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Institutional arrangements for cooperative fisheries management: A case study of the Newfoundland and Labrador northern shrimp fishery

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Institutional Arrangements for Cooperative Fisheries Management:

A Case Study of the Newfoundland and Labrador Northern Shrimp Fishery

by

Bram F. Noble
B.A. (Hons.), Memorial University of Newfoundland, 1997

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Abstract

The intent of this study is to examine the present institutional arrangements of the Newfoundland and Labrador Northern shrimp fishery, to identify the roles of cooperative fisheries economic development corporations and make recommendations for institutional improvements. There are a number of institutional and organizational arrangements more favorable for fisheries management and development than present ones (Bishop, 1981; Bromley, 1982; McCay and Acheson, 1987; Pinkerton, 1989). Jentoft and McCay (1995) identified the need for this type of research in fisheries management in order to understand the complexity of relationships in fisheries management and to develop more effective means of fisheries management in general.

The research was divided into two phases. The first phase constituted a review of the literature focusing on cooperative fisheries management and the relative importance of institutional research and institutional considerations in fisheries management. The first part of the thesis presented a vision of how commercial fisheries should be managed and regulated to promote cooperative fisheries economic development arrangements. The strengths and weaknesses identified in the literature regarding cooperative fisheries management, institutional arrangements, systems theory, ecosystem-based management, coastal zone management, and economic development were adapted to develop a normative model and evaluative institutional framework for cooperative fisheries management arrangements. Evaluative criteria were based on elements of process (interactive organizations, local control, community support, planned processes) and substantive values (substantive diversity, holism).

The second phase of this research involved the selection of the Newfoundland and Labrador Northern shrimp fishery as a case study for the application of the normative framework. The Northern shrimp fishery is a relatively new fishery and is presently undergoing a major transformation in management and institutional structure. At the same time, the province of Newfoundland and Labrador is also undergoing an institutional restructuring in its approach to regional and community economic development. Through application of the normative framework, institutional constraints regarding the Newfoundland and Labrador Northern shrimp fishery were identified. At the same time, through application of the framework, field interviews revealed a number of institutional

opportunities for economic development corporations as alternative institutional arrangements in the cooperative management and development of the Northern shrimp fishery.

The research concluded that institutional arrangements are an important prerequisite for facilitating effective cooperative fisheries management and development arrangements. The minimum critical criteria for institutional arrangements for cooperative fisheries management include interactive organizations, local control of regulation, management and decision-making responsibilities, community support and a planned process. Institutional arrangements in fisheries management are the entity from which resource management decisions are made and action is taken. Effective institutional arrangements facilitate a cooperative management arena, decentralize and delegate responsibility to the resource users and lowest capable organizations, allow a more flexible management process, and provide a framework in which problems can be evaluated and addressed in a timely and equitable manner. It is concluded in this thesis that rather than undergo a complete institutional restructuring of the present Northern shrimp fishery to achieve these critical conditions, processes and mechanisms provided by cooperative fisheries economic development corporations could offer an alternative management arrangement for cooperative fisheries management and development. Cooperative fisheries economic development corporations display characteristics of interactive organizations, local control, community support and strategic planning processes, essential for effective cooperative fisheries management and development.

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A special thanks to my thesis committee and Dr. Scott Slocombe, thesis advisor. Resource management is a process of muddling through. I would like to thank Dr. Slocombe for his advice and recommendations but mostly for allowing me to develop my own ideas and muddle through this thesis for the most part on my own.

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Chapter 1

Defining the Study

1.0 Introduction

The examination of institutional and organizational arrangements and design has traditionally been neglected in fisheries management. Fisheries researchers have been more concerned with the means of fisheries management, such as Individual Transferable Quotas (ITQs), than with institutional and organizational aspects (Jentoft and McCay, 1995). The institutional and organizational arrangements and design of government, industry and fisher cooperation can be considered the "black box" of fisheries management and need to be explored in order to understand the complexity of relationships and to develop more effective means of fisheries management (Jentoft and McCay, 1995).

In its simplest form, "fisheries management" can be defined as the pursuit of certain objectives through the direct or indirect control of effective fishing effort or some of its components (Panayotou, 1982). Fisheries resource management is commonly regarded as synonymous with management by a centralized governing authority (Jentoft, 1989; Jentoft and Kristoffersen, 1989; Berkes *et al.*, 1991; Kuperan and Abdulah, 1994). Rational fisheries management, accordingly, is seen as a matter of government restrictions on fishers' behavior. After years of centralized government regulation of the fisheries of the North Atlantic, effective solutions to the "commons problem" are still being sought (Jentoft and Kritstoffersen, 1989). Based on the international debate and catalogues of academic literature on fisheries management, there is still a considerable need for new ideas.

1.1 A Fishery in Transition

The province of Newfoundland is on the threshold of a major transformation in its fishing industry. Despite the downturn in the Northern cod fishery, Newfoundland does still have a vibrant fishing industry. The social fishery of the past, however, is quickly becoming an economic fishery, in which governments continue to play an important role, but in cooperation with a strengthened private sector. While it is widely accepted that the fishery of today and the fishery of the future will perhaps never replace the direct province-wide benefits derived from the former Northern cod fishery, they can function as an important fisheries resource base from which to develop alternative economic development initiatives; a catalyst to offset the negative impacts associated with the Northern cod crisis (See Harris, 1995; Hutchings and Myers, 1994; Storey, 1993).

Associated with the transformation in the Newfoundland fishery is the search for alternative management structures such as cooperative fisheries management. As the Newfoundland fishery transforms into a diversified, streamlined, and economically driven fishery it is important that the fishing industry be granted increased control over the management of the resources that are most important to their sustainability (Newfoundland and Labrador Round Table on the Environment and Economy, 1995). A great deal of research has been conducted that points towards cooperative fisheries management as the most effective and legitimate approach in achieving such an objective (e.g.: Berkes and Pocock, 1981; Hannesson, 1985; Ruddle and Johannes, 1985; Busiahn, 1989; McGoodwin, 1990; Pinkerton, 1992; Haugh, 1994; Lim *et al*, 1995; Sen and Nielsen, 1996; Nielsen and Vedsmand, 1997). Unfortunately, the development of cooperative fisheries management arrangements has been unsystematic and slowed by institutional constraints.

Co-management systems consider institutional arrangements in fisheries management as a way of decentralizing resource management decisions and improving participatory democracy and compliance. Furthermore, cooperative regimes work as mechanisms for economic development by involving affected stakeholders in management and planning processes, and by circulating some of the benefits derived from this back into the local communities. The prospects of success of fisheries management, therefore, will depend on whether such arrangements can function as viable institutions. Institutional arrangements form the entity from which collective action is taken in fisheries resource management to achieve a diversity of social, political, economic and ecological goals. A great deal of cooperative fisheries research is set in the context of aboriginal fisheries; isolated fishing outports with a relatively homogeneous group of participants; or community-based fisheries (e.g.: Pinkerton, 1989; Pomeroy, 1991, 1995; Pomeroy and Pido, 1995; Wilson *et al.*, 1995). In the province of Newfoundland, however, developing fisheries are heterogeneous and rely heavily on external market conditions and economic diversification. These conditions demand a different approach from the traditional institutional and organizational design and implementation of cooperative arrangements. A system of fisheries co-management is needed that brings industry and government together while simultaneously involving the private sector in initiating forward and backward linkages. The question is not so much if and why the Newfoundland commercial fishing industry should work in a cooperative environment, but rather what is the appropriate organizational framework?

On February 10, 1995, the Government of Canada and the Government of Newfoundland and Labrador announced a new approach to regional economic development when it released

Community Matters: the Report of the Task Force on Community Economic Development. Governments announced support for the creation of twenty Regional Economic Development Boards (REDBs) for the purpose of planning and implementing regional development initiatives (Fig. 1.1). Included among the goals and objectives of REDBs is to promote a viable and sustainable fishing industry. The Government of Canada and the Government of Newfoundland and Labrador view REDBs as a vital mechanism for developing regional economies. Development, according to Douglas (1994:4), "is essentially a normative concept. It is associated with a change in a community's state from one period to another". Douglas further explains that "change" should include, as an option, securing what the community already has, that is, maintaining a particular desired state. The new structure is consistent with government's philosophy of an integrated approach to economic development; one that encourages innovative cooperation among all sectors at regional, sub-regional and community-based levels (Entnet Newfoundland Web Site, 1997).

Governments can no longer be looked upon to provide all the solutions to the social and economic challenges that confront Newfoundland and Labrador; particularly as a result of the decline of the groundfish fishery. Government does, however, have the responsibility to work in cooperation with the private sector in hopes of rebuilding the hundreds of outport communities scattered along the coastline - the economic resource base of the province. Alternative fisheries development alone will not replace the former Northern cod fishery. But it can help offset some of the hardship by generating economic development opportunities outside the fishing industry. To do so it is important that governments, the fishing industry, and economic development corporations function in a cooperative environment. In a time of restructuring of the economy and fishery it is necessary to examine the present structure and

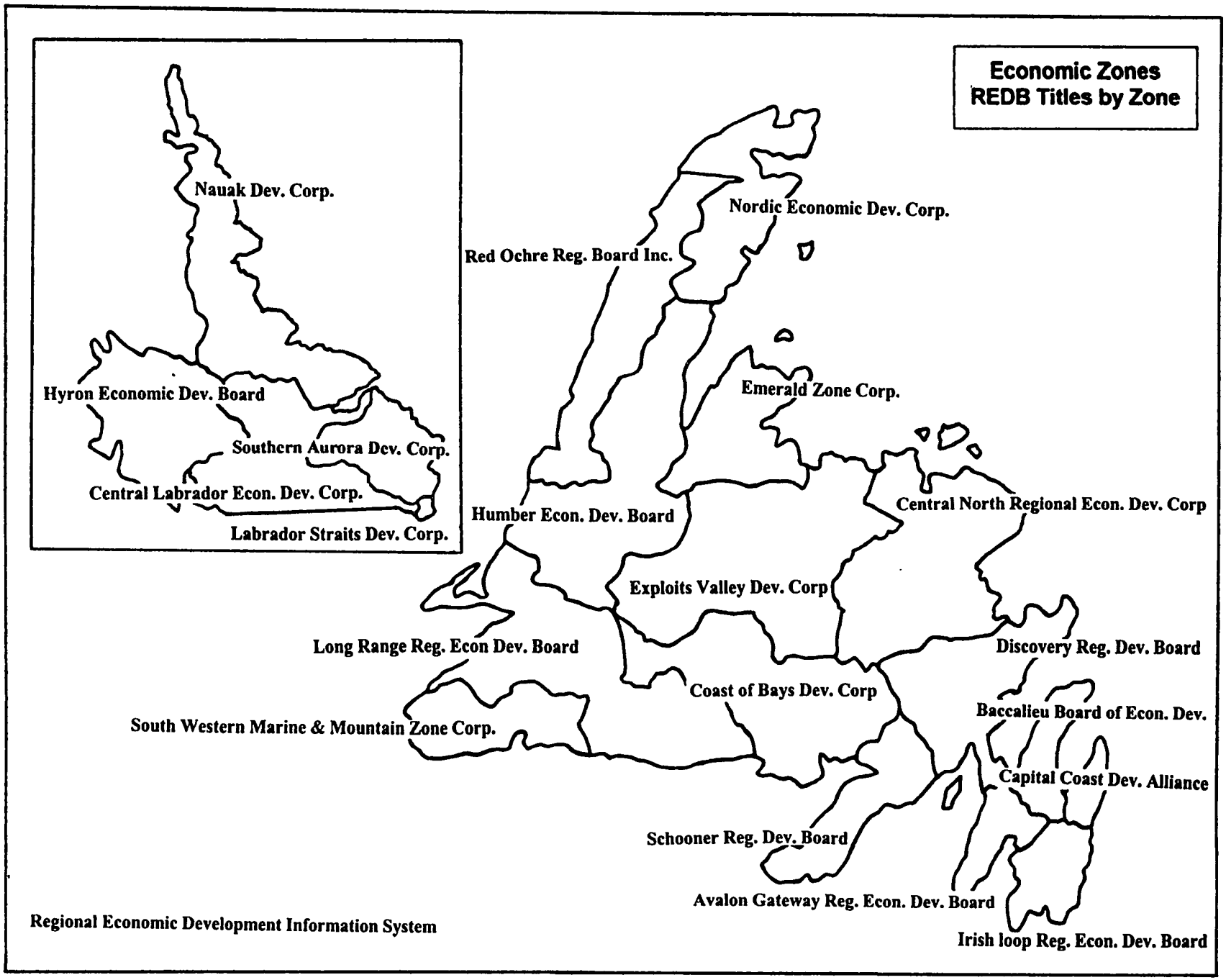


Figure 1.1. Newfoundland and Labrador Regional Economic Development Boards.

process of fisheries management, and identify the potential role(s) and contributions of resource and economic development organizations in improving fisheries management to generate the greatest benefit from alternative fisheries development.

1.2 Proposed Research

One of the central tenets of sustainable development that emerged from the Brundtland Report was that communities should have greater access to and control over decisions affecting their resources. The exploitation of open access fisheries resources can be performed under a number of institutional and organizational arrangements more favorable than present ones (Bishop, 1981; Bromley, 1982; McCay and Acheson, 1987; Pinkerton, 1989). The Northern shrimp fishery is a prime example of a growing and economically important Newfoundland fishery with an evolving management structure. The expansion of the Northern shrimp fishery in 1997-1998, and the introduction of new inshore entrants requires the development of some different management measures (Atlantic Fisheries and Oceans Canada, 1997). In a Province that has suffered severely from the collapse of the Northern cod fishery, it is critical that any benefits derived from the increase in Total Allowable Catch of Northern shrimp accrue directly to those adjacent to and dependent upon this resource. This demands increased local and regional cooperative management and control, and thus a careful reexamination of the present fisheries management system. The purpose of this research is to identify the potential role(s) of economic development corporations in facilitating an effective and efficient cooperative fisheries management arrangement through an institutional (process) analysis of the Northern shrimp fishery.

1.2.2 Study Area

The province of Newfoundland, Canada's most easterly province, is characterized by some of the richest fishing grounds in the world. The fishery is more important in Newfoundland and Labrador than in any other Canadian province (Myers, 1988:2). Despite the decline of Northern cod stocks and the essential closure of the provincial groundfish fishery in the early 1990s, the Newfoundland economy is still heavily based on fishing activity. The fishery, however, has transformed from a fishery with a large dependency on groundfish, to a fishery dependent on a variety of species including the commercially important Northern shrimp fishery.

The Northern shrimp fishery, beginning in Newfoundland during the 1970s as an exploratory fishery, is a relatively new fishery by Canadian standards. By the 1980s improved resource and market conditions resulted in an increase is Northern shrimp quotas and catch, which have continued to increase steadily throughout the 1980s and into the 1990s. From 1996 to 1998 the Northern shrimp Total Allowable Catch (TAC) had more than doubled, resulting in a fishery valued at over $100 million per year. A significant portion of this increase in TAC, along with a community-based quota, accrued to Shrimp Fishing Area 6 (SFA6) and the adjacent regional economic zone. For perhaps the first time since the closure of the Northern cod fishery, opportunity existed to redevelop the inshore fishery and boost local economic development. The focus of this study will be on the Northern shrimp fishery in Shrimp Fishing Area 6, and the adjacent regional economic zone: The Nordic Regional Economic Zone 6. (Fig 1.2). A more detailed description of the study area and additional background information is provided in Chapter 5.

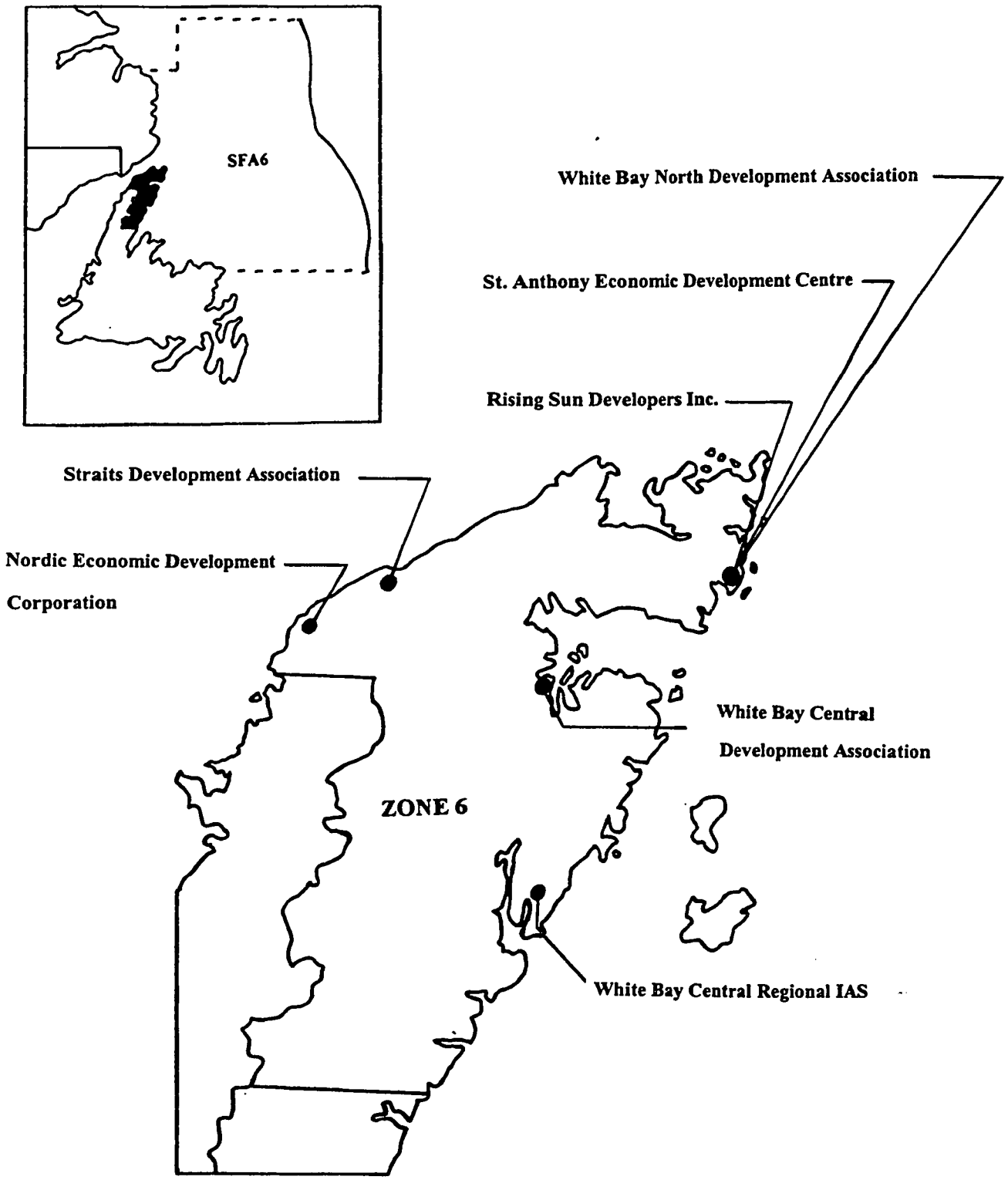


Figure 1.2. Regional Economic Zone 6; Shrimp Fishing Area (SFA) 6.

1.2.3 Research Objectives

Having briefly outlined the research need, intent, and background of the study, the specific research objectives are as follows:

The first objective, which develops the conceptual and theoretical foundations of this thesis, is to discuss and assess the cooperative approach to fisheries management and institutional and organizational arrangements research. This consists of the following sub-objectives:

i) to examine the cooperative approach to fisheries management and to identify relevant literature and research.

ii) to provide an operational definition of institutional arrangements and to integrate this into the framework of cooperative fisheries management.

iii) to present a normative framework outlining the "critical conditions" of institutional and organizaional arrangement and design for cooperative fisheries management.

The second objective, based on a case study of Regional Economic Zone 6 and the Newfoundland and Labrador Northern shrimp fishery, is to identify the potential role(s) and contributions of the economic zone in facilitating a cooperative fisheries management arrangement through cooperative fisheries economic development organizations. This objective consists of the following sub-objectives:

i) to provide an overview of the Nordic Economic Zone, the Northern shrimp fishery and related management objectives.

ii) to recognize the present institutional constraints in the cooperative management of the Northern shrimp fishery, and to assess the institutional opportunities of the regional economic zone (economic development corporations) with regards to facilitating cooperative fisheries mangement arrangements and organizations according to the criteria outlined in the normative framework.

iii) to facilitate coordination of various interests and perspectives and establish specific goals and recommendations for the Northern shrimp fishery in relation to the institutional characteristics of economic development corporations and organizations.

iv) to identify future research needs in relation to cooperative fisheries management and institutional arrangements in Newfoundland, and provide information to economic development corporations and fisheres planners for future management initiatives.

v) to compare the Northern shrimp case study with other relevant cases in the literature.

1.3 Study Organization

This thesis is presented in seven chapters, including the introductory chapter. The following chapter, Chapter 2, provides an overview of the fundamental concepts of cooperative fisheries management and sets institutional arrangements research within the context of fisheries co-management. The purpose of this chapter is to provide a different vision of how commercial fisheries should be managed and regulated.

Chapter 3 describes the study approach, research methods and evaluative framework used in the applied case study. Attention is focused on the various interview and data collection techniques, notably the discussion-type interview. The following chapter, Chapter 4, develops and presents the normative framework used in the case study to assess the institutional organization of the Newfoundland and Labrador Northern shrimp fishery.

In Chapter 5, background information to the case study is provided. This chapter is followed by Chapter 6, the actual application and analysis of the case study. This chapter examines the institutional constraints of the Northern shrimp fishery and institutional opportunities provided by fisheries economic development corporations in facilitating a cooperative management system. The final chapter of this report, Chapter 7, provides a general conclusion, ties the results of the study to the literature and suggests areas for future research.

Chapter 2

Cooperative Fisheries Management and Institutional Arrangements Research

> "It is often presumptuous to believe that humans *manage* environment and resources. More realistically, humans manage their interactions with environment and resources"
> (Mitchell, 1997:284)

2.0. Introduction

Fisheries management regimes, like most policy and management regimes, are "goal-value systems"; that is, they constitute value orientations that dictate the appropriate means for achieving desired goals (Matthews, 1983). Consequently, in order to understand the nature of fisheries management, it is important to understand the changing value orientations that underlie such management and policy formulations. The fishery, according to Matthews (1983), can be managed in two primary ways: through a system of customary and largely local practices; or through a system of formally constituted rules, regulations, and laws created by the state. While it is possible to envisage a time when the regulation of local fisheries was subject largely to use-rules developed and enforced by local fishing communities, that time has long since passed. Today, as Matthews explains, the nature and form of state regulations set the nature and the form of state parameters within which local management and regulation is possible.

While Matthews (1983) writes that there are two distinct management structures, the state and the community, co-management approaches to fisheries management suggest a third type: a degree of power sharing between the governing state and fishers. *Our Common Future,* written by the U.N. sponsored World Commission on Environment and Development

in 1987, commonly referred to as the *Brundtland Report*, formulated a global agenda for change in order to achieve "a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base" (World Commission on Environment and Development, 1987:1). The *Brundtland Report* proclaimed sustainable development as the path which nations and individuals should follow in order to achieve a balance between economic growth and demands on the resource base, and to provide a more equitable and efficient distribution of wealth. While "sustainable development" has been argued to be a contradictory concept, others see it as a good basis for developing a vision or sense of direction (Mitchell, 1997:26). Despite disagreements over the meaningfulness of the term itself, one of the central tenets of sustainable development that emerged from the *Brundtland Report* was that communities should have greater access to and control over decisions affecting their resources, in cooperation with government, economic and administrative functions. Cooperative management is the application of this principle to fisheries management.

The *Brundtland Report* focused on the importance of institutional arrangements in solving pressing resource problems. To respond to this challenge in fisheries resource management, there is a need for resource management research to incorporate aspects of institutional arrangements and organization. Chapter 1 outlined the need for cooperative approaches to fisheries management, provided operational definitions, and introduced the need for institutional arrangements research in fisheries management. This chapter has three objectives: to briefly describe and identify the relative strengths and weaknesses of contemporary state- and traditional self-management approaches to fisheries management; to identify the literature and discuss the key principles of cooperative fisheries management and

its secondary goals including economic development; and to place institutional arrangements research within the context of cooperative fisheries management. This chapter, then, sets the context for a different *vision* of how commercial fisheries should be managed and regulated to promote cooperative fisheries economic development arrangements.

2.1 State vs. Self: extreme ends of the management spectrum

Fisheries management does have a political dimension and must, accordingly, relate to conflicting interests, values, and world views. Consequently, fisheries management is often a highly controversial matter that divides rather than unites user groups and which brings user groups at odds with government (Jentoft and McCay, 1995). Fishers and other user groups rarely dispute the need for fisheries management, but they often disagree on the appropriate forms and means. A major fundamental conflict is rapidly emerging between advocates of "modern" fishery management, with emphasis on centralized government regulation, and challenges by earlier forms of self- management and regulation (Jentoft and McCay, 1995)

2.1.1 Centralized (State) Fisheries Management

A wide range of social science theorizing in the mid-1900s emphasized the role of the central government and of non-local agents in resource management and development (e.g.: Hickson *et al*, 1963; Lawler and Porter, 1967). Communities were viewed by the state as technologically backward; as traditional; as conservative and bourgeois; as disposed to consume resources rather than save; as undisciplined and unlearned; or peripheral, needing to be penetrated to become part of the modern state (Esman and Uphoff, 1984). In this

perspective, the state is placed in the social and economic environment in which it interacts. The outputs of the system are policies and actions that implement policies. It is assumed that policies are formulated to cope with perceived problems in the system's environment. The inputs form the interconnections between the state and society (Fig. 2.1) (Sinclair, 1987).

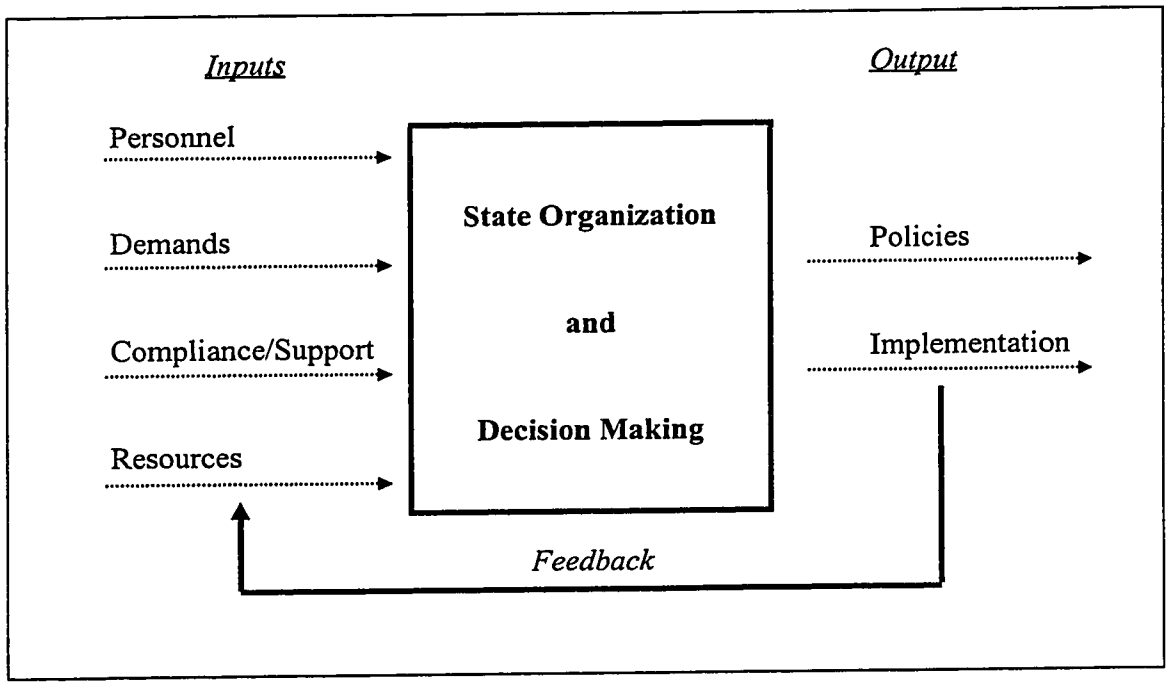


Figure 2.1. A system model of state decision making (After Sinclair, 1987)

State-level, centralized fisheries management is a goal-oriented process which involves a definition of goals and objectives, identification of alternative means of achieving them, an evaluation of the means, selection of desirable alternatives, and implementation of the proposed plan. State-level responsibilities are conducted by a governing agency with a legal mandate. The management style is often characterized as centralized and hierarchical, with a headquarters determining overall policy, and regional offices implementing the policy

(Mitchell, 1997: 197). Management and decision making is primarily based on factual scientific data. The concern of the local fishing industry and fishing communities is that the top-down, synoptic management approach of the Canadian Department of Fisheries and Oceans (DFO) does not adequately address local, regional, or even provincial socioeconomic concerns and variations in the fishery, and does not allow for user or participatory input and involvement. Consequently, the top-down synoptic approach of the DFO is often viewed by the fishing community as lacking legitimacy. The federal government has often been accused of failing to consult adequately with all sectors of the industry (Lamson and Hanson, 1984). As stated by Snow (1978):

> "Consultation with Canadian fishers is on an informal, individual level and consists of managers contacting union and company leaders when they want their advice or cooperation."

Furthermore:

> "The public interest, like all other interests, at every stage of the management process in the Canadian system is left to be considered or ignored by the minister of fisheries and the environment and all those who act in his name"

A number of conferences and research papers have pointed out shortcomings in this contemporary, centralized approach to fisheries management (e.g.: Larkin, 1988; Serchuk and Grainger, 1992). According to Stephenson and Lane (1995) there continue to be widespread signs of dissatisfaction with contemporary fisheries management systems throughout the world. For example: institutional reorganization and reform in Canada (Parsons, 1985); problems in the United States with implementation of management plan guidelines as part of the Magnuson Fisheries Conservation Management Act (Marasco and

Miller, 1988); and debate and change within the International Council for the Exploration of the Sea (Serchuk and Grainger, 1992). This is not to say that governments have not been responsive to, or tried to avoid, addressing the needs of local fishers and the fishing industry. However, for the better part of the last few decades, important fisheries management decision-making has been centralized at the hands of the governing state.

2.1.2 Self-Management

Government-centered regulation has encompassed four broad sets of institutions: quota-based management; input restrictions; limited entry; and individual fisher quotas. As Townsend (1995) explains, the failings of each of the four major models of government-centered fisheries management and regulation are well-known (e.g.: Emery, 1992; Hutchings and Myers, 1994; Harris, 1995; Hutchings *et al.*, 1997; Myers *et al.*, 1997). At the opposite end of the management spectrum is community self-governance and self-management. This is perhaps the most effective form of management for reducing, if not eliminating, conflict between fishers and government.

In the self-management approach the local resource users are empowered to make all the management decisions and to manage the impacts of those decisions outside of the input or influence of government. The self-management system is based on cultural traditions, experimental knowledge, customary practices, and self-regulation (Mitchell, 1997: 188). The approach is highly decentralized and enforcement of management decisions generally occurs through social sanctions (Usher, 1987). Proponents of fisheries self-governance argue that local communities may be able to devise and to administer regulatory institutions that are superior to externally imposed management regulations. Local communities, as Townsend

(1995) writes, have extensive information about the local fishery resources and about the industry that is very useful in designing effective rules. In a government-centered management system, that information is provided selectively to the manager.

Community-self management may present an ideal situation in theory. However, it is not common in practice. Generally, a governing authority such as the DFO is not willing to fully relinquish its managing authority to local resource users. Some of the rare cases of the self-management approach to resource and environmental management in general include the Haida and the Joint Canada-British Columbia Coast Offshore Exploration Panel of 1984 and 1985 (Shapcott, 1989), the remote aboriginal-regulated fisheries of the James Bay area , and provisions in recent northern Canadian comprehensive land claims agreements (Nabigon, 1993). Community-based self-management is not always the most efficient means of resource management when survival of the local resource industry is dependent on the global market. The complexity of external market conditions in resource industries demands at least some degree of representation and decision-making at higher levels of management.

2.1.3 Implications

The two extremes of fisheries management presented above include the total centralization of the decision making process as well as management, to the self-management of local and independent fishing organizations, which would take on all the tasks related to the sector's organization. The state-level of fisheries resource management is based on resource ownership. Rights to resource use and allocation decisions are made by the government, which owns the resource on behalf of the society. For self-management arrangements, as explained by Mitchell (1997), the concept of ownership is often a foreign

one. No one "owns" the resource, but people have access to the resource as determined by cultural traditions and customary practices.

These two theoretical extremes seem to be the least viable options for effective fisheries management (de Vivero *et al.*, 1997). The total centralization of management has been one of the causes of the unsatisfactory organization of fishing arrangements and organizations until the present day. On the other hand, as illustrated by the Canary Islands of Spain, a genuine imposition of a self-management system as far as the fishing communities are concerned has brought about a significant amount of complexity that has restricted its application to small communities devoted to very traditional modes of fishing (de Vivero *et al.*, 1997). The challenge is to incorporate each system's strengths, many of which are complementary, to bring about the greatest benefits for the communities whose socio-economic resource base is dependent upon the fishery. The most effective forms of fisheries management then must fall somewhere in between the two extremes of centralization and self-management.

In summary, standard fisheries management and regulations are being subject to an ever-increasing amount of criticism. Observers from industry, government, and academia all agree that new approaches should be carefully considered and attempted on experimental basis (Pinkerton, 1989). At the same time, Pinkerton explains, new approaches will not be politically feasible or administratively acceptable unless fishers are involved in very direct and substantive ways. The process by which management and fisheries regulations have evolved, makes a powerful case for cooperative management approaches.

2.2 The Cooperative Approach to Fisheries Management

The top-down, synoptic approach is still the dominant approach to fisheries management. Its dominance, however, is being challenged by management frameworks in which government professionals play a less technocratic role and in which local fishers are given more opportunities to be involved in the planning and management of the fishery. Recognition is growing that successful fisheries management with minimal fisher-government conflict ultimately depends on the cooperation and support of the fishing industry (e.g., Pomeroy and Pido, 1995; Sen and Neilsen, 1996; Pomeroy and Berkes, 1997).

Co-management is not altogether a new paradigm. The last decade has seen the proliferation of literature on cooperative approaches to fisheries management (Fig. 2.2). In this transactive approach, the belief is that it is important to consider the experience of people who will be affected most by the planning and management decisions (Mitchell, 1997: 88). Cooperative management, or co-management, is one means of achieving partnerships between the affected stakeholders, in this case fishers, government and private sectors, and circulating some of the benefits derived from effective partnerships back into the local communities. Central to the co-management perspective is the idea that the meso-level and micro-level of society should participate significantly more in governing. Citizens and stakeholders, as Dubbink and Vliet (1996) explain, should be more active and involved in the formulation and implementation of public policies. The term "co-management" itself refers directly to the institutional and organizational changes that need to be made. Government should not govern alone and organizations and individuals, particularly at the neglected levels, should take their share of the management process (Dubbink and Vliet, 1996).

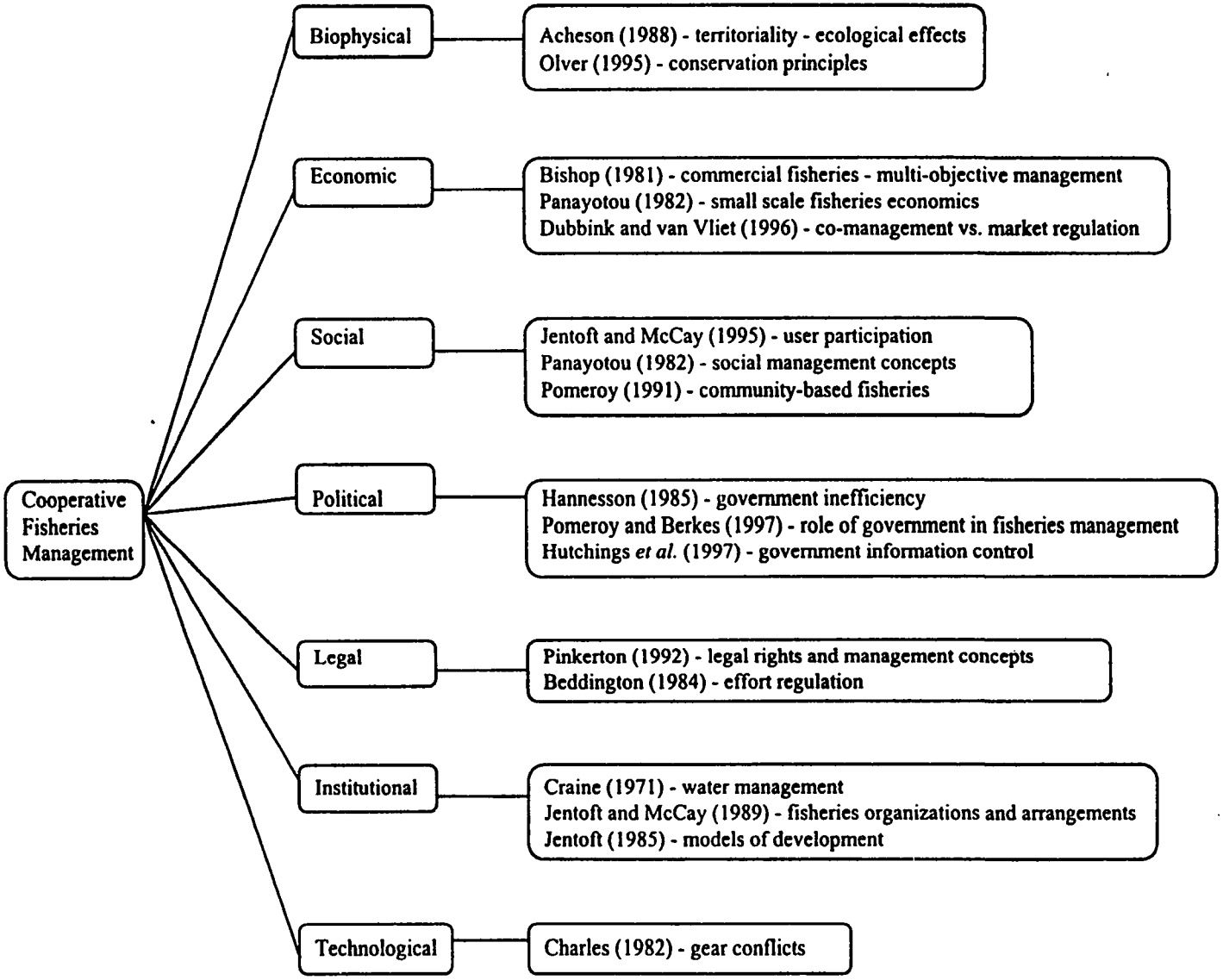


Figure 2.2. Perspectives of resource management – Cooperative fisheries management.

Fisheries co-management then, is broadly defined as the sharing of responsibility and authority between the government and fishers to manage a particular fishery (Pomeroy, 1994). As explained by Pinkerton (1989: 4-5), and cited in Mitchell (1997: 189), co-management agreements generally arise out of crisis caused by rumored or real stock depletion or from claims that the government's ability to manage is insufficient to handle specific problems. Pinkerton explains that co-management agreements are a creative way to break the impasse in fisher-government conflicts. Generally, fishers demand a real voice in decision making because they have lost faith in the government's ability to effectively manage the resource. Government officials, on the other hand, see the fishers as utilitarian, posing a threat to the fish resources unless properly managed, and therefore become willing to surrender some power in exchange for fisher's cooperation and assistance in fisheries management (Pinkerton, 1989: 4-5; cited in Mitchell, 1997: 189).

Much of the co-management literature has focused on the community level regarding issues of local organization and community-based management. It is usually agreed that co-management arrangements contribute to encouraging economic development, decentralization and participatory principles (Pinkerton, 1989; Wilson *et al.*, 1994; Chakalall *et al*, 1998; Mitchell, 1997). Perhaps the earliest and most well known case of cooperative fisheries management in the form of community-based management is the Lofoten fishery.

The Lofoten Fishery (Jentoft and Kristoffersen, 1989)

Jentoft and Kristoffersen report a case study of co-management of the Lofoten fishery of Norway. The Lofoten Island fishery has been described as the largest cod fishery in the

world in terms of catches and participation. Its importance to coastal communities in northern Norway has been fundamental for many centuries. The present regulatory system of the Lofoten fishery is the culmination of a long process which can be traced back to the seventeenth century. The main legislation institutionalizing co-management was enacted in the late 1890s. The Lofoten cod fishery is one of the earliest co-management arrangements in Europe. As with many cases of co-management, the Lofoten Island fishery management system started as a solution of last resort to a case of resource use conflict. What is interesting, however, is that the cooperative arrangement has continued to survive for over a century without serious challenge from fishers or bureaucrats.

Historically, high numbers of fishers were attracted to the Lofoten fishery causing crowding problems and gear type conflicts among fishers. Calls for stricter regulations were strengthened throughout the nineteenth century as new gear types and boats were introduced, often resulting in conflict and territorial disputes. Several actions were undertaken to solve the increasing conflict in the Lofoten fishery including the Law of Order in 1816, and the Free Law in 1857. None were successful, however, until co-management principles were introduced to the fishery in the 1890s by the Lofoten Act[1]. Under previous laws and regulations, government intervention and fisher's demands of the legislation were not always congruent. Under the Lofoten Act, however, the federal government devolved its power to the local resource users. The devolution of power meant that the power and responsibility for managing the Lofoten fishery was transferred from the national level to local fishers'

[1]*The Lofoten Act (Law), 1897 - Contained relatively few rules for the execution of the fishery itself. Instead it prescribed certain principles for a democratic organization of fishers. (See Jentoft and Kristofferson, 1989).*

organizations. The nature of the transfer was political and the approach was geographical rather than sectoral. The new management and regulatory system was in many ways a product of the fishers' sense of fairness.

The general argument for institutionalizing regulatory forms of co-management in the Lofoten fishery was four-fold. First, an arena was needed where representatives of different gear groups could meet and settle their differences. Second, fishers argued that those who experienced the effects of the regulations in practice were best suited for their making. Third, the variation from one fishing district to another was so great that one had to be on the fishing grounds to know what kind of rules and regulations were needed. And fourth, decentralizing responsibility for regulatory decision making to the fisher committees would create a more flexible management system. In spite of many challenges which could have led to the collapse of the co-management system, the fishers' co-management arrangements have survived for over ninety years.

Jentoft and Kristofersen propose that fisheries co-management is an effective *means* of fisheries management. As demonstrated by the cooperative organization of the Lofoten Island fishery, regulations that the fishers consider to be fair will be most effective. In addition, Jentoft and Kristoffersen argue that legitimacy, or fairness, is not just a result of the management decision itself, but also of how the decision is reached; through a fair and participatory democratic process. In general, the Lofoten Island fishery example highlights how fishery regulations handled by the central government tend to be inflexible and not sufficiently sensitive to local and regional variations in the fishery. A combination of local initiatives and government collaboration in a cooperative arena tends to be the most effective. Because of its legitimacy and ability to successfully manage fishery conflicts, the Lofoten

Island system continues to operate without even a suggestion that the state should become *directly* involved in management.

In addition to the definition of cooperative fisheries management presented earlier in this paper, fisheries co-management has also been defined as: 1) a collective adaptation between the state and local community in resource management (Acheson, 1989); 2) what is found between the two extremes of state- and self-management (Jentoft, 1989); 3) the decentralization of authority and responsibility to producers' organizations and groups (McCay and Acheson, 1987; Pinkerton, 1987; Jentoft, 1989); 4) a system in which the fishers' organizations are empowered to cast votes in determining the management and regulation of the fishery (McGoodwin, 1990); 5) a dynamic partnership using the capacity and interest of user groups complemented by the ability of the fisheries administration to provide enabling legislation (Pomeroy and Williams, 1994); and 6) an arrangement where responsibility for resource management is shared between the government and user groups (Sen and Nielsen, 1996).

As illustrated by the above interpretations, there is no consensus for a definition of fisheries co-management. Fisheries co-management broadly refers to some degree of power-sharing and responsibility sharing between the state system of fisheries management and the fishers. A more precise definition, according to Berkes *et al* (1991:12), is probably inappropriate because there is a continuum of co-management arrangements from those that merely involve, for example, some local participation in government research being carried out, to those in which the local community holds all the management power and responsibility. At this point it is important to emphasize that fisheries co-management is not necessarily a function of entirely community-based management initiatives, as illustrated by the Lofoten

Island fishery or the inshore fishery of Lake Kariba, Zimbabwe (see Pomeroy and Berkes, 1997). Fisheries co-management emphasizes the government's need for involvement of the fishing industry and private sector for conflict management and to develop and to carry out management plans. Very little is written, however, about the importance of government in fisheries management. But after all, it does take two to tango.

2.2.1 The Role of Government

A fishery cannot be managed effectively in defiance of the fishers. According to Pinkerton (1989), managers require the cooperation of fishers in making management rules and regulations work. If the fishers are involved in the management and decision making process, and if the management regulations make sense to the majority, the probability of management success is much higher. Just as government managers cannot manage the fishery without fishers' cooperation, neither can the fishers manage the fishery in the face of complexity and uncertainty (Pinkerton, 1989). Where fish resources are migratory, dispersed, of significant economic importance, and where the fishery is commercially based and more than one user-group involved, government intervention becomes a necessity. In many cases, state-level and community-level management are complementary (Pinkerton, 1989). As discussed by Pomeroy and Berkes (1997), cooperative fisheries management takes at least two parties and government is a crucial partner. The establishment of an appropriate government administrative structure and an enabling legal environment is essential to promote and sustain fisheries management systems (Pomeroy and Berkes, 1997). The role of government in cooperative fisheries management is a matter of "better governance" rather than "more government".

The 1970s and 1980s witnessed numerous publications on the role of the state in effective fisheries management (e.g., Christy, 1973; Gulland, 1974; Marcelli and Matthews, 1975; Everhart *et al.*, 1975; Sinclair, 1987). As explained by Jentoft (1989), fisheries management literature from the 1970s and 1980s emphasized that the rationale for government involvement in fisheries management was threefold. First, government must be involved for efficiency reasons, such as exercising control over harvesting and total allowable catches. Second, the government must be involved for equity reasons, to secure a fair distribution of fishing opportunities. Third, the government must be involved for administrative reasons, to implement management schemes. In recent years, however, it is difficult to find literature discussing the "positive" role of government in fisheries management, in particular fisheries co-management. It is generally acknowledged that the government's role in fisheries co-management is significantly different from its authoritative management role during the 1970s and 1980s. However, it is important to remember that even community-based forms of cooperative fisheries management cannot survive without some degree of government involvement.

The Bay of Fundy herring fishery on the east coast of Canada, for example, is a well-known case of cooperative management that failed. In the Bay of Fundy fisheries cooperative the local fishers' organization was granted the authority to control harvesting operations, police vessel quotas, allocate markets, distribute surplus quotas, and control harvesting effort. A general decline in the fishery, however, made it difficult for the local fisher's organization to enforce its regulatory scheme as the "tragedy of the commons" began to take root. According to Kearney (1985), cited in Jentoft (1989), the cooperative "assumed many administrative functions normally performed by the government and had taken on a

decision-making function usually associated with government regulation of a common property resource". The cooperative failed after only a few years of operation.

As illustrated above, and highlighted by the Bay of Fundy herring fishery, governmental institutions are critical partners in the cooperative management of fisheries. In that sense, the cooperative, community-based management of local fisheries is not mutually exclusive from government intervention. Rather a cooperative management system can be conceptualized in terms of a co-management arena. In this framework the role of co-management institutions is to improve and strengthen the linkages between actors in the fishing industry, the stock assessment institutions, the national administration and the market (Fig.2.3).

After examining the important roles of government and fishers in co-management, the next question is "How much government-based management versus how much community-self management is appropriate for effective fisheries management?" Pinkerton (1989) developed a check list of preconditions for successful arrangements of fisheries co-management at local, community-based and regional levels. Included in this list are: 1) the most favorable preconditions; 2) the most favorable mechanisms and conditions; 3) groups most predisposed towards co-management; 4) the best spatial scale; and 5) the human factors of fisheries management arrangements. Co-management at the local and regional level is supported by a number of researchers as being the most effective and efficient means of fisheries management. For example: the Lofoten cod fishery (Jentoft and Kristoffersen, 1989); *Confradias de Pescadores* of Catalunya, Spain (Algret, 1992); and community-based fisheries resource management in the Phillippines and Malaysia (Pomeroy, 1995).

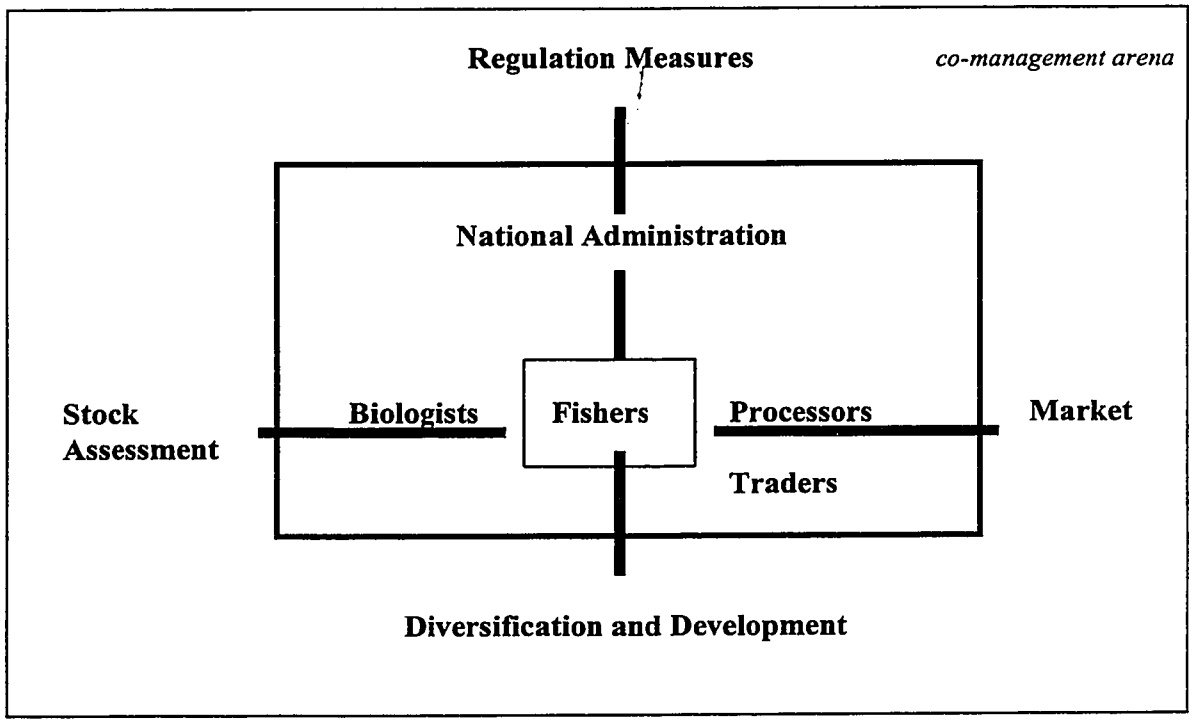


Figure 2.3. The co-management arena. (After Nielsen and Vedsmand, 1997)

However, as discussed in the following section, although cooperative management works best in terms of the local and community-based setting, the various management and decision making tasks can be defined on a number of different levels of the co-management spectrum. It is often the case that local jurisdictions may be too small and incapable of making effective fisheries management decisions. Particularly when the resource base is not locally defined and is of external economic importance.

2.2.2 The Co-management Spectrum

As illustrated in the previous sections, fisheries co-management is not an "either or" approach in terms of self-management or centralized management. Co-management is everything in between and is distinguishable from the characteristics of top-down government management systems and informal community-self management (Table 2.1). There is a spectrum of co-management arrangements ranging from conditions where the fishers are merely instructed by the government, to conditions in which fishers design, implement and enforce laws and regulations receiving only administrative advice from the government (Pomeroy and Berkes, 1997). Many researchers have commented on the different levels of co-management (e.g.: McCay, 1993; Berkes, 1994; Pomeroy, 1995). However, the most comprehensive explanation of the co-management spectrum is provided by Sen and Nielsen (1996) (Fig. 2.4). Based on the theoretical and empirical literature, fisheries co-management arrangements can be classified into five broad types based on the role government and fishers play: 1) instructive; 2) consultative; 3) cooperative; 4) advisory; and 5) informative.

Table 2.1. Characteristics of fisheries management systems.

	Management System		
Characteristic	**Government**	**Cooperative**	**Self-management**
Initiative	Central	(De)central/Local	Local/Individual
Organization	Formal	Formal	Informal
Leadership	Hierarchy	Participant	Mutual adj.
Control	Central	(De)central/Local	Decentral/Individual
Autonomy	No	Yes	Yes
Participation	No	Yes	Yes

Source: Jentoft (1989)

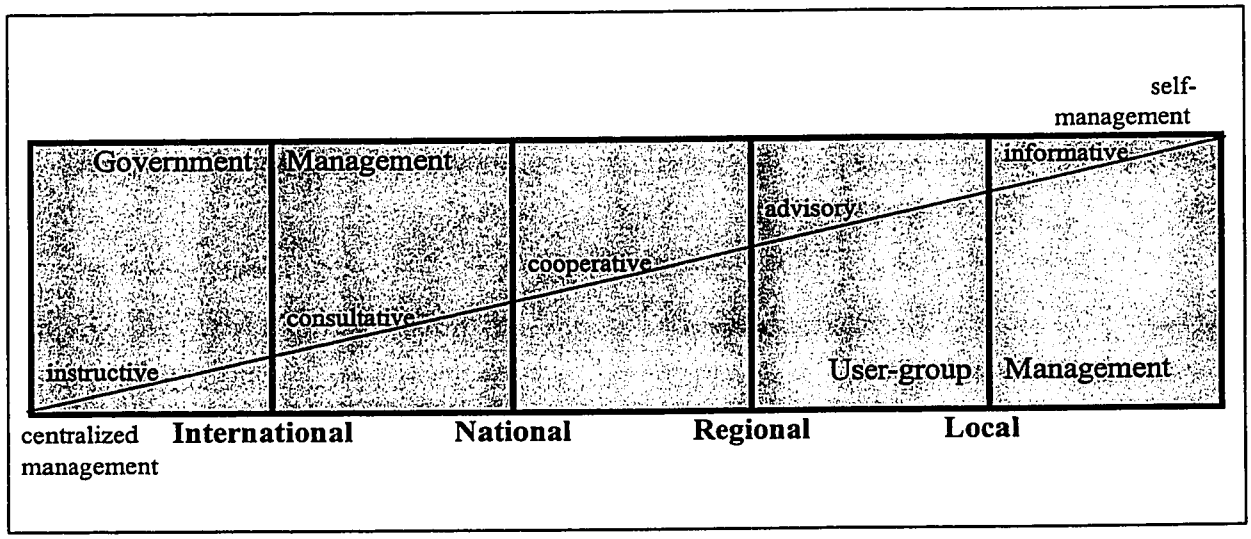


Figure 2.4. The co-management spectrum. (Adapted from Jentoft, 1989; McCay, 1993; Berkes, 1994).

According to Sen and Nielsen (1996), these are defined as follows:

1) *Instructive*: Only minimal exchange of information between government and resource users. Differentiated from centralized management only in the sense that mechanisms for dialogue exist, but the process tends to lean towards government informing users on the decisions they plan to make.

2) *Consultative*: Mechanisms exist for government consultation with resource users, but all decisions are taken by government.

3) *Cooperative*: Government and users work as equal partners in decision making.

4) *Advisory*: Users advise government of decisions to be taken and the government endorses those decisions.

5) *Informative*: Government delegates authority to make decisions to user groups who are responsible for informing government of these decisions.

An obvious parallel can be made here between the co-management spectrum and Arnstein's (1969) "Ladder of Citizen Participation". The view is that different levels of co-management can be represented as rungs on a ladder, each reflecting different degrees of power sharing between the fishers and the government (Berkes *et al*, 1991: 12-13). The actual form of co-management will depend upon the form of government and the will for decentralization (Pomeroy, 1995). If the need is recognized, and a strong case can be made for a strengthening of local authority, a gradual process of change can be instituted (Pomeroy, 1995). There is, however, a multitude of tasks that can be co-managed under different types of co-management arrangements and at different stages in the management and decision making process.

2.2.3 The Substantive Issues of Co-management

Thus far the discussion of fisheries co-management has been on the process and structure of cooperative management principles. However, the processes of co-management become more concrete when thought of in terms of achieving a number of secondary objectives or substantive principles. According to Pinkerton (1989), Berkes *et al.* (1991), McCay (1993), and Mitchell (1997), these substantive issues include: 1) co-management as a route to decentralizing decisions enough to address problems effectively; 2) co-management as a mechanism for managing the consent of local fishers and reducing conflict through a process of participatory democracy; and 3) co-management as a route to economic development. A fourth goal can be added to this list: 4) co-management as a route to ensuring the sustainability of fisheries.

These secondary issues are, of course, specific benefits to co-management themselves, as well as routes to more general goals and objectives. Ultimately all of the issues and principles associated with cooperative management could be seen as a process for achieving additional goals, as well as ends in themselves (Pinkerton, 1989). In this thesis the substantive issues of co-management are defined as ends to co-management, but are not mutually exclusive from the means as they are inextricably linked to characteristics of the process. This issue is further developed and discussed in Chapter 4.

2.2.4. Progress and Implications

As demonstrated in the previous sections, there are many avenues for organizing cooperation and exchange between government and the fishing industry. For the practitioner and user of fisheries management, many design principles are available which may be

effective under certain conditions, but ineffective under others. Such arrangements invite answers to questions such as why some institutional arrangements for fisheries management are effective while others are not. Co-management systems consider the institutional arrangements of management and decision making processes in fisheries management as a way of improving legitimacy and ensuring compliance with rules and regulations and diffusing the benefits back into the communities. Therefore, the prospects of success of cooperative fisheries management will depend on whether such organizations can function as viable institutions.

Institutional factors, however, have often only received superficial and summary treatment in fisheries resource management research literature, and in resource management in general. Therefore, there is a demand for this type of research in fisheries management as it is essential to the development of improved fisheries resource management strategies, and in particular developments of cooperative fisheries management (Jentoft and McCay, 1995). The following section provides an overview of institutional arrangements research and places it within the context of cooperative fisheries management.

2.3 Institutional Arrangements Research and Fisheries Co-management

Mitchell (1975, 1979 and 1989) reviewed institutional arrangements literature and its application to resource studies. Mitchell concluded that there has been little consensus on the definition of institutions and institutional arrangements "because institutions are deeply imbedded in history and tradition and reflect the complexity of social and political institutions". However, despite the fact that previous researchers have defined institutions and institutional arrangements in a variety of ways most centre their attention on economic,

administrative, legal, and social-psychological variables (e.g.: Craine, 1971; McMillan, 1979; Mitchell, 1979; Ingram *et al*, 1984; Mitchell, 1989; Watson *et al*, 1996). Through an examination of the relationships among these variables it is important to consider the interactions within society, as well as the interactions among the environment, society, and economy (Fig. 2.5). This implies that institutions and institutional arrangements research is the integration of many disciplines and perspectives.

Perhaps the most comprehensive definition of institutions and institutional arrangements is provided by Craine (1971: 522). According to Craine:

> "Institutions and institutional arrangements are a definable system of public decision making, one that includes specific organizational entities and government jurisdictions, but transforms the conventional emphasis upon organizational structure, per se. In addition to being concerned with component organizational entities, the term institutions suggests special attention to the configuration of relationships:
>
> 1) established by law between individuals and government;
> 2) involved in economic transactions among groups
> 3) developed to articulate legal, financial, and administrative relationships among public agencies; and
> 4) motivated by social-psychological stimuli among groups and individuals.
>
> Thus institutional studies focus on the linkages which tie authority and action centres together into a public decision making system which is responsive to the environment within which it must operate"

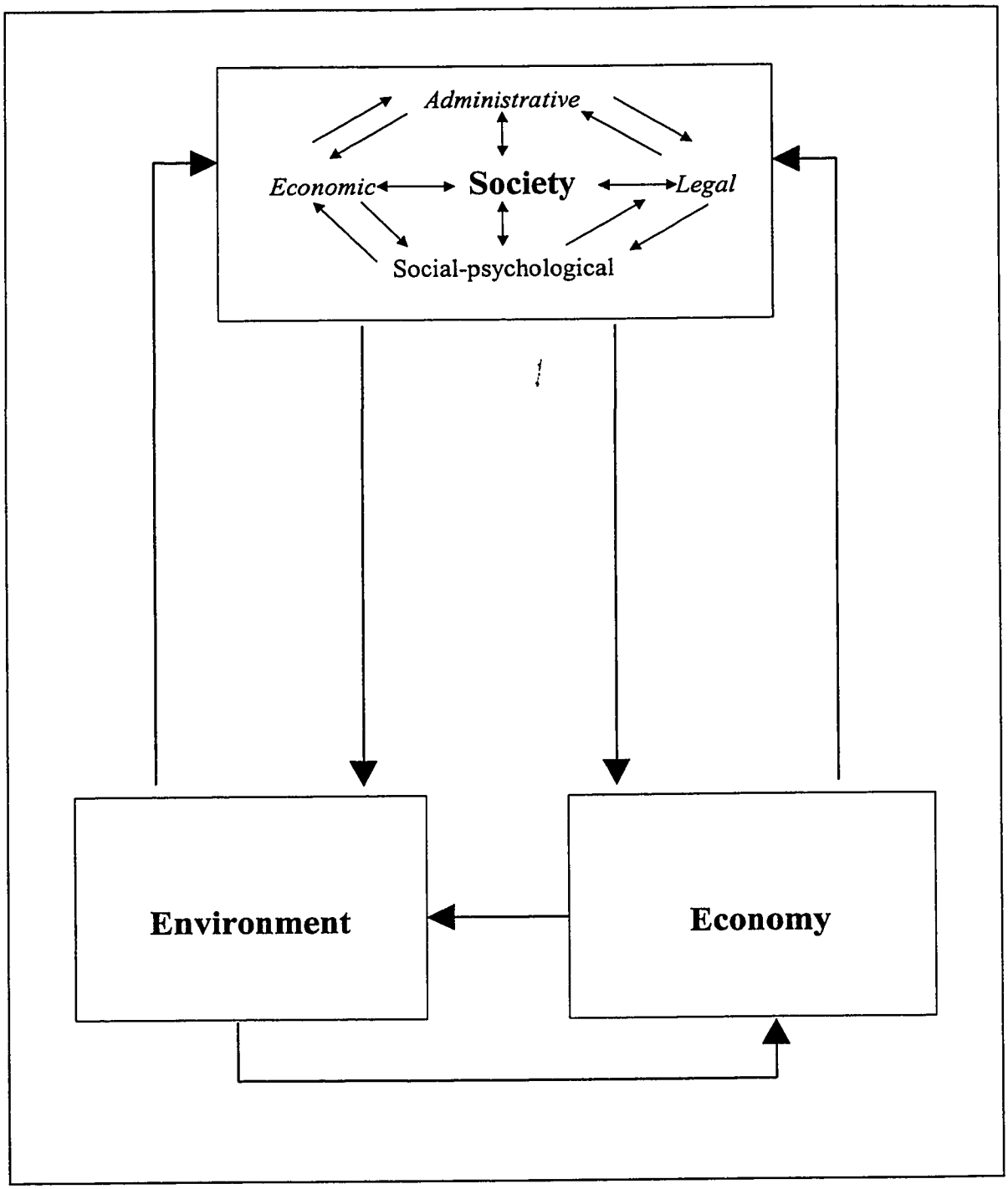


Figure 2.5. The interactive system. Interaction within society and between society, environment and economy (After Craine, 1971; O'Riordian, 1985).

2.3.1. Applications to Cooperative Fisheries Management

It has been argued that limitations in institutional capacities rather than analytical or technical capacities constitute the main barriers to improved resource planning and management (e.g.: Ingram *et al.*, 1984; Fernie and Pitkethley, 1985; Watson *et al.*, 1996). According to Gunderson *et al* (1995) institutions form the entity from which collective action is taken for a variety of resource management activities to achieve social or economic goals. They include the sets of rules or conventions that govern the process of decision making, the people that make and execute these decisions, and the edifices created to carry out results. Furthermore, according to Habermas (1984), institutional organization has a direct bearing on the management discourse. It will decide to what extent the decision making process will be characterized by "communicative action and rationality".

The application of institutional arrangements research to cooperative fisheries management is limited (Jentoft and McCay, 1995). In terms of fisheries management in general, McKernan (1979) observed that "adequate institutional organizations must be formed to conserve the resources". Thus, typical institutional arrangements research in fisheries management has focused upon exploring what combination of regional- or stock-based institutional arrangements would best meet the needs in different areas of the world (Mitchell, 1989). However, as illustrated by Mitchell and Huntley (1977: 72) "questions associated with the nature and allocation of power, enforcement responsibility, flexibility, research procedures, communications and public involvement need consideration for a broad range of resource management organizations, functions and activities". In addition, the importance of institutional arrangements research was also noted by Simeon (1979: 575).

Simeon maintained that:

> "in a longer-run perspective, institutional arrangements may themselves be seen as policies...The establishment of new departments and agencies reflects the recognition of the importance of mobilized groups and interests, which can then use the new institutions to promote favorable policies"

Perhaps one of the main reasons for describing and evaluating institutional arrangements for cooperative fisheries management is to identify alternatives which could improve the practice of management. Improving the practice of management in small-scale coastal communities also includes improving the economic performance and fisheries economic development opportunities. The prescriptive approach to the evaluation of institutional arrangements describes how resource management and policy implementation ought to occur and then describes, in an evaluative manner, how resource management and policy implementation actually occurs. However, the *description* of a single case study has been a popular form of institutional arrangements research (Mitchell, 1979: 291). The predominance of description over prescription can be explained to a large extent by its applied nature. According to Ingram *et al* (1984: 322-324) the present descriptive orientation of institutional arrangements research can be described as:

> "brief and unilluminating, involving little more than an annotated listing of public agencies, statutes, regulations, compacts, and judicial decisions. Such a list creates the image of a lifeless maze of check stations, and little understanding of the dynamics of institutional operations"

In order to make the most use of institutional arrangements research for cooperative fisheries management and cooperative fisheries economic development arrangements, then, the description of existing institutional arrangements must form a secure base from which

prescriptions can be constructed. This means that better research on institutional arrangements for cooperative fisheries management must not only provide a description of the case study, but assess it through the use of several explicit evaluative criteria. This allows an understanding of how the system works and provides a basis from which suggestions can be made for improvements in fisheries management arrangements. The research effort presented in this thesis describes the institutional and organizational factors, which are contributing to, or detracting from, the development of an effective cooperative Newfoundland and Labrador Northern shrimp fishery management arrangement. This description, through the development of a normative model and application of evaluative criteria provides a basis from which future relevant prescriptions can possibly be put forth.

2.3.2 Progress and Implications

Advances have taken place in institutional analysis despite inconsistencies in the use of terms and conceptual frameworks (Watson *et al.*, 1996). In terms of cooperative fisheries management, however, the institutional research literature appears to be limited. But for the geographer interested in cooperative fisheries resource management, studies of institutional arrangements offer several rewards. As outlined by Mitchell (1989:259-269), by describing, accounting for and predicting such arrangements, the analyst may be able to suggest how existing situations could be improved or else how future arrangements could be designed to take advantage of observed strengths but avoid identified weaknesses. Second, according to Mitchell, understanding the functional organization or arrangements can help identify strengths or opportunities for management decisions. And finally Mitchell stresses that treating such an analysis as a means to an end rather than an end itself can help identify new

insights about spatial allocation of resources and the nature of regional character and complexity in resource management

2.4. Summary

This chapter has set the context for a different vision of how fisheries should be managed. It has emphasized that contemporary centralized management arrangements and traditional community self-governance seem to be the least viable options. There is a need for an alternative arrangement for fisheries management that incorporates government and user involvement in a cooperative manner at different stages in the management process. Cooperative fisheries management provides an arena in which fishers and government can work collectively in a representative environment to manage a particular fishery resource. While experience and theory have shown that most cooperative arrangements operate best at the community level, the actual power sharing can occur on many levels in the co-management spectrum depending on the type of cooperative and the characteristics and objectives of the fishery.

The secondary benefits of establishing cooperative arrangements for fisheries management become more concrete when thought of in terms of promoting economic development, decentralizing decisions to effectively address micro- and meso-level problems, reducing conflict in the fishing industry and managing the consent and activities of local fishers, and ensuring the sustainability of the fishery. This can only effectively be accomplished when the cooperative management system is set in the context of the interactive system (Fig. 2.5) and considers the institutional arrangements of management and decision making processes as a way of improving legitimacy and ensuring compliance with

rules and regulations. Therefore, the prospects of success of cooperative fisheries management will depend on whether such organizations can function as viable institutions.

The present state of institutional arrangements research in cooperative fisheries management suggests that researchers and managers are not always adequately prepared to make the necessary adjustments to manage the challenges which face them. This is not to suggest a pessimistic outlook. But the analysis of the institutional and organizational arrangement of resource management systems, inherent in the cooperative management approach, is paramount to developing improved fisheries management systems. In terms of this thesis, an analysis of the structure and design of a Newfoundland fisheries management system can prove useful in determining the necessary changes in organizational structure and design for a cooperative management system to function effectively. The following chapter discusses the specific research methods employed in this thesis, followed by the development and application of a normative institutional model for cooperative fisheries management in Newfoundland.

Chapter 3

Research Methods

3.0. Introduction

A challenging aspect of this study was developing appropriate research methods. Appreciating the complexity of fisheries management in general, a combination of methods was used in this exploratory and prescriptive research design. Information sources for this study include fisheries management literature in general, newspaper articles, fisheries management plans, strategic economic plans, provincial and federal government documents, fisheries technical reports, and interviews with stakeholders in the Northern shrimp fishery. This mix of sources provides the necessary cross-checking to ensure that the information obtained was accurate and reliable and illustrates varied positions and perspectives. The precise research methods employed in this study can be broken into two components: 1) developing the research framework; and 2) the case study application.

3.1. The Research Framework

As stated in Mitchell (1989:23), "many commentators have noted attempts to develop theory as one of the significant developments within geography" (Kuhn, 1970; Moss, 1970; Guelke, 1974; Taffe, 1974). "At the same time, it has been noted that theory has remained poorly articulated for the discipline in general...and for resource management in particular" (Burton and Kates, 1965). The theoretical foundations of this thesis are rooted in institutional dynamics and the dynamics of adaptive systems as described by Holling (1986, 1992) and Gunderson *et al.*, (1995). Holling (1986, 1992) proposed a set of

postulates that describe phases in the time course shown by complex systems comprising of nature, people, and institutions. The postulates, as described by Gunderson *et al.* (1995), are based on a four-phase adaptive cycle (Fig. 3.1). The first postulate describes a transition out of a phase of conservatism through forces of creative destruction. The second postulate focuses on the movement of the system towards some reorganization option(s). The third postulate describes the activities that occur to complete the movement from reorganization options to the necessary conditions for another exploitative phase. An obvious analogy can be made between this four-phase adaptive cycle and the history of occurrences in the Newfoundland fishery, both in terms of fisheries ecology and institutional arrangements for fisheries resource management. This will be returned to briefly in Chapter 7.

In terms of this thesis and its applied focus on cooperative fisheries management and institutional arrangements, it is appropriate to make some reference to conceptualization. Conceptualization refers to defining the nature of a problem as well as identifying its parts and their relationships. The primary purpose of frameworks, evidently, is their practical application. If frameworks cannot be successfully applied to solve a problem, or answer a particular question, they are inefficient. At the outset of this thesis, simple frameworks were utilized and developed to realize the first objective of this study, to discuss and assess the cooperative approach to fisheries management and the concept of institutional and organizational arrangements. This review provides the necessary information to develop a normative framework for assessing the ideal institutional arrangements to support cooperative fisheries management organizations.

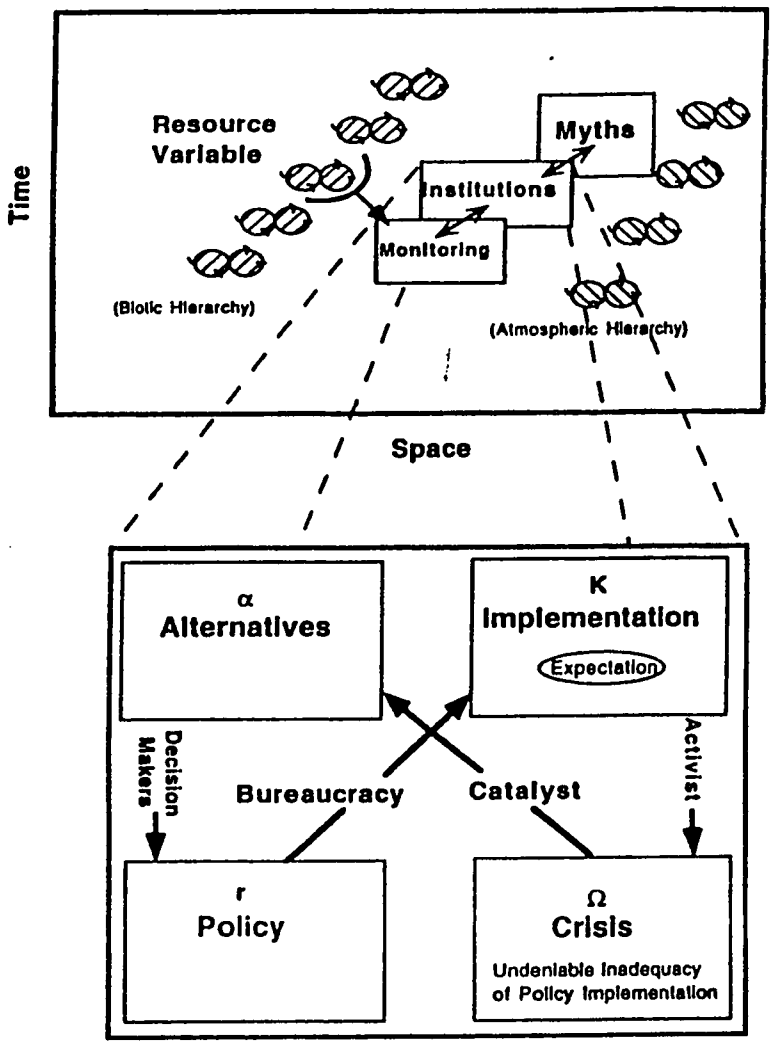


Figure 3.1. Nested, interacting cycles that typify natural resources and the human institutions established to manage them (Holling, 1986, 1992; as depicted in Gunderson *et al.*, 1995)

The normative framework that is developed in the following chapter presents the criteria for evaluating institutional arrangements for fisheries co-management as a system having two main elements: process and substantive values. These two main elements, composed of numerous sub-components and evaluative criteria, are developed from a detailed analysis of propositions of scholars from fields including organizational and systems theory, cooperative fisheries management, coastal zone management, ecosystem-based management, local and regional economic development theory, and conflict management.

The research framework is designed to be descriptive yet analytical so as to be able to put forth various prescriptions. The prescriptive approach to the evaluation of resource management arrangements describes how management and policy implementation *ought* to occur and then describes in an evaluative manner how implementation *actually* occurs. Several general prescriptive models have been used in examining resource management problems (Fig. 3.2). Similar to the normative framework presented in this thesis, these prescriptive models suggest methods for evaluating resource management problems, institutions and plans, and represent idealized conceptions of how the resource management decision-making process ought to occur.

The normative framework developed in the following chapter is used to realize the second objective of this research, to assess the present institutional organization of the Newfoundland and Labrador Northern shrimp fishery in terms of cooperative management arrangements. This description, or evaluation, is then used to "prescribe" or determine the institutional opportunities of fisheries economic development corporations in facilitating an improved Northern shrimp cooperative management arrangement through a case study

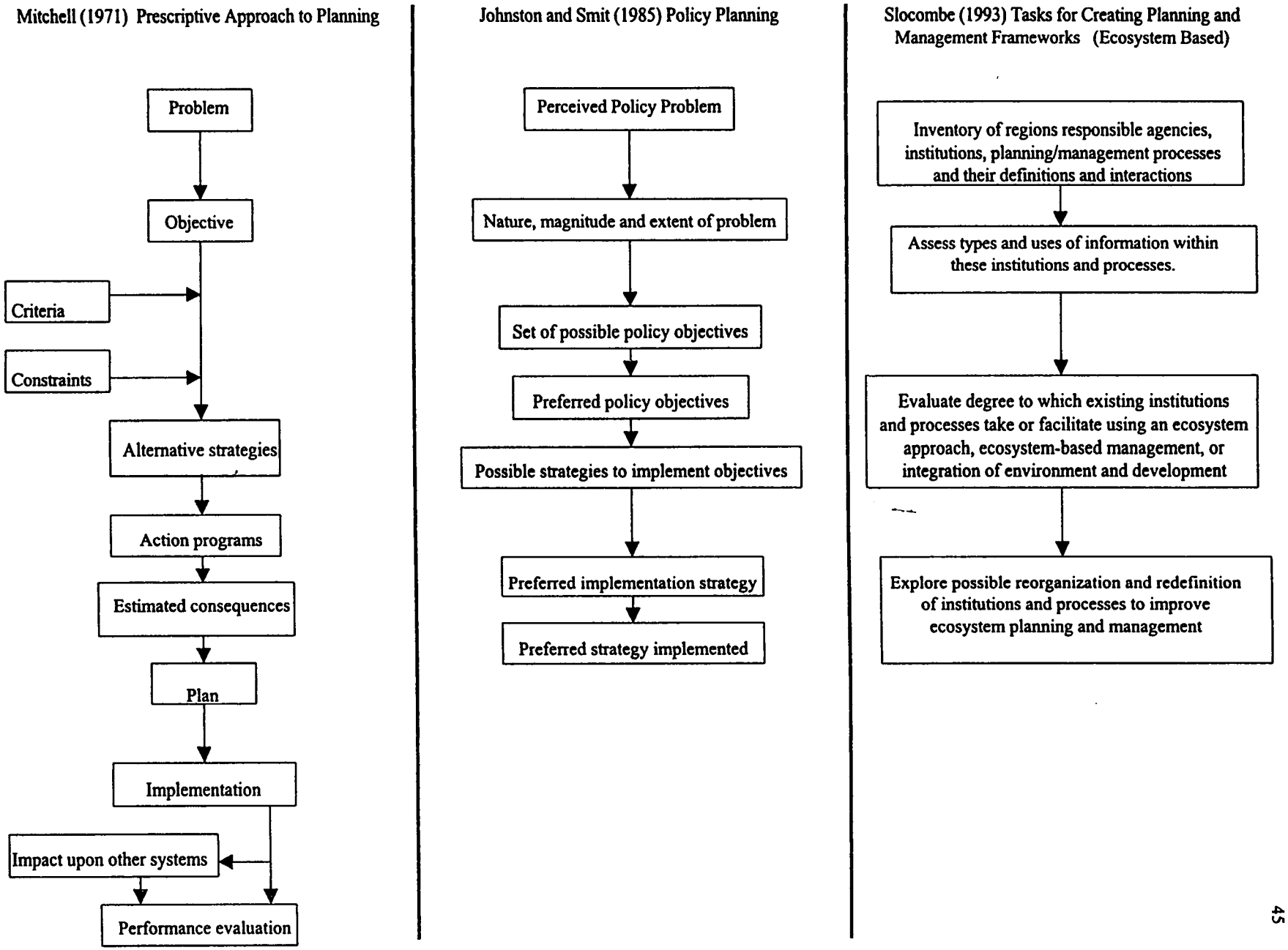


Figure 3.2. Prescriptive approaches to resource management

application. Furthermore, the framework is designed to be adaptive so as to incorporate new information as new knowledge is gained through its application.

3.2. Case Study Approach

The normative model described above is applied through a single case study to assess the potential role(s) of fisheries economic development corporations in facilitating a cooperative approach to the management and development of the Newfoundland and Labrador Northern shrimp fishery. The specific focus of this case study is Regional Economic Zone 6, adjacent to the newly developing and expanding Northern shrimp fishery in Shrimp Fishing Area (SFA) 6 (Fig 1.2). A detailed description of the study area and its regional geography is provided in Chapter 5.

From an applied perspective the examination of the institutional and organizational arrangements of resource management systems, inherent in the cooperative management approach, is paramount to developing an improved Newfoundland fisheries management system. An analysis of the structure and design of the Newfoundland fisheries management system can prove useful in determining the necessary changes in organizational structure and design for a cooperative fisheries management system to succeed. More specifically, the applied case study of the Newfoundland and Labrador Northern shrimp fishery in the Nordic Economic Zone will help determine the extent to which economic development organizations can serve as a vehicle to an effective and efficient fisheries management system. No such process or mechanism has been put into place to deal with local fisheries management problems and objectives despite the Government's claim that resource-based communities and resource users should be granted increased access to and control of these resources. It is

important therefore, that there be a careful examination of the fisheries management and decision making processes and the extent to which they can be, or are presently, decentralized to a smaller spatial scale.

3.2.1. Field Data Collection

According to Lounsbury and Aldrich (1979), there are four major methods for administering questionnaires or giving interviews in geographic research. These are: 1) the telephone interview; 2) the mail questionnaire; 3) the group self-administered questionnaire (delphi approach); and 4) the personal interview. A fifth approach can be added to this list; 5) email questionnaires and online interviews. Each of these methods has its own advantages and limitations and the most effective method or combination of methods is determined by the nature and magnitude of the specific problem.

As discussed in Section 3.0, information for this study was collected through a variety of sources. In terms of the case study, however, the majority of information was obtained through informal but semi-structured telephone, email, and personal interviews with key informants. Interviews were conducted from June to August, 1998 with fisheries managers, various government departments, stakeholders in the Northern shrimp fishery and local and regional economic development corporations. Due to the exploratory nature of the research, interviews were not conducted by using a formalized procedure. Interviews were semi-structured in the sense that questions/discussions were organized around a pre-designed research framework. However, this framework served only as a guide for discussion and for the most part questions were left open-ended.

The list of key informants was generated through a "snowball" process. From an initial list of informants obtained from fisheries management documents and strategic economic plans, each was asked to identify others that were, or were thought to be similarly involved or have a vested interest in the subject matter. These potential informants were then contacted, interviewed, and in turn asked to identify others. This process continued until there was sufficient information obtained and no additional key informants were identified. In total fifty-three individuals and organizations were contacted of whom forty-five participated in the study. A list of study participants, associated organizations and a general outline of interview/ discussion topics and format is included in Appendix A.

The dominant field method employed in this study is the discussion interview. The discussion interview is a completely open-response type of interview and is of great value in many geographic field problems (Lounsbury and Aldrich, 1979). Such an interview might be described as a conversation with an ulterior motive. This method may prove useful, according to Lounsbury and Aldrich, (1979), in at least two types of field situations. In the first instance, the field researcher is seeking general information concerning the research area to develop an understanding of the locality. This is useful when the researcher is trying to acquire an overall perspective of a geographic area and research problem to supplement a more specialized and specific study. Second, the discussion interview is directed to selected individuals who possess information that is not known to others. This may be the case when interviewing selected government officials or local resource users in the collection of indigenous knowledge. A third situation can be added to this list. The discussion interview is useful when the researcher is working with individuals or groups of conflicting interests. Such an open-ended approach allows the researcher to present an unbiased perspective. It is

most effective when the researcher does not attempt to structure or control the discussion, but at the same time keeps the conversation focused on the issue at hand.

Although the person-to-person approach to the discussion interview is perhaps the most costly method in time and dollars (Lounsbury and Aldrich, 1979), it is also the most effective means to obtain information, both quantitatively and qualitatively. According to Lounsbury and Aldrich (1979) the person-to-person situation creates a setting in which ambiguous answers can be clarified. The interviewer can control the question sequence and probe for additional information. Furthermore, in a person-to-person situation the interviewee may provide information that the interviewer was unaware of; such as indigenous knowledge. There are, however, no two interview situations alike. There is no uniform or standard respondent; subjects vary from one research study to another; and values and attitudes of the subjects and community vary from place to place and over time. The interrelated factors which either facilitate or obstruct the flow of information in a personal interview are illustrated schematically in Figure 3.3.

In addition to person-to-person discussion interviews, telephone and online (email) interview formats are also applied in the case study. Online interviews were found to be most useful for larger organizations such as the Department of Fisheries and Oceans. Initial online interviews resulted in email circulation throughout various departments within the organization thereby generating a collection of responses and perspectives. It is also important to note that an email circulation allows the respondent greater time to prepare a more detailed and informative response. In geographic field studies, advance contacts and preparation time are useful in terms of generating informative interview responses (Lounsbury and Aldrich, 1979).

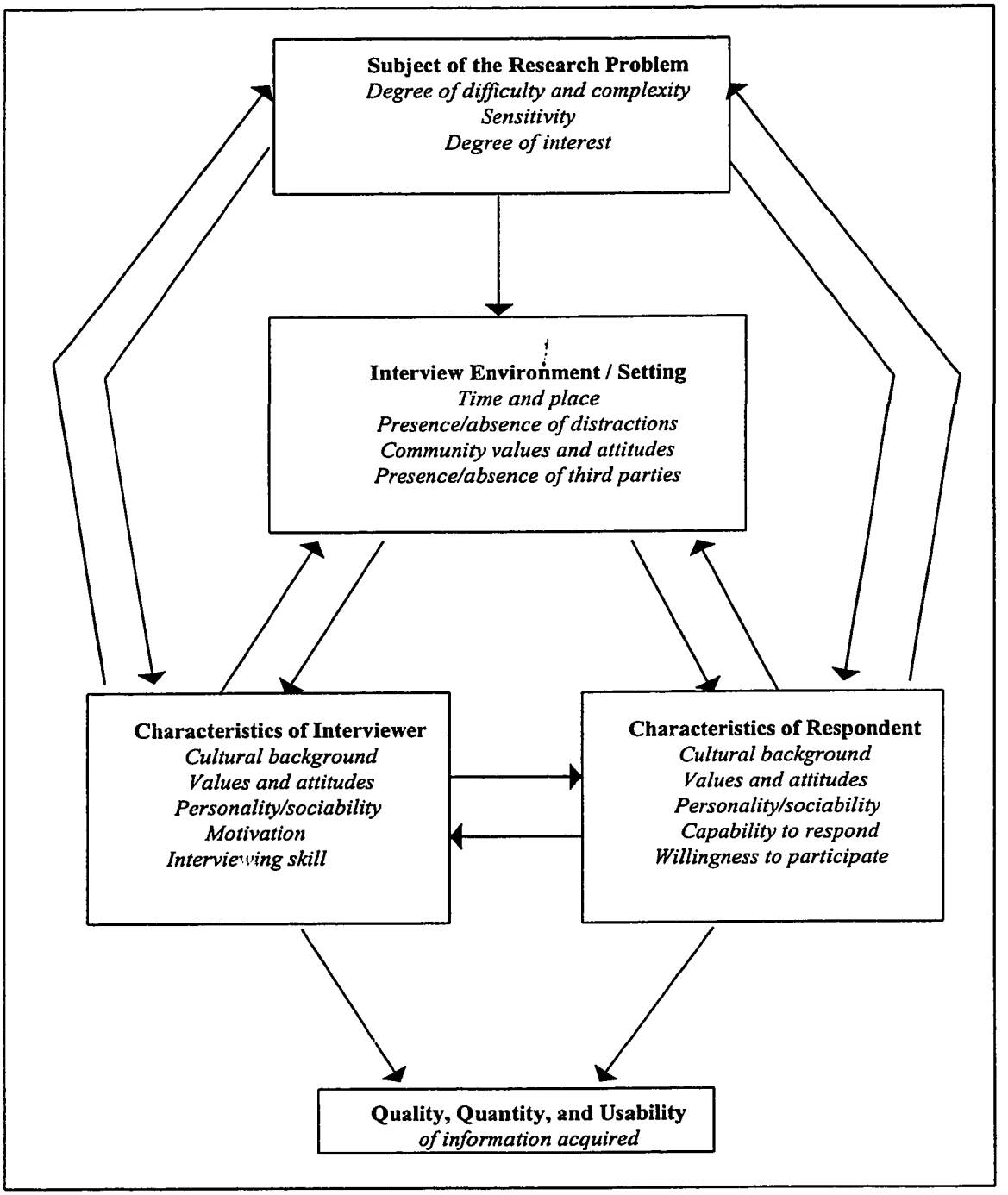


Figure 3.3. Interview-respondent interactions and factors affecting the communications process (Warwick and Lininger, 1975).

Prior to the field interview stage, potential respondents were given sufficient time to prepare. Persons and organizations involved in field interviews were contacted a minimum of one week prior to the interview. The purpose of this contact was to provide background information on the research initiative, the general type of questions, the interview process, and to set up an interview time and media or location. Initial key contacts for this study, government personnel and economic development corporations, were contacted two months prior to the interview stage. Organizations were provided with a detailed proposal pertaining to the purpose and focus of the study. In most cases the potential interviewees responded to the initial contact. In the case of no response, a follow-up phone call was placed one month following initial contact. Interviews were set up and conducted with government and larger organizations two weeks prior to fieldwork on the northern peninsula of Newfoundland. The purpose of this process was to gain an overall understanding of the issues prior to conducting detailed interview analysis with local stakeholders.

When information from interview respondents was obtained, it was cross-checked against fisheries management documents and strategic economic plans. Information pertaining to the management and institutional organization of the Northern shrimp fishery was assessed against the criteria outlined in the normative framework. Institutional constraints were identified and information pertaining to the roles of fisheries economic development corporations was assessed in terms of providing institutional opportunities in facilitating a cooperative fisheries management arrangement.

3.3. Limitations

There are specific limitations to this research which are evident at the outset. First, the problem at hand is one that requires precise timing. The Northern shrimp fishery is relatively new, particularly the development of the inshore component. Therefore, it is a challenge to evaluate the effectiveness of management arrangements and the degree of satisfaction at such an early stage. The present institutional organization of the Northern shrimp fishing industry is undergoing significant change thereby making analysis and prescription difficult. An advantage of an early analysis, though, is the opportunity to influence the effectiveness of management and development of the fishery.

A second shortcoming of this research is the application of a single case study. The case study approach was selected to limit the investigation to a geographic scale which is practical to fully examine and explore. Even with such a limited focus, the nature of the research problem and fisheries management issues in general tend to become very complex at the early stages of inquiry. Limitations inherent in the case study approach are addressed by Platt *et al.* (1980):

> "The case study is an imperfect snapshot of reality, marred by errors of omissions...and interpretation. At best they are mere approximate images of the actual rush of events which have transpired. There is a danger in their use as a research tool in that they emerge as complicated anecdotes, perhaps of individual interest but defiant by comparison. To avoid this pitfall, one tends to err on the side of "forcing" a case study into a common mold or pattern so as to facilitate comparability."

The author admits that the limitations outlined above are present in this study. However, it is strongly felt that a case study approach is warranted in this research. The

Northern shrimp fishery is in its early stage of development. A case study approach, or "snapshot" at this time provides a good information base from which to monitor progress and put forth prescriptions for future developments. Furthermore, the evaluative framework developed in this thesis is structured to be applicable to other fisheries in other geographic locations at any stage of development.

Chapter 4

Evaluative Criteria and a Normative Institutional Model for Cooperative Fisheries Management

4.0 Introduction

The purpose of this chapter is to describe the normative model and research framework employed in this study. It was noted in Chapter 2 that most research efforts regarding institutional analysis tend to select evaluative criteria based on organizational performance and procedural criteria. It is maintained in this study that the development of a normative model of institutional organization for fisheries co-management can be best established through a broader set of criteria. The following discussion develops the normative model for institutional arrangements and organizations as it pertains particularly to fisheries co-management principles. Several fundamental principles are presented in the model, consisting of various criteria originating from a literature review of a number of fields including institutional arrangements research, preconditions for cooperative fisheries management, principles of economic development, ecosystem-based management, and systems theory (Fig. 4.1). These principles, emerging from a number of disciplines including economics, geography, planning and theoretical physics, are argued to form the basis of a normative model for fisheries co-management. Ideally, if cooperative fisheries management is to be an integral part of fisheries management, then all of the "dimensions of resource management" should be examined. While it is difficult to isolate the institutional dimension of resource analysis, due to the immense complexity of such an understanding this thesis will focus primarily on the issues of institutional and organizational arrangement inherent in the cooperative fisheries management approach.

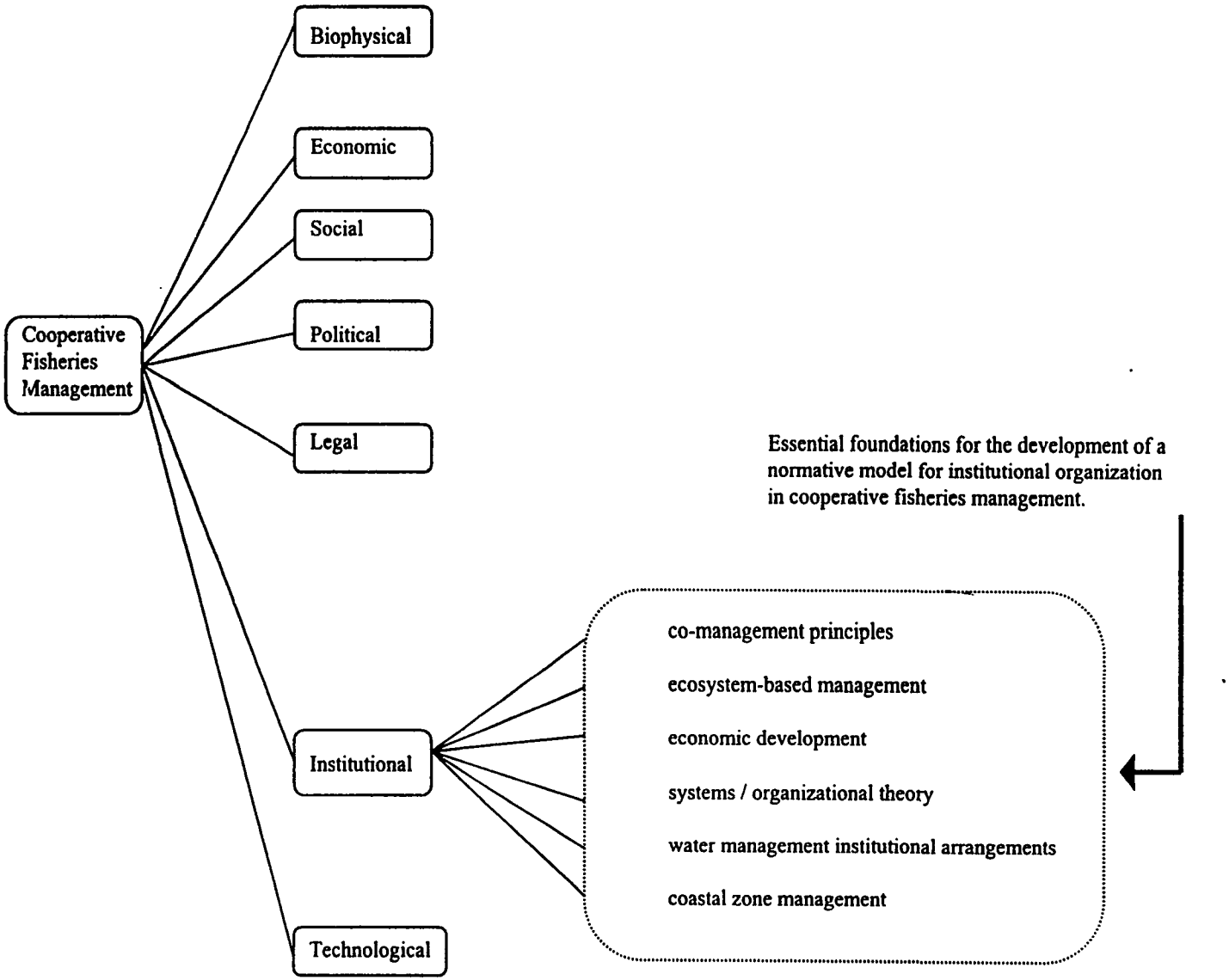


Figure 4.1. Foundations for the construction of a "Normative Institutional Model" for cooperative fisheries management.

Such an approach, according to Jentoft and McCay (1995), is necessary if alternative means of fisheries management and effective institutional and organizational arrangements are to be developed. Effective institutional and organizational arrangements, as Barnard (1935:55) explains, are "the accomplishment of the recognized objectives of cooperative action". The degree of accomplishment indicates the degree of effectiveness.

4.1 The Normative Model

Suchman (1967: 61-68) suggested that adequacy, efficiency, effort, performance, and process are appropriate criteria for evaluating institutional organizations. However, in the context of cooperative fisheries management, it is contended that principles illustrating the ideal institutional characteristics can be presented in two fundamental components, although not mutually exclusive in this model: process and substance. Process defines the legitimacy, functions and decision-making processes of the organizational structure - the "means" (Suchman, 1967). In the context of institutional arrangements research, according to Mitchell (1987:11-21), process refers to the legal, economic, administrative, and social-psychological variables which define the legitimacy, functions, organizational structures, and decision-making processes and mechanisms. Substance defines the underlying elements in terms of management and institutional arrangement objectives. These are the substantive values or desirable states of the process. No matter what the substance, or anticipated ends of decision making, developing effective cooperative fisheries management arrangements can be seen as a process, or a journey to a desirable destination.

The main focus of the normative model presented in this thesis is on developing the "process", since an effective process is essential in reaching the desired destination. As

important as ends to fishery management outcomes are the processes by which the means are developed and implemented. The substantive values in this model are assumed to be the decentralization of decision-making, resource sustainability, equity, and economic development (Pinkerton, 1989; Berkes *er al.*, 1991; McCay, 1993; Mitchell, 1997). It is important to remember, however, that although the substantive values are used to represent the desired states of an effective process, substance and process are not mutually exclusive.

As mentioned above, this study maintains that the normative criteria for institutional arrangements for cooperative fisheries management can be best determined through the employment of a broad set of criteria derived from evaluation of research from a variety of academic fields. The model presented here attempts to draw together these ingredients and characteristics. There is no magic formula for institutional arrangements and organizations that will result in successful cooperative fisheries management systems under any conditions, however there is also no strategy that should be dismissed automatically as inappropriate.

The following sections develop the essential characteristics of a normative institutional model for cooperative fisheries management which will be employed in the case study. Each characteristic, or "principle" is evaluated in terms of several criteria. Morgan and Ramirez (1983), define "minimum critical specification" as a condition or attribute of organizations in which no more than is absolutely necessary for initial operation be specified at the outset. In the model presented in this thesis, however, the evaluative criteria could be thought of as "ideal critical conditions", which are necessary for *effective* cooperative management to succeed. In this condition, once the organizations are aware of the ideal characteristics, they are able to better determine partially their own design and be continuously self-organizing. A summary of these principles and criteria is illustrated in

Figure 4.2. The order in which these are presented is not intended to indicate differences in importance. No such rating of the relative importance of the model's principles and characteristics is attempted at the outset, but this will be returned to as a topic of discussion in the conclusion of the thesis.

4.2. Process

Principles reflecting both procedural and substantive values are required if the understanding of institutional effectiveness is to advance (Gormley, 1987). Furthermore, evaluative criteria should be stated explicitly in order to facilitate the replication of research and the accumulation of knowledge. It is suggested here that six key principles could be used to facilitate effective institutional arrangements for cooperative fisheries management. Four of the principles reflect procedural values. These four principles and their associated evaluative criteria are discussed below. The remaining two principles reflect substantive issues and are discussed briefly at the end of this chapter.

4.2.1. Principle # 1. Interactive Organizations

Trist (1983) argues that "meta-problems" or systems of problems that typify turbulent resource management contexts can only be addressed effectively through interactive organizations and interorganizational cooperation, rather than "social fragmentation". Interactive organizations reflect the characteristics of institutional coordination. Coordination is required because the costs and benefits associated with resource management initiatives are often shared among numerous public and private organizations. The primary issue or concern

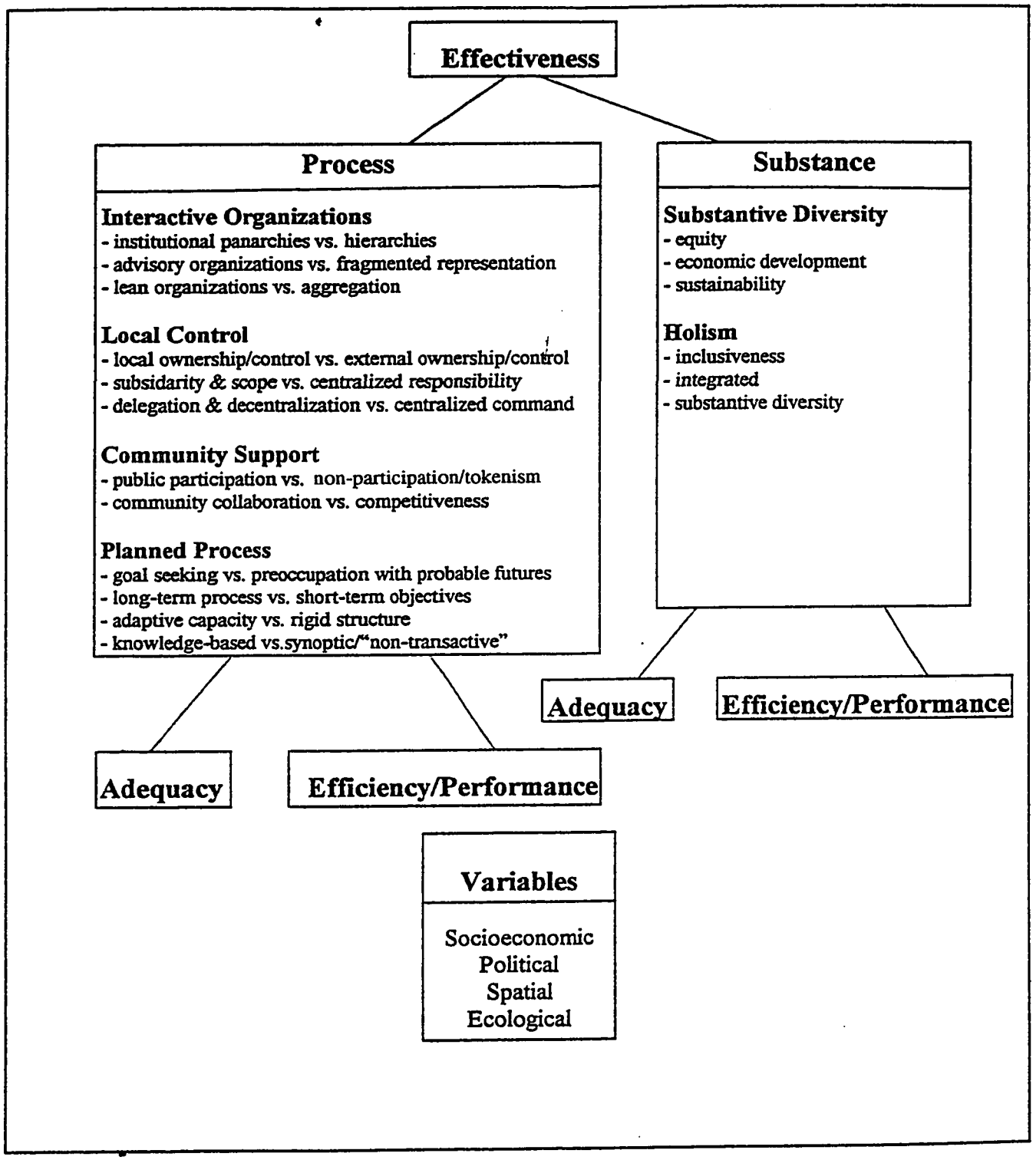


Figure 4.2. Evaluative Criteria and Normative Institutional Model of an Ideal Institutionalized Cooperative Fisheries Management Arrangement.

therefore, is that of shared or overlapping agency responsibilities (Watson *et al.*, 1996). The adequacy and performance of interactive organizations can be assessed by the following criteria: lean organizations, existence and operation of advisory organizations, and the presence of institutional panarchies. Non-hierarchical, region- to local-centered, and represented stakeholder-controlled organizations that "remain in sensitive contact with the extended social field of the domain" may fulfill this role (Trist, 1983).

Institutional Panarchies

Criteria for effective interactive organizations imply a horizontal institutional arrangement (Gunderson *et al, 1995)*. People create institutions in a variety of ways, from top-down to bottom-up. Perhaps the essence of successful interactive institutions, however, is an ability to span across hierarchical or panarchical levels in space and time (Gunderson *et al.*, 1996). The concept of panarchies in institutions, as explained by Gunderson *et al.*, allows for a description of simultaneously changing structures and functions, at multiple stages or levels in order to cope with dynamism and complexity. The panarchical view puts forth a description of institutions as emergent sets of loosely connected and nested decision assemblages, rather than a rigid, hierarchical view of a top-down organization (Gunderson *et al.*, 1996). The goal is the effective development of panarchical institutions, cooperative in terms of both process/function and structure.

Advisory Organizations

Communities of fisher and fisheries organizations with a relatively homogeneous socioeconomic membership will have less internal conflict, and equal participation/

distribution will also be fair participation/distribution. On the other hand, where membership is heterogeneous, equal participation/distribution is not necessarily perceived as fair participation/distribution (Jentoft, 1989). The answer to the problem of heterogeneity, as suggested by Dahl (1967), is the establishment of referent or cooperative umbrella organizations - referred to here as advisory organizations. It makes sense to regulate conflict, participation and the distribution of benefits among smaller organizations [communities] through a broader advisory organization [regionally / sub-regionally based] that remains in contact with the social field of the domain. As Pinkerton (1989) indicates, cooperative management operates most favorably where a higher (possible citizen's) authority can act as an appeal body on local equality questions - a representative voice. And cooperative management is more likely to develop and succeed if there is an energy centre: a dedicated person, group or institution who applies consistent pressure to advance the process – an advisory organization.

Advisory organizations, or referent organizations (Trist, 1983), that systematically build the functions necessary for the whole organization into its individual parts will be more responsive and creative (Morgan and Ramirez, 1983). Morgan and Ramirez's theory, the "holographic metaphor", holds that subgroups who are unable to perceive the whole organizational system will function in a narrow manner and result in an organizational system that is unable to resolve complex and unexpected problems (Mulvihill and Keith, 1989). On the other hand, organizational systems designed on the principle of "organizational redundancy" would tend to be self-organizing where the nature of individual tasks would be determined by the problems facing the whole. A referent organization can function as a representative voice on behalf of locally defined

organizations, yet multiple accountability and inter-agency coordination still exists among all institutions at all levels of the cooperative framework.

Lean Organizations

According to Jentoft (1989) the success of fisheries cooperative organizations has been noted to a large degree to reflect the scale of organizations. A common feature of all successful co-management systems [institutions] is the limited number of cooperatives, both in terms of membership and regional jurisdiction. A large membership and large number of institutional organizations may inhibit the adaptiveness of the management system by making it unwieldy. Conversely, an organization and organizational system must be sufficiently large enough to feature an appropriate level of redundancy, and diverse enough to represent its region (Mulvihill and Keith, 1989). The appropriate size and number of institutions in a cooperative management arrangement therefore lies in between the extremes of small-scale, self-controlled and large-scale, centralized.

The implications of organizational scale and membership are best described by Pinkerton (1989). Pinkerton suggests there is an appropriate spatial dimension for successful co-management arrangements. Cooperative management operates most favorably where the size of the government bureaucracy is small and its mandate is fairly regional or local. In addition, cooperative management operates most favorably where the number of fishers, communities and institutions is not too large for effective communication, or where there are well-organized sub-groupings or organizations which communicate well with each other or have effective umbrella organizations. The higher the scale and the higher the number of organizations involved, the fewer the functions that can be delegated.

4.2.2 Principle # 2. Local Control

Local control is another fundamental defining principle of institutional arrangements for cooperative fisheries management. The basic distinction between top-down, and contemporary bottom-up management is made on the basis of how much control the local community has over the management and decision making process (Jentoft, 1985). Top-down approaches give little or no power to the community; bottom-up approaches, including cooperative fisheries management, shift control into the hands of the community (Jentoft and Kristoffersen, 1989). Thus, effective institutional arrangements for cooperative fisheries management argues essentially for a level of ownership and control which is determined at the "lowest, feasible territorial scale".

Institutional arrangements for fisheries management must be designed such that the community, and more particularly the institutions representing the fishing industry, have a delegated degree of control in the management of the resource base. Local ownership and control, subsidarity, and decentralization and delegation can be used as criteria for examining this principle.

Local Ownership and Control

It is not enough for local institutions and fisheries representative organizations to be permitted to utilize local fishery resources. For cooperative fisheries management to function most effectively, fishery resources and management functions should be *owned* and *controlled* by a defined geographic area. Through resource ownership and control communities can attain a measure of autonomy from outside influences and hence greater control over the communities' socioeconomic destiny (Keane, 1990). A necessary

component of cooperative fisheries management is, therefore, to provide alternative institutional structures to give community control over the use and allocation of resources.

Local control carries numerous meanings and may be represented in numerous ways in the fisheries management process. In a rather abstract sense, local control may mean the community and fishers directing the process conceptually. In other words, the fishers may develop a vision of the future of the fishery and a planned strategy for assisting involvement in that vision. In this way, the fishers are in control, but mainly conceptual, as opposed to an active role. However, local control could also be viewed from an essentially hands-on perspective where the fishers' control is directed more specifically at the active, as opposed to the conceptual level. This second type of control is characteristic of effective institutional arrangements for cooperative fisheries management.

Local ownership of the fishery resource does not necessarily mean the delineation of community boundaries and private fishing grounds, but rather the collaboration of communities and priority access and control over the resources adjacent to those communities which are most important for their sustainability. In other words, local ownership and control in a co-management arena, refers to those communities (local, sub-regional, regional) traditionally associated and adjacent to the fishery resource in question. The degree of ownership and control, then, can be assessed in a number of ways including: whether the principle of adjacency respected; on what scale the fishery resource is defined (i.e., locally/regionally or on a larger scale); the presence of property rights and priority access; and whether a sense of resource ownership exists on behalf of the government or the fishers.

Subsidarity and Scope

Management systems typically comprise an array of ends and means. Therefore, within a cooperative management system the critical question is: "What management functions are better handled at the regional and sub-regional level rather than by institutions at the national or international level, and vice versa?" The principle of subsidarity, now adopted by the European Union (EU), is a normative principle for institutional design proclaiming that decisions affecting people's lives should be taken by the lowest *capable* organizations (Jentoft and McCay, 1995). The lowest capable social organizations are not given once and for all but are a question of resource allocation and is something that can be subject to institutional design and innovation (Jentoft and McCay, 1995). Co-management is the principle of this application to fisheries management.

Associated with the co-management of fisheries resources is the issue of scope. A critical question for the success of any management regime is determining what measures are needed to get fishers voluntarily to advance their collective interests above their competitive self-interests. According to Jentoft (1989) this is a matter of legitimacy; i.e. to what extent fishers willingly accept the regulations as appropriate. Two key paths in the process of achieving this level of legitimacy are: 1) *making the regulations:* the more fishers are involved in the decision-making process, the more legitimate the regulatory process will be perceived; and 2) *implementation of the regulations:* the more directly involved fishers are in installing and enforcing the regulations, the more the regulations will be accepted as legitimate.

The question that remains, however, is: "Under what circumstances should decisions be made by local institutions (or fishers) representative of the fishing industry?" According to

Pinkerton (1989), where more than one group of stakeholders is involved, co-management operates best where technical concerns such as health of stocks are separated from allocation decisions. On the other hand, where only one large group is involved, Pinkerton explains, co-management operates most favorably where decisions about harvest levels, regulations and allocations are made on the same level (not centralized away from) as the level on which information is collected on technical concerns such as health of stocks.

Delegation and Decentralization

Closely tied with the issue of subsidarity and scope is the concept of local autonomy. Lower level institutions should not be fully controlled by higher authorities. Thus, subsidarity implies delegation of power rather than just decentralization (Jentoft and McCay, 1995). Although closely linked, the former does not always imply the latter. Decentralization is the transfer of management functions to institutions of a lower level, but management remains exocratic - outside the industry (Jentoft, 1989). On the other hand, according to Jentoft, delegation refers to the reallocation of management authority to a centrally based user group organization.

Based on these definitions, some tasks lend themselves to delegation while others do not. The same can be said regarding decentralization. For example, fixing the total allowable catch (TAC) may be a task unsuitable for decentralization but not for delegation. Similarly, for some tasks, such as those related to the distribution of fishing rights and quotas, decentralization may work best; while other functions such as those specific to a particular area or stock (gear and time restrictions, stock management, monitoring and regulation enforcement) may be suited for both (Mikalsen, 1993). As summarized by Jentoft

and McCay (1995) and discussed in the previous section, the proper implementation of subsidarity pertains not only to the nature of the task at hand, but also to the nature of the prevailing institutions and to what extent they are equipped for decentralization or delegation.

4.2.3 Principle # 3. Community Support

Developing institutional arrangements to facilitate cooperative fisheries management initiatives would serve little purpose without people to support and benefit from it. Cooperative fisheries management is a *people* management paradigm, emphasizing local populations rather than large industries or big governments, and sustainability and local development rather than exploitation. For institutional organizations to succeed in cooperative fisheries management, the fishers and other representative interests must be on-side, for fisheries co-management is about responding to local needs and objectives as fisher communities and organizations perceive them. Second, management processes must encourage community collaboration. Effective institutional arrangements for cooperative fisheries management are unlikely to develop to full potential if communities are in competition for management authority or access to the resource base.

Participation

Pinkerton (1989) suggests that co-management is most likely to develop where there is a resource scarcity or perceived resource threat. However, selected case studies in the Pacific US context, by Hanna (1995), illustrate that the contribution of user participation depends on its incorporation into the management process before resource conditions decline to the point of serious scarcity. As Hanna indicates, even against a background of ongoing

industry participation, participatory management processes increase in difficulty as resource scarcity increases. Once exploitation pressures increase, industry cooperation for collective goals becomes difficult to maintain leading to processes which break down in disharmony and disarray (Hanna, 1995).

To have public support in cooperative management and decision making processes, it is essential to have representative participation. For cooperative fisheries management to succeed, it requires the engagement, feedback, and sustained participation of the representative groups. A parallel can be made here between cooperative fisheries management representation and Arnstein's "Ladder of Public Participation". Arnstein (1969) argued that citizen involvement represents a redistribution of power from the mangers to the public. On that basis, Arnstein believed that different degrees of public participation could be identified ranging from non-participation to actual sharing of power. As Mitchell (1989) explains, those who have traditionally held power are often hesitant to go beyond non-participation in the belief that the public is typically ignorant or apathetic. Citizens, on the other hand, are increasingly seeking what they view to be meaningful participation and a desire to share some of the power involved (Mitchell, 1989).

Encourage Community Collaboration

The concept of community collaboration was hinted at in the section discussing *interactive organizations*. Effective institutional organization for cooperative fisheries management rests on the principle that communities, just like the fishery resources themselves, do not function in isolation. Hodge and Qadeer (1983) emphasized the importance of cooperation between communities. Communities are inextricably linked with

one another through their resources and a regional "community of communities" approach to management should be considered so that a wider array of options become available. Methods and institutions must be developed that encourage communities within a region to work together through cooperative partnerships and discourage "community competitiveness". Effective cooperative fisheries management, like the underlying principles of community economic development (Brodhead, 1989; Keane, 1990), is a creation of collective initiatives and requires cooperation and partnership between communities in order to avoid competitive and even conflicting management efforts. In cooperative management, communities and institutions which are most capable of working with other communities and organizations in achieving a sense of "region" will also tend to be those which possess a strong "sense of community".

4.2.4 Principle # 4. Planned Process

Effective cooperative fisheries management requires goals, objectives, and a strategy to achieve those goals. The planned process of establishing effective institutional cooperative arrangements in fisheries management should be operationalized though long-term fisheries resource management plans and objectives. Broadly speaking, planned processes should involve a wide variety of participants and user-based knowledge, focus on the long-term, expect turbulence and surprises as commonalties, and as Holling (1978) explains, a planned process should be adaptive to changing resource systems and institutional peculiarities. A more general treatment of the planning process is represented by the following set of seven questions (Schafer, 1989:11):

1) Where are we now?
2) Where do we want to go?
3) Why aren't we there now?
4) What needs to be done to get us there?
5) Who is going to do it?
6) When is it going to be done?
7) How will we know when we get there?

There is a large volume of literature that is devoted to the planning process. It is not the intention of this thesis, however, to fully review this subject. Various types and characteristics of planning models and processes are more completely described by Lindblom (1974); Hudson (1979); Christensen (1985); Bardwell (1991); and Mitchell (1997). This section is instead intended to provide a basic understanding of the predominant characteristics and evaluative criteria of planned processes in terms of developing effective institutional arrangements for cooperative fisheries management.

Goal-seeking

Mitchell (1997) makes reference to a comment by Alice in Wonderland - "if you don't know where you want to go, any road will get you there". In contrast, Mitchell explains, "the great explorer Christopher Columbus knew where he wanted to go, but ended up somewhere else because he didn't know the route to take". The lesson to be learned from this is that it helps to know where you want to go and to have some idea of how to get there. In other words, if there is no sense of vision or direction regarding the desired future destination, then almost any choice will do. However, if we have a sense of where we would like to get to, then it should be possible to take actions to move in the desired direction (Mitchell, 1997).

As illustrated above, it is important to establish some sort of goal or vision and develop methods to move towards it. In addition, by considering desirable futures we should be able to move away from what is too often preoccupation with most probable futures (Mitchell, 1997). The general approach is to work backwards from a future end point, such as co-management, judged to be desirable in order to determine the feasibility of achieving that end point, and to determine the specific actions required to achieve it (Mitchell, 1997).

As important as identifying goals and desired ends is accounting for the compatibility and variation of goals among the various interests. Fisheries planning and management agencies should focus increased attention on strengthening and establishing partnerships with affected interests to develop community support. But partnering and community support must be based on an understanding that the goals, objectives, and means differ among partners. As explained by Charles (1992), it is often the case in fisheries resource management that the goals and objectives differ among the resource users and between the various levels of government. Three paradigms, although often overlapping, can be identified: 1) conservation paradigm; 2) rationalization paradigm; 3) social/community paradigm (Fig. 4.3; Table 4.2). In strengthening partnerships and building community support for cooperative arrangements there is, increasingly, the need to integrate and evaluate and decide among these conflicting expectations and demands. Therefore, as Mitchell (1997) suggests, there must be a degree of compatibility between participants. Such compatibility is often based on respect and trust, even when legitimately different expectations exist. In order to promote community support in fisheries management and fisheries economic development opportunities it is important that differences be overcome and commonalties in interest be sought as the building blocks for consensus.

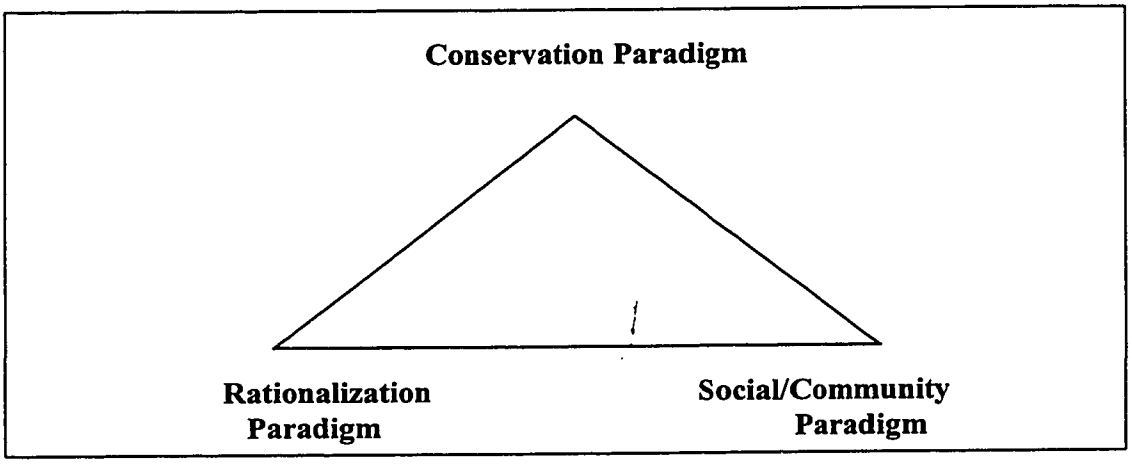


Figure 4.3. The paradigm triangle. (Charles, 1992)

Table 4.2. Policy objectives and fishery paradigms.

Policy Objective	Paradigm
conservation/resource maintenance	conservation
economic performance/productivity	rationalization
community welfare/equity	social/community

Source: Charles (1992).

Long-term Process

Cooperative management operates most favorably where agreements are formalized, legal and multi-year (Pinkerton, 1989). An important characteristic to consider in developing institutionalized cooperative fisheries management systems is that they do not develop overnight. Institutional structures are often resistant to change as tradition is seen as providing stability, continuity and respect (Mitchell, 1997). A cooperative management strategy must focus on the long-term, involving prospects for structural change and enhanced community capacity. Such arrangements should not be based on short-term initiatives of solving a resource stock crisis (or perceived threat) or a conflict within the fishing industry. Rather, cooperative management strategies must be based on long-term strategic management plans. Furthermore, these plans must not only deal with technical and biological issues, but must also address socioeconomic and political issues, concerns, and objectives.

A complete reorganization in institutional arrangements (structure or process) supporting cooperative management can take many years to complete. As with developing long-term strategies for community economic development, discussed by Brodhead (1989), co-management strategies require a significant amount of time just to include marginalized groups in decision-making and build strong local coalitions.

Adaptive Capacity

Variations entailed in the nature of fisheries require flexible institutions and management systems. A central argument for introducing cooperative management of fisheries is that governments and larger bureaucracies are less flexible than localized

institutions and fisher organizations in enforcing and modifying management schemes (Jentoft, 1989). In the UK, for example, producers' organizations are generally able to react to a situation in the fishery, such as territorial and gear conflicts, more quickly than National Governments (Goodlad, 1986). As Jentoft explains, flexibility was also an important factor in the Lofoten fishery leading to the institutionalization of co-management. Decisions to change the rules of the fishery could be reached much more quickly by the local fishers and representative organizations than by a centralized government.

The adaptiveness of the management arrangement is reflected in its ability to absorb perturbations. The management structure must be resilient to lead to rules that are flexible enough to respond quickly to changes in the economy or ecosystem. The process and regulations must accommodate a changing industry structure, such as changes in gear type, fleet size or the location of delivery ports. The management process must also be adaptable to changes in market conditions beyond the local or regional economies, as these changes alter demand for the timing and species composition of landings (Hanna, 1995). Indicators of the adaptive capacity of institutional arrangements for cooperative fisheries management include the classification of an adaptive approach long-term management plans and the presence of an ongoing monitoring strategy. An adaptive process enables institutional learning (Walters and Holling, 1990).

Knowledge-based

Conditions differ from community to community and from region to region. There is no generic cooperative, long-term fisheries management plan expected to apply. However, local ecological, social, cultural and economic circumstances must be incorporated into the

planed process and this requires tapping into the knowledge base of the local communities. This, of course, must be based on a participatory, interactive process.

A planning process must be knowledge-based, effectively using knowledge and knowledge systems. Centralized government bureaucracies have a limited capacity to oversee local circumstances and seasonal variations within different regions and sectors of the fishing industry. For management plans and objectives to be effectively carried out this diversity must be taken into account. As Jentoft (1989) explains, this requires a large amount of detailed knowledge of local circumstances in the fishing industry and the ecological conditions which exist in various fisheries. Centralized governments are often not sensitive to these local peculiarities, thus the argument for integration of locally-based user knowledge into long-term fisheries management plans. In other words, the initiative of effective institutionalized fisheries co-management is to adopt a transactive approach. A transactive approach considers the experience of those affected by the planning or decisions (Mitchell, 1997). In contrast to other forms of planning and decision-making, a transactive approach gives higher priority to processes of personal and organizational development rather than particular functional objectives (Hudson, 1979).

4.3 Substance

In addition to the process, researchers should also consider the substantive values and effects of institutional arrangements for cooperative fisheries management. However, as explained earlier in this chapter, the focus of this thesis is on elements of process, since an effective process is essential in reaching the desired destination. Issues relating to substantive values of institutional arrangements for cooperative fisheries management are complex and

extend well beyond the focus of this research. The intent of the following sections is to briefly address some substantive principles of cooperative fisheries management and to indicate the evaluative criteria. Although procedural and substantive values are discussed separately in this model, substance and process are not mutually exclusive. For practicality, these substantive values are inextricably linked and integrated throughout the various criteria of the model and serve as essential guiding principles for process development.

4.3.1 Principle # 5: Substantive Diversity

As illustrated in the previous chapter, the overall substance or benefits of cooperative fisheries management become more concrete when considered in association with one or more of four secondary criteria: 1) co-management as a route to decentralizing decisions enough to address problems effectively; 2) co-management as a mechanism for managing the consent of local fishers and reducing conflict through a process of participatory democracy; 3) co-management as a route to economic development, and 4) co-management as a route to ensuring the sustainable use of fishery resources.

Equity

The first two of the four secondary criteria illustrated above represent characteristics of equity. Equity is defined as "the perceived fairness in the distribution of access or of costs and benefits" (Hanna, 1995). It is associated with process clarity, compatible expectations and distributive effects. For the purpose of normative institutional criteria for cooperative management arrangements, equity and can be discussed in terms of representation. To be considered equitable, the management and decision making process should adequately

represent the range of interests in the fishery. Representatives of particular interests should accommodate the full diversity of those interests for the management process to be inclusive (Hanna, 1995).

Concerning the participation of groups with vested interests in the organization of fisheries management, it is first of all necessary to achieve a greater degree of concentration of the fishing organizations and try to avoid fragmentation and discrete localism (de Vivero *et al.*, 1995); therefore these organizations could be more representative of the different groups involved in the management and development of fisheries, and more able to participate in the various fora (Vivero *et al.* 1995). Another aspect to be taken into account, as Vivero *et al.* explain, is the relevance of the region as a territorial reference unit, as it will serve as a base to relate fisheries to the communities that carry it out. In this regard, the proposals aimed at a better organization of the sector have to consider sub-regional differences (Vivero *et al*, 1996).

At a general level the issue of institutional design in fisheries management decision-making is analogous with issues that are addressed within the theory of democracy. For instance, as Jentoft and McCay (1995) explain, participatory democracy in fisheries management by user involvement raises the classic question: "Who ought to be a member of demos?" (Dahl, 1989). With increasingly diverse membership, direct participatory democracy becomes impossible, confronted with the sheer problem of making decisions by large numbers of people compounded by equity problems (Jentoft and McCay, 1995)

Fishers are obviously important representative groups in fisheries cooperatives. It is likely that the manner in which fishers are represented will have a decisive effect on the

management discourse and how they act in the decision situation (Jentoft and McCay, 1995). The most effective and integrated representative arrangement would include both functional and territorial factors. Fishers' organizations that are relatively small in numbers and geography and are relatively homogeneous in terms of fleet structure have stronger and more efficient strategic and structural capabilities (Fig. 4.4) (Nielsen and Vedsmand, 1997). The combination of high structural and strategic capabilities reflected by small, specialized, and professional organizations is fundamental to effective cooperative fisheries institutions.

		Structural Capabilities	
		High	Low
Strategic Capabilities	High	[illegible]	• Some Organizations • Small/Medium Organizations • Lead by Younger Fishers
	Low	• Majority of Organizations • Large Organizations • Headed by Former Fishers	• Minority of Organizations • Very Small Organizations • Headed by Elder Fishers

Figure 4.4. Typology of Fisher's Organizations (Neilsen and Vedsmand, 1997)

Economic Development

As mentioned above, cooperative management strategies should focus on a mix of goals and strategies. Generally these strategies focus on legitimacy in the management process and reducing conflict between fishers and government (e.g.: Berkes *et al.*, 1991; Charles, 1992). Co-management of fisheries, however, should extend beyond these general principles and promote the sustainability of the community and alternative industry/economic development. For cooperative management works best where there is a mechanism for re-circulating back into the communities some of the wealth generated by more intensive, superior management (Pinkerton, 1989). In cases where co-management is implemented

effectively, participating organizations are presented with opportunities for developing forward and backward linkages in the fishing industry and promoting economic development initiatives outside the industry. Cooperative fisheries economic development organizations are institutional arrangements capable of facilitating such activities.

Sustainability

The fourth criterion or destination of an effective process is sustainability. However, the concept of sustainability is not perceived in this model as some end to be achieved by institutionalizing co-management, but rather as a trajectory to be negotiated continuously as processes evolve. Various interpretations of sustainability and sustainable development have been provided, however, according to Mitchell (1997) "various interpretations of sustainable development [sustainability] are appropriate if they reflect the different situations in different countries or regions". Based on Robinson *et al.*(1990) the principles of sustainability include: 1) environmental/ecological principles; 2) socio-political principles - from environmental/ecological constraints; and 3) socio-political principles - from socio-political criteria. In other words, sustainability is a holistic concept.

4.3.2 Principle # 6. Holism

It is appropriate to discuss the principle of holism last since, in many respects, it is a synthesis of the previous four principles. Holistic institutional arrangements for cooperative fisheries management consider all aspects of the process and recognize the integration between the various concerns and considerations of management and decision making. Designing institutional arrangements for cooperative fisheries management should be

considered a means to effectively reaching desirable goals and objectives, and not an end in itself. In these terms, the principles of holism can be discussed in terms of inclusiveness, integration and diversity.

Inclusiveness

The principle of holistic development embodied in the cooperative approach emphasizes that the goals of institutional organizations in cooperative fisheries management should never be strictly economic or political, but should take into account the broader social, cultural and natural environments. The approach should encompass an array of goals and should strive to maximize democracy in the decision making process. It is important, therefore, for public support and participation outside the fishing industry to be included in the co-management process so that the goals of fisheries management can be articulated by the entire community or the "community of communities". Pinkerton (1989) writes that cooperative management operates most favorably where external support can be recruited and where external forums of discussion including more than fishers and government members can be involved in co-management concerns.

Integration

It is important to make the distinction of co-management as being a creation of community rather than a representation of individual initiatives. In any given fishing community or region there may be an array of different interests represented by different organizations. It is not enough to only include these interests in the institutional representation of cooperative fisheries management initiatives, there must be an integration

of interests. A holistic and integrated approach will only occur when "the interconnectedness of social, production and ecological systems is acknowledged" (Fuller *et al*, 1989:30).

4.4 Model Summary

The normative model of institutional arrangements for cooperative fisheries management presented here provides a collection of the principles and characteristics which are thought to be responsible for successful cooperative fisheries management. It is not a magic formula for cooperative fisheries management since each locality, region, province, or nation has its own history, conditions for fisheries management, institutions and its own hopes and expectations. Despite the uniqueness of place, it is believed that the general underlying principles, with the necessary adjustments, are transferable from one geographic location or political and socioeconomic environment to another. However, it is the uniqueness of place (sense of community/cohesiveness) which essentially motivates a fishery or geographic area to apply the principles and characteristics of the normative model to suit their own needs and address their own objectives. The normative model and evaluative criteria presented above, which are applied in the case study, can be summarized as follows (Table 4.3):

First, the foundation of effective institutional arrangements for cooperative fisheries management is the interaction of fisher's representative institutions and organizations. *Interactive* organizations require *lean organizations* as the success of fisheries cooperative organizations has been noted to a large degree to reflect the scale of the organization. Interactive organizations often represent a variety of interests and values. It is important, therefore, that individual lean organizations are represented collectively by a referent

Table 4.3. Summary of Principles and Evaluative Criteria

Process		
Interactive Organizations	*inst. panarchies*	- horizontal arrangements
	advisory organizations	- homogeneous versus heterogeneous; accountability; representative umbrella organizations; geographic definition of organization; resource specific
	lean organizations	- # members, groups, communities, bureaucracy
Local Control	*local ownership and control*	- structures supporting communities' control over use and allocation; adjacency principle, access and property rights; sense of ownership; spatial scale
	subsidarity and scope	- different decisions at different levels; degree and type of local versus govt. decisions; design and implementation of regulations
	delegation and decentralization	- delegation or decentralization of authority; to what extent and under what conditions
Community Support	*public participation*	- involvement of active and inactive publics; who is considered to be an affected public; representativeness of public / resource users; level or degree of local decision making
	community collaboration	- competition for resources, access, quotas; feelings of inequality (fishing incomes); competition between gear/vessel type; sense of region
Planned Process	*goal seeking*	- explicit goals and expected outcomes; open-ended to scope and customize; stated in management plan; compatibility
	long-term process	- backcasting versus forecasting; strategic management plans; technical, biological and socioeconomic issues
	adaptive capacity	- passive versus active; ongoing monitoring program; institutional flexibility (technological, gear, etc.); ecologically defined resource boundaries
	knowledge-based	- types of data and information; scientific and user-based; involvement of resource users in data collection
Substance		
Substantive Diversity	*equity* *economic development* *sustainability*	outcomes of an effective process, desired ends; although not mutually exclusive from process in the sense that substantive values function as fundamental guiding principles for the development of an effective process.
Holism	*inclusive* *integrated*	

organization or *advisory organization*. Representation by an umbrella institution, however, does not imply organizational hierarchies. Institutions must collaborate on *panarchical* organizational scales.

Second, institutionalizing cooperative fisheries management is not effective unless there is *community support*. Cooperative fisheries management is only successful when the community is on side. This can be established through effective public participation strategies where there is some *degree of citizen power*. In addition to public participation, there must be *community collaboration*. Communities involved in fishery cooperatives must not operate in isolation, but rather establish a "community of communities".

Third, support for institutional arrangements for fisheries co-management will only be gained if there is some sense of *local control*. Local control implies *local ownership*. It is not enough for communities and fisher organizations to manage the resource, they must be entitled to ownership. This can be expressed by the principle of adjacency; those nearest the resource have priority access and control. If there is ownership and control, there must be some degree of *subsidarity and scope*. Different decisions are best suited to different levels of management. Implementing these decisions at local levels requires some degree of *decentralization and delegation* of management and decision making authority.

Fourth, there must be a *planned process*. Institutions for co-management must be *goal-seeking* and develop *long-term* plans to reach those goals. If there is some sense of direction in terms of the desired ends, then it should be possible to take actions to move in the desired direction. However, if there is no desired end, then any direction will get you there. Important in establishing the desired ends is an *adaptive* and *knowledge-based* process. The system must be adaptable to turbulence or unexpected surprises. This requires *flexible*

institutions. Flexible institutions are most often found at the lower, decentralized management level. Centralized government bureaucracies have limited capacity to oversee local variations in the fishery and are slow to adapt to change. For institutions to be effective in fisheries management, this diversity must be taken into account. This requires a transactive approach, taking advantage of local knowledge-based systems.

Fifth, there must be substantive diversity. Substantive values often vary depending on the fishery, the values of existing institutions, and the geographic setting in general. Particularly, however, substantive values should emphasize issues related to *equity*, *community development*, and *sustainability*. Furthermore, substance should not only be seen as an end itself, but an integral part of the process.

Finally, the whole process of institutional arrangements for fisheries co-management must be *holistic* in its vision and approach. This includes being *inclusive* and *integrated*, representing different goals and stakeholders with some degree of equity. The approach should emphasize diversity in both process and substance.

4.5 Chapter Summary

The model of institutional arrangements for cooperative fisheries management presented in this chapter outlines the principles and characteristics of institutional arrangements and co-management identified in the literature as the "ideals" of successful cooperative fisheries management. It represents a means to an end rather than an end in itself. The question which must now be addressed is: "To what extent are these principles recognized and acted upon in fisheries management in Newfoundland and can alternative

institutional arrangements, i.e. economic development corporations, act as a vehicle to an improved process?".

There is some cause for optimism in this regard. The normative model stresses the importance of local to regional institutional arrangements with a cooperative and horizontal organizational structure. Cooperative and collaborative processes to fisheries management do exist in the mindset of some fishery managers and are ever-increasing in terms of local fisher's organizations. On the other hand, the long history of top-down management control and centralization of management authority on behalf of the federal Department of Fisheries and Oceans, together with the collapse of the Northern cod fishery, will undoubtedly influence how organizations approach cooperative management strategies and how people perceive the effectiveness of present fisheries management arrangements. Will the Newfoundland fisheries management system adopt the cooperative paradigm?... Or remain trapped in old ways of thinking?

The following chapters provide background to the case study, and examine the practice and structure of fisheries management specifically related to the case study in question. Predominant approaches to fisheries management are assessed against the normative model for cooperative management. The roles of existing institutions, i.e. economic development corporations, are discussed in terms of offering improvements or contributions to where the current management structure falls short.

Chapter 5

Background to the Case Study

5.0 Introduction

This chapter will provide an overview of the regional character of the Nordic Economic Zone. The purpose of this chapter is to set the context for the application of the normative model and analysis. First, this chapter provides an overview of the regional character of Economic Zone 6 and the Province's new approach to regional economic development. This information leads to a discussion of the Newfoundland and Labrador Northern shrimp fishery in SFA 6, recent expansions in resource use and quotas, and the implications of this expansion for the economic zone.

5.1 The Nordic Economic Zone

Many researchers have argued the definition of "regional" and what constitutes a regional analysis (e.g. Fenneman, 1919; Sauer, 1925; Lukermann, 1964; Parsons, 1985). Understanding the variables and relationships within a region, according to Mitchell (1989:11), defines the character of place. However, it is not the intent of this study to embark on a detailed regional analysis of the study area. For the purpose of this research the region will be defined in terms of the politically defined Regional Economic Zone. The primary variables and interrelationships will include the various institutions within the Zone, with particular attention directed towards those organizations involved in the Northern shrimp fishery and community economic development initiatives. These organizations include the Fish, Food and Allied Workers Union (FFAW), Northern Shrimp Advisory Committee (NSAC), St. Anthony Basin

Resources Inc. (SABRI), Nordic Regional Economic Development Corporation, and various community economic development corporations throughout the regional zone.

The geographic region of the Nordic Economic Zone consists of thirty-seven coastal communities: thirteen municipalities and twenty-four unincorporated communities. The total land area is 6,112 square kilometers with a total population of 13,260 persons, of whom approximately sixteen percent are employed in the fishing industry; second only to the manufacturing industry, primarily fish processing and sawmilling (Fig. 5.1). The Zone contains more fish processing plants than any other western regional zone; seven active and thirteen inactive (Table 5.1). Despite the challenge to diversify processing activity and the over abundance of processing and freezing capacity in the region relative to resource availability, recent news reports indicate that plans to establish to a multi-species processing operation in St. Anthony have been changed. According to Clearwater Fine Foods, the focus is now on "building the most sophisticated shrimp operation in the province...in the country" (Bock, 1998).

Economic development initiatives in the Nordic Economic Zone are guided by the regional economic development board - the Nordic Economic Development Corporation (NEDC) - which directs economic planning for the region and community socio-economic development. In addition to the NEDC, there exist a number of community-based development corporations and associations (Fig. 5.2). The overlying objective of these development associations is to "act as community-based organizations which function at a sub-regional basis to serve as a vehicle for the involvement of people in the region in planning, implementation and management of social and economic initiatives and to coordinate and communicate with

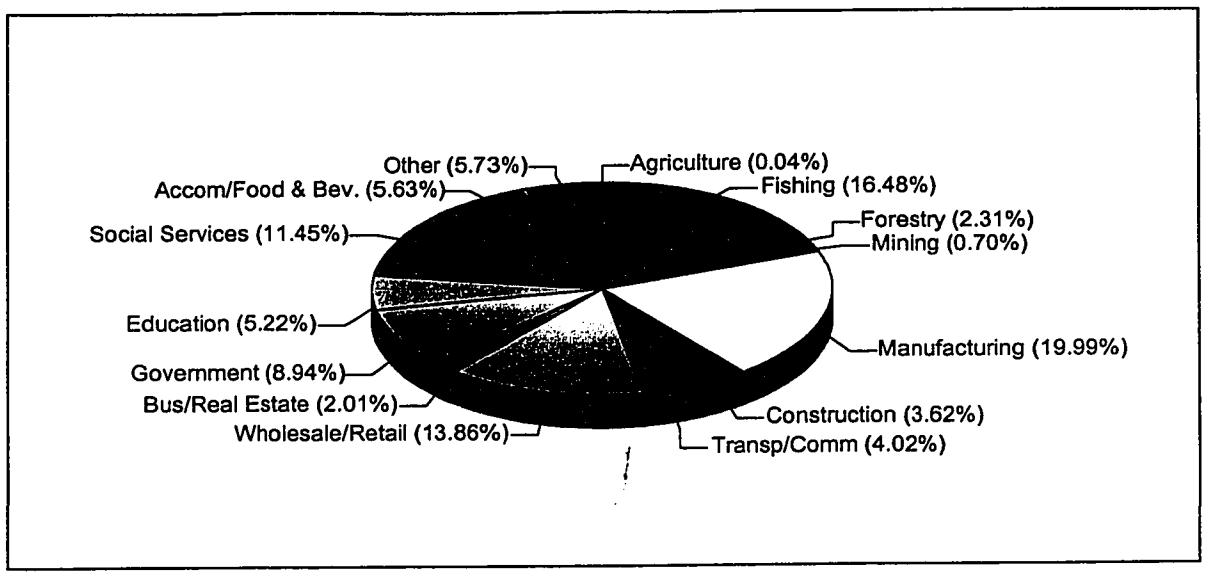


Figure 5.1. Zone 6 occupation by industry - 1991: 15 YRS and older (NEDC, 1997).

Table 5.1. Fish Plants by economic zone (western region).

		Western Regional Zones					
		6	7	8	9	10	Totals
P	Active Freezer	2	6	4	1	3	16
L	Active Non-Freezer	5	2	0	0	1	8
A	Inactive Freezer	5	1	1	1	1	9
N	Inactive Non-Freezer	8	4	3	1	1	17
T	Totals	20	13	8	3	6	50

Source: Department of Fisheries and Aquaculture (1997).

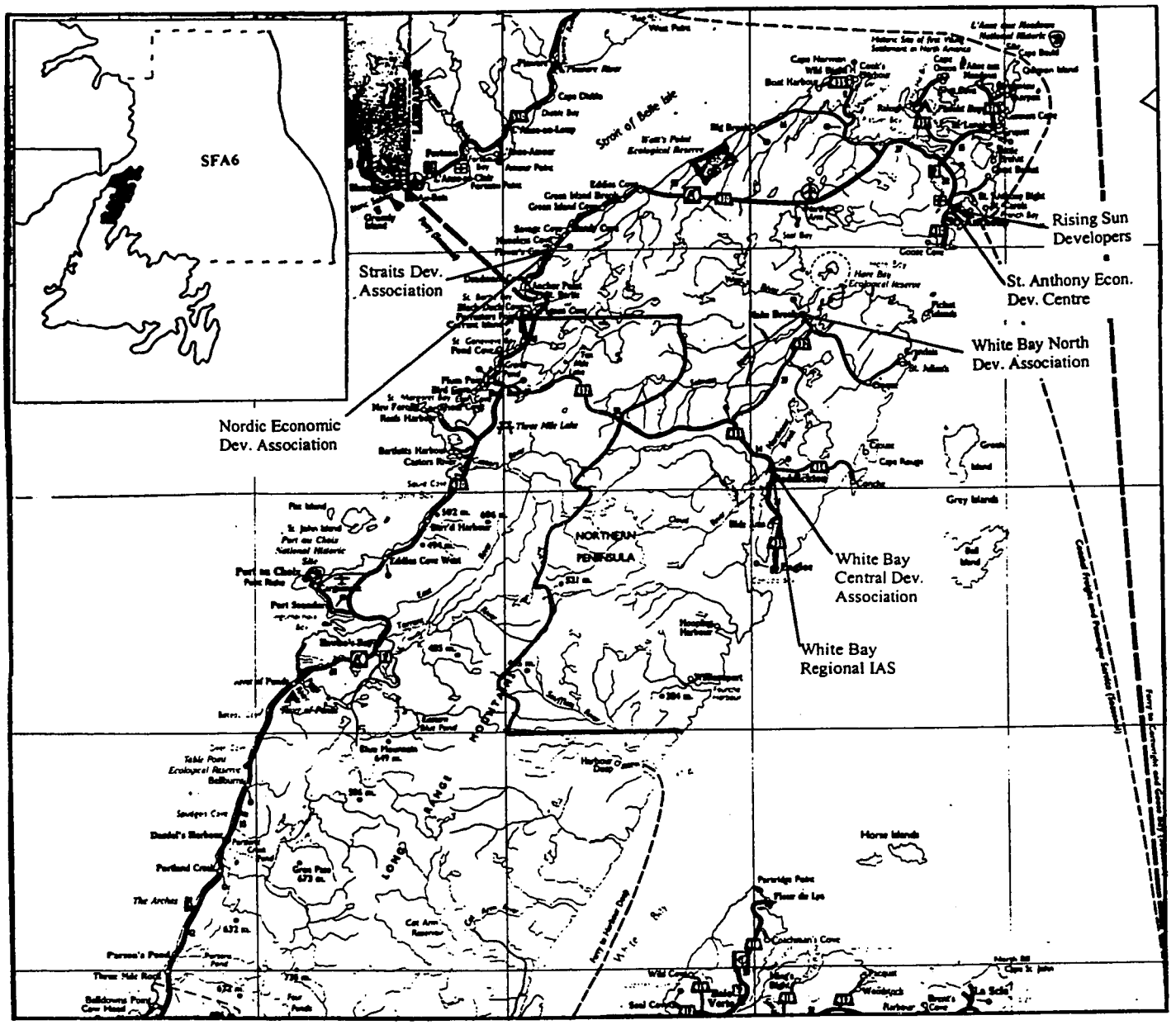


Figure 5.2 Nordic Economic Zone 6: communities and development corporations

other agencies concerned with the development of the region" (New Economy Development Group Inc., 1991).

5.1.1 A New Approach to Economic Development

The concept of creating economic zones originated in the Province's 1992 Strategic Economic Plan (SEP) *Change and Challenge: A Strategic Economic Plan for Newfoundland and Labrador*. While the SEP provided the initial blueprint for organizations and institutions to follow, it is recognized that various regions of the province have different needs and opportunities which require differing strategies of management and development. Thus the establishment of economic zones to provide citizen-led planning and coordination at the local level (NEDC, 1997). The plan makes explicit reference to community economic development stressing that it is "the people of a community themselves that should be directly involved in pursuing and managing their own economic development" (Newfoundland, 1995:13). Development decisions have traditionally come from outside the communities. Protection and management of local resources have been secondary to extracting maximum short-term gains, with little regard for the people who depend on the resources for their livelihood. Like community development, community economic development, as pursued by the 1992 SEP, "emphasizes collective action by the community; it integrates social, cultural, and environmental concerns with economic development; it emphasizes the development of individuals and groups to sustain their activities; finally, it focuses on a long-term process which is accountable to residents of the community."

In July of 1992, one month after the province released its SEP, the federal government announced a minimum two-year moratorium on the Northern cod fishery. This unprecedented

shock to the provincial economy, along with additional issues raised in *Change and Challenge* (1992), resulted in the declaration of three fundamental changes in economic development and industry relations if Newfoundland was to confront these challenges. First, people would have to become more outward-looking, innovative and better educated. Second, governments would have to focus more on long-term development and planning, and become more sensitive to the needs of the local community. Finally, new and stronger cooperative partnerships are required among governments, community groups, and the private sector (Newfoundland, 1992).

On February 10, 1995, the Government of Canada and the Government of Newfoundland and Labrador announced a new approach to regional economic development when they released *Community Matters: the Report of the Task Force on Community Economic Development.* Governments announced support for the creation of twenty Regional Economic Development Boards for the purpose of planning and implementing regional and community development strategies. The focus of the development plan is best characterized by principles of endogenous regional development where the focus is on the region (the Economic Zone), but also on local to national relations. Regional endogenous strategies principally pursue economic objectives: their aim is the structural adjustment of local and regional economies. They are, therefore, structural in character, although their approach to the structural change of the local economy might be micro-economic and at a local scale (Guerrero, 1997).

In May of 1996 the Provisional Board of Regional Economic Zone 6 signed a performance contract with the Government of Canada and the Government of Newfoundland. The major component of this contract was the development of a five-year comprehensive strategic economic development plan (NEDC, 1997). Eight guiding principles as outlined by

the NEDC (1997) were adopted for Zone 6 in preparation and implementation of the regions SEP. Included among these principles are:

1) The Zone must focus on strategic strategies.
2) The Zone must diversify its economic base and expand local markets to be competitive regionally, provincially and in world markets.
3) The private sector must be the engine of growth with government and development agencies enhancing productivity.
4) There must be increased consensus among governments, businesses, industry, and academia to work together in building a competitive economy
5) The Zone supports the need for governments to become streamlined, efficient and responsive to local and public needs.
6) The principle of sustainable development must be maintained.

In addition to the guiding principles illustrated above, the Nordic Economic Zone presented a "vision statement" to guide regional economic development and monitor change and progress. The long-term vision for how the region should be developed was discussed at a community-planning workshop in St. Anthony during the month of July, 1996. The vision is intended to act as a guide in assessing the goals, objectives, targets, and actions in the economic development of the Regional Economic Zone (Table 5.2). The vision statement as outlined in the Zone's SEP is as follows:

> "To develop and promote economic growth in identified sectors of the economy while always cognizant of the viability, sustainability, efficient management and appropriate control necessary to preserve and protect traditional lifestyles and environmental stewardship" (NEDC, 1997)

Table 5.2. General goals and objectives outlined in the Nordic Economic Zone's SEP

Fisheries and Aquaculture
- to develop a viable aquaculture industry in zone six
- to maintain economic contribution of existing/traditional fisheries and develop viable alternative fisheries in the zone

Forestry Mining and Agrifoods
- to improve the viability of the forest industry in zone six
- to promote the development of a mining industry in the zone
- to develop agricultural and livestock potential

New Economy Opportunities
- to utilize capabilities of the internet to promote development
- to promote further development of communications infrastructure
- to promote development of new and innovative industries

Tourism, Recreation and Crafts
- to develop and promote the multi-season tourism potential of zone six
- to develop the hospitality industry to its fullest potential
- to avail fully to the potential that is associated with the cultural heritage and historical significance of zone six
- to develop the craft industry to its fullest potential
- to work with the provincial tourism industry to develop a strong and vibrant industry

Human Resources
- to promote a significant reduction in the illiteracy rate in zone six
- to promote the need for changes to the Kindergarten to Grade 12 curriculum that are relevant to the new era of economic development
- to enhance and strengthen the small business sector by promoting entrepreneurship and investment
- to become competitive in provincial, national and international markets
- to improve opportunities for graduates of post-secondary institutions to acquire employment within the zone

Source: NEDC (1997).

5.1.3 Overview of the Zone 6 Fishing Industry

The overall goal of the Nordic Regional Economic Zone in terms of the fishing and aquaculture industry is as follows:

> "To develop, enhance and promote a viable and sustainable fishing industry through the promotion and utilization of underutilized species, secondary processing and aquaculture" (NEDC, 1997).

According to the Zone's SEP, when compared to other regions of the province, Zone 6 has one of the highest levels of dependency on the fishing industry. An analysis of recent DFO data illustrates that the Zone has suffered more than most areas of the province as a result of the groundfish closure and over a longer period of time (Canning and Pitt Associates Inc., 1992). In 1990 there were 1,548 full-time and 1,128 part-time fishers registered in Zone 6. By 1995, the full-time registrations had decreased to 1,296 and part-time registration had fallen by 533 (NEDC, 1997).

Although the current crisis in the fishery has had a devastating effect on those involved in the traditional fishery, it has forced all those concerned to look at alternatives with a sense of urgency and vigor. For most communities in the Zone, however, people feel that there will have to be some form of fishery to prosecute if they are to remain viable.

> "Just as the questions 'What made your community sustainable in the past?' and 'What made it unsustainable?' were answered fish!, so too was the question 'What could make your community sustainable in the future?' answered with hopes for the fishery. It was nearly universally argued that without some level of restored fishing activity, these communities will not have a future"[2]

[2] Quote taken from **The Report on the Partnership on Sustainable Coastal Communities and Marine Ecosystems in Newfoundland and Labrador**, pp. 19.

The sustainability of the fishing industry and the Regional Economic Zone in general, inevitably must involve some discussion of the rich and abundant Northern shrimp fishery. When the SEP was written for the Nordic Economic Zone, one of the major issues surrounding the shrimp fishery was the fact that the fishery was primarily conducted by large offshore factory-freezer trawlers. Shrimp resources adjacent to Newfoundland were processed onboard offshore vessels and shipped to Greenland for processing with very few benefits accruing to the Zone. In the 1997 SEP the Nordic Economic Zone set a specific target for the Northern shrimp fishery, to be achieved through a specific set of actions:

> **Target:** *Promote development of inshore and offshore shrimp fisheries providing 1,000 tonnes of product from a pot fishery by 1999 and at least 3,000 tonnes allocated from the existing offshore quota.*
>
> **Actions:** - *Conduct an exploratory shrimp pot fishery.*
> - *Lobby DFO for an increase to the shrimp quota in fishing areas 2J and 3K to support a shrimp pot fishery.*
> - *Lobby DFO, on behalf of existing inshore shrimp fleet, for access to at least 3,000 tonnes of existing offshore mobile quota..*
>
> (NEDC, 1997)

Since the writing of the Zone's SEP in 1997, significant developments have taken place in the Northern shrimp fishery particularly in terms of industry expansion and increased quota allocations. However, recent news has highlighted the growing concern that the Northern shrimp fishing industry, while receiving significant quota allocations, is in serious difficulty in terms of management effectiveness, and clear directions for the future are not forthcoming. This leads to the following discussion on the development and recent growth of the Northern shrimp fishery.

5.2 The Northern Shrimp Fishery

The Newfoundland and Labrador northern shrimp fishery is a relatively new fishery by Canadian standards. It developed as a result of exploratory work by the DFO in the mid-1970s. The fishery is now worth over $100 million per year and employs over 600 people. Two species of shrimp are fished commercially in North Atlantic Canadian waters: *Pandalus borealus*; and to a lesser extent, *P. montagui*. The Northern shrimp fishery is primarily a single species fishery comprised of *Pandalus borealus*. *Pandalus borealus*, commonly known as Northern shrimp, is one of several cold water species of shrimp found north of latitude forty degrees north in the Atlantic Ocean. They live in areas where the ocean floor is soft and muddy and where bottom temperatures range from two to six degrees Celsius. These conditions occur throughout the Newfoundland and Labrador region within a depth range of about 200 to 600 meters, providing a vast area of suitable habitat. The species is the primary cold-water shrimp resource in the north Atlantic (DFO, 1997a).

The shrimp fishery on the east coast of Canada began in the mid-1960s in the Gulf of St. Lawrence. The fishery originally developed using Scandinavian vessels and expertise and was dominated by Danish, Faroese, and Norwegian vessels and crew (Newfoundland, 1997). It was not until the mid-1970s that an exploratory fishery developed off the east coast of Northern Newfoundland. Following a brief period of exploratory fishing, a commercial fishery for Northern shrimp began in the Davis Strait and Hopedale Channel in 1978, and expanded southward to the island portion of the province of Newfoundland throughout the 1980s. Annual catches averaged 9,000 tonnes in 1981 but declined to 3,000 tonnes in 1984 due to weak market conditions (DFO, 1997b). By the mid-1980s, however, both resource and

market conditions for Northern shrimp had grown substantially and the industry responded with significant increases in fishing effort and quotas.

Entry to the Northern shrimp fishery has traditionally been limited to seventeen license-holders; primarily large (> 40 meters in length) offshore factory-freezer trawlers. By 1989 the Canadian Minister of Fisheries and Oceans received in excess of thirty requests for additional shrimp fishing licenses. This demand eventually led to the DFO's development and implementation of four guiding principles for the management of the Northern shrimp resource (DFO, 1991). These principles are as follows:

1) Optimum exploitation of all Northern shrimp stocks, employing effective resource conservation and long-term development of the entire Northern shrimp fishery.

2) Fair access to, and equitable sharing of, the Northern shrimp resource by all legitimate Canadian user groups, with particular emphasis on the needs of the people and communities most adjacent to the resource.

3) Canadianization of all aspects of the Northern shrimp fishery in harvesting, processing, and marketing so that the maximum benefits from this fishery accrue to Canadian user groups.

4) Development of a modern, commercially viable, and self-sustaining Northern shrimp fishery.

5.1.1 *Growth of the Resource.*

Recent scientific advice and offshore sector catch rates confirm that Northern shrimp stocks are growing rapidly in the areas adjacent to northeast Newfoundland. Annual catches have steadily increased since the 1980s, with the 1996 catch of 31,000 tones being the highest recorded (Fig 5.3). According to a DFO Stock Status Report (DFO, 1997c), "the

current high level of shrimp abundance, particularly in the Hawke + 3K (SFA 6) management area, is unprecedented in the Newfoundland and Labrador offshore area". The increase in biomass is partially attributed to the decrease in Northern cod; a natural predator of Northern shrimp. Thus, one of the "positive" impacts of the decline of the Newfoundland groundfish fishery has been the growth of shellfish resources. Although a short-term expansion in shellfish resources cannot substitute for the landings and employment of the former Northern cod fishery, it can help offset part of the economic loss and support alternative development opportunities.

A recent DFO economic assessment of the offshore shrimp fleet confirmed the economic viability of the industry at existing quota levels. The issue, therefore, was to decide on how any increase in the Northern shrimp quota would be allocated. On November 29, 1996, the federal Minister of Fisheries and Oceans issued an Atlantic Canada-wide call for proposals on how to share an increase in the quota for the Northern shrimp stock off the northeastern coast of Newfoundland and southeastern Labrador. The Minister stated: "There is a general agreement that should quotas increase above existing levels, additional access should be permitted". Furthermore, "...once a sharing formula for the Northern shrimp is agreed to, specific access and management criteria will be developed and individual applications for access to the resource will be requested".

In an attempt to encourage development in the early years, the federal government allowed license holders to charter foreign vessels to harvest their allocations. This practice was phased out over the ensuing years and today all vessels in the fishery are Canadian owned and operated. In 1996 seventeen shrimp fishing licenses were issued, of which eight

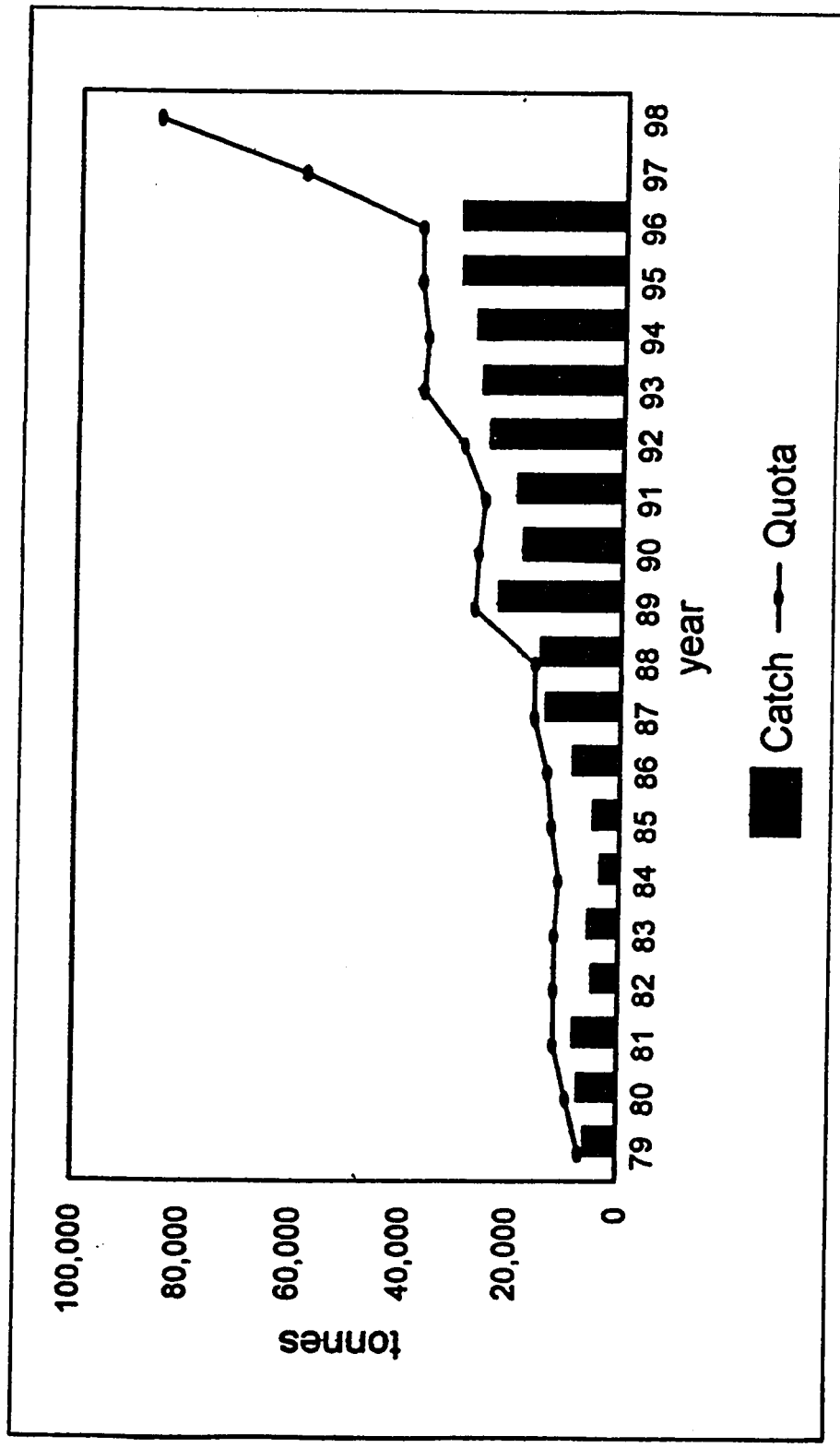


Figure 5.3. Northen shrimp quota and catch, 1979-1997 (DFO, 1997)

were held by Newfoundland and Labrador interests, with the balance held in the Maritimes and Quebec. However, due to the traditional absence of inshore access to Northern shrimp and the fact that the offshore fleet is dominated by out-of-province vessels, few of the economic benefits of this fishery accrued to Newfoundland.

The Government of Newfoundland and Labrador believes that there must be adherence to the established principles of quota allocation. In other words, priority must be given to the needs of fishers and coastal communities immediately adjacent to, and historically dependent upon, the marine resources in their traditional fishing areas (Newfoundland, 1997). Examples of regional allocations of Northern shrimp to the inshore sector, prior to the Atlantic Canada-wide call for proposals for sharing any increase in quotas are illustrated on the following map (Fig. 5.4). According to the Government of Newfoundland and Labrador, the 1996 Atlantic Canada-wide call for proposals is inconsistent with increases in quotas and subsequent allocations in other areas of Atlantic Canada in recent years. For example, increases in the shrimp resource on the Scotian Shelf in the early 1990s were allocated to inshore fleets in Nova Scotia which were adjacent to the resource. The fishers of Newfoundland and Labrador were not provided an opportunity to participate in this fishery (Newfoundland, 1997).

5.2.2 Expansion of the Northern Shrimp Fishery

In terms of adjacency, dependence and historic access, the people with the most compelling claim to this resource are those in the inshore and harvesting sectors in Labrador and northeastern Newfoundland; the regions hardest hit by the Northern cod moratorium (Newfoundland, 1997; Noble, 1997). The principle components of the Northern shrimp

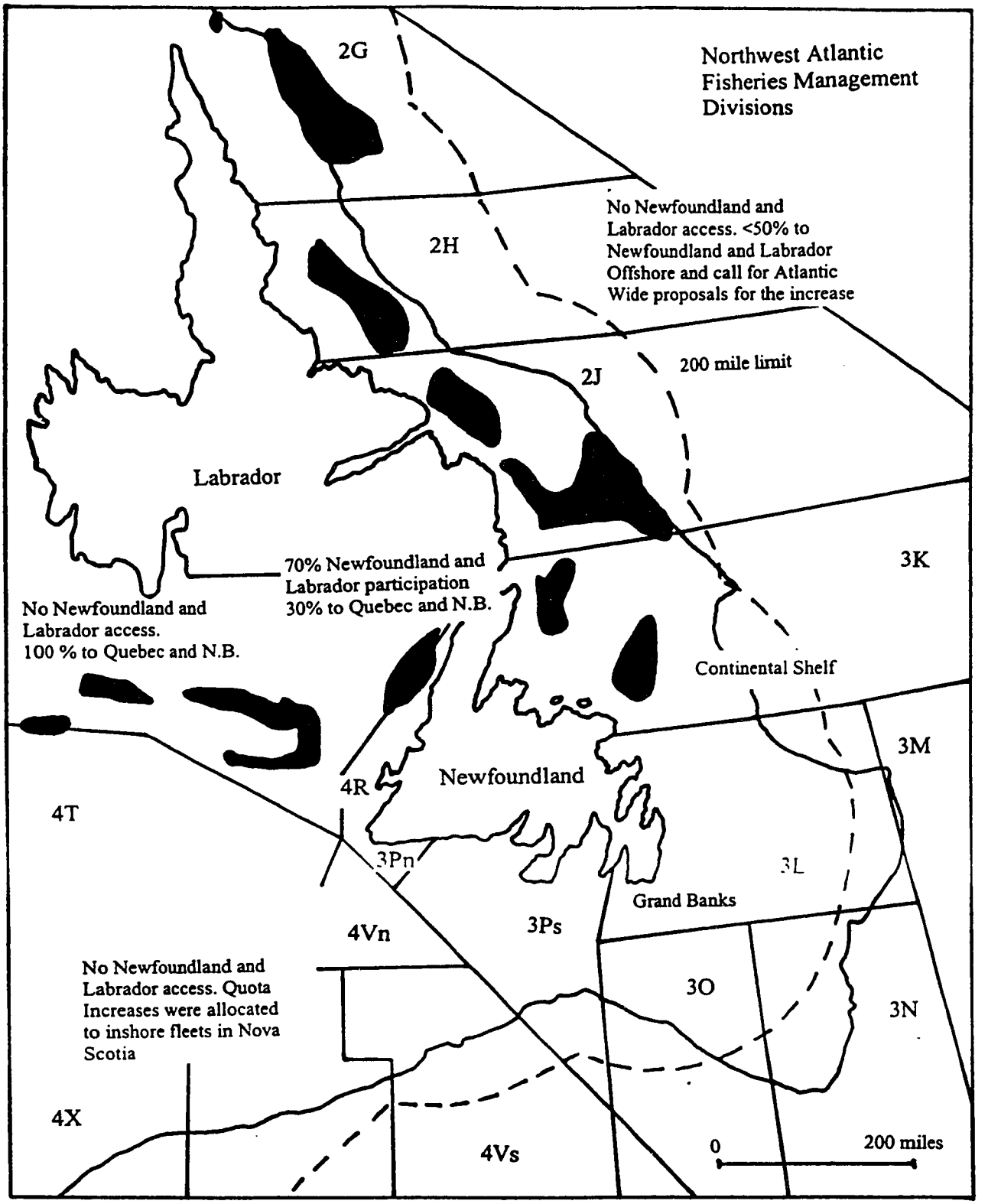


Figure 5.4. Regional differences in the allocation of shrimp resources (Newfoundland, 1997)

stock, like Northern cod, are adjacent to these parts of the province. Access to the shrimp resource is therefore vital to the long-term sustainability of coastal communities in these regions.

In 1997, based on scientific advice, substantial increases in the TAC of Northern shrimp were introduced for three shrimp fishing areas including SFA 6 adjacent to the Northern Peninsula of Newfoundland. The total increase in the TAC for Northern shrimp introduced for 1997 was fifty-seven percent above previous years. The TAC increased from 37,600 tonnes in 1996 to 59,050 tonnes in 1997. Based on average price per tonne for Northern shrimp, the fishery was expected to generate $75 million of additional revenue over previous years. For 1998, the Northern shrimp quota increased again to a total of 85,270 tonnes, with a majority of the increase allocated to SFA 6. (Table 5.3).

Access to this expanded fishery is governed by four fundamental principles, built upon from the 1991 DFO guiding principles, worked out in consultation with the fishing industry. These principles, as outlined by the 1997 *Draft Northern Shrimp Management Plan* are as follows:

1) The conservation of the resource will be paramount

2) The viability of the existing enterprises will not be jeopardized. Current Northern shrimp license holders will retain their full 1996 allocation in all Shrimp Fishing Areas.

3) There will be no permanent increase in harvesting capacity. Participation by new entrants will be temporary and will end for those SFAs where quotas decline in the future and the established thresholds are reached.

4) Adjacency will be respected, which means that those who live near the resource will have priority in fishing it.

Table 5.3. Northern shrimp TAC increase by SFA, 1996-1998

SFA	1996 TAC (t)	1997 Quota Increase (t)	1997 TAC (t)	1998 Quota Increase (t)	1998 TAC (t)
SFA 0 Offshore	500	0	500	0	500
SFA 1 Offshore	8,500	0	8,500	0	8,500
SFA2 Offshore	3,500	1,750	5,250	0	5,250
SFA 3 Offshore	1,200	0	1,200	0	1,200
SFA 4 Offshore	5,200	0	5,200	2,808	8,008
Inshore[1]	0	0	0	312	312
SFA 5 Offshore	7,650	6,120	13,770	0	13,770
Inshore	0	1,530	1,530	0	1,530
SFA 6 Special Allocation	0	3,000	3,000	0	3,000
North of 50°30'	0	2,000	2,000	2,950	4,950
3L Fishers	0	2,000	2,000	2,950	4,950
(Inshore) SFA 6 N of 50°30'	0	3,000	3,000	4,400	7,400
(Inshore) SFA 6 S of 50°30'	0	2,050	2,050	3,030	5,080
Reserve	0	0	0	7,460	7,460
Offshore	11,050	0	11,050	2,310	13,360
Total	**37,600**	**21,450**	**59,050**	**26,220**	**85,270**

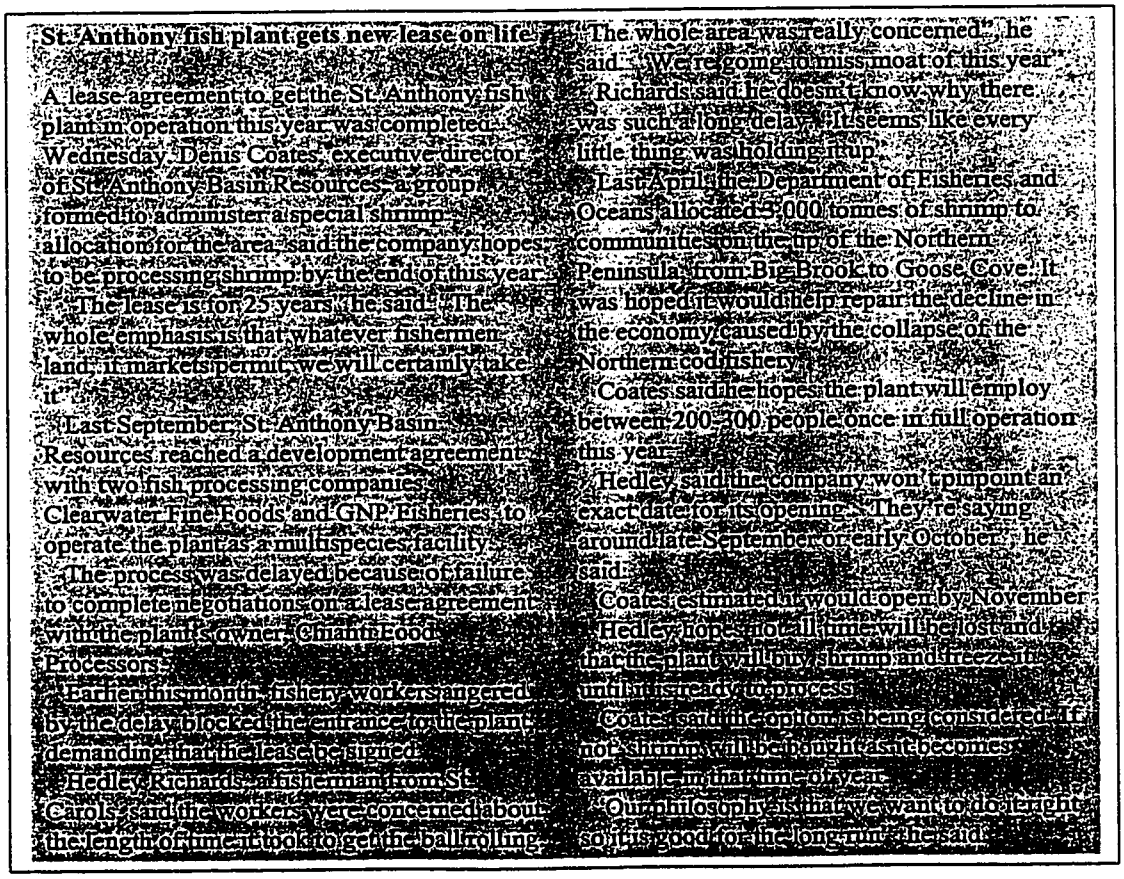
[1]Inshore vessels constitute those vessels less than 65 feet in length.

Source: DFO, 1997, 1998.

This year (1998), according to a news conference report by the Newfoundland and Labrador Minister of Fisheries and Aquaculture, "the Northern shrimp fishery should generate a landed value of over $50 million with an export value double that" (Whiffen, 1998). The SFA 6 quota off the northeast coast of Newfoundland and Labrador has been doubled to 46,200 tonnes with over ninety percent of the increase in allocation distributed amongst inshore vessels. The end of fishers' income support under TAGS and the slow recovery of Northern cod stocks will create major economic hardships for the coastal communities of northeastern Newfoundland unless they are able to continue to receive maximum benefits from the recent expansion of the Northern shrimp fishery.

Perhaps the most significant development in the 1998 Northern shrimp fishery is the implementation of a community-based quota. For the first time in the history of the Northern shrimp fishery, and for the north Atlantic fishery in general, a local development corporation, St. Anthony Basin Resources Inc. (SABRI), has been granted complete allocation control over a delegated community-based Northern shrimp quota. SABRI represents coastal fishing communities extending from Big Brook to Goose Cove (Fig. 5.2). The entire quota has been allocated to offshore fleets and large-scale processors such as Clearwater Fine Foods and Great Northern Seafoods. According to SABRI, however, royalties generated from quota distributions are to be used in community economic development initiatives; developing alternative or experimental inshore fisheries; and developing gear technologies to enable traditional inshore fishers to access offshore shrimp stocks. Similar proposals to acquire a community-based quota were presented to the DFO by other organizations in the Zone. However, SABRI was the only successful organization. Inshore and offshore quota allocations for the remainder of the Zone are managed by the DFO, Ottawa.

The income support offered under TAGS was far from successful in bringing new economic opportunities to traditionally dependent groundfish fishing communities. In the absence of alternative support programs, the opportunity provided by an expanding Northern shrimp fishery could allow the adverse social and economic impacts of the Northern cod moratorium to be mitigated (Fig. 5.5). The issue, therefore, is to ensure that the recent expansion of the Northern shrimp fishery is to the best social and economic benefit of the coastal communities that need it the most. In order to accomplish this objective, fisheries management must work in a cooperative environment with the fishing industry and economic development initiatives.



St. Anthony fish plant gets new lease on life

A lease agreement to get the St. Anthony fish plant in operation this year was completed Wednesday, Denis Coates, executive director of St. Anthony Basin Resources, a group formed to administer a special shrimp allocation for the area, said the company hopes to be processing shrimp by the end of this year.

"The lease is for 25 years," he said. "The whole emphasis is that whatever fishermen land, if markets permit, we will certainly take it."

Last September, St. Anthony Basin Resources reached a development agreement with two fish processing companies, Clearwater Fine Foods and GNP Fisheries, to operate the plant as a multispecies facility.

The process was delayed because of failure to complete negotiations on a lease agreement with the plant's owner, Quantic Food Processors.

Earlier this month, fishery workers angered by the delay blocked the entrance to the plant, demanding that the lease be signed.

Hedley Richards, a fisherman from St. Carols, said the workers were concerned about the length of time it took to get the ball rolling.

"The whole area was really concerned," he said. "We're going to miss most of this year."

Richards said he doesn't know why there was such a long delay. "It seems like every little thing was holding it up."

Last April, the Department of Fisheries and Oceans allocated 5,000 tonnes of shrimp to communities on the tip of the Northern Peninsula, from Big Brook to Goose Cove. It was hoped it would help repair the decline in the economy caused by the collapse of the Northern cod fishery.

Coates said he hopes the plant will employ between 200-300 people once in full operation this year.

Hedley said the company won't pinpoint an exact date for its opening. "They're saying around late September or early October," he said.

Coates estimated it would open by November.

Hedley hopes, not all time will be lost and that the plant will buy shrimp and freeze it until it is ready to process.

Coates said the options being considered if not, shrimp will be bought as it becomes available in that time of year.

"Our philosophy is that we want to do it right so it is good for the long run," he said.

Figure 5.5. News brief, "St. Anthony Fish Plant gets New Lease on Life" (Morgan, 1998).

5.3 Summary

Recent news has highlighted the growing concern that the Northern shrimp fishery, while receiving significant increases in quotas, is in serious difficulty in terms of management effectiveness and clear directions for the future are not forthcoming. Fishers feel powerless to affect government policy. There is a lack of interest by governments and fisheries management officials in the problems and concerns of inshore fishers, and large fishing concerns seem to have the vast majority of influence, and receive most of the attention. Fishers are becoming increasingly concerned about their futures and are desperately seeking ways in which to articulate and address their concerns in cooperation with fisheries managers (Development as if We Plan to Stay, 1992).

The developing Northern shrimp fishery offers signs of hope for the fishing industry and for the local and regional economies of the Nordic Economic Zone. Given the regional character of the Nordic Economic Zone and the provincial-wide shift towards more regional and community-based approaches to economic planning and development, what lessons can be learned from, and what contributions can be made by local economic and resource development corporations in terms of facilitating a cooperative fisheries management system?

Included in Sections 3.0 and 4.1 of the 1997 *Northern Shrimp Management Plan* are several long-term and general management objectives including:

- To maintain effective resource conservation, while optimizing exploitation of the Northern shrimp resource and providing for orderly long-term development of the fishery.
- To provide fair access to and equitable sharing of the Northern shrimp resource with particular emphasis on the needs of the people and communities most adjacent to the resource without any permanent increase in harvesting capacity.

- To promote the development of a modern, commercially viable and self-sustaining fishery.
- To promote and ensure the conservation and protection of Northern shrimp stocks.

Included among the primary objectives of REDBs is to "assist in the targeting and management of available resources to communities and organizations within the regional economic zones". With regard to fisheries management and the Nordic Economic Zone, all thirty-seven communities in Zone 6 are located along the coastline so in one way or another the fishery is an integral part of the region's livelihood. According to the Provincial government, the future of fisheries management means increased regional and local control of adjacent fisheries resources and the promotion of regional economic development opportunities. In order for these and other objectives to be met it is necessary to examine the present management structure and process of the Northern shrimp fishery, and the potential role(s) of the Regional Economic Zone in facilitating a cooperative fisheries management system.

Chapter 6

Analysis: Institutional Opportunities and Constraints

6.0. Introduction

This Chapter presents the results of an analysis of fisheries management documents, strategic economic plans, and personal interviews, through application of the normative institutional model for cooperative fisheries management. (Fig. 4.2, Table 4.3). The model is used to assesses the present management structure and process characteristics of the Newfoundland and Labrador Northern shrimp fishery in accordance with the *principles* outlined in the framework. This involves a discussion of the potential institutional opportunities of the Province's new approach to economic development and the role(s) and characteristics of the Regional Economic Zone Board (NEDC) in managing the institutional constraints of present cooperative fisheries management initiatives. It is argued here that rather than undergo a complete restructuring to manage institutional constraints in the fishing industry, it is useful to take advantage of the opportunities provided by existing alternative institutional arrangements.

6.1. Principle # 1 Interactive Organizations

Several organizations can be identified in the Northern shrimp fishery. But perhaps the most significant in terms of the study area include the Fish, Food and Allied Workers Union, St. Anthony Basin Resources and the Northern Shrimp Advisory Committee. Interactive organizations are instrumental to designing effective fisheries co-management arrangements. Interactive organizations require coordination and cooperation rather than

social fragmentation. It is argued here that non-hierarchical, region- to local-controlled and representative organizations that remain in sensitive contact with the extended social field of the domain are most appropriate in fulfilling this role.

6.1.1. Institutional Panarchies

The Northern shrimp fishery, like most Newfoundland fisheries, is managed and controlled by a hierarchy of authority headed by the federal Department of Fisheries and Oceans. The majority of management decisions, including setting the TAC and quota sharing arrangements are implemented by the DFO at the federal level. According to the Straits Economic Development Association, "the present management system is dominated by the DFO and government does not listen to the needs of the local fishers". Hierarchical structures that typify the Northern shrimp fishery generally work well when the task is simple but fail when the task becomes complex. Given the recent events in the Newfoundland fishery and the struggling socio-economic environment of the Northern Peninsula, no task in fisheries management and decision making is a simple one.

According to interviews with the DFO, Ottawa, the Northern shrimp fishery is "a good example of a harvesting sector that has already achieved significant progress toward achieving industry-government partnerships". However, the idea of partnerships as illustrated by the DFO's *Framework for Sustainable Development* is a partnership based on cost-sharing arrangements. There is some management responsibility at lower levels, but for all intents and purposes it is a top-down system. As emphasized by Newfoundland's western representative of the Provincial Department of Fisheries and Aquaculture, "the DFO sets the TAC and requirements for sustainable resource use; the fishing industry offers input on how -

small trip limits, smaller boats - and bears the financial cost associated with industry management efforts". The Province's perspective is supported in this matter by local development organizations in the Zone. According to reports from St. Anthony Basin Resources Inc., "there is some sense of sharing in terms of advisory committees making recommendations to DFO.... But the concern is that with any political system; the majority of decision making is done by higher levels of authority".

At a national conference held in St. John's, Newfoundland during May, 1998, *Bringing Fishers' Knowledge into Fisheries Science and Management,* the Fish, Food and Allied Workers (FFAW) union suggested that the plea for change in the relationship between fishers and government, including scientists, in all aspects of all fisheries is "beginning to sound like a broken record". The FFAW explains that the problems really began with the collapse of the Northern cod stocks. Inshore groundfish fishers that survived the collapse and the impacts of the Northern cod moratorium are now stronger and more determined. Fishers stepped forward realizing that their advice and their expertise have been ignored in the management of Newfoundland's inshore fisheries. Building bridges and co-management relationships in a newly developing shrimp fishery, therefore, will not be easy when fishers have traditionally been ignored. Furthermore, according to the FFAW, the keys to building strong partnerships are flexibility and open-mindedness. "We [fishers] hear a lot about developing stronger partnerships and working in cooperation... But DFO's idea of cooperative partnerships in fisheries management is to force their work on the backs of local fishers' organizations, many of which do not have the capacity to undertake all of this work." This is not the right idea of cooperation in fisheries management. "It is hard to build effective partnerships for the Northern shrimp fishery, or in that case for any developing inshore

fishery, when the DFO conveniently has their hands in our pockets; DFO may preach partnerships but they do not share the same meaning as fishers."

6.1.2 Advisory Organizations

Fisheries management boards, committees, and so forth, are less hierarchical and more decentralized than government-based management regimes. However, how these institutions work is dependent on their design as well as on how they are implemented and their contexts (Jentoft and McCay, 1995). In an idealized co-management scenario, both government and user groups cooperate as equal partners for all management tasks and at all stages in the management process. But, it is often the case that the roles of government and user groups vary (Sen and Nielsen, 1996). According to Jentoft and McCay (1995), resource users are best represented in terms of *function*, which is based on gear types, or *spatially*, which is based on geography. A number of committees and organizations can be accounted for in the Northern shrimp fishery. The most recent and perhaps the most prominent of which is the Northern Shrimp Advisory Committee (NSAC).

During meetings regarding the expansion of the Newfoundland and Labrador Northern shrimp fishery on June 4-6, 1997, participants were *informed* that they would constitute interim management boards for the purpose of initiating the Northern shrimp fishery. Throughout the summer of 1997 permanent boards were established to deal with any unresolved issues in the fishery and to review the progress and development of the fishery (DFO, 1997b). This Committee, co-chaired by the federal Department of Fisheries and Oceans and a Northern shrimp fishing industry representative, is representative of eighteen fishing industry organizations and corporations including fishers' unions and processors, six

aboriginal interest groups, six provincial and territorial governments, three regional branches of the federal Department of Fisheries and Oceans, and one Newfoundland community-based economic development association. A complete list of members is included in the *Draft Terms of Reference* in Appendix B.

The purpose of the NSAC, as outlined in the *Draft Terms of Reference*, is "to serve as a forum for discussion issues on the management and development of the Northern shrimp fishery and to provide advice and recommendations to the Minister of Fisheries and Oceans" (DFO, 1997b). The scope of the NASC is to provide input on management plans which include advice on:

- quota allocations and regulatory measures;
- enforcement activities;
- licensing policy; and,
- administration of the enterprise allocation program and development activities.

Although all shrimp fishing sectors have members on the NSAC, a fundamental problem with the NSAC pertains to its representation of the Newfoundland and Labrador Northern shrimp fishing industry. The NSAC, based on the 1997 *Northern Shrimp Management Plan*, is defined neither by geography nor by gear selectivity. The Committee represents issues and perspectives ranging from interests as diverse as the Nunavut Wildlife Management Board, federal and province-based DFO organizations, and the Northwest Territories Department of Renewable Resources, to localized, community-based organizations. Clearly the Committee is diverse in its membership, but adequate representation is lacking at the local resource user level in rural northern Newfoundland. Small-scale, local fishers are typically poorly organized and therefore it is hard to either

locate or create representative voices for this sector (Jentoft and McCay, 1995). Interviews with local community economic development corporations revealed that development corporations were aware of the existence of the NSAC, but had no input or representation whatsoever and no real knowledge of its precise function. Development corporations, according to the Nordic Economic Development Corporation and supported by local economic development agencies, "are the catalyst of community economic and social well-being and therefore should have direct representation on the NSAC to better represent the needs of the rural communities and their fishers". The NSAC, however, is not the first institutional fishing arrangement with these problems. In addition to the NSAC, Atlantic Canada has had a number of cooperative advisory organizations, including the well-known Fisheries Resource Conservation Council (FRCC). The fundamental problem with the majority of these regimes, including the NSAC, is their imbalance of representation and inadequate public review.

The management of Northern shrimp stocks is one area in fisheries management that presently does not give due consideration to the needs of inshore fishers. Although they have some representation, such as the NSAC, the response generated from study participants indicated that most fishers feel that they are at the mercy of governments and large offshore processors. However, a major breakthrough for a number of coastal communities in Zone 6 during 1997-1998 was the introduction of a community-based Northern shrimp quota for St. Anthony Basin Resources Inc..

According to SABRI, "fishers have adequate representation by their union and fishers' organizations. ...The purpose of the NSAC is simply to advise government on decision making". Unlike the NSAC, SABRI *is* based on geography. However, the problem

is that for most communities and organizations outside the represented area, and more particularly those outside St. Anthony, there is no form of community representation in the Northern shrimp fishing industry. SABRI represents communities extending from Big Brook to Goose Cove (Fig. 5.2) while the remainder of the Economic Zone receives no representation or economic development opportunities as a result of royalties generated from SABRI's offshore quota sales. According to the Straits Development Association, this is not fair representation:

> "If you are outside the SABRI area than you can't have anything to do with it [the Northern shrimp fishery]. ...We had fishermen that wanted to take some shrimp training at the college [College of the North Atlantic, St. Anthony], but they couldn't even get the training because they weren't from Big Brook to Goose Cove. They have their own quotas, but it seems that the majority has gone to offshore vessels. The Zone would be in much better shape if they also addressed the smaller-scale fishers and distributed the benefits to all communities in the Economic Zone".

As illustrated earlier in this thesis, and supported by de Vivero *et al.* (1995), institutional arrangements for cooperative fisheries management should try and avoid discrete localism and fragmentation. Community-based organizations such as SABRI are not representative of the community of interests expressed by the Zone as a whole. Interviews with representatives of the Nordic Economic Development Corporation revealed that the real problem with representation by a single community development corporation, such as SABRI, in the Northern shrimp fishery is that "they do not represent all communities equally". The Zone must function as a whole if it is to be strong. The process implemented by SABRI is legitimate in terms of generating royalties for economic development, however, the geography of representation of fishing communities is questionable. Organizations for

cooperative fisheries management should be lean and identify with the local community, yet they should be representative of the different groups involved in the Northern shrimp fishing industry.

6.1.3 Lean Organizations

In recent years the Canadian government has tried to open up fisheries management and policy processes. In Newfoundland, the principal approach has traditionally been consultative, but the fisheries Ministry ultimately made decisions. The consultative process which began modestly in the early 1970s with a handful of advisory committees, has resulted in the explosion into dozens of organizations (Jentoft and McCay, 1995). However, smaller scale fishers are typically poorly organized and therefore poorly represented. Poor representation makes it difficult to express a representative voice. Management and advisory organizations, or whatever they may be called, are often less hierarchical and decentralized in structure. However, how these institutions function and adequately represent the needs of local fishers and small-scale fishing communities is dependent on their design as well as how they are implemented and their contexts.

As illustrated in Chapter 5, and reinforced by Jentoft and McCay (1995), the success of fisheries organizations and cooperative arrangements reflects the relative scale of the organization. Large organizations, such as the NSAC, with a large membership, a large number of institutions and with no geographic definition, may often inhibit the adaptiveness of the management system. A similar argument can be made for the Fish, Food and Allied Workers (FFAW) organization. Although it is more geographically "tied" to the provincial scale, and membership is based on the fishers, for the fishers, and by the fishers, it is much

too large to account for regional or local variations within the fishery. Local fishers in various Zone 6 communities typically view the FFAW as "too large of an organization" in that it does not adequately represent the needs of local, small-scale fishers and communities. The greatest concern of the FFAW rests upon the large boat owners. A dilemma with the large organizations, as explained by Jentoft and McCay (1995), is that the larger the organization, the more difficult it is to maintain a democratic process. Large organizations rely more on "aggregation" rather than "integration". Aggregation is a process where the resource users deliver their demands to a higher organization which is responsible for finding compromise. No real discourse takes place among members, which is a key process in integration. Furthermore, as Jentoft and McCay explain, with aggregation the focus is more on winning and not on reaching a formalized agreement or arrangement.

At the other end of the spectrum are organizations such as SABRI, that are defined and controlled locally. As illustrated above, although SABRI is based on geography it does not adequately represent the community of interests of the entire Economic Zone. SABRI is geographically representative of coastal communities extending from Big Brook to Goose Cove. The problem, however, is that the remainder of the Zone receives little to no representation in the management and development of the Northern shrimp fishery. Furthermore, according to local fishers in Flower's Cove and Shoal Cove East, development initiatives arising from the economic benefits of the Northern shrimp fishery accrue directly to the town of St. Anthony, with few benefits being distributed to the remainder of the Zone. Just the opposite of the NSAC and FFAW, SABRI is not large enough to feature an appropriate level of redundancy. It is not diverse enough to represent communities and fishers of the Northern shrimp fishery in Regional Economic Zone 6. Therefore, the appropriate size

of organizations involved in facilitating a cooperative approach to the management and development of the Northern shrimp fishery, must lie somewhere in between the extremes of centralized hierarchies and community based, self-managed organizations.

6.1.4 Opportunities and Implications for REDBs

Institutional opportunities exist for the Nordic Regional Economic Zone and associated development corporations to fulfill the role of interactive organizations in support of a cooperative Newfoundland and Labrador Northern shrimp fishery. According to the White Bay Regional IAS Committee, "...there needs to be more formal cooperative organizations like SABRI, but with an increased emphasis on the fishing communities and the roles of the inshore fishers; institutions such as the Nordic Regional Development Board could facilitate this process and play an important role."

In commercial fisheries, it is necessary to achieve a certain degree of concentration of fishing organizations, and to try to avoid centralized hierarchies with large diverse memberships. Therefore, these organizations could be more lean and representative of the different groups involved in fisheries and fisheries management. Previous studies of the Niagara Escarpment Commission (NEC), a seventeen-member planning body in Ontario, and the Kativik Environmental Quality Commission (KEQC), a nine-member environmental assessment organization in Northern Quebec, appear to support the hypothesis that a lean number of members and a lean heterarchical organization is advantageous. Although it is difficult to compare the NEC, the KEQC and the Northern shrimp fishing industry in terms of their mandates, it is possible to comment on their organizational structures. According to

Mulvihill and Keith (1989), "the NEC has frequently proven dysfunctional and ineffectual in influencing its context, and it has seldom been consensual in its decision-making." The divisions among its members as Mulvihill and Keith explain, appear to be largely attributable to the NEC's basic design, membership appointment process and membership diversity. The KEQC, on the other hand, has traditionally been dynamic and consensual. A lean membership and democratic process appears to be ideally suited to the KEQC's nature and mandate. Based on Mulvihill and Keith (1989) then, interactive arrangements for the cooperative management and development of the Northern shrimp fishery require relatively lean organizations for at least two reasons. First, it can be argued that an organization's efficiency in decision-making decreases in direct proportion to its size. Second, it is probable that positive group dynamics may be more easily achieved and sustained in lean organizations (Mulvihill and Keith, 1989).

Traditionally the effectiveness, organization and administration of development agencies were a main concern for communities on the Northern Peninsula. Particularly with respect to the negative impact on the effectiveness of poor-coordination and cooperation among individual agencies. People were concerned that the area had too many groups, and that several functions were redundant, communications poor and experienced problems in achieving common objectives and initiatives (Canning and Pitt Associates Ltd., 1992). Recently, however, with the introduction of the Province's new approach to economic development, development corporations have become more streamlined and commonly work together to achieve a zonal objective. As stated in Section 8 of the SEP outlining the fundamental *Guiding Principles* for the Nordic Economic Zone, the Zone "supports the need for government to be streamlined, efficient and responsive to public needs and changes".

This particularly relates to the local communities and economies which are primarily based on fishing activity. Lower-level and lean organizations that are in continuous contact with the needs of resource users and communities are best suited to fulfill the role of facilitating fisheries co-management. In a well-managed fishery, according to Kuperan and Abdullah (1994), the persons making the decisions in fisheries management should be easily identified at the local level by communities and fishers or fishers' organizations.

Hierarchical arrangements that presently exist in most fisheries management arrangements, including the Newfoundland and Labrador Northern shrimp fishery, are characterized by "fragmented representation" (MacInnes and Davis, 1992). However, not all management decisions can be made at the regional or sub-regional level by fisheries economic development corporations. Certain management decisions which relate to world market conditions must be made in conjunction with a higher level of authority. The Province's new approach to regional economic development, and the creation of regional economic zones, emphasizes the need for governments to relate their management and development concerns to regional and community-based goals and conditions. Too often, government programs and policies have distorted the activities of local organizations. As long as they were identified as community development activities, many central policy makers saw them as marginal to large-scale economic development efforts (ACOA, Economic Recovery Commission, 1995). However, success in global markets, including global fish markets, requires an integration of regional private, public and community-based organizations, working in tandem with provincial and federal governments and organizations.

Although co-management is not entirely necessary to compete successfully in global markets, once arrangements are in place it helps achieve the necessary degree of integration.

One way to achieve this integration on heterarchical scales of community management goals and shrimp fishing activities with external governmental fisheries management is to avoid discrete localism while simultaneously avoiding centralized hierarchies (de Vivero *et al.*, 1995). Heterarchical regimes in the Newfoundland and Labrador Northern shrimp fishery perhaps will develop most successfully at the regional level. Individual communities and sub-regional groups such as SABRI, must play a lead role in the development and implementation of the Northern shrimp fishery management and regulatory plans, but only working together at the regional level can they ensure maximum efficiency, representation and fairness. Provincial and federal governmental departments, in turn, will know where to turn to look for an understanding of the Zone's regional concerns and positions regarding fisheries management and regulation, to ensure that their own management efforts reinforce, rather than distort, the concerns and opportunities of communities (ACOA, Economic Recovery Commission, 1995). The design of proposals for the organization of fisheries on a regional scale tries to stress the importance of achieving a greater degree of decentralization of management so that non-national or central authorities could participate more actively in the fisheries management and decision-making process (Fig. 6.1).

The development of a Newfoundland and Labrador Northern shrimp fisheries management regime on heterarchical scales through the institutional support of fisheries economic development corporations will better enable fisheries managers to cope with complex situations, where each player is responsible for their own actions with guidelines set by higher authorities (Hollick, 1993). An example of a Newfoundland commercial fishery (aquaculture industry) that successfully divested as a cooperative arrangement as a result of initiatives by development corporations is the Port au Port Scallop Aquaculture Cooperative.

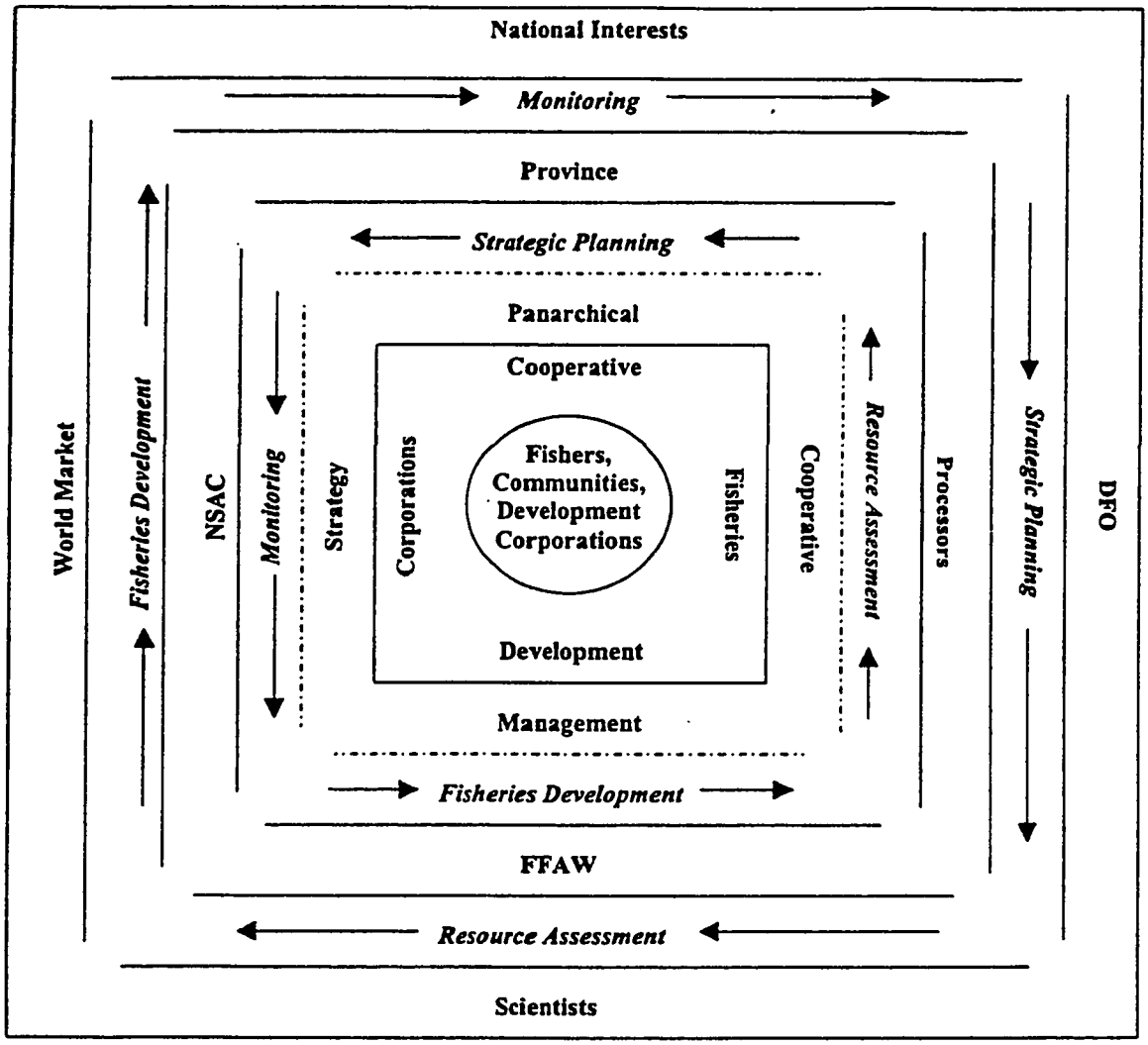


Figure 6.1. Interactive, heterarchical cooperative fisheries management arrangements. Centre circle represents the core of the co-management arena. Outside squares represent panarchical institutional arrangements, interacting across space and time. Decisions, responsibilities and processes flow in between.

The Port au Port Economic Development Association worked closely with academic institutions, the Government of Newfoundland, and the Federal Department of Fisheries and Oceans in the research and development of the aquaculture project. In the mid-1970s, as described in *Community Matters: The New Regional Economic Development* (1995), the Development Association brought together local fishers to consider how local scallop stocks could be replenished. Aquaculture was seen as the solution but centralized government agencies remained insensitive to the local and regional needs. Complex and uncoordinated procedures hampered development of the aquaculture cooperative. In the end, however, the Association persevered, channeling short-term governmental support into a long-term aquaculture strategy. By the early 1990s the aquaculture project showed signs of commercial potential and cooperative arrangements were ultimately formed between the local industry and government departments. This example illustrates that past efforts of development corporations have been successful in representing the needs of local communities in terms of the development and management of commercial fishing activities. More importantly, they have proven successful in facilitating cooperative arrangements between industry and government.

As a regional development corporation, and potential fisheries development corporation, the current approach of the Nordic Economic Zone Board is "to assist fishers and fishing communities within the Zone in setting up boards of directors, developing terms of reference and strategic plans for the management and development of the Northern shrimp fishery" (NEDC, 1997). During the recent growth of the Northern shrimp fishing industry various communities and fishers' organizations have approached the Regional Zone Board to act on their behalf in matters concerning governmental fisheries management and regulation efforts. A 1995 survey regarding the

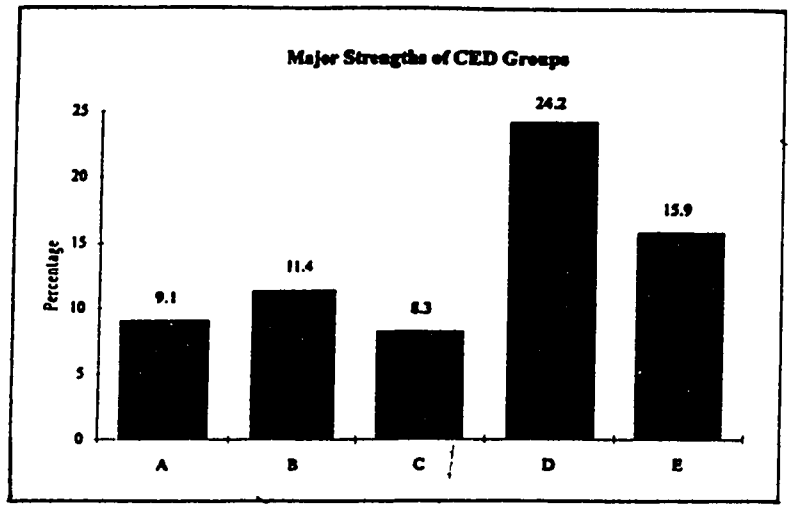
roles of development corporations displays that over twenty-four percent of respondents suggest that one of the major strengths of development corporations is in providing the community with information and support. Furthermore, over eighty-five percent believe that development corporations are effective organizations for interacting with government organizations (Fig 6.2) (ACOA, Economic Recovery Commission, 1995). The effective organizational arrangement of the Province's new approach to economic development, and Regional Economic Zone 6 in particular, displays potential for the support of an interactive Newfoundland and Labrador cooperative Northern shrimp fisheries management arrangement.

6.2. Principle # 2 Local Control

Local control is an important characteristic of effective institutional arrangements for fisheries co-management. Local control does not necessarily involve the delegation of all decision-making authority to the local community. Rather local control refers to those near to and dependent upon the resource having priority access and the decisions are being made by the lowest capable organizations.

6.2.1 Local Ownership and Control

Many of the problems of the Newfoundland fishery relate directly to the nature of ownership and control of the industry. According to the participants of a fishers' workshop held in Petty Harbour in 1992, *Development as if We Plan to Stay*, "our fishery has always been exploited in the interest of external individuals, companies and governments, or in the interest of large local companies who have had private profit as their main motive. ...The fishery has never been an industry of the fishers, by the fishers, and for the fishers." During



A – provides marketing, business, strategic planning advice (9.1%)
B – helps improve local economy (11.4%
C – helps to maintain or increase the quality of community life (8.3%
D – provides community with information and support
E – acts as a close link to the economy (15.9%)

Figure 6.2a. Major strengths of development corporations as identified by public survey (ACOA, Economic Recovery Commission, 1995).

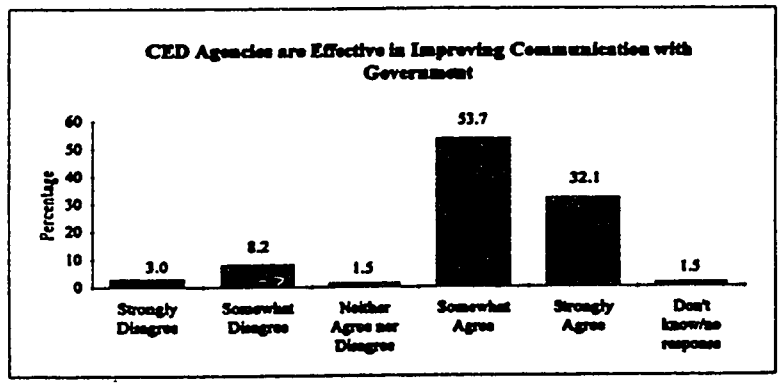


Figure 6.2b. Effectiveness of development corporations in improving communications with government (ACOA, Economic Recovery Commission, 1995).

this research it was discovered that local fishers and development corporations alike, excluding SABRI, feel that there is no sense of community, or even provincial ownership of the Northern shrimp resource. It is perceived as being owned and controlled by the federal government.

To promote the concept of local ownership and control, and maintaining the "rationalization paradigm" (Fig. 4.3), access to Northern shrimp is a key issue for the Government of Newfoundland and Labrador. Increases in the quota for Northern shrimp present a significant economic development opportunity for those regions adjacent to the resource. The Provincial Department of Fisheries and Aquaculture believes, therefore, "that those regions of the province with a dependence on the resource should have priority access". The Province argues for greater local benefits and consistently demands access for the inshore fleets. Therefore, priority must be given to the needs of fishers and coastal communities immediately adjacent to, and historically dependent upon the marine resources in their traditional fishing areas. A position paper presented by the Government of Newfoundland and Labrador (1997) regarding the allocation of the Northern shrimp resource states:

> "Priority must be given to the economic needs of those communities which have the greatest reliance on the fishing grounds and where the current resource expansion has occurred, and whose future is now in jeopardy due to the ongoing Northern cod moratorium."

The principle of adjacency is strongly supported by coastal communities and fishers. It is not surprising that when the DFO asked the fishing industry what principles it thought should underlie the sharing of the Newfoundland and Labrador Northern shrimp TAC, close to ninety percent of the 160 submissions received recommended adjacency as a significant principle (DFO, 1997a). Based on this input, and based on successful lobbying on behalf of

the Government of Newfoundland and Labrador, the 1997 *Northern Shrimp Management Plan* outlines adjacency as a primary principle. It states that "adjacency will be respected, which means that those who live near the resource will have priority in fishing it" (DFO, 1997b).

Development agencies within the economic zone agree that the principle of adjacency is respected in at least eighty percent of all cases. The challenge, however, is getting consensus on what defines adjacency. As explained by SABRI, "a meeting was held in Halifax last year [1997] on the Northern shrimp fishery. ...The first question that arises is why should there even have been a meeting in Halifax to discuss expanding the Northern shrimp fishery – clearly a Newfoundland-defined resource." Furthermore "...people attended this meeting from Nova Scotia and from as far away as the Northwest Territories to table requests for a share of the Newfoundland and Labrador Northern shrimp quota, they felt that they should be entitled to a share of that resource; the challenge with adjacency then, is its geographic definition".

In short, SABRI was pleased that the bulk of the increase in the quota was provided to Newfoundland-based industry, but a little disappointed in the fact that there was no more move to "enshrine community-based organizations". Furthermore, adjacency applies only to access of the Northern shrimp resource and not to the location of processing facilities. It is the processing sector that will in the long-run generate the greatest benefits for the Economic Zone as a whole.

6.2.2 Subsidarity, Scope, Delegation and Decentralization

In 1998, a community-based organization was allocated a community-based quota for Northern shrimp. Prior to 1998, all Northern shrimp quota and resource allocations were

directed by the federal Department of Fisheries and Oceans. During this research, interview responses from the DFO suggested that the delegation of the community-based quota to a local organization such as SABRI is a critical step in building a cooperative environment between government and the fishing industry. However, according to the Regional Economic Zone, the FFAW and the Government of Newfoundland, the principle of subsidarity presently is not being respected in the management and decision-making process. According to the Provincial Department of Fisheries and Aquaculture, western region, "all management decisions are made by the DFO at the federal level. Many of the groups have "advisory committee" roles and do discuss many aspects of the harvesting and management plans, but the core of the management decisions are set in stone by the DFO long before it is discussed with local communities"

None of the new approaches to stimulating a cooperative environment and community control over the Newfoundland and Labrador Northern shrimp illustrated above (i.e.: adjacency, community allocations, advisory committees, etc..) provide a fundamental challenge to the idea that the government does development for the people, who are expected to respond in acceptance of whatever assistance the government chooses to offer. None challenge the nature of the DFO's role or appropriateness of structures and procedure. Furthermore, none confront the fundamental issues of local resource management and institutions. If developing fisheries are to be successful, according to Pomeroy (1995), these basic issues of government policy to establish decentralized and delegated rights and authority for cooperative frameworks must be recognized. The effectiveness of fisheries co-management is dependent upon the strengths of the heterarchical organization and its ability to command respect from its members and enforce institutional arrangements. While there

appears to be a minor shift toward community allocations, there are many additional management decisions perhaps suitable for increased delegation or decentralization outside the realm of government; resource access, resource monitoring, resource development initiatives and resource conservation measures. Presently, decentralized organizations based on subsidarity in management and decision-making do not exist in the Newfoundland and Labrador Northern shrimp fishery. There appears to be reluctance on behalf of the federal Department of Fisheries and Oceans to relinquish its management and decision-making authority to lower, capable, cooperative organizational arrangements.

6.2.4 Opportunities and Implications for REDBs

The principle of adjacency, for the most part, is being respected in the regulation of the Newfoundland and Labrador Northern shrimp fishery. But further improvements in cooperative arrangements for the Northern shrimp fishery require a change in the present conditions of the subsidarity and scope of management and decision-making. Structures are needed which support regional control over resource use and allocation. The question for the Regional Economic Zone in the cooperative management and regulation of the Northern shrimp fishery is "what decisions are the Zone capable of making?". Recent investigations on coastal fisheries management around the world and in the Southeast Asian region have shown that when left to their own devices, communities of fishers, under certain conditions, can regulate access and enforce rules through their community institutions and social practices to use fisheries resources sustainably (Pomeroy, 1995).

Effective cooperative management of the Northern shrimp fishery is dependent upon the strength of the organization(s) representing the fishing community. Success according to

Pomeroy (1995), is often simply due to the appropriateness of leadership of the organization. One important question for designing cooperative arrangements for the Northern shrimp fishery through the Regional Economic Zone is whether decision-making capabilities can be transferred to and managed by the Regional Economic Zone Board and associated development corporations. According to interviews with Rising Sun Developers, the Town of St. Anthony Municipal Planning Department and SABRI, development corporations, REDBs, or other local organizations presently are not capable of making major resource management decisions in the Northern shrimp fishery. Formal experience and leadership is lacking in terms of making "scientific" resource management decisions such as stock assessment measures. Local decision-making control would be advantageous but only if there is sufficient knowledge. The challenge from the local perspective, according to SABRI, is ensuring that there is sufficient advice and available knowledge to make these scientific and market-based decisions. All vested interests agree that the success of cooperative arrangements in the Newfoundland and Labrador Northern shrimp fishery is dependent upon the strength of the local organization. But at this point development corporations and the Regional Economic Zone do not have the capacity to make such "global decisions"

According to de Vivero *et al.* (1997), fisheries management tasks must not only be orientated towards the solution of extraction-related problems; in addition they must be also structured on parallel and complementary levels such as the formulation of political guidelines, the implementation of such policies - in other words, the measures to facilitate their practice, and their execution. The Regional Economic Zone is perhaps not adequately prepared to make certain decisions in the management of the Northern shrimp fishery such as setting the TAC and stock assessment issues due to inexperience and the lack of available

resources. However, according to responses generated from government and fishers' organizations, fishers, in combination with the guidance of fisheries economic development corporations in the Regional Economic Zone are capable of making decisions regarding resource allocation and conservation measures. According to Rising Sun Developers, "community development corporations in joint with the Regional Economic Zone Board are at the grass roots of the fishing communities and are therefore capable of making and enforcing Northern shrimp quota distribution and fishing regulatory decisions". Furthermore, Northern shrimp quotas are set by the federal DFO, but according the Provincial Department of Fisheries and Aquaculture and the NEDC, "development corporations can be in direct control of resource allocation and are capable of discussing issues including the time frame of fishery, typical vessel size and capacity, daily trip limits and gear selectivity. As explained during an interview with Joseph Kennedy, western representative of the Government of Newfoundland and Labrador Provincial Department of Fisheries and Aquaculture (1998):

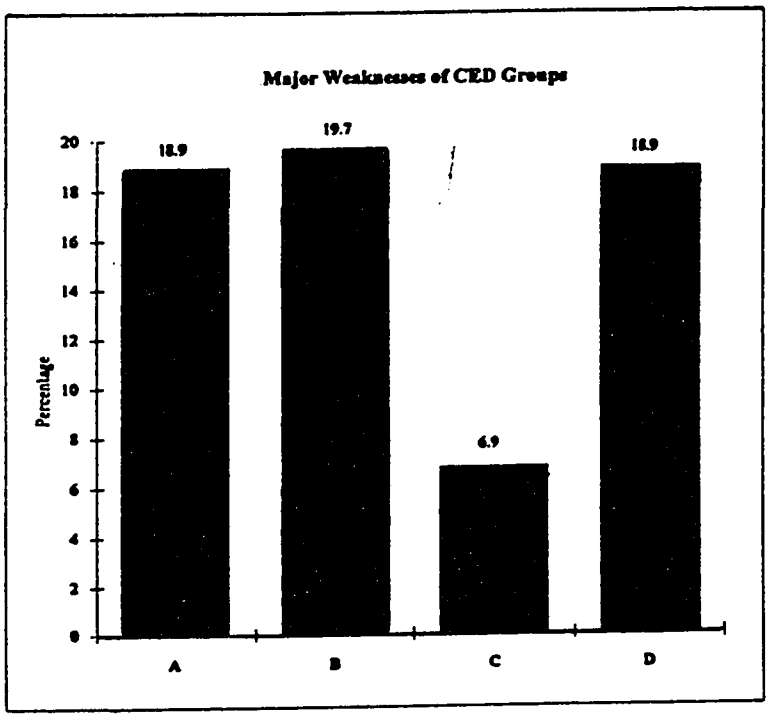
> "Economic Development Boards are capable organizations for participating in the management and decision making process of the Northern shrimp fishery. The Regional Board would very quickly take advantage of a management role to make sure that affected parties are represented and that the most economic benefits possible accrue to the Zone as a whole, and conservation efforts were such that this renewable resource would always be renewed. The REDBs can very effectively decide the gear type, harvesting times and places and also decide an appropriate TAC when provided with the appropriate scientific advice"

While governments may often be willing to call for more community involvement and cooperative participation, they must also establish commensurate rights and authorities and devolve some of their own powers (Pomeroy and Pido, 1995). This is often one of the most difficult tasks in developing cooperative arrangements. Government institutions, such as the

DFO, are not always willing to relinquish their power to lower, capable organizations. As discussed in Section 6.1, by avoiding fragmentation and localism in the delegation of authority and transferring a degree of decision making to the regional scale (REDBs), organizations could be more representative of the different user and non-user groups. The design of proposals for the organization of fisheries on a regional scale tries to stress the importance of achieving a greater degree of decentralization of management so that non-national or central authorities could participate more actively in the decision-taking process affecting the management and development of fisheries (de Vivero, 1997).

The Nordic Economic Development Corporation strongly supports the decentralization of government policies and actions. Decentralization and delegation require structures supporting community control over resource use and allocation. Co-management requires formal leadership and an executive staff (Jentoft, 1989). If the Nordic Regional Economic Zone is to facilitate fisheries co-management and fisheries-related development, it must be familiar with the present conditions of communities in which they are to work (Jackson, 1984). Although development corporations are perceived as effective in addressing the needs of the communities in the Regional Economic Zone, they also have traditionally been perceived as lacking in knowledge regarding local community issues (Fig. 6.3).

It is a goal of the Nordic Economic Zone to focus on the building of this local capacity through the establishment of different relationships with different communities. According to Jackson (1984), with low-capacity communities or organizations, the Zone could facilitate more managerial control over local fisher-related issues while simultaneously fostering the development of local cooperative organizational skills. High-capacity communities or organizations, such as SABRI, could form joint ventures in management, decision making and



A – too much red tape (18.9%)
B – not knowledgeable of local issues (19.7%)
C – lack of funding (6.9%)
D – duplication (18.9%)

Figure 6.3. Major weaknesses of development corporations as identified through public survey (ACOA, Economic Recovery Commission, 1995)

representation to strengthen the capacity of the Zone as a whole in fisheries management and development. Only then will development corporations, fishers' organizations and the Regional Economic Zone be capable of establishing a sense of local ownership and control through cooperative management arrangements.

6.3. Principle # 3 Community Support

Building cooperative arrangements in fisheries management requires the support of the resource users. This requires both the participation of the resource users in management and decision making, and support and collaboration amongst the resource users themselves. If cooperative arrangements for fisheries management are to develop and succeed in Regional Economic Zone 6, there must be some well-established mechanism(s) for ensuring public participation and promoting community collaboration.

6.3.1 Public Participation

At the national level, consultation processes have taken place to provide opportunities for both industry and government participation. The 1996 Atlantic-wide call for industry views and proposals on how to share an increase in quota of the Northern shrimp resource resulted in nearly 160 submissions from individuals, groups, provinces and municipalities across Canada. The proposals were assessed and reviewed at a public meeting in St. John's, Newfoundland in early 1997. Based on this input, the following principles were established (DFO, 1997b):

- conservation of the resource is paramount;
- viability of existing enterprises will not be jeopardized;
- if the TAC exceeds 37,600 tonnes, temporary access will be given to new entrants;
- adjacency will be respected;
- priority will be given to increasing participation of aboriginal people;

- priority access will be given to inshore vessels;
- existing license holders will receive some of the increase in TACs; and,
- employment will be maximized in both harvesting and processing sectors where possible.

Full industry participation has taken place to obtain views on sharing increases in quotas. The majority of responses indicated that the quota increase should be allocated to the inshore fleets. As a result of this increase, new advisory boards were formed within the Northern Shrimp Advisory Committee to represent inshore industry stakeholders of the Northern shrimp fishery in the decision-making process. According to the *Terms of Reference* of the NSAC, the Committee meets and full stakeholder participation is involved under the following conditions:

i) new proposals emerge as a result of updated scientific advice or assessment;
ii) new management regulations are proposed by government or industry; and,
iii) industry conditions warrant a meeting to provide advice to the Minister.

In terms of participation, the key stakeholders in the Northern shrimp fishery are inshore fishers of the Nordic Economic Zone. Although the *Northern Shrimp Management Plan* has expanded the NSAC to represent the new inshore participants of the Northern shrimp fishery, participation at the local and regional level according to the FFAW and the Government of Newfoundland, occurs only with "limited degrees of tokenism". FFAW representatives indicated that the success of the future of the Northern shrimp fishery will only advance if a sense of trust and respect is achieved between the users and the managers of this resource. According to the FFAW, this relationship is far from healthy. "Fish harvesters in all inshore fisheries, not only the Northern shrimp fishery, are frustrated with

the consultation process." At local and regional levels, consultation processes provide limited opportunities for fisher participation.

Local fishers and shrimp industry representatives agree that community-based and user participation in the Northern shrimp fishery is based more on tokenism than anything else. As illustrated in *Section 6.2.2*, most decisions are already "set in stone" by the federal DFO before any consultation or participation occurs. However, the DFO emphasizes a growing degree of citizen power in the Newfoundland and Labrador Northern shrimp fishery. As outlined by the DFO in *Sustainable Development: A Framework for Action* (1998), the DFO rests on a consultative process because "without the support and commitment from our [DFO's] clients, partners, stakeholders and the public, these goals [sustainability and partnerships] will not be achieved". Furthermore, the DFO is "committed to improving departmental relations with clients and partners, and achieving effective participation by clients in decision making, information sharing and program delivery". However, according to the FFAW inshore division, "no one listened to us [fishers] then and no-one is listening to us now". The DFO is perceived as taking the "father knows best attitude" while advising fishers only when decisions are about to be made. Present conflicts in the Northern shrimp fishery, according to the FFAW, have more to do with the lack of user participation in decision making than with shrimp itself.

6.3.2 Community Collaboration

Competition exists between communities in Regional Economic Zone 6 regarding access to Northern shrimp quotas and the distribution of royalties generated by SABRI's offshore quota sales. The community-based allocation of a 3,000 tonne Northern shrimp

quota to SABRI in 1998 resulted in a sense of animosity between communities that are represented by SABRI and those which are not. A district representative of the Nordic Development Corporation suggested that competition exists between the northeastern areas of the Zone [those represented by SABRI] and the remainder of the Zone. Furthermore, according to representatives of the Straits Economic Development Association:

> "The quota last year [1997-1998] could only be fished from areas within Big Brook to Goose Cove. Those fishers seem to be able to gear-up and get their licenses every year while a dozen or so fishers in the western part of the Zone have been trying for a shrimp license for the past twelve years. This doesn't seem to be consistent with the new *Management Plan*. Perhaps it has something to do with the fact that the Provincial Minister of Fisheries is from the eastern coast. That sort of action tears the Zone apart. Quotas for Northern shrimp should have been given to the entire zone. The Zone would be more powerful as a fishing unit if all communities were involved"

The Government of Newfoundland describes the situation in terms of a sense of bewilderment. "Why should some communities (Big Brook to Goose Cove) get their own community-based quota and the remainder of the Zone not get anything?." The response this generated from St. Anthony Basin Resources Inc. was that "it received the additional quota as a result of effective lobbying in previous years". This is consistent with Guerrero (1997), who suggests that generally the larger the area or centre is, the stronger its economic and political potential for growth. Furthermore, SABRI emphasizes that in terms of adjacency, "the St. Anthony area is much closer to the Northern shrimp resource than the remainder of the Regional Economic Zone."

6.3.3 Opportunities and Implications for REDBs

In addition to government and large-scale resource users and processors , there are other stakeholders who have a legitimate right to be represented in the co-management process including small-scale inshore fishers. The degree of involvement, however, is often dictated by the magnitude of the fishery and the nature of its management and regulation style. The standard approach of inviting written responses and suggestions did provide opportunities for a broad range of interests. However, it did not provide adequate opportunities for the local fishers of the Regional Economic Zone to participate directly in the policy and decision making process. It is clear that within the Newfoundland and Labrador Northern shrimp fishery particular sectors, notably the small-scale inshore fishers, need better integration and coordination of their activities in the management and function of the Northern shrimp fishery. In some communities this is occurring through close communications and cooperation among fishers of various communities, organizations and groups (ACOA, Economic Recovery Commission, 1995). In other areas individual organizations such as SABRI may have developed communication efforts and strategic plans, but there is little relationship to neighboring communities or the Zone as a whole. Conflict due to inadequate participation, excess competition and feelings of being left out of the fishery characterize the end result.

Development corporations are perceived to be effective in improving local participation and communications with governments. In a recent survey conducted by the Task Force on Community Economic Development in Newfoundland and Labrador, eighty-five percent of respondents agreed that development corporations and agencies are effective institutions in improving participation and communication with government (Fig. 6.2b). Participation and

communication are not only important at the higher managerial levels between the Economic Zone and governments. Participation and communication are important prerequisites for collaboration among resource users and fishing communities within the Regional Zone.

One of the fundamental goals and objectives of the Nordic Economic Zone is to be competitive regionally, provincially and in world markets. "To improve our prospects for growth and development, and to maintain and expand local and export markets, the Zone must diversify its economic base by producing goods and services that are nationally and internationally competitive in price, quality and service" (NEDC, 1997). In terms of the Northern shrimp fishing industry, this can only be accomplished when a sense of community or community of communities is achieved. A statement by the Great Northern Peninsula Economic Development Corporation (1990) clearly indicates the importance of establishing communication channels and community collaboration:

> "... the success of community-based development corporations is directly linked to an organization's ability to develop and maintain open communications channels with all the groups involved or affected, both within the region and outside the region"

To channel participation and community collaboration in the Northern shrimp fishery, and thereby enhance the chances for success, there is a need for a participatory focus and strategic leadership. The Nordic Regional Economic Zone presently does not have the mandate nor the resources to represent all interests in the fishery or to take on full responsibility of facilitating a co-management arrangement. However, the Zone can play a vital role here through integrating the needs of the fishing community in strategic planning and management through the promotion of community collaboration and participation. Economic development corporations, functioning in part as cooperative fisheries economic

development and management corporations, can help build the local capacity of each community to participate and to make informed choices about the management and regulatory decision most appropriate to the local context (Jackson, 1984) The region, as defined by the Nordic Economic Development Corporation, is a "community of interests". One of the primary functions of Regional Economic Zone in this context is to provide that sort of focus and leadership (Fig. 6.4). It has been suggested that if communities and fishers' organizations are not able to meet the challenge of cooperation, it might be better to do nothing than to act without a collective purpose.

6.4. Principle # 4 Planned Process

Cooperative arrangements for the Newfoundland and Labrador Northern shrimp fishery will not develop successfully without a clear planning process. This planning process must be strategically based on local goals, objectives and knowledge. Furthermore, the institutions involved in the Northern shrimp fishery, as well as the planning process itself, must be open to and able to adjust for unexpected surprise.

6.4.1 Long-term, Goal Seeking Processes

According to the participants of *Development as if We Plan to Stay* (1992), part of the problem with Newfoundland's inshore fisheries is that there is no clear plan for the future of the industry. Certainly there is no clear plan which takes into account the needs of fishers and the hundreds of fishing communities which depend on the resources. The long term needs of fishing communities have never been the dominant factor around which fisheries policies were developed. Traditionally fisheries policies have not adequately represented the interests of long term community and resource development. Inshore fishers who participated in

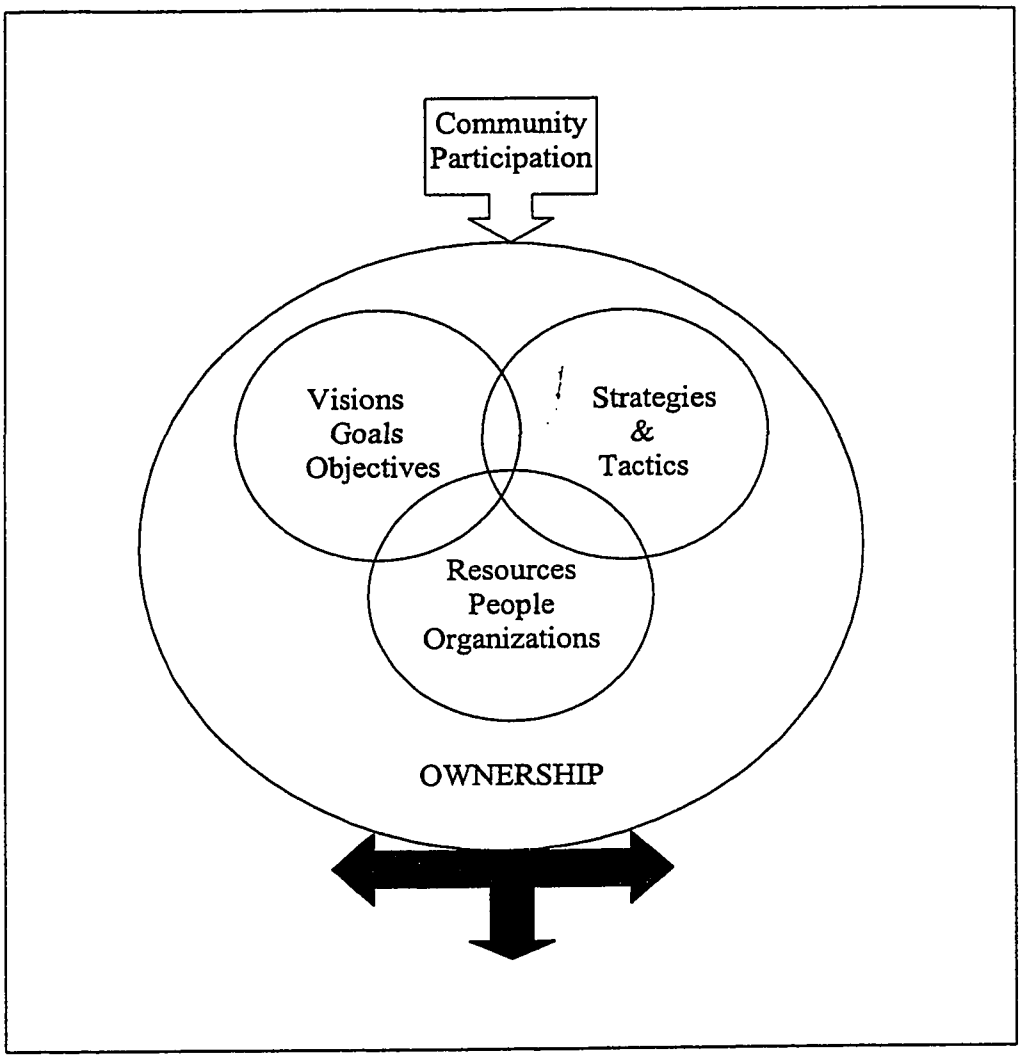


Figure 6.4. The community in strategic planning and management (ACOA, Economic Recovery Commission)

Development as if We Plan to Stay strongly recommend that the government of Newfoundland and Labrador begin immediately to formulate a comprehensive and future-oriented fisheries policy which will seriously address the issues and concerns of inshore fishers and their communities.

The release of the 1997 *Northern Shrimp Management Plan* included several long-term and general management objectives. These goals are set at the national level and pertain to:

- the maintenance of effective resource conservation and optimization of exploitation and long-term development;
- the provision of fair access and equitable sharing of the Northern shrimp resource;
- the promotion of the development of a self-sustaining industry; and,
- the development of good fishing practices and the collection of accurate resource data.

While the *Management Plan* outlines these long-term goals and general management objectives, no sense of direction is provided regarding how to achieve these goals. Furthermore, goals and objectives for the Northern shrimp fishery are outlined at the national level and do not reflect the immediate or long-term needs of local fishing communities. In addition to resource conservation, fishing communities in northern Newfoundland are concerned with long-term development funds to build local capacity, increased community based quotas, a regional level of management control, and then the development of alternative fishing gears and technologies to promote conservation of the resource.

6.4.3 Adaptive Capacity

An explicit and deliberately adaptive approach is not evident in the overall management of the Northern shrimp fishery. Neither is there evidence of flexible and

decentralized institutions which are able to absorb perturbations and quickly adapt to changes in gear type, fleet size or the location of delivery ports as uncertain resource and market conditions may demand. However, a key indicator of an adaptive management plan or process is the implementation of an ongoing monitoring program.

The status of the Northern shrimp resource in SFA 6 is determined by monitoring fishery performance, the distribution of fishing effort and the age, size and sex composition of shrimp stocks. It is the responsibility of the industry to have all shrimp landed at the main port (St. Anthony) monitored through a dockside monitoring and observer coverage program. This requirement will continue for the duration of the three year management plan with all costs of the monitoring effort being the responsibility of the industry (DFO, 1997b). As stated in Annex C of the 1997 *Northern Shrimp Management Plan*, "as a condition of license, fishers will be *required* to carry observers when *requested* by the Department of Fisheries and Oceans". Specific monitoring of fishing activities as outlined by Section 6.2 of the *Management Plan* include:

- observer coverage on inshore vessels involved in the temporary fishery is at a level of ten percent for 1997, at industry's expense, and will be adjusted accordingly in subsequent years;
- dockside monitoring of all shrimp landed from vessels fishing under the temporary sharing arrangement is required, at the industry's expense; and,
- completion and submission of accurate fishing and production logbooks and purchase slips is required.

The ongoing collection of data and information through the monitoring programs suggests the adoption of an active adaptive approach to the biophysical management of the Northern shrimp resource. Active adaptive management uses data at each time to construct a range of alternative response models and policy choice is made that reflects some computed

median between expected short-term performance and long-term value of understanding which alternative model or policy is best (Walters and Holling, 1990). However, additional development is needed in setting a clear direction for the future development of the Newfoundland and Labrador Northern shrimp fishery. While programs such as dockside monitoring display the intent of an adaptively managed fishery, the download of financial responsibility for dockside monitoring on the local industry does not characterize desirable partnerships for fishers. Furthermore, while the 1997 *Northern Shrimp Management Plan* promotes the accretion of the Northern shrimp fishery and the fishing industry on a "sustainable basis", it provides no mechanism to monitor its development. Alternative institutional arrangements are needed to not only monitor the resource base in cooperation with government and resource users, but also to monitor the development of the resource sector.

6.4.4 Knowledge-based

The incorporation of local resource user knowledge is essential for effective fisheries management in general, and for establishing partnerships and agreements between the resource users and resource managers. Large-scale scientific assessments are often inaccurate in determining local variations in the fishery (Hutchings and Myers, 1994). Based on an analysis of the *Northern Shrimp Fishery Management Plan* and additional fisheries management documents, standard management approaches place little to no value on the knowledge systems of local fishers. The Newfoundland and Labrador Northern shrimp fishery is managed primarily by traditional scientific methods including stock assessments and Total Allowable Catch. TACs are adjusted based on scientifically-observed changes in

the status of the resource. The only avenue for the possible integration of local fishers' knowledge is through the use of fishers' logbooks in the monitoring program. Annex C of the 1997 *Northern Shrimp Management Plan* states:

> "All fishers are required to complete and submit logbooks under Section 6.1 of the Fisheries Act. Logbooks must be completed accurately in accordance with the instructions provided."

According to a discussion with the DFO Science Branch, Newfoundland, a similar program has been in place with the Newfoundland capelin fishery since the early 1980s. Information is continually collected by means of logbooks and telephone surveys to provide biological and /or assessment advice on fish stocks. Similar programs are in place and will continue to be implemented for the inshore shrimp fishery.

The easiest way to incorporate fishers' knowledge into the management of the Northern shrimp fishery is through cooperation in fisheries data collection. According to the FFAW, however, collecting fishers' knowledge through mandatory logbooks does not suffice. Local fishers want to be involved in data collection for the Northern shrimp fishery similar to that of the sentinal fishery. However, fishers work, data and information is often being ignored by science, primarily due to the lack of trust. Bill Broderick, inshore vice president of the FFAW, perhaps summarized the fishers' perspective best at the workshop on *Bringing Fishers' Knowledge into Fisheries Science and Management* when saying:

> "The fish harvesters are the true PhDs of the fishing grounds...why constrain ourselves to models that have failed us in the past and continue to do so"

6.4.5 Opportunities and Implications for REDBs

Fisheries resource management and development opportunities traditionally have come from outside the local communities. Consequently, long-term protection and management of resources have been secondary to extracting maximum short-term gains, with little regard for the people who depend on these resources for their livelihood (ACOA, Economic Recovery Commission, 1995). Federal and Provincial fisheries departments have struggled over the years to address this resource vulnerability, but the current situation reveals the lack of success to date.

An analysis of the Northern shrimp fishery illustrates that further development is needed in setting a clear direction for the fishery and the fishing industry. The long-term management goals and objectives stated in the 1997 *Northern Shrimp Management Plan* provide no sense of direction or strategic plan regarding how to reach these goals. The strategic planning initiatives of economic development corporations illustrate the desired components of an effective planned process for fisheries management. The primary function of Regional Economic Development Boards is "to provide that focus and leadership" (ACOA and The Economic Recovery Commission, 1995). Strategic planning is more than a long-term development initiative, it is also process (Fig. 6.5).

Increasingly local organizations are realizing that effective, long-term operations demand strategic coordination and a focused approach. The strategic planning process begins with the development and articulation of a *vision*. Regarding the Newfoundland and Labrador Northern shrimp fishery, establishing this vision must be based on the values and identity of fishers and communities within the Regional Economic Zone. The strategic planning process develops trust and cooperation among fishers and communities as common

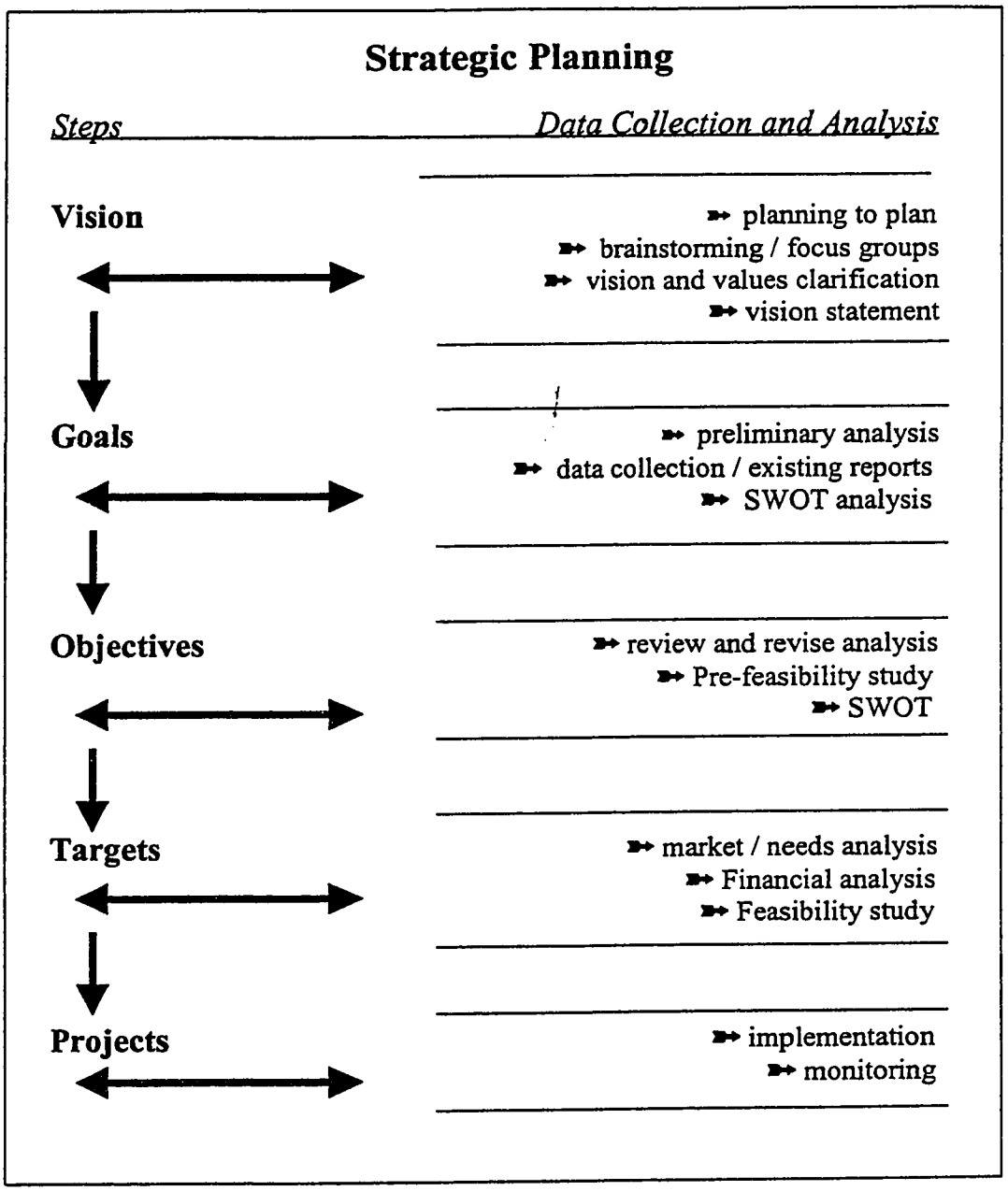


Figure 6.5. The strategic planning process (ACOA, Economic Recovery Commission, 1995).

values are identified. These commonly understood values lead to the development of distinct long-term *goals*. For the Nordic Economic Development Corporation, these long-term goals include "securing the long-term sustainability of the Northern shrimp resource while simultaneously ensuring the long-term economic development of the Zone through securing additional quotas and diversifying spin-offs into developing alternative fisheries as well as non-fisheries related activities". For other development associations, these goals include the maximization of long-term employment and the establishment of a long-term fisheries development fund. Once the various goals are realized, the Regional Development Board can begin a detailed examination of local strengths and weaknesses, and external opportunities and threats to determine realistic *objectives* and *targets* to achieve those goals (ACOA, Economic Recovery Commission, 1995).

The Nordic Economic Zone recognizes that no matter how well fisheries co-management and development plans are researched and supported by the local communities, there is always the risk of complications and failure due to unforeseen circumstances. Strategic planning initiatives for the Zone support an adaptive approach (ACOA, Economic Recovery Commission, 1995). In terms of planning for the management and regulation of the Northern shrimp fishery, development corporations, fishers' organizations and governments alike must be flexible with successes and failures contributing to an evolving vision and revised goals. This requires the implementation of an effective monitoring program to provide continuous feedback to fisheries management and development initiatives. While the current *Northern Shrimp Management Plan* provides a framework for monitoring the biological aspects of the fishery, co-management arrangements offer an additional source of ecological data through the incorporation of user-based knowledge. The strategic planning processes of development corporations, in addition providing focus and

leadership in fisheries management and development, also provides an effective framework to monitor and evaluate the progress of socio-economic fisheries development initiatives (Figure 6.6). By monitoring fisheries development and the evolution of cooperative management arrangements, visions, goals, objectives and targets can be adjusted accordingly as knowledge is gained.

6.5. Chapter Summary

This Chapter has provided the results of an analysis of the institutional constraints of the present Newfoundland and Labrador Northern shrimp fishery's management arrangement. Through application of the normative framework developed in Chapter 4, the present management structure was evaluated and opportunities discussed regarding the roles of the Regional Economic Zone and fisheries economic development corporations. Due to major restructuring in the Newfoundland and Labrador Northern shrimp fishery's management arrangements and processes, the focus of this evaluation was on *process* rather than *substantive* issues. Nevertheless, the overall benefits of effective institutional arrangements for co-management become more concrete when discussed in terms of one or more secondary goals including reducing conflict through participatory democracy, encouraging community-based development and ensuring the sustainability of the fishery resource.

Sustainability is a major issue for all resource users and managers. The focus of the *Northern Shrimp Management Plan* is on ensuring the sustainability of the resource. This is reflected by the 7,450 tonne reserve quota which has not been allocated to any shrimp fishing fleet or organization. Community-based development, although not a priority for the DFO, is implemented at the local level through royalties generated through the allocation of community-based quotas. SABRI, which received a significant Northern shrimp community allocation,

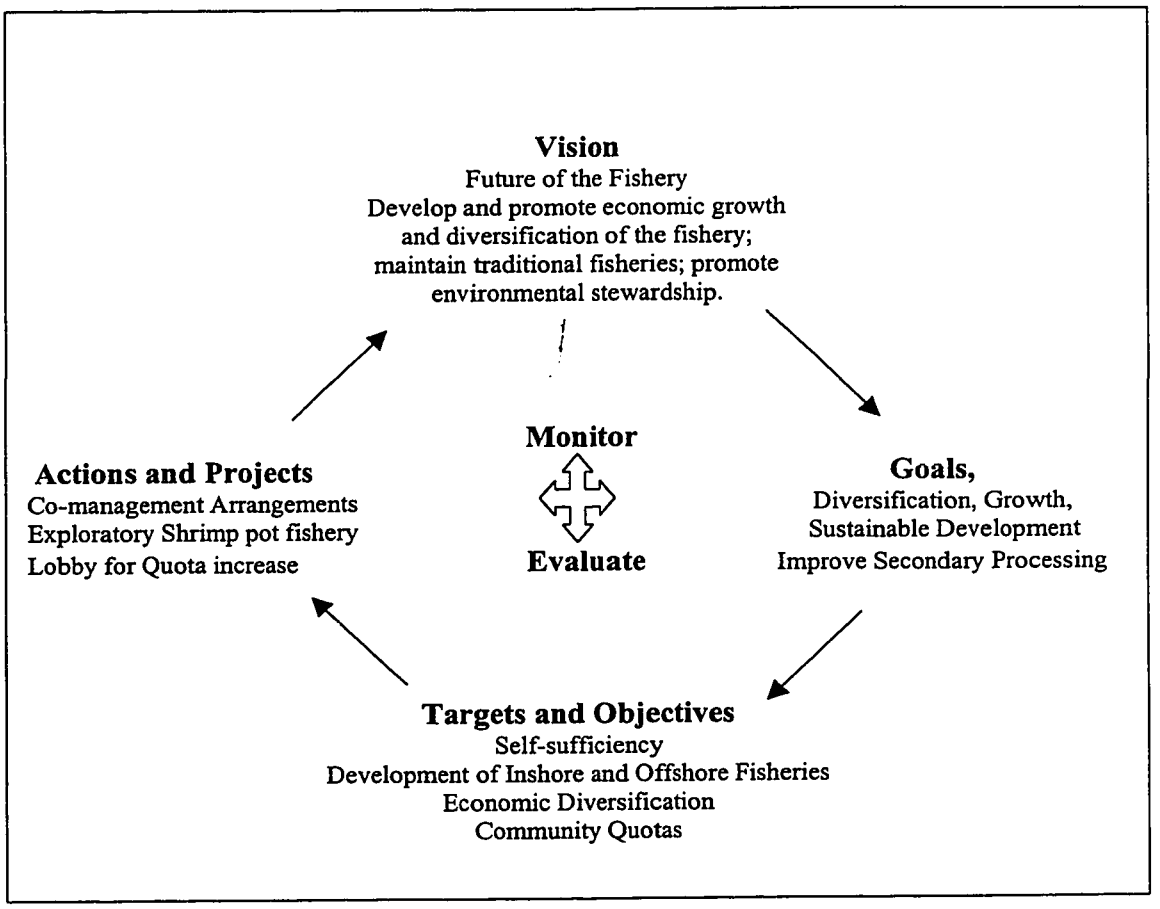


Figure 6.6. Role of monitoring and evaluation in strategic planning and management of the Northern shrimp fishery. (Adapted from ACOA and the Economic Recovery Commission, 1995)

has decided to distribute this quota to larger offshore processors and invest the royalties generated in alternative economic development opportunities. The main substantive concern, which remains unaddressed, is equity. Representatives of particular interests, notably development corporations, should accommodate the full diversity of those interests for the management process to be fair. In this regard, proposals aimed at better organization of the fishing industry have to consider local variations and differences.

The Northern shrimp fishery is relatively new by Canadian standards and is presently undergoing a major restructuring. The implementation of a community-based quota has only been in place for a short time. Given these factors, and the presence of a major restructuring in the Province's new approach to economic development, it is difficult to assess the *substantive* issues related to the Northern shrimp fishery and the potential institutional opportunities for development corporations at this time. However, an inclusive and integrated approach is warranted to interconnect the rationalization, conservation and community paradigms (Figure 4.3, Table 4.2) in the cooperative management and regulation of the Newfoundland and Labrador Northern shrimp fishery.

It has been argued throughout this Chapter that many of the elements of *process* necessary for facilitating effective cooperative fisheries management and development arrangements are lacking in the present institutional structure of the Newfoundland and Labrador Northern shrimp fishery. However, an analysis of the institutional characteristics and goals of development corporations illustrate that regional and local economic development corporations could function effectively as cooperative fisheries economic development organizations. The present institutional structure and process characteristics of development corporations display many of the characteristics desirable for facilitating the

cooperative management and development of the Newfoundland and Labrador Northern shrimp fishery. The following chapter provides a summary of the main institutional constraints of the present management system discussed in this chapter and the characteristics of cooperative fisheries economic development corporations which make them desirable alternative institutional arrangements for facilitating cooperative fisheries management and development.

Chapter 7

Summary Discussion and Conclusions

7.0 Introduction

Chapter 1 identified that the intent of this research was to evaluate the present institutional organization of the Newfoundland and Labrador Northern shrimp fishery and to identify institutional opportunities for fisheries economic development corporations in facilitating a cooperative management approach. The purpose of this concluding Chapter then is fourfold. First, this Chapter reviews the key concepts of the literature regarding cooperative fisheries management and institutional arrangements. Second, a summary of the main institutional constraints surrounding the management and development of the Newfoundland and Labrador Northern shrimp fishery is presented. Third, a review of the institutional characteristics and opportunities of cooperative fisheries economic development corporations in the management and development of the Northern shrimp fishery is presented. Finally, the results of the case study are set in the broader context of cooperative fisheries management and institutional arrangements research which serves as a point of departure for identifying future research needs.

7.1 Fisheries Co-management and Institutional Arrangements

At the outset of this study a review of the literature was presented to realize the first objective of this thesis, to examine the fundamental concepts of cooperative fisheries management and to set fisheries co-management within the context of institutional arrangements research. Co-management is not altogether a new concept in fisheries management. Although the top-down, synoptic approach is still the dominant approach to

fisheries management, its dominance is being challenged by alternative arrangements in which centralized governments play a less technocratic role and in cooperation with local fishers and fishers' organizations. As illustrated in Chapter 2, one of the central themes of sustainable development that emerged from the *Brundtland Report* was that communities should have greater access to and control over decisions affecting their local resources. This access and control must be in cooperation with political, economic and administrative functions. Essentially, co-management is the application of this principle of sustainability to fisheries management.

Fisheries co-management then is broadly defined as the sharing of responsibility and authority between government and fishers to manage a particular fishery. It is a means of achieving partnerships between the affected stakeholders and circulating some of the benefits derived from effective partnerships back into the local communities. There is no single form of fisheries co-management, it is not an "either or" approach. Co-management is simply a form of shared management and decision-making responsibility that lies somewhere in between and is distinguishable from the characteristics of centralized government management and community self-management (Fig. 2.4).

Fisheries management, like resource management in general, is characterized by change, conflict, complexity and uncertainty. However, it was argued at the outset of this study that the majority of problems in fisheries resource management are fundamentally institutional problems and therefore warrant institutional solutions. Institutional arrangements provide both opportunities and constraints for cooperative fisheries management. The prospects of success of cooperative fisheries management, therefore, will depend on whether such arrangements can function as viable institutions. It has been argued that limitations in

institutional capacities rather than analytical or technical capacities constitute the main barriers to improved resource planning and management (e.g.: Ingram *et al,* 1984; Fernie and Pitkethley, 1985; Watson *et al,* 1996). A fundamental institutional problem with cooperative fisheries management is that its application has traditionally been limited to aboriginal fisheries, isolated fisheries with a relatively homogeneous composition, or small-scale fisheries characterized by community self-management. Developing fisheries that are heterogeneous in composition and are exposed to external market conditions and economic diversification demand a different approach to co-management than the traditional institutional and organizational design. The central argument presented in this study is not whether there is a need for a cooperative approach to the management and development of such fisheries, but rather what is the appropriate organizational framework?

It was discussed in Chapter 4 that establishing an appropriate organizational framework for cooperative fisheries management is best established through the employment of a broad set of criteria derived from the evaluation of research from a variety of academic fields. Notably, information from evaluative criteria for institutional arrangements, preconditions for cooperative management, principles of economic development, ecosystem-based management and systems theory were adopted to develop the ideal critical conditions and normative framework for evaluating institutional arrangements for fisheries co-management. It was suggested that ideal institutional arrangements for cooperative fisheries management and development can be presented as elements of *process* and *substance* (Table 7.1). Process refers to the legitimacy, functions, and decision-making processes of the organizational structure and includes criteria regarding interactive organizations, local control, community support and planned processes. Substantive values, which define the

Table 7.1. Summary of ideal critical conditions characterizing effective institutional arrangements for cooperative fisheries management and development.

Interactive organizations. • Cooperative arrangements should be established on horizontal rather than vertical scales. • Advisory organizations are needed that are in constant contact with the social field of the domain yet are respected at provincial and national management and decision-making levels. • Cooperative arrangements and advisory organizations function best with a lean number of members that are represented both in terms of geography and function.
Local control. • Institutional arrangements for cooperative fisheries management should promote the local ownership and control of the resource by employing, among other things, the fundamental principle of adjacency. • Management and development decisions should be made by the lowest capable organizations that are in sync the needs of local variations in the fishing industry. • Management and decision-making authority should not only be decentralized but also delegated to "lower-level" organizations; some management decisions lend themselves to decentralization while others are best suited to delegation.
Community support. • Management and decision-making arrangements should provide an effective framework for public participation at local, regional, provincial and national levels; ideal participation occurs with the actual sharing of power. • Institutional organization must promote a sense of "community of communities"; community competition for resource access should be discouraged and discrete fragmentation in terms of quota sharing and resource access should be avoided.
Planned process. • *Management* and development plans must be goal-seeking and provide a clear sense of direction on *how* to achieve those goals. • Management and development strategies must be sustainable and developed for the long-term benefits of the fishery and the fishing community. • Plans and strategies must be adaptive to changes in environmental and socio-economic circumstances; biophysical monitoring, socio-economic monitoring and development monitoring must all be a part of this plan. • Scientific management plans and long-term development plans must directly incorporate the knowledge of local resource users to minimize conflict and to increase knowledge.

underlying elements in terms of management and institutional arrangement objectives, or the desirable states of the process, include criteria regarding substantive diversity and holism. Through the application of this framework to the Newfoundland and Labrador Northern shrimp fishery, the second objective of this study was realized; institutional constraints and opportunities were identified allowing various prescriptions for improvement to be put forth.

7.2 Institutional Constraints

Institutional arrangements surrounding the Northern shrimp fishery are characterized by complexity, conflict and uncertainty and are a good example of a resource meta-problem (Trist, 1983). Recent news has highlighted the growing concern that the Northern shrimp fishery, while receiving significant increases in quotas, is in serious difficulty in terms of management effectiveness and clear directions for the future are not forthcoming regarding improved management arrangements. The developing Northern shrimp fishery offers signs of hope for the fishing industry and local and regional economies of the Nordic Regional Economic Zone. The challenge for resource managers and analysts is to facilitate the development of institutional arrangements for fisheries co-management to deal with the inherent institutional constraints of the present management system.

Within this evaluative institutional framework it was noted that during 1997 – 1998 significant progress had been made in terms of developing cooperative management arrangements for the Newfoundland and Labrador Northern shrimp fishery. Key developments in the shrimp fishery include an inshore expansion, the development of a Northern Shrimp Advisory Committee and the implementation of a community-based quota. Nevertheless, this evaluation also identified a number of institutional constraints to developing effective

Table 7.2. Institutional constraints of present Newfoundland and Labrador Northern shrimp fishery management arrangements.

Present management arrangements are characteristic of *fragmented organizations.* • Hierarchical arrangements; work well when task is simple but perform less efficient when faced with complexity. • Promote nationally associated advisory organizations (NSAC) with little identification with the local scale. • Lack of functional and spatial representation. • Large scale organizations with diverse memberships; rely on aggregation as opposed to integration.
Present management arrangements promote *national bureaucratic control.* • Resource perceived as nationally owned and managed. • Centralized decision-making arrangements. • Resource management decisions are removed from the local resource user context.
Present management arrangements show a *lack of community support.* • Framework for participation is aimed at large industry and corporate organizations at the national and provincial level. • Display inconsistent resource allocation to provinces and communities. • Participation based on tokenism.
Present management arrangements display a *synoptic* planning approach but *lack in direction.* • Planning and management goals are set at the national level. • Little direction provided in terms of the means to achieve desired goals and objectives. • Long-term goals do not necessarily reflect the interest of the community and resource users. • Monitor biophysical aspects of the fishery but prescribes no monitoring regime for social and economic aspects or for fishery development. • Lack of cooperation and trust in the integration of user-based knowledge into fisheries science and management.

cooperative management arrangements, including fragmented organizations, the separation of decision-making from the resource user context, a general lack of community support, and a synoptic planning approach based on national goals which lack in clear direction for local resource users (Table 7.2).

7.3 Institutional Opportunities

It is argued here that there is no need for a complete institutional restructuring to overcome these constraints in present fisheries management arrangements. Rather, processes and mechanisms are needed to improve cooperative fisheries management to link decision making organizations in the Northern shrimp fishery with the local fishing communities and to transfer a degree of responsibility to the regional level. Complete institutional restructuring may take years to complete and tie up valuable resources which could otherwise be used to develop more effective and efficient cooperative management processes. Rather than a complete institutional restructuring, the institutional opportunities provided by the Province's new approach to economic development could facilitate an effective and efficient cooperative fisheries management arrangement.

The developing Northern shrimp fishery is economically diverse and relatively heterogeneous in composition. These conditions demand a different approach to cooperative fisheries management than traditional co-management arrangements. A cooperative management system is needed that brings the industry and government together at the regional scale while simultaneously involving local communities and the private sector in fisheries management and development initiatives. The Nordic Regional Economic Zone and associated development corporations, functioning in part as cooperative fisheries economic

development corporations provide a number of institutional opportunities to facilitate such co-management arrangements. A regional approach to fisheries co-management provides a middle ground to mediate the traditional management paradigms which plague current institutional performance in the Northern shrimp fishery (Fig. 7.1). The institutional opportunities and characteristics of fisheries economic development corporations in facilitating the development of a cooperative Northern shrimp fishery are illustrated in Table 7.3 and can be summarized as follows:

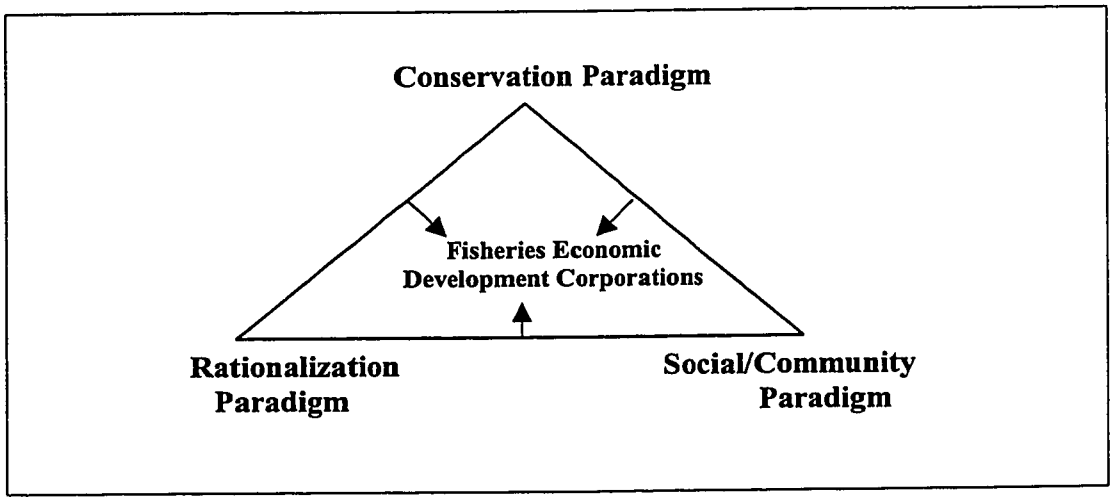


Figure 7.1. Balanced paradigm triangle (Adapted from Charles, 1992)

Table 7.3. Strengths and opportunities of development corporations in facilitating a cooperative fisheries management arrangement.

Cooperative fisheries economic development corporations are *interactive organizations.* • Institutional panarchies; avoid centralized hierarchies but discourage discrete localism. • Perceived as effective advisory organizations in providing communities with information and support. • Emphasizes the need to relate resource concerns to the local community. • Lean organizations: easily identified by the community and support the streamlining of government structure and policy.
Cooperative fisheries economic development corporations encourage *local control.* • Support principle of adjacency in resource access. • Encourage a greater degree of decentralization of government functions so non-central organizations can participate more in actively in decision-making. • Represent the lowest capable organizations in fisheries management and decision-making. • Remain in constant contact with the social field of the domain. • Proven successful in forming political guidelines, implementing policies and measures to facilitate their practice, and developing alternative fisheries.
Cooperative fisheries economic development corporations facilitate *community support.* • Provide an institutional framework within which to promote public participation in planning, management and decision-making. • Proven success in integrating and coordinating local and regional activities. • Integrate the needs of fishing communities through community collaboration, strengthening the cohesiveness of the regional zone.
Cooperative fisheries economic development corporations are based on *planned processes.* • Strategic Economic Plans support long-term planning and development of fisheries resources. • Recognize the possibility of unexpected surprise; institutional arrangements are designed to be adaptive to changes in resource and market demands. • Zonal vision for the future of the fishing industry is based on local values and the identity of the coastal fishing communities.

First, the institutional arrangement of the Province's new approach to economic development is based on the principles of interactive organizations. Interactive organizations are fundamental to the development of effective fisheries co-management arrangements. The traditional hierarchical structure of fisheries management has provided limited opportunity for consultation and participation at the local level. Coordination and interaction for the management of the Northern shrimp fishery has primarily occurred at the national level involving the NSAC and is particularly fragmented at the local community level. Community based organizations such as SABRI are too few in number and operate in isolation. As the Northern shrimp fishery expands to include the inshore component, there is a growing need for the development of advisory organizations operating in close contact with the social field of the domain and interacting with higher level organizations on panarchical scales. The essence of successful interactive institutions is an ability to span across heterarchical levels in space and time (Gunderson *et al.*, 1996). The goal should be the effective development of such interactive arrangements, cooperative in terms of both process and structure. This interaction results in the strengthening of policy and its effective implementation (White, 1969).

It is a mandate of the Nordic Economic Zone to promote a viable and sustainable fishing industry (NEDC, 1997). This is reflected in their coordinated and cooperative approach to fisheries development rather than social fragmentation. Furthermore, development corporations are lean advisory organizations that are perceived as effective in relating fisheries resource management concerns to the local community. Fishers' organizations that are relatively small in number and geography have stronger and more efficient strategic and structural capabilities (Nielsen and Vedsmand, 1997). According to

Kuperan and Abdulah (1994), such organizations which remain in constant contact with the social field of the domain are best in fulfilling cooperative management and advisory roles.

Second, the normative framework developed in Chapter 4 suggests that decisions affecting peoples' lives should be made by the lowest capable organizations. Reforms are required for management and decision-making processes at the local level. Local fishing communities and fishers' organizations that are capable of making management and regulation decisions should be delegated to do so. The implication is that trade-offs must be made between the DFO and the local shrimp fishing industry. The DFO must be willing to relinquish a degree of its management authority to local organizations and local organizations must be willing to accept full responsibility for the consequences of their decisions. In the Newfoundland and Labrador Northern shrimp fishery, the lowest capable organizations to make fisheries management and development decisions are economic development corporations. Fisheries economic development corporations could encourage a greater degree of decentralization in government structure and policy so that non-central institutions can participate more actively in the decision-making arena. While the results revealed that fisheries economic development corporations may not be situated to make scientific resource management decisions, they are capable of providing community information and support (ACOA, Economic Recovery Commission, 1995). The formulation of political guidelines, implementation of policies and the facilitation of their practice and enforcement are vital for facilitating the development of cooperative fisheries management arrangements; roles that development corporations are capable of filling (de Vivero *et al.*, 1997).

Third, development corporations provide an institutional framework at the local and regional level which promotes public participation in planning, management and decision-

making. While some opportunities for public participation are already provided through the NSAC, a policy referral system directed at the local level would encourage further consultation. At present, the participatory process is directed by large organizations at provincial and national levels. It is recommended that the process be "focussed" to include local and community-based organizations which are in direct contact with the resource base. Public participation and community collaboration are essential for fisheries co-management. While industry participation does occur at provincial and national levels, fisheries economic development corporations could provide an institutional framework within which to promote participation at local and regional levels. Dubbink and Vilet (1996) suggest that in order for co-management arrangements to develop successfully, stakeholders at local and regional levels should be more active and involved in the development and implementation of policies. Furthermore, establishing a "community of communities" as defined by the Nordic Economic Zone, will lead to the development of stronger fisheries relations, both provincially and in world markets.

Fisheries development organizations have proven successful in the past, for example the Port au Port Scallop Aquaculture Cooperative, in promoting community collaboration in resource development thereby strengthening the cohesiveness of the regional zone. In addition to improving the participatory process, progress is needed in encouraging community collaboration. Successful lobbying at the local level will only occur when a "sense of region" or "community of communities" is achieved within the fishing industry and the Nordic Economic Zone.

Fourth, a sense of direction is needed for the future of the Newfoundland and Labrador Northern shrimp fishery. Effective cooperative fisheries management requires

goals, objectives and a strategy to achieve those goals. It is recommended that the planed process of establishing effective institutional cooperative arrangements in fisheries management be operationalized through long-term fisheries resource management plans and objectives. The *Northern Shrimp Fishery Management Plan* indicates clear management goals and long-term development objectives. However, little direction is provided in terms of *how* to achieve these goals. It is argued here that there is a need for the development of a strategic plan for the future of the Northern shrimp fishery. This plan should take advantage of local knowledge systems and reflect an active adaptive approach. Despite present monitoring programs, fisheries managers tend to adopt a precautionary rather than a fully adaptive approach to resource management. However, uncertainty is always likely to exist and understanding will be gained largely from experimentation. Consequently, while employing a precautionary approach, policy makers should be prepared to implement experimental measures for both biophysical and human dimensions of fisheries management as the pattern of successes and failures unfold. Long-term management plans for the Northern shrimp fishery must be based on local and regional needs as identified by economic development corporations and developed through strategic planning approaches. As indicated in Chapter 6, it is recommended that fisheries management and development initiatives adopt a strategic planning approach as illustrated by the Nordic Economic Zone. Among the long-term goals and objectives of the Zone for the Northern shrimp fishery are the development of boards of directors, long-term fisheries development funds and strategic management plans. As illustrated in the Zone's *Strategic Economic Plan*, long-term fisheries planning and development initiatives for the Northern shrimp fishery are based on local values and identities of coastal communities. Furthermore, as indicated in the Zone's SEP, established

goals and objectives for fisheries management and development must be guided by an adaptive and knowledge-based approach if they are to account for local variations and unexpected surprise in resource and market conditions.

Finally, the substantive values associated with co-management should be treated as guiding principles for the development of effective institutional arrangements. In other words, secondary goals such as community-development, equity, sustainability, and conflict management should represent *means* to an end rather than *ends* in themselves. As discussed earlier in this thesis, there is some cause for optimism in this regard. The evaluative framework presented in this paper stresses the importance of the fundamental characteristics of cooperative management and the increasingly important roles of local fishing communities and organizations. Cooperative processes to fisheries management do exist in the mindset of fisheries managers and are ever-increasing in terms of the local shrimp fishing industry. On the other hand, the history of top-down management and control of the Northern shrimp fishery will undoubtedly influence how institutions and organizations approach cooperative management strategies and how the fishing industry perceives the effectiveness of present fisheries management arrangements.

7.4 Conclusions and Recommendations for Future Research

This paper illustrates that institutional arrangements are an important dimension of the cooperative management of fishery resources. Fisheries resource management problems are often problems concerning management processes rather than fish itself. As illustrated by the example of the Newfoundland and Labrador Northern shrimp fishery, cooperative arrangements are both encouraged and constrained by institutional characteristics. Indeed,

developing co-management arrangements for fisheries management is fundamentally an institutional problem.

It was previously argued in this thesis that none of the new approaches to stimulating a cooperative environment and community control over the Northern shrimp fishery (i.e.: adjacency, community allocations, advisory committees, etc..) provide a fundamental challenge to the idea that government does development for the people, who are expected to respond in acceptance of whatever assistance the government chooses to offer. None challenge the nature of the DFO's role or appropriateness of structure and procedure. Furthermore, none confront the fundamental issues of local resource management and institutions. Fisheries managers and the Newfoundland fishing industry are perceived as coming together in resource management and regulation, but as described by the managing director of the Canadian Centre for Fisheries Innovation, this coming together is "in a fashion of two ships passing in the dark". It is argued here that there is no need to undergo a complete restructuring of institutional organization in order to facilitate an improved cooperative management arrangement. Rather, processes and mechanisms are needed to link management and decision making responsibilities of the DFO with the capabilities, needs and local capacity of fishing communities.

The Newfoundland and Labrador fishery has gone through an adaptive cycle similar to that described by Holling (1986) and depicted in Figure 3.1. The Newfoundland and Labrador fishery evolved from a period of policy development and implementation in the 1970s and 1980s, when control was sought over foreign over-fishing off the Grand Banks of Newfoundland, to the complete Canadianization of the Newfoundland fishing industry at the federal level. However, recent events in the Newfoundland fishery, notably the collapse of Northern cod fishery, has

revealed the inadequacy of top-down, hierarchical management and control in local and regional fisheries issues. Since the collapse of the Newfoundland groundfish fishery, attention has turned to developing alternative fisheries and alternative institutional arrangements to govern fisheries development. It is suggested in this research, based on the literature and inadequacies encountered in previous management arrangements and institutional constraints in the present management system, that economic development corporations functioning as cooperative fisheries economic development and management organizations, can provide significant institutional opportunities for improved fisheries management. The next obvious phase in this four phase adaptive cycle then, as described by Holling (1986), is to develop and implement policy decisions based on an assessment of the alternatives. Questions that remain to be answered include: Are development corporations the best solution?; Will such arrangements work in other areas of Newfoundland or Canada?; and, Will similar cooperative institutional arrangements work for other fisheries at different stages of development? In terms of cooperative fisheries management in general, there is a significant demand for research on developing alternative institutional structures for fisheries management.

Institutions are the entity from which resource management decisions are made and action is taken. Based on the literature and a review of the Newfoundland and Labrador Northern shrimp fishery, a number of benefits of institutionalizing co-management arrangements can be identified. First, institutionalizing cooperative fisheries management arrangements provides an arena where representatives of various stakeholders can meet to resolve their differences and focus on the development of strategic fisheries management and development plans. Second, it allows those directly involved in resource extraction to be directly involved in decisions regarding resource management and regulation. In the Lofoten Island fishery, for example, fishers argued that those who experience the effects of the

regulation in practice are best suited for their making. Third, it accounts for local and regional variations in the fishery in terms of the resource base and social and economic considerations. Fourth, it decentralizes the decision-making processes making the system more flexible and adaptive to change in environmental, social, and economic environments. In the UK for example, as discussed in Chapter 4, lower-level organizations are generally able to react to a situation in the fishery more quickly than national governments. Finally, institutionalizing cooperative fisheries management arrangements provides a framework in which collective action may be taken to deal with fisheries management and development issues in a controlled, equitable and regulated environment.

Co-management as a political process could be useful for the Northern shrimp fishery and for Newfoundland fisheries management in general. But the ability of co-management arrangements to achieve substantive goals such as economic development and sustainability remains unanswered. Successful co-management arrangements for the Northern shrimp fishery can, however, improve the management and decision-making process through encouraging participatory democracy at local and regional scales. Economic development corporations perhaps lack the mandate and resources to accept full responsibility of a cooperative fisheries management organization. However, although development corporations are not yet capable of making decisions such as setting the TAC, they are capable of participating in resource access and allocation decision-making. More importantly, unlike large organizations such as the FFAW and the NSAC, economic development corporations are in constant contact with the needs of the local fishing communities and can serve as an *energy center* to present fisher's concerns to resource managers regarding fisheries management and decision-making issues. Although a complete restructuring is not necessary to incorporate local organizations

in fisheries management and decision-making, even the smallest change in institutional arrangements and responsibilities will not occur over night. While perhaps all the answers to co-management are not available, this is not to say that resource managers and planners should not look ahead to develop more effective *means* of fisheries management.

In conclusion, this study provided an opportunity to explore alternative institutional arrangements for cooperative fisheries management; an area that deserves greater attention in the literature. Furthermore, the applied case study of the Northern shrimp fishery provided and opportunity to make a contribution to the management and development of the fishery in terms of suggesting alternative management arrangements and facilitating various interests and perspectives in a coordinated and cooperative study. If this study is said to have accomplished anything, it is a stepping-stone in bringing fishers, government and development corporations on-side in fisheries management issues.

Appendix A

NORTHERN SHRIMP CASE STUDY PARTICIPANTS & INTERVIEW FORMAT

Government of Newfoundland and Labrador Department of Fisheries

Mike Warren – *Fisheries Planning Supervisor*

Rob Coombs - *Biological Assessment, Resource Management*

Joe Kennedy - *Western Region Representative*

Earn Patey - *Western Field Officer, Regulation Enforcement*

Department of Fisheries and Oceans

Mike Murphy - *Resource Management, Ottawa*

Brian Nakashima - *Newfoundland Region, Science Branch*

Canadian Centre for Fisheries Innovation

Glen Blackwood - *Managing Director*

Economic Development Corporations

Travis Gillard - *Director, Nordic Development Corporation*

Tony Kearney - *Assistant Director (former fisherman) Nordic Development Corporation*

Curtis Richards - *Town of St. Anthony, Rising Sun Developers*

Dennis Coates - *Director, St. Anthony Basin Resources*

Sean St. George - *Director, Red Ochre Development Board*

Judy Way - *Straits Development Association*

Dennis Simms - *Northern Peninsula Development Corporation*

Government of Newfoundland Department of Development and Rural Renewal, St. John's

Martin Lowe - *Dept. of Development and Rural Renewal, Western Region*

Main Brook Economic Development Association

White Bay Central Development Association

Great Northern Seafoods

Gordon Hughes - *Plant Operations*

St. Anthony Seafoods

Derrick Green – *St. Anthony Plant Manager*

Clearwater Fine Foods

John Risley - *President*

Fish, Food and Allied Workers Union

Bill Broderick – *Inshore Vice-President*

Loomis Way – *Inshore Member*

Hedley Richards - *Northern Inshore Representative*

Trevor Taylor – *Inshore Member*

Discussion with participants of fisheries workshop – "Bringing Fishers' Knowledge into Fisheries Science and Management" Memorial University of Newfoundland, St. John's, Newfoundland. May, 1998

Johanne Fischer - *Scientist, Institut fir Seefischerei, Germany*

Gisli Palsson - *University of Iceland, Faculty of Social Sciences*

Jeffery Hutchings - *Professor, Dalhousie University Department of Biology*

Fikret Berkes - *Professor, University of Manitoba, Natural Resources Institute*

Town of St. Anthony - Public information session regarding local fish plant development. June, 1998.

Inshore fishers, various communities, Zone 6.

5 - Roddickton

2 - Shoal Cove East

2 - Flower's Cove

7 - St. Anthony

Discussion Topics for Field Interviews

The following is a general list of discussion topics used in the field-interview process. The following questions provide only a general outline of each discussion issue. Questions were restructured based on the interviewee and their involvement in the Northern shrimp fishery. The purpose of delivering open-ended questions was to allow the interviewee to express their concerns and ideas and not be limited to "yes" or "no" responses.

1) What is the provincial / federal / regional / FFAW / local fishers'/ processors' / NSAC perspective on cooperative fisheries management in general?

2) How might cooperative fisheries management generally apply to the Newfoundland and Labrador Northern shrimp fishery and to local and regional organizations?

3) Would you describe the present structure of fisheries management arrangements as top-down or is there a sense of responsibility-sharing between different levels of government and the fishing industry?

4) To what extent does the NSAC represent the concerns and demands of the newly developed inshore shrimp fishery?

5) How important is the Northern shrimp fishery to the province? To the Nordic Economic Zone? To the local community?

6) A prerequisite for cooperative management is the development of institutions to support community use and control of local resources. To what extent do present management structures support local control and decision-making over Northern shrimp resource management and allocation?

7) What are the potential roles of development corporations in the management and development of the Northern shrimp fishery?

8) In a more abstract sense, local ownership and control can be assessed in terms of a "sense of ownership". Based on your perspective, who "owns" the inshore shrimp resource? Is it perceived as owned by the federal government, the province, the region, or the communities of fishers?

9) Are management decisions being made by the lowest capable organizations in the Northern shrimp fishery?

10) Are local development corporations and the regional zone "capable organizations" for facilitating cooperative fisheries management in the Northern shrimp fishery?

11) Specifically, what decisions can be made at local and regional levels, particularly by fisheries development agencies?

12) Is the NSAC capable of making any of these decisions? What are the implications?

13) Does the NSAC adequately represent a participatory arena for small-scale fishers?

14) Is the FFAW capable of making any of these decisions? What are the implications?

15) Does the FFAW adequately represent a participatory arena for small-scale fishers?

16) On which "level" do inshore fishers and fishing communities in the Regional Economic Zone participate in the management of the Northern shrimp fishery?

17) How can this be improved?

18) Is there a sense of competition between communities in the regional zone for access to Northern shrimp resources? Is the principle of adjacency being kept?

19) What are the implications, if any, of the allocation of a community-based Northern shrimp quota to SABRI?

20) What are the long-term goals and objectives of the Provincial Department of Fisheries and Aquaculture / Department of Fisheries and Oceans / FFAW / NEDC / NSAC / local communities for the future of the Northern shrimp fishery?

21) Is there adequate integration of local fishers' knowledge into the management and development of the Northern shrimp fishery?

22) Is the present structure of fisheries management able to adapt quickly to unexpected change in the fishing industry?

23) Any additional comments or concerns regarding the present management of the Northern shrimp fishery, its future or the roles of local and regional organizations in facilitating co-management processes?

Appendix B

1997 NORTHERN SHRIMP ADVISORY COMMITTEE [DRAFT] TERMS OF REFERENCE

Department of Fisheries and Oceans, Fisheries Management Branch

June 12, 1997

Northern Shrimp Advisory Committee
[Draft] Terms of Reference

Purpose

The Northern Shrimp Advisory Committee (NSAC) serves as a forum for the discussion of issues on the management and development of the Northern shrimp fishery and provides advice and recommendations to the Minister of Fisheries and Oceans.

Scope

NSAC will provide input on annual management plans respecting Northern shrimp, including but not limited to advice on:

- quota allocations and other regulatory measures (such as seasons, size limits and gear restrictions) and amendments thereto;
- enforcement initiatives;
- licensing policy; and
- the administration of the enterprise allocation program and developmental activities.

Co-Chairs

The NSAC is co-chaired by:

- a member chosen by a vote of the members representing the companies holding a Northern shrimp license;
- a representative of the Department of Fisheries and Oceans.

Membership

Membership on the NSAC shall be limited to:

- one representative of each company that holds an offshore Northern shrimp fishing license;
- representatives of areas and fishers receiving temporary allocations;
- one provincial or territorial government representative from each of New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island, Quebec and the Northwest Territories and the Nunavut Wildlife Management Board; and
- representatives from the Department of Fisheries and Oceans.

Procedures

No formal voting procedures will be entrenched in the conduct of the NSAC; rather it will seek to operate on a consensus basis.

Meetings will be convened at dates and times agreed upon by the Co-chairs and there will be at least one meeting every year. The NSAC may determine that additional meetings are necessary and instruct the Co-chairs to make arrangements accordingly. The Co-chairs shall be responsible for notifying all members of any meeting.

The Co-chairs shall decide how they will chair the meetings and this may include rotating or sharing the responsibility for leading the discussions.

The Co-chairs shall establish, in consultation with the NSAC members, agenda items for the NSAC meetings. These items will be subject to the consensus of NSAC members at the commencement of each meeting.

Ad hoc working groups may be established by the NSAC to review specific issues and report their findings to the NSAC as a whole.

If a member cannot attend a meeting, that member may nominate an alternate by notifying the Co-chairs as far in advance of the meeting as possible.

Non-members may attend NSAC meetings as observers, but may not sit at the table and cannot participate in discussion in the absence of the consensus of members to allow that participation.

Administration

Summary minutes of each meeting will be prepared in both official languages. The summary minutes will be distributed by the Department of Fisheries and Oceans after they are reviewed and accepted by both Co-chairs.

NSAC Composition

Co-Chairs

Director, Resource Management – Atlantic Fisheries Management, DFO

Industry Co-chair to be determined

Members

Torngat Fish Producers Cooperative Society Ltd.
Mersey Seafoods Ltd.
Fishery Products International Ltd.
Qikiqtaaluk Corporation
Labrador Fishermen's Union Shrimp Company
Labrador Inuit Association
Eastern Quebec Seafoods Ltd.
Unaaq Fisheries Inc.
Crevettes Nordiques Ltee.
Baffin Region Inuit Association
Harbour Grace Shrimp Company Ltd.
Les Peches Hauturieres de Lameque
Newfoundland Resources Ltd.
M.V. Osprey Ltd.
Pikalujak Makivik Corporation
Caramer Limited

St. Anthony Basin Resources
Fish, Food and Allied Workers (FFAW)
Fisheries Association of Newfoundland and Labrador (FANL)
Fogo island Cooperative Society
Innu Nation – Labrador
Fishermen's Association of the Lower North Shore

Nunavut Wildlife Management Board
Nova Scotia Department of Fisheries
Ministere de l'Agriculture des Pecheries et de l'Alimentation du Quebec
New Brunswick Department of Fisheries
Department of Fisheries and Aquaculture, PEI
Newfoundland Department of Fisheries and Aquaculture
NWT Department of Renewable Resources
DFO –Newfoundland Region
DFO Laurentian Region
DFO Maratimes Region

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