage the issues under their jurisdiction. In these cases, the managers interviewed suggested that there were improvements that their own

departments could make in terms of regulations, research, enforcement, funding, and the application of existing programs. These could be seen as gaps in the existing management. Specific suggestions are contained in Tables 5.2 to 5.9.

To better understand the areas that were emphasized by the managers in discussing the issues within the Bras d'Or, Table 5.11 is presented. For each area within the scope of the management plan, the number of relevant comments made by the managers is tabulated.

Table 5.11: Areas of Management Emphasis from Interviews

Area of Emphasis for Overall Management Plan	***Number of Related Comments Made by Managers***
Reach Consensus and Coordination of:	
Common vision, purpose, goals, objectives and principles for improved management	5
Environmental issues and their priority	0
Environmental conditions	2
Information needs	13
Roles and responsibilities of partners to implement plan	3
Common communication and public participation strategies	6
Targets and indicators of environmental health	0
An evaluation and review mechanism	0
Common policies	2
Common work plans	1
Common funding strategy	0
Sharing:	
Information	18
Expertise	1
Research capacity	5
Planning processes	3
Financial resources	0

Linkages between projects and overall objectives	
Total Comments	60

Table 5.11 indicates that although emphasis is placed in a range of areas within the scope of the management plan, there is a very strong focus on information collection and sharing. Of the sixty comments derived from the interviews, thirty-one were directed at information collection and sharing. Other major areas emphasized were communication and public participation strategies (six comments), sharing research capacity (five comments) and the need to develop a common vision, purpose, goals, objectives and principles for improved management (five comments).

Data Used to Manage Issues:

One of the questions asked during the interviews was, "*What are the main sources of data and information available to help quantify the scope and extent of the issue? How does your department use these?"* Table 5.12 summarizes the finding of this question by issue.

Table 5.12: Data Used to Manage Issues

Issue	General Data Used
Forestry	NSDNR: GIS data sets and satellite images Audits of harvesting jobs (10-20 %) UINR: Conducts their own scientific research Some Traditional Ecological Knowledge studies
Sewage	NSDOEL: Uses Canadian Shellfish Classification System data to determine geographic extent of problem Monitors one beach (Kidston Beach) in watershed Determines faulty on-site systems based on complaints received Audits central treatment plants TC: Used information gathered from Bras d'Or Non-Discharge Designation application to influence regulatory change Commercial vessels are inspected for compliance INAC (*for First Nation Communities*): Band reports monitoring data from central treatment plants to INAC engineer

Land Use	
Mining/Gravel Extraction	NSDOEL: Environmental Assessments of new mines Inspections On-going monitoring associated Operational Approvals NSDNR: Abandoned Mine Openings Database INAC (*for First Nation Communities*): Environmental Assessments Permitting Inspections
Agriculture	NSAAF: Audits of farms through Environmental Farm Protection Program Anecdotal information from people calling department with concerns NSDOEL: Data gathered by inspectors for violations
Shoreline Development	CBRM: Building permits back to 1985 to quantify development No data on potential impacts to Bras d'Or from shoreline development EDPC: Building permits to quantify development No data on potential impacts to Bras d'Or from shoreline development INAC (*for First Nation Communities*): Environmental Assessments Permits
Landfills	NSDOEL: Data gathered for Operating Approval Reviewed by technical staff for compliance
Marine Invasive Species	DFO: Anecdotal information from recreational users, phone calls, day to day interactions with local fishers Some new research on MSX in last 5 years Some commercial landing data for oysters. UINR: Conducts their own research Relies on government data TC: Relies on input from community and other groups to be informed
Declining Fish Stocks	DFO: No current sources of data

	Very little information NSAAF: Anecdotal information from users Some data from oyster leases but not public oyster beds UINR: Anecdotal identification of issues Some scientific studies

From Table 5.12 it would appear that there is a broad range of data and information being used to quantify and manage these issues. In cases where activities require formal regulatory control (mines, landfills, central sewage treatment systems), there appears to be consistent data being gathered to ensure they are operating in compliance with pre-established standards. For other issues (on-site sewage treatment systems, shoreline development, declining fish stocks) there appears to be very little data available to quantify and manage them. For many of these issues, anecdotal information gathered from the phone calls, interaction with fishers, recreational users and others seem to be important and form part of the management system.

Lessons Learned from Previous Planning and Management Efforts:

Questions were also asked during the interview process about the history of the previous planning and management efforts that had taken place in the Bras d'Or, as detailed in Chapter 3. Specifically the managers were asked if there were familiar with this previous work and whether there were any lessons that they felt were learned from these processes which could apply to the current initiative being undertaken by CEPI. Of the fourteen managers interviewed, only four were somewhat familiar with these efforts, with most being only familiar with one specific effort. The lessons that these managers felt could be applied to CEPI from this previous work included, engaging people at the local level, moving to concrete action in specific areas, ensuring buy-in from everyone involved, keeping people well informed, and working within existing legislative authorities.

Summary:

Building on the knowledge base of previous planning and management efforts in the Bras d'Or, the environmental issues identified, the departments identified as responsible for

managing these issues, and the managers from these departments, interviews were conducted with these managers. The intent of these interviews was to determine the general state of management associated with each issue and where areas of improvement could be made. This information was then compared to the areas being emphasized in an overall management plan being developed for the Bras d'Or by the Collaborative Environmental Planning Initiative. Most of the comments made by the managers were consistent with the scope and approach of the management plan. However the management plan may need to be expanded in scope to incorporate suggestions relating to anecdotal/Traditional Ecological Knowledge, the evolution of First Nations rights with respect to natural resources, and the need to better manage issues already under departmental jurisdiction. There was a strong emphasis placed on information collection and sharing during the twenty five interviews conducted. A range of data sources and information is used to quantify and manage the issues within the Bras d'Or. Most managers were not familiar with the previous efforts that had taken place in the Bras d'Or.

Chapter 6: Summary and Analysis

Summary:

The purpose of this thesis was to analyse whether the scope and approach for an overall management plan being developed for the Bras d'Or Lakes and watershed lands is broad enough to address the environmental issues present. The current approach suggests that issues will be better addressed if effort is directed through a management plan toward a number of elements that emphasize working together. Insights from the existing environmental managers with a legal role and responsibility to manage these issues were compared to the scope and approach of this overall management plan. If comments to improve the management of these issues fell within the scope and approach of the management plan being developed, as detailed in the document, *Toward a Bras d'Or Lakes and Watershed Environmental Management Plan,* then the scope and approach for the plan would appear comprehensive. If however comments for improved management fell outside the scope for the plan, this plan should be re-examined by CEPI. Lessons learned from previous planning and management studies were also explored.

The key question to be answered was:
Is the current scope and approach being proposed for a management plan in the Bras d'Or Lake and watershed broad enough to address the environmental issues identified?

In order to answer this question, a series of steps were undertaken, including:

Examination of Previous Planning and Management Efforts: A number of previous workshops, studies, discussions, and consultations that have taken place in the Bras d'Or to identify issues and propose solutions over the past few decades were reviewed. Few direct outcomes could be determined relating to these issues being addressed. Many of these earlier attempts to develop an overall management plan did not appear to include broad public involvement. Specific attempts at developing new management processes were part of this history and offered many useful suggestions of how management could be improved. Many of these suggestions, including things such as managing on a

watershed basis, ensuring high-level buy-in to the process among government partners, establishing an organizational structure to oversee the planning and management process, including a significant role for First Nations Bands, and working within existing legislative authorities, have already been adopted by CEPI in their process to date.

Environmental Issues: Based on the history of previous planning and management efforts within the Bras d'Or, the environmental issues were identified. These issues were sorted on a cause and effect basis to help with prioritization. Some issues appear to have arisen in more recent years such as fishery declines and marine invasive species, while others have been longstanding and unresolved, such as sewage contamination and siltation. The issues identified included forestry (clear-cutting and logging roads), sewage (from faulty on-site or central treatment systems and boats) and land-use (including mining/gravel extraction, agriculture, shoreline development, ATV use, landfills, and roads), as well as more recently, invasive marine species and declining fish stocks. There have also been a number of organizations formed in the Bras d'Or to support the improved management of these issues, but only the Collaborative Environmental Planning Initiative (CEPI) are proposing to develop an overall management plan to assist in addressing all of these. The CEPI will need to work closely with the other groups as their interests overlap.

Environmental Mandates: With a clear understanding of the environmental issues for the Bras d'Or completed, a review was conducted of the relevant government departments with a mandate and legal responsibility to manage these issues, including their legislation, regulations, policies and programs. Government departments at the federal, provincial, municipal and First Nation levels were assessed. In general terms, there are often several departments, identified with responsibility for the management of each issue. A comprehensive analysis of the legislation, regulations, policies and programs was not undertaken during this part of this research but their adequacy was examined with the managers during the survey. It does not appear that a lack of government departments with relevant legislation, regulations, policies or programs is responsible for these environmental issues, although the efficacy of how the legislation, policies and

programs are applied was not studied in detail. For forestry, central sewage treatment plants, mining, agriculture, and landfills, there appeared to be generally well developed management systems in place to address them. The same applied to the First Nation communities whose issues are largely addressed through the department of Indian and Northern Affairs Canada. A distinction was made between the roles that different departments play with respect to the same issue. For example, Nova Scotia Department of Agriculture, Fisheries and Aquaculture manage farming activities that may impact the Bras d'Or lakes while at the same time Fisheries and Oceans Canada play a role in managing the impacts of agriculture on fish habitat. In this way, it was apparent that cooperation between departments on managing issues is often required. A more detailed issue specific analysis could be further conducted that explores how the relevant government departments are addressing these issues in terms of regulatory and program support.

Survey: Through the identification of the government departments with responsibility to manage the environmental issues in the Bras d'Or, a list of managers was created to survey with regard to the management conditions associated for each issue. A questionnaire was developed to determine how these issues are currently being managed and in what areas improvements could be made. In addition, the managers were asked how familiar they were with the previous planning and management efforts that took place in the Bras d'Or, and if there were any lessons to be learned from them. Twenty-five interviews were conducted with fourteen different managers for the five general issues. From the interviews conducted, sixty specific comments were made as to how to improve the management that fell within the scope of the current management plan. Eleven comments were made that fell outside the current scope. These generally dealt with the formal collection and inclusion of anecdotal/Traditional Ecological Knowledge into management, the influence of the evolving First Nation rights currently being negotiated with respect to natural resources, and the need for government departments to better manage the issues that are already under their jurisdiction. For the sixty comments that fell within the scope of the plan, over half were related to the need for greater information collection and sharing. Although most managers were not familiar with the

previous efforts that had taken place, a number of concrete lessons were suggested from those who did. Comments from the survey for each issue are discussed below.

Forestry: It appears that forestry is generally well managed within the Bras d'Or with a significant number of improvements having been made in the past fifteen years. CEPI will need to work closely with the First Nation communities to accommodate any changes that arise in management practices as they explore and exercise their First Nations rights with regard to forestry resources. The good working relationships developed through CEPI should assist in any transitions required. The inclusion of First Nation's social and cultural objectives and the formal collection of anecdotal and Traditional Ecological Knowledge into forestry planning is also called for. Specific indicators to monitor the effectiveness of forestry management should be developed and communicated to the public.

Sewage: Sewage remains a long-standing concern for the Bras d'Or. Faulty or absent on-site systems, many of which were built prior to the mid-1970's when there were no treatment standards, appear to be the main sources of contamination as indicated during the interviews. Currently however, there does not appear to be a good sense of where these homes are or data to measure the extent of the problem. Information from the Canadian Shellfish Classification System that monitors classified shellfish growing areas for fecal coliform is used to determine the extent of the problem, but only about half of the shoreline is monitored under this program. Also, there appear to be economic and political factors preventing people from being legally prosecuted for violations, so an information campaign targeting homes and properties that are the likely culprits is needed along with funding programs to assist. Compiling and mapping homes that were built prior to the mid-1970's which may not have a proper on-site treatment system would be a starting point. There is a good link between this activity and work being planned to explore Wastewater Management Districts by the Pitu'paq Committee as detailed in their Ten Commitments document. Issues associated with upgrading sewage treatment plants that are at capacity must also be dealt with by the Municipalities and First Nation Bands. In addition, ensuring continuity of operators for these plants in the First Nation

communities must be addressed. Any concerns associated with sewage contamination from boats appear to be addressed through Transport Canada's new regulations under the *Canada Shipping Act*, but ongoing inspections and information sharing will be needed with the shipping and boating communities. Specific indicators to monitor the effectiveness of sewage management should be developed and communicated to the public, with particular attention to on-site systems.

Land-Use: Of all the land-use activities considered under this issue (mining/gravel extraction, agriculture, shoreline development, landfills/dumpsites) the greatest gap in management appears to be related to the role that the municipalities play under the *Municipal Government Act*. Currently shoreline development is unregulated within the Bras d'Or without any municipal land-use by-laws controlling how it may impact the Lakes. There is also a lack of data to show if impacts have occurred as a result of shoreline development. This data would be required to make a good argument for restrictive land-use planning in an area that is largely rural and unaccustomed to such restrictions. Specific indicators to monitor the management of shoreline development, including its effects on the Bras d'Or, should be developed and communicated to the public.

Marine Invasive Species: The three marine invasive species: MSX, Green Crab, and Tunicates, are present within the Bras d'Or Lakes. Although some impacts of these species have made themselves apparent, such as the mortality on oysters by MSX, other impacts, including those to the broader ecosystem, are not well known. Transport Canada has recently introduced new regulations under the *Canada Shipping Act* to prevent the exchange of ballast water from ships within the Bras d'Or which may reduce the likelihood of new introductions of marine invasive species. More research relating to distribution and dynamics of these species as well as the development of an MSX resistant oyster stock has been called for. A public education campaign related to invasive species appears needed. In addition, the need to collect and incorporate anecdotal/Traditional Ecological Knowledge into management processes is required.

Specific indicators to monitor the effectiveness of how the marine invasive species are being managed should be developed and communicated to the public.

Declining Fish Stocks: Stocks of oysters, herring and lobster appear to have declined in the Bras d'Or initially from over-fishing. Their subsequent recovery may be impacted by environmental factors and the presence of other marine invasive species. There is currently very little knowledge about the stock status of these species. In addition, a greater awareness of issues associated with these species is needed especially as it pertains to things such as illegal poaching of lobster. An information campaign related to these species is required, as well as support for the collection and use of relevant anecdotal/Traditional Ecological Knowledge. Specific indicators to monitor how effectively the species that have declined are being managed, as well as the status of other species, should be developed and communicated to the public.

Analysis:

Planning and Management Context*:* There has been a long history of efforts in the Bras d'Or directed at improving the management of the many environmental issues identified. Some of these efforts were directed at identifying and prioritizing issues, some at identifying actions, and some at developing whole new management systems within the Bras d'Or. Few appear to have resulted in direct improvements to the issues as many of the issues discussed 30 years ago remain today. In this manner these efforts may be seen as failures. When examined, these exercises revealed little public involvement and a somewhat fragmented government involvement, both of which may be responsible for the lack of further progress. A fully engaged public may have applied greater political pressure to achieve results and a broader base of government support would be needed to organize program efforts toward these issues. CEPI has identified some of these shortcomings and are attempting to address them in the process they have developed to create an overall management plan. In doing so, they benefit from the lessons learned from this history as well as the cumulative momentum that these, even if unsuccessful, efforts have provided. In addition, recent changes to legislation to support this type of

coastal planning work, such as the Oceans Act, greater capacity of First Nations to participate in management processes, and a general recognition of the benefits of partnering have all contributed to the progress to date that CEPI has shown. The ability for CEPI to engage the broader public and other government departments by using the internet will be a significant advantage that previous efforts could not have benefited from.

***Scope of Current Management Plan**:* CEPI has developed an outline of what an overall management plan will be like in order to better address the issues within the Bras d'Or with an emphasis on working together. It was assumed that by working together that efficiencies would be gained, issues prioritized, and efforts undertaken that may not have been possible by working separately. Key elements from this plan have been described and were used to compare the input from managers with from the interviews. The scope of this management plan is broad and deals with efforts that will be useful for addressing issues directly, such as by understanding the environmental conditions, exploring regulatory changes and setting specific targets. The scope for this plan is also however focussed on supporting a process of planning and management. Aspects such as setting common goals, communication, and developing an evaluation and review mechanism are all in support of this process aspect.

Issues: The issues were identified from the previous studies and sorted on a cause and effect basis to help prioritize them. This was done based on the rationale that it is better to focus management attention on causes versus effects. This seemed to be effective for forestry, sewage, and land-use, which were all activities undertaken in the Bras d'Or that could have environmental impacts both on land and on water quality. However, marine invasive species and declining fish stocks, while identified as major issues, are likely caused by factors such as over-fishing, ballast water exchange, and habitat impacts as described by the managers. In this way the attempt to sort the primary issues in this cause and effect basis did not apply to all five issues used in this analysis.

***Public Communication and Engagement**:* To date there appear to have been few efforts to develop broad and on-going public involvement related to the issues being considered. Although communication with the public regarding the issues was considered critical, no managers indicated that their departments undertake this role. Many of the issues being discussed may require political will in order to bring about change in regulations or to secure the necessary financial resources. This political support will in turn be driven from an informed and involved public who is aware of these concerns, see them as relevant to their own lives, and seek solutions for them. The non-discharge designation of the Bras d'Or Lake against the release of sewage from marine vessels serves as a good case of where public input brought about change. In this case extensive public consultation aimed at supporting the application to have the lake designated was required and was used by Transport Canada to make this regulatory change under the *Canada Shipping Act*.

***Inconsistencies in Opinion**:* There appear to be some inconsistencies between certain issues that have been raised as concerns in the Bras d'Or and the opinions of the managers about how well these issues are managed. Forestry, mining, landfills, and sewage have been raised as concerns through the review of literature, but were generally thought to be well managed when speaking with the managers. These managers described improved standards and practices, the use of environmental assessments, compliance and monitoring procedures, inspections, and changes to legislation, as factors to support their positions. This inconsistency may be explained by the fact that the public that generated these concerns may be unaware of recent improvements or existing management procedures that are in place, or have expressed concerns based on a perception of the conditions. This would be consistent with several examples provided by the managers indicating that greater information needed to be shared with the broader public especially in cases where activities that are being monitored are in compliance. On the other hand, there may be an inherent bias for managers when questioned about the effectiveness of their management responsibilities to relate that they are in fact being effective. One question in the survey relating to the data and information used to manage the issue served to help validate these opinions but further analysis could be undertaken. Follow up

work to assess staff resources assigned to the issue, budgets, compliance reports, and other information may be useful to help validate these opinions.

***Shoreline Development**:* One area of management identified as a gap in this research was the lack of regulations for shoreline development under municipal jurisdiction. Four municipal counties share the Bras d'Or watershed including, Inverness, Richmond, Victoria and Cape Breton. Land use planning services are provided by the Eastern District Planning Commission that covers Inverness, Richmond, and Victoria counties, while the Cape Breton Regional Municipality covers Cape Breton County. Currently there are no Municipal Planning Strategy policies or land use by-laws that deal with how or where shoreline development may occur to minimize impacts to the Bras d'Or Lake. The adoption of more restrictive land use planning at the municipal level will require broad public consultation and agreement from the elected Councils. It was expressed during the interviews that some of the Councils are currently not aware of the need for these added restrictions and that there is very little data available to help "make a case" for them. The public may be quite strongly divided in their interest in more restrictive land use planning. Increased awareness of this issue and some data to show impacts should be pursued.

***Sewage**:* Sewage may be considered the most persistent issue in the Bras d'Or. Of the three potential sources that have been discussed: on-site, central treatment plants, and boats, it appears that faulty or absent on-site sewage treatment systems may be the primary culprit for impacts to the Bras d'Or. Central treatments systems are regularly audited and there are new regulations in place to deal with sewage from boats. For on-site systems however, there appear to be a number of information gaps that need to be addressed to deal with this issue, including the geographical extent of the water quality impacts and knowing which homes are likely to be polluting. As well, there are assumptions made about the ability of those homeowners with faulty or absent on-site systems to pay to have them installed or fixed.

Data for Management*:* A range of data sources is used to quantify and manage the issues in the Bras d'Or with as indicated during the interviews. For a number of issues which generally require some type of Environmental Assessment or Operational Approval, such as for mines, landfills, central sewage treatment systems, data seems to be collected to ensure these activities are in compliance with pre-established standards. For other activities and issues however, such as on-site sewage systems, shoreline development and declining fish stocks, there seems to be little scientific information collected to be used for management. In these cases anecdotal information is all that appears available.

Chapter 7: Conclusion and Recommendations

Conclusion:

The Bras d'Or Lake and watershed is a valued ecosystem within the Nova Scotia landscape. It is valued by both permanent and seasonal residents, and hold special significance for the First Nations people living there, as they have for untold generations. Some of the ecological features of the Bras d'Or, including a complex shoreline, shallow bays, deep basins, limited connections to the surrounding ocean, and areas of slow and limited flushing, add to its uniqueness but make it susceptible to human disturbance.

There is a long history of environmental concerns in the Bras d'Or. There also exists a long history of efforts to improve the way the environment of the Bras d'Or is managed to address these concerns. However, no effort to date has succeeded in developing new models of management and many of the same issues identified in the 1970's remain as concerns today at least in perception, including impacts from sewage and erosion and siltation. A number of concrete recommendations have been made to work better together to improve management from these older studies and exercises. Today, the Collaborative Environmental Planning Initiative (CEPI), as a broad partnership between federal, provincial, municipal and First Nation governments, industry, NGOs, academia and community, is pursuing the development of an overall management plan for the area. CEPI has actually adopted many of these recommendations as it has developed a process to advance the creation of this overall management plan. Reasons for why CEPI has been able to incorporate some of these recommendations include: beginning the process with a broad base of support, having learned from these previous efforts, a strengthened capacity of First Nations in science and management and a willingness of other government departments to work with them, a federal Oceans Program that supports this type of planning process distinct from issue specific management, and a general recognition that all the relevant government departments and other organizations need to develop ways of working together to address issues at a broader scale.

This thesis has analysed whether the scope and approach for a management plan being developed by CEPI is broad enough to address the environmental issues within the Bras d'Or. This approach has emphasized the importance of working together as a foundation for addressing issues. Based on interviews with managers from various government departments responsible for the main issues, the scope and approach did appear sound. This approach was adopted based on the assumed knowledge, expertise and insight of these managers for these issues.

Several useful outcomes resulted from this research which should contribute to the efforts for improved management of the Bras d'Or. These include:

Summary of previous planning and management efforts within the Bras d'Or;

Summary of environmental issues;

Summary of mandates and responsibilities for issues among various government departments;

Summary of current management approaches and areas where management could be improved for the issues; and,

Potential changes to scope of management plan to ensure its relevance for addressing the environmental issues.

The health and well being of the communities around the Bras d'Or Lakes is directly linked to the physical health of the Bras d'Or ecosystem and the goods and services it provides. The Bras d'Or Collaborative Environmental Planning Initiative has been working to develop a plan to protect and restore this valuable ecosystem through a partnership of various government departments, First Nation organizations, industry, academics, NGOs, and members of the community. Although this approach to develop a plan is not being done exclusively at a municipal level under the *Municipal Government Act*, the process is still consistent with how planning is generally defined by the Canadian Institute of Planners (CIP). The CIP defines planning as the scientific, aesthetic, and orderly disposition of land, resources, facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of urban and rural

communities[23]. The work of CEPI supports this view of planning, and if successful, will help secure the wellbeing of the communities around the watershed.

Recommendations:

A number of useful suggestions for improving the way the Bras d'Or can be managed are provided through a history of previous attempts to develop management systems for this area. To date, CEPI has in fact incorporated many of these suggestions in their approach. ***Building on this progress, CEPI should continue to develop an overall management plan for the Bras d'Or area. In doing so, CEPI partners must recognize that the development of a plan is a starting point for action and new resources and efforts will be required for implementation.***

Despite a long history of planning and management efforts in the Bras d'Or, the public has not been significantly involved in the processes discussed. This may account for the lack of apparent outcomes from these many efforts as an informed public may have applied the political pressure to achieve results. ***CEPI needs to communicate these issues and their management better to the public and provide opportunities for their input and involvement. CEPI should take advantage of the internet to improve this communication and reach this broad audience.***

Some inconsistencies were found between concerns raised by previous studies and the opinions of the managers about how well these issues are managed. In some cases the managers described improved standards and practices, compliance monitoring and environmental assessments as factors to support their opinion. However there may have been an inherent bias in this survey toward reporting positive results. ***CEPI should support the collection and sharing of information and monitoring results with the public relating to these issues to validate or dispel their concerns.***

There is a lack of municipal land-use regulations to protect the Bras d'Or Lake and watershed from the effects of shoreline development. There is also very little awareness

[23] Canadian Institute of Planners, What Planners Do. URL: http://www.cip-icu.ca/English/aboutplan/what.htm, Accessed August 14, 2007.

of this concern at the political level and very little data to make a case for increased restrictions. ***CEPI should pursue the collection of information relating to impacts from shoreline development, explore options for new regulations, and help inform the general public and Municipal Councillors of the situation.***

Based on the review of the type of comments made by the managers about the issues, it was apparent that more than half of these comments fell into the area of information collection and sharing. Managers suggested that in some cases there was no information to base decisions on, and in other cases people express concerns based on a lack of information. The need for improvement in this area was identified for all of the issues. ***CEPI should pursue the collection and sharing of information with themselves and the broader public for each of the issues. CEPI should pay special attention to the collection, sharing, and use of anecdotal and Traditional Ecological Knowledge. The development of an indicator based State of the Environment report that describes both the environmental conditions and the management responses would serve as a good tool to support this.***

Sewage is an issue that has persisted in the Bras d'Or for over 30 years with on-site systems likely the major culprit for impacts. There are however a number of information gaps and assumptions made about this subject that need to be answered and tested. ***CEPI should work in close association with the Pitupaq Committee to fill these gaps and test these assumptions to help address this long standing issue.***

Very few managers interviewed were familiar with the previous planning and management efforts that have taken place in the Bras d'Or over the years and the lessons that they provide. This suggests that these efforts may have been poorly communicated to a broader range of partners at the time, as well as that current management is not considering the lessons that these older efforts provide. ***CEPI members need to familiarize themselves with these efforts and their outcomes to benefit from the lessons learned.***

There is a lack of appropriate data relating to the management of a number of issues such as on-site sewage systems, shoreline development impacts, and declining fish stocks. ***CEPI need to prioritize issues requiring scientific data and strategize means to obtain it.***

Last, a number of suggestions were made to improve management that fell outside the scope of the Plan, including needing to ensure that government departments have the capacity and resources to undertake their management responsibilities. ***CEPI need to examine gaps in the existing management processes and seek ways to address them as a broad partnership.***

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Appendix A:

Management Plan Framework Document

Toward a Bras d'Or Lakes and Watershed Environmental Management Plan

Prepared by:
Collaborative Environmental Planning Initiative's (CEPI)
Management Plan Task Team

June 2006

Executive Summary:

The Bras d'Or Collaborative Environmental Planning Initiative (CEPI) was formed to develop an overall management plan for the Bras d'Or lakes and watershed and to facilitate its implementation by governments and other relevant stakeholders. The CEPI represents a cross-section of government departments (First Nation, federal, provincial and municipal), as well as local industry, academics, NGOs, and community members with a role or interest in the management of the Bras d'Or. An overall management plan is thought necessary to provide the coordination and support needed to address the many issues present in the area. This document presents an approach to developing an overall management plan for this valued area based on a review of relevant literature and discussions with local managers. Twelve tasks have been identified within a *Plan Framework* that, when completed, will support the development and implementation of this overall management plan. These tasks should be pursued for the entire lake and watershed as well as for each of the individual sub-watersheds in order to provide a range of approaches that are both strategic (for the whole watershed) and action-oriented (for individual sub-watersheds) in nature. Planning for the entire watershed can address issues related to policy and regulations, communications and public participation, and the setting of shared priorities. Planning within each of the sub-watersheds on the other hand has the benefit of fostering community involvement and leadership, and helps support the development of manageable sized projects. Both strategic and operational approaches are required to better manage this large and diverse geographic area. Implementation of this framework will be pursued as the workplan of the CEPI and its many partners using the organizational model developed under CEPI (Steering Committee, Senior Council, Elder Council, Secretariat, Task Teams). It is anticipated that the tasks associated with the CEPI workplan will become incorporated into the business planning process of each government partner (and others as able) to ensure the necessary in-kind and financial support. Fortunately, progress has been made against each of the tasks listed to date, and detailed planning work completed within the Denys Basin sub-watershed serves as a good model of advancing this approach in the other eleven sub-watersheds around the Bras d'Or.

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Introduction:

The following document has been prepared to outline how an overall environmental management plan may be structured for the Bras d'Or lakes and watershed lands. A plan, and the process to develop and implement it, will respond to a request articulated by the First Nation Chiefs in Cape Breton to senior government officials to develop an overall management plan for this significant area. It was argued that despite the various government departments and other organizations operating in the Bras d'Or, a number of environmental issues were persisting and the conditions getting worse. A plan is intended to address the many environmental issues present in the Bras d'Or, reduce the likelihood of new ones occurring, and better focus and coordinate the existing efforts in the area by a number of government departments and other organizations. This plan will be built on a sound foundation of knowledge of the ecosystem and environmental conditions present using both western science and Traditional Ecological Knowledge. It is being developed as a true partnership among First Nations, government at all levels, industry, academia, NGOs and the broader community. Many of the key components required to develop an overall management plan for the Bras d'Or have been established through the Collaborative Environmental Planning Initiative (CEPI) which was formed to develop an overall management plan for the ecosystem of the Bras d'Or lakes and watershed lands, and to facilitate its implementation by governments and other relevant stakeholders. The CEPI itself is a partnership of a broad cross-section of federal, provincial, municipal and First Nation governments, First Nations organizations, industry, academics, and community members. The vision, purpose, objectives, principles, and governance structure required for an overall plan have been developed in the CEPI's Terms of Reference and are highlighted below. This outline has been prepared for approval by the CEPI Steering Committee by the Management Plan Task Team[24] with the intent to seek further input on its scope and content from the broader community.

[24] See Appendix A for membership of Management Plan Task Team

Background on CEPI

Vision of CEPI:

The vision articulated by the Collaborative Environmental Planning Initiative (CEPI) is to: *lead a unique collaboration of partners that incorporate both traditional and western perspectives to foster a healthy and productive Bras d'Or Lakes watershed ecosystem.*

Purpose of CEPI:

The purpose of CEPI is to: *develop an overall management plan for the ecosystem of the Bras d'Or lakes and watershed lands and to facilitate its implementation by governments and other relevant stakeholders*.

Objectives of CEPI:

A balance of environmental, social, cultural, and institutional objectives will be pursued to ensure the health and sustainable use of the Bras d'Or lakes watershed ecosystem.

Environmental:

Improve or maintain healthy aquatic ecosystems;
Improve or maintain healthy terrestrial ecosystems;
Improve or maintain water quality (marine, freshwater, drinking water); and,
Evaluate the effects of climate change.

Social/Cultural:

Ensure multi-stakeholder participation (especially youth and Elders);
Promote increased communication, education, and awareness; and,
Foster integration of traditional and western knowledge and perspectives.

Institutional:

Support a process to develop and implement an overall management plan;
Build capacity for UINR to facilitate management;
Provide financial and in-kind support for UINR as facilitators of management planning; and,
Foster decision-making that considers "seven generations".

Economic:

Ensure sustainable use of natural resources;
Reduce economic losses from invasive species, habitat destruction, pollution, etc

CEPI Organizational Model:

The main components of an organizational structure for the CEPI are described below. This organizational model is currently operational and will be used to develop and implement the overall management plan.

Broader Community:

The Broader Community represents all people or groups with an interest or stake in the environment of the Bras d'Or lakes and watershed lands.

CEPI Steering Committee:

The CEPI Steering Committee represents the diversity of government, First Nations and other stakeholders in the Bras d'Or lakes and watershed. It provides leadership, coordination, input, and feedback in the development and implementation of the CEPI management plan. It includes members from the followings:

First Nations
Federal Government
Provincial Government
Municipal Governments
Industry
NGO/Community
Academia
Others

Task Teams:

Task Teams are created by the Steering Committee to address specific aspects of the management plan and its implementation. Current examples include:

Management Plan Task Team
Funding Task Team
Salmon Task Team

Elders Council:

Both CEPI workshops highlighted the need ensure the incorporation of the input from elders within the Bras d'Or area into the planning process. Support for a First Nation Elder Advisor is provided by the CEPI Partners.

Senior Council:

Members of the Senior Council include the five First Nations Chiefs in Cape Breton, Mayors, Wardens, and Chief Administrative Officers from the four municipalities, provincial government Deputy Ministers, and Federal Government Regional Directors General. The role of the Council is both to review and endorse CEPI activities and direction, as well as to provide strategic direction to the initiative, political and government support and feedback, and to ensure that departmental mandates are aligned, where needed, to directions being taken.

Secretariat:

A dedicated secretariat is supported to develop and implement an overall management plan for the Bras d'Or lakes and watershed lands. The secretariat is based at the Unama'ki Institute of Natural Resources (UINR). The general roles of the secretariat include:

Coordination
Communications
Liaison with stakeholders and government
Support to Collaborative Planning Steering Committee
Support to Task Teams
Support to Elders Council
Support to the Senior Advisory Council

Purpose and Benefits of a Plan:

The environmental issues in the Bras d'Or could be approached in two ways. The first would be by pursuing projects on an ad hoc basis based on the interests and resources available. The second way would include projects that are strategic in nature and developed within the context of an overall plan. The CEPI has taken the latter approach. The purpose and benefits of developing an overall management plan[25] for the Bras d'Or Lakes and watershed include that it:

[25]The term '*Management Plan*' is used here to include all planning stages including development, implementation, monitoring and evaluation.

Outlines a process for better management of the Bras d'Or lakes and watershed lands by fostering a *collaborative approach*;

Articulates the *vision, purpose, goals, objectives, and principles* for improved management;

Engages and communicates with all relevant stakeholders (residents, government, industry, NGOs, academics, etc.) on the issues, conditions, options, and progress being made;

Addresses the existing environmental issues and *anticipates* and *plans* for the prevention of other issues that may affect this valued ecosystem.

Supports the *sharing* of issues, information, expertise, research capacity, planning processes, and financial resources among all relevant governments departments and stakeholders;

Supports the *coordination* of common objective setting, work-planning, policy setting, communications, enforcement, and monitoring among all relevant government departments and stakeholders;

Supports planning and management at *two ecosystem scales*: the entire lakes and watershed and at individual sub-watersheds.

Clarifies to funding bodies and others the linkages between any individual project or initiative and the overall goals and objectives established for the Bras d'Or.

Planning Principles:

The following guiding principles are reflected in the planning process. They are detailed in the CEPI's Terms of Reference and are based on the conservation, restoration, and sustainable use of the Bras d'Or lakes and watershed lands. These guiding principles include:

Collaboration
Shared Work-planning
First Nations Capacity
Wisdom of Elders and Mi'kmaq Traditional Knowledge
Work Within Existing Legislative Frameworks
Ecosystem Based Management
Adaptive Management

Precautionary Approach
Transparency and Accountability

Plan Framework:

The following tasks, many of which will be undertaken at the same time and not necessarily in the order presented, will be required to develop and implement an overall management plan:

**** Identify and assess environmental issues, including their priority***

**** Assess environmental conditions***

**** Assess management conditions (capacity and effectiveness)***

**** Identify information needs (natural and social science)***

**** Describe the vision, purpose, goals, objectives and principles for improved management***

**** Describe the roles and responsibilities of the partners and an organizational model to implement plan***

**** Develop communications and public participation strategies for stakeholders***

**** Establish targets, indicators, and a monitoring program***

**** Explore regulatory tools to improve management conditions***

**** Develop projects (assessment, restoration, monitoring ,communication, evaluation) to meet objectives of plan***

**** Develop a funding strategy***

**** Establish an evaluation and review mechanism***

Model of Plan Framework:

The following figure is intended to illustrate that the tasks associated with the Plan Framework are not to be completed in a particular (linear) sequence. Rather, several of these tasks will likely be completed simultaneously and revisited as needed. In addition, this figure illustrates the relationships between the environment of the Bras d'Or, its users and managers, and the role that an overall management plan will play. The actual lakes and watershed lands are at the centre and are subject to the influences of the human use and those trying to manage that use – primarily various departments and levels of government. The management plan is the outermost layer and serves to tie together the various management bodies and users to ensure that the environmental objectives established for the lakes and watershed lands (and therefore its conditions) are met. The management plan itself is composed of the various elements described in the plan framework box above and will require the support, involvement, and coordination from the inner layers of users and managers.


BRAS D'OR MANAGEMENT PLAN
MANAGERS
HUMAN USE
ENVIRONMENT
Vision
Purpose
Goals
Objectives
Principles
Assess Issues
Assess Env. Conditions
Assess Mgt. Conditions
Roles & Responsibilities
Organizational Model
Identify Info Needs
Evaluation & Review
Projects
Regulatory Tools
Monitoring Program
Indicators
Targets
Communication Public Participation Strategies
Funding Strategy
Eskasoni
Wagmatcook
Whycocomaugh
Chapel Island
Membertou
CBRM
Victoria
Inverness
Richmond
Port Hawkesbury
NGOs
Service NS
NS Tourism
NS Transportation
NS Aboriginal Affairs
DFO
EC
INAC
Transport Canada
NSDOEL
NSDNR
NSDAF
Forestry
Transportation
Parks & Trails
Permanent Residents
Seasonal Residents
Development
Tourists
Research
Fishing
Shipping
Mining
Aquaculture
Agriculture
Boating

Decision-Making and the Plan:

Although a collaborative approach is being used to develop the plan among various levels of government, industry, First Nations, academia, NGO's, and community members, any formal decision-making associated with its implementation will fall to the existing management bodies described above. This is in keeping with the principle of *Work Within Existing Legislative Frameworks* stated previously and described in the CEPI's Terms of Reference. The strength of the planning process to represent the views of all stakeholders with regard to the Bras d'Or, will provide the greatest incentive for management bodies to ensure decisions reflect the best interests of this constituency. In addition, the plan will seek to clarify existing roles and responsibilities among the government partners with respect to the many issues present.

Development and Implementation of Plan:

The purpose of CEPI as stated earlier in this document is to develop an overall management plan for the Bras d'Or ecosystem and foster its implementation by government departments and other relevant stakeholders. The tasks outlined in the Plan Framework will facilitate progress toward both the development of the plan (such as by identifying environmental issues and conditions, establishing targets, and communication) as well as its implementation (through undertaking projects, exploring regulatory tools, and securing funding). The final Management Plan will be the compilation of the majority of the completed Plan Framework tasks. Implementation stages will follow this. In this way, the purpose of CEPI will be met if the tasks associated with the Plan Framework are pursued.

Planning at Two Scales:

Many of the elements from the plan can be approached at the scale of the entire Bras d'Or Lakes and watershed, or at a scale of the individual sub-watersheds (as shown on the cover image). It is envisioned that work at the scale of the entire Bras d'Or may be more general and strategic in nature, whereas the planning and management at the sub-

watershed scale may be more operational and site specific. The planning process should pursue addressing these elements at both scales to capture general issues for the entire area as well as the site-specific ones. In this way, both strategic and operational goals can be pursued. Management at the sub-watershed scale should also allow a greater involvement of residents into the management process as the issues being addressed will be *close to home*. It is envisioned that the capacity and organization developed through the CEPI (Secretariat, Steering Committee, Senior Council, Elder Advisors, Task Teams) can be applied to support work at both scales. The planning and management work undertaken in the Denys Basin sub-watershed in recent years may serve as a model for other work at the sub-watershed scale.

The following sections include further descriptions of each of these tasks associated with planning at the scale of the entire Bras d'Or and at the sub-watershed scale. Where work is already completed or underway, examples are provided.

Whole Lake and Watershed Planning:

1. Identify and assess environmental issues, including priority

The general issues for the entire Bras d'Or should be identified and assessed using input from all stakeholders.

Communication tools such as a watershed-wide questionnaire or a series of Open-Houses may be used to gather input and assign priority.

Resources: Issues have been identified in a number of previous studies including, UMA Bras d'Or Plan Study (1992), Taking Care of the Bras d'Or (1995), Ecosystem Science Workshop (1999), CEPI Workshops (2003 and 2004), SCI Issue Identification Report (2005), plus others.

2. Assess environmental conditions

Need a baseline of knowledge of the environmental conditions (terrestrial, aquatic, marine and climatic) and stressors to support management decisions.

Information sought should include both western science and traditional perspectives.

Resources: General conditions are being assessed through UINR's State of the Environment Report and DFO's Ecosystem Overview and Assessment Report currently underway. Also includes work of the Science for the Integrated Management of the Bras d'Or (SIMBOL) group.

3. Assess management conditions

Improved management in the Bras d'Or will require some analysis of where the existing management by the many government departments and organizations can be better coordinated and supported to meet the objective of the overall plan.

A clear description of the various roles and responsibilities of the relevant government departments will form part of this analysis.

4. Identify information needs (natural and social science)

General information needs and data gaps are to be identified based on an analysis of the environmental and management conditions.

The precautionary approach should be applied in light of these information needs.

Filling critical information gaps should become priority projects of the planning process (See # 10 below) to be undertaken by government departments, consultants, academics, and other relevant organizations such as NGOs.

Resource: Bras d'Or Ecosystem Overview and Assessment Report (2005) and review process have identified the ecology of the nearshore environment of the Lakes as a major information gap.

5. Establish vision, purpose, goals, objectives, and principles for improved management

The planning process must include a clear articulation of these for the whole watershed.

Resource: These are described in the CEPI Terms of Reference (2006).

6. Describe the roles and responsibilities of the partners and an organizational model to implement plan

An overall management plan in the Bras d'Or will require that each partner organization play a role in achieving its objectives. These roles and responsibilities will need to be clearly defined.

Roles associated with the sharing of issues, information, expertise, research capacity, planning and financial resources need to be worked out, along with the roles associated with coordinating common objective setting, program development, work-planning, policy setting, communications, enforcement and monitoring.

Organizational arrangements will need to be in place to support planning process.

Resource: An organizational model to assist in developing and fostering the implementation of the plan has been developed and described in the CEPI Terms of Reference (2006). The principle of using the Wisdom of Elders and Traditional Knowledge is reflected in this model with the formal involvement of an Elder representative.

7. Develop communications and public participation strategies for stakeholders (communities, government, etc.)

A comprehensive communication strategy should be developed to engage all partners and communities, share information, and solicit feedback. The strategy should include consideration of key messages, audiences, and tools for communication.

A method on ensuring public participation in all stages of plan development and implementation should be established.

Resources: CEPI Website under development, UINR and Stewardship Society newsletters.

8. Establish targets, indicators and a monitoring program

Some general environmental targets, indicators, and a monitoring program should be established that cover the entire Bras d'Or ecosystem (marine and terrestrial).

These should be easily understood and communicated to stakeholders to help describe current conditions and progress made to improve them.

An appropriate monitoring program for these should be established that recognizes both logistical and financial limitations.

Resource: Established monitoring programs of various government departments and industry may be used or adapted as appropriate. A revised Guardian Program at UINR may also provide some assistance with monitoring.

9. Explore regulatory tools to improve management conditions

A range of regulatory tools may be pursued to meet the objectives of the overall management plan

These may include: Canada Shipping Act Designation (sewage), revised Canada Shipping Act regulations (ballast water), and an Inter-municipal Planning Strategy (development standards), plus others.

Resource: An application to designate the Bras d'Or a non-discharge zone for sewage from marine vessels has been filed with Transport Canada; Canada Shipping Act regulations preventing ballast water exchange in the Bras d'Or are being finalized.

10. Undertake projects (assessment, restoration, monitoring, communication, evaluation)

A range of projects directed at the entire watershed area may be undertaken to support the development or implementation of the overall plan

These projects may include assessments, restoration, monitoring, communication, and evaluation work

Resource: Current assessment projects directed at the entire Bras d'Or include the SOE Report and the Bras d'Or EOA Report.

11. Develop funding strategy

Funding will be required to undertake the development of the overall management plan and facilitate its implementation, funding will be required.

A funding strategy should be pursued to address core needs (CEPI Secretariat) and projects for the entire Bras d'Or targeting a range of sources including, government, industry, foundations, etc.

Resource: Currently funding for the CEPI Secretariat and organization are provided by a range of government partners.

12. Establish an evaluation and review mechanism

Annual reports of the CEPI Secretariat should be produced that describe how the contributed funding was spent and progress made to the planning process.

To ensure that the plan remains relevant to changing conditions and knowledge, in keeping with the principle of *Adaptive Management*, the overall plan should be revisited every 5 years.

Longer-term reports, which describe and/or quantify the progress that was achieved relative to the plan's stated objectives, should be produced.

Sub-Watershed Planning:

The same tasks of planning and managing work at the scale of the entire Bras d'Or can be applied to each of the twelve sub-watersheds around the lake[26]. There are several advantages to pursuing planning and management at the sub-watershed scale, including that it deals with site specific issues at a scale where tangible improvements can be made, it fosters community involvement and leadership as the issues are local and relevant, and it allows the development of manageable sized projects from a logistical and funding perspective. In addition, pursuing work at a sub-watershed scale may provide a manageable process to address the many issues present over this large area. The identification of high priority sub-watersheds may assist in work-planning. A key will be that the scope and intent of the sub-watershed work be consistent with the vision, purpose, objectives, and principles of the work at the entire Bras d'Or scale. In addition, as discussed above, the organizational structure created for CEPI will provide support to the efforts of each sub-watershed. To date, there is a good example of work undertaken in

[26] See Appendix B: Sub-watersheds of the Bras d'Or Lake

the Denys Basin sub-watershed which can be examined as a model to apply to other sub-watersheds

1. Identify and assess environmental issues, including priority

Assessments of issues should be based on background research (previous studies of area) as well as direct enquiries with all residents within the sub-watershed (as per Barrington, 2005 in River Denys sub-watershed).

2. Assess environmental conditions

Assessments of environmental conditions should be on based background research (including Bras d'Or SOE and EOAR reports) where appropriate, and site specific research.

3. Assess management conditions

Not needed if done for entire watershed.

4. Identify information needs (natural and social science)

Should be determined based on sub-watershed specific information collected.

5. Establish vision, purpose, goals, objectives, and principles for improved management

Could be developed based on sub-watershed specific information but should be consistent with that developed for the entire Bras d'Or as outlined in CEPI Terms of Reference.

6. Detail organizational arrangements for improved management

Should utilize CEPI governance structure (Steering Committee, Senior Council, Elders Council, Secretariat) but should also support the work of local community groups in each area.

7. Develop communications and public participation strategies for watershed communities

Should utilize communication tools and materials developed by CEPI secretariat for the entire Bras d'Or.

Can develop specific communications and public participation strategies based on unique characteristics of sub-watershed.

8. Establish targets, indicators and a monitoring program

Sub-watershed specific targets, indicators and monitoring should be developed, but may be related to those developed for the entire watershed.

9. Explore regulatory tools to improve management conditions

Not needed if done for the entire watershed.

10. Undertake projects (assessment, restoration, monitoring, communication, evaluation)

Sub-watershed specific projects should be developed to address local issues.

Projects will be identified through sub-watershed specific assessments.

11. Develop a funding strategy

Funding for sub-watershed specific projects and their administration should be pursued with various funding bodies (government departments, foundations, industry, etc.)

Some funding for work at the whole Bras d'Or scale may be used for each sub-watershed.

12. Establish an evaluation and review mechanism

Progress within each sub-watershed can be evaluated individually.

Project list can be revisited based on changing conditions and information within each sub-watershed.

Support for Plan:

The CEPI Management Plan will be approved and supported by the CEPI's Senior Council (First Nation Chiefs, federal Regional Directors General, provincial Deputy Ministers, and municipal Mayors and Wardens) as well as the broader community of the Bras d'Or throughout the development and approval process.

Implementation:

An annual workplan for the Steering Committee and Secretariat will be needed to complete the tasks associated with the Plan Framework[27]. As one of the guiding principles of the plan is *Shared Work-planning*, it is anticipated that the Plan Framework tasks will be undertaken by all the relevant partners in CEPI and that the respective government departments include these tasks in their annual departmental workplans to ensure that both in-kind and financial support is secured. The CEPI will need to ensure that certain priority components of this plan framework are addressed first in order to build a foundation for improved management. These priorities include tasks such as assessing the environmental conditions, developing more detailed objectives, developing a communication strategy and program, and others. Fortunately, several of these tasks are already completed or underway, including the vision, purpose, principles and organizational model associated with the CEPI, as well as the assessments of the environmental conditions and ecology (State of the Environment Report and Bras d'Or Ecosystem Overview and Assessment Report).

Applying the same management model on a sub-watershed basis will also be required to implement a Bras d'Or management plan. Lessons learned and methodologies from work in the Denys Basin sub-watershed can be used for the other sub-watersheds, whose priority for planning and management may be based on a range of criteria including the severity of local issues, the presence of a local community group, or the ecological sensitivity of the sub-watershed. The CEPI Steering Committee, with input from the broader community, should develop a priority list of sub-watersheds which this framework will be applied to.

[27] See Appendix C: CEPI Workplan

The CEPI Steering Committee will need to determine a timeline for completing the tasks associated with the plan framework. This timeline will relate to the major deliverables of CEPI and form part of its longer-term workplan. The advantage of developing a plan in this way is that it will allow CEPI to be realistic in prioritizing and scheduling its work and will provide potential funders with a clear picture of what we are trying to do, how long it will take, and how it fits into the vision for the Bras d'Or. The work can be organized according to each scale of management.

Timeline for Plan Framework Tasks

Task	***Status***	***2006/07***	***2007/08***	***2008/09***
Assess Issues	Underway			
Assess Environmental Conditions	Underway			
Assess Management Conditions	Underway			
Identify Information Needs	Underway			
Vision, purpose, goals, objectives, principles	Complete			
Roles and Responsibilities and Organizational Model	Partially complete			
Communications and Public Participation Strategies				
Targets, Indicators, Monitoring Program				
Regulatory Tools	Some underway			
Projects	Some underway			
Funding Strategy				
Evaluation and Review				

Appendix A: Membership of Management Plan Task Team

The following individuals were involved in the development of the Management Plan framework.

Naug, Jason (Chair) – Fisheries and Oceans Canada
Carter, Sharon – NS Department of Environment and Labour
Huston, Justin – NS Department of Agriculture and Fisheries
Fanning, Lucia – Environment Canada
Forrester, Dave – Cape Breton University
Livingston, Robert – Stewards of the River Denys
MacSween, Brian – NS Department of Natural Resources
Marshall, Albert – Eskasoni
McReady, Rick – Cape Breton Regional Municipality
Porter, Shelley – CEPI Coordinator, Unama'ki Institute of Natural Resources
Simmons, Marney – Rural Cape Breton District Planning Commission

Appendix B: Sub-watersheds of the Bras d'Or Lakes

Sub-Watersheds of the Bras d'Or and their areas include:

	Subwatershed	***Area (km^2)***
1	St. Andrew's Channel	184
2	North Basin	86
3	East Bay	332
4	St. Peter's Inlet	177
5	West Bay	168
6	River Denys	289
7	McKinnon's Harbour	83
8	Whycocomagh Bay	226
9	St. Patrick's Channel	195
10	Middle River	323
11	Baddeck River	302
12	Great Bras d'Or	109

Appendix C: Draft CEPI Workplan

The following table is a draft of the workplan for the Bras d'Or Collaborative Environmental Planning Initiative. It is intended to translate the twelve planning tasks identified in the framework for the overall management plan for the Bras d'Or into the workplan for CEPI's partners and secretariat. The progress of CEPI will be measured against the tasks identified in this workplan.

CEPI Planning Task	Action for CEPI Workplan	Timeline
Identify and assess environmental issues including their priority	Action: Develop a questionnaire to send to all watershed residents (or sample) including seasonal residents. This may include up to approx. 7000 homes. Can include background on CEPI and use it as a two-way exchange of information. Action: A strategy needs to be developed to undertake this work including costs and staff time required.	Strategy developed and questionnaire sent by Summer 2007
Assess environmental conditions	Action: State of the Bras d'Or Report: have meeting of key partners to develop a plan for how remaining sections of report will be completed. Action: Need to finalize water quality unit and develop a presentation suitable for Municipal Councils to begin discussions regarding land use by-law changes. Action: Finalize Bras d'or Ecosystem Overview and Assessment report including results from TEK workshop and figures. Action: Finalize other units of SOE report using EOAR as background.	SOE Report: Establish Plan for completion of report: Summer 2006 EOAR: finalize report fall 2006
Assess management conditions (capacity and effectiveness)	Action: Complete assessment of management conditions, including roles and responsibilities of existing government departments, as thesis research (J. Naug, Masters of Planning, Dalhousie University).	Winter 2006

Identify information needs (natural and social science)	Information needs should be identified from SOE and EOAR reports from above. Should also determine mapping requirements for the Bras d'Or. Action: have a full meeting devoted to discussing mapping needs and resources.	Mapping Meeting by Fall 2006
Describe the vision, purpose, goals, objectives and principles for improved management	Completed in Terms of Reference. More detailed objectives may be developed in each sub-watershed based on local conditions, but should be consistent with overall objectives.	Complete CEPI Terms of Reference.
Describe the roles and responsibilities of the partners and an organizational model to implement plan	The workplan for CEPI will need to include specific roles for each of the partners. This will also apply for any projects that the CEPI agrees to undertake. The current governance structure developed for CEPI provides the organizational model to implement the plan. Action: ensure that each partner in CEPI has clarified their role in undertaking this workplan and that staff and resources are available to do so. Ensure that this process also applies to any projects that CEPI undertakes. Action: Include updates from each government partner at CEPI Steering Committee meetings on their roles and responsibilities.	
Develop communications and public participation strategies for stakeholders	The group agreed that CEPI needs to begin communicating to the broader community of the Bras d'Or as a priority. Action: The group agreed that the communication strategy (key messages, audiences, tools) will be developed by the end of the fiscal year (March 2007). Action: the group agreed that the website to support the communication strategy will be completed by the end of the fiscal year (March 2007). Action: A meeting to discuss the communication strategy will be organized during the summer of 2006.	Meeting to discuss strategy summer 2006. Completion of communication strategy March 2007 Completion of website March 2007
Establish targets, indicators,	Select a few key indicators to use to describe the health of the Bras d'Or along with target levels	Establish task team

and a monitoring program	and necessary monitoring of these indicators. Can use SOE report and other sources. Action: establish a Task Team to explore this and ensure that indicators and monitoring program are easily understood and suitable for community participants	Spring 2007.
Explore regulatory tools to improve management conditions	There are currently three areas where regulations are being re-examined/considered to better meet the objectives of CEPI. 1. ***Ballast water regulations***: waiting for Transport Canada to finalize new regulations 2. ***Non-discharge designation for sewage from marine vessels***: waiting for Transport Canada to finalize regulations 3. ***Municipal Planning Strategy and Land-use By-law***: could use a presentation developed and presented to the municipal councils on the water quality unit of the SOE report. Action: wait for changes to come from Transport Canada Action: support completion of SOE report (water quality unit) and presentations to municipal councils by March 31, 2007.	Undertake presentations to Municipal Councils by March 31, 2007
Develop projects (assessment, restoration, monitoring, communications, evaluation) to meet objectives of plan	A number of projects have been discussed for CEPI including: Salmon Initiative State of the Bras d'Or Questionnaire of all residents Communication Strategy and Website River Denys Action Plan Action: we will need to ensure that the priority projects (State of the Bras d'Or, Questionnaire, Communication Strategy) are all part of this workplan.	
Develop a funding strategy	There are a number of funding programs and foundations that should be explored for support for both projects and the secretariat. CEPI should also seek and track in-kind support. There are a number of larger industrial partners that could be potential sources of funding for CEPI including: NS Power, LNG, GP, Stora, and Bearhead LNG. We will need to keep these primary industries well informed of our efforts this year so that if we	Funding task team to meet summer 2006.

	need to seek project funding, that they will be familiar and supportive of our efforts. Action: Funding Task Team to meet to develop strategy.	
Establish an evaluation and review mechanism	Can measure progress against objectives and dates established in this workplan. Action: present progress against this workplan monthly and to Senior Council annually.	Monthly progress reports of workplan.

Appendix B: Environmental Mandates

Issue: Forestry

Activities: Clear-cutting, Logging Roads

Departmental Responsibility:

NS Department of Natural Resources. Renewable Resources Branch, Forestry Division

Responsible for: Integrated Resource Management planning, research to improve forest management, provincial forest inventory and database, compiling and reporting data, maintaining scaling standards for roundwood and licensing of scalers, coordinating provincial forest fire and pest management, and managing the provincial forest nursery

NS Department of Natural Resources. Renewable Resources Branch, Program Development Division

Responsible for coordinating policy and program development with Branch, assisting in the development and delivery of education and extension programs for the Branch, plus other.

http://www.gov.ns.ca/natr/renewable.asp

NS Department of Natural Resources. Regional Services Branch, Eastern Region.

The Regional Services Branch delivers department programs and services through an extensive network of field offices. These programs and services include forest management programs, Crown lands surveys, regional geological services, extension and education, enforcement and hunter safety, forest fire prevention, detection and suppression, monitoring of forest insects and diseases, operation and maintenance of Provincial Parks, and resource conservation. The Branch is comprised of the following divisions:

Resource Management
Enforcement
Operations
Fleet Management
Regions (Western, Central, Eastern)

http://www.gov.ns.ca/natr/regional.asp

Applicable Legislation/Regulations

Crown Lands Act (1989):

http://www.gov.ns.ca/legislature/legc/statutes/crownlan.htm

To provide the most effective use of Crown lands by:
1. The application of proven forest management techniques to enhance productivity on Crown lands and to provide for an increasing harvest of better quality forest products;

2. Requiring that leasing and licensing arrangements on Crown lands are providing for equitable stumpage rates, adequate investments in forest improvements and improved market access for privately produced wood;

3. The integration of wildlife and outdoor recreation considerations in the forest management planning process; and

4. More effective administration and management of all Crown lands.

Forests Act (1998)

http://www.gov.ns.ca/legislature/legc/statutes/forests.htm

The Forests Act was created to:

- Develop a healthier, more productive forest capable of yielding increased volumes of high quality products;
- Encourage the development and management of private forest land as the primary source of forest products for industry in the Province;
- Support private landowners to make the most productive use of their forest land;
- Provide effective management of all Crown lands;
- Maintain or enhance wildlife and wildlife habitats, water quality, recreational opportunities and associated resources of the forest;
- Enhance the viability of forest-based manufacturing and processing industries;
- Double of forest production by the year 2025;
- Create more jobs immediately and in the longer term through improved productivity

Forest Sustainability Regulations (2000)

http://www.gov.ns.ca/natr/forestry/strategy/sustainabilityregs.htm

Regulations are in place under the Forests Act to sustain the productivity and resource of NS forests by ensuring regeneration of harvested areas through silviculture and the use of commercial tree species.

Wildlife Habitat and Watercourses Protection Regulations (2002)

http://www.gov.ns.ca/natr/wildlife/thp/wildl_hab.html

These regulations under the Forests Act are designed to protect water quality and to maintain various elements of wildlife habitat on all forest harvest sites. These new laws are mandatory on all lands; private, industrial and Crown.

Buffer zones on most watercourses and wetlands, clumps of living trees and abundant coarse woody debris are now required within all harvested areas.

Applicable Policies/ Programs

NS Forest Strategy:

http://www.gov.ns.ca/natr/forestry/strategy/default.htm

The Forest Strategy ensures that harvesting on all woodlots does not exceed the capacity to grow timber, maintains jobs and incomes for those reliant on industry, and protects forest environment and wildlife habitat

Some of the key elements of the Forest Strategy are now in place including:

- Registry of Buyers
- Forest Act Amendments
- Forest Sustainability Regulations

Sustainable Forest Fund
Forest Technical Advisory Group
Communications Strategy
Wildlife Habitat and Watercourses Protection Regulations
A Code of Forest Practice
A State of the Forest Report is planned

NS Code of Forest Practice

http://www.gov.ns.ca/natr/forestry/strategy/code/defaul.htm

The Code of Forest Practise is intended to provide direction to forest land owners and operators on forest management practices which lead to sustainable forests and forest use. This code will describe how the principles can be implemented in practice and provide technical references to assist in making operational forest management decisions. The Code will consist of three elements: Framework Document, Guidebooks, and Technical Manuals and become part of the planning and operational requirements for Nova Scotia Crown lands. Its use will be encouraged on all private forestlands through information and education.

Stora Enso Port Hawkesbury Limited (SEPH) Forest Management Licence

http://www.storaenso.com/CDAvgn/main/0,,1_EN-5079-11316-,00.html

SEPH holds a forest management licence agreement with the provincial government for some 607 000 hectares of Crown land in the seven eastern counties of Nova Scotia. Under the terms of the agreement, SEPH is responsible for forest management planning (long term and annual), road building, wood harvesting, and silvicultural practices. Day to day operations are controlled and independently verified according to an International Standards Organization (ISO 14001) environmental management system. In total, SEPH has access to and manages approximately 30% of the Bras d'Or lakes watershed, with less than 1% in clearcut condition.

Departmental Responsibility: First Nation Communities

Indian and Northern Affairs Canada (INAC)

http://www.ainc-inac.gc.ca/index_e.html

INAC is responsible for two separate yet equally important mandates: **Indian and Inuit Affairs** and **Northern Affairs**. This broad mandate is derived largely from the *Department of Indian Affairs and Northern Development Act*, the *Indian Act*, territorial acts and legal obligations arising from section 91(24) of the *Constitution Act, 1867*. In general, INAC has primary, but not exclusive, responsibility for meeting the federal government's constitutional, treaty, political and legal responsibilities to First Nations, Inuit and Northerners.

Applicable Legislation/Regulations

Indian Act

http://laws.justice.gc.ca/en/I-5/index.html

The Indian Act covers a broad range of topics associated with First Nation communities including governance, education, taxation, registration and money, in addition to land related to First Nation reservations. Reservations are defined as tracts of land for the use and benefit of a band, whose legal title is vested with the Crown. Various aspects of land use development within a reserve are covered by the Indian Act including, roads and bridges, farming, overcrowding, etc

Indian Timber Harvest Regulations (2002)

http://laws.justice.gc.ca/en/showdoc/cr/SOR-2002-109///en?page=1

These regulations prohibit the cutting of timber on a First nation Reserve without a licence by non First Nation people. A person acting on behalf of the Council may cut timber on a reserve without a licence if the timber and any product made from the timber are intended for use on the reserve.

Indian Timber Regulations (2006)

http://laws.justice.gc.ca/en/showdoc/cr/C.R.C.-c.961///en?page=1

These regulations prohibit a person from cutting timber on surrendered lands or on reserve lands without a licence from INAC. Permits to cut timber free of dues may be issued by the Minister to a band for band purposes or to a member of a group of a band, or cut timer and fuel wood for individual use. Additionally, with the consent of the council of a band, permits to cut timer for sale may be issued by the Minister to a band or to a member or group of members of a band.

Applicable Policies/ Programs

Departmental Responsibility: First Nation Communities

Stora Enso – Unama'ki Institute of Natural Resources Forestry Agreement (2002)

http://www.uinr.ca/index.html

In January 2002, an agreement between Stora Enso and the Unama'ki Institute of Natural Resources (UINR), an organization representing the five Cape Breton First Nation Bands, was signed in which outlined provisions for forestry management services to be carried out by UINR on the Cape Breton crown lands. This management includes forest planning, harvesting and silviculture. The two parties also agreed to establish a joint UINR/Stora Enso forest planning committee made up of two individuals from each party. This committee will review and make recommendations to Stora Enso on the long- term forest management plan. This contract gave UINR access to act as a contractor and harvest up to 10% of the annual allowable cut (AAC) on Cape Breton with an added clause for a potential increase in the harvest volume.

Through out the year the UINR forestry manager works with Stora Enso's employees to assess what areas are eligible for harvest and exploring new stands through GIS mapping. Following a formal inventory and block layout a stand becomes prepared for the sub-contractor to enter and begin the harvest. Before UINR hires it's harvesting sub-contractors certain training criteria has to be met in order to work on crown land. Once harvesting commences forestry employees supervise all activities ensuring that proper regulations are enforced. Some examples of regulations the forestry manager watches for are wildlife clumps, proper size and location, riparian buffer zones, ensuring the width of stream adheres with the width of the buffer.

Confederacy of Mainland Mikmaq

http://www.cmmns.com/index.php

The CMM is Tribal Council incorporated in 1986 as a not-for-profit organization under the Societies Act of Nova Scotia. Starting with a team of two staff members, twenty years later the organization is supported by more than sixty employees. The mission statement best summarizes the objectives of the organization:

"*To proactively promote and assist Mi'kmaw communities' initiatives toward self determination and enhancement of community.*"

From its main office located in the Millbrook First Nation, The CMM delivers a variety of community programs and advisory services to first nations communities in Nova Scotia. The staff consists of a team of professional First Nations experts who bring unique Mi'kmaw perspectives to current issues.

Applicable Legislation/Regulations

Applicable Policies/ Programs

The First Nation Forestry Program (FNFP) is a partnership between the Government of Canada and First Nations Communities. FNFP works at empowering First Nations communities with the skills and knowledge to sustain their forests. The program aids First Nations of Nova Scotia in managing forests independently while participating in forestry development and forest-based economy. As a program of The CMM, First Nations Forestry Program of Nova Scotia has initiated several forestry projects for all Nova Scotia First Nations communities. Each community has a Forestry Management Plan completed by the Confederacy of Mainland Mikmaq for their Reserve lands.

Departmental Responsibility

NS Department of Environment and Labour, Environmental Monitoring and Compliance Division*

http://www.gov.ns.ca/enla/divisions/emc.asp

The Environmental Monitoring and Compliance Division is responsible for the majority of field operations relating to environmental protection. Activities in this Division include: processing applications, inspection and monitoring of approvals, enforcement activities and response to public issues and complaints..

*** Note:** NS Environment and Labour does not manage forestry activity directly but rather can manage the potential effects of forestry as they impact aquatic ecosystems.

Applicable Legislation/Regulations

Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:

maintaining environmental protection as essential to the integrity of ecosystems, human health and the socio-economic well-being of society;
maintaining the principles of sustainable development, including
the polluter-pay principle confirming the responsibility of anyone who creates an adverse effect on the environment to take remedial action and pay for the costs of that action;
taking remedial action and providing for rehabilitation to restore an adversely affected area to a beneficial use;
Government having a catalyst role in the areas of environmental education, environmental emergencies, environmental research and the development of policies, standards, objectives and guidelines and other measures to protect the environment;
encouraging the development and use of environmental technologies, innovations and industries;
the Province being responsible for working co-operatively and building partnerships with other provinces, the Government of Canada, other governments and other persons respecting transboundary

matters and the co-ordination of legislative and regulatory initiatives;
providing access to information and facilitating effective public participation in the formulation of decisions affecting the environment, including opportunities to participate in the review of legislation, regulations and policies and the provision of access to information affecting the environment;
providing a responsive, effective, fair, timely and efficient administrative and regulatory system, recognizing that wherever practical, it is essential to promote the purpose of this Act primarily through non-regulatory means such as co-operation, communication, education, incentives and partnerships, instead of punitive measures. *1994-95, c. 1, s. 2.*

Part X of the Environment Act addresses Water Resource Management. Section 104 (e) states that the Department is the lead agency to ensure the health and integrity of aquatic ecosystems, to protect habitats for animals and plants and to provide for continued recreational benefits.

Applicable Policies/ Programs

Nova Scotia's Water Resources Management Strategy

http://www.gov.ns.ca/enla/water/waterstrategy.asp

Nova Scotia Environment and Labour (NSEL) is taking the lead in developing a comprehensive provincial water resources management strategy. On March 30th, 2007 the Minister of Environment and Labour announced that NSEL is embarking on a 3-year process to develop the strategy. The strategy development will be overseen by an Interdepartmental Water Management Committee consisting of 10 government departments and chaired by the Deputy Minister of Environment and Labour.

The key deliverables in 2007/8 include: development of a discussion paper, development of a stakeholder consultation strategy, identification of vision, issues/concerns, and information gaps. Concurrently, strategic activities will be carried out under the 3-pillars of the strategy: drinking water; water quality and quantity; and wastewater. In 2008/9, a review of current programs and policies will be conducted, an education and outreach program will be developed and launched and the strategic activities, including data gathering and information gap-filling, will continue. Public involvement and consultation will also continue. In 2009-10, the water strategy will be drafted and consultations on the draft strategy will take place before submitting to cabinet for consideration. Education and outreach, as well as information/data gathering will continue. Beyond 2010, the strategy will continue as living document to be augmented, revised and updated as needed and as implemented.

Departmental Responsibility

Fisheries and Oceans Canada*

http://www.dfo-mpo.gc.ca/

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. DFO is a national and international leader in marine safety and in the management of oceans and freshwater resources. Departmental activities and presence on Canadian waters help to ensure the safe movement of people and goods. As a sustainable development department, DFO will integrate environment, economic and social perspectives to ensure Canada's oceans and freshwater resources benefit this generation and those to come.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and

aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

*** Note:** Fisheries and Oceans Canada does not manage forestry activity directly but rather can manage the potential effects of forestry as they impact fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. Management of potential impacts to fish passage, fish, and fish habitat are included. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. These include regulations used to control the spread of invasive species.

Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Issue: Sewage

Activities: On-site systems (faulty or absent)

Departmental Responsibility:

NS Department of Environment and Labour, Environmental and Natural Areas Management Division, Water and Wastewater Branch, Environmental Monitoring and Compliance

http://www.gov.ns.ca/enla/water/about/

The Water and Wastewater Branch is responsible for the development and implementation of the provincial water and wastewater management regulations, policies, strategies and programs designed to protect public health, safety and the environment. Develops management practices for drinking water supply protection, establishes water and wastewater effluent quality standards and objectives, allocates provincial water resources to a variety of users, collects and reports on ambient water monitoring data, and maintains several databases related to water resource and wastewater management.

Applicable Legislation/Regulations

Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:

maintaining environmental protection as essential to the integrity of ecosystems, human health and the socio-economic well-being of society;
maintaining the principles of sustainable development, including
the polluter-pay principle confirming the responsibility of anyone who creates an adverse effect on the environment to take remedial action and pay for the costs of that action;
taking remedial action and providing for rehabilitation to restore an adversely affected area to a beneficial use;
Government having a catalyst role in the areas of environmental education, environmental emergencies, environmental research and the development of policies, standards, objectives and guidelines and other measures to protect the environment;
encouraging the development and use of environmental technologies, innovations and industries;
the Province being responsible for working co-operatively and building partnerships with other provinces, the Government of Canada, other governments and other persons respecting transboundary matters and the co-ordination of legislative and regulatory initiatives;
providing access to information and facilitating effective public participation in the formulation of decisions affecting the environment, including opportunities to participate in the review of legislation, regulations and policies and the provision of access to information affecting the environment;
providing a responsive, effective, fair, timely and efficient administrative and regulatory system, recognizing that wherever practical, it is essential to promote the purpose of this Act primarily through non-regulatory means such as co-operation, communication, education, incentives and partnerships, instead of punitive measures. *1994-95, c. 1, s. 2.*

On Site Sewage Disposal Systems Regulations

http://www.gov.ns.ca/just/regulations/regs/envsewag.htm

Regulations under the Environment Act and Health Act pertain to various aspects of the development, design,

installation and approval of on-site sewage disposal systems.

Sewage Disposal Permit
Anyone who wants to install a septic tank and / or disposal system in Nova Scotia requires that this permit be obtained from NS Environment and Labour before approval can be given to install a disposal system on a building lot. Note: a private industry qualified person conducts site assessment and soil evaluation to determine the most appropriate system for the site. This information is submitted to NS Environment and Labour and approval is based on submitted information.

Applicable Policies/ Programs

Before You Construct an On-Site Sewage System: Facts a Homeowner Should Know

http://www.gov.ns.ca/enla/water/docs/OnSiteSewageConstruction.pdf

A thirty seven page handbook relating on-site sewage disposal systems.

Taking Care of Your Home Sewage Disposal System

http://www.gov.ns.ca/enla/water/docs/OnSiteSewageMaintenance.pdf

A two page brochure that describes the proper way to maintain an on-site sewage disposal system for homeowners

In addition the Nova Scotia **Department of Transportation and Public Works** have developed a series of Best Management Practices related to sewage. See link below.

http://www.gov.ns.ca/tran/enviroservices/EMS/Chapter5.pdf

Departmental Responsibility:

Municpal Government:

Cape Breton Regional Municipality

http://www.cbrm.ns.ca/portal/default.asp

Richmond County

http://www.richmondcounty.ca/

Inverness County

http://www.invernesscounty.ca/Index.htm

Victoria County

http://www.victoriacounty.com/Municipal.htm

Applicable Legislation/Regulations

Municipal Government Act (1998)

http://www.gov.ns.ca/legislature/legc/bills/57th_1st/3rd_read/b047(1).htm

The Municipal Government Act is to:

give broad authority to councils, including broad authority to pass by-laws, and to respect their right to govern municipalities in whatever ways the councils consider appropriate within the jurisdiction given to them

enhance the ability of councils to respond to present and future issues in their municipalities,

recognize that the functions of the municipality are to:

- provide good government
- provide services, facilities and other things that, in the opinion of the council are necessary or desirable for all or part of the municipality
- develop and maintain safe and viable communities.

Areas of jurisdiction under the Municipal Government Act include:

Taxation
Planning and Development
Subdivisions
Streets and Highways
Solid Waste Resource Management
Sewers

Part XIV Municipal Government Act:

Part XIV of the MGA addresses the role that Municipalities may play with respect to Sewers, including wastewater and stormwater systems. Specifically it addresses subjects such as what substances are prohibited from being discharged into wastewater facilities, the creation of by-laws to require owners of private on-site septic systems to maintain them to specific standards, the requirement for owners of on-site systems to connect to a municipal sewer if provided, and the provision of municipal councils to create by-laws for the establishment and maintenance of wastewater management districts.

Applicable Policies/ Programs

Departmental Responsibility: First Nation Communities

Environment Canada, Health Canada, and Indian and Northern Affairs Canada

Environment Canada develops standards, guidelines and/or protocols for wastewater systems on federal and Aboriginal lands as defined under the Canadian Environmental Protection Act (1999) and provides advice and technical expertise on federal legislation requirements. In partnership with Health Canada and Indian and Northern Affairs under the First Nations Water Management Strategy, Environment Canada is developing guidance materials aimed at enhancing the capacity of First Nations to conduct their own source water assessments, undertake monitoring of their source water, develop and implement source water protection plans, and manage their water in a sustainable way.

Chief and Council are responsible for planning and developing their capital facilities which provide for the basic infrastructure needs of the community, including drinking water. They are also responsible for the day-to-day operation of water and wastewater systems on reserves, including sampling and testing drinking water. Indian and Northern Affairs Canada provides funding for water services and infrastructures such as the construction, upgrading, operation and maintenance of water treatment facilities on First Nation reserves. The department also

provides financial support for the training and certification of operators.

Health Canada: Environmental Health Division

http://www.hc-sc.gc.ca/fnih-spni/promotion/water-eau/index_e.html

The Environmental Health Division (EHD) plans, develops, implements and evaluates strategies, initiatives and programs to promote and sustain healthy environments for First Nations living south of 60. The EHD collaborates with First Nations authorities and other stakeholders in order to implement programs and best practices to deal safely with environmental hazards. The EHD addresses conditions in the environment that could affect the health of community members and supports activities in the following areas:

drinking water and wastewater,
mould and housing,
food safety,
facilities inspections,
the transportation of dangerous goods, and
West Nile virus.

Applicable Legislation/Regulations

Canadian Environmental Protection Act (1999)

http://www.ec.gc.ca/CEPARegistry/the_act/Download/CEPA_Full_e.htm

Applicable Policies/ Programs

First Nations Water Management Strategy

http://www.ainc-inac.gc.ca/H2O/bkg_e.html

The seven-part strategy includes protecting source water from pollution such as wastewater effluents, as well as providing effective drinking water treatment and distribution of drinking water. The seven parts of the strategy include:

upgrading and building water and wastewater facilities;
effective water quality monitoring combined with a comprehensive and coordinated compliance and reporting regime;
an effective and sustainable operation and maintenance program designed to ensure the quality of water supplies;
continued expansion and enhancement of operator training and certification programs;
integrated water quality management protocols;
a public awareness campaign targeted at First Nation leaders, administrators and individual householders; and
the establishment of a set of clearly defined standards, comprehensive protocols and policies.

Issue: Sewage

Activities: Faulty central treatment systems

Departmental Responsibility:
NS Department of Environment and Labour, Environmental and Natural Areas Management Division, Water and Wastewater Branch, Environmental Monitoring and Compliance http://www.gov.ns.ca/enla/water/about/ The Water and Wastewater Branch is responsible for the development and implementation of the provincial water and wastewater management regulations, policies, strategies and programs designed to protect public health, safety and the environment. Develops management practices for drinking water supply protection, establishes water and wastewater effluent quality standards and objectives, allocates provincial water resources to a variety of users, collects and reports on ambient water monitoring data, and maintains several databases related to water resource and wastewater management.
Applicable Legislation/Regulations
Water and Wastewater Facilities and Public Drinking Water Supplies Regulations http://www.gov.ns.ca/just/regulations/regs/envwaste.htm Regulations made under the Environment Act pertaining to facility classification and operator certification as well as monitoring of public drinking water supplies. **Activities Designation Regulations (2005)** http://www.gov.ns.ca/just/regulations/regs/envactiv.htm Regulations created under the Environment Act pertaining to a range of activities (or modifications or extension of those activities) that require approval of the Minister. Part 1 of these regulations pertain to sewage and the construction, operation or reclamation of sewage collection and treatment facilities.
Applicable Policies/ Programs
Atlantic Canada Standards and Guidelines Manual for the Collection, Treatment and Disposal of Sanitary Sewage http://www.gov.ns.ca/enla/water/docs/AtlCanStdGuideSewage.pdf A manual that has been produced as guidance for the minimum standards to be met in the collection, treatment and disposal of sanitary sewage in the Atlantic provinces. Note: See Best Management Practices from **NS Department of Transportation and Public Works** above Note: The owners and operators of the central treatment systems are responsible for compliance with the standards, guidelines and discharge requirements established by NS Environment and Labour through their operating approval.

Departmental Responsibility:

Municipal Governments*

Cape Breton Regional Municipality, Engineering and Public Works Department

http://www.cbrm.ns.ca/portal/services/departments/engineering_public_works/default.asp

Richmond County, Water and Sewerage Services

http://www.richmondcounty.ca/publicworks/waterandsewer.htm

Village of Baddeck, Public Works

http://www.victoriacounty.com/Village%20Commissioners%20of%20Baddeck.htm

* Note: not all communities in the Bras d'Or watershed are serviced by central sewage treatment systems.

Applicable Legislation/Regulations

Municipal Government Act (1998)

http://www.gov.ns.ca/legislature/legc/bills/57th_1st/3rd_read/b047(1).htm

The Municipal Government Act is to:

give broad authority to councils, including broad authority to pass by-laws, and to respect their right to govern municipalities in whatever ways the councils consider appropriate within the jurisdiction given to them

enhance the ability of councils to respond to present and future issues in their municipalities,

recognize that the functions of the municipality are to:

- provide good government
- provide services, facilities and other things that, in the opinion of the council are necessary or desirable for all or part of the municipality
- develop and maintain safe and viable communities.

Areas of jurisdiction under the Municipal Government Act include:

Taxation
Planning and Development
Subdivisions
Streets and Highways
Solid Waste Resource Management
Sewers

Part XIV Municipal Government Act:

Part XIV of the MGA addresses the role that Municipalities may play with respect to Sewers, including wastewater and stormwater systems. Specifically it addresses subjects such as what substances are prohibited from being discharged into wastewater facilities, the creation of by-laws to require owners of private on-site septic systems to maintain them to specific standards, the requirement for owners of on-site systems to connect to a municipal sewer if provided, and the provision of municipal councils to create by-laws for the establishment and maintenance of wastewater management districts.

Applicable Policies/ Programs

Departmental Responsibility: First Nation Communities

Environment Canada, Health Canada, and Indian and Northern Affairs Canada

Environment Canada develops standards, guidelines and/or protocols for wastewater systems on federal and Aboriginal lands as defined under the Canadian Environmental Protection Act (1999) and provides advice and technical expertise on federal legislation requirements. In partnership with Health Canada and Indian and Northern Affairs under the First Nations Water Management Strategy, Environment Canada is developing guidance materials aimed at enhancing the capacity of First Nations to conduct their own source water assessments, undertake monitoring of their source water, develop and implement source water protection plans, and manage their water in a sustainable way.

Chief and Council are responsible for planning and developing their capital facilities which provide for the basic infrastructure needs of the community, including drinking water. They are also responsible for the day-to-day operation of water and wastewater systems on reserves, including sampling and testing drinking water. Indian and Northern Affairs Canada provides funding for water services and infrastructures such as the construction, upgrading, operation and maintenance of water treatment facilities on First Nation reserves. The department also provides financial support for the training and certification of operators.

Health Canada: Environmental Health Division

http://www.hc-sc.gc.ca/fnih-spni/promotion/water-eau/index_e.html

The Environmental Health Division (EHD) plans, develops, implements and evaluates strategies, initiatives and programs to promote and sustain healthy environments for First Nations living south of 60. The EHD collaborates with First Nations authorities and other stakeholders in order to implement programs and best practices to deal safely with environmental hazards. The EHD addresses conditions in the environment that could affect the health of community members and supports activities in the following areas:

drinking water and wastewater,
mould and housing,
food safety,
facilities inspections,
the transportation of dangerous goods, and
West Nile virus.

Applicable Legislation/Regulations

Canadian Environmental Protection Act (1999)

http://www.ec.gc.ca/CEPARegistry/the_act/Download/CEPA_Full_e.htm

Applicable Policies/ Programs

First Nations Water Management Strategy

http://www.ainc-inac.gc.ca/H2O/bkg_e.html

The seven-part strategy includes protecting source water from pollution such as wastewater effluents, as well as providing effective drinking water treatment and distribution of drinking water. The seven parts of the strategy

include:

upgrading and building water and wastewater facilities;
effective water quality monitoring combined with a comprehensive and coordinated compliance and reporting regime;
an effective and sustainable operation and maintenance program designed to ensure the quality of water supplies;
continued expansion and enhancement of operator training and certification programs;
integrated water quality management protocols;
a public awareness campaign targeted at First Nation leaders, administrators and individual householders; and
the establishment of a set of clearly defined standards, comprehensive protocols and policies.

Issue: Sewage

Activities: Sewage from Boats

Departmental Responsibility:
Transport Canada http://www.tc.gc.ca/en/menu.htm Transport Canada's mission is to develop and administer policies, regulations and services for the best transportation system for Canada and Canadians – one that is safe and secure, efficient, affordable, integrated and environmentally friendly. The department's Atlantic Region is one of five regions mainly focused on delivering programs and services across Canada. There are Transport Canada Centres (TCCs) in each of the four Atlantic Provinces to provide services to local stakeholders. The three major TCCs are situated in Moncton, Dartmouth and St. John's. Click here to learn more about the Atlantic Region's structure and organization.
Applicable Legislation/Regulations
Canada Shipping Act http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/act/menu.html The objectives of this Act are to: Protect the health and well-being of individuals, including the crews of ships, who participate in marine transportation and commerce; Promote safety in the marine transportation system; Protect the marine environment from damage due to navigation and shipping activities; Develop a regulatory scheme that encourages viable, effective and economical marine transportation and commerce; Promote an efficient marine transportation system; Ensure that Canada can meet its international obligations under bilateral and multilateral agreements with respect to navigation and shipping; Encourage the harmonization of marine practices; Provide an appropriate liability and compensation regime in relation to incidents involving ships; and Establish an effective inspection and enforcement program. **Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals** http:/canadagazette.gc.ca/partII/2007/20070516/html/sor86-e.html Regulations under the Canada Shipping Act that prescribe the substances that are pollutants for the purposes of applying Act. The pollutants regulated include oil and any oily mixture, any noxious liquid substance, any pollutant listed in Schedule 1 of the Regulations, sewage and sewage sludge, any organotin compounds, and garbage. The Bras d'Or Lakes have been specifically identified in these regulations as a designated sewage area requiring any discharge to be passed through a marine sanitation device and that the effluent has a fecal coliform count that is equal to or less than 14/100mL.

Applicable Policies/ Programs

Issue: Land Use

Activities: Mining/Gravel Extraction

Departmental Responsibility

NS Natural Resources and NS Environment and Labour

Nova Scotia Department of Natural Resources, Mineral Resources Branch, Mineral Management Division

http://www.gov.ns.ca/natr/meb/one/orgchart.htm

The Mineral Management Division:

- Receives applications for and issues mineral rights.
- Assesses mineral exploration work reports submitted by industry and registers activities.
- Provides technical and financial assessment and evaluation of mineral resources and promotes development of same
- Develops and administers mineral resource regulations relative to the mining industry
- Provides advice on markets and market opportunities and alternative uses of mineral resources and addresses environmental issues relative to the utilization of the same; encourages value added production and product development.
- Coordinates a "one-window" process for approvals of mineral exploration and development projects.
- Monitors and analyzes mineral regulatory and trade policies in domestic and international markets.
- Maintains, analyses and distributes data and information on mineral production, pricing and usage.

The Mineral Management Division has two sections:

- Mineral Development and Policy
- Registry of Mineral and Petroleum Titles

NS Natural Resources is most often the first point of contact in government for someone interested in mineral rights or mineral development. DNR's role with respect to mineral exploration and mining is management of the province's mineral resources. Activities associated with this role include generation and distribution of geological information, promotion of the province's mineral resources, and administration and regulation of mineral exploration and mining in Nova Scotia. DNR's regulatory responsibility is based on the *Mineral Resources Act and Regulations.* Other issues within DNR's mandate that may relate to mining include crown land access, park and wildlife considerations, and forestry. DNR permits and approvals include prospector registration, Exploration Licences, Excavation Permits, Letters of Authority, Mining Leases, Mining Permits, Milling Permits, Access Permits (Crown lands), and permits under the *Beaches Act* and *Crown Lands Act.*

NS Environment and Labour has prime responsibility for all environmental issues including the Environmental Assessment process, environmental approvals, and environmental compliance monitoring. Regulatory responsibility comes under the *Environment Act and Regulations.* Mining projects require formal Environmental Assessment approval before being allowed to proceed. Advanced exploration and mining projects usually require an Industrial Approval and sometimes a Water Approval and an approval to construct and operate sewage works or a sewage system.

Applicable Legislation/Regulations

Mineral Resources Act (1990)

http://www.gov.ns.ca/legislature/legc/statutes/mineralr.htm

The purpose of this Act is to support and promote responsible mineral resource management consistent with

sustainable development while recognizing the following goals:

providing a framework for efficient and effective mineral rights administration;
encouraging, promoting and facilitating mineral exploration, development and production;
providing a fair royalty regime; and
improving the knowledge of mineral resources in the Province.

Mineral Resources Regulations

http://www.gov.ns.ca/just/regulations/regs/mrregs.htm

Regulations under the Mineral Resources Act pertaining to the establishment of a mineral claim including registration as a prospector, licensing and work requirements, and lease and reporting requirements. In addition, the information requirements regarding a mine closure are outlined.

Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:

maintaining environmental protection as essential to the integrity of ecosystems, human health and the socio-economic well-being of society;
maintaining the principles of sustainable development, including
the polluter-pay principle confirming the responsibility of anyone who creates an adverse effect on the environment to take remedial action and pay for the costs of that action;
taking remedial action and providing for rehabilitation to restore an adversely affected area to a beneficial use;
Government having a catalyst role in the areas of environmental education, environmental emergencies, environmental research and the development of policies, standards, objectives and guidelines and other measures to protect the environment;
encouraging the development and use of environmental technologies, innovations and industries;
the Province being responsible for working co-operatively and building partnerships with other provinces, the Government of Canada, other governments and other persons respecting transboundary matters and the co-ordination of legislative and regulatory initiatives;
providing access to information and facilitating effective public participation in the formulation of decisions affecting the environment, including opportunities to participate in the review of legislation, regulations and policies and the provision of access to information affecting the environment;
providing a responsive, effective, fair, timely and efficient administrative and regulatory system, recognizing that wherever practical, it is essential to promote the purpose of this Act primarily through non-regulatory means such as co-operation, communication, education, incentives and partnerships, instead of punitive measures. *1994-95, c. 1, s. 2.*

Activities Designation Regulations (2005)

http://www.gov.ns.ca/just/regulations/regs/envactiv.htm

Regulations created under the Environment Act pertaining to a range of activities (or modifications or extension of those activities) that require approval of the Minister. Part 2 of these regulations pertain to the construction, operation or reclamation of a pit or quarry for aggregate removal Part 5 of these regulations pertain to minerals and the construction, operation and reclamation of mining operations. Approvals are required from NS Environment and Labour for the operation of a quarry and the operation of a pit greater than 2 ha. For pits and quarries greater than 4 ha, an Environmental Assessment approval is required from NS Environment and Labour.

Applicable Policies/ Programs

One Window Process for Mine Development Approvals

http://www.gov.ns.ca/natr/MEB/ic/ic56.htm

Mining projects in Nova Scotia are subject to a variety of statutes, which are administered by several government departments. In 1994, the Province of Nova Scotia initiated the design of a 'one window' process to reviewing, permitting, and monitoring mine development and mine closure projects. The overall goal has been to simplify the review process for both the mining industry and the government. The 'one window' process provides for interaction among various government departments and with the mine development proponent, making the review process more consistent and expedient for all.

In general terms, this 'one window' process includes the following steps:

Initial meetings between government representatives and the mine development proponent,
Registration and completion of the Environmental Assessment process,
Applying for the required leases, permits and approvals,
Regulatory monitoring and inspection over the life of the project, and
Regulatory monitoring and inspection during closure and reclamation.

Permits/Approvals:

Department of Natural Resources:
Permits and approvals related to mineral resource management that are issued by DNR under authority of the *Mineral Resources Act* (MRA) include prospector registration, Exploration Licences, Excavation Permits, Letters of Authority, Mining Leases, Mining Permits, and Milling Permits. A requirement of all permits and approvals granted under authority of the MRA is that work must be conducted in compliance with the *Occupational Health & Safety Act and Regulations* and the *Environment Act and Regulations.* These MRA permits and approvals, together with relevant permits issued under other DNR legislation, are summarized below:

Prospector Registration: conveys the non-exclusive right to search and prospect for minerals with the landowner's permission on unlicensed, open ground. Only non-disturbance activity is authorized.

Exploration Licence: grants the exclusive right to search and prospect for minerals within a designated area. Activities can include prospecting and geological survey work, drilling, and minor excavation work (less than 1 metre in depth and without mechanized equipment).

Excavation Permit: grants permission to undertake limited surface or underground exploration or bulk sampling (removal of less than 100 tonnes of material).

Letter of Authority: extraction of a bulk sample of more than 100 tonnes of material requires an Excavation Permit and a Letter of Authority from the Director of Mines.

Mining Lease: grants the exclusive right to some or all of the mineral resources in a specific area but does not allow any field activity beyond basic exploration. An Excavation Permit, Letter of Authority, and/or a Mining Permit are available to permit excavation activity within the area contained in a Mining Lease.

Mining Permit: gives the right to mine some or all of the mineral resources granted within the Mining Lease, subject to the *Mineral Resources Act* and terms and conditions of the Mining Permit, the *Environment Act,* and the *Occupational Health & Safety Act.* The Mining Permit may cover an area less than the area covered by the Mining Lease.

Milling Permit: grants the right to process ore subject to compliance with all pertinent legislation including the

Mineral Resources Act, the *Environment Act* and the *Occupational Health & Safety Act.*

Access Permit: an Access Permit authorizes access to Crown lands for a specified purpose.

Department of the Environment:
Mining projects require formal environmental assessment approval from DOE in accordance with the Environmental Assessment Regulations. Other DOE approvals that will likely be required for a mine include an Industrial Approval and a Water Approval.

Full involvement of the 'One Window' Committee through the Environmental Assessment process will serve to reduce repetition of submissions by the proponent to the various government departments involved in the permitting processes. Information gathered in the Environmental Assessment could be required to support applications for other necessary approvals, such as an Industrial Approval, Water Approval or Mining Permit.

Industrial Approval: is required under the Activities Designation Regulations for industrial activities in Nova Scotia that have air, liquid, or solid waste disposal requirements associated with them. These include activities associated with minerals, mining and processing.

Water Approval: is required under the Activities Designation Regulations for the use or alteration of a watercourse or water resource. This approval includes, but is not limited to, withdrawal or diversion of water in an amount greater than 23,000 litres per day; storage of water in amounts of 25,000 cubic metres or greater; construction or maintenance of a dam, culvert, bridge, causeway, wharf, weir, or fishway; and modification of a surface water course.

"One Window" Standing Committee:
A One Window Standing Committee (Chaired by NS Natural Resources) meets monthly with representatives from relevant Branches within Natural Resources and NS Environment and Labour to describe and discuss issues associated with various mines.

Minerals: A Policy for Nova Scotia (1996)

http://www.gov.ns.ca/natr/meb/one/minpol.htm

Minerals- A Policy for Nova Scotia is the Government's blueprint to foster continued growth of the mineral industry and careful management of our mineral resources. This policy defines responsibilities for Government, industry and the public, and advocates change in the way they work together. It is a framework for mineral resource development that is economically and environmentally sustainable.

Departmental Responsibility:

Indian and Northern Affairs Canada

http://www.ainc-inac.gc.ca/index_e.html

INAC is responsible for two separate yet equally important mandates: **Indian and Inuit Affairs** and **Northern Affairs**. This broad mandate is derived largely from the *Department of Indian Affairs and Northern Development Act*, the *Indian Act*, territorial acts and legal obligations arising from section 91(24) of the *Constitution Act, 1867*. In general, INAC has primary, but not exclusive, responsibility for meeting the federal government's constitutional, treaty, political and legal responsibilities to First Nations, Inuit and Northerners.

Applicable Legislation/Regulations

Indian Act (1985)
http://laws.justice.gc.ca/en/I-5/index.html

The Indian Act covers a broad range of topics associated with First Nation communities including governance, education, taxation, registration and money, in addition to land related to First Nation reservations. Reservations are defined as tracts of land for the use and benefit of a band, whose legal title is vested with the Crown. Various aspects of land use development within a reserve are covered by the Indian Act including, roads and bridges, farming, overcrowding, etc.

Indian Mining Regulations

http://laws.justice.gc.ca/en/showdoc/cr/C.R.C.-c.956///en?page=1

These regulations apply to surrendered mines and minerals underlying lands on First Nation Reserves. INAC may by public advertisement invite tenders for mineral rights for these areas. The regulations address various issues associated with this disposition of mineral rights, permits, leases, etc.

Applicable Policies/ Programs

Need permit from INAC for on reserve mining/gravel extraction.

Departmental Responsibility

Fisheries and Oceans Canada*

http://www.dfo-mpo.gc.ca/

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. DFO is a national and international leader in marine safety and in the management of oceans and freshwater resources. Departmental activities and presence on Canadian waters help to ensure the safe movement of people and goods. As a sustainable development department, DFO will integrate environment, economic and social perspectives to ensure Canada's oceans and freshwater resources benefit this generation and those to come.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

> *** Note:** Fisheries and Oceans Canada does not manage landuse activity directly but rather can manage the potential effects of landuse as it impacts fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. Management of potential impacts to fish passage, fish, and fish habitat are included. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. These include regulations used to control the spread of invasive species.

Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Issue: Land Use

Activities: Agriculture

Departmental Responsibility:

Nova Scotia Department of Agriculture, Fisheries and Aquaculture, Agriculture Services Branch, Resource Stewardship Division.

http://www.gov.ns.ca/nsaf/department/divisions/

The mission of the Agriculture Services Branch is to ensure a prosperous and sustainable agriculture industry through the development of rural people and resources for the benefit of all Nova Scotians.

Applicable Legislation/Regulations

Agriculture and Marketing Act (1989)

http://www.gov.ns.ca/legislature/legc/statutes/agric_m.htm

An act conferring to the Minister of Agriculture a range of responsibilities related to agriculture including those with regard to agricultural societies, commodity groups, horticulture, seed growing, dairying, soil improvement, plant diseases, insects and pests, agricultural education, fur farming and others. In addition related to land conservation and use, it states that the minister may execute a program of work for the protection, reclamation, conservation and improvement of land in partnership with federal or municipal governments.

Farm Practices Act (2000)

http://www.gov.ns.ca/legislature/legc/statutes/farmprac.htm

The purpose of the Act is to provide a mechanism for the establishment of normal farming practices, and to protect farmers involved in normal farming practices from being sued for nuisance or negligence.

Applicable Policies/ Programs

Environmental Regulations Handbook for Nova Scotia Agriculture: 2nd Edition (2004)

http://www.gov.ns.ca/nsaf/rs/envman/env_handbk.pdf

The purpose of the handbook is to provide guidance to agricultural producers of the environmental regulations, standards, codes and guidelines which affect or may affect decisions made in the management of their farm. The handbook is organized by agricultural activity.

Codes of Practice for the Application of Non Agricultural Organic Wastes (NAOW) on Agricultural Land (2005).

http://www.gov.ns.ca/nsaf/rs/envman/naow_05.pdf

These codes are intended to protect agriculture by minimizing negative environmental or health risks or community concerns with regard to the application of NAOW on agricultural land, facilitate the beneficial agricultural land application of NAOW including biosolids, and provide guidance to those engaged in the agricultural application of NAOW.

Manure Management Guidelines (2006)

http://www.gov.ns.ca/nsaf/rs/envman/manureguide_2006lowres.pdf

The purpose of the guidelines is to promote the effective use of animal manure as a valuable fertilizer source and soil amendment, while providing instruction in environmental protection.

Departmental Responsibility:

Indian and Northern Affairs Canada

http://www.ainc-inac.gc.ca/index_e.html

INAC is responsible for two separate yet equally important mandates: **Indian and Inuit Affairs** and **Northern Affairs**. This broad mandate is derived largely from the *Department of Indian Affairs and Northern Development Act*, the *Indian Act*, territorial acts and legal obligations arising from section 91(24) of the *Constitution Act, 1867*. In general, INAC has primary, but not exclusive, responsibility for meeting the federal government's constitutional, treaty, political and legal responsibilities to First Nations, Inuit and Northerners.

Applicable Legislation/Regulations

Indian Act (1985)

http://laws.justice.gc.ca/en/I-5/index.html

The Indian Act covers a broad range of topics associated with First Nation communities including governance, education, taxation, registration and money, in addition to land related to First Nation reservations. Reservations are defined as tracts of land for the use and benefit of a band, whose legal title is vested with the Crown. Various aspects of land use development within a reserve are covered by the Indian Act including, roads and bridges, farming, overcrowding, etc.

Applicable Policies/ Programs

Note: There is no agricultural activities on the reserves within the Bras d'Or watershed.

Departmental Responsibility

Fisheries and Oceans Canada*

http://www.dfo-mpo.gc.ca/

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. DFO is a national and international leader in marine safety and in the management of oceans and freshwater resources. Departmental activities and presence on Canadian waters help to ensure the safe movement of people and goods. As a sustainable development department, DFO will integrate environment, economic and social perspectives to ensure Canada's oceans and freshwater resources benefit this generation and those to come.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

*** Note:** Fisheries and Oceans Canada does not manage landuse activity directly but rather can manage the potential effects of landuse as it impacts fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. Management of potential impacts to fish passage, fish, and fish habitat are included. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. These include regulations used to control the spread of invasive species.

Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Departmental Responsibility

NS Department of Environment and Labour, Environmental Monitoring and Compliance Division*

http://www.gov.ns.ca/enla/divisions/emc.asp

The Environmental Monitoring and Compliance Division is responsible for the majority of field operations relating to environmental protection. Activities in this Division include: processing applications, inspection and monitoring of approvals, enforcement activities and response to public issues and complaints..

*** Note:** NS Environment and Labour does not manage agriculture activity directly but rather can manage the potential effects of agriculture as they impact aquatic ecosystems.

Applicable Legislation/Regulations

Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:

maintaining environmental protection as essential to the integrity of ecosystems, human health and the socio-economic well-being of society;

maintaining the principles of sustainable development, including

the polluter-pay principle confirming the responsibility of anyone who creates an adverse effect on the environment to take remedial action and pay for the costs of that action;

taking remedial action and providing for rehabilitation to restore an adversely affected area to a beneficial use;

Government having a catalyst role in the areas of environmental education, environmental emergencies, environmental research and the development of policies, standards, objectives and guidelines and other measures to protect the environment;
encouraging the development and use of environmental technologies, innovations and industries;
the Province being responsible for working co-operatively and building partnerships with other provinces, the Government of Canada, other governments and other persons respecting transboundary matters and the co-ordination of legislative and regulatory initiatives;
providing access to information and facilitating effective public participation in the formulation of decisions affecting the environment, including opportunities to participate in the review of legislation, regulations and policies and the provision of access to information affecting the environment;
providing a responsive, effective, fair, timely and efficient administrative and regulatory system, recognizing that wherever practical, it is essential to promote the purpose of this Act primarily through non-regulatory means such as co-operation, communication, education, incentives and partnerships, instead of punitive measures. *1994-95, c. 1, s. 2.*

Part X of the Environment Act addresses Water Resource Management. Section 104 (e) states that the Department is the lead agency to ensure the health and integrity of aquatic ecosystems, to protect habitats for animals and plants and to provide for continued recreational benefits.

Applicable Policies/ Programs

Nova Scotia's Water Resources Management Strategy

http://www.gov.ns.ca/enla/water/waterstrategy.asp

Nova Scotia Environment and Labour (NSEL) is taking the lead in developing a comprehensive provincial water resources management strategy. On March 30th, 2007 the Minister of Environment and Labour announced that NSEL is embarking on a 3-year process to develop the strategy. The strategy development will be overseen by an Interdepartmental Water Management Committee consisting of 10 government departments and chaired by the Deputy Minister of Environment and Labour.

The key deliverables in 2007/8 include: development of a discussion paper, development of a stakeholder consultation strategy, identification of vision, issues/concerns, and information gaps. Concurrently, strategic activities will be carried out under the 3-pillars of the strategy: drinking water; water quality and quantity; and wastewater. In 2008/9, a review of current programs and policies will be conducted, an education and outreach program will be developed and launched and the strategic activities, including data gathering and information gap-filling, will continue. Public involvement and consultation will also continue. In 2009-10, the water strategy will be drafted and consultations on the draft strategy will take place before submitting to cabinet for consideration. Education and outreach, as well as information/data gathering will continue. Beyond 2010, the strategy will continue as living document to be augmented, revised and updated as needed and as implemented.

Issue: Land Use

Activities: Shoreline Development

Departmental Responsibility:
Service Nova Scotia and Municipal Relations, Municipal Services Division http://www.gov.ns.ca/snsmr/muns/ The Municipal Services Division of Service Nova Scotia and Municipal Relations maintains the legislative framework in which municipalities operate and is the window into Nova Scotia's 55 municipalities and 22 villages. The Division provides advice, assistance and program support to municipalities. Areas of involvement with Municipalities include: financial management and administration legislation, governing structures land use planning and environmental concerns infrastructure and engineering programs; and special matters of provincial-municipal concern ***Municipal Governments:*** *Richmond County* *Victoria County* *Inverness County* *Cape Breton County*
Applicable Legislation/Regulations
Municipal Government Act (1998) http://www.gov.ns.ca/legislature/legc/bills/57th_1st/3rd_read/b047(1).htm The Municipal Government Act is to: give broad authority to councils, including broad authority to pass by-laws, and to respect their right to govern municipalities in whatever ways the councils consider appropriate within the jurisdiction given to them enhance the ability of councils to respond to present and future issues in their municipalities, recognize that the functions of the municipality are to: o provide good government o provide services, facilities and other things that, in the opinion of the council are necessary or desirable for all or part of the municipality o develop and maintain safe and viable communities. Areas of jurisdiction under the Municipal Government Act include: Taxation Planning and Development Subdivisions Streets and Highways Solid Waste Resource Management Sewers
Applicable Policies/ Programs

Municipal Planning Strategies and Land Use Bylaws

Planning and Development is addressed in Part VIII of the Municipal Government Act. It includes a provision for a council to create a Municipal Planning Strategy for all or part of its municipality as well as its associated Land-Use Bylaw. Both the Municipal Planning Strategy (statements of policy) and the Land-Use Bylaw (laws to implement the policy) allow for the municipality to ensure development proceeds in an environmentally sustainable manner. For example, Section 220 (4) (o) allows a municipality to prohibit development within a specific distance of a watercourse.

In Cape Breton, land-use planning is conducted by two bodies:

1. Cape Breton Regional Municipality Planning Department:
http://www.cbrm.ns.ca/portal/services/departments/planning/default.asp
for Cape Breton county only
a Municipal Planning Strategy and Land-Use By-Law is in place for entire county

2. Eastern District Planning Commission:
http://www.rcbplan.ns.ca/
provides planning services for Inverness, Victoria, and Richmond County Councils within Cape Breton Within the Bras d'Or watershed of Richmond, Victoria and Inverness Counties, Municipal Planning Strategies and Land-Use Bylaws only exist for Baddeck, Wycocomagh, Sporting Mountain and St. Peter's.

Statements of Provincial Interest

http://www.gov.ns.ca/legislature/legc/bills/57th_1st/3rd_read/b047(10).htm#schB

The Municipal Government Act (Schedule B) contains the provision to develop Statements of Provincial Interest which recognize the importance of land and water resources and issues associated with the future growth of communities. Development undertaken by the Province and municipalities should be reasonably consistent with these statements including in their planning documents. Currently, Statements of Provincial Interest have been developed regarding:

- Drinking Water
- Flood Risk Areas
- Agricultural Land
- Infrastructure
- Housing

Departmental Responsibility:

NS Department of Environment and Labour, Wetlands and Coastal Habitats Program

http://www.gov.ns.ca/natr/wildlife/wetlands/wet.htm

The Wetlands and Coastal Habitats program is responsible, in partnership with other governmental and non governmental agencies, industry, and the public, for the conservation and sustainable use of Nova Scotia's Wetlands and Coastal Habitats and associated wildlife resources.

Applicable Legislation/Regulations

Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

Part X of the Environment Act addresses Water Resource Management. Section 104 designates the Department of Environment and Labour as the lead agency to, "ensure the health and integrity of aquatic ecosystems, to protect habitats for animals and plants, and to provide for continued recreational benefits". In addition, Part V of this Act addresses Approvals and Certificates where in Section 50 it states, "no person shall knowingly commence or continue any activity designated by the regulations as requiring an approval unless that person holds the appropriate approval". See Activities Designation Regulations below.

Activities Designation Regulations (2005)

http://www.gov.ns.ca/just/regulations/regs/envactiv.htm

Regulations created under the Environment Act pertaining to a range of activities (or modifications or extension of those activities) that require approval of the Minister of Nova Scotia Environment and Labour. Division 1 of these regulations pertain to Water Approvals where an approval is required for the use or alteration of a watercourse that may result from a range of activities including the construction and maintenance of a wharf. Division VI of these regulations pertain to Other Approvals and states that an approval may be required in cases where an activity or class of activities is thought to cause a significant adverse effect because of a range of factors including the size and magnitude or the proposed activity, the sensitivity of the site where the proposed activity is to be located, etc.

Applicable Policies/ Programs

Policy Respecting the Alternation of Wetlands (2006)

http://www.gov.ns.ca/enla/water/wetlandalteration.asp

The Policy Respecting Alteration of Wetlands (March 1, 2006) requires that an approval be obtained from the department for any activity which would result in alteration of an existing wetland. This requirement is not new, it was previously reflected in the Wetlands Directive (1995). The authority for this policy is described by Section 29(1)(b) (sensitivity of the site where the proposed activity is to be located) of the Activities Designation Regulations.

Wetland Alteration Approval

http://www.gov.ns.ca/snsmr/paal/el/paal586.asp

Nova Scotia Environment and Labour (NSEL) recognizes that wetlands are a particularly sensitive habitat and that alteration of wetlands can cause a significant adverse environmental effect. Therefore, anyone who is planning an alteration to a wetland requires an Approval. "Alteration" means filling, draining, flooding, or excavating a wetland.

Departmental Responsibility:

NS Department of Natural Resources, Land Services Branch

http://www.gov.ns.ca/natr/branches.asp

The Land Services Branch:

> Oversees, coordinates and approves all activities within the Branch relating to the administration of Crown land. The activities are conducted pursuant to the *Beaches Act, Beaches & Foreshores Act, Crown Lands Act, Land Titles Clarification Act, Provincial Parks Act, Special Places Protection Act, Trails Act, Private Ways Act, Interpretation Act, Quieting Titles Act,* and the policies and regulations associated with each;

Provides advice on legislative revisions and advises and drafts policies relating to the administration of Crown land;
Provides advice to the Minister and Deputy Minister of Natural Resources and other departments, staff of the Department of Natural Resources and other provincial, federal and municipal departments and agencies; MLA's, Executive Council, and the public on all matters respecting Crown land administration.

Applicable Legislation/Regulations

Beaches Act (1989)

http://www.gov.ns.ca/legislature/legc/statutes/beaches.htm

The purpose of this Act is to
Provide for the protection of beaches and associated dune systems as significant and sensitive environmental and recreational resources;
Provide for the regulation and enforcement of the full range of land-use activities on beaches, including aggregate removal, so as to leave them unimpaired for the benefit and enjoyment of future generations;
Control recreational and other uses of beaches that may cause undesirable impacts on beach and associated dune systems.

Applicable Policies/ Programs

Permits are required from NSDNR related to aggregate removal and vehicles on protected beaches and wharf construction.

Departmental Responsibility: First Nation Communities

Indian and Northern Affairs Canada

http://www.ainc-inac.gc.ca/index_e.html

INAC is responsible for two separate yet equally important mandates: **Indian and Inuit Affairs** and **Northern Affairs**. This broad mandate is derived largely from the *Department of Indian Affairs and Northern Development Act*, the *Indian Act*, territorial acts and legal obligations arising from section 91(24) of the *Constitution Act, 1867*. In general, INAC has primary, but not exclusive, responsibility for meeting the federal government's constitutional, treaty, political and legal responsibilities to First Nations, Inuit and Northerners.

Applicable Legislation/Regulations

Indian Act (1985)

http://laws.justice.gc.ca/en/I-5/index.html

The Indian Act covers a broad range of topics associated with First Nation Communities including governance, education, taxation, registration and money, in addition to land related to First Nation reservations. Reservations are defined as tracts of land for the use and benefit of a band, whose legal title is vested with the Crown. Various aspects of land use development within a reserve are covered by the Indian Act including, roads and bridges, farming, overcrowding, etc.

First Nations Land Management Act (1999)

http://laws.justice.gc.ca/en/F-11.8/index.html

The First Nations Land Management Act provides the statutory basis for First Nation communities to establish their own regimes to manage land and resources on reserves thereby opting out of the land administration sections

of the Indian Act. Part of this Act may involve the development of land codes within the reserve. The Band Council then has powers to enact laws respecting the development, conservation, protection, management, use and possession of this land.

Applicable Policies/ Programs

Bands may create land use bylaws and zoning such as in Membertou (Land Use Bylaw) and Chapel Island (Housing Bylaw).

Note: Existing federal legislation (such as the Fisheries Act, Canadian Environmental Assessment Act) continue to apply on reserve lands.

Departmental Responsibility

Fisheries and Oceans Canada*

http://www.dfo-mpo.gc.ca/

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. DFO is a national and international leader in marine safety and in the management of oceans and freshwater resources. Departmental activities and presence on Canadian waters help to ensure the safe movement of people and goods. As a sustainable development department, DFO will integrate environment, economic and social perspectives to ensure Canada's oceans and freshwater resources benefit this generation and those to come.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

> *** Note:** Fisheries and Oceans Canada does not manage landuse activity directly but rather can manage the potential effects of landuse as it impacts fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. Management of potential impacts to fish passage, fish, and fish habitat are included. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. These include regulations used to control the spread of invasive species.

Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are

functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Issue: Land Use

Activities: Landfills/Dumpsites

Departmental Responsibility:

NS Department of Environment and Labour, Environmental Monitoring and Compliance Division, Solid Waste Resource Management Branch.

http://www.gov.ns.ca/enla/waste/about/

The Solid Waste-Resource Management branch of the Division is responsible for a number of initiatives including recycling, composting, disposal bans, and the Nova Scotia Solid Waste Strategy.

Applicable Legislation/Regulations

NS Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

Part IX of Environment Act addresses waste resource management. See above for a general description of Act. Also, Part VIII addresses Contaminated Sites including their remediation.

Solid Waste-Resource Management Regulations (2002)

http://www.gov.ns.ca/just/regulations/regs/envsolid.htm

Regulations created under the Environment Act related to solid waste reduction, industry stewardship, litter abatement, composting, disposal of municipal solid waste, and regional solid waste-resource management plan requirements. An owner/operator of a landfill must obtain an approval for its construction and operation.

Municipal Solid Waste Landfill Guidelines (1997)

http://www.gov.ns.ca/enla/waste/docs/Municipal_Solid_Waste_Landfill_Guidelines.pdf

These guidelines are to provide guidance for the proper environmental management and disposal of municipal solid waste. The requirements to construct, operate and close a municipal solid waste landfill are also covered, including surface and groundwater monitoring programs.

Applicable Policies/ Programs

Solid Waste-Resource Management Strategy (1995).

http://www.gov.ns.ca/enla/waste/swrmstrategy.asp

A strategy developed in consultation with municipal governments and the people of Nova Scotia to achieve a 50% waste diversion target by the year 2000.

Departmental Responsibility

Fisheries and Oceans Canada*

http://www.dfo-mpo.gc.ca/

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> *** Note:** Fisheries and Oceans Canada does not manage landuse activity directly but rather can manage the potential effects of landuse as it impacts fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

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Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Issue: Land Use

Activities: Roads

Departmental Responsibility:

Nova Scotia Department of Transportation and Public Works

http://www.gov.ns.ca/tran/department/deptglance.asp

NS Department of Transportation and Public Works (TPW) provides a transportation network for the safe and efficient movement of people and goods. TPW maintains 4,100 bridges and nearly 23,000 kms of road through four district offices, located in Sydney, Truro, Bridgewater and Bedford. TPW also operates four cable ferries and three self-propelled ferries.

Applicable Legislation/Regulations

NS Environment Act (1994-95)

http://www.gov.ns.ca/legislature/legc/statutes/envromnt.htm

Part V of the NS Environment Act deals with Approvals and Certificates required to begin or continue any activity designated by regulations under the Act. Many of the activities associated with road construction and maintenance (culverts, bridges, etc.) involve the potential alteration of a watercourse or water resource. These are addressed in the Activities Designation Regulations created under this Act. Note: "Ditching" associated with road construction or maintenance is not an activity that requires approval from NSDEL.

In addition, Part X of this Act addresses Water-Resource Management and designates the NS Department of Environment and Labour as the lead agency to, "ensure the health and integrity of aquatic ecosystems, to protect habitats for animals and plants and to provide for continued recreational benefits".

Activities Designation Regulations

http://www.gov.ns.ca/just/regulations/regs/envactiv.htm

Regulations created under the Environment Act pertaining to a range of activities (or modifications or extension of those activities) that require approval of the Minister of Nova Scotia Department of Environment and Labour. Part 1 of these regulations pertains to Water Approvals and address activities associated with road construction and maintenance.

Fisheries Act

http://laws.justice.gc.ca/en/F-14/

Applicable Policies/ Programs

The Nova Scotia **Department of Transportation and Public Works** have developed a series of Best Management Practices related to Erosion and Sediment Control. See link below.

http://www.gov.ns.ca/tran/enviroservices/EMS/Chapter7.pdf

Departmental Responsibility*

Fisheries and Oceans Canada

http://www.dfo-mpo.gc.ca/

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> *** Note:** Fisheries and Oceans Canada does not manage landuse activity directly but rather can manage the potential effects of landuse as it impacts fish or fish habitat.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

Many of the activities associated with the construction and maintenance of roads (ditching, culverts, bridges, stream crossings, etc.) have the potential to impact fish habitat. Section 35(1) of the Fisheries Act states that, "no person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat". Furthermore, Section 36 (3) states that, "no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish". Fish passage is another issue addressed in the Fisheries Act.

Applicable Policies/ Programs

Policy for the Management of Fish Habitat (1986):

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/index_e.asp

This document provides Canadians with a statement of the Department of Fisheries and Oceans' policy objectives, goals and strategies for the management of fish habitats supporting Canada's freshwater and marine fisheries. Fish habitats constitute healthy production systems for the nation's fisheries and, when the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

Issue: Marine Invasive Species

Activities: MSX, Green Crab, Tunicates

Departmental Responsibility:

Transport Canada

http://www.tc.gc.ca/en/menu.htm

Transport Canada's mission is to develop and administer policies, regulations and services for the best transportation system for Canada and Canadians – one that is safe and secure, efficient, affordable, integrated and environmentally friendly.

Applicable Legislation/Regulations

Canada Shipping Act

http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/act/menu.html

The objectives of this Act are to:

protect the health and well-being of individuals, including the crews of ships, who participate in marine transportation and commerce;
promote safety in the marine transportation system;
protect the marine environment from damage due to navigation and shipping activities;
develop a regulatory scheme that encourages viable, effective and economical marine transportation and commerce;
promote an efficient marine transportation system;
ensure that Canada can meet its international obligations under bilateral and multilateral agreements with respect to navigation and shipping;
encourage the harmonization of marine practices;
provide an appropriate liability and compensation regime in relation to incidents involving ships; and
establish an effective inspection and enforcement program.

Ballast Water Control and Management Regulations (2006)

http://www.tc.gc.ca/acts-regulations/GENERAL/C/csa/regulations/400/csa448/csa448.html

Regulations created under the Canada Shipping Act related to the management of ballast water in ships in waters under Canadian jurisdiction. A focus of the regulations is to ensure that ships that take on ballast in waters outside of Canadian jurisdiction minimize the uptake of harmful aquatic organisms or pathogens and their discharge into waters under Canadian jurisdiction, and to remove or render harmless harmful aquatic organisms or pathogens within the ballast water. These regulations cover exemptions for required management, transoceanic and non-transoceanic navigation including the establishment of ballast exchange zones, ballast water exchange and treatment standards, sediment disposal, ballast water management plans, exceptional circumstances, and reporting.

Applicable Policies/ Programs

A Guide to Canada's Ballast Water Control and Management Regulations (2006)

http://www.tc.gc.ca/marinesafety/tp/Tp13617/menu.htm

A forty-four page guide to provide information on the application of the Ballast Water Control and Management Regulations.

Departmental Responsibility:

Fisheries and Oceans Canada

http://www.dfo-mpo.gc.ca/

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters.

DFO is a national and international leader in marine safety and in the management of oceans and freshwater resources. Departmental activities and presence on Canadian waters help to ensure the safe movement of people and goods. As a sustainable development department, DFO will integrate environment, economic and social perspectives to ensure Canada's oceans and freshwater resources benefit this generation and those to come.

The Department's guiding legislation includes the Oceans Act, which charges the Minister with leading oceans management and providing coast guard and hydrographic services on behalf of the Government of Canada, and the Fisheries Act, which confers responsibility to the Minister for the management of fisheries, habitat and aquaculture. The Department is also one of the three responsible authorities under the Species at Risk Act.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. These include regulations used to control the spread of invasive species.

Fishery (General) Regulations (1993)

http://laws.justice.gc.ca/en/F-14/SOR-93-53/index.html

Part VIII of the Fishery Regulations (Sections 55-56) addresses the *Release of Live Fish into Fish Habitat and Transfer of Live Fish to a Fish Rearing Facility*. These regulations have been used to minimize the spread of invasive species (tunicates) that may occur from the free movement of shellfish from one area to another within a province. Specifically growers and processors have been required to give notice of their intentions to move product from infested waters through the application for an Introductions and Transfer (I&T) Licence under these regulations of the Fisheries Act.

Atlantic Fishery Regulations (1985)

http://laws.justice.gc.ca/en/F-14/SOR-86-21/index.html

Regulations respecting the management and allocation of fishery resources on the Atlantic Coast of Canada which tend to be the main commercial saltwater fisheries. Of relevance to the Bras d'Or is the inclusion of detailed regulations pertaining to Herring, Lobster and Oysters. These fisheries are managed through gear restrictions, location and seasonal closures, and size restrictions which are either included directly in the

regulations or as conditions of the specific licence held by those fishing these species. Where changes to the status of a stock require an immediate management response, a Variation Order may be used to accommodate the needed change in regulation.

Maritime Provinces Fishery Regulations

http://laws.justice.gc.ca/en/F-14/SOR-93-55/index.html

Regulations respecting fishing in the provinces of Nova Scotia, New Brunswick and Prince Edward Islands and in adjacent tidal waters. Of relevance to the Bras d'Or is the inclusion of Oysters in these regulations that cover gear restrictions, close times and size restrictions.

Applicable Policies/ Programs

Status of MSX and Bras d'Or Oysters:

Commercial fishery open in approved areas but zoned under licence conditions due to MSX
Recreational fishery for oysters are closed due to MSX

Departmental Responsibility:

Nova Scotia Department of Agriculture, Fisheries and Aquaculture.

http://www.gov.ns.ca/nsaf/department/divisions/

The mission of the Fisheries and Aquaculture Branch is to service, develop and manage the harvesting processing, recreational and aquaculture segments of the Nova Scotia fishing industry for the betterment of our coastal communities and the province overall.

This branch groups together the following divisions and functions:

Marine Fisheries Services.
Aquaculture.
Inland Fisheries
Fisheries and Aquaculture Loan Board:

Applicable Legislation/Regulations

Fisheries and Coastal Resources Act (1996)

http://www.gov.ns.ca/legislature/legc/statutes/fishand.htm

The purpose of this Act is to:
(a) consolidate and revise the law respecting the fishery;
(b) encourage, promote and implement programs that will sustain and improve the fishery, including aquaculture;
(c) service, develop and optimize the harvesting and processing segments of the fishing and aquaculture industries for the betterment of coastal communities and the Province as a whole;
(d) assist the aquaculture industry to increase production;
(e) expand recreational and sport-fishing opportunities and ecotourism;
(f) foster community involvement in the management of coastal resources;
(g) provide training to enhance the skills and knowledge of participants in the fishery, including aquaculture;
(h) increase the productivity and competitiveness of the processing sector by encouraging value-added processing and diversification.

Aquaculture Licence and Lease Regulations

http://www.gov.ns.ca/just/regulations/actsxdep.htm#FISH

These regulations relate to the location and marking, record and report production, fees, the removal of leasehold improvements, and fish health, for aquaculture lease sites.

Applicable Policies/ Programs

Nova Scotia Aquaculture Environmental Monitoring Program.

http://www.gov.ns.ca/nsaf/aquaculture/EMPSummaryReport.pdf

Due to industry expansion, increased public concern and a commitment to ensure environmental sustainability, a Comprehensive Environmental Monitoring Program (EMP) has been carried out for the marine aquaculture industry in Nova Scotia since 2003. The Aquaculture Association of Nova Scotia have developed a protocol for the Department of Fisheries and Aquaculture to implement.

Nova Scotia Department of Fisheries and Aquaculture: Tunicate Survey

http://www.gov.ns.ca/nsaf/aquaculture/home.shtml

The Aquaculture Division of the NS Department of Fisheries and Aquaculture have conducted surveys of all aquaculturalists in NS who possess marine aquaculture licences. One hundred and seventy five surveys have been sent annually to these growers to assess the presence of *Ciona intestinalis.*

Departmental Responsibility:

Environment Canada

http://www.cbin.ec.gc.ca/index.cfm?lang=e

The Biodiversity Convention Office (BCO), within Environment Canada, serves as Canada's National Focal Point for the United Nations Convention on Biological Diversity and the Canadian Biodiversity Strategy. Environment Canada has assumed a national co-ordinating role on the issue of invasive alien species. The Department is working closely with other federal departments and agencies including Fisheries and Oceans Canada, Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency, Natural Resources Canada, Transport Canada and the Parks Canada Agency, as well as provincial and territorial governments and stakeholders, to address this threat.

Applicable Legislation/Regulations

Convention on Biological Diversity

http://www.biodiv.org/convention/convention.shtml

The Convention on Biological Diversity (CBD) was opened for signature at the United Nations Conference on Environment and Development on June 5, 1992. Canada was the first industrialized country to sign and ratify the CBD. The Convention came into force on December 29, 1993. Article 8 (h) of the Convention obliges signatories to control invasive alien species.

Applicable Policies/ Programs

An Invasive Alien Species Strategy for Canada

http://www.cbin.ec.gc.ca/issues/ias/documents/Final_IAS_Strategic_Plan_smaller_e.pdf

This Strategy proposes to respond to the invasive alien species challenge through an approach that prioritizes:

prevention of new invasions;
early detection of new invaders;
rapid response to new invaders; and
management of established and spreading invaders (containment, eradication, and control).

This Strategy represents the collective efforts of several federal government departments and agencies as well as numerous provinces. Suggestions to consider particular sources of invasive species or specific management strategies will be incorporated into the action plans under development.

Issue: Declining Fish Stocks

Activity: Oysters, Lobster, Herring

Departmental Responsibility:

Fisheries and Oceans Canada, Fisheries and Aquaculture Management Branch

http://www.mar.dfo-mpo.gc.ca/fishmgmt/famb/FMhome.htm

The mission of the Fisheries and Aquaculture Management Branch of Fisheries and Oceans Canada is to conserve and protect Canada's fisheries resources and to ensure sustainable utilization. Consultation and collaboration with user groups (commercial, Aboriginal, and recreational) and other stakeholders (processors, fisheries organizations, and provincial governments) is integral to managing the fishery as a biologically sustainable resource. This mission is met through the work of four sections within the Fisheries and Aquaculture Management Branch:

Resource Management
Conservation and Protection
Aboriginal Fisheries
Aquaculture Coordination

The Scotia-Fundy Sector is comprised of three geographical management areas: Eastern Nova Scotia, Southwest Nova Scotia, and Southwest New Brunswick. Located within each management area is an area office with a licensing center.

Applicable Legislation/Regulations

Fisheries Act (1985)

http://laws.justice.gc.ca/en/F-14/index.html

The Fisheries Act addresses a broad range of aspects of fisheries within Canadian waters. A large number of regulations have been developed under the Fisheries Act related to various regions, issues and specific fisheries. In the Bras d'Or Lakes, the fisheries for Oysters, Lobster and Herring are managed using various regulations of the Fisheries Act. Management plans for these species have also been created. Examples of the regulations are included below.

Fishery (General) Regulations (1993)

http://laws.justice.gc.ca/en/F-14/SOR-93-53/index.html

General regulations respecting fishing and fish habitat.

Atlantic Fishery Regulations (1985)

http://laws.justice.gc.ca/en/F-14/SOR-86-21/index.html

Regulations respecting the management and allocation of fishery resources on the Atlantic Coast of Canada which tend to be the main commercial saltwater fisheries. Of relevance to the Bras d'Or is the inclusion of detailed regulations pertaining to Herring, Lobster and Oysters. These fisheries are managed through gear restrictions, location and seasonal closures, and size restrictions which are either included directly in the regulations or as conditions of the specific licence held by those fishing these species. Where changes to the

status of a stock require an immediate management response, a Variation Order may be used to accommodate the needed change in regulation.

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Regulations respecting fishing in the provinces of Nova Scotia, New Brunswick and Prince Edward Islands and in adjacent tidal waters. Of relevance to the Bras d'Or is the inclusion of Oysters in these regulations that cover gear restrictions, close times and size restrictions.

Management of Contaminated Fisheries Regulations

http://laws.justice.gc.ca/en/F-14/SOR-90-351/index.html

Regulations pertaining to the provision to fish in areas that are known to be contaminated for bait, scientific purposes, or with a decontamination plan in place via a relay fishery. Currently a relay fishery exists in the Bras d'Or for oysters which may be contaminated by fecal coliform bacteria.

Aboriginal Commercial Fishing Licence Regulations

http://laws.justice.gc.ca/en/F-14/SOR-93-332/index.html

Regulations for fishing carried out in accordance with aboriginal communal fishing licences. For the Bras d'Or this pertains to any controls established for the fishing carried out by the First Nation Bands located there.

Applicable Policies/ Programs

Species Status in Bras d'Or (as of Fall 2006):

Bras d'Or Oysters:

Commercial fishery open in approved areas but zoned under licence conditions due to MSX
Recreational fishery closed due to MSX
Relay fishery (for bacterially contaminated oysters) open but regulated under Management of Contaminated Fishery Regulations in partnership with Environment Canada and the Canadian Food Inspection Agency.
Oyster Management Plan in place.

Bras d'Or Lobster:

Commercial fishery open but regulated as licence conditions (trap size limits, number of trap limits, size limits, etc.) under Atlantic Fishery Regulations.
Lobster Management Plan in place

Bras d'Or Herring:

Commercial fishery closed
Bait fishery closed
Recreational fishery closed
Herring Management Plan in place:
http://www.mar.dfo-mpo.gc.ca/fishmgmt/famb/plans/plans_pelagic/plan_herring_1999E.pdf

Advisory Boards:

Stakeholder advisory boards are in place for Oysters, Lobster and Herring and meet regularly.

Departmental Responsibility:

Nova Scotia Department of Agriculture, Fisheries and Aquaculture.

http://www.gov.ns.ca/nsaf/department/divisions/

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http://www.gov.ns.ca/legislature/legc/statutes/fishand.htm

The purpose of this Act is to:
(a) consolidate and revise the law respecting the fishery;
(b) encourage, promote and implement programs that will sustain and improve the fishery, including aquaculture;
(c) service, develop and optimize the harvesting and processing segments of the fishing and aquaculture industries for the betterment of coastal communities and the Province as a whole;
(d) assist the aquaculture industry to increase production;
(e) expand recreational and sport-fishing opportunities and ecotourism;
(f) foster community involvement in the management of coastal resources;
(g) provide training to enhance the skills and knowledge of participants in the fishery, including aquaculture;
(h) increase the productivity and competitiveness of the processing sector by encouraging value-added processing and diversification.

Aquaculture Licence and Lease Regulations

http://www.gov.ns.ca/just/regulations/actsxdep.htm#FISH

These regulations relate to the location and marking, record and report production, fees, the removal of leasehold improvements, and fish health, for aquaculture lease sites.

Recreational Fishing Regulations

http://www.gov.ns.ca/just/regulations/regs/fcrrec.htm

These regulations stipulate when and where angling may take place throughout the province, including a number of special management areas.

Applicable Policies/ Programs

Nova Scotia Aquaculture Environmental Monitoring Program.

http://www.gov.ns.ca/nsaf/aquaculture/EMPSummaryReport.pdf

Due to industry expansion, increased public concern and a commitment to ensure environmental sustainability, a Comprehensive Environmental Monitoring Program (EMP) has been carried out for the marine aquaculture industry in Nova Scotia since 2003. The Aquaculture Association of Nova Scotia have developed a protocol for the Department of Fisheries and Aquaculture to implement.

Appendix C: Questionnaire

The following questionnaire has been developed to use with representatives from each government department with a legal responsibility related to the issues. The purpose of the questionnaire is to develop a broad understanding of these issues from the manager's perspective, including current efforts and impediments for their being addressed. The desired outcome and rationale for each question has been included below. Prior to each interview, those being interviewed will have had the opportunity to review and validate the information prepared on issues, previous planning and management efforts, and the primary roles and responsibilities related to these issues for their government department. The following statement will be made to each person at the start of the interview.

The primary environmental issues and their respective environmental mandates within the Bras d'Or Lakes and watershed lands have been summarized and confirmed by you previously in this study. In addition, a summary of previous planning and management efforts within the Bras d'Or has also been provided. I am asking you as a representative of a department with a role to play in the issue of _____ to help me gain a better understanding of this issue including some of the main challenges associated with addressing it. I would also like to inquire about the previous management efforts in the Bras d'Or to determine any lessons learned that can be applied to the current management process.

Questionnaire for Government Departments

Understanding of Issues	
Question	**Desired Outcome**
First, to what extent can you represent your department's perspective on this issue?	Assess individual's history and knowledge associated with issue and department's role in issue.
What is your general understanding of this issue?	Assess knowledge of issue including causes and effects.
Are there particular aspects to this issue that I have not considered in my review? (May refer interviewee	Assess multi-faceted nature of issue including causes and effects.

to issue summary table from thesis).	Assess particular priority of department on different aspects of issue.
How long has this issue persisted in the Bras d'Or? (Optional if already answered)	Assess knowledge and history of issue.
What are the main sources of data and information available to help quantify the scope and extent of the issue? How does your department use these?	Assess basis of understanding issue and relationship to department.
What has your department done or is currently doing to address this issue?	Assess priority and level of effort by department for addressing issue.
What further efforts are required to address this issue from your department's perspective? (May use themes as detailed below as checklist or provide prompts (e.g. "*Is there adequate enforcement*"?) The themes against which the environmental issues can be discussed include: Legislation, Policy and Program Support Staff Resources and Capacity Enforcement Access to Expertise Data/ Information Needs Public Awareness and Participation Integration/Cooperation with other Departments Specific questions related to themes may be used during the interview as a prompt or may be used as a checklist during interview to capture information. For example, "*For issue _____, how would you describe the adequacy of _____ (legislation, policies, staff resources and capacity, enforcement, expertise, data/information, public awareness and participation, working with other departments) for contributing to this issue being addressed? Are there any improvements that you feel could be made to better address it?"*	Assess current gaps and challenges to overcome in order to address issue from department's perspective.
Lessons Learned from Previous Management Efforts	

Question	**Desired Outcome**
How familiar are you with these previous efforts?	Assess individual's history and knowledge associated with previous management efforts.
From your department's perspective, are there any lessons learned that we need to apply to the current management process to ensure it is effective at developing and implementing an overall management plan?	Determine insights to apply to current planning and management process.

Appendix D: Interview Transcripts

Issue: Marine Invasive Species

Department: Transport Canada
Key Contacts Interviewed: Captain George Anderson
Date of Interview: June 15, 2007
Location of Interview: Transport Canada Office, Dartmouth, Nova Scotia

Background Info:

TC main role in invasive species issue is to control ballast water management of ships entering the Bras d'Or that might introduce invasive species within their ballast.

There may be some pulp boats which enter the Bras d'Or, but main commercial vessels are the Gypsum boats heading to the mine at Little Narrows from Baltimore and Florida.

There were 53 trips to LNG in 2006 from 8 different ships (A.V Kaster, UBC Saiki, Gypsum Centennial, Alpina, Ambassador, Clipper Morning, Gypsum Barron, and Yosemite). Gypsum Centennial made 23 of 53 trips in 2006.

It takes approximately 24 hours to load a ship at LNG.

Ballast water is taken up and released from a ship primarily to stabilize and balance it as other material is loaded or unloaded. Some large bulk carriers may exchange 50 000 tonnes of ballast water.

Question 1: (To what extent can you represent…)

Has been with TC for the past 2.5 years and has dealt with ballast water issues for past 1.5 to 2 years. Feels quite comfortable discussing issue on behalf of department as he is one of the main people involved.

Question 2: (What is your general understanding…)

Has a general understanding of what has happened in the Lakes and possible causes including impacts to fishery.

Is most familiar with the MSX issue but not Green Crab or Tunicates

Question 3: (Are there particular aspects…)

Check Canada Gazette Part II Vol 140 No 13 SOR/2006-129 for new Regulations, "Ballast Water Control and Management Regulations" released June 8, 2006.

http://canadagazette.gc.ca/partII/2006/20060628/html/sor129-e.html

Regulatory Impact Statement provides considerable background to issue associated with new regulations.

Question 4: (How long has this issue …)

Question 5: (What are the main sources of data…)

For the Bras d'Or, TC relies on input from community and groups to be informed of concerns.

Now that ballast regulations are in place, ships captains must submit reports to TC for each trip regarding if and where they exchanged ballast water before entering Canada's Exclusive Economic Zone as well as for a number of issues.

Ships must also maintain a number of "Test Certificates" for equipment on board to verify that it is approved.

Inspectors will board a percentage of the vessels to ensure compliance. Inspectors can test salinity of water to ensure that ballast is from offshore (more saline).

Question 6: (What has your department done…)

Primary role has been to establish Ballast Water Exchange Regulations which were not present before.

Ships are now required to report information about where they exchanged ballast.

Part of regulations have included the establishment of offshore exchange zones for ballast water in consultation with other government departments and groups.

Inspectors will be able to determine if ballast water has in fact been exchanged (based on salinity). If not exchanged, TC can make ship: retain it, treat it, or go out to an appropriate zone offshore to exchange it – each of these requirements will add financial cost to not complying.

Department is also developing a database to determine which ships should be inspected based on location of travel (based on risk of invasive species transfer).

Work will also identify areas to test if biology is changing (based on mapping where the exact locations where exchanges are taking place).

TC is currently preparing a training program for its current inspectors to ensure that they are able to properly inspect for ballast water .

Question 7: (What further efforts are required to address this issue…)

TC have staff in Port Hawkesbury as the nearest point to the Bras d'Or but their current workload is already high and therefore may need additional resources to do inspections at Little Narrows Bras d'Or.

Training of current inspectors who already do Port State Control Inspections of ships is required.

Office of Boating Safety can also do further effort to educating the pleasure craft owners about invasive species.

Question 8: (How familiar are you with these previous…)

Not familiar.

Question 9: (What are the lessons learned…)

Issue: Sewage (from marine vessels)

Department: Transport Canada
Key Contacts Interviewed: Captain George Anderson
Date of Interview: June 15, 2007
Location of Interview: Transport Canada Office, Dartmouth, Nova Scotia

Background Info:

A new Canada Shipping Act is about to be released on July 1, 2007.

Question 1: (To what extent can you represent…)

Has been with TC for the past 2.5 years and has dealt with sewage issues for past 1.5 to 2 years. Feels quite comfortable discussing issue on behalf of department as he is one of the main people involved.

Question 2: (What is your general understanding…)

(Skipped this question due to time constraints)

Question 3: (Are there particular aspects…)

There are also new regulations in effect for sewage: "Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals"

Check Canada Gazette Part II Vol 141 No 10 SOR/2006-86 for new Regulations; section 4 deals with sewage.

http://canadagazette.gc.ca/partII/2007/20070516/html/sor86-e.html

There will be a 5 year period before these regulations are enforceable.

For sewage management, the larger ships are rarely a concern as they have the infrastructure to manage it. It is the pleasure craft which may be the potential problems.

Question 4: (How long has this issue …)

(Skipped this question due to time constraints)

Question 5: (What are the main sources of data…)

TC used information sources such as the formal application by the Pitupaq Committee for having the Bras d'Or designated as a Non Discharge Zone for Sewage as rationale for advancing changes in regulations. Did not do directed study related to issue in the Bras d'Or.

Often ships are inspected by a third party (ie. Lloyds) to maintain specific Convention Certificates for relevant equipment and processes on board ship.

Question 6: (What has your department done…)

Primary role has been to establish new regulations related to sewage discharges from boats. The Bras d'Or Lakes are specifically mentioned in relation to sewage discharges within these regulations.

TC does some outreach and educational programs through their Office of Boating Safety (i.e. boat shows, conferences, etc.)

There is a joint patrol that takes place for a week in August in the Bras d'Or where all pleasure craft are inspected and information shared with boaters.
There is a 1-800 line for general enquires

Question 7: (What further efforts are required to address this issue…)

Can add questions about sewage management to port state control inspections that already take place by TC of ships.
Office of Boating Safety can assist by doing further outreach.

Question 8: (How familiar are you with these previous…)

Not familiar.

Question 9: (What are the lessons learned…)

(Skipped this question due to time constraints)

Issue: Land use (Shoreline Development)

Department: Eastern District Planning Commission
Key Contact Interviewed: John Bain, Director
Date of Interview: May 31, 2007
Location of Interview: Eastern District Planning Commission Office, Port Hawkesbury, Nova Scotia

Background Info:

There are no construction standards for private roads in Victoria and Richmond Counties; in Inverness the standards are slightly less than public roads

Question 1: (To what extent can you represent…)

Has worked for the past 15 years as the Director and therefore feels he can well represent his organization.

Area now covers Richmond, Inverness, Victoria Counties, Port Hawkesbury, and Antigonish.

Question 2: (What is your general understanding…)

The issue is that shoreline development is unregulated. There are no landuse by-laws that touch the Bras d'Or.

With several small exceptions, there is no zoning and no regulations

There are a number of new residents that feel that there should be restrictions on development but those that have lived here for a couple of generations don't like the idea of someone from away dictating how they will use their land.

Question 3: (Are there particular aspects…)

Without specific zoning, the municipalities rely on the Building Code to determine setbacks from property lines, on-site sewage systems, etc.

Question 4: (How long has this issue …)

The lack of regulations has made this a long term issue. However, the awareness and concern for this lack of regulations are more recent.

Question 5: (What are the main sources of data…)

There is currently no quantification of information related to this issue.

Commission could get building permit records and civic addressing points however.

In 2006 the "Housing Starts" decreased by 50 % with most new home and cottage development coming primarily from "off island" money.

Question 6: (What has your department done…)

The Planning Commission is not doing anything currently. There is no intention to do additional planning for the Bras d'Or unless given a political direction. John does not feel that the issue of unregulated shoreline development is on the Radar for the Municipal governments.

The Planning Commission would have minimal resources to direct to it.
There has been some interest in getting Richmond County setbacks established, but little advancement. Have agreed to work with CBRM on Terms of Reference for a shoreline development standards proposal.
The Planning Commission has a relatively narrow focus and is kept pretty busy with existing work, therefore unless it is made his mandate, there really won't be much effort directed at this.

Question 7: (What further efforts are required to address this issue…)

Needs political will and education of Councils
However, John related an example of a planning process that occurred for the Sporting Mountain area of Richmond County that was likely the most benign planning document (no heavy industrial development in an area where it will likely not be developed) in Canada but which created considerable debate and tension among those who were suspicious of the perceived restrictions.

- 400 people at public meeting
- Two councillors that supported plan lost their seats on Council
- "Citizens Opposed to Control of our Land" group formed and spread many untruths about the restrictions this plan would create such as needing a permit to pitch a tent on their own land
- There is a motion in Richmond County to never allow any zoning.
- As a political price was paid by the two Councilors seen to support the plan, other Councilors will remember this and will need to assess the potential impacts before going down this road.

However, now that 5 years have passed since the plan was passed and residents will see that there haven't been any real impacts to their rights, there may be less resistance to planning.

Question 8: (How familiar are you with these previous…)

Not familiar

Question 9: (What are the lessons learned…)

Issue: Land Use (Landfills/Dumpsites)

Department: NS Environment and Labour
Key Contact Interviewed: Sharon Munroe (Carter), Port Hawkesbury A/District Manager
Date of Interview: June 28, 2007
Location of Interview: Teleconference

Background Info:

Question 1: (To what extent can you represent…)

Has worked for the past 6 years for the department
Began work as inspector, but now is a A/District Manager overseeing operations.

Question 2: (What is your general understanding…)

There are two landfills in the Bras d'Or watershed; one in Baddeck and one in River Denys watershed.
Both are 1st generation landfills (ie. a hole in the ground)
Both are prevented from accepting municipal solid waste as of January 1, 2007 but are allowed to accept construction debris and compost.
The landfill in River Denys closed on December 31st 2006 but the one in Baddeck is still accepting construction debris, has a compost facility and recycling depot.
All municipal solid waste currently goes to Guysborough County and it is unlikely that there will be a new landfill on the island in the near future.
Not familiar with specifics of Baddeck site.
River Denys landfill has:

- Operated since 1982;
- has 13 groundwater monitoring wells and 6 surface monitoring sites;
- has a leachate collection system and surface water treatment lagoons;
- has a methane venting system;
- McKenzie Brook is immediately downstream;
- It is important to maintain the integrity of the site after a landfill closes (ie. contours);
- Only known compliance issues have been associated with the timeliness of getting the owner's monitoring results to the Department.

Question 3: (Are there particular aspects…)

There are many illegal dumpsites around the watershed (perhaps 100).
It is hard to prosecute anyone regarding these although it was felt that perhaps the environmental impacts from these aren't significant as they tend to be hard-goods such as old appliances and furniture.

Question 4: (How long has this issue …)

Question 5: (What are the main sources of data…)

Monitoring data as part of Terms and Conditions of any Operating Approval collected by the Department.
Results of this monitoring go to the inspector as well as the hydrogeologist and engineer at Department

Question 6: (What has your department done…)

Has an ongoing monitoring program under approval.
Met with the local Stewards Group who had expressed concerns for the River Denys landfill along with the owner; was able to share information and monitoring results with group to dispel some of their concerns.

Question 7: (What further efforts are required to address this issue…)

Can increase communication between owners/operators and community. The long standing concern of the local Stewards Group about this landfill could have been avoided if there was better communication between the parties involved.

Question 8: (How familiar are you with these previous…)

Question 9: (What are the lessons learned…)

Issue: Land Use (Mining)

Department: NS Environment and Labour
Key Contact Interviewed: Sharon Munroe (Carter), Port Hawkesbury A/District Manager
Date of Interview: June 28, 2007
Location of Interview: Teleconference

Background Info:

Surface mines require an environmental assessment prior to permits
Quarries under 4 ha requires an industrial approval but no environment assessment
Pits under 2 ha do not require any regulatory approvals
Not sure if material is spilling into Little Narrows when the bulk carriers are being loaded at LNG but is planning to get staff to check this.

Question 1: (To what extent can you represent…)

Has worked for the past 6 years for the department
Began work as inspector, but now is a A/District Manager overseeing operations.

Question 2: (What is your general understanding…)

There are a number of surface mines within the Bras d'Or watershed including Melford (gypsum), LNG (gypsum), McLeod Resources (red marble)
LNG may have been the only one to not require an Environmental Assessment (EA) due to its age.
The EA process includes broad planning considerations including identifying sensitive species, assessing pre-existing conditions and broad input from other government departments. Public consultation is part of EA process to identify public concerns.
A number of terms and conditions must be met by a mine before an Industrial Approval is issued by the Department.
DOEL issues an operational approval and therefore needs to measure operational aspects of mining such as: groundwater monitoring, discharge parameters, surface water monitoring, pre-blast surveys, noise, dust, reclamation planing, and bonding for restoration (held by DNR).
In 1st year of a mines operation, 3 inspections are done to create a risk assessment for the mine and determine frequency of inspection. The 3 mines in the Bras d'Or are considered medium risk and therefore are inspected once a year.
Inspections are done with an inspector and engineer from DOEL and may have person from DNR also attend.
Many issues associated with mines are of the "Not in my backyard" variety during the siting process.
Pits and quarries don't require any approvals if they are for NS Transportation
Environmental affects of mining are primarily related to the removal of material with effects often being mitigated during operation and closure.

Question 3: (Are there particular aspects…)

Question 4: (How long has this issue …)
some mines are quite old (ie LNG)

Question 5: (What are the main sources of data…)
Primary source of data comes through EA process and from Operational Approvals and their associated inspections.
Data goes intoa departmental Environment Information Management and Access System

Question 6: (What has your department done…)
Has an EA process
Operational Approval and inspections
There is a continuum of compliance consequences for not meeting the operational approval requirements from cooperation/education to tickets to prosecutions,

Question 7: (What further efforts are required to address this issue…)
Not aware of any compliance issues associated with the 3 mines in the Bras d'Or
However, can improve communication between company and community as often companies are doing a good job and have plans in place to mitigate any effects.

Question 8: (How familiar are you with these previous…)

Question 9: (What are the lessons learned…)

Issue: Sewage

Department: NS Environment and Labour
Key Contact Interviewed: Sharon Carter, Port Hawkesbury A/District Manager
Date of Interview: June 8, 2007
Location of Interview: Teleconference

Background Info:

Question 1: (To what extent can you represent…)

Has worked for the past 6 years for the department
Began work as inspector, but is now a A/District Manager overseeing operations including issuing permits and approvals for sewage treatment plants and on-site treatment systems.
Is also working as a Bras d'Or Coordinator with municipalities and First Nations to address sewage.

Question 2: (What is your general understanding…)

For properties with faulty on-site systems, the homeowners are often on low and fixed incomes and therefore a straight enforcement role will not work. The provincial Crown will not pursue an enforcement option if there aren't the funds to recover. Therefore alternative funding requirements (ie. Wastewater Management Districts and Home Assessment Funds) are being pursued.
Department's work is most relevant to the environmental and health effects of sewage, including the impacts of the nitrification of waters as well as impacts to swimming and drinking water wells.
There are two sewage treatment Plants in the Bras d'Or watershed (Baddeck which is about 7 years old, and Whycocomagh which is about 14 years old). Waycobah First Nation has sewage treated at the Whycocomagh Plant and currently at capacity. There is a proposal through Pitupaq Committee to expand the Whycocomagh plant to account for the population growth in the First Nation community of Wycobah.

Question 3: (Are there particular aspects…)

- Department's focus is on sewage related to on-site systems and sewage treatment plants.
- Health Canada deals with sewage on First Nation Reserves – DOEL is not involved.

Question 4: (How long has this issue …)

Concerns go back to the mid 70's before they brought in design standards for on-site disposal systems. Prior to mid 70's there weren't any on-site standards. Believe there was a health report from then that had identified sewage as a problem

Question 5: (What are the main sources of data…)

Relies primarily on Shellfish Classification System data on fecal coliform as collected by DFO and EC
DEL does monitor designated beaches (ie. If they have a lifeguard) weekly during the swimming season.
Only beach monitored in Bras d'Or lakes is Kidston Beach near Baddeck.
Information about faulty on-site system is gathered mainly from complaints which lead to compliance investigations
Don't have any sense of the number of properties which are the likely culprits for faulty on-site systems (ie. small lots, pre-1975 Construction) around the Bras d'Or.
Sewage treatment plants are audited regularly by Department.

Question 6: (What has your department done…)

DEL has an Innovations Branch that will review and set up test programs for new technologies for on-site treatment options
Treatment Plants are classified by the type of system they are, and audited for compliance against pre-established standards

- High Risk – audited at least every 6 months
- Mid Risk – audited at least 1 time per year
- Low Risk – audited at least 1 time every 2 years

A Risk Based Assessment is done, with risk determined by type of system, discharging environment, potential impact, history of compliance.
Plants have to meet operational requirements (discharge parameters); discharge criteria differ according to receiving waters (ocean versus freshwater). Receiving Water Studies are often required by developer as part of approval process.

On-site systems require a construction (not operational) approval; Department is tying to audit more systems to ensure they are properly constructed and installed.

The Department does not have a mechanism to require the automatic replacement of systems if there is no evidence of malfunction.

It is rare that people install systems without an approval because there is a certification process in place for installers. If the installers put in a system without an approval, then they could loose their certification which would impact their livelihood. Applications for on-site systems must include site testing to ensure that soil is appropriate for system being planned. If site conditions are not appropriate, a different system may be required.

Department has spoken to the real estate association to ask them to communicate to their clients the need to have their properties assessed for faulty on-site systems prior to purchasing.

Department currently funds a Home Assessment Program administered through the ACAP Cape Breton to educate homeowners on a number of environmental

issues associated with their house. Part of program may involve on-site testing of how septic system is working with funds available (up to $3 K) to homeowners for upgrades. Uses a dye that gets flushed down toilet and then tested for presence on property. If detected, then the system is not working properly.

Department is also working with the Municipalities through the Pitupaq Committee to ensure that they are aware of the standards and requirements of the department.

Feels that the sewage programs are the most comprehensive in the Department in terms of legislation, policy and program efforts; sometimes people think the department has greater powers than it does, but it needs to work within its existing legal framework.

Department has a very broad mandate and therefore cannot put all its resources (capacity, enforcement) into just one area (ie. on-site).

Question 7: (What further efforts are required to address this issue…)

Establish Waste Water Management Districts for areas where on-site systems may not be feasible. (Currently funding is being compiled for a feasibility study)
Greater Public awareness is always needed.
The development of Best Management Practices and their communication to the public.

Question 8: (How familiar are you with these previous…)

Is familiar with the Taking Care of the Bras d'Or effort from 1995.

Question 9: (What are the lessons learned…)

Need to ensure that we have buy-in and commitment from everyone (we have learned about the need for the senior managers buy-in in the way we have developed the Senior Council)
Need to demonstrate success and momentum and keep everyone well informed

Issue: Declining Fish Stocks (Oysters, Herring and Lobster)

Department: Fisheries and Oceans Canada
Key Contacts Interviewed: Paul Gentile, A/Area Director ENS and Lorne Penny, A/Chief, Resource Management
Date of Interview: May 29, 2007
Location of Interview: DFO Area Office, Sydney, Nova Scotia

Background Info:

For some species the issue is not one of current decline; Herring for example may actually be rebounding as the declines have already occurred.

Question 1: (To what extent can you represent…)

Both interviewees are well versed in the fisheries around the Lakes. Lorne has been the head of the Canadian Shellfish Sanitation program for 5 years. Paul has been head of Resource Management for the past 4 years.

Question 2: (What is your general understanding…)

For Oyster:

- declines are directly related to over-fishing and MSX parasite.
- Over-fishing has never however been proven by the enforcement community with solid evidence.

For Lobster:

- There has been a decline based on catch per unit effort data.
- There has been a change in lobster grounds from land use and industrial uses influences.
- There may also be ecological impacts from the presence of Green Crab (invasive species) and an increase in ground-fish that is not well understood.

For Herring:

- Fishery has been closed for over 10 years (commercial and recreational).
- A decrease in applied science work has prevented us from knowing anything about current population numbers.
- Some fishers are requesting a survey be done since they are starting to see the #'s of herring come back, but there haven't been the resources to do it.

Question 3: (Are there particular aspects…)

Some species are not currently declining as they have already declined. Some may be rebounding.

There is very little public awareness about lobster and feels that there is a lot of poaching taking place by individual property owners.

We need to consider that the system is largely closed and that population numbers of species in the lake are not supported by areas outside of it.

Question 4: (How long has this issue …)

For Herring:

- Population bottomed out in the early 1990's.
- There was once a 1000 tonne fishery between the 1960-1980s.

For Lobster:

- Has been declining for 6-7 years.
- Some poaching from cottage owners has occurred.
- There are currently 8-9 licences for lobster in the Lakes.
- There's good habitat for lobster but not large populations.

For Oyster:

- As unemployment in the region increases (closures in mines, steel plants), the population numbers of oysters have been shown to decrease.
- In 1999 there were more than 270 licences issued for fishing oysters.
- Over-fishing occurred between 1998-2001 and MSX was confirmed in 2002.

Question 5: (What are the main sources of data…)

For Herring:

- have landing data from about 10 years ago but not really used anymore.
- No real current sources of data.
- Most species information is primarily anecdotal.

For Lobster:

- Have very little data.
- Feels that 10% of cottage owners are doing recreational poaching.
-

Oyster:

- Aquaculturalists are doing site assessment work voluntarily.
- Commercial landings are reported to province and DFO .

Question 6: (What has your department done…)

For Herring:

- Asked for population assessments through acoustic sampling.
- Identified issues and solutions
- There are species specific Advisory Boards where Stocks are assessed. There are several windows of opportunity to raise issue. Often there are however no resources to do assessments on the Bras d'Or due to the size of the fishery.

For Lobster:

- There is no current activity with respect to lobster
- Lobster Advisory process in place

Question 7: (What further efforts are required to address this issue…)

Need resources and capacity to conduct science including stock assessments and distribution patterns

Enforcement not so much a concern as some fisheries are closed

Public awareness is needed on issues on a large scale especially with respect to illegal activities.

A more hands on partnership between DFO Science and UINR/EFWC science where data is collected and used in management planning.

Question 8: (How familiar are you with these previous…)

Not that familiar.

Question 9: (What are the lessons learned…)

Without applied science to support a management decision, they shouldn't happen (such as increasing the number of licences)

Issue: Marine Invasive Species

Department: Fisheries and Oceans Canada
Key Contacts Interviewed: Paul Gentile, A/Area Manager ENS and Lorne Penny, A/Resource Management
Date of Interview: May 29, 2007
Location of Interview: DFO Area Office, Sydney, Nova Scotia

Background Info:

Tunicates are not yet a substantial issue; there is the presence of Star Tunicate but not the Club Tunicate which is has a greater impact.
There are 16 fishers waiting for approval to fish green crab

Question 1: (To what extent can you represent…)

Both interviewees are well versed in the fisheries around the Lakes. Lorne has been the head of the Canadian Shellfish Sanitation program for 5 years and has been involved with the MSX issue since 2002. Paul has been head of Resource Management for the past 4 years.

Question 2: (What is your general understanding…)

Lorne: has full appreciation of invasive species and impacts on commercial and recreational fishing
Paul: feels MSX is the most pressing invasive problem with the others representing perhaps 5% of the problem of MSX. Has a good understanding of the impacts of MSX to both commercial and recreational fishery.

Question 3: (Are there particular aspects…)

Paul: For MSX, there is a good understanding of species and impacts already present as there have been about 5 years of ongoing discussions including various aspects such as policy, regulations, as well as discussions with federal, provincial and municipal governments. The challenge is to get people to implement recommendations.
Could have major water quality or other ecological problems since millions of filter feeding oysters are dying off annually.

Question 4: (How long has this issue …)

MSX:

- Presence was confirmed in 2002 but not sure if it has been there longer.

Green Crab:

- Within the last 10 years to where you could observe them in numbers.

Tunicates:

- Star Tunicate has been in the lakes for years largely around St. Peter's. Club tunicate is not present.

Question 5: (What are the main sources of data…)

Information gained through anecdotal Traditional Knowledge from recreational users (scuba divers/boaters) through phone calls, advisory board meetings, day to day interaction with local fishers.

Also have commercial landing information.

All information gets incorporated into management plans and has potential to affect internal work planning (for example if a local mortality event of oysters is reported, fieldwork may be undertaken to verify occurrence).

The MSX issue has generated new research in the past 5 years.

Green Crab biology is generally well known but local impacts are not well understood.

Question 6: (What has your department done…)

MSX:

- Department has done a lot with respect to MSX including roles in containment, consultation, science, assistance, collaborative MOU's, education.
- The DFO Shellfish Health Unit in Moncton conducts routine collection & analyses of samples. ENS Area Office & Province assists with sampling.
- All information has been routed through the ENS Oyster Board & the Management Plan and Management Process .
- Sampling also done to protect adjacent industries such as those in PEI
- Currently have a very detailed Management Plan for Oysters.

Green Crab:

- There has been less applied science than MSX and so much of the knowledge is anecdotal.
- There is industry participation and interest in developing a fishery for this species
- There has been very little $ for science for developing species.
- The Courts have decided in the "Larocque Decision" that funds to undertake science related to a species cannot be generated from the capture and selling of the species itself (this was being done to undertake some scientific programs)

Tunicates:

- Province deals with this more in terms of aquaculture leases.
- Very little research by department in relation to tunicates.
- There are no proactive measures in place to deal with it.
- Benedict Verkamer at BIO would be a source of information.

Question 7: (What further efforts are required to address this issue…)

MSX:

- Issue is already heavily regulated and therefore not sure what else can be done.
- Needs a public education campaign related to all invasive species (there isn't any dock side signage).

Sampling to confirm presence and monitor the spread of species has been done on a convenience basis if funding is in place (such as through Natural Aquatic Animal Health Program) such as it has over the past 2 years but funds are not available for the long term.

Oysters were well sampled to assess distribution of affected oysters but funds have run out to understand current distribution and dynamics of population.

Need to develop a long-term knowledge program (both scientific and traditional) in partnership with other departments

Will need to have a policy and program discussion with what to do with displaced commercial and recreational fishers.

Question 8: (How familiar are you with these previous…)

Not that familiar.

Question 9: (What are the lessons learned…)

Need to incorporate traditional knowledge into management plan

Issue: Forestry, Sewage, Landuse (First Nations)

Organization: The Union of Nova Scotia Indians
Key Contact Interviewed: Kim Paul, Environmental Advisor
Date of Interview: June 20, 2007
Location of Interview: Eskasoni, NS

Background Info:

A series of general questions were asked about the role that the Union of NS Indians, individual Bands, and the department of Indian and Northern Affairs. Canada play with respect to the key issues identified in the Bras d'Or.

The Union of NS Indians was created in 1970 to provide political leadership and a unified political voice for the Mi'kmaq people of the province.

Kim Paul, an Environmental Advisor for the Union, was able to provide detailed information with respect to Forestry, Sewage and Landuse issues as they generally apply to reserve land. Similar information on some of the broader resource issues outside of reserves (forestry, fisheries and invasive species) will be pursued with the Unama'ki Institute of Natural Resources.

The Unama'ki Institute of Natural Resources is an organization that represents the five Bands in Cape Breton on environmental and natural resource issues, including their management.

Forestry:

Each community has a forestry management plan completed by the local Band and the Confederacy of Mainland Mikmaq through their NS Aboriginal Forestry Program. This applies to forestry just on the reserves.

The Band Council is responsible for enforcing the plan, with enforcement differing from band to band.

UINR deals with forestry on Crown lands.

Sewage:

Some on-site systems on reserves, but likely less than 25 in all of Cape Breton's reserves

There are no regulations or protocols for on-site work on reserves but the Environment Health Office at Health Canada will draft a letter of recommendation for the type of on-site system required.

Health Canada may inspect systems, but Bands will likely do so using their Lands Manager or Public Works Department staff.

Bands try to get certified installers for on-site work.

Membertou: all residents on central treatment plant.

Wycobah: sewage pumped to treatment plant in the town of Whycocomagh.

Wagmatcook: have a 3 cell aeration lagoon to treat sewage.

Chapel Island: has a central treatment plant that is at capacity.

Eskasoni: has a central treatment plant.

For the Central Treatment Plants: each Band has a Public Works Operator to oversee operations and this work is inspected and tested by Health Canada and maybe Environment Canada.

Landuse: Mining

Need permit from INAC for on-reserve mining or gravel extraction.
INAC should do inspections, but sometimes will ask UNSI (Kim Paul) to do so.
Enforcement is done by band or INAC.
INAC has limited resources for enforcement and currently does not have any by-law enforcement officers.

Landuse: Agriculture

There isn't any agriculture within the reserves in Cape Breton as there isn' t the landbase to support it.

Landuse: Shoreline Development

For reserves, require a permit from DFO or NS Provincial department if work is having effects below the high water mark.
In Membertou there is some zoning to restrict where and how houses are built; houses are built by bands ($ from INAC) and given to residents or people get their own loans to build (but must be guaranteed by INAC).
Chapel Island has a housing by-law.
Membertou has a land-use by-law.
Some enforcement may be done by RCMP if an agreement is in place.
For housing on reserves, the Canadian Environmental Assessment Act is not triggered, but is triggered for commercial developments with funding coming from INAC to do an Environmental Assessment. The proponent may be the band or individuals.

Landuse: Landfills/Dumpsites

Band receives money from INAC for garbage removal so they can do it themselves or contract it out.
Membetou has a public works department.
There is a concern with illegal dumps on reserves as the timing of garage pick up isn't considered good.

Landuse: Roads

There are no regulations for road construction on reserves with very few erosion and siltation control measures used.
Bands may maintain roads on reserves but it is rarely done.
NS Department of Transportation may expropriate lands as rights of way for roads through the reserves and will either maintain the roads themselves or provide funds for the Band to do so.
INAC gives money to the Band for snow and ice removal.

Key Contacts at INAC include:

Jerry Wolchuk, Lands Officer
Mary Knockwood, Lands Officer
Brendon Drake, Lands Division Manager

Issue: Land-Use (Agriculture)

Organization: NS Department of Agriculture, Fisheries and Aquaculture
Key Contact Interviewed: Gary Koziel
Date of Interview: July 16, 2007
Location of Interview: Teleconference

Question 1: (To what extent can you represent…)

Has worked for the Department for the past 5 years in his current position, but has worked with farmers in Cape Breton for about 11 years.

He is part of the Resource Stewardship Division where a significant portion of his time is spent on environmental stewardship type activities associated with agriculture.

Question 2: (What is your general understanding…)

Awareness of the environmental effects of agriculture is generally increasing, with more questions about agricultural land use.

There is not much agricultural activity within the Bras d'Or watershed even compared to other areas of CB, but there are a range of agricultural practices (livestock to horticulture) that take place.

Livestock being watered in streams is still a common practice in CB but the Department are trying to address it through it's programs.

Any violations associated with impacts from a farm are enforced through the NS Department of Environment and Labour under the Environment Act where Agriculture would play an advisory role.

Question 3: (Are there particular aspects…)

Question 4: (How long has this issue …)

There has been a significant decrease in agriculture in Cape Breton over the past 25 years with there being only a fraction of the activity there once was. Therefore the environmental effects have likely also decreased.

Question 5: (What are the main sources of data…)

Relies on anecdotal information on problems often from people calling in regarding incidents.

Also have an Environmental Farm Plan Program (EFPP) to gather data on potential impacts from a farm. This is done through a formal audit.

Question 6: (What has your department done…)

Have supported the NS Federation initiative of Environmental Farm Plan Program (EFPP) to examine potential impacts on a farm done through a formal audit. Recommendations will be made to mitigate risks associated with environmental effects. EFPP has been well communicated through newletters, at meetings, etc.

and has been around for about 4 years. It is voluntary and confidential. To date there has been about a 60% participation in this program.

There is an associated Farm Investment Fund tied to the EFPP so that any problems identified are eligible for money from this fund.

The Department has partnered with Agriculture Canada to integrate their programs related to Best Management Practices and funding.

- Currently a farm is eligible for $ 10K/yr from NS Agriculture and $ 45K/yr from Agriculture Canada.

There is also an outreach role played by Gary that involves visiting farms as needed or observed.

Gary generally feels that there are strong environmental policies associated with the agricultural sector and good funding for farmers.

Question 7: (What further efforts are required to address this issue…)

Need more staff resources for providing information, expertise, and increasing awareness of issues.

Question 8: (How familiar are you with these previous…)

Not that familiar with them.

Question 9: (What are the lessons learned…)

Cannot say.

Issue: Declining Fish Stocks (Herring, Lobster, Oyster)

Department: NS Agriculture, Fisheries and Aquaculture
Key Contact Interviewed: John MacInnis
Date of Interview: May 29, 2007
Location of Interview: NS Agriculture, Fisheries and Aquaculture Office, Mabou, NS

Background Info:

Department also deals with inland fisheries including trout.
Department issues aquaculture leases since 1987 (formerly done by DFO).
John had lots of hardcopy files related to the issues discussed.

Question 1: (To what extent can you represent…)

Has worked for the past 18 years for the department.
Current title is Coastal Resource Coordinator (formerly called Fisheries Rep).
Is one of eight in NS covering Inverness and Victoria Counties.

Question 2: (What is your general understanding…)

Department work is most relevant to oysters and herring and less on lobsters.
Herring fishery decline appears related to a winter large vessel Sein fishery that existed in the early 1990's off the Bird Islands (offshore CB). This fishery was much more impacting than the inshore gillnet fishery within the Bras d'Or that existed as an entire spawning population was exploited. The gillnet fishery on the other hand did not affect the entire population but rather only portions of the populations that returned to their spawning coves. Part of the offshore population exploited by the Sein fishery included portions of the Bras d'Or Stock.
Oyster fishery was not tightly regulated until the value of the oyster began to increase. Within the Brasd d'Or, the fishery was impacted around 1997-98 when one operator began to strip the public beds using hand collection techniques (faster exploitation) than with rakes. They had hired about 100 people to assist with this. NS Aquaculture had identified the decline to DFO by letters based on fishers reports of public beds being stripped and theft from their lease sites). Now MSX is affecting the oysters.
Lobster populations and fishery in the Bras d'Or have never been particularly good – not sure why.
Overall, it seems that the harvesters have had the major impact to these fisheries. Any environmental factors may have an affect on species recovery, but not on the original reasons for decline.

Question 3: (Are there particular aspects…)

There have also been some declines in Bras d'Or cod due to a winter fishery (pre 1992) in 4VN which took out some of the Bras d'Or stock that migrated from the Bras d'Or.

Question 4: (How long has this issue …)

Herring – persisted since early 1990's

Oysters – 1997 (over stripping) then 2002 (MSX)

Question 5: (What are the main sources of data…)

There's not really a good record for oysters as recorded landings are not required commercially and there is not log book for harvesters.

Some oysters from public beds are also moved onto lease areas too which confuses the ability to quantify amount collected.

For leases areas and licence requirements, NS Aquaculture requires that lease holders submit an annual production report

NS Aquaculture also receive information from complaints by industry members about theft from leases

For herring, John would collect information from interviewing fishers (gill netters) and submit biweekly reports to marine advisors in his department highlighting specific issues. Advisors would meet DFO science staff to develop stock status reports which then go to DFO resource management.

Some information collected ad hoc such as catch per unit effort interviews with fishermen

Question 6: (What has your department done…)

In the past NS Aquaculture advised DFO on status and issues with fish stocks which lead to a stronger management regime, but probably a bit late.

Is currently doing some testing of MSX mortality on oysters adjacent to lease areas to support industry (related to seed collection, activity of disease, to manage introductions and transfers. Analysis is done at Agricultural College in Truro.

Question 7: (What further efforts are required to address this issue…)

For herring, need up to date stock status on population. Not sure if any science work is currently being done. There isn't even a sentinel fishery to get a sense of what is going on with population.

For oysters, needs cost effective technology for full aquaculture. Perhaps can have a class screening EA for suspension culture (technology) to streamline its adoption. Can also perhaps focus on growing a smaller cocktail oyster that can be brought to market sooner before MSX gets them. Should also start to put a percentage of spat collected back onto public beds. It would be good to do spat tows to get a better sense of where are the good areas of spat production.

Question 8: (How familiar are you with these previous…)

Was familiar with River Denys work

Question 9: (What are the lessons learned…)

Need to engage people at the local level with any initiative (example of FN fisherman bringing MSX infected oysters into his lease which killed 200000 oysters – assumed he would have known better.

People are overloaded with information so its important if we can develop a relevant portal with readable information on it about the Bras d'Or.

Issue: Land Use (Mining/Gravel Extraction)

Department: Nova Scotia Department of Natural Resources
Key Contact Interviewed: Brendan Mackenzie, Geologist
Date of Interview: May 30, 2007
Location of Interview: Department of Natural Resources Area Office, Coxheath, Nova Scotia

Background Info:

Provincial mineral and petroleum resources are administered by the Mineral Resources Branch of DNR under the Mineral Resources and the Petroleum Resources Acts.

The rights to most gypsum and limestone (in non-designated areas), ordinary stone, building stone, aggregate, peat, peatmoss and ordinary soil are attached to the ownership of the surface (private or crown) and are administered under other statutes.

Generally speaking all lands in Nova Scotia are open for mineral and petroleum prospecting except lands designated as National Parks, Candidate Protected Areas (Wilderness Areas), Special Places or for use by the Department of National Defense or for the purpose of Federal Penitentiaries. Exploration upon Indian Reserves requires the consent of the landowner and upon Provincial Parks and lands closed by the Department of Natural Resources, the approval of the Governor in Council. DNR must be consulted regarding any proposed exploration activity in Municipal Water Supply Watershed areas.

Question 1: (To what extent can you represent…)

Has not done a lot of work in the Bras d'Or. His main role is as "Integrated Resource Management Planning, Regional Services, Eastern Region". Other responsibilities include: abandoned mines remediation on Crown Land; minerals and energy resource management on Crown Land; and to provide geology related liaison with industry, the public and local government.

DNR's involvement in mine reclamation is through the "Mineral Development and Management" group in Halifax. (Don Jones, Director).

May also wish to contact Tom Lamb (Manager, Mineral Development and Policy (Don Jones, Director); Mineral Resources Branch).

Mineral Exploration site inspections are done by Paul McCulloch, at DNR's Stellarton office.

Question 2: (What is your general understanding…)

If mines are developed to required standards, then things should be fine; Brendan feels that mining is relatively well managed.

In the past mines were developed, operated, closed and reclaimed to the standards (Statutes, Acts, Regulations, etc.) of the day.

There are several historical (closed) limestone, marble, and gypsum operations in the Bras d'Or watershed: Irish Cove Limestone Quarry (site reclaimed); Marble Mountain Quarry (no current plans to grade the rock faces; approx 120 ft walls

are present); Big Brook Gypsum Operation (Denys Basin watershed); Ottawa Brook Gypsum Operation (MacKinnons Harbour); Iona Gypsum Operation (just north of the Village of Iona); Long Hill Gypsum Operation (northeast of Baddeck).

There is not a lot of mining activity in the Bras d'Or watershed; McLeod Resources (Red Marble Mine), Georgia Pacific (Melford Gypsum Mine & Sugar Camp Mine), and Little Narrows Gypsum (Little Narrows Gypsum/Anhydrite Mine). Sand and gravel deposits located within the watershed are developed and abandoned in response to changing demands of the construction industry.

Question 3: (Are there particular aspects…)

There are a number of exploratory shafts/pits/trenches (Abandoned Mine Openings) scattered across the watershed area. These have little environmental effects. Although most of these Abandoned Mine Openings pose little in the way of a safety risk, several have safety issues.

These safety issues are being mitigated through the "Crown Land Abandoned Mine Openings Remediation Program".

Within the Bras d'Or watershed there may be only 1 abandoned mine opening on Crown Land that requires immediate remediation. Several Abandoned Mine Openings in the Ironville area, (Crown Land) were backfilled several years ago. Exploration shafts at two other Crown Land locations will be backfilled within the near future.

Question 4: (How long has this issue …)

Some mines (such as Marble Mountain) had been developed years ago (1906-1920) to support the steel manufacturing in Sydney.

Question 5: (What are the main sources of data…)

Monitoring of current mines done by Department of Environment and Labour as part of permit requirements.

There is an abandoned mine opening database.

There is a "One Window Standing Committee" (DNR/DOEL) that meets monthly to discuss and describe issues associated with the various mines, exploratory sites and mine reclamation sites. Chaired by Tom Lamb of DNR .

Question 6: (What has your department done…)

DNR monitors abandoned mine openings on Crown Land and closes them based on risk and available funding each year (note: abandoned mine openings and former mines on private land are the responsibility of the landowner).

Some restoration activities have taken place at the Irish Cove Limestone Quarry and at Ironville.

Environmental monitoring of mines done by Department of Environment and Labour.

DNR tries to provide accurate information to the public related to potential mining.

Question 7: (What further efforts are required to address this issue…)

Need to improve public awareness and engagement about future mines before they get further developed so that concerns are addressed early rather than later.

People often have misinformation about mining related developments and therefore should provide clear and proper information including contact people to the public.

Question 8: (How familiar are you with these previous…)

Not familiar.

Question 9: (What are the lessons learned…)

Issue: Land use (Shoreline Development)

Department: Cape Breton Regional Municipality
Key Contact Interviewed: Rick McReady, Planner
Date of Interview: May 31, 2007
Location of Interview: Cape Breton Regional Municipality Civic Centre, Sydney, Nova Scotia

Background Info:

Municipalities have some control over agriculture in that they can control separation distances between manure pile and watercourses

Question 1: (To what extent can you represent…)

Has worked for the past 11 years as a Planner with CBRM and has been their only participant in Pitupaq and SCI therefore feels that he can well represent the department's perspective.

There can however be differences of opinion within Municipality on certain issues.

Question 2: (What is your general understanding…)

Shoreline development (SD) has been long expressed as a concern in the Bras d'Or

However, SD is not occurring at a rapid pace and the watershed is not becoming urbanized like larger areas in the US (ie Casco Bay)

SD is likely having impacts to the lake but there are significant gaps in the information to illustrate that current development has harmed the lakes. There is no baseline data.

We currently don't have a very convincing case for restrictive land-use planning based on available information.

However, precautionary restrictions may be a good idea in the event that there is greater development.

Question 3: (Are there particular aspects…)

Agriculture can be regulated through the Municipal Government Act

Another concern that may not be getting sufficient attention is that of intensive commercial and industrial development at a smaller scale (ie. Backyard auto body shops that turn into junkyards) if they are small, they often don't get noticed or monitored.

Question 4: (How long has this issue …)

Development has been a perceived issue for decades.

However, sometimes people are concerned about development for reasons other than the environment (i.e. viewplanes). We need to differentiate these types of concerns as not really being environmental.

Question 5: (What are the main sources of data…)

Have good building permit records linked to property identification numbers going back to 1985, therefore can map locations of development.
CBRM does not conduct any environmental monitoring, although it could
Would at least like to sample beaches.

Question 6: (What has your department done…)

Department is coordinating a Development Standards Project through CEPI to identify environmentally sound development standards that could be adopted by the various Municipal Councils around the lake.
Planning Department has agreed to participate in CEPI
Had developed a brochure on good land use practices with NSDEL and Stewardship Society that was to be handed out to people obtaining a permit.
Although there is zoning and bylaws for all of CBRM, they don't address impacts from Shoreline Development.

Question 7: (What further efforts are required to address this issue…)

Need baseline data on effects and impacts of shoreline development to justify changes in current land use planning.
Needs proper by-law that considers the effects of shoreline development; shoreline development standards is the first step in moving in this direction.
CBRM has fewer staff per capita than HRM to participate in land use bylaw change issues; don't currently have an Environmental Engineer
Will need public participation and awareness before by-law is approved and then will need to build awareness.
Any new landuse rules will require more cooperation internally (ie. Permit issuance and inspectors)

Question 8: (How familiar are you with these previous…)

Relatively familiar but not directly involved.

Question 9: (What are the lessons learned…)

Need to move toward concrete action in specific areas.
Need monitoring data on environment.
Previous exercises have largely been failures so we need to produce results and recommendations that can lead to concrete action.

Issue: Forestry

Department: Nova Scotia Department of Natural Resources
Key Contact Interviewed: Brian McSween, Forester
Date of Interview: May 30, 2007
Location of Interview: Department of Natural Resources Area Office, Coxheath, Nova Scotia

Background Info:

Stora Enso is a softwood company.

Question 1: (To what extent can you represent…)

Has worked in the local area in this field for 30 years and therefore feels he can well represent his department.

Question 2: (What is your general understanding…)

Clearcuts associated with forestry have always been a concern from a visual perspective, but actually recover quite quickly. There is a time and place for every treatment and clearcuts are no exception. Our softwood forest types are frequent natural disturbance systems and clearcutting mimics this disturbance.

As focus of the wood itself moves from exclusively softwoods to a mix with mixedwood and hardwood, there will be fewer and fewer clearcuts and more partial cutting and selection type harvests. Treatments are now planned based on the ecological land classification system so the proper method is used on each site.

The harvesting process associated with forestry has changed to limit the size of clearcuts, develop riparian buffers and provide corridors for wildlife

Every step in the forestry process has been well analysed by the Department.

There have been great improvements in how forestry work has taken place over the past 15 years in terms of road construction, culverts, erosion control, etc. by Stora's contractors and the private contractors as well.

Road construction and forwarding of wood has also been an issue in the public eye for many years. Vast improvements have been made in road building techniques and standards and floatation tired forwarders have diminished rutting to a large degree.

Question 3: (Are there particular aspects…)

Question 4: (How long has this issue …)

Forestry has been occurring in this area for the past 200 or more years.

In the 1970's and 80's, the Spruce Budworm killed all the Highlands balsam fir softwood forest and then Stora was forced to harvest all the area over a period of a few years. The budworm has been a repeat pest for many years on the Highlands repeating the attack every 30-50 years and also affects the lowlands and is due to hit again around 2008. Efforts on the Highlands are being taken to break up the age structure of the forest.

Question 5: (What are the main sources of data…)

Has GIS data on forestry info, roads, hydrology, elevations, land ownership

Has private land data and satellite images

But all data is based on the interpretation of aerial photos and there has not been as much field testing in Cape Breton as we would like. However, the data is being updated on a regular basis.

Also get harvest and silviculture treatment data from Stora Enso for each Management Unit and Stora also produces an annual completion report for all their treatments on the Crown land.

We have many datasets for wildlife, wetlands, sensitive habitats, rare plants and animals.

Question 6: (What has your department done…)

The Department's Forestry Division has developed a "Code of Practice" with broad standards which Stora as the manager of the Crown land must adopt. Stora may adopt additional standards as long as they are approved by the Department.

Department has developed an Integrated Resource Management program to analyse land uses and model various development scenarios based on public input.

As part of the Integrated Resource Management Project, the Department is also developing a "Long Range Management Framework" that will outline how various areas (Ecodistricts) should be managed using an ecosystem based planning system. This will also involve public consultation in the form of a public advisory committee. There will be one LRMF for each of the 39 Ecodistricts in Nova Scotia.

The province has negotiated an agreement with Stora which involves a payment to Stora in lieu of the Province being required to meet all of a pre-existing commitment to the company to supply 1.7 million acres for forest management (as detailed in the Nova Scotia Pulp Limited Agreement Act, a Licence Agreement between NS and Stora) Some of these Crown lands that might have been destined to be turned over to the Stora License can now be used for this purpose or for improved conservation if the Province to go that route. DNR now has increased flexibility.

Stora also develops "Work Procedures" with their contractors that ensure best management practices are followed. They have instituted a program called the "Master Logger" which is designed to instill pride in their contractor's operations and helps train them in good environmental stewardship.

Stora undertakes a "Green Audit" of 20% of the cutting jobs since the 1980's where various aspects are considered. (all of the direct forest management takes place by Stora itself with the Department providing high level guidance, plan approval and some auditing.

The Department also does inspections (10%) of harvesting and silviculture sites

Stora is also audited by ISO 14000 standards, CSA and is working toward FSC Certification.

99 % of Stora's contractors do very well in keeping with Guidelines and the regulations included in the Forests and Crown lands Act. Stora is committed to meeting or exceeding all provincial or federal regulations or standards.

Private citizens do not need to meet guidelines when cutting trees on their property if it is not part of a forestry operation, however, in forestry operations private contractors or landowners must meet the regulations as included in the Forests Act. DNR inspects some of the private operations and responds to all complaints form the public.

Enforcement staff can and do take appropriate action on both Crown and private operations that do not meet the regulations.

Question 7: (What further efforts are required to address this issue…)

Generally feels that forestry is well managed, but increased knowledge and better, more accurate forestry data is always desired.

Would like to have better information on wildlife aspects of forestry.

Increased education would be good for private landowners undertaking private cutting on their land. However, private cutting has also improved considerably since the wildlife regulations have come in.

Question 8: (How familiar are you with these previous…)

Not that familiar. I'm not sure what previous management efforts you refer to. I know what was done in years past in terms of forestry management programs on Crown land and private land, both in organized funded government programs and in historical business driven management or lack of same.

Question 9: (What are the lessons learned…)

Need public buy-in to process.

Need to better inform the public of what has been done and what is being done to improve forestry. More education.

Need to better mimic nature's way. The ecosystem approach will serve to assist this process and help to preserve and enhance biodiversity in the forest.

Issue: Forestry (First Nations)

Organization: Indian and Northern Affairs Canada
Key Contact Interviewed: Jerry Wolchuk, Environmental Protection Officer
Date of Interview: July 16, 2007
Location of Interview: Teleconference

Question 1: (To what extent can you represent…)

Has worked for the Department for the past 26 years.
Can well represent the Department with respect to forestry.
Role covers the four Atlantic provinces.

Question 2: (What is your general understanding…)

In general, there is not a lot of forestry activity within the First Nation reserves in Cape Breton and doesn't feel that forestry on the reserves is a large environmental issue affecting the Bras d'Or.

Question 3: (Are there particular aspects…)

If an illegal activity is found (cutting without a permit) INAC does not do any enforcement but calls the Band Council and RCMP on the matter.
However, the RCMP are sometimes not aware of their role in First Nation forestry issues or may be reluctant to pursue them as the fines at so low for those found in violation ($100 dollars).

Question 4: (How long has this issue …)

Question 5: (What are the main sources of data…)

Permit requests and EA's are the main sources of data collected by INAC related to on-reserve forestry.

Question 6: (What has your department done…)

INAC's role is to issue permits for individual harvesting projects.
Permits require a cutting plan with detailed maps and must be part of a reserve's 5 year Forest Management Plan
Permits will review buffers, stream crossings, erosion potential, and will attach operating conditions to them
An Environmental Assessment under the Canadian Environmental Assessment Act is required for every harvesting project.
In most cases, individuals apply for harvesting project and INAC requires a Band Council Resolution to permit individual to cut timber.
INAC tries to inspect cutting jobs a couple of times during the duration of the permit but often due to limited resources only about 40% of jobs are inspected.
However, in most cases, operating conditions are being adhered to.

Question 7: (What further efforts are required to address this issue…)

There could be some increased monitoring of harvesting projects.

Could use some better public education of the permitting requirements and process.

Could also ensure when new Councils are elected that they are aware of the permitting requirements.

Question 8: (How familiar are you with these previous…)

Not that familiar with them.

Question 9: (What are the lessons learned…)

Cannot say.

Issue: Sewage (First Nations)

Organization: Indian and Northern Affairs Canada
Key Contact Interviewed: Jerry Wolchuk, Environmental Protection Officer
Date of Interview: July 16, 2007
Location of Interview: Teleconference

Question 1: (To what extent can you represent…)

Has worked for the Department for the past 26 years.
Can best represent the Department with respect to forestry but can also provide input on sewage, and land-use issues.
Role covers the four Atlantic provinces.

Question 2: (What is your general understanding…)

Sewage would be one of the most important issues for the Band Councils.
Some systems are likely reaching their capacity as communities are growing.
INAC's role through it's Capital Program is to provide money for facilities, and their operation and maintenance.
Band members are trained to operate the central treatment systems
Is aware of problems associated with broken equipment (i.e. pumps) as well as staff turnover
Sometimes once a facility operator has received the training, they are offered better paying jobs off reserve; this leaves a period of transition when the Band is finding and training a new person where they may not be anyone qualified to operate the plants.
Band monitors the compliance of system including its discharge and reports any problems to INAC
Band formally submits reports on the system's performance to INAC's engineer (Brendon Drake) who reviews them.
INAC used to sample the effluent from systems until staff person retired and were not replaced.

Question 5: (What are the main sources of data…)

Reporting to Band from INAC engineer.

Question 6: (What has your department done…)

Has a process in place to address issue.

Question 7: (What further efforts are required to address this issue…)

Could try to address the turnover of staff at the treatment plants if positions were paid better so the newly trained operators wouldn't be inclined to take other jobs.
More resources required to upgrade treatment systems

Question 8: (How familiar are you with these previous…)

Not that familiar with them.

Question 9: (What are the lessons learned…)

Cannot say.

Issue: Land Use: Mining/Gravel Extraction, Agriculture and Shoreline Development (First Nations)

Organization: Indian and Northern Affairs Canada
Key Contact Interviewed: Jerry Wolchuk, Environmental Protection Officer
Date of Interview: July 16, 2007
Location of Interview: Teleconference

Question 1: (To what extent can you represent…)

Has worked for the Department for the past 26 years.
Can best represent the Department with respect to forestry but can also provide input on sewage, and land-use issues.
Role covers the four Atlantic provinces.

Question 2: (What is your general understanding…)

Mining/Gravel Extraction:

- There are no mines within the First Nation Communities in the Bras d'Or, although there is a large and small gravel pit within Eskasoni
- Any gravel pits require a permit issued from INAC to quantify amounts being taken, ensure that royalties from the sale of the gravel are paid back to the community, and to ensure environmental compliance with the operation as environmental conditions are attached to the permit
- Within Eskasoni, there is a very large pit that has been operated for the past 20 years without a permit. There is also a much smaller one at the edge of the community on the road. Gravel from the larger pit has been used for construction projects in the community but also outside of it.
- There are a number of environmental concerns associated with the larger pit including reclamation issues and the fact that people are illegally dumping garbage in it.
- INAC is in the process of preparing a permit for this site which will also ensure that royalties from the use of the material are paid back to the community.
- RCMP are reluctant to get involved as the fines are so low.
- There aren't any other real concerns with gravel extraction in the other CB FN communities.

Agriculture:

- There is no agriculture in the FN communities in CB.

Shoreline Development:

- Most construction work on a reserve such as roads, sewer lines, water lines, and subdivisions, would require a Land Permit from INAC.
- This would trigger an Environmental Assessment under the Canadian Environmental Assessment Act.

- The proponent prepares an EA Report through a consultant which goes to INAC for review; the public has 15 days to comment.
- Conditions including required mitigation are established for the project
- Most construction projects on reserves are relatively well done with little environmental impact; there are no known examples of projects that went really wrong.
- There is very little monitoring of construction projects done by INAC – perhaps 30 % of jobs.
- Some Bands have Environmental Officers (i.e. Eskasoni) who may inspect projects, and some don't.

Question 3: (Are there particular aspects…)

Question 4: (How long has this issue …)

Mining/Gravel Extraction: about 20 years

Question 5: (What are the main sources of data…)

Mining/Gravel Extraction:

- INAC would receive lots of phone calls about gravel being taken and royalties not being paid since there was no permit in place.
- INAC's inspector would go to gravel pit and do inspection.
- Data should normally come through the permitting process.

Shoreline Development:

- Main data would come from the permitting process, EA, inspections and reports from people like Eskasoni's Environmental Officer
- Also, Band members will often call INAC's general office to talk about concerns that they have observed.

Question 6: (What has your department done…)

Mining/Gravel Extraction:

- INAC has a permitting process in place and is developing a specific permit for the large gravel pit in Eskasoni.

Shoreline Development:

- Issue is addressed through INAC's Land Permit and EA process.

Question 7: (What further efforts are required to address this issue…)

Mining/Gravel Extraction:

- Need to complete the permit for the large gravel pit in Eskasoni
- Continue to educate public about illegal dumping of garbage into existing gravel pit.

Shoreline Development:

- Issue is seems to be relatively well addressed.

Question 8: (How familiar are you with these previous…)

Not that familiar with them.

Question 9: (What are the lessons learned…)

Cannot say.

Issue: Declining Fishery (First Nations)

Organization: The Unama'ki Institute of Natural Resources (UINR)
Key Contact Interviewed: Lisa Young, Executive Director (Interim)
Date of Interview: June 28, 2007
Location of Interview: Teleconference

Background Info:

UINR is a registered society that represents the five First Nation Bands in Cape Breton on environmental and natural resource issues.
The five Chiefs are the Board of Directors and the First Nation communities are the members.
UINR is not an agency.
The registration documents for UINR as a society contain the main description of its role which includes promoting science and research related to the environment and natural resource issues and cooperating with other groups and people that are pursuing things of mutual interest.
UINR would like to play an enforcement role for environmental issues but would need to collaborate with existing departments.
Overall, FN rights issues will need to be addressed including their role in natural resource management.
UINR tries to bring awareness to issues and better understand these issues through their scientific research programs
UINR staff make recommendations to the UINR Board (Chiefs)
There are two management zones for lobster within the Bras d'Or
UINR has been doing some research on oysters

Question 1: (To what extent can you represent…)

Has worked for the past 10 years for the Eskasoni Fish and Wildlife Commission and UINR as a biologist and manager. Has recently assumed the duties of the Executive Director of UINR.

Question 2: (What is your general understanding…)

Not many new recruits for young lobster within the lakes.
Herring populations are in bad shape and this has been known for some time. It was the work of the EFWC (based on feedback from the FN Elders) who initially raised awareness of this.

Question 3: (Are there particular aspects…)

Eels are a concern. The Elders would like fishery closed due to changes in size, location, lack of management plan, and length of time to maturity. There is a need to be proactive.

Question 4: (How long has this issue …)

At least 10 years.

Question 5: (What are the main sources of data…)

Issues are usually identified through anecdotal information from communities or members of the fishery, then the UINR raises issue with DFO or others and look for ways of addressing them.

The priorities are taken from Elders and the community.

UINR also undertakes scientific research related to fishery issues.

Question 6: (What has your department done…)

UINR is trying to be proactive and are developing its own Management Guidelines through the Aboriginal Fisheries Strategy with DFO.

These guidelines can be more stringent than for non-FN for Food, Social and Ceremonial fisheries and could be enforced by the UINR Guardians.

The UINR Guardians have recently had their status as Guardians lapse (eyes and ears role) so will need new training. This is some thing that needs to be reviewed.

Question 7: (What further efforts are required to address this issue…)

Need to re-evaluate the fishery management plans to ensure that they are adequate.

Need greater enforcement for illegal fishing activity.

Need a better understanding of species, pressures, and changes to habitat and then incorporate this information into the management plans.

Need to use the Precautionary Approach based on anecdotal information since the Scientific Approach is time consuming and expensive and we can't really do scientific work on all aspect of the environment. However, we also need to assess this anecdotal information against the motives of those providing it (for example, with herring in the lakes, the fishers with an economic motive were claiming the fishery was fine when in fact it was in trouble).

Question 8: (How familiar are you with these previous…)

Is aware of some of them

Question 9: (What are the lessons learned…)

Work within the existing legislative authorities.

Issue: Forestry (First Nations)

Organization: The Unama'ki Institute of Natural Resources (UINR)
Key Contact Interviewed: Lisa Young, Executive Director (Interim)
Date of Interview: June 28, 2007
Location of Interview: Teleconference

Background Info:

UINR is a registered society that represents the five First Nation Bands in Cape Breton on environmental and natural resource issues.

The five Chiefs are the Board of Directors and the First Nation communities are the members.

UINR is not an agency.

The registration documents for UINR as a society contain the main description of its role which includes promoting science and research related to the environment and natural resource issues and cooperating with other groups and people that are pursuing areas of mutual interest.

UINR would like to play an enforcement role for environmental issues but would need to collaborate with existing departments.

Overall, FN rights issues will need to be addressed including their role in natural resource management.

Question 1: (To what extent can you represent…)

Has worked for the past 10 years for the Eskasoni Fish and Wildlife Commission and UINR as a biologist and manager. Has recently assumed the duties of the Executive Director of UINR.

Question 2: (What is your general understanding…)

The First Nation Forestry Program is run by the Confederacy of Mainland Mi'kmaq. It is funded by Natural Resources Canada and INAC.

There has been some work in Eskasoni and Membertou all communities, ranging from silviculture treatments to boundary line refreshing to management plans.

UINR provides advice and technical input and assists with implementing management plans for forestry.

Treaty Rights discussions will lead to new ways of managing forests.

UINR has an agreement with Stora to act as a subcontractor under Stora Enso 's crown lease these area are located on crown land on Cape Breton and are conducted using the provinces' and Stora Enso management and environmental guidelines.

Question 3: (Are there particular aspects…)

FN Elders don't like monoculture sivilculture which is the dominant approach being used by Stora in managing the forests.

Other issues expressed by the FN Elders include the protection of medicinal plants, identification and protection of archaeological sites, and the identification and protection of trees of significance such as Black Ash.

UINR see the Stora Agreement as a means of including some of the issues and concerns expressed by the Elders into the forestry management practices by Stora. However these issues have not yet been incorporated into the current forestry management practices.

UINR would like comprehensive Traditional Ecological Knowledge information for all of Cape Breton (UINR's concerns associated with forestry don't necessarily relate just to the direct environmental effects (except the monoculture issue) but also to the scope of considerations in how forestry is undertaken especially with respect to FN considerations (medicinal plants, archaeology, significant trees)

Question 4: (How long has this issue …)

There have always been problems with forestry but they are working in the right direction. Such as the introduction of wildlife clumps and standardized riparian buffer zones.

Question 5: (What are the main sources of data…)

There are lots of data gaps associated with concerns such as the locations of medicinal plants.

These concerns are raised anecdotally by Elders, although there is an Elders Council which can provide a mechanism for FN Elders to raise issues.

UINR also conducts scientific research on various environmental issues.

There have also been some TEK studies which have been done but they tend to be site and issue specific. In addition, you also need to go back to participants and ask if this information can be used for other purposes from the original study.

Question 6: (What has your department done…)

Improved relationship with Stora Enso (forestry company) and the inputting into the long term management plan.

Question 7: (What further efforts are required to address this issue…)

Many of the FN rights issues are being addressed through the KMK process between the FN, Federal and Provincial governments and this will continue.

Under KMK there is a process that deals with forestry issues.

There is a staff capacity issue to deal with some broader issues

Question 8: (How familiar are you with these previous…)

Is aware of some of them

Question 9: (What are the lessons learned…)

Work within the existing legislative authorities

Issue: Marine Invasive Species (First Nations)

Organization: The Unama'ki Institute of Natural Resources (UINR)
Key Contact Interviewed: Lisa Young, Executive Director (Interim)
Date of Interview: June 28, 2007
Location of Interview: Teleconference

Background Info:

UINR is a registered society that represents the five First Nation Bands in Cape Breton on environmental and natural resource issues.

The five Chiefs are the Board of Directors and the First Nation communities are the members.

UINR is not an agency.

The registration documents for UINR as a society contain the main description of its role which includes promoting science and research related to the environment and natural resource issues and cooperating with other groups and people that are pursuing areas of mutual interest.

UINR would like to play an enforcement role for environmental issues but would need to collaborate with existing departments.

Overall, FN rights issues will need to be addressed including their role in natural resource management.

UINR tries to bring awareness to issues and better understand these issues through their scientific research programs

UINR staff make recommendations to the UINR Board (Chiefs)

Question 1: (To what extent can you represent…)

Has worked for the past 10 years for the Eskasoni Fish and Wildlife Commission and UINR as a biologist and manager. Has recently assumed the duties of the Executive Director of UINR.

Question 2: (What is your general understanding…)

There are a number of invasive species within the lakes (MSX, SSO (seaside organism), Green Crab, algae species, trout) that are all having a negative impact. There are also species that are on the doorstep of the Bras d'Or Lakes, such as Dermo and possibly tunicates; it's only a matter of time before other invasive species become established and cause problems.

Question 3: (Are there particular aspects…)

No

Question 4: (How long has this issue …)

At least 10 years, UINR's other biologists would likely have more specific details.

Question 5: (What are the main sources of data…)

For MSX, UINR have relied on government data and information from experts in the United States; since the original outbreak, UINR has been involved in much of the MSX research in the Bras d'Or Lakes.

For Green Crab, UINR has been doing its own research (hoping to have a UINR Report Series to publish reports of findings related to this and other research projects)

UINR and EFWC have participated in a number of scientific research programs to generate primary data.

Question 6: (What has your department done…)

Is currently trying to develop an MSX resistant oyster stock but are challenged with a lack of long-term funding and laboratory capacity.

Has assisted with tunicate monitoring.

Has assisted with green crab monitoring.

Some of this research is done in partnership with the Eskasoni Fish and Wildlife Commission.

Question 7: (What further efforts are required to address this issue…)

Little knowledge of the progression of MSX in the Bras d'Or Lakes, the most northern limit of the parasite; we are not sure what else we can do about MSX but perhaps need proactive prevention.

Also, public education targeted at recreational fisheries may be needed as people have brought species into the lake that shouldn’t be here.

Question 8: (How familiar are you with these previous…)

Is aware of some of them

Question 9: (What are the lessons learned…)

Work within the existing legislative authorities