STAKEHOLDER PARTICIPATION AND COMMUNICATION IN THE PLACENTIA BAY/GRAND BANKS LARGE OCEAN MANAGEMENT AREA

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by

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ABSTRACT

This research examines the nature and extent of stakeholder participation and communication in the Placentia Bay/Grand Banks Large Ocean Management Area (PB/GB LOMA) in Newfoundland and Labrador, Canada. The PB/GB LOMA is an integrated management initiative which is being implemented under Canada's *Oceans Act.* The research has shown that many stakeholders are participating in the PB/GB LOMA process as they see its potential benefits. However, progression is limited by a lack of understanding of its goals and process. The research has also shown that there is a lack of stakeholder buy-in within PB/GB LOMA, which needs to be addressed for the process to move forward successfully. This study also found that communication channels are present for communicating about coastal and ocean issues, and that the communication network is generally strong. However, this network has not often been used to communicate about the PB/GB LOMA specifically. As the process moves forward, it is particularly important that stakeholder group representatives communicate about the LOMA to their groups. It will also become increasingly important that the LOMA be brought to the attention of the public, which at this point is generally unaware of the initiative.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ACAP - Atlantic Coastal Action Program
ACOA - Atlantic Canada Opportunities Agency
ACZISC - Atlantic Coastal Zone Information Steering Committee
ASP - Association of Seafood Producers
CAPP - Canadian Association of Petroleum Producers
CAPP - Canadian Association of Prawn Producers
CBM - Community Based Management
CMA - Coastal Management Area
C-NLCOM - Canada-Newfoundland Labrador Committee on Oceans Management
COBCPC - Coast of Bays Coastal Planning Committee
CPAWS - Canadian Parks and Wilderness Society
DFA - Newfoundland and Labrador Department of Fisheries and Aquaculture
DEC - Newfoundland and Labrador Department of Environment and Conservation
DNR - Newfoundland and Labrador Department of Natural Resources
DFO - Fisheries and Oceans Canada
EC - Environment Canada
EMPASC - Eastport Marine Protected Area Steering Committee
ESSIM - Eastern Scotian Shelf Integrated Management
FISHGOVNET- Fisheries Governance Network
FFAW - Fish, Food and Allied Workers Union
GEAC - Groundfish Enterprise Allocation Council
GOSLIM - Gulf of St. Lawrence Integrated Management
HNL - Hospitality Newfoundland and Labrador
IM - Integrated Management
LOMA - Large Ocean Management Area
MAMKA - Mi'kmaq Alsumk Mowimsikik Koqoey Association
MI - Marine Institute
MPA - Marine Protected Area
MUN - Memorial University of Newfoundland
NAFO - North Atlantic Fisheries Organization
NAIA - Newfoundland Aquaculture Industry Association
NGO - Non-Government Organization
NL - Newfoundland and Labrador
OOC - One Ocean Corporation
PB/GB LOMA - Placentia Bay/Grand Banks Large Ocean Management Area
PBIMPC - Placentia Bay Integrated Management Planning Committee
PC - Parks Canada
PCON - Provincial Coastal and Ocean Network
PNCIMA - Pacific North Coast Integrated Management Area
ROCOM - Regional Oversight Committee on Oceans Management
SEA - Strategic Environmental Assessment
SFC - Shipping Federation of Canada

SNA - Social Network Analysis
SOT - School of Ocean Technology
SPAN - Seafood Producers Association of Newfoundland
TC - Transport Canada
WWF - World Wildlife Fund

LIST OF APPENDICES

1. INTRODUCTION

1.1 Research rationale

Recently, the Canadian government has increased its interest in the sustainable development and management of the nation's coastal and ocean areas. It has been recognized that oceans governance arrangements have not been designed to deal with the challenges of modern oceans management. This is because the past approach was fragmented, exceedingly complex, lacked transparency, and was focused on solving problems after they appeared (DFO 2005). The Government of Canada determined that the past approach to management has led to failing oceans health in the form of declining fish stocks; increasing numbers of species at risk and invasive species; marine habitat loss; and declining biodiversity (DFO 2005). The Government of Canada also indicated that the management approach used has led to growing oceans user conflicts and administrative, jurisdictional and regulatory complexities; lost or delayed investments; and an oceans industry sector that is not reaching its potential (DFO 2005).

In recognition of these challenges, the Government of Canada has attempted to modernize ocean and coastal management through an integrated management (IM) approach. Canada's *Oceans Act* was passed in 1996, stating that the Minister of Fisheries and Oceans shall lead and facilitate the development and implementation of plans for the Integrated Management of all activities in or affecting estuaries, coastal waters and marine waters of Canada (Government of Canada 1996).

The IM approach seeks to be a continuous and dynamic process by which decisions are made for the sustainable use, development and protection of coastal and marine areas and resources. It is designed to overcome the fragmentation inherent in single-sector management approaches, in the jurisdictional splits among different levels of government, and in the land-water interface (Cicin-Sain & Knecht 1998). One of the central principles of IM is that it brings together stakeholder groups with varying backgrounds as it attempts to develop common objectives and strategies to avoid or minimize conflict. This is quite different from fragmented oceans management approach that Canada has used in the past.

Participation is imperative in the IM process because stakeholders are expected to help shape its course. Kearney *et al.* (2007) propose that more participatory governance can be carried out by inviting citizens to participate in deep and sustained decision making, so that people affected by problems can attempt to outline tangible problems and practical solutions. Participation in IM initiatives can help to build relationships and create an atmosphere where stakeholder groups can voice their concerns and work together to reach common solutions. In Canada, IM arrangements incorporate stakeholder participation by including them in planning committees that are often facilitated by Fisheries and Oceans Canada (DFO).

The IM process cannot work without effective communication between stakeholder groups involved. Often, the creation of a continual, open and effective means of communication and the fostering of a cooperative attitude among stakeholders serve as necessary conditions for IM initiatives to work (DFO 2008a, DFO 2008b). Treby and

Clark (2004) propose that the exchange of ideas between those with different cultural values, viewpoints and knowledge is a core purpose of participation. Tobey and Volk (2002) suggest that participation ensures that existing local knowledge and experience is integrated into the planning and management process. In addition, Crona and Bodin (2006) argue that the exchange of information and knowledge among stakeholder groups emerge as fundamental elements in the successful management of natural resources.

It is important to gain an understanding of how effective communication functions, or does not function, in specific IM initiatives. Bellamy *et al.* (1999) propose that measuring the effectiveness of communication networks should be a routine part of any IM initiative, particularly in the early stages. Yet a communication assessment is often not developed as people assume that communication will take place naturally (Ramirez & Quarry 2004). Developing an understanding of stakeholder group communication can help promote mutual understanding and facilitate effective participation. If this understanding is not reached, then it is impossible to know if any information is reaching individuals involved in each sector and the public, or if there are channels for those individuals to provide input back into the IM process and thus, if ideals of participation are achieved.

Although IM in Canada does not provide stakeholder groups with regulatory power, it does present stakeholders with an opportunity to define a vision and conservation and development goals for a particular area and its resources. These visions and goals can then be communicated to government bodies on behalf of all groups involved. The building of relationships and trust through dialogue and interaction

underpins IM and can lead to the understanding of principles and values among stakeholders.

1.2 Research aim, questions and objectives

This research aims to describe how communication and participation operate in an IM initiative, and examine the role that communication and participation play in coastal and ocean governance. This will be done by studying the Placentia Bay/Grand Banks Large Ocean Management Area (PB/GB LOMA) in Newfoundland and Labrador (NL), Canada, one of the five priority LOMAs identified by the Canadian Government for piloting IM. As defined in the *Policy and operational framework for integrated management of estuarine, coastal and marine environments in Canada* (2002), within each LOMA, open and collaborative oceans governance and management arrangements are to be established amongst stakeholder groups. DFO chairs a planning committee within the PB/GB LOMA, comprised of individuals who represent 26 stakeholder groups.

The Committee has developed twelve guiding principles for its operation (Appendix A), one of which recognizes the importance of communication in the IM process. This principle is called "information sharing and exchange", facilitated through public outreach, intra-sectoral and inter-sectoral communication. Each aspect of this principle will be explored through this research. Information sharing and exchange facilitates another of the twelve guiding principles, which is collaboration. This principle recognizes the importance of participation and the contribution of all parties in the PB/GB LOMA, as the Committee is meant to facilitate working together through an open

and inclusive planning process (DFO 2008c). The LOMA process began in 2005 and is still in the formative stage, and because it is an ongoing process, findings from this research could contribute to its improvement and further implementation. This research aimed to answer three related questions:

1) What is the nature and extent of participation by stakeholder groups in the PB/GB LOMA initiative?
2) What is the nature and extent of communication of coastal and ocean issues (including the PB/GB LOMA itself) between stakeholder groups involved in the process, between members of each group, and between stakeholder groups and the general public in the PB/GB LOMA?
3) How do stakeholder participation and communication impact upon IM and governance of the PB/GB LOMA?

These questions were answered through carrying out research with eight specific objectives:

1) To assess the level of participation by stakeholder groups in the initiative, as well as perceived benefits of participation and limitations on participation
2) To identify the opportunities for interventions that could be used to improve or facilitate participation,
3) To determine whether PB/GB LOMA stakeholder group representatives/alternates communicate about coastal and ocean issues (including the PB/GB LOMA) with group members, other stakeholder groups and the public;

4) To characterize the nature of the PB/GB LOMA communication network, including the relative importance of stakeholder groups;
5) To examine the methods, frequency and content of communication within the network;
6) To explore some of the factors that can influence communication, including the importance of communication, and communication strategies and limitations;
7) To identify opportunities for interventions that could improve or facilitate communication; and
8) To examine how participation and communication can improve or facilitate integrated oceans management and governance.

1.3 Thesis organization

This thesis is organized into seven chapters. Chapter two provides a review of pertinent literature that deals with the main topics of this research: governance, IM, public participation and communication. It provides additional detail on the interactive governance theoretical framework and the IM approach. Public participation is introduced through a discussion of how to identify stakeholders, as well as the typologies of participation under which IM can operate. Communication in the context of participation and coastal and ocean management is also reviewed.

Chapter three presents a description of the study area. The chapter first presents the location and the bio-physical characteristics and resources of the area. The location, population distribution, employment and income of the study area are also described. The chapter also explores the multiple demands that are placed on the area, by examining the

industries and uses of the PB/GB LOMA, which justifies why IM is necessary in the region. The chapter provides a review of the PB/GB LOMA initiative, describing its legislative basis and process.

Chapter four describes the methods used to carry out this research. A mixed method approach was used, combining qualitative and quantitative methods. The quantitative method draws upon social network analysis method, and the chapter includes a detailed discussion about definitions and techniques of this method. The primary data collection process is described, providing an understanding of how the interview was designed and administered. The chapter also describes how the quantitative and qualitative research data was entered and analyzed.

Chapter five presents the results of this research, focusing on participation and communication. The chapter first discusses stakeholder group participation in the initiative, including participation levels and the benefits of participating, as described by the stakeholder group representatives. The limitations on participation in the initiative are presented, along with stakeholder groups who were identified as being excluded from participating in the initiative. The chapter then provides an account of the PB/GB LOMA communication network, including communication within the network related to coastal and ocean issues, as well as communication about the PB/GB LOMA itself. This is completed by examining communication among groups involved in the PB/GB LOMA, and between groups and the public. Factors that influence the communication network are also discussed, including importance placed on communication, communication strategies and limitations, and additional communication arrangements.

Chapter six discusses the research findings. It explores the implications for the communication network and offers recommendations to improve communication. The implications of the research for participation, integrated management, and interactive governance are also explored. This exploration includes recommendations on how to improve participation and communication in the PB/GB LOMA.

Chapter seven concludes this thesis by summarizing and presenting how the research objectives have been addressed. The theoretical contributions of this research are also discussed, by relating the research approach and findings to the interactive governance theory. Future research through academia or government that builds on this research is also identified or proposed.

2. LITERATURE REVIEW

2.1 Coastal and ocean governance

Governance lacks a generally accepted definition, and a definition is often not provided by authors. However, Kooiman *et al.* (2005; p. 17) defines governance as:

> The whole of interactions taken to solve societal problems and to create societal opportunities; including the formulation and application of principles guiding those interactions and care for institutions that enable and control them.

Governance is not the same as management. Governance considers longer term trends and requirements with regard to natural resources, and it is based on an assessment of institutions and discussion of the values to be attained; whereas management grapples with the practical dimensions of its implementation (Kooiman *et al.* 2005).

Jentoft and Chuenpagdee (2009) argue that recent interpretations of the word 'governance' refer to the shared, collective effort of government, private business, civic organizations, communities, political parties, universities, the media and the general public. Governance can operate along the spectrum from top-down to bottom-up, but the new conceptualization of the term indicates a tendency toward co- or self-governance and resistance of top-down government only. This reflects the idea that governments are not the only actors that address societal problems and opportunities, as people in various roles and circumstances participate in the governance process.

Some discuss governance as a shift in the policy making process, involving a partial transfer of responsibility and authority for policy decisions from the central agencies of government to networks of public and private bodies at national, regional and

local levels (Symes 2006). It is not necessary, however, for governance to involve a level of decentralization and/or devolution of power. Symes (2006) proposes that there is broad agreement over three basic models of governance: 1) the state centred and top-down mode of hierarchical governance; 2) self-governance from the bottom up that involves privatization, deregulation and transferring responsibility to individuals and organizations; and 3) participative or co-governance based on partnership between the state, user groups and elements of civil society. There are varying degrees and overlap of each of these models.

Numerous authors note the difficulty in the governance of coastal and ocean resources and space, including specific resources such as fisheries. (Costanza *et al.* 1998; Kearney *et al.* 2007). Jentoft and Chuenpagdee (2009) describe problems of the ocean and coast as 'wicked' because they are difficult to define and delineate from separate and larger problems. The so-called wicked problems also tend to re-appear as opposed to being solved once and for all. The most common problems facing ocean and coastal areas have been summarized by Antunes and Santos (1999) as overfishing; contamination from land-based activities; dumping at sea; oil spills and disposal; destruction of coastal ecosystems; changes in coastal dynamics caused by development; and climate change. These challenges, among others, are 'wicked' problems that require the collective effort of all sectors of society to address them as issues of governance.

Various governance approaches have been applied to coastal and ocean systems to attempt to deal with the multiple challenges that they face. These include adaptive governance (Olsson *et al.* 2006; Hatfield-Dodds *et al.* 2007), participatory governance

(Kearney *et al.* 2007), collaborative governance (Ansell & Gash 2007; Vodden 2008), network governance (Reinicke & Deng 2000) and interactive governance.

The theoretical framework that will be used for this research is interactive governance. Within the interactive governance framework, Chuenpagdee *et al.* (2008) propose that processes such as IM can be fostered through stimulating communication among actors and creating common responsibilities for individuals and society. The interactive governance model has many similar views as the other forms of governance mentioned above, and many of the approaches could be encompassed within interactive governance theory; as participative, collaborative and knowledge flows through networks are all forms of interaction. Interactive governance has developed out of Kooiman's concept of governance (Kooiman 1993, Kooiman 2003). This was further explored through interdisciplinary collaboration of the Fisheries Governance Network (FISHGOVNET), which is composed of academics and practitioners from around the world. The theory has been used to explain outcomes in fisheries, aquaculture and coastal issues by numerous authors (for example Jentoft 2007; Bavinck & Salagrama 2008; Chuenpagdee *et al.* 2008; Mahon 2008; Song & Chuenpagdee 2010).

Kooiman and others (2005) suggest that the key word distinguishing this approach from others is 'interaction', which refers to interactions between public and private actors or between state, market and civil society. They further argue that through various kinds of interactions, governance can be more proactive than adaptive or reactive, enabling the redirecting of human and financial resources to preventive programs. Interactive governance is similar to adaptive governance, in that it recognizes the

interconnectivity between society and the environment and incorporates learning and understanding of the dynamic nature of the systems. However, it acknowledges that other types of governing interactions take place along with adaptation, and they all form the foundation of the interactive governance model.

Interactive governance recognizes the inherent qualities of the natural, social and governing systems, including diversity, complexity, dynamics and scale (Chuenpagdee & Jentoft 2009). Diversity refers to the heterogeneity and variability of system elements; complexity is related to the linkages, relationships, and interdependencies among the various components of the system; dynamics refers to interactions that take place over time, either linearly or non-linearly, and whether predictable or unpredictable; and scale refers to either the spatial or temporal scale of the use of coastal areas and resources and their related concerns (Jentoft 2007; Chuenpagdee *et al.* 2008).

The interactive governance approach distinguishes governing activities into three orders. The first order of governance refers to problem solving and undertaking of day to day management, in other words what governors generally do. This order takes place wherever people and their organizations interact to solve societal problems and create opportunities. The second order of governance takes care of the maintenance and design of institutions that are necessary to solve problems and create other institutions. It provides the guiding rules, or the way things are done, and develops the capacity to undertake first order governance. The third order, or meta-governance as it is referred to, articulates the main normative principles and values. These then guide the behaviour of the other orders of governance (Bavinck *et al.* 2005).

Interactive governance contends that principles and values are the foundation for governance, and these need to be articulated for the successful creation of a vision for coastal and ocean space and resources. It also recognizes that dialogue is needed to help all stakeholders to understand and adopt the principles that will guide their governance system (Bavinck *et al.* 2005). Jentoft (2007) proposes that the social construction of reality is based upon images, metaphors, assumptions, visions or generalizations. These 'images', as they are known in the interactive governance literature, are created out of the values and principles that are held. They then become the norm and an outline for social action, allowing us to see certain aspects of social phenomenon and ignore others.

Jentoft and others (2010) suggest that the definition, formation and implications of images should not be taken lightly, but be pursued as inherent to the governance process. The authors also propose that when managers and stakeholders who participate in the governing process are required to make their images explicit, they are obliged to clarify for themselves and others the philosophical, ethical and conceptual foundations of the goals they are proposing. Jentoft (2007) also suggests that images are something that people can come to share through communicative interaction, something that allows them to unite, be empathetic towards one another and to co-operate. Shared visions and the ability to experiment with alternative images will to a great extent determine ability to change, improve and innovate. Interactive governance was chosen for this research because of its recognition of the importance of 'meta-governance' principles, and its acknowledgement that an understanding of these principles is needed to explain the governance of coastal and ocean areas.

2.2 Integrated Management

IM is a governance instrument, as it is a tool that is used to help govern coastal and ocean space. Governance instruments make up the first and second orders of governance discussed above, which include problem solving and undertaking of day to day management, as well as the institutions that are necessary to solve problems and create other institutions. Some other instruments include co-management (Singleton 1998; Pinkerton 2003), adaptive management (Pomeroy 2007; Armitage 2007), and community-based management (Sen and Nielsen 1996).

2.2.1 Definition

Numerous approaches produce individual yet quite similar definitions, theories and practices of IM. An examination of literature on the concept reveals titles such as coastal zone management (Clark 1996; Beatley *et al.* 2002), water resources and coastal management (Turner & Bateman 2001), integrated coastal zone management (Salomons *et al.* 1999), integrated coastal area management (Food and Agriculture Organization 1998, United Nations Industrial Development Organization 2001), integrated coastal and ocean management (Cicin-Sain & Knecht 1998), integrated coastal zone development (Visser 2004), integrated coastal management (Olsen 2003) and simply integrated management (DFO 2002a,b). They all refer to one general process that promotes informed decision making about the sustainable use of coastal and marine space and resources.

Coastal and ocean management began as a policy instrument for government intervention, while at the same time it was also developing as a subject of research. The emergence of national coastal management programs globally in the 1980s and 1990s has been facilitated by a vast network of intergovernmental and non-governmental organizations, and individual ocean research and policy institutes (Nichols 1999). The many titles given to coastal management reflect that different schools of thought have developed. While most names given to the concept suggest quite similar practices, the addition of the word 'integrated' has given it a new meaning. Almost any contemporary reference to coastal management contains integrated in the title, referring to important dimensions of integration: intersectoral, interdisciplinary, intergovernmental, spatial (between land and ocean), science-management, and international (Cicin-Sain & Knecht 1998). These dimensions may not be explicitly referred to in other forms of coastal management. However, placing 'integrated' in the title explicitly acknowledges that integration should play a role in coastal management practices.

Cicin-Sain and Knecht (1998; p. 39) have developed a definition of Integrated Coastal and Ocean Management (ICOM) that has gained much acceptance among practitioners and academics, proposing that ICOM be defined as:

> a continuous and dynamic process by which decisions are made for the sustainable use, development, and protection of coastal and marine areas and resources. First and foremost, the process is designed to overcome the fragmentation inherent in both the sectoral management approach and the splits in jurisdiction among levels of government at the land-water interface.

This is completed by seeking to ensure that the decisions of all sectors and all levels of government are harmonized and consistent with the coastal policies of the nation in

question. Within this research, the concept of coastal and ocean management is discussed simply as IM. This aligns with how IM is referred to in the management context of DFO, which is the lead department of the PB/GB LOMA initiative. The Government of Canada (DFO 2005; p.13) defines IM as:

> a comprehensive way of planning and managing human activities so that they do not conflict with one another and so all factors are considered for the conservation and sustainable use of marine resources and shared uses of ocean spaces. This strategy is founded on collaboration with all interest groups, based on sound science and ecosystem-based management.

The Government of Canada definition aligns in many ways with the widely accepted definition proposed by Cicin-Sain and Knecht (1998).

2.2.2 Canadian initiatives

Canada adopted IM with the passing of the *Oceans Act* in 1996, which made Canada the first country to have comprehensive oceans management legislation. The *Oceans Act* mandates the Minister of Fisheries and Oceans Canada to lead the development of a national oceans management strategy, guided by the principles of sustainable development, the precautionary approach and IM. It specifically states that:

> The Minister, in collaboration with other ministers, boards and agencies of the Government of Canada, with provincial and territorial governments and with affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements, shall lead and facilitate the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters that form part of Canada or in which Canada has sovereign rights under international law (Government of Canada 1996; section 29; p. 14).

Within Canada, IM seeks to provide overall coordination of governmental policies, regulatory approaches and management actions. It respects existing regulatory authorities to implement IM policies and actions in their respective jurisdictions. Government departments are expected to support the implementation of IM through their existing legislative and regulatory mechanisms.

The *Oceans Act* was followed by the release of *Canada's Oceans Strategy* in 2002, which outlined a policy framework meant to reaffirm Canada's commitment to the principles of sustainable development, integrated management and the precautionary approach (DFO 2002a). Accompanying the strategy was a more operational document called the *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada* (DFO 2002b). The governance model proposed within this document is collaborative, as it describes management and planning for sustainable development as being based on collaborative processes involving IM bodies. An IM body is composed of both governmental and non-governmental representatives with interests in a prescribed ocean space, and committed to the IM process. These IM bodies are meant to "help balance coastal and ocean uses in a manner that maximizes protection, maintains conservation efforts and rehabilitates marine ecosystems and their resources while providing opportunities for social, cultural and economic benefits" (DFO 2002b; p.11).

The operational framework called for the creation of Large Ocean Management Areas (LOMAs), each of which would cover a large portion of one of Canada's three oceans or coastal zones, typically extending from the coast out to Canada's EEZ. More

LOMAs may be developed to eventually include all of Canada's marine, coastal and estuarine waters. The LOMAs are expected to have their own steering/planning committees, led by DFO and comprised of representatives from various stakeholder groups. They are also expected to use an ecosystem based approach, which shifts away from sector or activity specific management by working to better understand marine ecosystems as dynamic entities, and to address cumulative impacts (DFO 2002b).

In addition to LOMAs, IM is also implemented through Coastal Management Areas (CMAs), which are at a smaller scale than LOMAs. Both CMAs and LOMAs first appeared in DFO literature within the *Policy and Operational Framework* (2002b). This document states that within CMAs, the LOMA level guidance is expected to be reflected and interpreted into more localized management directions. However, CMAs were developed before LOMAs in NL, and this will be discussed further in Section 2.2.4. The CMAs also have their own steering/planning committees, who should be in contact with the relevant LOMA committees as required. The ecosystem based management objectives identified at the LOMA scale are to be reflected in marine environmental quality objectives and guidelines for the CMAs (DFO 2002b).

Canada's *Oceans Action Plan* (2005) was then developed to modernize Canada's approach to oceans governance. The action plan is based on four interconnected pillars: international leadership, sovereignty and security; integrated oceans management for sustainable development; health of the oceans; and ocean science and technology. The action plan commits to implement the *Oceans Act* by working together among governments, bringing sectors and citizens together using more open and transparent

management and advisory bodies; pursuing ecosystem-based approaches; basing decisions on strong scientific advice; and applying conservation and protection measures in the marine environment. Five priority LOMAs were identified in the *Oceans Action Plan*: Placentia Bay and the Grand Banks, the Scotian Shelf, the Gulf of St. Lawrence, the Beaufort Sea, and the Pacific North Coast . All of these LOMAs are at different stages of development.

While Canada has previously demonstrated oceans leadership on the international stage, progress since the passage of the *Oceans Act* in 1997 has been modest and slow according to authors such as Jessen (2010), Guénette and Alder (2007), and Ricketts and Harrison (2007). It seems that Canada was once at the forefront of oceans policy in the world, but has struggled to implement these policies and has, therefore, fallen behind other countries. The *Oceans Act* has provided an important foundation for management of Canada's oceans; however, implementation has been gradual, and only limited progress and few results have been achieved (Jessen 2010). Challenges in implementing IM stem from various causes, including multiple levels of government perspectives on resource management, responsibilities spread over multiple departments and agencies, multiple stakeholder interests, ineffective governance arrangements for implementation of the *Oceans Act,* lack of requirements for other federal departments to comply with or implement the *Oceans Act,* and inadequate funding and leadership (Jessen 2010; Ricketts and Harrison 2007).

2.2.3 Newfoundland and Labrador initiatives

In NL, the process for designating CMAs actually began earlier than the process for designating LOMAs. Shortly after the *Oceans Act* was released, DFO's Regional Office in NL began looking into establishing CMAs in the province. In 2000, a joint federal-provincial working group was established for the development of IM in Placentia Bay. It was felt that it would be best to start at a smaller scale, where tangible short term deliverables would be more manageable. It was decided that once they could show that IM could work through the CMAs, then they would begin work on establishing LOMAs (D. Mercer, personal communication). Thus, the process of establishing LOMAs in the province did not begin until later.

There are two CMAs within the PB/GB LOMA. One of them is located in Placentia Bay, and it is led by an Integrated Management Planning Committee (PBIMPC). A committee was established in March 2005 to provide leadership at the local scale. When the PB/GB LOMA initiative began, it was also felt that the PBIMPC should link in with it, as most problems, opportunities and impacts in the oceans start or are felt in coastal communities (DFO 2008a). Marine traffic and shipping have been identified as increasing activities within the LOMA and are of particular importance in the Placentia Bay region (DFO 2008a). The PBIMPC has developed and is now implementing an IM Plan as well as a Communications Plan.

The other CMA located in the PB/GB LOMA is in the Coast of Bays, which is led by a Coastal Planning Committee. This committee formed in 2005, and with strong involvement from its local regional economic development board, it aims to represent

those with interests in the coastal and ocean resources and space in that area. It is also recognized that the CMA should feed into the PB/GB LOMA process. The aquaculture industry has been identified as a significant and expanding activity within this CMA and also the LOMA (DFO 2008b). The Coast of Bays CMA has also developed an IM Plan, as well as a Communications Plan, which are now being implemented.

2.3 Public participation

The above descriptions of governance and IM emphasize the importance of participation of the public and specific stakeholders in the planning process for the governance of marine resources and space. The concept of public participation is presented in the following sections, which will outline how stakeholders can be identified, particularly in resource management scenarios, as well as typologies of public participation and how it occurs in the management and governance of the coasts and oceans.

2.3.1 Stakeholder identification

Stakeholder analysis is a very broad and complex field, and will not be reviewed fully in this thesis. This examination will focus on the work of Mitchell *et al.* (1997), toward defining the term 'stakeholder', identifying classes of stakeholders, and understanding stakeholder salience. The work of these authors has been used in studying stakeholder involvement in coastal zone management by Buanes *et al.* (2004) and Mikalsen and Jentoft (2001), which will also be discussed.

Mitchell and others (1997) provide a much needed typology of stakeholders, which has become an influential work. The authors suggest that to better understand who and what really counts in the examination of stakeholder involvement, relationships need to be evaluated systematically in terms of power, legitimacy and/or urgency. The way in which these attributes are manifested in an individual or group contribute to their salience as stakeholders; salience being the degree to which managers give priority to competing stakeholder claims. Through the analysis of various combinations of power, legitimacy and/or urgency, the authors have developed stakeholder classes (Figure 2.1).

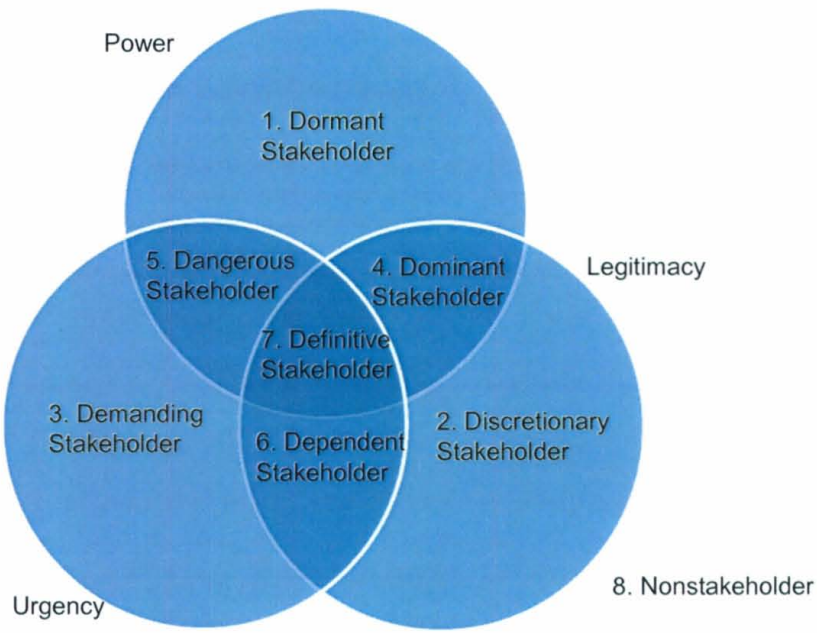

Figure 2.1: Stakeholder typology (adapted from Mitchell *et al.* 1997).

There are seven forms of stakeholders, as shown in Figure 2.1, each having one, two or three attributes present. The low salience classes (areas 1, 2 and 3) are termed latent stakeholders because they only have one attribute. These stakeholders may be

passed over by managers due to limited time, energy and other resources. The moderately salient stakeholders (areas 4, 5 and 6) are identified by their possession of two of the attributes, and are called expectant stakeholders. They expect something from managers because they have a more active relationship with the organization/institution. The combination of all three attributes defines highly salient groups, which are called definitive stakeholders. These are the individuals and groups that must be attended to. For example, a stakeholder exhibiting both power and legitimacy already will be a member of an organization's dominant coalition. When that stakeholder also has an urgent claim, managers have a clear and immediate mandate to attend to them.

Buanes *et al.* (2004) applied this stakeholder theory to coastal zone planning in their exploratory study of the coastal zone planning process in 27 Norwegian municipalities. The authors examine the concepts of power, legitimacy and urgency in this context, to explore how democratic and legitimate the planning process is. Within the study, the authors asked municipal authorities who the stakeholders in their coastal planning area were, and how they would score in definitive, expectant and latent stakeholder terms.

A list of stakeholder groups was compiled and ranked. Those in the top third were considered definitive stakeholders, which were predominantly regional state agencies. Definitive stakeholders also included important sections of marine industries, including fishers and outdoor/recreational outdoor organizations. The authors propose that this indicates that the use of coastal waters and resources has developed into an activity cluster that is awarded considerable attention by a number of institutions. The latent

stakeholder category was dominated by public groups such as farmers and environmental organizations. This study is a good example of how stakeholder theory can be applied to coastal management practices to see which stakeholder groups are considered to be important to the process and why.

Mikalsen and Jentoft (2001) also applied this stakeholder theory specifically to fisheries management in Norway. The authors argue that the stakeholders included in the research are also present in most other countries with regard to fisheries. However, their salience through their ranking and score will differ depending on the area. The type of fishery can also impact upon the salience of the different groups, with inshore fisheries having increased numbers of stakeholders and salience as compared to those offshore. This example is also a good illustration of how stakeholder theory can be applied to fisheries research.

2.3.2 Typology of public participation

Once it has been decided that a stakeholder group should and will participate in an initiative, various levels of participation can occur. In her classic work, Arnstein (1969) developed eight levels of public participation in her ladder of citizen participation. The ladder shows that participation ranges from manipulation at the bottom, to consultation and placation in the middle, to citizen control at the top. The author argues that citizens do not reach actual power until one of the top three rungs is attained: partnership, delegated power or citizen power.

Pretty (1995) modified Arnstein's ladder to more explicitly reflect the concerns of resource sustainability in a development context. The author creates a typology of seven forms of participation in development programs and projects, and proposes that the top two forms of participation (interactive and self-mobilization), recognize it as a right, not just the means to achieving project goals. An additional aspect that Pretty adds that was not suggested in Arnstein's 1969 work is that citizens can participate for material incentives such as food or cash.

Silver and Campbell (2005) propose that these conceptualizations have a sense of progression that depict participation at the bottom of the ladder (or typology) as being inferior to participation at the top. The authors argue that the assumption that certain types of participation are always superior to others has recently been challenged, and that non-participation or peripheral participation may be valid and legitimate choices in some instances. They also suggest that the demands placed on participants can sometimes involve limited payoffs, so high participation levels may not be necessary in all cases.

Treby (1999) developed a wheel model of participation specifically for coastal management, which recognizes that participation is not linear, envisioning participation options as non-hierarchical by reason of their circular rather than linear form. The wheel model is flexible in its ability to bring new options into focus at different stages in the participation process, and draws on several of the categories suggested by Arnstein (Treby & Clark 2004). The model also recognizes that priorities will change through time, making it possible to move around the wheel to reflect these changes.

The public may be involved in policy in a number of ways or at a number of levels. Rowe and Frewer (2000) differentiate levels based on the features of communication. They suggest that the lowest level might involve communication between scientists or regulators and the public, while higher levels may seek some degree of public input, through the solicitation of public opinion or the active participation of public representatives in the decision making process. The authors argue that the lowest level involves top-down communication and a one-way flow of information, while the highest level is characterized by dialogue and two-way information exchange. This research suggests that communication is therefore a critical aspect of public participation.

2.4 Communication

Communication has been identified as an important factor in the successful implementation of coastal and ocean management practices, including public participation. The review that follows is based on literature that focuses on communication in the context of management or governance of coastal and ocean resources and space. A reasonable level of mutual understanding of resource status increases the likelihood that stakeholders will organize and agree upon common rules for managing a resource. Also, the exchange of information and knowledge among stakeholder groups emerge as fundamental elements in the successful management of natural resources (Crona & Bodin 2006). By creating structures to foster communication, diverse participants bring more information and more points of view to bear. Communication structures can also help integrate existing local knowledge and

experience into the planning and management process, producing better policy targeting (Tobey & Volk 2002).

The path to sustainability through participation is reliant on communication, and the exchange of ideas between those with different cultural values, viewpoints and knowledge is a core purpose of participation (Treby & Clark 2004). In order to make an informed judgment, people need to appreciate how others see a problem and how they would be affected by various responses to it. The authors conclude that consensus building is faced with the challenge of dealing with voices of multiple groups, which requires careful handling in the practical tasks of communication and decision making.

Measuring the effectiveness of communication networks should be a routine part of any IM initiative, particularly in the early stages (Bellamy *et al.* 1999). An effective overall system of communication across all stakeholder groups should be designed to facilitate significant outcomes including mutual benefits (such as information exchange and a better understanding of issues) and mutual influence or changed outlook (such as the acknowledgement and increased awareness of problems, sharing of ideas, and increased awareness) (Bellamy *et al.* 1999).

In relation to fisheries co-management, Soreng (2006) refers to the work of Habermas (1990), who proposes that communication and interaction are important aspects in maintaining integrated communities. By this he is referring to the maintenance of social networks regulated by norms, institutions, and conventions, and to develop and pass on insight and knowledge. Communication and interaction are essential for making fair regulations and maintaining integrated social communities in the context of fisheries

co-management. Soreng (2006) also writes that a communicative design in fisheries management is necessary, as this type of design allows the argumentative process to legitimate decisions. A communicative design is said to arrange for deliberative arenas that encourage communication, free speech, and interactive learning, thus enabling moral discourses.

Communication networks have been explored in relation to coastal and ocean resources and space, either through qualitative analysis (Conway *et al.* 2002; Taussik & Inder 2002) or through a combination of qualitative analysis and quantitative social network analysis (SNA) (McDonough *et al.* 1987; King 2000; Crona & Bodin 2006; Bodin & Crona 2008; Ramirez-Sanchez & Pinkerton 2009; Hartley 2010; Marin & Berkes 2010). The following paragraphs will focus on research that studies communication in coastal and ocean management using SNA, as this is a major focus of this research. Communication network analysis is a sub-field of SNA, that focuses on the characteristics of specific communication pathways and the patterns of information flow and connections the communication produces (Hartley 2010).

In the study of coastal and ocean issues, the interactions studied through SNA tend to be communication or information flow. Social networks are increasingly cited as instrumental in enabling communities to adaptively respond to environmental change and to initiate and sustain successful co-management of natural resources. However, the precise mechanisms by which this happens are rarely discussed (Crona & Bodin 2006).

The structural characteristics of the social network of individuals and groups in a community influence the potential for successful natural resource management by its

profound effects on the diffusion of information and knowledge (Crona and Bodin 2006). Crona and Bodin (2006) mapped the social network used for communication of knowledge and information related to natural resources among different professionals and resource extractors operating in a coastal seascape in Kenya. Their results demonstrate that structures of networks are important for identifying central and potentially influential actors. Their results also indicate that incentives and attributes, enabling these actors to emerge as leaders and coordinate and instigate collective action, are essential for successful co-management.

Institutions are not the only way people organize activities in their daily lives, and other networks (such as transient networks), are often mobilized to provide information, financial support and practical help (King 2000). King (2000) studied a fishing area in Kenya, by performing SNA on the communication network of three resource access and control problems that residents faced. The author argues that an understanding of less structured processes may benefit natural resource management policies, and would help to explain why local people may be reluctant to participate in collective projects, preferring to work in loose networks. The results show that formal institutions were actually maintaining the status quo and not helping to resolve problems. Problems were finally resolved because a number of new actors became important, who did not represent institutions designed to tackle natural resource access or control problems.

Hartley (2010) also conducted a SNA of two fisheries management initiatives. The author constructed, measured and compared communication network maps on fisheries management examples from the Gulf of Maine, while quantitative measures of

network structure and function were also performed. The findings validated existing understanding of fisheries management as contested and competitive among stakeholders. The results also provided insights about the effectiveness of information sharing across the network and the critical role of individuals and groups who connect disparate subgroups.

Ramirez-Sanchez and Pinkerton (2009) utilize SNA to examine the effect of resource scarcity on the social-capital patterns of fishers' information-sharing networks in seven Mexican coastal communities. This was undertaken under the assumption that fishers often rely on their social capital to cope with resource fluctuations by sharing information on the abundance and location of fish. The authors undertook this study under the lenses of social capital and resilience theories, and utilized the results to conclude that the livelihoods of fishers from the area have adaptive capacity for dealing with fish fluctuations, but little or no proactive resilience to address resource-management issues. The authors also found that: fishers' information sharing is activated in response to varying ecological conditions, resource scarcity is not a clear indicator of the extent to which fishers share information, information sharing is based on trust and occurs through social relations, friendship ties play a key and flexible role in social networks, and the composition of fishers' social networks follows a friendship then kinship then acquaintance order of importance.

Mahon and others (2010) utilized SNA to analyze relationships among stakeholder organizations such as government agencies, non-government organizations, schools and businesses as part of the Sustainable Grenadines Project. One of the focuses

of this project was to facilitate networking and the formation of partnerships among key groups within the Grenadines. The study sought to determine: the types of communication as well as their importance, frequency and methods; barriers to communication; strategies for communication; the degree of inter-island communication; key entities and their roles; and opportunities for interventions that could improve or facilitate network function. The study indicated that the communication systems and tools being used were not adequate for effective connectivity within and between the islands.

Although SNA is very useful for the study of communication networks, researchers have used other methods to analyze communication in coastal and ocean management and governance. These methods often focus more on qualitative than quantitative information. McCreddin *et al.* (1999) carried out a study to measure and evaluate communication between significant stakeholders of an IM area in Queensland, Australia. The researchers asked stakeholders questions about their involvement with IM and how often they had communicated with categories of contacts. They were also asked with whom specifically they had communicated. Following this, the interview measured various aspects of communication such as frequency, topics, outcomes, satisfaction, etc. Ways of improving communication on ICM were suggested, such as seminars, workshops and field days; media coverage to sell IM; and more communication with government departments.

Conway and others (2002) focused on communication in the coastal and ocean zone by examining changes in communication and roles among fishing families, communities, and fisheries management in Oregon. The authors explore the challenges or

barriers in communicating, and how they are different within and between these three levels. It is in-depth community based research that consisted of interviews, focus groups and participating in an educational outreach project. This study outlines communication challenges on multiple levels, while describing some of the innovative strategies used to overcome these challenges.

3. PLACENTIA BAY/GRAND BANKS LARGE OCEAN MANAGEMENT AREA AND GOVERNANCE

3.1 Location

The PB/GB LOMA is located on the south and east coasts of the island portion of the province of Newfoundland and Labrador (Figure 3.1).

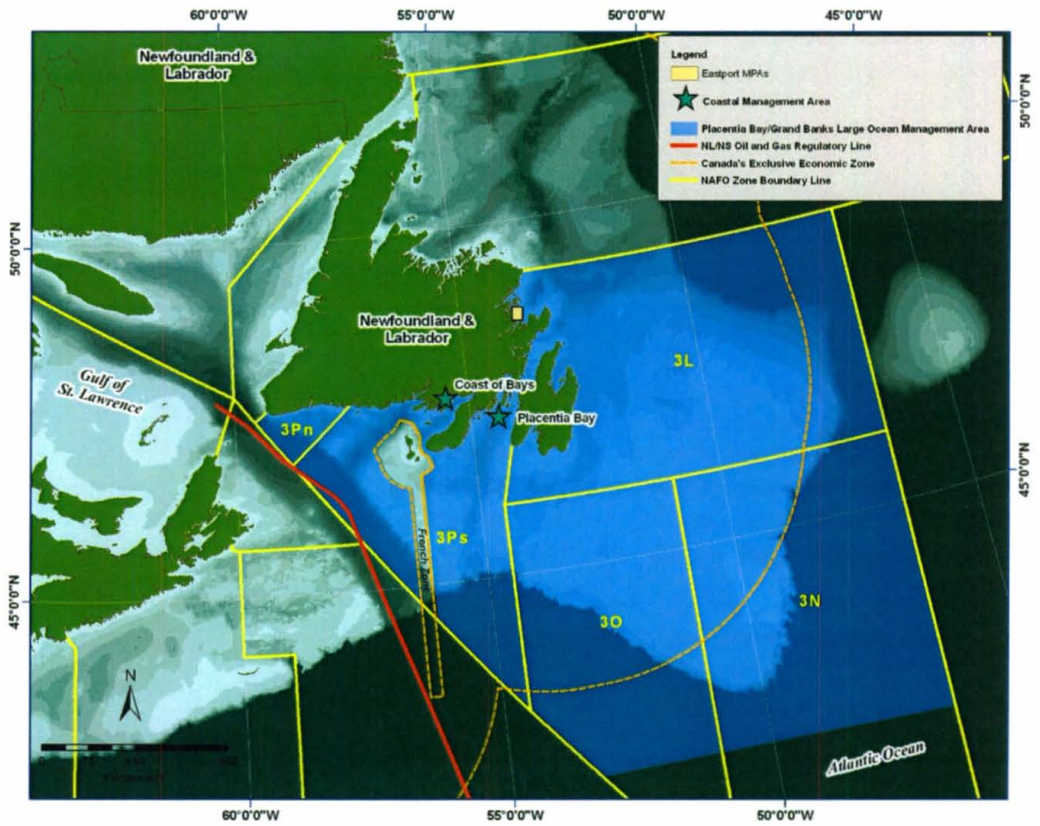

Figure 3.1: The Placentia Bay/Grand Banks Large Ocean Management Area (Source: DFO Map Collection)

A mix of ecological characteristics and administrative boundaries delineate the LOMA boundary. The area encompasses over 550, 000 km^2 of coastal and ocean space. Seaward, the area includes the Grand Banks, extending beyond the 200 mile limit to the

edge of the continental shelf. The western boundary, eastern and northern boundaries are delineated using NAFO lines, while the southern boundary is defined as 42° N latitude.

The PB/GB LOMA received this name because these are areas of priority, as written in Canada's *Oceans Action Plan* (DFO 2005). However, the PB/GB LOMA also includes coastal areas along the entire South Coast (Census Division 3), the Burin Peninsula (Census Division 2), the Avalon Peninsula (Census Division 1) and Bonavista/Trinity (Census Division 7) (Figure 3.2).

Figure 3.2: 2006 Census Divisions for Newfoundland and Labrador. The Census Divisions addressed in this research are the Avalon Peninsula, Burin Peninsula, South Coast and Bonavista/Trinity (NL Department of Finance 2007).

The Census Divisions cover both the coastal and inland communities of the province. However, coastal communities dominate throughout each region, as the economy of the province has traditionally been based on the fishery, causing inland areas to be sparsely populated. These Census Divisions will be referenced throughout this analysis to provide clarity on the areas that are being discussed.

3.2 Bio-physical characteristics and resources

The PB/GB LOMA is characterized by a diversity of marine life and habitats. Off the south and south eastern shores of the island, the seabed topography is dominated by a vast apron of shelf that make up an area larger than the island of Newfoundland. The Grand Banks are comprised of a series of shallow banks that are separated from one another and the island of Newfoundland by deeper channels or enclosed basins. The Grand Banks are separated from the Scotian Shelf by the 97 km wide and up to 4,575 m deep Laurentian Channel in the west, while they also extend to the Flemish Pass in the east, and are bordered on the northeast by the Northeast Newfoundland Shelf. The Grand Banks are a highly productive environment because of the interactions between the topography and ocean currents. Due to the interaction between the cold Labrador Current and warm Gulf Stream in the northwest Atlantic, the physical and biological gradients are extremely pronounced. This means that distinct features typical to different geographical zones occur over relatively small areas (DFO 2010).

The Grand Banks are known as one of the most productive marine areas on earth. An intense spring phytoplankton bloom and a smaller fall bloom are at the base of this highly productive food chain. A wide range of species are also supported by abundant

zooplankton, including benthic and pelagic invertebrates, demersal fish, pelagic fish, diadromous fish, marine mammals, marine turtles, and a variety of marine birds (DFO 2010).

Placentia Bay has been given high priority as an ecologically and biologically significant area, due to its role in seabird aggregation, feeding, nesting and refuge; ichthyoplankton concentrations (cod (*Gadus morhua)*, American plaice *(Hippoglossoides platessoides)*, capelin (*Mallotus villosus*) and others); spawning/reproduction activity and/or nursery habitat for various species, including Atlantic cod, harbour seal (*Phoca vitulina*) and otter (*Lutrinae)*; and an important aggregation and feeding area for cetacean and leatherback turtles (*Dermochelys coriacea)* (DFO 2007a).

Over the last thirty years there have been dramatic ecological changes to the Newfoundland Shelf system. These changes include the collapse of the groundfish stocks, including Atlantic cod and American plaice; increases of shellfish populations, including northern shrimp (*Pandalus borealis)*, and snow crab (*Chionoecetes opilio)*; recovery of harp seals (*Pagophilus groenlandicus)*; significant changes in capelin biology; and major changes in distribution of many species. Scientists and others debate why these changes have occurred; however, overfishing, climate changes and associated changes to trophic structure are some of the hypothesized causes. The most likely scenario involves some combination of all of these factors (DFO 2010).

An Ecosystem Overview Assessment Report completed by DFO (2006) also identified activities and stressors in the PB/GB area. Direct human impacts include commercial fishing, oil and gas exploration and development, aquaculture and shipping.

However, some impacts are also a result of environmental changes (which can also be linked to human activity), such as global warming, ozone depletion, and the spread of aquatic invasive species. It was also recognized that changes in the ecosystem may be amplified when impacts of human activities and environmental stressors are combined (DFO 2010).

3.3 Demographics

3.3.1 Population and distribution

In 2006, the total population of all four Census Divisions in the PB/GB LOMA was 323,903, which represented approximately 64.1% of the total population of the province (Griffiths *et al.* 2009). As stated in the previous section, this population includes inland communities; however there are few inland communities in these areas. Most of the settlements in the PB/GB LOMA are rural coastal communities; however, a majority of the population in the LOMA is located in the Northeast Avalon region around the capital city of St. John's. The Avalon Peninsula Census Division comprised 77% of the total PB/GB LOMA population in 2006 with a population of 248,420 (Hollett and Sons 2008). The province as a whole has been experiencing a decline in population since the early 1990's, losing 11.1% of its population (63, 006 people) between 1991 and 2006 (Griffiths *et al.* 2009). This decline is often attributed to the closure of the groundfish industry in 1992 and decreased birth rate. Rural areas have mostly been affected by population losses, while the area of the Northeast Avalon is gaining population partly due

to increased affluence from the growing oil and gas industry and the influx of residents from rural communities.

3.3.2 Employment and income

In 2006, the PB/GB LOMA had a labour force of 163,100 people, or 65.6% of the total labour force of the province (Griffiths *et al.* 2009). With the exception of the northeast Avalon, much of the employment in the PB/GB LOMA is seasonal because many people are involved in fish harvesting and fish processing or manufacturing. The labour force within the PB/GB LOMA in 2006 consisted of 5,605 people in the primary resource sector such as fishing, agriculture, forestry and hunting and 3,170 in mining and oil and gas extraction. Over 85% of the mining and oil and gas extraction in the LOMA takes place in the Avalon Census Division. There have been great increases in offshore oil and gas activity in that region (Griffiths *et al.* 2009).

The Census Divisions outside of the Avalon are mostly comprised of small communities, many of which are dependent upon fishing and seafood product preparation and packaging. Despite the small percentage of people involved in the primary resource sector within the LOMA, often the fishery is the backbone of their economies. These communities were settled because of the cod fishery, which collapsed during the 1990s. Despite this collapse and subsequent ongoing moratoria on cod and other groundfish species, the fishery continues to play a major role in the economy of the province and the PB/GB LOMA. Shellfish such as crab and shrimp have grown in economic importance in recent years; however, they have not replaced northern cod as a source of employment

(Hollett and Sons 2008). Though the fishing industry has decreased due to the closure and/or downsizing of various fisheries, it is still a very important source of income for rural areas.

The closure of the groundfish industry had a detrimental effect on the economy and population in the PB/GB LOMA. But despite this, in recent years the economy has begun to rebound. The province has started experiencing economic gains that can be attributed to increases in offshore oil production, crab and shrimp landings, construction activity, tourism and manufacturing (fish production, newsprint and refined petroleum) (Hollett and Sons 2008). However, this prosperity is often not widely shared, as current shellfish fisheries support far fewer people than the groundfish fisheries did; and people outside of the oil and gas industries may not receive the benefits of this industry.

The average income for individuals in the PB/GB LOMA was $24,754 in 2005, which is less than the provincial average of $27, 636 and the national average of $35, 498. The lowest average income was experienced on the South Coast and the highest was on the Avalon Peninsula (Griffiths *et al.* 2009).

3.4 Multiple demands

The PB/GB LOMA is under pressure due to multiple growing demands that are being placed on the marine environment. These demands also have social consequences, as a large proportion of the population of the PB/GB LOMA depend upon the ocean for their livelihoods. Numerous industries operate in and impact upon the coastal and ocean areas of the LOMA. These industries, as well as other public and government uses, are discussed further throughout the remainder of this chapter.

3.4.1 Fisheries

3.4.1.1 Fish harvesting

The Grand Banks of Newfoundland were historically renowned for their rich fish stocks as they supported commercial fisheries for over 500 years. The fishery was traditionally focused on the production of salt cod, which later diversified into other smaller fisheries for species such as seal, salmon and herring. Technological advances in the past century led to a transformation of the industry to fresh-frozen multi-species production. While cod remained the central species, the fishery also became focused on other groundfish such as redfish (*Sebastes mentella)*, halibut (*Reinhardtius hippoglossoides)*, and small flounders (such as *Limanda ferruginea*). However, the groundfish stocks collapsed in the early 1990s and moratoria on cod fishing were enacted in 1992 in portions of the NAFO areas, which also expanded to other groundfish species in the next two years (Griffiths *et al.* 2009). The specific factors responsible for the collapse of the northern cod stocks have been debated extensively (Bavington *et al.* 2004); however, there is agreement that overfishing by both foreign and domestic fleets played a role.

There has since been a reorientation in the Grand Banks fishery towards shellfish such as crab; however, directed fisheries for some groundfish species have reopened in certain parts of the PB/GB LOMA. Shellfish fisheries are now of greater importance to the overall economy; however these alternative fisheries support far fewer people (Haedrich & Hamilton 2000). In addition, fisheries for large pelagics such as swordfish,

tuna and sharks are also occurring along the outer shelf of the Grand Banks (Griffiths *et al.* 2009).

Between 1998 and 2008, snow crab, cod, capelin and shrimp accounted for the top species with the highest landings in the PB/GB LOMA. Other species also had significant landing amounts, including redfish, herring, mackerel *(Scomber scombrus)*, Icelandic and sea scallop *(Chlamys islandica* and *Placopecten magellanicus),* turbot *(Scophthalmus maximus)* and yellowtail flounder (*Limanda ferruginea)*. However, in terms of landed value, snow crab, lobster, shrimp (*Pandalus borealis)* and cod produced the most significant returns (Griffiths *et al.* 2009). In this timeframe, the highest landings for groundfish were caught predominantly by the inshore (under 35 foot boats) and offshore (100 foot boats and over) fleets, followed by the near shore (35 to 65 foot boats) and midshore (65 to 99 foot boats) fleets. Nearshore and inshore fleets almost exclusively caught the pelagic species, including herring (*Clupea harengus)*, mackerel and capelin. Nearshore fleets predominantly caught shellfish species, including snow crab, scallop and lobster (Griffiths *et al.* 2009).

3.4.1.2 Fish processing

Fish processing is an important contributor to the economy of the province and the PB/GB LOMA. In 2008, there were 88 fish plants operating in the study area, processing a wide variety of fish and shellfish species, including cod, capelin, herring, mackerel, lobster, shrimp and scallops. Many of these plants operated all year long while others operated seasonally (Griffiths *et al.* 2009). Within the province as a whole, the fish processing industry has been a vital contributor to the economy as it employs thousands

of individuals in rural NL. In 2009, there were 10,705 people in the province employed in the fish processing industry in 118 processing facilities (101 primary, 4 secondary, 5 aquaculture and 8 retail) (Griffiths *et al.* 2009).

Since the groundfish moratorium, there have been changes in the fish processing sector in the PB/GB LOMA. Before the moratorium, fish plants in NL focused on cod and other groundfish species. However, after the moratorium many plants began to process crab, shrimp and other shellfish. Although the economic value of fish landings has increased since the moratorium, the total volume harvested has decreased by about 40% over the last twenty years. As a result, there are currently fewer people working in processing plants than before the moratorium (Higgins 2011).

Fish plants also have an impact upon the marine environment as their waste is dumped at sea legally through permits. The effluent, or fish offal, is discharged through a pipe extending from the plant to the sea. The offal released from NL fish plants has changed since the groundfish moratorium, as it now includes more shells from species such as crab and shrimp that are not degraded as quickly and may accumulate. Griffiths and others (2009) report that in 2004 there were 71 ocean disposal sites within the PB/GB LOMA with 54 of them being used for fish offal.

3.4.2 Aquaculture

The NL aquaculture industry has grown rapidly in the last decade, becoming a significant contributor to the economy. Figure 3.3 shows aquaculture sites within the PB/GB LOMA in 2009, although not all of these were operational. The main commercial species farmed in the PB/GB LOMA include Atlantic salmon, steelhead trout

(*Oncorhynchus mykiss*), blue mussels (*Mytilus edulis)* and Atlantic cod. There are two cod farms in the LOMA, one experimental site is located in Bay Bulls and one is on the South Coast (E. Bennett, personal communication). All of the aquaculture sites in NL are located very near the coastline, usually closer than 5 nautical miles from shore (Griffiths *et al.* 2009).

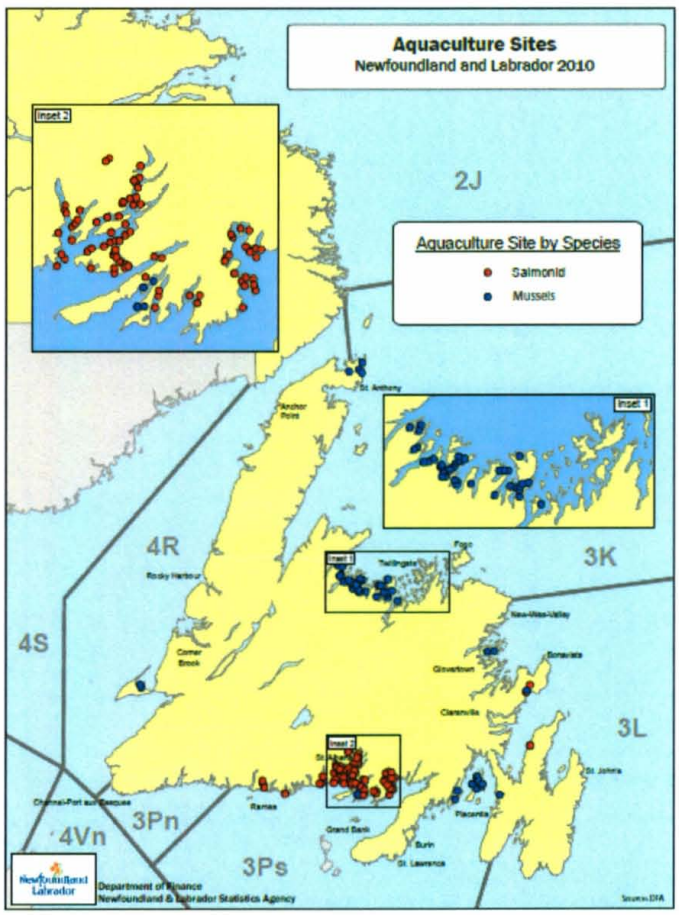

Figure 3.3: Location of aquaculture sites within NL in 2010 (NL Department of Finance 2010).

Aquaculture sites occur throughout the PB/GB LOMA, but the largest concentration occurs in the Bay d'Espoir region. This region produces approximately

90% of the province's farmed salmonids as it is a prime location because of its ice free ports, secluded harbours and favourable climate (Griffiths *et al.* 2009; Hollett and Sons 2008). There are currently 117 aquaculture licenses held by aquaculturists in the region (C. Mullins, personal communication). The production of salmonids (Atlantic salmon and steelhead trout) from the Bay d'Espoir region on the south coast increased from 1716 tonnes in 1998 to 8900 tonnes in 2008, an increase of 419%. In this same time period there was an increase of 482% in the value of salmonid production, from $9.8 million to approximately $57 million (Griffiths *et al.* 2009).

3.4.3 Oil and gas production, support services and development

Oil and gas reserves were first discovered on the Grand Banks in 1964, and the industry has since become a significant part of the provincial economy. All of the oil production in the province occurs within the PB/GB LOMA. Nineteen petroleum reserves and resources have been identified primarily in the Jeanne d'Arc Basin on the northeastern Grand Bank (Figure 3.4) (C-NLOPB 2010b). The C-NLOPB (2010c) estimates that there are 1.79 billion barrels of oil, 10.86 trillion cubic feet of natural gas, and 479 million barrels of natural gas liquids under the Grand Banks. There has already been over 1 billion barrels of oil produced from the Hibernia, Terra Nova and White Rose oil fields, which are located on the Grand Banks and are the only oil fields in the province that have begun production. The Hebron oil field is also expected to begin production between 2016 and 2018 (C-NLOPB 2010c).

In 2009, hydrocarbon production from the Grand Banks accounted for approximately 35% of Canada's total light crude production, with an estimated market value of $6.65 billion. For the period 2001-2007, the oil industry was the most significant contributor to the provincial GDP at over $24 billion (NL Department of Finance 2010).

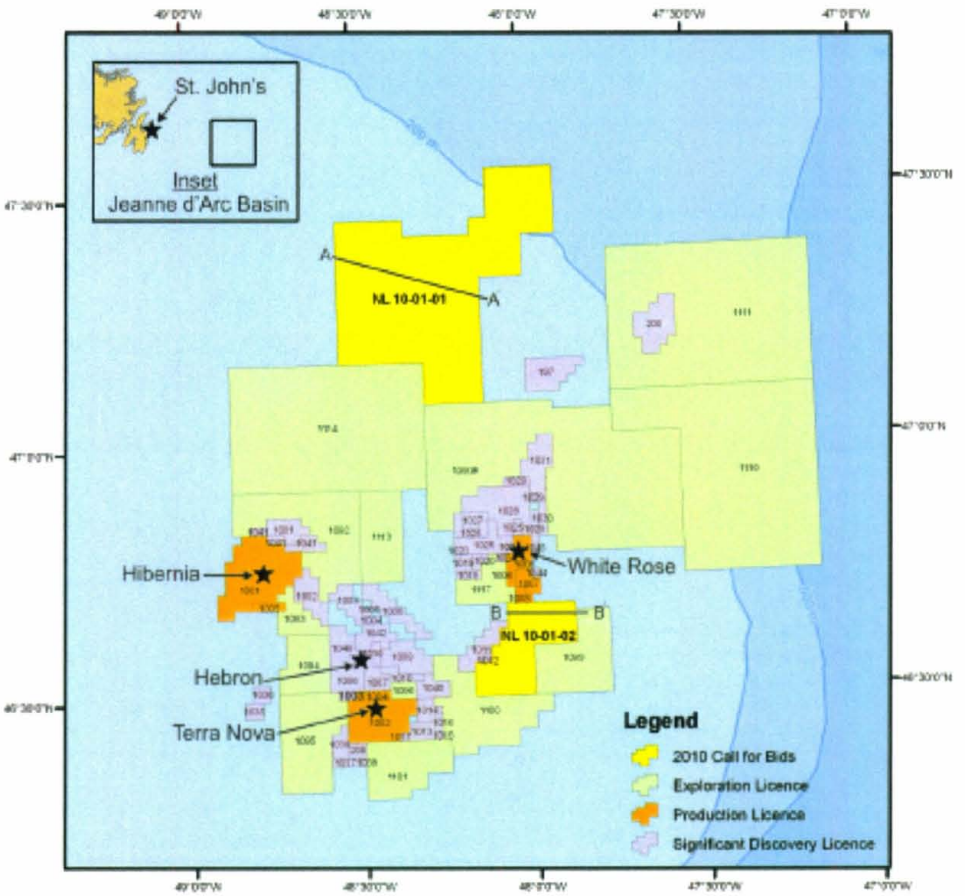

Figure 3.4: 2010 Call for Bids, Exploration Licences, Production Licences and Significant Discovery Licences on the Grand Banks (NL Department of Natural Resources 2010a)

In 2008, the oil and gas sector accounted for 40% of the province's nominal Gross Domestic Product (GDP). Since production started in 1997, the province's real GDP has grown by nearly 52% through 2009. Approximately half of this growth has been

attributed directly to the oil and gas sector. It represents approximately 30% of the total private capital investment in the province, with over 1.3 billion in capital expenditures in 2009 (NL Department of Finance 2010).

The sector also provides employment to individuals in the province. As of December 31, 2009, there were 3,518 people working in direct support of petroleum related activity in the offshore area of NL, which is focused on the Grand Banks. This was almost 1.6% of the total employment in the province. Through spin-off effects, the industry indirectly accounted for almost 5% of total employment. $384.3 million was spent in 2009 on exploration programs, creating more than 4,342 person-months of employment. Production activities that are ongoing represent a $1.32 billion per year industry, of which 56% of annual expenditures occur in NL and a further 23% occur in the rest of Canada (NL Department of Finance 2010).

Offshore oil production, related support services and development have increased greatly in recent years in the PB/GB LOMA. In 2005, it was the most significant private sector industry in the Placentia Bay region in terms of total GDP impact, worth 46.3% of its total GDP (NL Department of Finance 2005). Support facilities for the oil industry include the Newfoundland Transshipment Limited's Whiffen Head oil storage terminal and facilities and North Atlantic Refining Limited's Come by Chance Oil Refinery.

3.4.4 Marine transportation and infrastructure

Marine transportation encompasses a wide range of services, including the transportation of freight, operation of ferries, the provision of stevedoring and other

marine cargo handling services, the operation of harbour and port facilities and services, the provision of harbour navigation services as well as other services related to marine transport (NL Department of Finance 2002).

Newfoundland is important for domestic and international shipping of freight because of its strategic location within the Great Circle Route between eastern North America and Europe. The Great Lakes and the St. Lawrence Seaway are linked to the trans-Atlantic shipping routes by the Cabot Strait off of Newfoundland, which has over 6000 commercial vessel transits annually (NL Department of Finance 2002). Newfoundland ports are handling increasing amounts of cargo, which has been driven by the production and movement of oil, demand for supply services by the offshore oil and gas industry, exports by manufacturers, and imports of finished consumer goods fuelled by a growing economy (NL Department of Finance 2002).

Oil and other industrial developments have signalled a severe increase in shipping traffic into Placentia Bay. The Brander-Smith Report (1990) was completed as a public review on tanker safety and marine spills response capability in Canada as a result of growing concern about the protection of the marine environment from hazards associated with the movement of oil and chemicals in Canadian waters. The report identified Eastern Canada, and particularly Newfoundland, to have the highest risk for a spill in the country. It further identified Placentia Bay to be the marine body of water in which a major spill is most likely.

This sentiment was echoed in 1996 by the environmental assessment panel for Petro-Canada's development of the Terra Nova offshore oil field. An environmental

assessment review panel was developed to review application documents and conduct public hearings in preparation for the development of the offshore Terra Nova oil field. This resulted in a report containing numerous recommendations for the C-NLOPB, and the federal and provincial governments. One recommendation discussed the need to establish a coastal management plan for the Avalon Peninsula and the western side of Placentia Bay. The combination of the Terra Nova report with the findings in the Brander-Smith report urged DFO to develop integrated management within Placentia Bay, which later led to the development of the Placentia Bay Coastal Management Area (Bae-Newplan Group Limited 2007).

A substantial portion of the marine transportation industry is comprised of intra-provincial ferry services as well as ferry services between Newfoundland and Nova Scotia operated by Marine Atlantic. The Argentia Port Corporation administers the Marine Atlantic Terminal in Argentia on the eastern side of Placentia Bay. The federally owned Marine Atlantic provides seasonal passenger and vehicle ferry service between Argentia and Nova Scotia. Ferry services are also provided through the intra-provincial ferry system which services isolated coastal communities along the South Coast, and those communities located on islands (Ramea, Bell Island and St. Brendan's) (Griffiths *et al.* 2009).

Communities throughout the LOMA have various forms of coastal infrastructure associated with marine transportation, including wharves, slipways, marinas and breakwaters. These were historically used for traditional fishing and transportation activities, and today they continue to serve the fishing industry and more recent activities

including tourism and intra-provincial ferry services. Many of the facilities are managed by the Small Craft Harbour Branch of DFO, while others are owned by Transport Canada or are managed by port or harbour authorities (Griffiths *et al.* 2009).

3.4.5 Shipbuilding and repair

Shipbuilding is a major part of marine manufacturing in the province. Shipyards in the PB/GB LOMA have the capability to construct and repair medium size, technologically advanced ships, as well as oil rigs and subsea equipment. Large modern facilities are located in St. John's, Bay Bulls and Marystown. These are supplemented by an experienced and strategically placed network of smaller manufacturers and marine service centres in places in the PB/GB LOMA such as Bonavista and Harbour Grace (NL Department of Finance 2002). The industry has engaged in national and international procurement, which has created new employment and technology transfer opportunities. However, employment in the shipbuilding industry is often not stable. Major projects employ hundreds of people, but when these projects are over there are often slow periods. For example, employment in shipbuilding was estimated at about 1000 people in 1998, but this fell to 562 in 1999 (NL Department of Finance 2002).

3.4.6 Tourism and recreation

Coastal and ocean tourism and recreation have recently experienced significant growth, and have become important contributors to the economy throughout many communities within the PB/GB LOMA. Areas such as national, provincial and private parks; wilderness and ecological reserves; natural and scenic attractions; important bird

areas; marine protected areas (MPAs) and historic sites all add to tourism in the coastal area of the LOMA.

Cruise tourism has been growing within the PB/GB LOMA. Adventure/ expedition type cruises are growing the fastest, which circumnavigate the island and have some ports of call in Labrador. Trans-Atlantic cruises that transit from Europe to North America and Canada-New England cruises originating from New York or Boston also often make port calls in the province.

Coastal excursions and tours are also very popular tourism activities in the PB/GB LOMA. The Bay Bulls and Witless Bay areas are usual destinations, as operators provide boat tours to the Witless Bay Seabird Ecological Reserve. Boat tours are based around whale, bird, iceberg and scenic coastal tours, and are often associated with national parks, reserves and conservation areas. There are more operators within the LOMA on the east coast as opposed to the south coast, and in 2009 Griffiths *et al.* reported that there were 17 tour boat operators within the LOMA that operated during the summer season, which usually lasts from May to September.

Many local people and tourists alike take part in recreational boating. This sector includes sailboats, cabin cruisers, powerboats, personal water craft and human powered boats such as canoes and kayaks. Guided kayaking excursions occur in the Bay Bulls and Witless Bay areas. Remote island stay experiences (such as Woody Island Resort) are also offered by tourism operators. Other recreational activities enjoyed by both local residents and tourists include cabin development, waterfowl hunting, swimming, scuba diving, camping and coastal hiking. In addition, there is a recreational fishing season,

during which groundfish can be caught with restrictions (Griffiths *et al.* 2009). Residents and tourist alike take part in this food fishery.

3.4.7 Land-based activities and their environmental impacts

The main sources of effluent in the PB/GB LOMA are municipal sewage/effluent, refinery effluent and mining effluent, along with effluent from fish processing facilities (discussed in Section 3.4.1.2). The human population that borders the coastline of the LOMA is 323,903, 68% of which are served by a municipal sewage system. Municipalities adjacent to the LOMA have very little sewage treatment. In 2009, Griffiths and others reported that only 5.8% of the population had secondary sewage treatment and 0.2% had primary sewage treatment. The authors also reported that the majority of the population with secondary treatment lived in Conception Bay South, Victoria and St. Alban's, while the towns of Arnold's Cove and Holyrood had primary treatment. One community in the PB/GB LOMA, Portugal Cove-St. Philip's, provides tertiary sewage treatment for most of its residents. Griffiths *et al.* (2009) also reported that approximately 32% of residents living in coastal communities had private septic systems, or had self-engineered outfalls that discharge on the beach.

Approximately 130,000 people are serviced by the sewer system that empties into St. John's Harbour. Approximately 120 million litres of sewage and storm water is discharged into the harbour every day. A primary treatment plant began operation in the fall of 2009. This removes about 40 per cent of the organics, 50 to 60 per cent of the solids and then about 99 per cent of the bacteria from the effluent. Prior to the

construction of this facility the effluent was entering St. John's Habour untreated (Canadian Broadcasting Corporation News 2009).

Effluent also flows into the ocean from the Come by Chance oil refinery. The refinery uses freshwater in its processing system, which adds to the approximately 1.25 million gallons of effluent which it discharges on a daily basis. The effluent is processed in many stages, and is then discharged into the marine environment beyond the low water mark (NL Department of Environment and Conservation 2010a).

Mining is an important part of the economy of NL, often occurring in central NL or the Baie Verte area. Although many companies currently hold mineral licenses on land throughout the island, very few licenses are associated with parcels of land near the coastline within the PB/GB LOMA. As of November 2010, there were two mining sites operating within the PB/GB LOMA; however, this research has not found any evidence that effluent from these mines impact upon the ocean environment (NL Department of Natural Resources 2010b).

A hydromet nickel processing plant is currently being constructed in Long Harbour, Placentia Bay to process nickel mined in Voisey's Bay, Labrador. There are potential interactions between marine effluent and all components of the marine fish and fish habitat in the area. However, the effluent will be treated extensively and the project proponent states that the residual effects of marine effluent on fish and their habitat are not significant (Vale Inco 2008).

3.4.8 Research and technology

Ocean research and technology are very important parts of the economy in NL. The province has over 50 knowledge-intensive enterprises that develop innovative ocean technology products and services for niche markets throughout the world. In 2002, ocean technology companies employed over 1,400 professionals in the province, and generated total estimated revenues of about $230 million (NL Department of Finance 2002).

Most of this development is occurring within the PB/GB LOMA area. The eastern Avalon Peninsula is the centre for many technology businesses and academic institutions, and a unique partnership of companies, institutions and government agencies known as Oceans Advance. Key ocean technology research and development facilities serve as the backbone of the ocean technology community, and nearly all of them are located near or within Memorial University of Newfoundland St. John's campus (NL Department of Business n.d.).

Marine information technology (IT), communications, environmental and biotechnology sectors contribute to the oceans technology field. An example is SmartBay (www.smartbay.ca), which is an initiative of the Marine Institute's Centre for Applied Ocean Technology to strengthen Placentia Bay's technology and information base. It is an ocean monitoring system that has been operating since 2006, which utilizes three meteorological/oceanographic buoys to develop custom weather and sea-state forecasts for Placentia Bay.

3.5 Placentia Bay/Grand Banks Large Ocean Management Area Initiative

3.5.1 Legislative basis and government

As described in Section 2.2.3, Canada officially adopted IM through the *Oceans Act* in 1996, followed by the release of Canada's *Ocean Strategy* and a policy and operational framework for IM in 2002. The framework also called for the creation of Large Ocean Management Areas (LOMAs) and smaller Coastal Management Areas (CMAs) to be developed throughout Canada.

In addition to the LOMA and CMA committees, there are other committees that help shape how oceans and coasts are managed in the province. Numerous federal government led processes for oceans management are province wide in scope; however, they address issues and activities within the PB/GB LOMA. These include the Regional Oversight Committee on Oceans Management (ROCOM), the Canada-NL Committee on Oceans Management (C-NLCOM) and the Provincial Coastal and Oceans Network (PCON).

The ROCOM was established in 2005, and has Federal and Provincial executive level representation. It is co-chaired by DFO and the provincial Department of Fisheries and Aquaculture (DFA) with representation from eight federal departments, seven provincial departments and the C-NLOPB. It seeks to ensure collaboration in government to support the sustainable development of ocean resources, promote stakeholder engagement and provide strategic direction towards oceans management within the province (DFO 2010). The C-NLCOM was established in 2006, and has federal and

provincial working level representation that mirrors the membership of the ROCOM. It is the "work-engine" for the ROCOM and reports directly to it by dealing with concrete tangible issues and making recommendations (DFO 2010). The PCON consists of nine departments and three agencies with policies and programs related to coastal areas. It was established in 2006 and is chaired by the Department of Fisheries and Aquaculture. A priority role for the network is information exchange related to coastal and ocean management activities (NL Department of Fisheries and Aquaculture 2010).

These committees illustrate that ocean and coastal governance is an important consideration within both the provincial and federal governments. There are also sub-committees within many of the departments that deal with coastal and ocean matters. Academia, industry, NGOs and the public are also part of the ocean and coastal governance, and their contribution is often recognized by government departments.

3.5.2 Placentia Bay Grand Banks LOMA Integrated Management Process

Representatives of 26 groups sit on the PB/GB LOMA Committee (Appendix B) and became involved upon the request of DFO's NL Regional Office. Group executives or managers were asked if their groups wanted to be part of the PB/GB LOMA Committee based on their oceans-related responsibilities and activities. Originally, 25 groups were asked to be on the committee. DFO staff selected federal and provincial agencies that have a mandate in oceans management. DFO staff also determined the major sectors/activities in the PB/GB LOMA that relate to coastal and ocean areas, they then grouped stakeholders based on those sectors/activities, and then chose which

stakeholder groups best represented those sectors/activities. Stakeholder groups were shown the value of participating in the initiative and none refused the invitation from DFO. There is also a process for the Committee to accept new stakeholder groups. The Canadian Parks and Wilderness Society approached DFO in 2006 requesting to be a part of the process. After the application had been brought to the PB/GB LOMA Committee it became members in 2008.

There are two levels of representation at the PB/GB LOMA committee meetings and workshops. DFO asked high level representatives (i.e. ministers or deputy ministers within the provincial government; and director generals, assistant deputy generals or vice presidents in the federal government) from the federal and provincial government departments/agencies to take part in the initiative. From the other stakeholder groups, DFO generally asked the Executive Directors or Chairs to represent their groups. Many of these high-level representatives attended the first PB/GB LOMA Committee meeting, but then delegated the responsibility to another (usually more junior) person with oceans related responsibilities within their organization. The alternates who have been delegated the responsibility of the PB/GB LOMA attend workshops in most cases.

The DFO IM process follows six interrelated stages. These include: defining and assessing the area; engaging affected interests; developing an IM plan; getting endorsement of the plan by decision makers; implementing the plan; and monitoring, evaluating and revising the plan (DFO 2002b). The planning area was defined using a mix of ecological and administrative considerations. It was assessed by DFO's NL Region, which collected relevant ecological, social, cultural, economic and human use

data to determine the current status and trends of the PB/GB area. Workshops and meetings have been held throughout the process, and have included various government and stakeholder groups that had been identified by DFO as having coastal and ocean related interests or activities. The PB/GB LOMA Committee meetings and workshops are shown in Table 3.1. However, interviews for this research took place in November and December of 2009, so the workshops that were held in 2010 occurred after the interviews were completed. There are two working groups: the IM Planning Working Group and the Conservation Objectives Working Group. There was a Socio-economic and Cultural Objectives Working Group formed in March 2009; however, this was rolled into the IM Plan Working Group in October 2009. These working groups are the drivers that have moved the process forward. After workshops, the meeting reports are distributed to the Committee by DFO for comments. These reports provide information such as the latest wording that has been decided upon for objectives and strategies, and the Committee is provided at least three weeks to provide comments back to DFO.

Table 3.1: Meetings and workshops of the PB/GB LOMA

Date	Event
December 2007	PB/GB LOMA Committee Formed/Inaugural Meeting
April 2008	Strategic Objectives Session
May 2008	Conservation Objectives Workshop
November 2008	Second PB/GB LOMA Committee Meeting Held
February 2009	IM Plan Working Group First Workshop
March 2009	Social, Economic and Cultural Workshop
October 2009	Conservation Workshop
November 2009	Social, Economic and Cultural Workshop
March 2010	Social, Economic and Cultural Workshop
June 2010	Governance Workshop
November 2010	Conservation Workshop
March 2011	Governance and Social, Economic and Cultural Workshop

Currently, the IM plan is being developed using an objectives-based management framework (Figure 3.5). The plan is expected to be complete in the fall of 2011. An overall vision was created for the PB/GB LOMA, which was followed by goals, objectives and strategies for the IM plan. These have developed out of the PB/GB LOMA Committee meetings and workshops. The vision for the LOMA is safe and sustainable use of healthy oceans through effective and collaborative governance. It has three main goals: collaborative and effective governance, healthy ecosystems and sustainable use. These goals are broad statements of the overarching long-term desired outcomes based on issues and concerns that have been identified (DFO 2010).

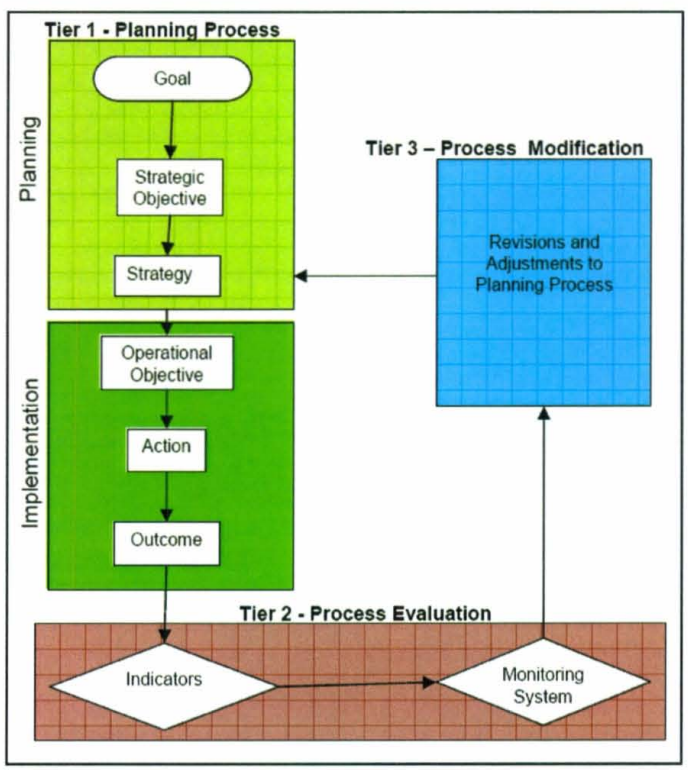

Figure 3.5: Objectives-based management framework (From DFO 2010).

Goals are followed by elements, which are components or attributes for which objectives need to be developed to achieve the desired goals. Strategic-level objectives come after the elements, providing a more specific statement of what needs to be done to accomplish the goal. After that, strategies are developed to provide a mechanism by which the planning process will achieve its strategic objectives. Strategies guide operational objectives and action plans. Operational objectives are developed to achieve the strategic objectives. They are used to determine appropriate actions, and are measureable and typically consist of a verb, indicator and reference point (DFO 2010). Action plans evolve from the strategy component and feed into the action component. They provide instructions as to how to carry out specific actions. The action planning component lays out who is taking the action, what the management action is, specifics such as where an when it is to take place, and how the action will proceed and how it will help in achieving the desired goals and objectives. Actions are guided by operational objectives and are identified in action plans. Each action is usually linked with an implementation timeframe.

This objectives-based framework is applied to all three of the overarching goals in order to specify them to actions. For the PB/GB LOMA, the action plans will not be included in the IM Plan. The action plans will be developed separately after the plan is complete, with very specific actions that can be moved forward. They may be sector or issue based, or collaborative in nature, and allow for a higher level of detail in the creation of management actions (DFO 2010). The IM Plan acts as a catalyst for the more specific action plans that will develop out of its priorities.

Priorities have been and will continue to be developed for the plan, as it will be impossible to develop and carry out action plans for all strategies at the same time. Each of the three overarching goals have had or will have priorities developed. There are four priority conservation themes for the healthy ecosystems goal, which are: Atlantic cod, aquatic invasive species, corals and sponges, and marine habitat. The working groups are in the process of developing the priorities for the other two goals, which will be included in the IM Plan. The action plans will be developed for these priorities.

All of the goals, objectives, strategies, actions and priorities are developed by the PB/GB LOMA Committee itself. The Eastern Scotian Shelf IM Plan was a starting point for many of these aspects of the PB/GB LOMA plan. The Eastern Scotian Shelf IM is the LOMA that is furthest along in Canada, as the plan was released in 2006 is currently being implemented and monitored. However, it has not had formal sign off from the Minister of Fisheries and Oceans due to a dispute with the Government of NL over the eastern border of the ESSIM area (Jessen 2011).

DFO in the NL Region provided Committee members with the goals of the ESSIM plan in a workshop. The Committee members then decided if these were applicable to the PB/GB LOMA, if anything should be changed or added to them, or if there were additional goals that should be included. ESSIM's goals are collaborative governance and integrated management, sustainable human use, and healthy ecosystems, which are quite similar to the goals that were decided upon for the PB/GB LOMA (DFO 2007c). Following this, DFO provided the relevant ESSIM elements, objectives and strategies to the LOMA Committee members and followed the same process. Many of the

elements, objectives and strategies of the PB/GB LOMA are quite similar to those that are found in the ESSIM Plan. However, they were edited, re-written and some additional ones were added by the Committee to reflect the context of the management area.

4. METHODS

4.1 Mixed method approach

This research was carried out by performing semi-structured interviews to collect both qualitative and quantitative data. The qualitative data was used to provide in-depth information and background about the communication network, while the quantitative data was used for SNA to help visualize and analyze the network. Much of the data collected through the interviews provided additional qualitative information on communication and participation outside of the concepts and ideas discussed within the SNA alone.

SNA was used to perform the quantitative analysis. Martinez *et al.* (2003) propose that SNA by itself is not enough for achieving a full understanding of problems, and needs to be complemented with other methods, such as qualitative data analysis. Olsen (2004) describes the mixed method as triangulation, which is used so that diverse viewpoints or standpoints can shed light upon a topic. Sandelowski (2000) points out that advocates of mixed-method research have argued that the complexity of human phenomena mandates more complex research designs to describe and ultimately explain them.

4.2 Social network analysis

4.2.1 Definition and applications

Social network analysis (SNA) comprises a collection of techniques for the analysis of relational data. The SNA approach can study economic, political, and social

types of relations. The relational data gathered in social network studies, through semi-structured interviews in the case of this research, can be described as sociograms, in which actors are the points (or nodes) and relationships are the lines between them. The term actors can refer to individuals or groups. SNA is based on graph theory to mathematically formalize the properties of networks and development of models of networks (Scott 1996; Haythornthwaite 1996).

The idea of drawing a picture of who is connected to whom for a specific set of people is credited to Dr. J.L. Moreno (1934), who was a social psychologist (Cross *et al.* 2002). Cultural anthropologists also developed the notion of social networks to provide a new way to think about social structure and the concepts of role and position, which culminated in rigorous algebraic treatments of kinship systems (White 1963; Cross *et al.* 2002). Simultaneously, the field of graph theory was developing rapidly in mathematics, which provided the underpinnings for the analytical techniques of modern SNA. Sociology particularly embraced the new methods, as relational theoretical perspectives had always been important to the field (Cross *et al.* 2002).

Today, SNA has grown as a method with increased use of computers, and a number of software packages are now available to do many forms of analysis. It is now easy to compute networks and analyses that in the recent past were impossible or very time consuming (Scott 1996). The applications for SNA are endless, as it can be used to study any relationship between any set of groups or individuals.

What makes SNA valuable for this research is that it is used as a tool to make visible patterns of information sharing within and across networks. Cross and others

(2002) propose that simply reviewing SNA diagrams with managers and/or decision makers usually results in many recommendations as people immersed in the patterns of relationships define and resolve issues impacting group performance. The power of SNA lies in its capacity to bring out three key elements of any social system: its composition, its structure, and emergent properties.

4.2.2 Analysis Techniques

This research examines communication between stakeholder groups, so the analysis techniques that are most often used to examine communication and information exchange networks will be explored. The techniques used provide powerful ways of looking at information providers, information users and the organization of information exchanges. The network properties assessed in this research were density, degree centrality and centralization. This research provides a basic analysis using SNA, and is in no way demonstrating the extent of the analyses that can be performed.

Density describes the general level of linkage among the points in a graph (Scott 1991). The density of a graph is defined as the number of lines in a graph, expressed as a proportion of the maximum possible number of lines. The measure can vary from zero to one, the density of a fully connected graph being one (Hanneman & Riddle 2005). Thus, a measure of density is an attempt to summarize the overall volume of lines in order to measure how far the graph is from completion (Scott 1991, Otte & Rousseau 2002).

'Directed' networks use the convention of connecting nodes with solid lines that have arrowheads, to indicate who is directing the tie toward whom; whereas an undirected graph just recognizes a relationship and connects nodes with a solid line

(Hanneman & Riddle 2005). The density for a directed graph is equal to the total number of pairs (n) that it contains, calculated as $n(n\text{-}1)$. Therefore, density for directed data is defined by Scott (1991) as: $l/n(n\text{-}1)$, where l is the number of lines present.

The property of centrality is also widely used conceptual tools to describe communication networks (Everett & Borgatti 2005). Centrality is an indicator or an actor's importance within the network by defining whether they are in advantageous or disadvantageous structural locations (Hanneman & Riddle 2005). Freeman (1979) categorized centrality measures into three basic categories (degree, closeness and betweenness) which have come to dominate empirical studies (Carrington *et al.* 2005).

The calculation of degree centrality is sufficient to indicate which groups are central in the network. It is the appropriate analysis technique to determine the importance of the different stakeholder groups by looking at their number of connections with others. When looking at relational data that is binary (communication absent versus communication present) and directed (such as the flow of information) it is possible to distinguish which representatives reported reciprocal relationships on behalf of their groups. For example, the out-degree of an actor tells us which other actors they reported communicating with, while the in-degree of an actor tells us which other actors reported communicating with that particular actor. These may or may not correspond.

Whereas centrality is concerned with how central the various points in a graph are in relation to each other, centralization is concerned with the distribution of ties as a whole (Scott 1991). Centralization and density are important complementary measures, as density describes how sparse or dense a network is, while centralization describes the

distribution of ties in a network. Centralization refers to the overall distribution of ties in a network, as ties may be more or less centralized around a particular point (Scott 1991).

Hanneman and Riddle (2005) describe degree centralization by using the star network as a starting point (Figure 4.1). The star network is the most centralized and unequal possible network, as all actors but one have a degree of one while the 'star' in the middle has the degree of the number of actors, less one. Freeman's centralization expresses the amount of variability in the degrees of actors in the observed network as a percentage of that in a star network of the same size. Thus, they express the degree of inequality of variance in the network as a percentage of that of a perfect star network of the same size. A high percentage would indicate a high concentration of ties in a few actors (Hanneman & Riddle 2005).

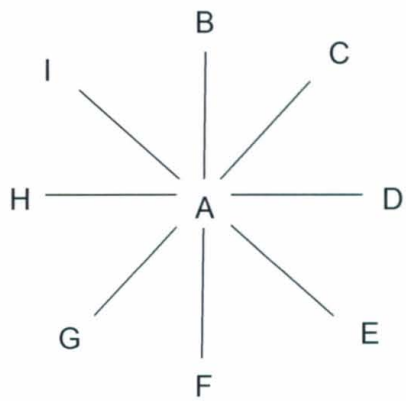

Figure 4.1: The Star Network (Adapted from Hanneman & Riddle 2005).

4.3 Data collection and analysis

4.3.1 Interview schedule

After the interview schedule was designed, ethical approval was received from Memorial University to perform the interview with the target population. The interviews respected rights to privacy and confidentiality, and the interviewees were asked to sign a form stating that ethical procedures were followed, and that they gave their permission to record the interviews for the use of the researcher. The interview had five sections: 1) background information of the group and respondent; 2) intra-group communication (communication practices within their group); 3) communication of their group with the public; 4) inter-group communication (communication between groups); and 5) participation and other information (See Appendix C for Interview Schedule). For each section, it was explained to the participants that the questions related only to communication about coastal and ocean issues within the last year, unless it was stated that the communication was specifically about the PB/GB LOMA. They were also told that the questions were related only to persons, groups and/or the public that are located inside the PB/GB LOMA boundary.

Participants were mostly asked about exchanges of information dealing with coastal and ocean issues in general, while only a few questions asked specifically about communication about the PB/GB LOMA. However, the same communication channels that are used to discuss coastal and ocean issues could be used as needed to discuss the PB/GB LOMA.

Participants were asked some general questions about themselves and the groups they represent, such as how their group became a member of the PB/GB LOMA committee, how they themselves attained the role of representative, whether they themselves are on any other committees or management groups, the size of their group and whether their group had a communications strategy, plan or working group.

They were also asked specific questions about the extent of their participation in the PB/GB LOMA, such as their level of participation, if they were involved with any working groups, if there were any other groups that they thought should be included on the committee, what communication mechanisms could be implemented that would be beneficial, whether documents distributed about the PB/GB LOMA use a level of communication applicable to and/or understandable by all participants, whether their group was interested in the ongoing activities of the PB/GB LOMA, and what the benefits and challenges of participating in the IM initiative were.

One of the research objectives was to identify the importance of each of the stakeholder groups within the communication network. SNA was used to assess this by determining the number of ties from and to other groups. One section of the interview focused on collecting the relational data that was needed to perform the SNA. A list of the other groups on the PB/GB LOMA Committee was provided to each respondent, and they were asked to provide information on their frequency of communication (yearly monthly, weekly, daily, etc.) with each of the other groups. Respondents could also report if they were aware of others in their group communicating with the other groups. This was recorded if they were directly involved in this communication by receiving or

commenting on documents from other groups, or by receiving relevant updates from group members on these communications.

Research on communication using SNA often provides a list of individuals or groups to participants and asking them to record if they communicate with them, or gets participants to list individuals or groups that they communicate with, or through a combination of both of these methods (Hagen *et al.* 1997; Haythornthwaite & Wellman 1998; Jorgensen 2004). This research limited the list of groups for SNA to those who sit on the PB/GB LOMA Committee because it was only interested in mapping the communication between these member groups.

Respondents were also asked the direction of this communication, meaning whether they provided information to them, received information from them or if information was exchanged both ways. Respondents were then asked the level of their communication, meaning whether they communicated as necessary to discuss issues or pass along information, or whether they communicated for project collaboration or formal arrangements. Much of this data was used to carry out the SNA of communication between stakeholder groups. An understanding of the role of each of the stakeholder groups was not only derived from the answers to these questions, but was also addressed through open-ended questions.

Another objective of this research was to examine the methods, frequency and content of communication within and between groups on the PB/GB LOMA Committee, and between groups and the public. Questions to cover this objective were asked throughout the sections on intra-group, public and inter-group communication. The

respondents from each stakeholder group were asked how they communicated, how often they communicated and what they communicated about with others within their own group, with the public and with other groups that sit on the PB/GB LOMA Committee. Each respondent was also asked why communication is important, what strategies can facilitate communication, and what limitations can hinder communication.

4.3.2 Interview administration

The target respondents for this research were either the representatives or alternates who participated in the meetings and workshops of the PB/GB LOMA initiative. After receiving the list of representatives and alternates from DFO, a PB/GB LOMA workshop was attended where the researcher met many of these people and set up a meeting time with them. For groups that were not present at the meeting, a meeting time was arranged through telephone or email. In the end there were eight representatives and eighteen alternates as the respondents. There was no representative/alternate interviewed from Marine Institute/Memorial University of Newfoundland. This was because there was no one at the time of the interviews who was the designated representative, while the group was still part of the PB/GB LOMA Committee. In total, 25 out of 26 groups participated in an interview, and all but one allowed the interview to be recorded.

Before commencing with the actual interview, a pre-test was conducted with an alternate from the Department of Fisheries and Aquaculture. This person was not the same participant for the actual interview. The test interview allowed the researcher to see

that there were some issues that had to be worked out before interviews began, such as trying to quantify answers by providing a likert scale which did not work very well in this interview context.

The interviews took one month to complete, and took place from mid-November to mid-December 2009. All but two of the interviews were carried out in person, with the other two carried out over the telephone because the people were not located in the province. The groups were Environment Canada in Nova Scotia and the Groundfish Enterprise Allocation Council/Canadian Association of Prawn Producers in Ottawa. All but two of the in-person interviews were carried out in St. John's, with the others carried out in Eastport, NL (Eastport Marine Protected Area Steering Committee) and Bay d'Espoir, NL (Coast of Bays Coastal Planning Committee).

Usually just one person from each organization was interviewed. There were two instances when two respondents within one organization were interviewed at the same time. Their answers corresponded when they answered the questions together, and if one person did not know the answer the other would respond. This happened within the C-NLOPB and DFO because there were two people in each of these organizations who were equally involved in the PB/GB LOMA process. The time it took to do each interview ranged from thirty minutes to three hours, depending upon how much information the interviewee had and/or wanted to provide. The average length of time for an interview was about an hour. Most often, the interviewees were more than willing to discuss their experiences with the PB/GB LOMA initiative.

4.3.3 Data entry and analysis

4.3.3.1 Quantitative social network data

For the purpose of quantitative analysis, data were entered into Microsoft Excel by creating a matrix with each stakeholder group listed in the same order along the side and top as the column and row headers. Because the data is binary and directed, a value of 1 or 0 was entered into the matrix representing whether the relationship between a pair of groups did or did not exist (Appendix D). This is called a 1-mode affiliation matrix. This data was used to create the reported communication network.

In addition, another matrix was created for the level of communication, showing whether communication between groups was used for project collaboration and/or formal arrangements. When the group respondent indicated that the group collaborated and/or worked through a formal arrangement with another group, a 1 was entered at the intersection of these two groups in the matrix. This data was used to create the reported collaboration network with binary, directed data. Each matrix was then imported and processed in UCINET 6, which is a software package specifically designed for the analysis of social networks (Borgatti *et al.* 2002).

Both the communication and collaboration matrices were loaded separately into UCINET 6 and then analyzed. The network properties of density, centrality and centralization were determined for the communication and collaboration networks using the software. The centrality scores for each stakeholder group were plotted in a bar graph for illustrative purposes. This procedure was carried out for both the communication and collaboration networks.

Graphs (or sociograms) of the communication and collaboration networks were also completed using a freeware program called NETDRAW which is used in tandem with UCINET 6 for visualizing social networks. These sociograms were used to illustrate what organizations are most active and what organizations are less active within the communication network. For this research, the sociograms were created using a spring embedded layout that is achieved from an algorithm very similar to the Kamada-Kawaii algorithm (Kamada & Kawaii 1989).

In addition, to gain a better understanding of the communication network and for illustrative purposes, each stakeholder group was placed in a 'group type'. These were defined based on the mandates and/or functions of the stakeholder groups. The group types that were decided upon were non-government organization, academic, government, coastal management area and marine protected area, fisheries and aquaculture industry, and other industry (Appendix B). The 'other industry' group type consists of those industries that did not fit in with another category, such as oil and gas, hospitality and shipping. These group types were defined with the understanding that there are many differences within each type, but grouping them allowed generalized statements about the findings. For example, when respondents were quoted it made it easier not to reveal who that person was by using their group type to describe them instead of their specific group.

4.3.3.2 Qualitative interview data

The intent of this research was that all of the interviews would be completely transcribed. In a period of two weeks, about one third of the total interview time (about 9 hours) was transcribed. This was a slow process, and the researcher realized that each

interview did not need to be transcribed in its entirety. It was decided to listen to the interviews and transcribe only the necessary quotations. Excel tables were created to organize all of the data. Within each table, the y-axis listed the groups that sit on the PB/GB LOMA committee, while the x-axis listed a general descriptor of their answers. If their answer required a quotation, then this would be typed into the table. If the respondent's answer fell under a general descriptor but did not require a quotation, then the table was marked with an X across from their group name. The number of respondents for each descriptor was also recorded. See Table 4.1 for a fictitious example of this:

Table 4.1: Example of how content of communication was recorded

	Operational/Administrative activities	**Consultation Processes**	**Regulatory Requirements**
Group A	X	X	
Group B	X		Important Quote
Group C	Important quote		
Group D		X	
Group E	X	Important Quote	X
Total # of Respondents	4	3	2

Sets of Excel tables were completed for general information, intra-group communication, public communication, inter-group communication, and additional questions. Within each of these sets, there was a different tab containing a table for each question that was asked during the interview. Each of these tables had an x and y axis that was organized in the manner presented in Table 4.1. Table 4.2 shows the Excel tables that were created to help organize the data that was gathered from the interviews.

Table 4.2: Tables created to analyze qualitative information

Set: General Information	
Tables	How the group became a member of the LOMA
	How the respondent became the representative/alternate
	Other organizations/institutions/programs that the respondent is a member of
	Group structure (size, organization)
	Whether the group has a communications plan
	Additional information
Set: Intra-Group Communication	
Tables	Method and frequency
	Content
	Importance
	Provision of information to group members about the LOMA
	Reporting of input from the group into the LOMA process
	Communication strategies
	Communication challenges
	Additional information
Set: Public Communication	
Tables	Method and frequency
	Content
	Importance
	Provision of information to the public about the LOMA
	Reporting of input from the public into the LOMA process
	Communication challenges
	Communication strategies
	Additional information
Set: Inter-Group Communication	
Tables	Collaboration
	Additional groups that should be included
	Content
	Method
	Importance
	Communication specifically about the LOMA
	Communication strategies
	Communication challenges
	Additional information
Set: Participation and Other Questions	
Tables	Possible mechanisms that could improve communication in the LOMA initiative
	Issues within the LOMA that make IM necessary
	Whether communication is a concern within the LOMA
	The group's participation level in the LOMA

	Whether the group is a part of any working groups
	Whether DFO documents are understandable/applicable
	Whether there is interest from the group in the LOMA initiative
	Challenges of participating in the LOMA initiative
	Benefits of participating in the LOMA initiative
	Additional information

Organizing the respondent's answers in this way helped the researcher to see patterns in the data. In addition, tables were created for some of the responses that were repeated throughout the intra-group, inter-group and public communication so that patterns could be seen in this data. For example, for communications strategies a table was created which would look like the example in Table 4.3. This process was also completed for communication challenges, importance and methods.

Table 4.3: Examples of communication strategies within groups, between groups and with the public

Intra-Group	Personal relationships	Follow reporting requirements/protocols	Keep things simple
# Respondents	6	3	2
Public	Personal relationships	Follow reporting requirements/protocols	Keep things simple
# Respondents	3	2	3
Inter-Group	Personal relationships	Follow reporting requirements/protocols	Keep things simple
# Respondents	10	2	2

Recording the information like this allowed the researcher to examine the interview data without spending extended hours transcribing each interview. It took approximately one month to organize the data; whereas it would have taken much longer to transcribe and then organize the data.

5. RESULTS

Communication and participation in the PB/GB LOMA initiative are explored in this chapter by addressing two questions: What is the nature and extent of participation by stakeholder groups in the PB/GB LOMA initiative? What is the nature and extent of communication of coastal and ocean issues (including the PB/GB LOMA itself) between groups, within groups and with the public in the PB/GB LOMA? A third question: how the nature of communication and participation impact upon integrated management and governance in the PB/GB LOMA initiative, will be explored in the discussion chapter.

5.1 Stakeholder group involvement in the PB/GB LOMA

There are a total of 26 stakeholder groups involved with the PB/GB LOMA Committee (Table 5.1). During the interviews, each of the group representatives indicated their level of participation in the PB/GB LOMA, whether it was to be informed, consulted or to collaborate (Table 5.2). Also, representatives indicated which working groups they were a part of (Table 5.3). Note that the Socio-Economic and Cultural Working Group was collapsed into the IM Plan Working Group in early October 2009, which was just before the interviews took place. The stakeholders were advised of this change to working groups through email. The engagement of each stakeholder group is also summarized in Table 5.4.

Table 5.1: Stakeholder groups on the PB/GB LOMA Committee

Group Type	Stakeholder Groups
Academic	Marine Institute/Memorial University of Newfoundland (MI/MUN)
	School of Ocean Technology (SOT)
Coastal Management Areas/Marine Protected Areas	Coast of Bays Coastal Planning Committee (COBCPC)
	Eastport Marine Protected Area Steering Committee (EMPASC)
	Mi'kmaq Alsumk Mowimsikik Koqoey Association (MAMKA)
	Placentia Bay Integrated Management Planning Committee (PBIMPC)
Fisheries and Aquaculture	Association of Seafood Producers (ASP)
	Fish, Food and Allied Workers Union (FFAW)
	Groundfish Enterprise Allocation Council/Canadian Association of Prawn Producers (GEAC/CAPP)
	Newfoundland Aquaculture Industry Association (NAIA)
	Seafood Producers Association of Newfoundland (SPAN)
Government	Atlantic Canada Opportunities Agency (ACOA)
	Environment Canada (EC)
	Fisheries and Oceans Canada (DFO)
	Parks Canada (PC)
	Transport Canada (TC)
	Provincial Department of Environment and Conservation (DEC)
	Provincial Department of Fisheries and Aquaculture (DFA)
	Provincial Department of Natural Resources (DNR)
	Canada – Newfoundland and Labrador Offshore Petroleum Board
Non-Government Organizations	Canadian Parks and Wilderness Society (CPAWS)
	World Wildlife Fund – Canada
Other Industry	Canadian Association of Petroleum Producers (CAPP)
	One Ocean Corporation (OOC)
	Hospitality Newfoundland and Labrador (HNL)
	Shipping Federation of Canada (SFC)

Table 5.2: Reported levels of participation of stakeholder groups in the PB/GB LOMA

Level of participation	Number of stakeholder groups
Information	9 groups: 4 industry, 3 government, 1 academic, 1 CMA/MPA
Consultation	2 groups: 2 CMA/MPA
Collaboration	13 groups: 5 industry, 4 government, 2 NGO, 1 CMA/MPA

Table 5.3: Number of stakeholder groups involved in PB/GB LOMA working groups

Working group	Number of stakeholder groups
Socio-economic and cultural objectives	16
Conservation objectives	12
IM plan	6
None	5

Table 5.4: Engagement of stakeholder groups in the PB/GB LOMA process

Stakeholder group type	Engagement
Government (9 groups)	• Government plays a key role (most notably through DFO and NL Department of Fisheries and Aquaculture) • Federal departments involved through attendance and input (Atlantic Canada Opportunities Agency and Parks Canada more than Transport Canada and Environment Canada) • Only DFO plays a leadership role • Provincially, the Department of Aquaculture often passes information on to the other provincial departments
NGO (2 groups)	• Reported multiple opportunities to provide input on behalf of their group • Bring information from meetings back to their organizations to seek input on the process
Academic (2 groups)	• Marine Institute/Memorial University involvement has been lacking, as there is no established representative who reports information to the University community and vice versa • The School of Ocean Technology (SOT) fulfils this task somewhat with respect to Marine Institute • The SOT is also collaborating with DFO to create a website for the PB/GB LOMA
CMA/MPA (4 groups)	• All of the representatives reported providing input into the process • CMA groups represent IM at the coastal scale; however, the full potential of participation is not being reached • Representatives bring information from meetings back to their organizations as they see necessary
Fisheries and aquaculture (5 groups)	• The Groundfish Enterprise Allocation Council provides input on a regular basis through commenting on documents that have been distributed • Newfoundland Aquaculture Industry Association and Fish, Food and Allied Workers Union attend meetings and provide input • The above groups report back to their organizations on the initiative as necessary • The Association of Seafood Producers and Seafood Producers Association of Newfoundland are lacking involvement

Other industry (4 groups)	• All provide input into the process • Shipping Federation of Canada is often unable to attend meetings, but will provide feedback on documents that are distributed • Other industry groups attend meetings and bring back information to their groups as necessary

5.2 Benefits of participating in the PB/GB LOMA initiative

The research participants easily thought of benefits of the initiative when they were asked to provide examples. Many of these benefits have not been accomplished as of yet, as they see them as potential benefits for the future. However, some of the benefits are occurring right now, including building relationships and voicing concerns.

5.2.1 Build relationships

An often reported benefit of the PB/GB LOMA is that it allows people to build relationships. For example, one respondent said "Putting a face to the name is not to be underestimated in the equation". However, this can be weakened if a stakeholder group frequently has different people attending meetings instead of a steady representative. Relationship building can have many important results, which can be summarized into categories based on the respondent's answers: the reduction of conflict, cost and bureaucracy; the creation of research linkages and mutually beneficial arrangements; the sharing of knowledge; and the ability to solve problems and dispel myths. The rest of the benefits of participating discussed in this section are also dependent upon relationship building; however, they require further discussion so they will be elaborated upon.

5.2.2 Voice concerns/protect interests

The most cited benefit was that the PB/GB LOMA gave their group the opportunity to voice their concerns and/or protect their own interests. Fourteen respondents from every group type expressed this opinion, through quotes such as, "We feel it's important to participate to make sure our interests are looked after" and "when I go to these meetings I go: 1) to make sure (our) interests are protected, and 2) contribute to the process." Some respondents indicate that they are going mainly just to ensure that nothing happens that is going to negatively affect their group, as expressed in the quote, "The main thing is to be involved in what's going on so it doesn't come back and slap you in the face."

Groups are expected to have interests that they would like to protect, or they likely would not spend their time working on the PB/GB LOMA initiative. Many groups did report that they were participating to add to the process, such as one industry respondent who said, "I want to be able to help them in any way I can, I think everyone who takes the time to attend something like this wants to assist…" Although there are group interests that they must protect, some of the comments from group representatives also indicated that they are attending for more altruistic reasons.

5.2.3 Work toward environmental sustainability and ecosystem health

As one government respondent stated, "A better and more sustainable marine environment is sort of the highest order goal that we're striving for and we need to be part of the process." Although this has not been an observed benefit of the process thus far, it

is an important possible benefit. Respondents often discussed the need for more of a balance between economic gain and environmental damage. The need to create sustainable fisheries through the protection of stocks and habitat was frequently raised, along with the impact of aquatic invasive species. Numerous respondents also discussed the environmental impacts that a major oil spill could have on Placentia Bay. The ability of the PB/GB LOMA initiative to prevent, mitigate or try to address some of these issues was discussed frequently as a benefit, or potential benefit, of the process.

5.2.4 Have an impact upon policy creation

Many respondents noted that participating in the PB/GB LOMA presents them with the opportunity to participate in the creation of policy through playing an advisory role to decision making bodies. As one government respondent said, it is beneficial "to gain access to decision makers, not that the LOMA is a decision making body but it's a venue for information sharing and exchange to inform decision making." Related to this, one respondent reported that because the PB/GB LOMA can possibly provide input into policy, it "gives us more responsibility for our actions. If we're involved in the decision making we're given more responsibility as a group." Another reported benefit was that decision makers could coordinate policy development through the PB/GB LOMA initiative.

5.2.5 Become proactive rather than reactive

Some respondents noted that it is often more effective to be proactive rather than reactive. As one respondent from an industry group said,

> How to see into the future I guess is one of the other things, because what we really try to do is to deal with issues before they become problematic…So it's just keeping the line open, making sure the right information is being exchanged with the right people.

Although being proactive is often a challenge, some respondents also said that the PB/GB LOMA provides a way in which groups can act proactively, rather than reactively.

5.2.6 Address socio-economic issues

Some respondents reported that the PB/GB LOMA presents an opportunity to discuss and attempt to address socio-economic issues. Many of these issues are particularly relevant for rural communities, which are faced with challenges described by respondents, including youth outmigration; lack of employment; and many issues related to the fishery, aquaculture and other emerging heavy industries. Some respondents questioned the role that the PB/GB LOMA plays in addressing these issues, but they were hopeful that it can possibly do so.

5.3 Limitations on participation and progress in the PB/GB LOMA initiative

Various factors were reported as limiting participation and progress in the PB/GB LOMA initiative. These limitations are not caused by one particular stakeholder group, but are caused by a combination of factors. Each of the limitations are not mutually exclusive, as many limitations interact with each other within the PB/GB LOMA initiative.

5.3.1 Lack of ownership and stakeholder buy-in

Fifteen of the respondents indicated that there is a lack of stakeholder buy-in or ownership in the PB/GB LOMA. They either discussed this in general terms, or specifically related to their own groups. As one industry respondent stated,

> Are you doing this because it's mandated from Ottawa? Because that's what everyone's thinking. And if that is the truth, I don't see anyone owning this. There's no ownership…they don't have stakeholder buy-in at this point.

And another CMA and MPA respondent elaborated on this, specifically discussing community involvement,

> …maybe they should have some more community type people in the middle of the room type thing. Give a feeling of ownership…People won't take ownership if a bunch of bureaucrats are coming out and putting that in front of them.

Eleven respondents also noted that members of their own groups were uninterested in the PB/GB LOMA process, while four of them noted that they were somewhat interested. One respondent went as far as to say that he will likely not be attending any more meetings because of a lack of interest from others in his group.

Some respondents also reported that groups did not feel as if they were effectively contributing to the process, which can prevent them from feeling a sense of ownership. As one respondent said, "So people who left, they're fed up. They don't feel that they're contributing. It's really important to make people feel like you're contributing."

5.3.2 Need for stronger leadership

While some groups are trying to work toward more involvement and ownership, they also wish to see more leadership within the PB/GB LOMA initiative. For the most part, this leadership is expected to come from DFO as the lead department. As one government respondent said, "So this is why IM is not working, it's because nobody is taking a leadership role in it. DFO seems to be a little bit afraid to take a leadership role." An industry respondent expressed the need for DFO to play a stronger leadership role because it appears that people are beginning to lose focus due to a lack of guidance.

> There is a real lack of coordination and direction that's where I think they're losing people...They need some management on this, and some really good direction.

Other respondents noted that if this initiative is going to work, the leadership cannot come from the government, it needs to come from other stakeholder groups, especially communities. As one CMA and MPA respondent said,

> Needs clear leadership. Needs strong leadership. And I don't think the leadership for it can come from the bureaucracy. My personal opinion is they need to get some champions out there in the communities…Maybe DFO shouldn't be leading this. What I mean by this is not that they shouldn't have the file and that, but maybe they should have some more community type people in the middle of the room type thing.

It is interesting to note that there are two seemingly opposite viewpoints on who should take a leadership role: DFO as the lead government department, or stakeholder groups as community champions.

5.3.3 Inadequate understanding of goals

Most respondents expressed that they did not have a clear understanding of the goals of the PB/GB LOMA initiative. Although the broad goals have been presented to them on numerous occasions by DFO, people are having difficulty understanding them and seeing where the process is leading. This is implicit in quotes such as, "There's a bit of frustration about where is this going? What does it all mean? and "You lose the point of what you're working on. Where is this supposed to get us?" as well as "It's not really clear what exactly should be achieved and when" and "Conservation objectives, ecosystem based management, you know tell us what that means in practical terms." One government respondent sums up this idea,

> Nobody has described, DFO or otherwise, what will be the positive result or outcome of this IM process. Like in 30 years from now what's gonna be different in Placentia Bay and the Grand Banks? ...We're on board because we have to, either because we don't trust the process and have to keep an eye on it or we genuinely believe that this is what we need to do. And we'll participate for a while. But the question is always, well to what end?

Although DFO has often presented the broad goals, and the process is moving toward creating more specific goals through the creation of an IM plan, respondents are losing interest because it is taking a long time to come to an understanding of these more specific goals.

5.3.4 Lack of understanding of process

Related to inadequate understanding of the goals, many respondents also have a lack of understanding of the PB/GB LOMA process itself. This is implicit in most

discussions with them about the working groups, for example. Numerous individuals are confused about which working groups they are on and what the functions of the working groups are. The general confusion can be understood from statements such as this by an industry respondent, "At the meeting yesterday I looked at one of the girls sitting next to me and I just said, you know, what are we part of? What's this group called?...What are we doing here?" And others who made comments like "I really go and say ok, what are we supposed to be doing here today?" and "Sometimes you get there without understanding the context. It wasn't until I got to the meeting that I understood what was happening." Many respondents were truly confused about the working groups and their functions.

In addition to this, many respondents do not fully understand the complicated process that DFO follows in implementing the PB/GB LOMA. As one industry respondent said,

> Now I know they've been working on it behind the scenes but if there was some structure they could put in place that had easier more frequent updates as to what they are working on, or what the next steps of the LOMA committees are going to be and what all the different committees are because I know that they've tried and the presentations that they do they try to explain this is what we're going to do, and this is what it feeds into...that still means nothing to me a lot of the times because that just goes right over my head. You have to do it simpler. If there was a simpler way that they could explain the process, definitely. Because it does seem very complicated although I know they are trying to make it seem as uncomplicated as possible.

Numerous respondents reported this same issue with respect to the PB/GB LOMA process. They were quite unclear as to how the strategic objectives, management strategies, operational objectives and management actions feed into the overarching goals

of the initiative and the development of the IM plan. This lack of understanding of the process makes it more difficult for them to understand the goals.

5.3.5 Need for recognition of group interests

Some respondents indicated that there is not enough recognition of group interests around the PB/GB LOMA Committee table. At meetings, the respondents announce which group they are representing, but in-depth discussion about what the groups seek to gain from the process are lacking. One government respondent expressed this,

> As we get into this process we need the groups that are not familiar with each other that require some basic education about each other's mandates and interests because if we're going to work out a collaborative process we need to have that level of understanding…Because these processes are so inclusive and so broad and so dependent on collaboration, you can't just throw people together who don't know each other or trust each other and expect it to work…So taking a step back from the path that we're on and saying let's firm up that foundation of personal relationships and trust and open communication are essential.

5.3.6 Lack of long-term thinking and need for immediate results

Many respondents reported that in discussing the PB/GB LOMA with group employees and members, it became apparent to them that their members did not see the benefits of the PB/GB LOMA because it is a long-term process. As one fisheries and aquaculture respondent said,

> In the real world people go on trying to make money and something like what you're talking about (PB/GB LOMA) is looked at as a regulatory function as opposed to something that's going to help. Business people don't look long term. And this Placentia Bay thing is a long term. A lot of their energy goes into the problems that they wake up in the morning they got to deal with during the day.

Another fisheries and aquaculture respondent expressed a similar opinion,

> For most people in the association they would think it's some government bureaucratic exercise. It doesn't mean it's not important, but they don't focus on it. It's important but it's not urgent. They would recognize that intellectually, but in practice they would say well it's not urgent so it's not important to me now.

This idea was more prevalent in fisheries and aquaculture associations and other industry groups because their members were often focused on the day to day operations of their businesses more than long term planning. NGO, academic and government groups were more likely to be willing to dedicate time to long term planning, although one government respondent said,

> The LOMA issues get pushed aside unless there's some pressing concern. Ocean management issues, although we work in the ocean, these issues are probably not as important as other issues. It can be frustrating trying to get these issues addressed.

Many respondents also reported that they would like to begin seeing more results from the process, as they are getting frustrated due to a lack of action. They indicated that they are tired of waiting for the long term benefits. As one fisheries and aquaculture respondent said,

> If there was a meeting right now I wouldn't go. My opportunity for input is minimal. I would go if I see that there is an opportunity for myself to provide real change, I would attend. Right now there's just an exchange of information going back and forth. That's good, there's nothing wrong with that but it's not enough to keep me going to meetings.

As one CMA and MPA respondent said, "People want to see action on issues, not just talk." Many of the respondents expressed a need to know what some of the tangible results are going to be, and to know that they are working toward those results.

Despite this, many of the respondents recognize that the PB/GB LOMA will be a long term process, and are comfortable with this idea. As one CMA and MPA respondent said, "It's going to take a generation before people will get used to a different way of doing things and for fishers to step up and take it on." But they seemed very optimistic that this could happen.

5.3.7 Lack of public awareness and involvement

Numerous respondents indicated that a lack of public awareness and involvement was a severe limitation on participation in the PB/GB LOMA. As one CMA and MPA respondent said,

> I think that with LOMA right now...the majority of the people out in the pubic really don't know, don't even know. LOMA? What is that? Another acronym. What does the acronym mean? What is that anyway? That type of thing. Need more higher profile made of what is trying to be done and what would mean of it right. Very little out there, very little.

Since the interviews for this research were completed in fall 2009, an attempt has been made to bring the community and public perspective into the PB/GB LOMA process through the Regional Councils of the Provincial Rural Secretariat and the Regional Economic Development Boards (See Appendix B for a description of the recent involvement of these groups). While this might be a step forward in public engagement, these are select individuals and their awareness and participation does not constitute involvement of the general public.

5.3.8 Lack of trust of government commitment

Many respondents indicated that there was a lack of trust with respect to government commitment for the PB/GB LOMA. They have been part of past government initiatives that have fallen by the wayside, and they were sceptical that the same thing may happen to the PB/GB LOMA. As one industry respondent said,

> A lot of us have been down the road of large initiatives that DFO and others have started and then essentially have sat on a shelf. It's never led to anything...

And another respondent expressed a similar idea,

> Is LOMA just a buzz term for three to four years as a lot of things are and then it falls off the table? Like the term integrated management is starting to fall off the table. It will be interesting to see in three to four years if it's just something that's died and they've gone on to something new.

Respondents also worried about government's commitment in taking policy recommendations from the PB/GB LOMA Committee into consideration. As one CMA and MPA respondent said,

> Generally people are frustrated with DFO, they don't feel that the reaction time, turnaround time and response is good enough. Everyone feels that they spend a lot of time attending meetings and they don't see the results reflected in policy. This is in general but it's starting to become an issue in the LOMA.

People want to know that there is government commitment to ensure that what they are saying in meetings, and what they will eventually write in the IM plan, will be taken into consideration within government policy and regulations.

Another way that people want to see government commitment is through their attendance at PB/GB LOMA meetings. The initiative is meant to bring together high

level decision makers from each sector and government department involved. However, often these high level government representatives do not attend, and send one of their employees in their place or no one from their department attends at all. As one government respondent said,

> Whenever there's a meeting the senior people aren't there…We end up postponing or not coming. Where's the commitment? Where's the sense of urgency?... Its frustrating for a lot of groups outside who are being asked to become engaged and become fully involved and commit resources and time and energy and effort, and I think their perception is that internally government sometimes do it when it's convenient...

5.3.9 Geographical coverage of the PB/GB LOMA

The area of the PB/GB LOMA was also reported as a limitation to participation, as one industry respondent said, "the geographical limitation might be their biggest obstacle but that doesn't mean it can't happen." Respondents often commented on the size of the PB/GB LOMA, "I guess what I think is it's great that they want to do a large area like these areas all over Canada and have people interact, but sometimes the picture is too big." Although some participants expressed that this was a limitation, they were also optimistic that the PB/GB LOMA initiative could be successful despite its size. The respondent from the Placentia Bay IM Planning Committee was optimistic in saying,

> In Placentia Bay Integrated Management ...we've all gotten to know each other, we're all the same bunch. And then all of a sudden what we were looking at as colossal issues or problems weren't that colossal at all. I always go back to the point that when I sit down at a table now for the LOMA, I have a job to wrap my head around how big that is...that's huge geography right? But I always go back to it that it don't look any bigger now than Placentia Bay looked to me first when I started it. Because I grew up thinking Placentia Bay is the largest bay in NL,

> which is a fact... and now that's so small in my eyes. So the same thing can happen in the LOMA area.

5.3.10 Funding/Cost

At least one respondent from each of the group types reported that funding or cost was a challenge or limitation on participation either about the PB/GB LOMA or coastal and ocean issues in general. It is costly to travel for meetings or conferences, send out information through newsletters or pamphlets, organize informational events, as well as take part in many other communication methods. Although government groups reported this being an issue, it was more prominent for groups such as NGOs.

Some groups are located at a distance from St. John's, which is the central hub for meetings related to the PB/GB LOMA. Within the province, some groups are located about 300km to 500km away, including the Coast of Bays Coastal Planning Committee, MAMKA and the Eastport Marine Protected Area Steering Committee. Outside of the province, the Shipping Federation of Canada is located in Montreal, Quebec and the Groundfish Enterprise Allocation Council/Canadian Association of Prawn Producers is located in Ottawa, Ontario, and the participant from Environment Canada is located in Dartmouth, Nova Scotia. It is sometimes difficult for them to travel to NL due to cost. This can also be an issue for the groups who have to drive, as gas prices and hotel costs can be high. The time it takes for travel can also hinder people from travelling to St. John's.

DFO has provided some funding to groups to participate in the PB/GB LOMA initiative. Some groups that were located outside of St. John's, including the respondents

for the CMAs, MPA and MAMKA have had their travel costs covered by DFO whenever they come to LOMA meetings. Some industry associations also lack funding for initiatives such as this. For example, a respondent from an industry association located outside of the province said they were unable to attend some meetings due to a lack of travel funding.

5.3.11 Complications with Ministerial endorsement or sign off

The role of ministerial endorsement or 'sign off' are also confusing topics that affect the progress of the PB/GB LOMA. Sign off by the Minister of Fisheries and Oceans is the highest level of recognition that can be given to an IM Plan, as these plans do not have regulations that would go to the Cabinet of Canada. Endorsement is similar, in that the Minister recognizes the value of the plan; however, they do not formally support it by providing comments and signing the Plan itself. The Beaufort Sea LOMA IM Plan was signed off by the Minister of Fisheries and Oceans in 2010 and is currently being implemented. It is the only IM Plan that has been formally approved by DFO (Jessen 2011). There are hesitations when it comes to signing off a plan, one of which is that it gives formal recognition that the objectives have to be carried out, which may be a difficult task.

There are questions about whether the PB/GB LOMA IM Plan will get, or need, formal endorsement for the implementation of activities that address its objectives. Even if a federal or provincial government department sits on the PB/GB LOMA Committee, they may not be fully engaged in the process. If this is the case, they may take the

position that they are not obligated to carry out the actions that flow from it. The implication for ministerial sign off could be that other federal government departments may become more obliged to fully engage in the process. However, formal sign off of an IM Plan can be a long process, and whether that will be pursued for the PB/GB LOMA is yet to be known.

5.4 Stakeholder groups not included in the PB/GB LOMA initiative

Each respondent was asked whether there were any other groups that should be included on the PB/GB LOMA Committee that were not at that time. Twelve of the respondents said that the PB/GB LOMA seemed to be inclusive. However, the other respondents did report one or more missing groups from the PB/GB LOMA Committee, which is discussed further below.

5.4.1 Communities and community based groups

Multiple respondents reported that the community voice is missing from the PB/GB LOMA. As one industry respondent said,

> If you leave them (communities) out at this far, you've left them out. You never recover that time. And you create a mistrust right from the get go. So consultations is something that I do all the time, and there's certain expectations and if you leave people out, you know, there should be fishermen there, not just the FFAW. There should be more oil and gas people there, not just CAPP. And you're never going to get a full picture if you don't have all the people in the room. Now…they could segregate it, they could go out and do smaller type (consultations), you know. But I think the initial consultation that they had didn't set up how they were going to follow through, and if that had of happened it would have been much easier to say ok we're gonna come back to you through email with some questions.

Many others expressed this same viewpoint, including one CMA and MPA participant:

> I was sitting there the other day, and the coast is where the resources hit land, it's where the economic impact happens, it's on the coast. And there's a community voice missing at the LOMA...I was sitting around and thought who is representing Bonavista Bay, Trinity Bay, St. Mary's Bay and Placentia Bay? The communities that are part of the LOMA haven't got a clue that they are.

Numerous respondents suggested that municipalities should be involved in the process, perhaps through avenues such as Municipalities NL. Community based organizations were also suggested, including the Northeast Avalon Atlantic Coastal Action Program, the Federation of Newfoundland Indians and local fish harvester committees.

It was also suggested many times that the Regional Economic Development Boards, ten of which are in the PB/GB LOMA, were also missing from the PB/GB LOMA process and should be included to help gain some community perspective. As mentioned in section 5.3.7, these boards have recently been involved in the process after the time of the interviews (group description is provided in Appendix B). Their future involvement in the process is not known at this time, although they have attended two PB/GB LOMA workshops.

5.4.2 Other Provincial Government Departments

Respondents reported that two other provincial government departments should be included on the PB/GB LOMA Committee. The Department of Innovation, Trade and Rural Development was discussed because they have developed their own ocean technology strategy entitled "Oceans of Opportunity: NL's Ocean Technology Sector

Strategy Report" (2009). The Department of Tourism was also discussed, due to the dependence of tourism in NL on ocean and coastal areas.

Two government Crown corporations were also reported as missing from the PB/GB LOMA Committee. One was Marine Atlantic, a federal Crown corporation that operates a ferry service within the PB/GB LOMA and the other was Nalcor, a provincial Crown corporation focused on the generation and transmission of electrical power in NL.

5.4.3 Other Industry

Although the PB/GB LOMA Committee includes various industry sectors, it was reported by some respondents that others should be included. Although the oil and gas industry is represented through Canadian Association of Petroleum Producers and the Canada-Newfoundland Labrador Offshore Petroleum Board, one respondent suggested that the NL Oil and Gas Industries Association also participate to represent the suppliers and companies that have interests in the PB/GB LOMA. Another respondent noted that there should be more representation from the specific oil and gas companies.

It was also suggested that fisher organizations should be involved more in the process. As one respondent who works with fishers said:

> I wish there were more grassroots representation from fishermen and its one of the reasons that I keep insisting on my guys that we keep our seat there…but I sort of look at the oil and industry associations lines off and I think boy there's not much grassroots representation of fishermen here.

It is interesting to note that some groups reported that there should be more oil and gas representation, while another individual had the perception that there was an abundance of people representing that industry.

Other respondents reported that there should be more representation from heavy industries in the area that have oceans interests, including the upcoming Vale Inco NL Limited's Long Harbour Commercial Nickel Processing Plant, and Newfoundland Transshipment Limited's Whiffen Head Oil Storage Terminal and Facilities. In addition, the North Atlantic Refinery Community Liaison Committee was discussed, which meets on a monthly basis to discuss issues related to the oil refinery in Come by Chance.

Oceans Advance is another important initiative that some respondents indicated should be involved in the PB/GB LOMA initiative. It is a multi-stakeholder, regional technology cluster initiative that aims to make St. John's an international location of choice for ocean technology.

5.4.4 Youth and schools

Finally, respondents noted that there is a lack of involvement in the PB/GB LOMA from youth, who could be reached through the school system. It was suggested that the NL Teaching Association become involved, so they could learn more about providing ocean literacy in the provincial curriculum. As one industry respondent indicated, there is a need for ocean education in schools,

> Most people don't see the ocean as important in their lives because they don't understand what it does for them. I don't understand why we've got a province that's history and economic success is based on the ocean and have nothing in the schools on oceans.

Some respondents suggested that teachers and students from kindergarten to grade twelve and on into post-secondary education should be involved in initiatives such as the PB/GB LOMA because it could allow them to become more involved in ocean education.

5.5 Communicating about coastal and ocean issues

Respondents were initially asked about communication about coastal and ocean issues in general. This was done because the PB/GB LOMA initiative is still in a formative stage and that there may not be much communication about it. Additionally, it is further assumed that the methods and channels used to communicate about coastal and ocean issues are likely the same ones that LOMA members would use for any information about the PB/GB LOMA initiative. For this thesis, communication refers to imparting or exchanging information, so all communication referred to is not necessarily two-way.

5.5.1 Internal communication

Internally, groups can have two types of individuals: employees and members. Employees are people working for the organizations while members are those who pay membership dues in groups such as industry associations, unions or NGOs. Fifteen of the respondents indicated that they have both employees and members that they can communicate with, and ten of the groups had employees but not members.

5.5.1.1 Methods of communicating with employees

Two to nine methods of communication were indicated as being used with employees. The methods used by all groups were email, telephone calls and face-to-face meetings, followed by informal discussions and board/management meetings, as shown in Figure 5.1.

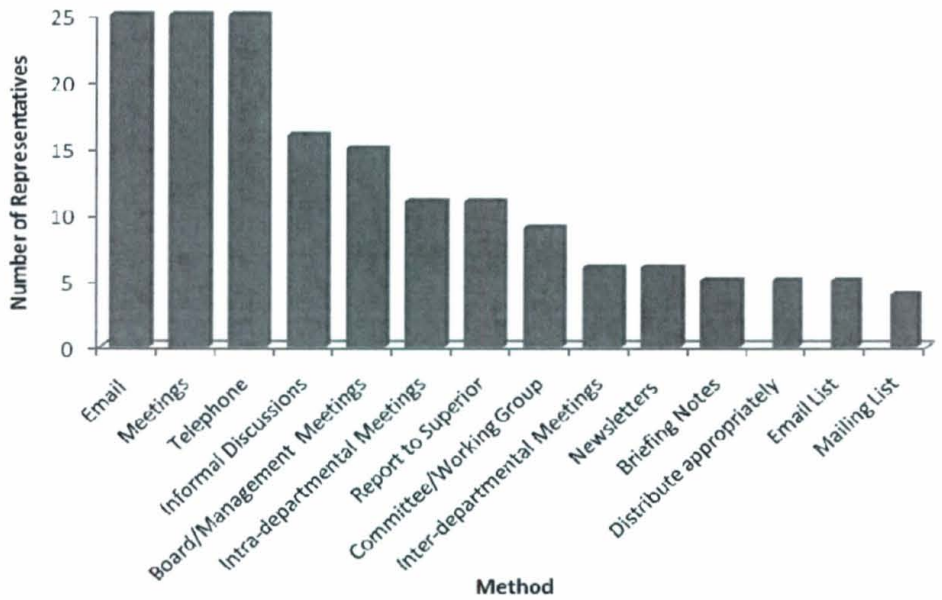

Figure 5.1: Communication methods used with group employees

Fifteen of the respondents also noted that board or management meetings occurred at least yearly and at most weekly, with the most occurring quarterly. In most cases these meetings revolved around or included discussion of coastal and ocean issues. In a few cases, coastal and ocean issues were more peripheral; however, the employees were given opportunities to discuss them if necessary.

The results showed that there were numerous communication channels to exchange information about coastal and ocean issues among employees within groups. Many respondents reported that they have built a network within their workplace in which they could discuss coastal and ocean issues with other employees as frequently as necessary. However, some respondents from government departments noted that divisions or sections within their departments have worked in 'silos' in the past, and they

were trying to be more transparent and share information with each other more frequently. There was evidence that this was not happening, however, as some respondents from government departments noted that they did not have regular correspondence with other sections or branches and worked separately from them.

5.5.1.2 Methods of communicating with members

In the PB/GB LOMA initiative, the representatives and/or their alternates are expected to communicate with members to provide information and receive feedback about the process. Many of the same methods were used for communicating with members and employees; however, the methods were used in different ways. Again, email and telephone were used by all of the respondents (Figure 5.2).

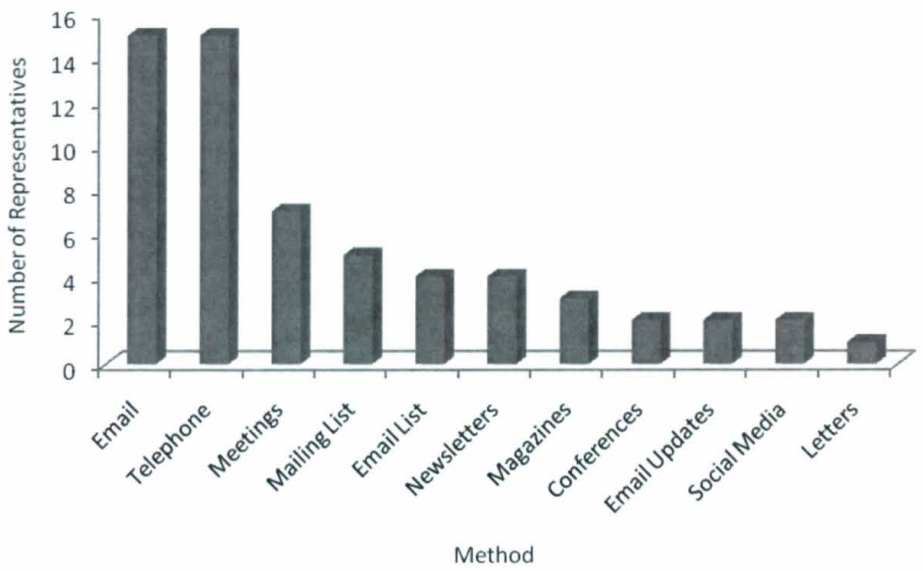

Figure 5.2: Communication methods used with group members

Respondents discussed coastal and ocean issues with members during committee meetings for the Coastal Management Areas, the Marine Protected Area and MAMKA. Within these meetings, participants are stakeholder group representatives from the local area. These CMAs and MPA are structured much like the PB/GB LOMA, because different sector representatives sit on them. The representatives are expected to take information they learn from meetings and pass it along to members of their own groups. The respondents interviewed from the CMAs, MPA and MAMKA reported that their own group members/representatives may or may not be fulfilling this expectation. Representatives tend to report information back to their groups if it is directly related to their group's interests, and often formal structures (such as fishermen's committees through the Fish, Food and Allied Workers Union) help them to pass information along.

Industry respondents also communicated with members through committee or board meetings, in which group members were asked to participate. For example, the Board of Directors for many of the industry associations were composed of companies of various sizes or interests. The members of the boards were also expected to return to the respective companies that they represent and discuss the information they have exchanged at their board meetings. The industry participants in this research often stated that information was presented to members in these meetings; but it is not known how much information is being passed on to their entire membership.

Nine of the groups communicated with their members either through sending newsletters, magazines or letters through mailing or email lists. Social media such as facebook™ and YouTube™ were also reported. More remote methods were relied upon

to a greater extent for communicating with group members than employees. For example, all of the respondents used meetings to discuss coastal and ocean issues with their co-workers, while just over half of them used meetings to discuss these issues with members.

All of the groups did have ways to reach their memberships to inform them of coastal and ocean issues, and some were more formalized and utilized than others. For example, HNL has membership lists for the various sectors it represents and could let members know of any issues if necessary. However, issues surrounding the coasts and oceans are not often an integral part of this group's mandate, so these channels were not often used for these topics. Other groups had formalized channels for communication with members, such as regular newsletter releases and meetings, which could be used to communicate about coastal and ocean issues.

5.5.1.3 Content of Communication

When respondents communicated about coastal and ocean issues with others in their groups, they tended to exchange advice or feedback. For example, one respondent said that they communicated because they were "looking for someone else's expertise and advice." Respondents may participate in this exchange by commenting on documents, or through sharing past experiences. They also communicated most often about administrative or operational activities; regulatory requirements and environmental assessments; and upcoming meetings.

5.5.2 Communication between groups

5.5.2.1 Methods of communication

The respondents used various methods to communicate with others on the PB/GB LOMA Committee. All of the respondents used email, telephone calls and meetings. Many noted that PB/GB LOMA meetings were a good place to communicate with others about coastal and ocean issues. Other methods reported by one or two respondents were presentations, websites, hand-outs, information sessions, workshops, conferences, newsletters and letters. Methods such as mass email lists and postal distribution lists were used less often to communicate with other groups, as the respondents often contacted individuals directly when they needed to discuss specific issues.

5.5.2.2 Content of communication

When groups communicated, they tended to discuss opportunities for collaboration; group initiatives and activities such as sector statistics and projects; government policy and regulations, particularly related to the oil and gas and fishing industries; environment and conservation, mainly connected to the ocean, biodiversity and climate change; and funding, as many groups looked to the provincial and federal governments as possible funding sources. The highest reported content of communication between groups in the PB/GB LOMA are shown in Figure 5.3.

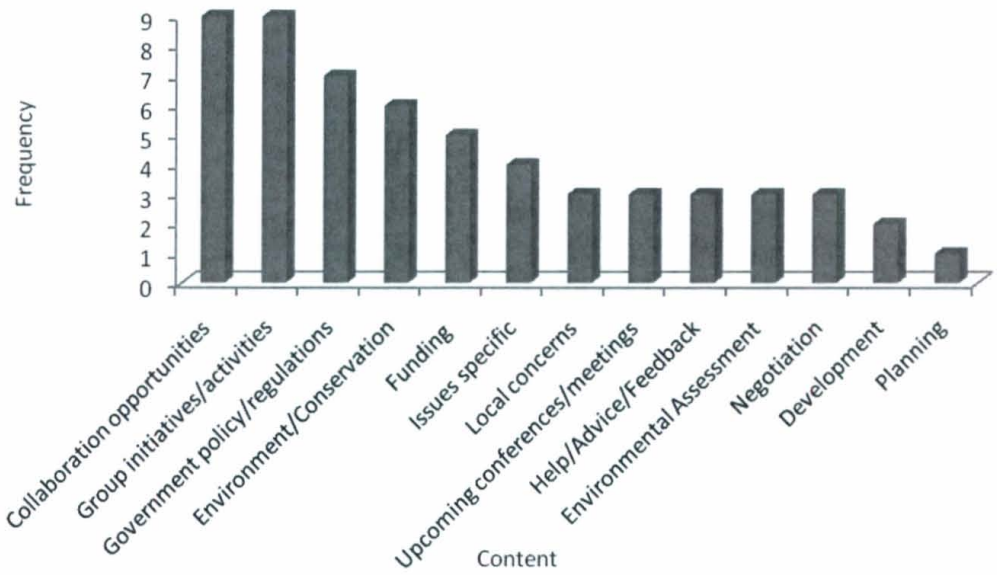

Figure 5.3: Content of Communication between Groups

5.5.2.3 Structure of the communication network

Social Network Analysis was performed on the quantitative data dealing with communication about coastal and ocean issues between stakeholder groups. The communication was not specifically about the PB/GB LOMA, and thus the analysis does not represent the group's roles in the initiative. Instead, the analysis depicts the network for communicating about coastal and ocean issues as it existed at the time of the interviews between stakeholder groups on the PB/GB LOMA Committee. MI/MUN was left out of many procedures because no one from that group was interviewed.

Reported communication

This analysis deals with reported communication, which refers to whether or not a respondent identified another group as one they communicate with. In graphs used in this

analysis, arrows represent whether the respondent on one end of the line reported communicating with the group on the other end of the line. The sociogram for reported communication can be seen in Figure 5.4, while the list of stakeholder groups and their codes for SNA are provided in Table 5.1 or Appendix B

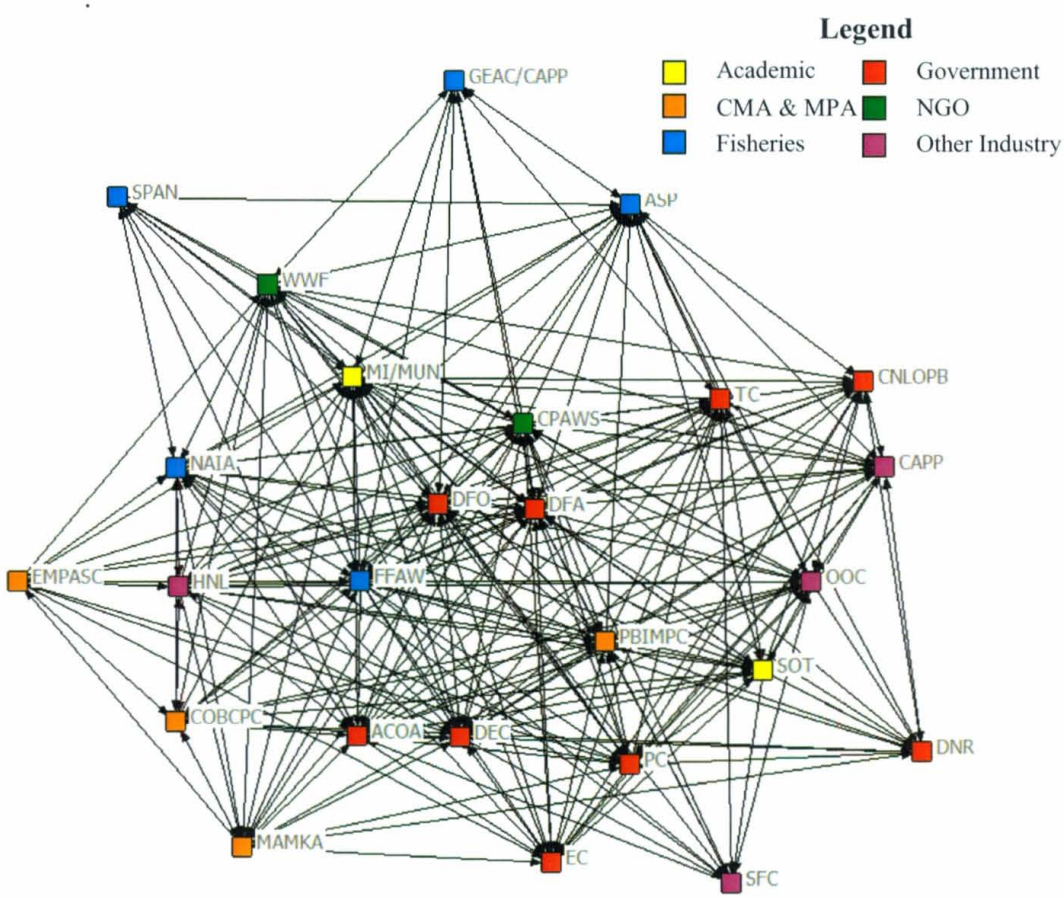

Figure 5.4: Sociogram of the reported communication network (See Appendix B for a list of stakeholder groups and their codes)

As can be seen in the sociogram, two government departments (DFO and Department of Fisheries and Aquaculture) were identified as being central to the network,

while others (Environment Canada, Department of Natural Resources, Canada-Newfoundland Labrador Offshore Petroleum Board) were identified as peripheral. This is based on both the number of incoming and outgoing ties. Many of the fisheries and aquaculture groups were located farther away from the centre of the communication network, including Seafood Producers Association of Newfoundland, Groundfish Enterprise Allocation Council/Canadian Association of Prawn Producers, and Association of Seafood Producers.

In order to better understand the sociogram, consider the degree of each group. An actor's degree is a numerical measure of how many other actors it is connected to. Figure 5.5 illustrates the number of communication ties each respondent reported having with other groups (out-degree) and the number of ties that all the other actors reported to have with that actor (in-degree).

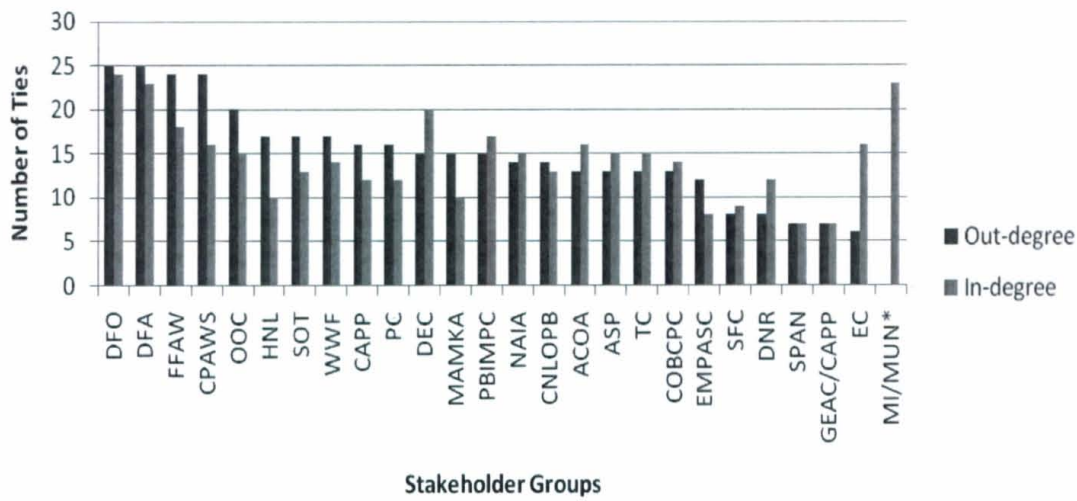

Figure 5.5: Out-degree and in-degree of reported communication (* incomplete data)

The in-degree and out-degree for most of the groups varied quite significantly. For example, Environment Canada reported communicating with six groups, while seventeen groups reported communicating with Environment Canada. Possible explanations are that 1) the communication occurred with other individuals within Environment Canada; 2) the Environment Canada respondent did communicate with them but ignored or forgot about it; or 3) the individuals who said they communicated with Environment Canada actually did not; or 4) any combination of these. It is impossible to tell which was the case based on the information gathered through this research.

Density is the amount of actual ties as a proportion of the amount of possible ties. The density of the communication network was 59%, so out of a possible 600 ties (25 multiplied by 24), 351were present. The data also shows that 93.8% of the ties that were present (318 out of 351) were reported as being two-way reciprocal ties. This means that the respondents usually reported that there was communication both ways, not just that one group was either providing or receiving information.

The network centralization for both in-degree and out-degree was 43%. Centralization reflects the distribution of ties, providing information regarding the extent to which network activity is concentrated upon few dominant individuals. In this case, the dominant actor was DFO.

Reported collaboration

Respondents were asked whether they collaborated with the groups they reported communicating with. 'Collaborate' was defined as whether they worked on projects or

have formal arrangements to work together. The respondents were only given this definition and thus the results were based on their own interpretation of this definition. Figure 5.6 is a sociogram that represents the collaboration between groups. In this analysis arrows represent whether the respondent from the group on one end of the line identified the group on the other end as one they collaborate with. This sociogram differs from those shown in the previous analyses, because this time MI/MUN was highly central to the collaboration network. This pattern emerged despite the fact that there was no one from MI/MUN interviewed, thus this high score was based on the other respondent's perspectives on the institution.

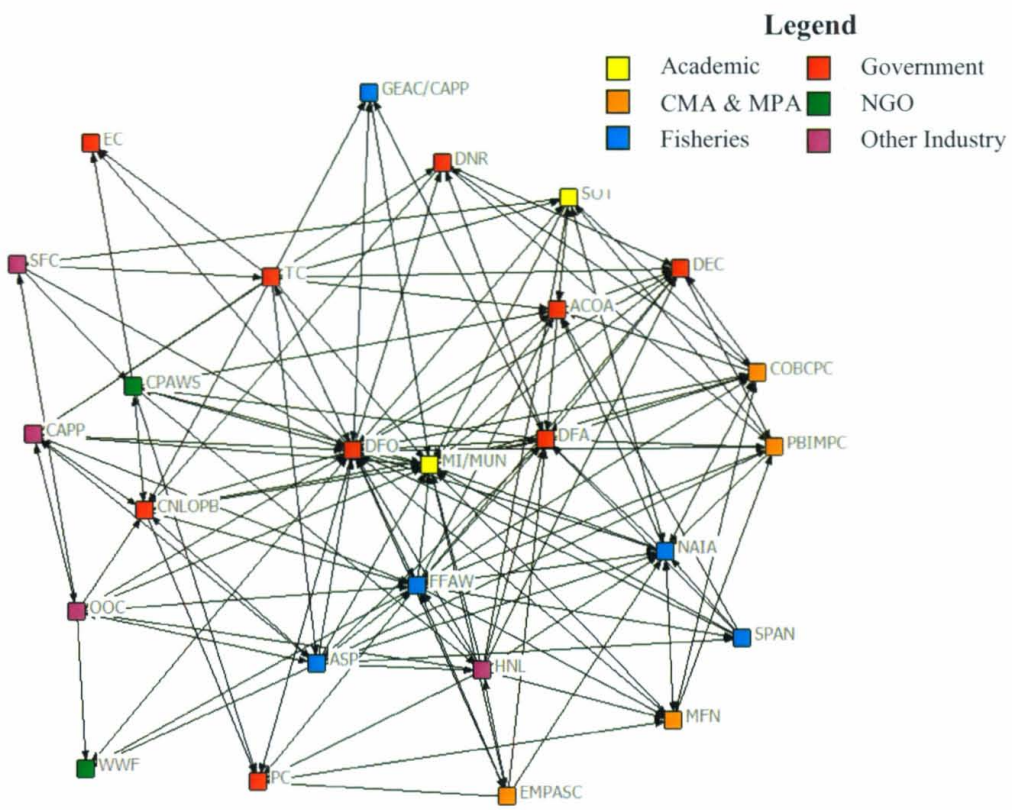

Figure 5.6: Collaboration network of the PB/GB LOMA

Degree centrality was calculated for reported collaboration. The results show that perspectives on collaboration varied greatly between groups (Figure 5.7). This is likely confounded by the ambiguous definition given to respondents. These results show that the MI/MUN was identified more than any other group as one that people collaborate with. This shows that MI/MUN played a very central role in the collaboration network, more so than it did within the reported communication network. DFO and the Fish, Food and Allied Workers Union were also central to the collaboration network.

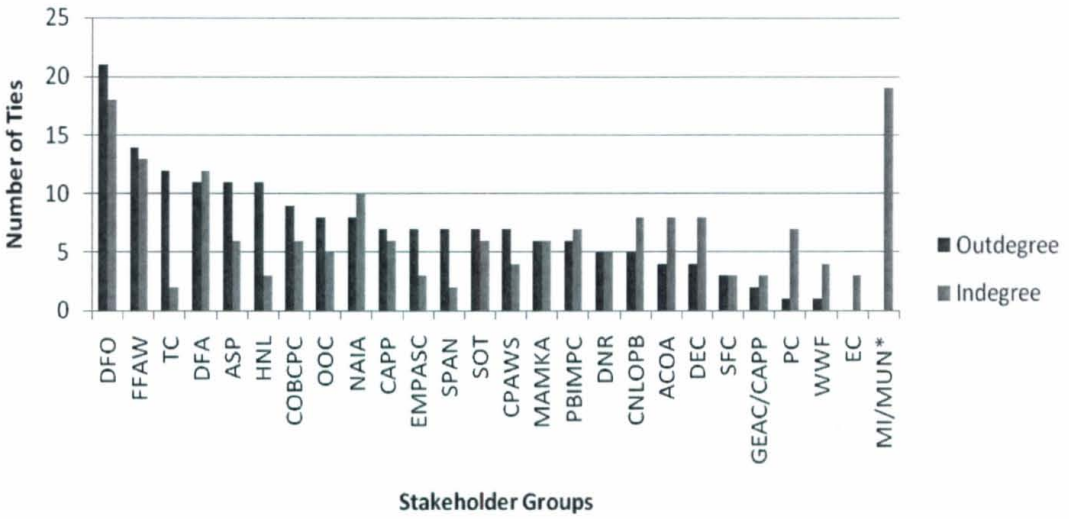

Figure 5.7: Degree centrality of the collaboration network (* incomplete data)

The network density of collaboration can also be an important indicator of how connected the network is when it comes to projects and formal arrangements. The density of collaboration in the network was 26%, meaning that out of a possible 600 ties, 158 were present. This is a much lower density than that for the communication network as a

whole (which was 59%). However, it does show that over a quarter of the communication in the network was carried out collaboratively to work on joint ventures.

The centralization of the network was also determined. The network centralization for the out-degree is 59%, while for the in-degree it is 51%. This is substantially higher than the centralization for the reported communication network (at 43% for both). This shows that the collaboration network is highly centralized, with much of the collaboration revolving around DFO, while MI/MUN also appears to be highly central.

Frequency of communication

The respondents from each stakeholder group also indicated the frequency with which they communicated with other groups, as shown in Figure 5.8. This shows that the frequencies that were reported most often were never, quarterly, annually and monthly, with more frequent communication (such as weekly or daily) occurring less often.

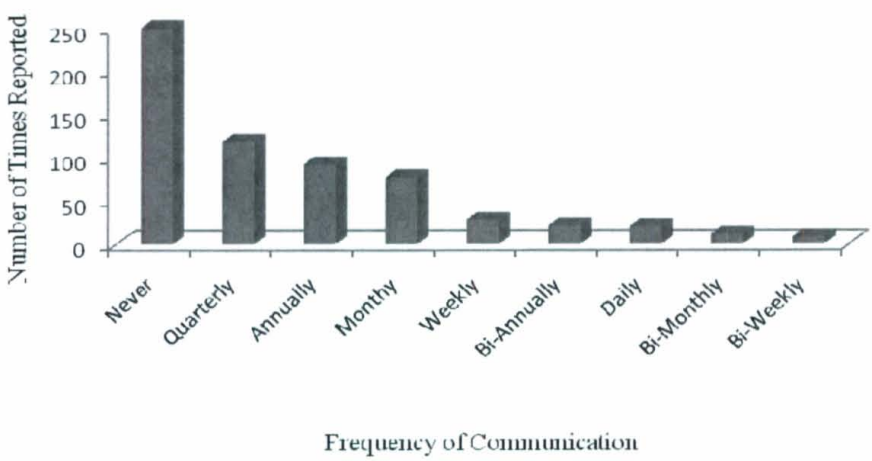

Figure 5.8: Reported frequencies of communication within the communication network

5.5.3 Communicating with the public

This section discusses communication between the stakeholder groups and the public about coastal and ocean issues. A total of 21 out of the 25 groups interviewed communicated with the public about coastal and ocean issues. Also, 18 of the 25 groups had communications or public relations departments or directors, which were responsible for much of the communication between those groups and the public. All of the government groups had local employees in these roles, while some industry associations and the NGO groups had national communications or public relations employees for their entire organizations. Eight of the respondents noted that they often consulted people in their communications departments before communicating with the public. Figure 5.9 shows the highest reported methods used for communicating with the public.

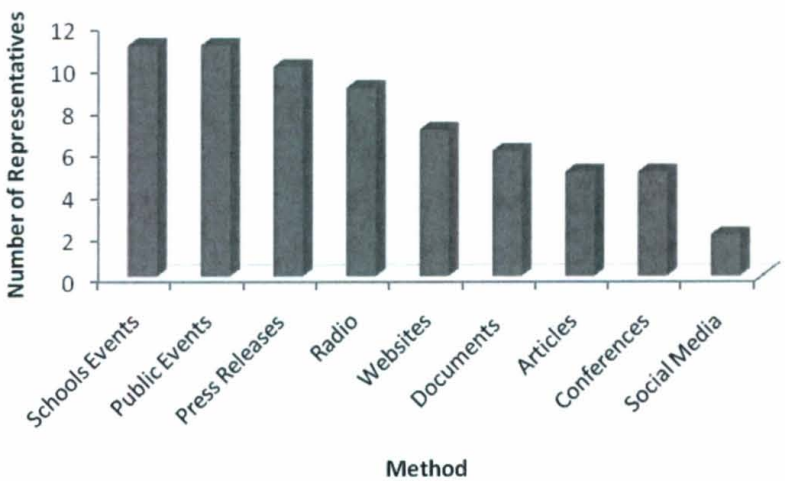

Figure 5.9: Communication methods used with the public

Twenty-one respondents reported that they participated in communication with the public themselves, or that they were familiar with the work of others in their group to communicate with the public. Communicating with youth was done through School programs, presentations, and events such as career fairs, youth groups such as Girl Guides of Canada and Scouts Canada. Communicating with the general public was done through events such as community festivals or regattas, farmer's markets, music festivals, shoreline cleanups, tours and celebrations such as Earth Day or Oceans Day.

Stakeholder groups also focused on communicating with the media to inform the public of activities or issues that may have interested or affected them. Press releases and radio were often used for this purpose. These forms of communication were frequently carried out by communications or public relations employees; however, respondents were regularly asked for their input. The Fisheries Broadcast, which is a radio program on the Canadian Broadcasting Corporation, was cited eight times as a way to communicate with the public. Social media such as facebook™ and YouTube™ were also reported.

Groups in the communication network within the PB/GB LOMA were very active at getting information out to the public, as most of the groups provided information to the public through a combination of methods. Despite this, it seems that the network for receiving input back from the public is lacking. Most of the reported communication was said to be education and awareness based, while some was issues based, as stakeholder groups explained their positions on different matters. There were only a few cases of groups receiving feedback from the public being reported. These included a provincial government department sending out a discussion paper to be commented on, a First

Nations group sending out community surveys, and some community consultations carried out by four of the government departments on topics such as fisheries and climate change.

5.6 Communicating about the PB/GB LOMA initiative

The methods used for communicating about the PB/GB LOMA were the same as those used for communicating about coastal and ocean issues. However, the specific content and the frequency of the communication differed, as discussed below.

5.6.1 Communicating within groups

5.6.1.1 Communicating with employees

All of the group respondents provided information about the PB/GB LOMA to their employees, with the exception of Seafood Producers Association of Newfoundland, which is not included in this analysis because it only has one staff member. The content of communication was virtually limited to brief written summaries or discussions of what had been going on in the PB/GB LOMA process. These summaries were used to let the group members know about the PB/GB LOMA meetings and update the group on what happened, especially if it could affect their group.

There was often no discussion of the PB/GB LOMA initiative beyond these brief interactions, as group respondents often reported that the PB/GB LOMA process was not at the point where they would collect input from others in their groups. This was reported even though the entire process up to the time of the interviews had been based on input in meetings and through commenting on documents that were distributed. The objectives

and strategies of the LOMA were created through the input of representatives at meetings (as there was very little input received after document distribution), but it seems that this input was not greatly discussed outside of PB/GB LOMA meetings.

There were only four examples in which groups discussed the PB/GB LOMA in more detail. DFO has much more in depth discussions on the PB/GB LOMA with other employees within their group because of their role as the lead department. The DFO employees responsible for the PB/GB LOMA reported communicating with others in the department to gather scientific information and coordinate activities. The respondent from Department of Fisheries and Aquaculture also had more in depth discussions with group employees because of their more in-depth involvement. Also, both respondents from the NGOs reported discussing the LOMA in depth with board members or co-workers as they decided upon their role and next steps in the process.

5.6.1.2 Communicating with members

As reported, fifteen of the groups had members that the PB/GB LOMA respondents could communicate with. Nine out of those fifteen respondents did communicate specifically about the PB/GB LOMA with group members, while six did not. This communication was also limited to brief summaries or discussions, with very little feedback being given to respondents about the PB/GB LOMA initiative. Most of the communication revolved around members' confusion about the initiative, and their curiosity about what it is meant to accomplish. Some of the respondents from the fisheries and aquaculture and other industry group types reported that members were skeptical about the initiative, or were often uninterested in discussing it.

5.6.2 Communicating between groups

When asked if they communicate with others about the PB/GB LOMA outside of the formal meetings, sixteen out of the twenty-five respondents said no. Respondents from government departments discussed the initiative outside of the PB/GB LOMA meetings, and they often communicated through formal processes associated with Canada-NL Committee on Oceans Management, Regional Oversight Committee on Oceans Management, and the Provincial Coastal and Oceans Network. IM is a large part of what these committees are trying to achieve, thus the PB/GB LOMA has come up in their meetings. The only other discussions on the PB/GB LOMA outside of meetings were those that occurred between MAMKA and the Coast of Bays Coastal Planning Committee.

In general, most respondents had not used the PB/GB LOMA meetings or workshops to build relationships that have led to partnerships or collaboration up to the time of the interviews. They were building relationships by discussing issues with others during meetings, which was an accomplishment; however, most had not built relationships solely through the LOMA process that have led to collaborations or partnerships. The only exceptions were that DFO has built a partnership to undertake the process with the Department of Fisheries and Aquaculture, and that DFO is collaborating with the School of Ocean Technology to build a website.

5.6.3 Communicating with the public

Eight respondents, who are from all group types except for academic, reported communicating with the public about the PB/GB LOMA. It is interesting to note that all four of the respondents from the CMA and MPA group type had communicated about it with the public. Communication was limited to brief summaries of involvement in the initiative, by taking part in informal conversations and including it in their newsletter. If people from the public did communicate with respondents about the PB/GB LOMA, it was usually to learn more about what it is and what its goals are. The public usually did not provide input back to the respondent about it, and if so it was usually limited to negative comments about not knowing what was going on.

5.7 Importance of communication

In the interviews, the PB/GB LOMA Committee members/alternates were asked if communication is important within groups, between groups and with the public. All of them said that communication was important and provided reasons for their answers, which are outlined below.

5.7.1 Knowledge sharing

Knowledge sharing was the most common reason why respondents reported that communication was important. What the research participants meant by 'knowledge sharing' can be deciphered from their responses as they referred to knowledge as a way to promote an understanding of certain issues by raising awareness. One NGO respondent noted that it is "important to share knowledge because we all have various levels of

expertise" and the combination of the knowledge in different areas can help groups function more efficiently and increase the likelihood that objectives will be met.

5.7.2 Increase awareness of group interests and activities

Many respondents reported the need for themselves and other people to understand their group's interests and activities, whether those people were within or outside their group. As one of the industry respondents noted, "We're an association; our role is to represent our membership so it's sort of at the core of operations. If you don't know your members you're not going to do a good job at representing their interests."

Many respondents were aware of the need for all of the groups to have an understanding of each other's interests, which can lead to an understanding of the system as a whole. As a government respondent said,

> The only way that we can ever hope to even have a glimmer of how this system operates is through not only regular but more intense communication amongst all of the interests. That is, hearing from each other on a regular basis to the effect of understanding each other's interests.

5.7.3 Avoid misunderstandings, resolve conflict and identify opportunities

Numerous respondents noted the importance of communicating to avoid misunderstandings or misconceptions. With reference to communication within groups, one fisheries and aquaculture respondent said "They (members) may hear something from someone else and wonder why they didn't hear it from us." This illustrates that open and frequent communication can help to avoid misinformation from reaching a group, or

mistrust if they expect to hear something from their group but hear it from someone else instead.

Avoiding misconceptions about other groups is also quite important, as one government respondent noted, "In the absence of communication and information, people make up their minds without having the right information." With respect to communication with the public, one CMA and MPA respondent said, "When I don't open up that communication a lot of problems or misconceptions are built up if you don't keep them dealt with." This illustrates that communication with the public is quite important to some groups, as they sometimes struggle to keep up to date.

Respondents reported that communication is important for working toward conflict resolution and finding mutually beneficial arrangements between groups. As stated by a government respondent:

> Oceans is a complicated piece of business with multiple issues and sources of conflict and multiple opportunities. We need to cooperate and collaborate to find the win win situations so we can support various industries. We should have one group talking to others to see if there can be mutually beneficial arrangements...Everybody is off focusing on their own particular piece of the ocean, and so this collaboration that the concept of integrated management, the concept of a LOMA committee, is long overdue.

This quote reflects the idea that although there are various sources of conflict when dealing with ocean issues, there are also many opportunities for collaboration. Through communicating about these opportunities, different groups can understand each other and possibly even agree on benefits and joint initiatives for multiple groups.

5.7.4 Increase effectiveness and co-ordination

There are many ways in which communication was said to increase effectiveness and problem solving. Numerous respondents noted that communication makes their jobs easier; while others said it can clarify job descriptions, allowing people to do their jobs better. Communication can also increase effectiveness by facilitating helpful feedback on activities. Communication was said to be important in coordinating activities and limiting duplication. Many respondents said that information should be shared so that people are not copying similar initiatives, programs, projects or studies. As one academic respondent remarked,

> The thing of silos of information and keeping everything to themselves is everyone goes out and collects data. To me everyone should be out there only once and it should all be shared. The more you can share with others the more you advance the cause of everybody. That's what the whole LOMA is about and groups such as IM groups and the traffic committee.

5.7.5 Increase buy-in

Respondents reported that communication with the public was important to increase buy-in for their group's activities. As one CMA and MPA respondent said with respect to the public "(communication is important for) keeping them up to par and having them on side. I find that if you've got a well informed public they are more inclined to agree with what is being done." Another example is within the Eastport MPAs, as there are large fines for taking part in illegal activities in the MPAs. The respondent noted that the public needs to be aware of its location and restrictions so that they do not unintentionally partake in any illegal activity. As the respondent said, "The

fact that (someone getting fined) could happen in an innocent recreational afternoon would really put a stain on it so we do our best to avoid it."

5.8 Communication strategies

PB/GB LOMA Committee members/alternates were also asked about communication strategies within their own group, between stakeholder groups and with the public. Many of the below strategies were reported as being used within any or all of these contexts.

5.8.1 Develop personal relationships

The most common strategy used to enhance communication was developing personal relationships. It was often cited as being necessary for communication, as respondents said, "I think that if you don't have good relationships you won't have good communication" and "It all boils down to personal relationships." Developing networks of people who they are comfortable discussing issues with and who are comfortable coming to them for information or discussion was described as very helpful. Having face-to-face interactions is important, as one CMA and MPA respondent said, "What helps me mostly with that type of communication is that I know most of them personally, have met them face-to-face in the past so it's a little easier that way."

5.8.2 Seek support from within group

Respondents reported that communication was enhanced through seeking support from others within their group. The most commonly cited example of this was the

reliance on communications or public relations employees who helped provide guidance on communications. In addition, respondents often remarked that internal committees helped them to communicate. For example, the Fish, Food and Allied Workers Union depended upon internal fisheries committees for communication with fish harvesters. Numerous government respondents reported that it was also important to seek advice or feedback from other divisions within their own department, as well as from board members or management teams.

5.8.3 Seek support from other groups

Numerous respondents reported that they depend upon people in other groups for support, feedback and advice. The use of this strategy suggests the importance of the communication network, which could have or is already having a positive impact upon the PB/GB LOMA initiative. One opportunity for this emerged when interviewing Parks Canada, which carries out a great deal of public outreach programs within Terra Nova National Park. Parks Canada is developing an external relations program and their respondent remarked that the PB/GB LOMA initiative could likely utilize this network for communicating with the public. This might be an opportunity for collaboration between two federal departments when the PB/GB LOMA initiative can be successfully conveyed to the public.

5.8.4 Use clear and concise wording

The respondents often noted that the use of clear and concise wording is necessary for effective communication. Keeping things simple, summarizing and

interpreting information for others were often cited as examples of this. As one government respondent said,

> It's always a balance between dumping information…and not providing anything at all. So we look for the balance. For instance if a big package comes in for a PB/GB meeting or something, depending on who I'm communicating with I produce an analysis, summary and recommendations… It would be easy to just hit forward but they get so much information...so if I just flip stuff generally without any sort of analysis or interpretation they'd probably just ignore it or delete it.

5.8.5 Consider the audience

According to government managers that were interviewed, there is a need to tailor the communication method for the type of audience it is directed toward. As one government respondent remarked,

> In government too often we develop one communication method for every audience. We fail to recognize that every single audience, a lot of them have different communication needs in terms of how they want to hear it.

Many respondents noted that they use the internet much more today than they have in the past. Social media such as facebook™ and YouTube™ are growing in importance and as one government respondent said,

> We're looking at using social media much more because government is not known for that. But we recognize the potential and impact…looking to use social media to reach new audiences and existing audience in different ways that they want to be reached in. I think that any organization in that kind of business has to be continually changing.

5.8.6 Maintain communication requirements or structures

Some respondents reported that communication structures, protocols and requirements that are placed on them by their own group help them to communicate. An

example of this was being required to complete briefing notes for managers or supervisors upon the conclusion of meetings, including those of the PB/GB LOMA Committee. Other specific examples of this were lacking, and this may be because they felt that this strategy is important but not used as often as necessary.

5.8.7 Develop personal traits

Many respondents stated that different personal attributes were helpful for communicating with others. These included being engaging, limiting competitiveness, making an effort to get to know people, being relatable, respecting other's viewpoints, listening and being open to others. The most important trait seems to be an appreciation that everyone has a different perception of the world. One industry respondent effectively summarized this idea in the following quotes,

> Communication is not so straightforward. It's a wonder that we communicate at all because when you go back to our perceptions…your perceptions and my perceptions are coloured by our upbringing…I mean you bring all that to the act of communication, and two people from dissimilar backgrounds and you're asking them to see something in a similar way, which is just not easy. There has to be a willingness to hear what the other person has to say.

5.9 Communication limitations

PB/GB LOMA Committee members/alternates were also asked about communication limitations within their own group, between stakeholder groups and with the public. Many of the below limitations were reported as being used within any or all of these contexts.

5.9.1 Language used

Respondents were asked whether they believed that the documents and language used by DFO to communicate about the PB/GB LOMA was understandable by everyone involved. Sixteen respondents said it was not understandable, seven said that it was, and two were unsure. The most common reasons for this lack of understanding were that the information presented was too technical, scientific or theoretical; lacked context or relevancy; overused acronyms; or there was just too much information presented. These sentiments were reflected in the following quotes, "If you're talking about bureaucrats yes (it's understandable), if you're talking about communities and organizations maybe not" and "Like a lot of times DFO will say stuff and people won't understand it because it's not in plain language."

5.9.2 Infrequent information sharing

Many respondents expressed that they did not receive enough updates about what was going on with the PB/GB LOMA process. They reported being overloaded with information just before a meeting, which they were unable to read in a short time frame, and then there were long periods where they did not receive updates. They would like to see more simple and concise information sharing spread out over a longer period of time.

The following quote from a government respondent expresses this opinion, with some specific suggestions on how to provide updates,

> Short, concise updates maybe on a monthly basis…I would say maybe an email update of a paragraph or two once a month or every two months saying this is the stage of the process, this is what's coming up, these are the next steps that we will be dealing with, heads up we're

> gonna be asking this of you. That you can read in a couple minutes and provide a nice summary…But I'd love to have something…that I could share regularly and know it's correct, and it would be a very useful tool to help me brief and communicate internally and with perhaps the other partners I deal with on a more regular basis.

5.9.3 Meeting structure

Some respondents reported that meetings should be kept shorter because by the end of a full day people get tired and frustrated, as expressed in the following quote from a CMA and MPA respondent,

> By the end of the day people are burnt and not thinking anymore. It gets to the point where the few decisions that need to be made are left for the end of the day and they can't think anymore. They need to send them home with a worksheet and get it back and process that information when they've had time to think about it.

A government respondent expressed the same idea, "Like the last meeting it got thrown at us at the very end and we never really had the time to digest it. I think a lot of people had that similar concern."

Respondents also reported that the meetings needed to be more clearly focused on the current issues and finding solutions for them. Meetings were reported to stray off course, and problems or issues came up that may not be directly related to what the PB/GB LOMA meeting was trying to address. As expressed by one NGO respondent, "A lot of us might go in and talk about the problems, but what are the solutions? So it's making sure we discuss the right things and discuss it in the right way and keep focused." Also, another industry respondent said,

> I always feel around the table if somebody says something about their position and says this is how 'we' feel about that, and a lot of times it's

> sometimes bringing up unresolved issues in the past and relating them. Then you've got old fights and old issues rather than dealing with what's there.

5.9.4 Feedback methods

Before and after PB/GB LOMA meetings or workshops, DFO sends out background documents or meeting reports for comment from participants. Also, participants sometimes call or meet with DFO on different matters. This approach does not appear to be working for some participants, as they reported that they were unaware of the feedback that was expected or of the importance of that feedback. One suggestion from an NGO participant was,

> There could be I suppose some things that could be web based that we could answer some questions or get to some answers by doing some surveys or something. I don't think they've done that. You're supposed to do feedback kind of things and I don't think they've ever asked us at the end of the meeting.

And others reported that providing people with a worksheet at the end of a meeting and getting them to fill out the specific questions in the form would be effective. At the time of the interviews, many of the respondents were confused about the feedback they were expected to provide and did not realize the importance of their input in the process.

5.9.5 Lack of web presence

An issue that surfaced repeatedly was that the PB/GB LOMA does not have a website. As one industry respondent stated,

> I think a website would actually be a good idea. A PB/GB LOMA website with minutes from meetings, what's up and coming, what's new, that sort of thing. It would actually help. It should be a one stop

> place where you get all the info on the PB/GB LOMA initiative. That would help quite a bit. If that could also include all the links to the other stakeholders involved in the committee, just centralize the information it would really help.

This sentiment was echoed by numerous individuals, and the DFO employees who were interviewed reported that a website is currently being created in collaboration with the School of Ocean Technology. The development of a website will address many of the communication issues that people are having with the PB/GB LOMA.

The use of a website was also discussed in relation to the presentation of information gathered through ocean technologies. One government respondent summarized this quite well:

> ...we live in a day, a time in our lives when...we can layer technology, GIS (Geographic Information Systems), Memorial (University) has capacity in this area. We can be visualizing our LOMA...There's nothing interactive about this (Human Use Atlas of the Grand Banks)

Within this quote, the respondent is referring to 'The Grand Banks of Newfoundland: Atlas of Human Activities', which was produced by DFO (2007b) as a visual interpretation on the location and extent of major human activities that occured in the Grand Banks. It is a static document and as such it is a snapshot in time, which some of the respondents have criticized because they said it becomes obsolete when the information is no longer accurate. This respondent visualizes the PB/GB LOMA website as being quite interactive, and incorporating many different forms of information. The use of technology in this way can help to increase communication in the PB/GB LOMA.

5.9.6 Scheduling

Nearly all of the respondents reported that scheduling was a challenge in communicating. The consensus was that trying to schedule meetings within and between groups is a difficult task. Attempting to get all of the people on the PB/GB LOMA Committee together for a meeting is difficult, and inevitably some people will not be able to attend; however, they may send an alternate. In addition, it may be difficult to schedule a time to communicate with individuals such as fishers due to their work schedules. Also, some respondents acted as volunteers in their roles with the PB/GB LOMA initiative as it was outside of their regular jobs. This means that they need to take time away from their work, which may place extra strains on their schedules.

5.9.7 Differences or mistrust between sectors

A limitation on communicating between groups is that groups have different interests and agendas and there may be mistrust between them. As one industry respondent said,

> Different positions can sometimes lead to confrontation or direct opposition. But I think that if you communicate clearly as to why you have this position and who are the stakeholders you represent, you can at least deflect the conflict eventually and move on towards a more collaborative process.

Group respondents made statements about this mistrust, such as one industry respondent who said "the mistrust in some of the other sectors is something that's a challenge that you always have to wrestle with and deal with"; however, specific examples of this were rarely provided.

5.9.8 Bureaucratic system

Many respondents noted that the bureaucracy in government often slows down communication. From an industry perspective, government acts on a different time scale than they do in their own operations, as exemplified in the following quote:

> From our perspective everything happens quickly, they need to know what the status of a policy change is. But lots of times within the provincial or federal system things get bogged down with how things are done so I mean we could be waiting months for a decision which is how that system works but it's just not for us.

Although government departments communicate with each other, this research exposed some examples of a lack of true information sharing or collaboration. For example, a government respondent indicated that their department had developed a document that could be useful for other government departments. When I asked if this document would be shared with others the response was that it would not. As a result, other departments could duplicate effort and create a similar document. Although employees within government recognize the importance of information sharing, there are still examples of cases where this does not happen.

5.9.9 Representative discontinuity

Through the interviews and attendance at PB/GB LOMA workshops, it became apparent that stakeholder groups often send different people to LOMA meetings. People change positions and jobs frequently, causing a lack of continuity with respect to meeting attendees. When a new person joins the LOMA process they may find it difficult to understand what is going on and then cannot provide meaningful feedback to the process.

Also, relationship building is often dependent upon seeing a person on multiple occasions, and thus if a group sends a different person to every meeting, relationship building and communication may suffer.

5.10 Additional communication arrangements

The PB/GB LOMA communication network is influenced by many other committees, management groups and organizations. These institutions may be government led, industry led, or a combination of both. All of the arrangements described in Appendix E were used to communicate about coastal and ocean issues by two or more of the respondents in this research. Respondents were not provided with a list of groups and asked to choose which ones they used for communicating. Instead, they were asked to list groups from their own experience. The existence of these different initiatives shows that there are many other avenues that members of the PB/GB LOMA can use to communicate about specific issues besides the PB/GB LOMA itself.

6. DISCUSSION

This discussion presents the main implications of this research for communication, participation, integrated management and governance in the context of the PB/GB LOMA initiative. All of these concepts are quite inter-related, so it is recognized that while they are separated here for ease of discussion, certain aspects of each concept are dependent upon and related to others.

Overall, the limitations on communication, participation and progress in the PB/GB LOMA can be separated into two categories: technical issues and philosophical issues (Figure 6.1). Technical issues should be resolvable; however, philosophical issues are more significant and difficult to resolve. These categorizations will help inform parts of the following discussion.

Table 6.1: Issues in the PB/GB LOMA separated into technical or philosophical categories

Technical Issues	Philosophical Issues
Language used	Difference or mistrust between sectors
Infrequent information sharing	Need for stronger leadership
Meeting structure	Inadequate understanding of goals
Feedback methods	Lack of understanding of process
Lack of web presence	Need for recognition of group interests
Scheduling	Lack of long term thinking and need for immediate results
Representative discontinuity	Lack of trust of government commitment
Lack of public awareness/involvement	
Size of the PB/GB LOMA	
Funding/Cost	
Bureaucratic system	

6.1 Implications of this research for communication

6.1.1 Communicating about coastal and ocean issues

This research revealed that the network for communicating about coastal and ocean issues in the PB/GB LOMA was strong between group representatives and their members and employees, as the practice of sharing information with them was widespread. All representatives utilized communication methods to discuss coastal and ocean issues with other employees within their groups. In addition, all representatives from groups with members discussed these issues with their memberships. Informal discussions and board or management meetings were depended upon for communicating with employees, while more impersonal methods such as mailing or email lists were used to send newsletters or email updates to group members.

It cannot be assumed that this communication was all positive or that it was effective. However, this research did reveal that communication revolved around various topics and with different purposes. The most commonly cited topics and purposes were advice or feedback; administrative or operational activities; and regulatory requirements or environmental assessment. The first purpose (advice/feedback) would usually be considered a positive communication, while the others may become contentious depending upon the context.

It is often recognized that there needs to be communication between relevant stakeholder groups for the success of coastal management initiatives. It also needs to be recognized that communication within the stakeholder groups themselves is important. If

stakeholder group representatives/alternates that are part of the PB/GB LOMA initiative were not able to communicate about coastal and ocean issues with others in their groups, then the IM process would be futile. That group representatives did find ways to communicate through many channels within their organizations is very promising.

Crona and Bodin (2006) argue that the exchange of information and knowledge among stakeholder groups emerge as fundamental elements in the successful management of natural resources. This research has shown that there was extensive communication about coastal and ocean issues between stakeholder groups. Most representatives used email, telephone or meetings to communicate with other groups about topics such as collaboration opportunities; group initiatives and activities; government policy and regulations; the environment; and funding. If this research had shown that the communication network was sparse and there were few connections between stakeholder groups, this may have indicated that communication about the PB/GB LOMA would be more challenging. However, the PB/GB LOMA initiative can benefit from previous communication and collaborative relationships that have already been established.

There are no criteria for a level of density that would be necessary for a communication network to produce certain outcomes. Authors are hesitant to describe density as being low or high without comparing it to another density, making the calculation quite relative. For example, Hagen and others (1997) reported that a communication network with 31 actors and a density of 44% was at least moderately integrated or cohesive. In another study, Jorgensen (2004) described a communication

network of 85 actors with a density of 28% to be moderately integrated or cohesive. The density of 59% within the PB/GB LOMA communication network appears to be quite high; therefore, indicating that the communication network is integrated and cohesive.

In social networks, a high network density can enhance the sharing of knowledge and information among actors, which should also enhance a common knowledge base within the network (Bodin 2006; Haythornthwaite 1996). Exchanges of information have been said to lead to better management of natural resources, suggesting high network density is a favourable factor in social networks (Bodin 2006). Additionally, there is a positive relationship between density and joint action, because the inclusion of various stakeholders and the fostering of relations among them increases chances for collaboration and joint action (Bodin & Crona 2009).

The level of collaboration in this network (26%) may be related to the high density of the network. The density of the collaboration network indicates that not all of the communication was of a collaborative nature. However, it is encouraging that over a quarter of the communication was used to work on joint projects and initiatives, while nine of the respondents noted that they often communicate with other groups about opportunities to work together. It is also encouraging that 93.8% of the communication was occurring both ways, meaning that groups were not trying to communicate with another group without getting a response.

The network structure was also characterized by assessing the centralization. There is no level of centralization noted in the literature that indicates that the network has an efficient communication structure. Hanneman and Riddle (2005) describe a case in

which the out-degree centralization was 51% and the in-degree centralization was 38%, and they describe the network as having a substantial amount of concentration or centralization. They go further to say that the influence of individual actors varies rather substantially in that network, meaning that overall positional advantages are rather unequally distributed. The same can be said for the communication network of the PB/GB LOMA, as it seems that there were a few central groups (such as DFO) that held the major positional advantage, while MI/MUN were also quite central within the collaboration network.

The high dependence of other groups to obtain information on the PB/GB LOMA initiative from DFO can be viewed positively, as all of the groups had a way of receiving information from a centralized source. However, this dependence can also be viewed negatively. If DFO is no longer able to fulfill this role then some groups may be left without necessary information and communication avenues. Also, this high dependence places a lot of responsibility on DFO that could be spread to other departments/ organizations. Centralized networks are helpful for the initial phase of forming groups and building support for collective action. However, research suggests that such centralized networks are disadvantageous for other planning tasks and problem solving because achieving more long-term goals requires a more decentralized structure and links with groups external to the social network (Crona and Bodin 2006).

After completing SNA on communication between stakeholder groups, it became apparent that some groups were central and important within the communication network, while others were somewhat peripheral. Central groups hold positional

advantages, as they had ties with many other groups. These groups include DFO; Department of Fisheries and Aquaculture; Fish, Food and Allied Workers Union; and MI/MUN. It is important to note that the actors who have more ties to other actors may be in advantaged positions because they have many ties and may have alternative ways to satisfy needs, and are less dependent on other individuals. They may have access to, and be able to call on more of the resources of the network as a whole because they have many ties. Also, because they have so many ties, they may be third-parties and deal makers in exchanges among others, making them better able to benefit from this brokerage (Hanneman & Riddle 2005). All of the above noted central stakeholder groups act as brokers of information in their positions, for example DFO brokers information about the PB/GB LOMA; the Department of Fisheries and Aquaculture brokers information about PCON to the other provincial departments; the Fish, Food and Allied Workers Union brokers information between government and fish harvesters; and MI/MUN brokers information between researchers and the public.

The groups with high amounts of ties with others are central in the network due to their roles in communicating about coastal and ocean issues. In consultation with other government departments, DFO and the Department of Fisheries and Aquaculture are two main departments in NL that deal with fisheries and aquaculture research, licensing and permitting; the protection of marine habitats; and the development and implementation of integrated coastal and ocean management. Many other stakeholder groups communicate with them for these reasons. The Fish, Food and Allied Workers Union plays an important role in the fishery, and the fishery is central to the economy and culture of the

province. The Fish, Food and Allied Workers Union also takes part in research, education and stewardship initiatives. For these reasons, many stakeholder groups communicate with this stakeholder group. Many respondents also reported communicating with people at MI/MUN. Many groups collaborate with these institutions on research projects and outreach initiatives, as they are part of the largest University in Atlantic Canada and the research centre for NL.

The results also showed that some groups were less important within the communication network. The peripheral groups maintained a number of ties, with the least reported amount being six. There were no groups completely left out of the communication network about coastal and ocean issues. The groups that were relatively peripheral may need to be brought into the network through more communication with others; however, this is dependent upon the needs of the groups. If the groups are satisfying their information, knowledge and relationship building needs through communication with a small amount of groups, then there may be no need for them to communicate with more individuals. These groups could possibly build relationships with those who are central to the network if they have not done so, which could allow them to receive information and knowledge from the larger network as a whole. There is no evidence that any groups were being purposely excluded from communication, so this should be an option.

Most of the stakeholder group representatives involved with the PB/GB LOMA Committee communicated with the public about coastal and ocean issues, mostly awareness or education based. Despite this, the network for receiving information back

from the public was lacking. Groups that get out and experience public events are likely to be in touch with the general public because these events are interactive and informal, allowing for open conversations.

6.1.2 Communicating about the PB/GB LOMA

This research revealed that the communication network was not often used to discuss the PB/GB LOMA specifically. This was true for communication within groups, between groups and with the public. Most respondents did communicate with other group employees and group members about the PB/GB LOMA, but on an infrequent basis. Although the LOMA is still in a formative stage, all representatives did communicate about it with other employees within their groups. Seeking input from their groups has been lacking, however, as very few representatives provide comments on documents distributed by DFO. These documents are supposed to be a way for groups to provide input into the process, but most groups are not taking advantage of this feedback method.

Communication with group members was limited, as nine out of the fifteen groups with members communicated about the PB/GB LOMA with their members. Discussions were usually restricted to brief summaries of what has been going on in the PB/GB LOMA process. One NGO groups seemed to provide more detailed information about the LOMA to its members. Often members were skeptical or unsure of the initiative.

Low communication about the PB/GB LOMA was expected as the LOMA is still in the formative stage. The important thing is that communication channels existed and could be used to discuss the PB/GB LOMA in the future. Most respondents noted that they did not often receive input about the PB/GB LOMA from their own groups, and that input was not usually brought back to the LOMA committee.

At the time of the interviews, the PB/GB LOMA was not discussed between most stakeholder groups on the committee unless they were in committee meetings or workshops. The PB/GB LOMA initiative has brought people together in a formalized way but discussions do not generally occur about it outside of the process. Further along in the process, stakeholder groups may be required to work on the initiative outside of prescribed meetings, and they might want to consider their willingness to do so.

Communication about the PB/GB LOMA with the public is generally lacking. If there has been communication, it has been to bring awareness about what is going on in the LOMA process, not to gather input to feed into the process.

6.1.3 Recommendations to improve communication

Communication within the PB/GB LOMA initiative could be improved through various interventions. Some have to occur at the stakeholder group level, and some have to occur at a leadership level through actions implemented by DFO. These are all technical issues, and should be easier to deal with than philosophical issues.

As the process moves forward, group representatives/alternates could consider discussing the LOMA with their groups on a more regular basis. This will better prepare

them to provide feedback into the process on behalf of their groups, and help them to pass on what they learn about the process to their groups. If this is not done, then the stakeholder group representatives will not accurately represent their groups.

More formal communication structures or arrangements within stakeholder groups specifically related to the PB/GB LOMA may help facilitate communication about it in the future. Most groups do not have formal requirements for communicating about the PB/GB LOMA and mostly communicate about it through informal conversations with their superiors or through discussing it at board or management meetings. If groups independently or collectively developed structures stating that they must report back to their groups in a specified way after PB/GB LOMA meetings or after receiving information about the initiative, this would be beneficial for the groups involved. These structures could include briefing notes or update emails to all who would be interested, updating postings on a website or blog, or ensuring that an update about the LOMA is included in the agenda for management, departmental or membership meetings. Just forwarding on emails may not be enough, as summarizing or providing context may be necessary.

In order to bring viewpoints from the stakeholder groups to the PB/GB LOMA Committee meetings, stakeholder groups could consider devising methods for gathering feedback from employees and/or members. As the process moves forward, stakeholder group representatives may find it beneficial to have a set mechanism by which they are expected to receive input from their own groups to feed into the LOMA process. This will require further work by DFO as process leader as well as by stakeholders.

It may be possible for groups of the same type to work together throughout the process so that they have a stronger voice. For example, within ESSIM, an Environmental NGO Caucus was formed in 2005/2006 to facilitate broad involvement of the various environmental NGOs in the process. It is used to determine the members and alternates for the three seats allocated to the sector on the Stakeholder Advisory Council (SAC). DFO provides a small amount of funding annually to enable the Caucus to meet in advance of the SAC meetings so they can receive and share information to and from the broader community of interest. DFO has also collaborated with the Caucus on topical workshops and projects (G. Herbert, personal communication). An initiative similar to this may be useful for the PB/GB LOMA to provide an avenue for more NGOs to become involved and for them to develop collaborative relationships. Similar initiatives could be formed for other sectors as well.

There are also many administrative aspects of the LOMA that could be dealt with on a leadership level that could improve communication. Although it is a Government of Canada initiative, and thus all federal departments have a role to play, DFO is mandated to lead and facilitate IM. Information about the LOMA could be shared with stakeholder groups by DFO on a more frequent basis, and information could be made clear and more concise. Stakeholder groups noted that they get an abundance of information before a meeting but would like smaller amounts spread throughout a longer time span. The information provided often uses language that is difficult to understand by all participants, so making the content of communications more readable would be a good strategy.

Devising more effective feedback methods and providing context about why the specific feedback is important could also improve communication. The groups may not feel compelled to provide feedback unless they know what aspect of the process it is feeding into. Forms that are passed out after meetings or between meetings may be a good way to gather feedback. When stakeholders are provided with a long document and asked to provide feedback, it can be intimidating if they are not familiar with the document or what part of the process it is supporting.

A website is also in integral to communication. DFO is currently working on a website for the LOMA that will be hosted on an external network. It is hoped that this website will provide necessary information to everyone involved in the PB/GB LOMA and the public. It is important that information be clear and concise, and that any longer documents also provide a shorter explanation and context for how it fits within the initiative.

Communication could be facilitated through the utilization of existing channels for communication. As noted in the results and Appendix E, there are government led processes, industry led processes and collaboratively led processes that already encourage communication within the LOMA. These existing arrangements are often about specific issues in the LOMA, such as marine traffic, oil spill response and aquatic invasive species. In addition, there are smaller coastal management areas and a marine protected area that are used for communication at a more local scale. The PB/GB LOMA Committee should recognize these other existing communication arrangements, and understand how they fit into and can contribute to the PB/GB LOMA initiative.

Many of the groups reported communicating with others about coastal and ocean issues through other committees and boards at various scales (Figure 6.1). The arrangements in blue are those that are already part of the LOMA committee, while the arrangements in yellow are those that numerous representatives in the committee also sit on (Appendix E). Also, respondents noted other groups that they felt should be included on the PB/GB LOMA Committee. These are shown in the Figure in pink. The arrows represent that communication occurs throughout all the various scales about different topics of interest.

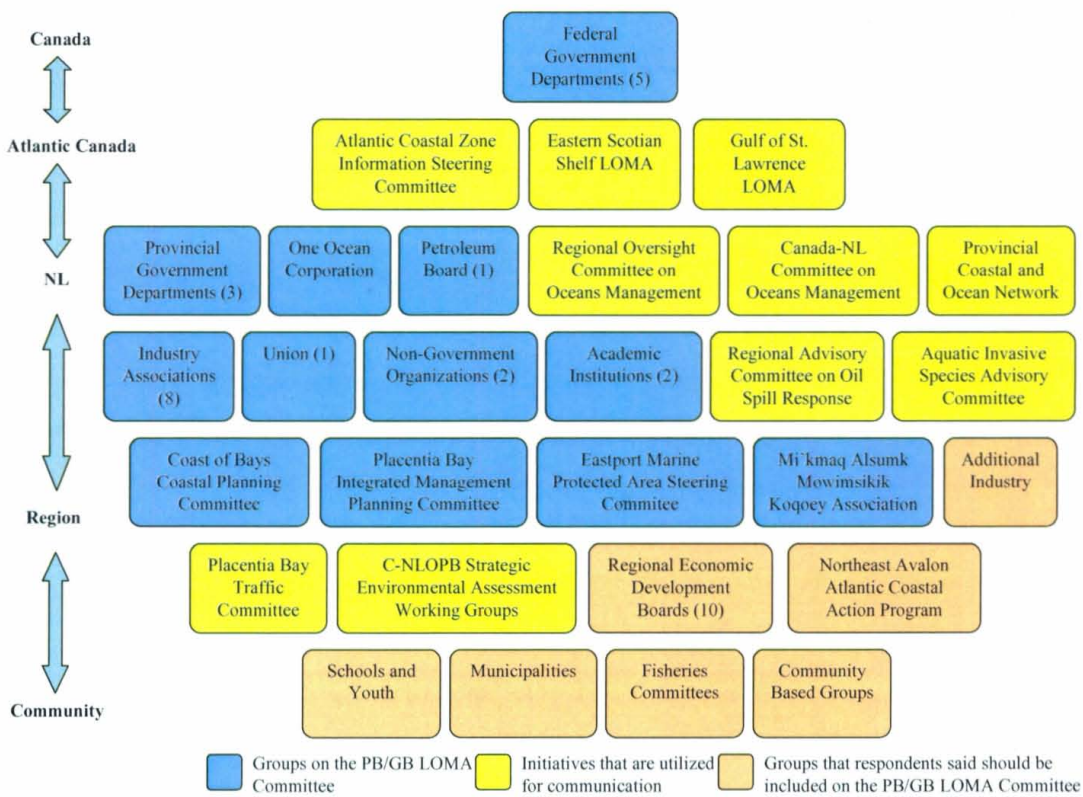

Figure 6.1: Stakeholder groups on the PB/GB LOMA Committee, other initiatives that are used for communication by PB/GB LOMA Committee Members, and other groups that could potentially be part of the IM process

6.2 Implications of this research for participation

The implications for participation have been separated into technical issues, which may be easier to deal with, compared to philosophical issues, which may be much more difficult.

6.2.1 Technical issues

Davis (2009) completed research on the implementation of the *Oceans Act* in Newfoundland and Labrador. The author noted that people in the offshore petroleum and fishing industries were having difficulties understanding what the IM and MPA processes would lead to in the province. This research was carried out five and six years ago, and the same discourses are still present today. Due to the finding that a lack of understanding of the PB/GB LOMA goals and IM process is still so prevalent, these need to be simplified, made relevant for the individuals involved, and communicated in a more effective way.

At the time of the interviews, numerous respondents did not understand the ways in which the strategic objectives, management strategies, operational objectives and management actions fed into the overarching goals of the initiative and the development of the IM plan. These aspects of the initiative have been explained to them on multiple occasions, but they still did not identify with them. There appears to be a lack of clarity from a senior government perspective as to how the process should be explained and carried out, leaving DFO staff in the NL region left to explain a very complex process without a lot of guidance. Despite the fact that the representatives are fully capable individuals who want to learn about the PB/GB LOMA process, it appears that it is just

too complicated. A simpler construct needs to be developed and fully explained to the representatives, making sure that everyone comprehends the new process. Stakeholder group members also need to make it clear if they do not understand the goals or process. This research illustrates that the respondents were not alone in their confusion; although it did not seem that they had explained the depth of their confusion to DFO as the lead department.

There is a great deal of confusion about the working groups that needs to be clarified. Currently, DFO has an ad hoc process where they let everyone know about each Working Group meeting and whoever wants to attend does so. However, this is confusing for representatives, as they are unsure of the part that they play in developing the objectives for the PB/GB LOMA. It can also hinder relationship building, as some representatives noted that they did not recognize a lot of faces around the table at some Working Group meetings. If there was a set group of people for each Working Group, smaller in size than the whole Committee, then they may be better able to build relationships and understand their roles.

It also needs to be recognized that stakeholder groups often send different people to the meetings as people move in and out of positions and there is sometimes more than one alternate. This causes a lack of continuity with respect to their understanding of the initiative. It takes a great amount of time to completely go over the goals and process at every workshop and meeting, so stakeholder groups need to ensure that when a new person becomes the representative or alternate for the PB/GB LOMA they become informed on the initiative. If a new person becomes involved, they should call or meet

with DFO so they can get an understanding before attending any workshops or meetings. DFO could also provide an information package (as concise and understandable as possible) to the new members of the Committee.

Poitras and others (2003) suggest that a strategy for building trust in the process is to involve a trusted facilitator to shepherd the process. Involving a mediator who has the trust of each party may be sufficient to generate the minimum confidence in the process necessary to develop relationships. Also, all parties should agree on the selection of a facilitator (Poitras *et al.* 2003). DFO as the lead agency has been trying to facilitate the Committee and Working Group meetings; however, the help of a trained facilitator may be required. A facilitator could help the representatives understand their common objectives and values and assist them in planning to achieve them, without taking a particular position in the discussion. The facilitator could assist the group in trying to achieve consensus on any disagreements that pre-exist or emerge in the meeting so that decisions have a strong basis for future action. When consensus is not possible, then a facilitator could help by utilizing relevant procedures for conflict resolution.

Another approach to improve participation would be to consider which stakeholders should be included in the process. As was pointed out, there are various types of stakeholders which some respondents felt should be included. DFO could apply the typology of stakeholders that has been developed by Mitchell *et al.* (1997) to identify the salience of stakeholder groups. This analysis uses various combinations of power, legitimacy and/or urgency to define stakeholder classes. DFO did not use any formal method for defining which stakeholder groups should be included; however, it may or

may not be too late to apply an analysis of this sort at this point because the stakeholder groups have already been chosen. For future IM initiatives, DFO may wish to utilize a stakeholder identification method at the beginning stages.

The PB/GB LOMA process includes the public through the inclusion of stakeholder group representatives in the decision making process. It is impossible for every individual in the management area to directly be part of the process; however, individuals within the management area should at least be aware of what is going on. Coastal community leaders and members should be aware of the initiative, as they will eventually be affected by the management decisions that are made. Some ways for DFO to do this would be to begin public consultations, information campaigns or having open meetings as the process moves forward, so that the general population is more aware of the PB/GB LOMA initiative. This is a technical issue, and should be more easily dealt with.

6.2.1 Philosophical issues

According to Arnstein's (1969) ladder of participation, consultation occurs when citizens hear and are heard, but lack the power to ensure that their views will be heeded by the powerful. This causes no assurance of follow-through to change the status quo. Arnstein also writes that placation occurs when citizens advise, but retain for the powerholders the continued right to decide. These levels of participation are called 'tokenism'. Treby and Clarke (2004) propose that consultation includes two-way flow of information, but the consultees have no influence on the decisions that are ultimately

made. They define placation as formal two-way flow of information with limited impact of discussion on decision. Arnstein (1969) notes that citizen power does not occur until citizens are engaged in partnerships, are delegated power, or are given control. Treby and Clarke (2004) note that participation is not linear, and stakeholders can change their level of participation depending upon their needs. However, stakeholders do not influence decisions until there is less formal two-way discussion, and consultees views feed directly into the decision through delegation.

This research has shown that the PB/GB LOMA initiative falls somewhere between consultation and placation. The Government of Canada states that the governance model proposed for IM is one of collaboration, which involves ocean management decisions based on shared information, consultation with stakeholders, and on their advisory or management participation in the planning process (DFO 2002b). This research has shown that when the Government of Canada is referring to a 'collaborative governance model' this is not referring to 'co-governance' in which decisions and responsibilities are shared with stakeholder groups.

To date, the PB/GB LOMA uses more of a top-down management approach than a co-management approach. Although DFO consults stakeholder groups on setting the goals, objectives and strategies of the PB/GB LOMA Committee, it is still a very much government led process as stakeholder advice does not have to be heeded by decision makers. Also, if the initiative was bottom-up it would have begun with the stakeholder groups involved, and they would have had much more input on the size and scope of the

LOMA. DFO envisions the LOMA as having more stakeholder and community engagement in the future, and are hoping that this will be the case.

As described in the limitations on participation, there is a lack of communication of the groups' interests within the PB/GB LOMA process. In order for groups to be able to communicate about their interests, they may wish to consider how the PB/GB LOMA relates to their mandates, what level of engagement they are willing to commit and why they are there. This may enable them to see themselves in the initiative, as well as give them the ability to formulate their principles and values related to coastal and ocean resources and space.

In order for groups to be able to discuss their values and interests, they also need to build trust and respect between them. This is true even if they do not know their interests until they are infringed upon. This is a philosophical issue, versus a technical issue, and may be difficult to address. As Pomeroy (2007) writes, "Development of trust between partners is associated with effective communication" and "Partnerships must grow out of a mutual sense of trust and respect among the partners." This is a part of a long process that emerges out of relationship building over time. Some groups may feel intimidated by others, while longstanding disagreements or issues may hinder others from communicating.

This research has shown that there is a lack of trust of government commitment to the PB/GB LOMA process. Davis (2009) noted that DFO has faced widespread criticism throughout the province since the mid 1990s for its alleged mismanagement of the fishery. This problem was noted by bureaucrats in Davis' research, who were aware of

obstacles that the agency's history in the province presented for them in putting new ocean policies into practice. This research had not uncovered the same specific finding; however, it is important to note that this may be an additional obstacle that needs to be faced when building trust between stakeholder groups and DFO as the initiative's facilitator.

6.3 Implications of this research for Integrated Management

The implications for integrated management are also separated into technical issues and philosophical issues.

6.3.1 Technical issues

A technical issue that also needs to be addressed is the role of 'sign off' or endorsement of the eventual IM Plan by the Minister of Fisheries and Oceans. The Plan will be complete soon, and whether it will be supported by DFO and the other federal government departments/agencies is very important for its success. Without some formal recognition of the value of the IM Plan, stakeholder groups and government departments/agencies may not be compelled to work on actions flowing from the Plan. This will need to be addressed as the process moves forward.

This research also revealed that funding is an issue within the PB/GB LOMA. Funds are needed to support various operations and facilities related to IM, including planning, implementation, coordination, monitoring and enforcement. Sufficient, timely and sustained funding are critical for success of management initiatives (Pomeroy 2007). Funding for IM is not a provincial, but a national issue, as Canada's auditor general

(2005; p. 5) said with respect to funding that "we are concerned that the government has not made implementation of the *Oceans Act* a priority." Jessen (2010) notes that this lack of funding has signalled a lack of political priority thus affecting DFOs ability to gain the cooperation of other federal departments and get their serious commitment to IM planning. Davis (2009) notes that despite Canada's international commitment to "modernizing" ocean management, the political will to make this vision a reality appeared to be lacking in the beginning. There was eventual contribution of greater federal support to the oceans agenda through the *Oceans Action Plan* in 2005; however, DFO employees are often challenged by a lack of funding when trying carry out the tasks of IM.

This research has also uncovered that many people are skeptical about the geographical scale of the PB/GB LOMA and the successful implementation of IM. It seeks to engage ocean users from a large portion of the province of NL, in which the multiple uses in the many different bays and coves are so diverse that 'integrated management' is quite challenging. For example, people in rural communities on the south coast of the province have very different needs and priorities that those in the urban areas of the northeast Avalon Peninsula. The merits of smaller coastal management initiatives were often quoted during interviews, where coastal communities and organizations could participate and feel a stronger sense of ownership. With the large size of the LOMA, it seems that no particular group feels compelled to take ownership, as the issues are so broad and on such a large scale that it is intimidating to tackle. Smaller-scale initiatives

involve can involve just as many stakeholder groups as LOMAs, but they are able to have more of a focus on issues that can be addressed in their own local area.

6.3.2 Philosophical issues

This research has shown that stakeholder groups are looking for stronger leadership within this IM initiative. As DFO is the federal department with the responsibility to lead on the implementation of the *Oceans Act* and the IM initiatives that have developed out of it, they are expected to exercise strong leadership in these initiatives throughout the country. Also, as it is a Government of Canada initiative, participation and contribution are also expected from other federal departments.

Guénette and Alder (2007) suggest that all cases of IM that have progressed well had strong leadership, either from the community and/or from government. This raises the possibility of a leadership role for other stakeholders. However, the stakeholder groups do not seem to feel a strong sense of ownership over the process. There is a lack of stakeholder buy-in, as many respondents noted that their groups did not see how they fit in. It makes sense that they did not feel this ownership, as they did not decide to implement the initiative in the beginning.

Chuenpagdee and Jentoft (2007) write that "From the governance perspective, co-management, also in the pre-implementation stage, depends upon contributions, commitments and collaboration from all actors involved, be they the local community, civic organizations like NGOs and government agencies." The planning stage of an IM initiative is quite important, and the PB/GB LOMA did not begin from a bottom-up

process in which stakeholders decided they needed IM to improve the functioning of the PB/GB region. Instead, it began in a top-down fashion, as it resulted from the legislative mandate of the *Oceans Act.* DFO defined the LOMA boundaries and which stakeholder groups would be invited to sit on the LOMA Committee. The groups have been given an advisory role; however, they will not be given a shared decision-making role. Due to the lack of ownership from stakeholder groups, DFO will continue to be depended upon as the leader of the initiative.

Jessen (2010) notes that the most serious concerns about IM in the ESSIM initiative relate to implementation of the plan and whether the level of buy-in by various sectors, departments, and other levels of government in the process will lead to plan implementation in the integrated way that is expected. This is also a concern within the PB/GB LOMA. It is important to consider the fact that implementation of IM relies on existing sectoral legislation and regulations. Jessen (2010) reports that over 20 federal departments and agencies must cooperate at a national level to use their existing powers and resources to achieve common goals under IM. Five federal government departments/agencies sit on the PB/GB LOMA Committee, and they must all respect the LOMA process for it to be successful. There are an additional three provincial government departments who must also participate in a meaningful way to successfully implement the initiative along with all of the various stakeholders who put plans into action in their day-to-day activities.

In order for stakeholder groups to participate in and push for implementation of the objectives of the LOMA, they must see how the initiative benefits their own group

and start to see some more immediate tangible results. These benefits should not just be that they get to defend their own interests and see what is happening in order to head off negative consequences. While these may be benefits of the process, stakeholder groups must also want to work together with others for the greater good of the PB/GB LOMA. If these more altruistic benefits are not realized, then the process will never truly be 'integrated'.

Jessen (2010) writes that a key reason that industry provides for their hesitance or reluctance to support implementation of IM is the lack of clarity on the implications of IM planning for them. This research has shown that in the PB/GB LOMA, it is not just industry groups who feel this way, as many stakeholder groups did not see how they fit within the IM process. Guénette and Alder (2007) note that consultation and consensus building take more time than expected, and it takes several years to summarize available information, disseminate it, generate stakeholder interest, and develop IM plans. Although it is a slow process, interest groups do appreciate being consulted and being part of decision making. However, if the process extends too long without any tangible results, participants will become less engaged. There needs to be some specific action plans and tangible results from the PB/GB LOMA initiative soon, or stakeholder groups may lose interest in it.

6.4 Implications of this research for governance

The below discussion deals with philosophical issues only, indicating that governance issues are often embedded in society and more difficult to address than technical issues. Interactive governance recognizes that communication between

stakeholder groups and the participation of stakeholder groups within the governance process are necessary for the effective governance of coastal and ocean areas. It suggests that co-governance seems better equipped than self or hierarchical governance modes to govern diverse, complex and dynamic situations in coastal and ocean areas (Bavinck *et al.* 2005). A key assumption is that no one actor is in control, but rather that interactions are horizontal. The interactive governance literature suggests that co-governance includes the co-operation, co-ordination and communication of parties in a 'sideways' fashion, without a central or dominating governing actor (Bavinck *et al.* 2005).

Within co-governance, it is expected that there is a certain degree of equality in how participating entities relate to each other; however, ceding autonomy is always only partial and contains mutual agreements, and common rights and duties. Inclusiveness lies at the heart of interactive governance, as the style is only effective when all actors are seen as equally represented and are transparently engaged in meaningful interactions, such as open dialogue, communication and negotiation. However, it is also recognized that attributes, such as self organization, are required of all actors and there should be appropriate institutional arrangements to deal with their ability to share responsibility and power.

This research has addressed four of the topics discussed above for the PB/GB LOMA initiative within the context of communication and participation: 1) that no one actor is central or dominating; 2) that there should be equality of entities involved; 3) all actors should be included; and 4) actors should have the ability to share responsibility and power.

Firstly, the research has shown that DFO is the central actor within the communication network of the PB/GB LOMA, and it is the dominating actor as it is depended upon to be the leader of the initiative. Although stakeholder groups play an advisory role in the process, DFO is seen by stakeholders as the leader of the process. Given the imbalance of responsibility between the federal government and the other actors, interactive governance may not be a realistic possibility in this situation.

Secondly, the research has shown there is not equality in how participating entities relate to the initiative and that there has not been ceding of autonomy. The stakeholder groups are not equally involved in its governance, as DFO is the initiating agency that chose which stakeholders to involve and the area to be managed. Also, the government departments are responsible for creating the policies, regulations and legislation that impact upon the LOMA. Although the rest of the LOMA Committee has an advisory role, there are no requirements or incentives for decision making bodies to take the advice from the LOMA initiative up to this point.

Thirdly, all stakeholder groups who could play a role in the initiative may not be participating. The research revealed that stakeholder groups felt as if there were additional groups that should have been included in the process that were not. These groups do not have the same opportunity for dialogue, communication and negotiation with respect to planning for the management of the coastal and ocean areas of the PB/GB LOMA as groups that sit on the LOMA Committee. A stakeholder identification analysis could be completed to see if these additional stakeholders should be included.

And finally, actors do not have the ability to share responsibility and power. The initiative has not spread out the responsibility and power within the initiative to other stakeholder groups. The Government of Canada has designed the LOMA process so that committees composed of stakeholder groups have an advisory function; however, the process has not been designed to allow stakeholder groups to have real decision making powers. That being said, several policy and regulatory decision making bodies do sit on the Committee, including five federal government departments and three provincial government departments, and one federal/provincial agency. However, if there is a lack of buy-in from these government departments/agencies, they will be less likely to consider the advice of the LOMA Committee in the development of policies, regulations and legislation. The government needs to have incentives and/or requirements to comply with or implement the objectives laid out by the PB/GB LOMA Committee. Although the committee can communicate their objectives through the IM Plan, there are currently no governance mechanisms in place to ensure that decision making authorities will use these objectives to guide them.

The PB/GB LOMA provides a mechanism that could be used to build an understanding of 'meta-governance' principles and values. As written in the literature review, interactive governance recognizes three orders of governance: first order (problem solving and undertaking of day to day management), second order (maintenance and design of institutions that are necessary to solve problems and create other institutions), and third order. The third order, or meta-governance as it is referred to, articulates the main normative principles and values. These then guide the behavior of

the other orders of governance (Bavinck *et al.* 2005). Interactive governance contends that principles and values are the foundation for governance, and these need to be articulated for the successful creation of a vision for coastal and ocean space and resources. It also recognizes that dialogue is needed to help all stakeholders to understand and each other's principles and come to decide on the principles that will guide their governance system (Bavinck *et al.* 2005).

Jentoft (2007) proposes that the social construction of reality that shapes principles and values is based upon images, metaphors, assumptions, visions or generalizations. The implementation of IM through the PB/GB LOMA process can help groups to come to an understanding of their shared 'images', which can help the stakeholder groups to move forward on the governance of their coastal and ocean resources and space. Understanding where these images are shared and where they are not is an important step in the process, starting with communication. This communication can lead to the building of relationships and trust between stakeholder groups if meetings are well facilitated and stay on course.

Respondents within this research noted that they would like to build relationships and gain a better understanding of the group interests around the PB/GB LOMA table. There needs to be in-depth discussions about what the groups would like to see come out of the PB/GB LOMA process, and the values that underlie their goals. It will take time to build the trust and respect necessary to uncover what each group would like to see come out of the process, but there needs to be a way forward that will elicit conversations that will eventually build these relations

7. SUMMARY AND CONCLUDING REMARKS

This research has aimed to provide an understanding of how communication and participation function in the PB/GB LOMA initiative, and examine the roles that they play in IM and governance. Social network analysis (SNA) and interviews with respondents from 26 stakeholder groups were used to gain this understanding of communication, participation, IM and governance. Prior to the SNA and the interviews, an extensive literature review was undertaken to obtain information about the PB/GB LOMA and the concepts and theories that would be utilized to complete the research.

The interview guide included questions about participation, in order to provide an understanding of the level of participation of stakeholder groups, as well as the benefits and limitations of participation. The interview guide was also designed to gather information about communication within stakeholder groups, between stakeholder groups, and between stakeholder groups and the public. The interviews also asked about methods, frequency, content, importance, strategies and limitations of communication.

The quantitative interview data was analyzed using SNA software (Ucinet 6), while the content of each interview analyzed by transcribing the relevant quotes and organizing answers into relevant excel tables. This research has provided an example of how to combine quantitative SNA data and qualitative interview data to obtain a complete picture of the communication network and participation in the PB/GB LOMA.

7.1 Key findings

This research has shown that many stakeholders are participating in the PB/GB LOMA process as they see that there are numerous benefits that can be derived from it. However, participation and progression of the initiative are limited by various factors, including a lack of understanding of its goals and process. It is important that stakeholders gain a better understanding of the goals, and that the process be simplified for those involved. The research has also shown that there is a lack of stakeholder buy-in within PB/GB LOMA, which needs to be addressed for the process to move forward successfully.

Another finding of this study is that communication channels are present for communicating about coastal and ocean issues, and that the communication network is generally strong. However, this network has not often been used to communicate about the PB/GB LOMA specifically. As the process moves forward, it is particularly important that stakeholder group representatives communicate about the LOMA to other employees and members of their groups. It will also become increasingly important that the LOMA be brought to the attention of the public, which at this point is generally unaware of the initiative.

The research questions for this study have been answered through carrying out eight specific research objectives. The key findings related to each of these objectives will be addressed below.

1) To investigate the level of participation by stakeholder groups in the initiative, as well as perceived benefits of participation and limitations on participation

- Eight representatives felt as if their involvement was information only, two felt that it was consultation, and twelve felt that they were working collaboratively on the initiative
- The amount of participation for the initiative falls between consultation and placation, as stakeholder groups are consulted and can advise on policy, regulatory or legislative decisions, but they do not have formal regulatory authority
- The group types that play a more central role in the initiative are government (with DFO and Department of Fisheries and Aquaculture taking the lead) and NGO groups, while the academic, Coastal Management Area/Marine Protected Area groups, and some fisheries, aquaculture and other industry groups (Fish, Food and Allied Workers Union, Groundfish Enterprise Allocation Council/Canadian Association of Prawn Producers, Newfoundland Aquaculture Industry Association, One Ocean Corporation, Shipping Federation of Canada) are somewhat involved, and the rest of the fisheries and other industry groups are often less involved.
- Reported benefits included building relationships, voicing concerns and protecting interests, working toward environmental sustainability and ecosystem health, becoming proactive rather than reactive, addressing socio-economic issues, and having an impact upon policy creation

- Reported limitations include a lack of ownership and stakeholder buy-in, a need for stronger leadership, an inadequate understanding of goals, an inadequate understanding of the PB/GB LOMA process, the need for more recognition of group interests, a lack of long term thinking, deficient public awareness and involvement, a lack of trust in the commitment level of government, the large geographical size of the PB/GB LOMA, funding/cost, and confusion about Ministerial sign off or endorsement

2) To investigate the opportunities for interventions that could be used to improve or facilitate participation

- Because a lack of understanding of the PB/GB LOMA goals and process was so prevalent, these need to be simplified, made relevant for the individuals involved, and communicated in a more effective way
- Stakeholder groups need to take responsibility to inform their representatives/ alternates of the background and requirements of the PB/GB LOMA initiative
- Government could also develop a clear and concise information package for new individuals coming into the initiative
- Representatives/alternates should be aware of what working groups they are a part of and how they contribute to the process
- Groups need to consider why they are sitting at the PB/GB LOMA table, and be able to communicate their group interests

- Relationships and trust needs to be built between stakeholder groups so they will be comfortable to discuss their values and interests
- There are groups that have been left out of the PB/GB LOMA process that should be considered for inclusion

3) To investigate whether PB/GB LOMA stakeholder group representatives/alternates communicate about coastal and ocean issues (including the PB/GB LOMA) with group members, other stakeholder groups and the public

- Stakeholder groups part of the PB/GB LOMA initiative often communicate about coastal and ocean issues, both within their groups and between them
- Stakeholder groups also communicate about coastal and ocean issues with the public, but less frequently and more to raise awareness and educate than to solicit feedback/input
- Stakeholder group representatives do not often communicate about the PB/GB LOMA with each other outside of LOMA meetings
- Stakeholder groups occasionally communicate about the PB/GB LOMA with their members and the public, but more to raise awareness about the initiative than to solicit feedback/input

4) To characterize the nature of the PB/GB LOMA communication network, including the relative importance of stakeholder groups

- According to network degree centrality measure, certain groups (for example government and particularly DFO) are more active in the communication network, while other groups are less active (for example industry)
- The communication network activity is quite centralized around a few actors, including DFO
- The communication network on coastal and ocean issues between stakeholders has a high density, while much less activity (lower density) occurs when the content of communication is the PB/GB LOMA
- Just over a quarter (26%) of the communication between stakeholder groups is used for carrying out collaborative projects/initiatives

5) To examine the methods, frequency and content of communication among stakeholders

Methods

- Within groups, informal discussions and board or management meetings were depended upon for communicating with employees, while more impersonal methods such as mailing or email lists were used to send newsletters or email updates to group members
- Most stakeholder groups used email, telephone or meetings to communicate with other groups
- Stakeholder groups use various methods for communicating with the public, the most frequently reported being schools, public events, the media and websites

Frequency

- The frequency with which stakeholder groups communicate about coastal and ocean issues within their groups and with the public varies extensively from group to group, making an overall statement on frequency impossible; however, infrequent communications are most common
- Stakeholder groups mostly communicate with each other on a quarterly, annually or monthly basis, if at all
- Stakeholder group representatives/alternates communicate about the PB/GB LOMA within their groups, with other groups, or with the public on an infrequent basis

Content

- The most commonly cited content or purpose of communication within groups were: advice or feedback; administrative or operational activities; regulatory requirements or environmental assessment; and upcoming meetings
- The most commonly cited content or purpose of communication between groups were: collaboration opportunities; group initiatives and activities; government policy and regulations; the environment and conservation; and funding
- Stakeholder groups often communicate with the public to build awareness or educate them on certain issues; however, input and feedback was rarely sought or received from the public

6) To explore the factors that can influence communication, including the importance of communication, and communication strategies and limitations

- All stakeholder group respondents reported that effective communication was important for the success of the PB/GB LOMA initiative
- Communication was cited as being important for relationship building, knowledge sharing, increasing awareness of group interests and activities, avoiding misunderstandings and resolving conflict, increasing effectiveness and problem solving, coordinating activities and limiting duplication, and increasing buy-in
- Strategies for communication included developing personal relationships, seeking support from within your group, seeking support from other groups, using clear and concise messaging, considering the audience, maintaining communication requirements or structures, and developing personal traits
- Limitations on communication included difficult language, infrequent information sharing, ineffective meeting structure, inefficient feedback methods, lack of web presence, scheduling, distance, information overload, misconceptions, differences or mistrust between sectors, inefficient bureaucratic system, and representative discontinuity

7) To discuss the opportunities for interventions that could improve or facilitate communication

Stakeholder group level

- Have formal communications structures within stakeholder groups regarding the PB/GB LOMA initiative

- Have stakeholder groups devise formal mechanisms for gathering feedback from employees/members to feed into the process
- Have different stakeholder groups of the same type (such as NGOs) begin working together in the process

Government leadership level

- Share information on a more regular basis
- Use language that is more understandable for all participants
- Have more effective feedback mechanisms and provide context on why the feedback is important
- Develop a website with clear and concise information
- Utilize existing arrangements to communicate about the LOMA, including government, industry and collaboratively led processes for issues such as marine traffic, oil spill response and aquatic invasive species

8) To examine how communication and participation can be used to improve or facilitate integrated management and governance

- There is a need for stronger leadership within the initiative, and this leadership is expected to come from DFO
- This leadership is not coming from the stakeholder groups involved, as there is little buy-in or ownership

- Most of the government departments/agencies need to be more involved in the process, as their lack of buy-in makes them less likely to consider advice from the LOMA committee in the development of policies, regulations and legislation
- Specific action planning and tangible results should come from the PB/GB LOMA initiative soon, or stakeholder groups may lose interest in it
- There has been a lack of funding for IM from a national perspective, and there needs to be more funding to carry out the objectives of the PB/GB LOMA
- There is the potential for the LOMA process to shed light on and facilitate dialogue regarding the interests and values of the stakeholder groups involved; however, this process needs to be developed much more

7.2 Theoretical Contributions

This research utilized interactive governance as a lens through which to examine the PB/GB LOMA. This does not mean that the LOMA should try to fit the theoretical model perfectly; however, interactive governance is a normative framework that can be used to help understand the LOMA. Knowledge of the system as a whole was obtained by thinking of governance as the "whole of interactions taken to solve societal problems and create societal opportunities; including the formulation and application of principles guiding those interactions and care for institutions that enable and control them" (Kooiman *et al.* 2005; p. 14).

This research has shown that there is a great deal of communication within the PB/GB LOMA about coastal and ocean issues, within stakeholder groups, between stakeholder groups and with the public. These interactions are the foundation for

discussions about what the problems are and how to solve them, as well as what the opportunities are and how to benefit from them. The PB/GB LOMA initiative is an example of a forum through which stakeholder groups can interact and discuss ways to solve problems and create new opportunities. Up to this point, the project has focused on the setting of goals and objectives and, in the end, these should be shared and agreed upon by all stakeholders involved. Throughout the process of objective setting, the stakeholder groups have been communicating and slowly building relationships. These relationships could be the foundation for further interactions that could lead the PB/GB LOMA toward more effective governance.

The PB/GB LOMA initiative is also a forum which could be used for the formulation and discussion of meta-principles that guide the process. An understanding of group values and principles is needed, so that groups can have a shared understanding of what they all want to get out of the PB/GB LOMA process and how they want it to move forward. However, building the trust and respect to formulate these values has not been completed. There needs to be more of an understanding that groups have different interests. At this stage they can agree on overall goals; however, once action planning begins, the varying interests could become contentious without a foundation built upon an understanding of underlying interests and values. Even if these interests and values are different, it is better to discuss them in the open and build understanding.

However, the varying stakeholder interests and capacities could also be seen as an advantage. Within interactive governance, the multiplicity of stakeholders within coastal areas is seen as a potential source to be tapped rather than a problem to be solved.

Interactive governance proposes that if the interests, agendas and capacities of stakeholders could be harnessed and guided, there is a possibility of a synergy that could benefit governance. This synergy of diverse interests could focus on resolving problems and creating opportunities, and be sources for new ideas and innovations.

Thus far in the IM process, the various interests of stakeholders has been harnessed and guided in a way that can benefit governance. Stakeholder groups have had input into the development of goals, objectives, strategies and priorities that can have positive impacts upon the society and environment of the PB/GB LOMA. These will be reflected in the IM Plan, which is meant to guide the actions of the stakeholder groups in the PB/GB LOMA. These groups have met on a regular basis and have been given the opportunity to provide input for the IM Plan on multiple occasions. Time will tell how these goals will be translated into action; however, participation and communication have gotten the process to where it is right now.

The interactive governance literature suggests that forms of governance that share responsibility through co-operation, co-ordination, and horizontal communication are better equipped than other modes to govern diverse, complex and dynamic situations, such as those in coastal and ocean zones. Autonomy is partially ceded, while establishing mutual agreements, common rights and duties are important (Bavinck *et al.* 2005).

The PB/GB LOMA initiative does not fit into the above description of governance, as responsibility is not shared and no autonomy has been ceded by any decision making bodies. The initiative is an example of how to consult stakeholders that are in an advisory role; however, their advice does not need to be heeded so it is difficult

to tell how their advice impacts upon the governing process. Once the IM plan is complete, it will be up to the decision making bodies to decide whether they will take advice into consideration for the governance of the coastal and ocean area of the PB/GB LOMA.

7.3 Future Research

This section carries over from the recommendations in Chapter 6, as much of the future research could be carried out to help facilitate these recommendations. Some of the future research refers to academic pursuits such as this thesis, while other research could be carried out by DFO or another party interested in the process. If the research is completed by others outside of DFO, they should ensure that their research results are communicated to DFO.

This research can inform future research on participation and communication in other LOMAs across Canada or in other coastal and ocean management initiatives. It can be used as a starting point for others wishing to use a mixed method approach of SNA and qualitative interview data.

This research can also be extended upon through further SNA of communication in the PB/GB LOMA. This research carried out basic SNA; however, future research could build upon the knowledge learned from this research and carry out more extensive analyses. Also, future research could perform the same SNA that was completed for this research to see if any additional connections between stakeholder groups have been made, and the possible role that the PB/GB LOMA process had in making those connections.

Future research is needed on stakeholder identification. As this research suggests, there are stakeholder groups that have not been included in the PB/GB LOMA initiative that may wish to be involved and contribute to the process. There are various methodologies (for example Mitchell *et al.*, 1997) that could be used to define the most important (or salient) stakeholder groups. Future research could apply one of these methodologies to the PB/GB LOMA to see if any are missing. It should be noted, however, that the inclusion of more voices might make it more difficult to reach consensus if there is increased fragmentation.

Future research could also include explorations into how the IM process could be simplified, both in the PB/GB LOMA and at a national level. Currently, the objectives-based framework is applied to the LOMA process, which includes narrowing down goals to elements, strategic objectives, strategies, operational objectives, actions and outcomes. It is very difficult for stakeholder groups to conceptualize how all of these objectives fit together and a more simplified framework could be developed. There needs to be future research into what type of framework would work for stakeholder groups.

A recommendation of this research was that stakeholder groups should implement formal communication structures and feedback mechanisms specifically regarding the PB/GB LOMA within their own groups. For example, group representatives would be expected to use formalized methods to report back to their groups about the LOMA and gather feedback from their groups to feed into the LOMA process. Future research could examine what specific structures or mechanisms could be used, as this research did not make these recommendations. Future research could

possibly compare structures and mechanisms that had been used successfully in other resource management or collaborative initiatives. There appears to be a lack of study on this topic, thus researchers would likely be required to do empirical research on an initiative in which stakeholder groups have implemented communication channels to discuss an initiative successfully.

This research also recommended that new feedback mechanisms could be developed that help feed input from the stakeholder groups into the PB/GB LOMA process. However, the research did not provide many specific examples of feedback mechanisms that could be used. Future research could examine and recommend how input from stakeholder groups could be integrated into the PB/GB LOMA process in a more meaningful way. The research could also examine ways in which the importance of this feedback could be conveyed to stakeholder groups so that they feel compelled to provide feedback.

Future research is also needed that works toward an understanding of the interests, values and principles of the stakeholder groups involved in the PB/GB LOMA initiative. It was noted through this research that there is a need to get more in-depth insights into what the stakeholder groups would like to get out of and add to the process. However, getting to a point where there is shared trust and respect to speak about these topics around the table will take time. Future study could attempt to identify the conditions under which trust and respect around planning are created, as well as identify mechanisms to facilitate the identification and inclusion of stakeholder groups' values.

Until further study is carried out, facilitation of workshops and meetings should be carried out to work towards the goals of the initiative.

A good way to start the conversation on values could be to perform a study on the relative importance of resources or activities to the stakeholder groups. This could be completed using the paired comparison approach, which is a well-established psychometric method used to order preferences among elements of a choice set. It provides an indication of the relative importance of the items being compared to individuals taking part in a survey. Research has been completed that has used this method to assess the relative values of stakeholder groups with respect to natural resources (Chuenpagdee *et al.* 2001; Kukac 2009).

Finally, once the PB/GB LOMA IM plan and action plans for priorities are complete, research should be carried out to observe if/how the stakeholder groups are implementing the actions. This will occur in the form of monitoring by DFO; however, academic research such as this thesis would also be useful. In later stages of the process it will become evident at that stage if stakeholder groups have bought in and become fully engaged in the process or not. Only time will tell if the necessary actions will be implemented by the stakeholder groups involved. Hopefully this research has shed light on changes that need to be made to build communication, participation and governance within the initiative so that future actions can be implemented successfully in pursuing the goals of collaborative and effective governance, healthy ecosystems and sustainable use.

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APPENDIX A – PB/GB LOMA COMMITTEE GUIDING PRINCIPLES

The Committee will operate according to the following principles:

1) Collaboration: based on the recognized need for the contribution of all parties in the PB/GB LOMA, the Committee facilitates working together through an open and inclusive planning process.

2) Simplicity: reduce unnecessary complexity in the planning process.

3) Information Sharing and Exchange: the committee will adhere to the principles of: public outreach, intrasectoral, and intersectoral communication. It is expected participants will provide regular progress reports back to their respective sectors, that communication between sectors will occur, and that information will be shared with the public.

4) Inclusiveness: all stakeholders with oceans-related activities will be given the opportunity to participate.

5) Transparency and accountability of the Committee: the activities of the Committee will remain open and inclusive to foster a transparent nature. Records of meetings and workshops will be made available, and reasons for decisions made throughout the process articulated; Committee members are accountable to their respective constituents/organizations.

6) Shared work planning/ commitment to the process: the development and implementation of an overall management plan for the PB/GB LOMA should include the development of workplans, done collaboratively by the Committee. Each participant contributes their respective expertise and resources as required to fulfill these workplans.

7) Work within legislative frameworks: this initiative does not delegate legislative responsibilities from any government or aboriginal rights to the development and implementation of an overall management plan. Rather, each participant acts within their capacity to contribute to the plan and its implementation.

8) Efficiency: the initiative operates within respective legislative responsibilities and avoids creating overlap and duplication in facilitating cooperation and collaboration with respect to oceans management. It provides the added value of better informing and coordinating the policy and program efforts of those involved.

9) Ecosystem-based management: the development of the overall management plan for the PB/GB LOMA will be done in the context of the existing environmental, social, cultural and economic conditions and knowledge.

10) Sustainability: The development of the plan shall take into consideration environmental, economic, social and cultural values. The aim of the management plan will be to endeavor to meet the needs of present stakeholders in a sustainable fashion that will not compromise the ability of future generations to meet their own needs.

11) Adaptive Management: recognizing the dynamic nature of ecosystem-based management, the planning process includes evaluation measures to ensure that its proposed objectives are being met and remain relevant. Where current needs are not being met, the plan will be revised. The overall management plan will be formally reviewed on a 3-5 year cycle.

12) Precautionary approach: where decisions for the management of the PB/GB LOMA must be made and there is significant scientific uncertainty or a risk of serious or irreversible harm, the Committee will foster a precautionary approach.

APPENDIX B – STAKEHOLDER GROUP DESCRIPTIONS

Stakeholder Group	Description
Academic Institutions	
Marine Institute/Memorial University of Newfoundland (MI/MUN)	MI: Aims to provide education and training, applied research and technology transfer in support of their client industries on a national and international basis. It commits to providing a learning environment in which students can reach their full potential (Marine Institute 2009). MUN: Mission is to be an inclusive community dedicated to creativity, innovation and excellence in teaching and learning, research and scholarship, and to public engagement and service (Memorial University of Newfoundland 2010). Both institutions have wide ranging programs and courses and there is currently no designated PB/GB LOMA representative.
School of Ocean Technology (SOT)	Part of MI, it is charged with the responsibility of developing and delivering education and training, applied research and development programs in ocean technology. Its Applied Research Unit, once the Canadian Centre for Marine Communications, is involved with the SmartBay initiative, which works to improve access to information for management and sustainable development of the coastal and ocean resources in Placentia Bay (School of Ocean Technology 2008). The representative for the PB/GB LOMA works on this initiative.
Coastal Management Areas/Marine Protected Area	
Coast of Bays Coastal Planning Committee (COBCPC)	Aims to foster the sustainable use and development of coastal and marine environments through collaboration and planning for the Coast of Bays region of NL. This region is located on the South Coast of NL and is faced with multiple demands due to various industries that are developing there. The Committee is comprised of nine individuals and seven resource persons representing various regional stakeholder groups such as fisheries, aquaculture, tourism, recreational boaters and cabin owners, harbour authorities, economic development agencies, municipalities, aboriginal groups and government (Coast of Bays Regional Economic Development Board 2009). The PB/GB LOMA representative works with the local economic development organization.
Eastport Marine Protected Area Steering Committee (EMPASC)	Seeks to increase stakeholder involvement in the development, management, monitoring, evaluation and surveillance of local fishery resources and habitats to develop sustainable economic activities. Located on the East Coast of NL, it was started by local stakeholders seeking involvement in the conservation of local lobster stocks. The committee is comprised of fish harvesters, harbour authorities, municipalities, the tourism sector, the FFAW, provincial government (DFA), and federal government (DFO) (Eastport MPAs 2010). The PB/GB LOMA representative was hired as a staff member by the Committee.
Mi'kmaq Alsumk Mowimsikik Koqoey Association (MAMKA)	Represents the Mi'kmaq people and communities of the Federation of Newfoundland Indians and the Miawpukek First Nation in aquatic resource and oceans management issues. Developed under a Federal Government program to help Aboriginal groups participate effectively in

	multi-stakeholder and other advisory & decision-making processes used for aquatic resources and oceans management. Operates under the Board of Directors, which the PB/GB LOMA representative is a part of (MAMKA n.d.)
Placentia Bay Integrated Management Planning Committee (PBIMPC)	The Committee works toward an ongoing, proactive and collaborative planning process that is meant to bring together residents, all other stakeholders and government representatives to achieve consensus in oceans management and sustainable development of coastal and marine areas. Consists of representatives from the aquaculture, fish harvesting, fish processing, mining, oil, tourism and recreation industries; business organizations; economic development agencies; oil spill response committees, federal government (DFO); provincial government (DFA and DEC); and municipalities (DFO 2008a). The PB/GB LOMA representative works with the local mining industry.
Fisheries and Aquaculture	
Association of Seafood Producers (ASP)	A non-profit corporation representing interests of seafood producers in NL. Objectives are to provide effective input into policy decisions and regulatory matters at all levels of Government, participate in programs of direct benefit to the whole industry, and promote a positive image of the industry (Association of Seafood Producers 2004). Has a board of directors made up of 10 individuals representing companies of various sizes. Currently has 25 member companies operating over 62 plants in NL, 37 of which are operating within the PB/GB LOMA.
Fish, Food and Allied Workers Union (FFAW)	Represents over 20,000 workers throughout Newfoundland and Labrador, most of whom are employed in the fishing industry (approximately 10,000 fish harvesters and 10,000 fish plant workers). Has three divisions: inshore, industrial/retail and offshore sectors. Includes an 18 member Executive Board as well as policy-making councils that incorporate the three divisions. Has approximately 300 inshore committees representing fishermen and women in over 500 communities (Fish, Food and Allied Workers Union n.d.).
Groundfish Enterprise Allocation Council / Canadian Association of Prawn Producers (GEAC/CAPP)	GEAC: A non-profit association representing the interests of its members in all aspects of the management of the groundfish resources and of the offshore groundfish fishery of Atlantic Canada (Groundfish Enterprise Allocation Council n.d.). CAPP: non-profit organization established as a mechanism to discuss common issues and interests among shrimp producers, and then project those to government. Both groups have the same representative on the PB/GB LOMA Committee who works with both groups. Groups have common interests and an overlap in membership. Represents nearly all of the offshore fishing companies that operate in the PB/GB LOMA.
Newfoundland Aquaculture Industry Association (NAIA)	It is a member based non-profit organization that assists the aquaculture industry in achieving its full wealth creation potential, delivers programs and services, and acts as the voice for the industry. Membership is composed of finfish and shellfish farmers, primary and secondary processors, hatcheries producers, supply and service companies and academic institutions. Represents approximately 90 companies

	(Newfoundland Aquaculture Industry Association n.d.). All finfish farms in NL are located in the PB/GB LOMA, while there are also numerous shellfish farms located there as well.
Seafood Producers Association of Newfoundland (SPAN)	Represents the interests of small scale fish processors in NL, mostly on the west coast of the island portion of the province. Represents approximately 15 processing companies, with about 20 processing facilities. This includes only one company and one plant that work at or near PB/GB LOMA.
Government	
Federal	
Atlantic Canada Opportunities Agency (ACOA)	Works to create opportunities for economic growth in Atlantic Canada by helping businesses become more competitive, innovative and productive, by working with diverse communities to develop and diversify local economies, and by championing the strengths of Atlantic Canada. One of two Federal Departments in the province with policy makers on staff. Has regional headquarters in St. John's and additional offices throughout the province. PB/GB LOMA representative works within the Policy and Coordination division and is involved with oceans science and technology industrial development (Atlantic Canada Opportunities Agency 2009).
Environment Canada (EC)	Focuses on conserving Canada's natural environment, renewable resources and water resources, as well as enforcing rules relating to boundary waters and coordinating environmental policies and programs. Policy making for the EC Atlantic Region occurs at the headquarters in Dartmouth, Nova Scotia. The PB/GB LOMA representative is located at the headquarters working with Sustainable Communities and Ecosystems. EC does have employees in St. John's who occasionally attend PB/GB LOMA workshops/meetings (Environment Canada 2009).
Fisheries and Oceans Canada (DFO)	Responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in oceans and fresh waters. Lead agency for the PB/GB LOMA. One of two Federal Departments in the province with policy makers on staff. Has regional headquarters in St. John's and additional offices throughout the province. Employees working on the PB/GB LOMA initiative are within the Integrated Management section of the Oceans Branch (DFO 2009).
Parks Canada (PC)	Aims to protect and present Canada's natural and cultural heritage to foster public understanding, appreciation and enjoyment, ensuring ecological and commemorative integrity for present and future generations. One of its three divisions is "National Marine Conservation Areas" that are protected from certain activities, and areas in the PB/GB LOMA are currently under consideration. Policy making occurs through a Strategy and Plans Directorate, while a representative from its Eastern Newfoundland Field Unit sits on the PB/GB LOMA (Parks Canada 2008).
Transport Canada (TC)	Responsible for transportation policies and programs (including marine transportation) to ensure that modes of transportation are safe, secure, efficient and environmentally responsible. Policy making occurs at the Atlantic Region headquarters in Moncton, New Brunswick; however, there is a local representative in the St. John's office from the Marine

	Compliance and Enforcement division (Transport Canada 2009).
Provincial	
Department of Environment and Conservation (DEC)	Has ocean interests within some of its ten departments, including parks and natural areas, wildlife, water resources, pollution prevention, environmental assessment and climate change. Headquarters located in St. John's, with other offices throughout the province (NL Department of Environment and Conservation 2010b). The PB/GB LOMA representative was designated as such because of their role as the ocean and coastal contact for various initiatives
Department of Fisheries and Aquaculture (DFA)	Aims to supports and promote the development of sustainable and viable fishing and aquaculture industries. Goal is to maximize the returns to the NL economy from all its available fish resources. Representative on the PB/GB LOMA Committee is part of the Sustainable Fisheries and Oceans Policy division located at the headquarters in St. John's. The Oceans section of this division is responsible for coastal and ocean management initiatives and some environmental issues within the department (NL Department of Fisheries and Aquaculture 2009).
Department of Natural Resources (DNR)	Has ocean interests within its Mines and Energy Branch, with respect to offshore oil and gas development. Currently, all of the oil and gas development in the province occurs in the PB/GB LOMA. The department promotes and facilitates the sustainable development of this sector through its resource assessment, management and development activities (NL Department of Natural Resources 2010c). Representative on the PB/GB LOMA Committee is in the regulatory affairs division of the Energy section, located at the headquarters in St. John's.
Joint Federal/Provincial	
Canada – Newfoundland and Labrador Offshore Petroleum Board	Facilitates exploration and development of hydrocarbon resources conforming to statutory provisions in the Atlantic Accord (1986) for worker safety, environmental protection and safety, effective management of land tenure, maximum hydrocarbon recovery and value and Canada/NL benefits . Chair and board members are appointed by the federal and provincial governments (C-NLOPB 2010a). The representative for the PB/GB LOMA is in the Environmental Affairs Department at the headquarters in St. John's.
Non-Government Organizations	
Canadian Parks and Wilderness Society (CPAWS)	Aims to promote the systematic establishment of new terrestrial and marine protected areas and to foster effective management of existing protected areas in NL. Also aims to conserve special marine features and encourage sustainable use of marine and coastal resources. CPAWS has 20,000 members across the country, thirteen chapters, as well as a national office in Ottawa (Canadian Parks and Wilderness Society n.d.). The NL chapter is based out of St. John's, and its main focus is marine area protection. It has approximately 100 members and a very small staff. One of the board members acts as the PB/GB LOMA representative.
World Wildlife Fund – Canada	Aims to stop the degradation of the planet's natural environment by conserving biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and

	wasteful consumption. Its head office, located in Toronto, Ontario, contains public support staff and most of the conservation staff. Has a regional office for Atlantic Canada in Halifax, Nova Scotia. The St. John's office has two staff members who are part of the Atlantic Canada team and carry out fisheries related work (World Wildlife Fund 2008).
Other Industry	
Canadian Association of Petroleum Producers (CAPP)	Attempts to enhance the economic sustainability of the petroleum industry in a safe, environmentally and socially responsible manner through constructive engagement and communication with governments, the public and stakeholders. Directed by a board of governors representing companies of various sizes (Canadian Association of Petroleum Producers 2010). PB/GB LOMA representative works with the Atlantic Canada Executive Policy Group, in the head office in St. John's. CAPP represents about 130 member companies; approximately 14 have interests or activities in Atlantic Canada and 10 have interests or activities in the PB/GB LOMA.
One Ocean Corporation (OOC)	Liaison organization established by the fishing and petroleum industries operating in NL. Under the direction of an industry board, it promotes mutual understanding between these two vital industries and their common marine environment. Has three primary organizational elements: a joint Industry Board; an independent Chairperson; and an independent Secretariat. The Industry Board is comprised of equal representation from both sectors. The PB/GB LOMA representative works for the mutual interests of both industries as an employee (One Ocean Corporation2006).
Hospitality Newfoundland and Labrador (HNL)	A non-profit membership association that seeks to lead, support, represent and enhance the province's tourism industry. Has successfully advocated on behalf of members and the entire tourism industry. Largest industry association in NL, with a membership of over 600 companies. Umbrella organization for tour/adventure tourism, supplier/corporate, bed and breakfast/ hospitality home, private parks/attractions, cruise companies and restaurants (Hospitality Newfoundland and Labrador n.d). The PB/GB LOMA representative operates an ecotourism business and is highly involved with coastal issues.
Shipping Federation of Canada (SFC)	Represents and promotes the interests of ship owners, operators and agents involved in Canada's trade. Its overall objective is to works towards a safe, efficient, competitive, environmentally sustainable and quality-oriented marine transportation system. Members are Canadian companies that own, operate or act as agents for 95 percent of ocean vessels trading to and from Atlantic Canada, the St. Lawrence River and the Great Lakes. Headquartered in Montreal, Quebec, where the PB/GB LOMA representative is located within Environmental Affairs. 16 senior level executives form the Board of Directors (Shipping Federation of Canada n.d).
Stakeholder groups that attend workshops but are not members	
Provincial Rural Secretariat	A provincial government entity that attempts to advance the economic, social, cultural and environmental sustainability of rural NL communities and regions. One of the many aspects of the Rural

	Secretariat is its nine Regional Councils, six of which are within the PB/GB LOMA. The Regional Councils were asked by DFO to attend working group meetings to lend their local expertise. They have attended workshops and their participation has been met with many positive reactions. The Rural Secretariat has not been formally asked to be part of the PB/GB LOMA Committee, and they have not asked to be part of it.
Regional Economic Development Boards	There are twenty Regional Economic Development boards across the province, and ten are at least partially located within the PB/GB LOMA. These boards promote the development of their zones (NL Regional Economic Development Association 2010). They have recently become involved in the PB/GB LOMA process, and the extent of their possible involvement is not yet known. At recent LOMA meetings, members of these boards have attended upon the request of DFO, and their participation has met with positive reactions. They have not been formally asked to be part of the PB/GB LOMA Committee, and they have not asked to be part of it.

APPENDIX C – INTERVIEW SCHEDULE

Date:
Stakeholder Group:
Participant Name:
Participant Job Title:
Interview Time:
Interview Location:

General Information

1) How did your group become a member of the PB/GB LOMA Committee?
2) How did you attain the role of representative on the committee?
3) Are you on any other committees or management groups?
4) How many people are part of your group?
5) What are the sub-groups within your group?
6) Does your group have a communications plan, strategy or working group? Why was it written/established?

Intra-Group Communication (communication within their own group)

The following questions relate only to communication about coastal and ocean issues within the last year, and relate only to members of your group that deal with issues inside the PB/GB LOMA boundary.

Information Exchange

1) Which group members do you communicate with and how often? (Ex. yearly, quarterly, monthly, weekly, daily)?
2) What type of information is exchanged?
3) How do you exchange this information?
4) Is communicating with group members important? Why?
5) Have you provided information to group members specifically about the PB/GB LOMA initiative?
6) Do you report communication with members of your group back to the PB/GB LOMA Committee to be incorporated into the process?
7) If not, have you considered how inputs from group members can be incorporated into the process?

Strategies and Challenges

1) Are there any factors that facilitate communication with your group members?
2) Are there any challenges or barriers in communicating with your group members?

Communication with the Public

The following questions also relate only to communication about coastal and ocean issues within the last year, and relate only to members of the public inside the PB/GB LOMA boundary.

Information Exchange

1) Does your group communicate with the general public about coastal and ocean issues?
2) Who do you communicate with? (Media, school groups, etc.)
3) What type of information do you exchange?
4) How do you exchange information?
5) How often does this occur?
6) Is communicating with the general public important? Why?
7) Have you provided information to the public about the PB/GB LOMA initiative?
8) Do you report communication with members of the public back to the PB/GB LOMA Committee to be incorporated into the process?
9) If not, have you considered how inputs from the public can be incorporated into the process?

Strategies and Challenges

1) Are there any factors that facilitate communication with the public?
2) Are there any challenges or barriers in communicating with the public?

Inter-Group Communication (communication between groups)

The following stakeholder groups are on the PB/GB LOMA Committee.

1) How often do you communicate with them about coastal and ocean issues within the PB/GB LOMA boundary?
2) Do you provide information to them, receive information from them, or both?
3) What is the level of communication with them?

Frequency	**Direction**	**Level**
N = Never	P = Provide	N = As necessary to discuss issues or pass along information
Y = Yearly	R = Receive	C = For project collaboration or formal arrangements
Q = Quarterly	B = Both	
M = Monthly		
W = Weekly		
D = Daily		

Group	Frequency						Direction			Level	
	N	Y	Q	M	W	D	P	R	B	N	C
Association of Seafood Producers											
Atlantic Canada Opportunities Agency											
Canada – Newfoundland and Labrador Offshore Petroleum Board											
Canadian Association of Petroleum Producers											
Canadian Parks and Wilderness Society											
Coast of Bays Coastal Planning Committee											
Conne River, Miawpukek First Nation											
Provincial Department of Fisheries and Aquaculture											
Provincial Department of Environment and Conservation											
Provincial Department of Natural Resources											
Eastport Marine Protected Area Steering Committee											
Environment Canada											
Fish, Food and Allied Workers Union											
Fisheries and Oceans Canada											
Groundfish Enterprise Allocation Council / Canadian Association of Prawn Producers											
Hospitality Newfoundland and Labrador											
Marine Institute / Memorial University of Newfoundland and Labrador											
Newfoundland Aquaculture Industry Association											
One Ocean Corporation											

Parks Canada Agency											
Placentia Bay Integrated Management Planning Committee											
Seafood Producers Association of Newfoundland											
School of Ocean Technology (SmartBay)											
Shipping Federation of Canada											
Transport Canada											
World Wildlife Fund – Canada											

Additional Groups

1) Are there any other groups that you communicate with about coastal and ocean issues that are not on this list?
2) Do you think any other groups should be included on the PB/GB LOMA Committee?

Information Exchange

The following questions relate only to communication about coastal and ocean issues within the last year, and relate only to information about areas inside the PB/GB LOMA boundary.

1) What type of information is communicated with these groups?
2) How do you exchange this information?
3) Is exchanging information between groups important? Why?
4) Do you ever exchange information specifically about the PB/GB LOMA initiative?

Strategies and Challenges

1) Are there any factors that facilitate communication with other groups?
2) Are there any challenges or barriers in communicating with other groups

Other Questions

1) As part of the PB/GB LOMA initiative, what communication mechanisms could DFO implement that would be beneficial for your group?
2) What are the main issues right now within the PB/GB LOMA boundary that may require integrated management to help resolve?
3) Is effective communication a concern in the PB/GB LOMA?

4) What is your group's level of participation within the PB/GB LOMA initiative (information, consultation, collaboration)?
5) What do you feel that your group's role is in the PB/GB LOMA initiative? Are you in any working groups?
6) Do documents distributed by DFO about the PB/GB LOMA use a level of communication applicable to and/or understandable by all participants?
7) Are members of your group interested in ongoing activities of the PB/GB LOMA initiative?
8) What are the benefits of participating in the PB/GB LOMA initiative?
9) What are the challenges to participating in the PB/GB LOMA initiative?

APPENDIX D – MATRIX OF COMMUNICATION BETWEEN STAKEHOLDER GROUPS

	ASP	ACOA	CNLOPB	CAPP	CPAWS	COBCPC	MAMKA	DFA	DEC	DNR	EMPASC	EC	FFAW	DFO	GEAC/CCAPP	HNL	MI/MUN	NAIA	OOC	PC	PBIMPC	SPAN	SOT	SFC	TC	WWF
ASP	0	0	1	1	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	0	0	1
ACOA	0	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	1	1	0	1	0	1	0	1	0
CNLOPB	1	0	0	1	1	0	0	1	1	1	0	1	1	1	0	0	1	0	1	1	0	0	0	0	1	1
CAPP	1	1	1	0	1	0	0	1	1	1	0	1	1	1	0	0	1	0	1	1	1	0	0	0	1	1
CPAWS	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
COBCPC	0	1	0	0	1	0	1	1	1	1	0	0	1	1	0	1	1	1	0	0	1	0	1	0	0	0
MAMKA	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	0	1	1	0	0	0	0	1
DFA	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEC	0	1	0	0	1	1	1	0	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	1	0	0
DNR	1	0	1	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
EMPASC	0	0	0	0	1	1	0	1	1	0	0	1	1	1	0	1	1	1	0	1	0	0	0	0	0	1

EC	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0
FFAW	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1
DFO	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
GEAC/CAPP	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1
HNL	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	0	1	0	1	1
MI/MUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAIA	1	1	0	0	0	1	1	1	1	0	0	1	1	1	0	1	1	0	0	0	0	1	1	0	1	0
OOC	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	0	0	1	1	0	1	1	1	1
PC	0	1	0	0	1	0	1	1	1	1	1	1	0	1	0	1	1	0	1	0	1	0	1	0	1	1
PBIMPC	1	0	0	0	1	1	0	1	1	0	0	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1
SPAN	1	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0
SOT	1	1	1	1	0	1	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1	0	0	1	1	0
SFC	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	1	0
TC	1	1	1	1	0	0	0	1	1	0	0	1	1	1	1	0	1	0	0	0	0	0	1	1	0	0
WWF	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	0

APPENDIX E – OTHER COMMUNICATION ARRANGEMENTS

Communication Arrangements and Descriptions	PB/GB LOMA Groups Involved
Government Led Initiatives	
Regional Oversight Committee on Oceans Management: Established in 2005, and has federal and provincial executive level representation. It seeks to ensure collaboration in government to support the sustainable development of ocean resources, promote stakeholder engagement and provide strategic direction towards oceans management within the province. Supposed to meet at least semi-annually; however, they meet at various time intervals.	All Provincial and Federal Government Departments on PB/GB LOMA
Canada-Newfoundland Labrador Committee on Oceans Management: Established in 2006, and has federal and provincial working level representation that mirrors the membership of the ROCOM. It is the "work-engine" for the ROCOM, dealing with concrete tangible issues and making recommendations to the ROCOM on them. Supposed to meet at least semi-annually; however, they meet at various time intervals.	All Provincial and Federal Government Departments on PB/GB LOMA
Provincial Coastal and Oceans Network: Established in 2006 and chaired by DFA. Consists of nine provincial departments and three provincial agencies with policies and programs related to coastal areas. A priority role for the network is information exchange related to coastal and ocean management activities. Supposed to meet at least semi-annually; however, they meet at various time intervals.	All Provincial Government Departments on PB/GB LOMA
Regional Advisory Council on Oil Spill Response: Developed to advise on an adequate level of oil spill preparedness and response in the Newfoundland Region. It serves as an advisory body to the Minister of Transport and the Assistant Deputy Minister of Safety and Security, Transport Canada. This group meets twice a year, and meetings are open to the public unless otherwise stated.	FFAW, TC, SFC
Placentia Bay Traffic Committee: Chaired by the Canadian Coast Guard and is considered a well established forum for all marine users of Placentia Bay. The committee meets three to four times a year to identify, discuss and possibly resolve marine traffic related issues. It has approximately 25 members, including representatives of many groups in Placentia Bay.	PBIMPC, SOT, SFC, TC

C-NLOPB Strategic Environmental Assessment Working Group for the South Coast of NL: SEA involves a broad scale environmental assessment, instead of project-specific environmental assessments that focus on site-specific issues. In 2002, the C-NLOPB decided to conduct SEAs of portions of the NL Offshore Area that have potential for offshore oil and gas exploration, including the South Coast. As part of the SEA process, the C-NLOPB can facilitate the consideration of stakeholder issues and concerns early in the planning process. A South Coast Working Group was formed for this purpose. Although the process is currently complete, this group had become an important way for stakeholders to interact and communicate.	C-NLOPB, CPAWS, DNR, MAMKA, GEAC/CAP, MI/MUN, OOC, WWF
Industry Led Initiatives	
One Ocean Corporation: Liaison organization established by the fishing and petroleum industries operating in NL. Under the direction of an industry board, it promotes mutual understanding between these two vital industries and their common marine environment. Has three primary organizational elements: a joint Industry Board; an independent Chairperson; and an independent Secretariat. The Industry Board is comprised of equal representation from both sectors. There is frequent communication between the One Ocean Corporation respondent and the industry groups, and the entire group has four board meetings a year that give everyone a chance to communicate with each other.	C-NLOPB, CAPP, FFAW, ASP
NAIA Aquatic Invasive Species Advisory Committee: Aims to act as a conduit of information between DFO, Department of Fisheries and Aquaculture, academia and the aquaculture and fishing industries regarding Aquatic Invasive Species. It was initiated by the Newfoundland Aquaculture Industry Association because of the effects that these species can have on aquaculture operations. This group has been meeting since 2007, and meets four times a year.	DFO, DFA, MI/MUN, NAIA, FFAW, HNL
Marine Atlantic Stakeholder Working Group: Brings together various commercial stakeholder groups that utilize Marine Atlantic's ferry services between NL and Nova Scotia. It includes business groups such as manufacturing, trucking, agriculture and aquaculture industries. The group meets twice a year or more if needed in St. John's to discuss various issues including reservations of the service for commercial use.	ASP, HNL, NAIA

Collaboratively Led Initiatives	
Coast of Bays Coastal Planning Committee: Aims to foster the sustainable use and development of coastal and marine environments through collaboration and planning for the Coast of Bays region of NL. This region is located on the South Coast of NL and is faced with multiple demands due to various industries that are developing there. Meets three to four times a year.	Members: NAIA, FFAW Resource Persons: DFO, DFA, ACOA
Placentia Bay IM Planning Committee: The Committee works toward an ongoing, proactive and collaborative planning process that is meant to bring together residents, all other stakeholders and government representatives to achieve consensus in oceans management and sustainable development of coastal and marine areas. Meets three to four times a year.	DFO, DFA, DEC, FFAW, NAIA
Eastport MPA Steering Committee: Seeks to increase stakeholder involvement in the development, management, monitoring, evaluation and surveillance of local fishery resources and habitats to develop sustainable economic activities. Located on the East Coast of NL, it was started by local stakeholders seeking involvement in the conservation of local lobster stocks. Meets twice a year.	Voting Members: DFO Ex-Officio Members: DFA, FFAW, PC
Eastern Scotian Shelf Integrated Management: A collaborative ocean management and planning process being led and facilitated by DFO. Its primary aim is to develop and implement an IM Plan for this Large Ocean Management Area (LOMA) off of Nova Scotia. Its IM Plan was released in 2006 as Canada's first LOMA IM Plan under the *Oceans Act*. However, it has not had formal sign off from the Minister of Fisheries and Oceans.	CAPP, EC, DFO, CPAWS, DFA
Gulf of St. Lawrence Integrated Management: A collaborative ocean management and planning process being led and facilitated by DFO. Its primary aim is to develop and implement an IM Plan for this Large Ocean Management Area (LOMA) off of Quebec, Nova Scotia, New Brunswick, Prince Edward Island and NL. It has not developed an IM Plan as of yet, but is in the process of developing one. Conservation objectives have been developed and socio-economic and cultural objectives are being developed to be included in the plan.	CAPP, EC, DFA, DFO
Atlantic Coastal Zone Information Steering Committee: Established to foster cooperation in Atlantic Canada with regards to integrated coastal and ocean management, coastal mapping and geomatics.	ACOA, DFA, DEC, DNR, EC, DFO, MI/MUN, SOT

Membership currently includes the four Atlantic Provinces, eleven federal departments/agencies, community organizations, NGOs, the private sector and academia. ACISC meetings occur three times a year, alternating between the capitals of the four Atlantic Provinces.	
East Coast Advisory Committee for the Environmental Studies Research Funds: A research program which sponsors environmental and social studies, designed to assist in the decision-making process related to oil and gas exploration and development in Canada. The funding for the Environmental Studies Research Funds are provided through levies on frontier lands paid by interested holders such as the oil and gas companies. Directed by a joint government/ industry/public Management Board and administered by a small secretariat within Natural Resources Canada.	C-NLOPB, DFO, CAPP, EC, FFAW, DNR, MI/MUN, OOC