

# Community management in the inshore groundfish fishery on the Canadian Scotian Shelf

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## 1. HISTORY LEADING TO COMMUNITY MANAGEMENT

The groundfish fishery in Atlantic Canada is arguably the most complex fishery in Canada. Groundfish is the generalized term for a number of species of fish, mostly gadoid that are harvested separately or collectively by many fleets involving thousands of fishermen throughout Atlantic Canada. This chapter will focus on the inshore, fixed-gear sector of relatively small, inshore vessels 10–14 metres in length. This sector uses handline, longline and gillnet gear to harvest groundfish along the Scotian Shelf, in the Bay of Fundy and on Georges Bank (see Figure 1). Groundfish fishing by this sector involves seven separate and distinct fleets harvesting mostly cod, haddock, pollock, flatfish, halibut, redfish and a variety of bycatch species.

Following establishment of the 200-mile limit in 1977, Canada began to develop an extensive domestic groundfish fishery that utilized both inshore and offshore fixed and mobile gear. Harvest expansion in the 1980s was followed by significant declines in species populations and associated harvest levels. Harvest moratoria were implemented for several cod resources in Atlantic Canada during the early 1990s and several of these moratoria continue today. On the Scotian Shelf, these included haddock stocks and cods stocks in areas 4V and 4W. The cod stocks in this area were formerly among of the largest in Atlantic Canada. These closures, along with significant declines in other groundfish resources on the Scotian Shelf, have resulted in significant declines in employment. The management response to the problems facing the groundfish fleets has moved forward on the basis of a two-part strategy: (a) an expansion of enterprise allocations (EA)/individual transferable

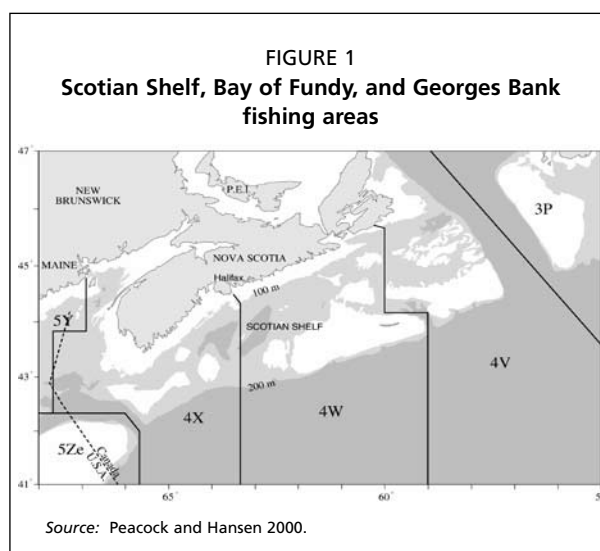




PHOTO 1  
*Cape Islander fishing vessels  
 characteristic of the maritime  
 inshore fishery*

quotas (ITQ) for vessels greater than 45' and (b), a new community quota approach for the inshore fixed-gear less than 45' sector. This paper addresses the latter.

In the 1970s and 1980s, the inshore, fixed-gear assemblage was a diverse group of over 3000 licence holders. Photo 1 shows the types of boat active in this fishery. They had varying degrees of economic aspirations and there was little cohesion among fleets, communities or port clusters. Management approaches devised through two task force studies in the 1980s considered these inshore groups to be of little significance in the overall scheme of management, as their effort seemed minor compared to the large mobile gear (Kirby, 1982; Hache, 1989). By the early 1990s, this sector remained without an overarching management approach and functioned within a “least common denominator” management philosophy. The management approaches were fraught with difficulties and tailored to no one group. The need for change was apparent.

Attempts began in the mid 1990s to manage the inshore fixed-gear (FG) sector. Trip limits were used to tighten controls on effort. Previously (see Hache, 1989), the smallest vessels, while numerous, were not felt to be a major burden on resource viability. When quotas were reached, vessels under 13 metres were permitted to continue fishing on a limited basis through trip limits, typically 3 300 lbs/trip, until the end of the fishing year. Many of these small vessels were handliners, so this treatment supported both small communities and the associated small vessels. These flexible arrangements for small operators (less than 13 metres) were eventually eliminated in an attempt to bring harvest activities in line with resource abundance. However, the development of management for this diverse sector proved long and circuitous. During the process, many associations that represented inshore, fixed-gear interests arose. This resulted in intense competition within the advisory committees for allocation advantage. The process often culminated with demands for the Minister of Fisheries and Oceans to intercede to change sharing arrangements. The priority given to continued viability of the inshore fleet resulted in destructive management decisions and often in overfishing of dwindling fish resource.

## 2. THE COMMUNITY MANAGEMENT SYSTEM

### 2.1 Origins

The new community approach was introduced on a trial basis in 1995 in the Halifax west area of Nova Scotia as a one-year trial. It became effective for all fleets in 1996. This was followed by a 3-year test application beginning in 1997, which introduced community management boards for all inshore fixed-gear fishers. This resulted in the establishment of eight community zones. The approach recognised differences within the inshore sector by using either geography or “like-minded” views to define fleet structures. The term “like-minded” refers to the recognition of groups of fishers who have common management objectives. The trial process became the community-based management approach, which has operated continually with little modification and within the same 8 community zones as in 1997.

TABLE 1  
Inshore fleet composition, 1995 and 2005

Vessel size	Mobile gear (67% of inshore allocation)			Fixed gear (33% of inshore allocation)		
	1995	2005	ITQ introduced	1995	2005	ITQ introduced
10–13.7 m	500	92	n/a	2542	532	n/a
13.7–19.8 m	361	52	1991	66	20	1999
Total	861	144		2608	552	

TABLE 2  
Inshore licences by area, 1996–2005

Year	Eastern Nova Scotia	PAFFA	Southwestern New Brunswick	Yarmouth	Lunenburg Queens	Digby	Shelburne	Total
	1996	54	45	97	106	177	151	
1997	52	40	97	127	155	154	513	1 138
1998	50	40	63	85	133	104	394	869
1999	46	37	41	64	118	83	382	771
2000	36	34	41	74	102	90	335	712
2001	41	30	53	87	81	93	274	659
2002	43	32	48	87	78	95	257	640
2003	43	32	46	75	77	82	237	592
2004	36	19	41	34	56	68	182	436
2005	21	20	37	43	45	62	156	384

TABLE 3  
Locations of Community Management Boards and targeted species

Southern New Brunswick	Eastern Nova Scotia	Halifax West	Queens County/ Lunenburg	Shelburne A	Shelburne B	Yarmouth	Digby
Cod	Cod	Cod	Cod	Cod	Cod	Cod	Cod
Haddock	Haddock	Haddock	Haddock	Haddock	Haddock	Haddock	Haddock
Pollock	Pollock	Pollock	Pollock	Pollock	Pollock	Pollock	Pollock
	Halibut	Skate/ Halibut		Halibut	Halibut	Halibut	
		Dogfish		Dogfish	Dogfish	Dogfish	Dogfish

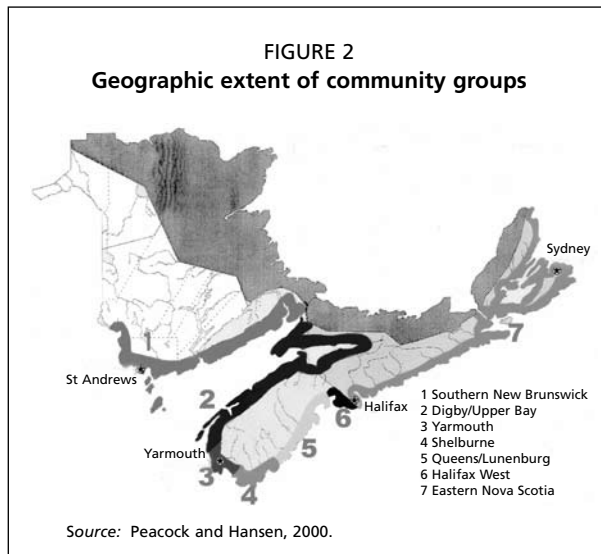
As a start, vessels within the 13.8–19.8 m category were excluded and were treated as a ninth community group. This allowed an independent management application for a relatively small number of vessels. The inshore fixed-gear fleets had objected to any quota transfers between mobile and fixed-gear, notwithstanding the choice of management regime. Separating the 13.8 m–19.8 m vessels from the rest of the inshore fleet allowed this sub-group to consider a broader ITQ approach that would not have been possible within the inshore fleet. An ITQ approach was adopted for these vessels in 1999. The change allowed this part of the fleet to interact with the inshore mobile gear (>19.8 m) fleet and allowed for transfers of ITQ between the two fleets.

Table 1 lists the fleet compositions at the time of implementation in 1995 and ten years later in 2005. The number of active participants in all vessel types has been reduced, largely due to quota reductions and to participation in the lucrative lobster and crab fisheries, as well as through self-rationalization plans implemented by community management boards. Table 2 shows that these decreases have been spread across all seven communities. Table 3 shows the species that are targeted by the respective community-based fisheries.

## 2.2 Structure of inshore community management

### 2.2.1 Defining communities

To implement community management for the inshore fleet under 13.8 metres, three steps were required. The communities (ultimately eight) had to be defined. Allocations had to



be made to each community. And a governing structure for each community was required.

A series of eight communities were established, based on seven geographic areas (see Figure 2). Six of these areas and seven of the community groups, were in South-West Nova Scotia. In most cases, the geographic partitioning also supported the “like-minded” approach favoured by government. Industry support for the geographic areas was based in part on the assumption that the geographic criterion would prevent ITQ implementation, which was opposed by most fixed-gear operators. A mediator was used to resolve differences in opinion with respect to the development of the community boundaries. Within the Shelburne geographic

area (zone 4 in Figure 2), major differences in vessel performance, attitude and objectives existed. Shelburne was also the area with the most historical landings. This area required further partitioning and the “like-minded” application provided for an effective division between the two groups. The result was one Shelburne group of high-line operators and a second group of relatively lower-performing fishers.

All fishers were assigned to a community on the basis of the port of registry as of 31 December 1996. Initial allocations (next section) to communities required a past reference point to determine community composition and associated allocations. An “opting out” provision is available on an annual basis. This option is relatively unattractive, because it is a competitive fishery based on the historical landings of the individual licence holders, in a tenth group called “Group X”. All licence holders are in Group X at the start of the season and then leave Group X to join a community group. The Group X participants consist of those who choose not to join a community group. Annually, there are fewer than 15 that choose to remain in Group X, with no more than five of these choosing to fish.

### 2.2.2 Allocations to communities

The determination of allocations though always a contentious issue was an essential step in the process of shifting responsibility to the industry in many decision-making areas. The problem of unknown catch histories further complicated this allocation. Quota was allocated to each community on the basis of the catch history of all individuals with a registered homeport in that community in 1996. The catch history was calculated using the 1986–1993 period. The final calculations included both landings that could be attributed to an individual licence holder and also landings at processors within these communities that were unidentified by licence holder. This process used numerous sources, including the DFO, for data analysis. In the end, fishers agreed upon a sharing format using the following criteria:

- i. Cumulative catch history of all the licence holders in a community for the three main species: cod, haddock and pollock. Other species are fished as a collective bycatch or a small directed fishery, based on decisions taken by all communities at the annual FG < 45 Committee.
- ii. Unidentified landings (at the vessel or individual level) from each community were added to the cumulative catch for each community.
- iii. Upon completion of the share calculations, which apportioned 97 percent of calculated amounts, the remaining 3 percent was supplied to individual communities to address to inequities.

- iv. Each fisher in the Shelburne community groups had to choose one of two sub-groups.

The resultant geographic allocation (showing the total for the two Shelburne groups) is shown in Figure 3.

### 2.2.3 Community Management Boards

Community Management Boards (CMB's) were created to implement decision making. The elected members in most cases are fishers, but occasionally are non-fishing representatives. These private, industry boards provide input into in-season management and develop, implement and monitor controls on

the activities of the community fleet. Activities internal to the board are not the purview of government, unless such actions result in measures that would be illegal, be contrary to Conservation Harvesting Plans (CHPs) or be contrary to the management measures required for all community groups. Management boards also provide representatives to the public advisory process. Each community management board has three seats on the Fixed-gear < 45 Groundfish Committee. All of the management boards meet each year at the Fixed-gear < 45 Groundfish Committee and develop a single CHP that all boards must support.

### 2.3 Decision-making by CMBs

Each CMB develops a community harvest plan (CHP) for its fleet, is responsible for controlling fishing activities of members and must adopt standardized monitoring and catch controls. Without a plan that respects conservation and at the same time delivers industry requirements, no fishery can occur. They also develop and implement penalty provisions for violations of their measures, such as trip limits. These are not enforced by the DFO; they are imposed under civil agreements. However, imposing penalties such as loss of fishing time is becoming increasingly more difficult without a legislative framework.

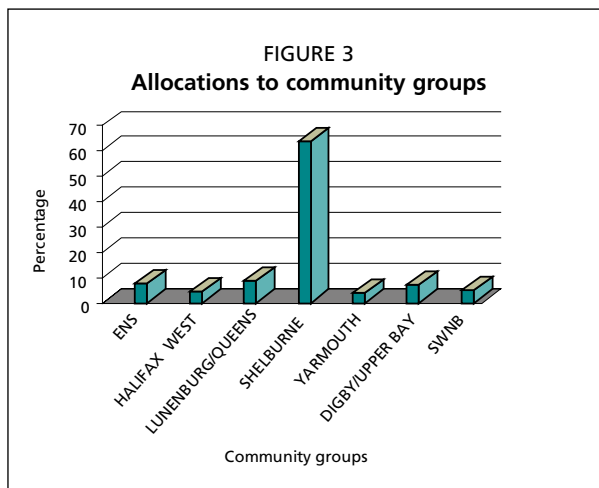
The foundation for this process is the Dockside Monitoring Program (DMP). DMP is a 4-step process of:

- i. hail (i.e. reporting, usually by radio) out prior to fishing,
- ii. hail in of amounts caught from at sea,
- iii. verification of unloading amounts at the dockside and
- iv. collection and entry of catch data on a real-time basis.

This service is an independent function of several companies and is totally funded by the fishers. The type of management adopted (ITQ or quota-limited competitive catch) and vessel characteristics determine the level of recorded detail that is required.

Additional requirements to ensure the conservation of the resource are delivered through a combination of government activities and industry commitment and delivery. Government controls involve the use of at-sea boardings, observers and sea/air surveillance to augment the hail/DMP process. Industry supplements at-sea monitoring through the funding of the "at-sea" portion of the costs of observers.

Industry peer-pressure has provided a significant deterrent to illegal fishing activities, including those that compromise conservation or compromise industry harvest plans. In some communities, industry sanctions have been adopted. Penalties are normally reductions in quota and/or time that can be spent at sea and can be more draconian than government penalties issued by courts. All penalties are determined by the fishers.



The CMBs have been able to trade quota with other communities, trade or exchange members, apply penalties for breach of a CHP and generally conduct a business-like approach to fishing within the conservation umbrella demanded by a precautionary approach. Transfers of quota among communities and movement of fishers between communities require agreement from both communities, including agreement on whether the catch history would move as well.

## 2.4 Government role

Within this “new arrangement”, government maintains the activities of licensing, registration of vessels, identification and limitation of gear and the description of area to be fished or controlled. Many of these applications occur through the DFO-administered licence conditions with delivery through the DFO enforcement.

There are different fee rates associated with the community (competitive/informal ITQ) and in the formal ITQ approach. In non-ITQ fisheries the fee rate was set at Can\$100 based on the average landed value of a licence holder. In moratorium areas this was reduced to Can\$30. For ITQs the fee is applied individually based on quota holdings. All licence holders also pay a vessel registration fee of Can\$50 and a fisher registration fee of Can\$50.

In the competitive or non-formal ITQ community management approach this is the total fee prescribed by DFO. For ITQ fisheries it covers their competitive species and they also pay an additional ITQ fee. The fee for cod is Can\$40.50, haddock Can\$77.50, pollock Can\$39.00, redfish Can\$14.50, silver hake Can\$1.10 and halibut, Can\$243.50.

The role of government is to ensure that the overall conservation objectives are met and that the overall agreed community-allocations are respected. This government audit function ensures both that conservation approaches are adopted and respected and that industry-agreed sharing occurs. The government lists and records seasonal quota-limits developed by the management boards. Individual vessel landings are provided to boards to assist in managing industry-imposed or conservation-dictated limits.

## 2.5 Community approaches

The CMBs are now vested with the responsibility for defining entitlements on how to harvest the assigned allocation. The eight communities have taken a number of approaches. The two Shelburne community groups illustrate the range of different approaches.

In Shelburne, there are various approaches even within the two management boards. One Shelburne board is comprised of five different associations, each of which develops a harvesting plan. In the other Shelburne CMB, there are three associations and corresponding plans. The harvesting options at the association level range from a competitive fishery (by gear type) within an overall quota to an industry-developed and delivered ITQ initiative. Combinations or permutations of these approaches were also used in the other community groups. The approaches can vary and can be independent, or work in conjunction with each other.

## 3. IMPACTS

### 3.1 Resource analysis

Community-management has improved the scientific understanding by industry in two ways. First, there has been more dialogue between scientists and industry. Partially aided by an industry advisory council (the Fishery Resource Conservation Council), this dialogue has advanced the understanding within the communities of scientific issues and species interactions. Improved knowledge provides for a better approach to management. Second, the communities have provided additional funds to extend government surveys and have participated in the survey process. In both cases, the enhanced knowledge has proved beneficial. This improved knowledge base

is manifested in a science-advisory process that is more interactive and more detailed in its analysis. Community fishers participate in the Regional Advisory Process and provide valuable comments on suggested inferences from data sets. An increased industry knowledge base also contributes to overall knowledge that translates into better community decisions. By understanding the process in more detail, the delivery of data by fishermen improves.

### 3.2 Reduction in inter-community conflict

Prior to the introduction of the community-management approach, inter-community conflicts over allocation were the norm. Today, the intercommunity disagreements have largely disappeared, with the exception of the rift discussed below (Section 4.1). Given the difficult times faced by groundfish fishers in these fixed-gear communities, most efforts have focused on economic efficiency. Cooperative approaches include the Bay of Fundy Council, which is a council made up of two CMBs and several non-consumptive users and is dedicated to developing an ecosystem management approach in the Bay of Fundy. One sees cooperation between CMBs in the transfer of quotas and other management related issues, which suggests that the autonomy provided by such a management system provides for ancillary cooperation benefits as well.

### 3.3 Economic analysis and effort reduction

There has been little economic analysis of the community-management approach to date. However, initial comments suggest that the cost of fishing has gone up. This is largely due to transaction costs and to the additional costs of setting up the systems, complete with controls. The increased cost of management appears to be due to the costs of establishing the community boards. In the long run, savings are expected to occur as more responsibilities flow to the harvesters.

The decline in fishery participation raises a variety of economic and social issues. As seen in Tables 1 and 2, the number of licences in this fleet has declined significantly over the period of community management. The number of active vessels in all communities fishing in the NAFO Division areas of 4X and 5 has decreased from 1 274 in 1996 to 384 in 2005 (Table 2). While the community-approach did not reduce licence numbers directly, the opportunity for communities to address issues in a more business-like manner has resulted in a reduction in total participation. Today, licence numbers are closer to a balance with resource levels. Even in communities where a more socially oriented approach to sharing has been adopted, the adjustment in participants has occurred. That said, how to adjust the still-large number of licence-holders relative to this resource remains a challenge. In the highline fleets, some level of licence stacking has occurred and the use of informal ITQ arrangements has provided for some balancing. However, in other communities, there are no mechanisms to afford adjustment other than attrition and retirement. There is a need for a more economic solution if greater efficiency is to be achieved. In spite of this deficiency, community-management has afforded opportunities to acquire more quota from other communities when community/association quotas are exceeded or to invoke closure when community quotas are reached.

## 4. ISSUES AND CHALLENGES FOR THE FUTURE

### 4.1 Conflict over social versus economic objectives

In spite of the advances achieved by these communities, a number of problems persist. First and foremost, a rift continues between individuals and groups that support a more socially guided fishery (based on competition within an overall quota) and those that support a more economically driven fishery (using quasi-property-rights mechanisms). The social camp argues that community control should not allow evolution towards economic rationalization, which they feel creates a “have versus have-not” syndrome

that is widely disliked by small boat owners. They also argue that any IQ system will lead to further reductions in participation, because the economics of having to buy the quota will force many out of the fishery.

The use of an ITQ-like programme by one group in Shelburne B (the high-line vessel group) has been vigorously opposed by all other community groups. Within the Shelburne B group, which is composed of five different management entities, there is no majority support. Government identified options to allow for formal ITQ development within sub-groups of a community within certain defined provisions. But the conflict is so deep-seated that no uptake has occurred to date. These sub-groups favour the informal process, which avoids much of the internal conflict.

The informal quasi-property-right approach adopted by some community-management groups is also criticized by formal ITQ groups who, under the current system, must pay larger access fees to acquire individual quota. Allowing such informal quasi-property-right arrangements is said to be a mechanism by which the government “subsidizes” the inshore fixed-gear fleet.

#### 4.2 Conservation

A second issue focuses on conservation. In most instances, there have been positive responses with respect to conservation approaches. While the fleet is more conservation-oriented under this system, problems continue. There has been a significant reduction in discarding and high-grading, but low quotas and quota imbalances ensure that these practices continue at a level believed to be too high. It has been suggested that this problem is more severe in the groups that use informal IQs, as the economics of their quasi-property systems drive full utilization of the quotas purchased, even at the cost of discarding small fish or unwanted species. Under the current management framework, this comment could apply to any fleet-group. The declines in groundfish stocks overall and the apparent imbalance in relative quotas contributes to these problems, but clearly the industry continues to have some distance to go to be a fully conservation-oriented harvest sector. The husbandry of the resource, while prominent in the minds of most, can be overshadowed by the needs of survival. Where there continues to be an imbalance between resource and fleet numbers, the problems of conservation will continue. Industry self governance may be best served with an approach that allows rationalization as conditions evolve (even though self-rationalization schemes have to date been opposed by almost all groups).

#### 4.3 Environmental challenges

The recent move toward ecosystem-based fisheries management will be a challenge for industry. The work with the DFO to identify sensitive cold-water coral areas and protect these is but one example. Ecosystem approaches could prove costly for industry as conservation objectives related to productivity, diversity and habitat are developed and implemented.

#### 4.4 Conflicting government policies

Some significant conflicts stem from external actions by the DFO that appear to decrease the efficiency of operation for community fleets. The lack of linkage between DFO actions and fleet reliance on DFO provision of services often results in compromises and decreased efficiency in community management. For example, licensing policies that affect factors such as processing at sea and vessel replacement are currently viewed as barriers to efficiency and economic viability. And government is perceived as imposing unnecessary operational cost challenges through activities such as observer coverage, dockside monitoring and licence fees. This experience suggests that the industry operation must be totally industry based, supported by few if any external information or enforcement applications. There is a need for a legislative



overhaul to allow a more private operation to occur. This is now being developed as part of the new *Fisheries Act*.

#### 4.5 The new Fisheries Act

Some progress has been achieved on conservation issues and on better quota management due to improved reporting and industry understanding. But the future will be difficult without consideration of more far reaching changes. Some of the necessary changes may be provided in the new *Fisheries Act*.

The community management approach is a self-governance system that, while not reaching down to the individual level like an ITQ, represents a quasi-property approach at the community level. Changes being considered to the *Fisheries Act* in Canada would allow self-governance to be strengthened in several ways. The new Act will empower organizations to take a larger role in managing their members' harvesting operations. The Act will provide the authority for the Minister to enter into legally binding arrangements with fleets. Under these agreements, the DFO and fisheries organizations would share the responsibility for the programmes covered by the agreement. Agreements could specify such things as harvest rules, programmes, services and funding arrangements. The new Act will allow an allocation of fish to be set aside to defray the cost of science and management. The provisions of these agreements will be dependent on the willingness and capacity of each fisheries organization to assume a greater role in the day-to-day management of the fishery. The new Act gives the legislative authority to and broadens the scope of the co-management approach currently in place.

It is envisioned that the new *Fisheries Act* will include an administrative tribunal, long suggested by industry, that would replace the court system for licence condition violations. Industry groups operating under a Fisheries Management agreement could provide guidelines to the tribunal in terms of appropriate penalties, which will make them similar to the industry-imposed sanctions under community management.

### 5. CONCLUSIONS

The community-based management has received wide industry acceptance. Industry management boards have control within this process and have moved the concept well beyond the initial vision. This approach may have other applications within fisheries management, including emerging fish rights approaches in aboriginals' fishery situations.

Partitioning the resource among communities and giving communities the flexibility to devise appropriate management applications has virtually eliminated all of the criticism and lobbying of previous planning approaches. The approach allows community solutions to the problems of fish management, including many aspects of monitoring and enforcement, transfers of quota and catch history and conservation of the resource. Over time, remaining issues associated with the imbalance between fleet size and resources will be resolved within the context of the community.

The community management plans after 1996 are distinguished by several strategic changes that contributed to the success of this approach. Historically, plans for this sector had been developed through a "top down" process with the DFO as lead developer, implementer and controller and with industry relegated to an advisory role. This approach created an adversarial system with little positive dialogue and where no climate for change existed. This was most evident among the smallest of the vessels, which, while comprising 30 percent of the fleet, had over the years been able to effect great protection from the system and had been ensured some degree of viability at the expense of other fixed-gear groups.

The need for a bottom-up approach became evident. However, to move to the current situation, several pre-requisites were required.

- i. The government needed to change its approach to management. An internal programme review proposed a change in philosophy to a process where the government facilitated direction and assisted industry uptake.
- ii. The industry needed to want to change the process, which in this case generated the 1995 experiment.
- iii. Government was required to stop pandering to lobby groups, which occurred to a limited extent in this case, but was sufficient to remove the leverage of the small boat owners.
- iv. New ideas needed to be developed, which directed the industry to new avenues of approach.
- v. The industry needed organizers who could develop plans on behalf of industry and who could work together for the collective good of the fleets in question.

Significant issues still face all fleets (for all species) on the Scotian Shelf and will place high levels of stress on operations. Conditions impacting the economic viability of the fishing industry continue to worsen. These factors include global factors such as low market prices, a strong Canadian dollar, increasing fuel costs and global competition. The availability of established community groups may prove to be a significant asset in addressing these numerous and unexpected challenges.

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