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THREE SECTORS, THREE STAGES OF ORGANISATION: COMMUNAL MANAGEMENT IN THE GRAND MANAN LOBSTER FISHERY

In the Grand Manan lobster fishery, as in many other local fisheries, there exists an informal communal management system separate from the Canadian governmental management regime. Communal management can be described as collective resource management occurring at a local level, originated and shaped by local harvesters. By its nature, communal management is appropriate to the local ecological, social and cultural community. Results of a study into the Grand Manan lobster fishery reveal three identifiable sectors each with a differing system of communal management. This paper documents the intricacies of these three systems.

The introduction of high-tech devices and new gear technology has precipitated changes in the spatial patterns of lobster fishing in this community resulting in the division of the fishery into three sectors. The inshore, offshore, and below-the-ledges sectors are distinguished by geography and gear type. Because these three sectors have functioned in the community for varying lengths of time, this situation offers a valuable opportunity to examine the developmental stages of communal management from the stability of a century-old system to the emergence of a new fishery.

The research leading to this paper was conducted from September through December, 1996, and for brief periods in the Spring of 1997. Grand Manan is a New Brunswick archipelago located at the mouth of the Bay of Fundy. Traditionally, lobster fishing practices were severely limited in this area by the extreme tides characteristic of the Bay of Fundy. In recent years, new technology as well as entrepreneurship of local fishers is allowing the Grand Manan lobster fishermen to overcome some of the problems the strong tides inflict. Such innovation is changing not only fishing practices but also the fibres of the community mesh which informally govern the harvest of this common resource.

For over a century, the Grand Manan lobster fishery was an inshore fishery. During that time a multifaceted, well-established system of communal management had developed. The establishment of a small offshore lobster fishery 25 years ago has developed into another local management system, which although less complex than the inshore system, constitutes an effect

communal management strategy. The third and newest sector of the lobster fishery, the below-the-ledges trawl fishery, became established only 2 years prior to this research. As the youngest sector, it is nearly devoid of local management and is plagued with several problems associated with its lack of territoriality.

The primary bases for the distinction among these sectors are geography and gear type. The inshore fishery is conducted using traditional gear (i.e., single and pair traps) in the shallow waters surrounding the Grand Manan archipelago. The below-the-ledges trawl fishery utilises trawl gear in an area of deeper water (averaging fifty fathoms) below the ledges to the south of the island. The Grand Manan Basin, an area of deep water (over one hundred fathoms), serves as the fishing grounds for the offshore fishery which also utilises trawl gear technology.

Although the informal management structure of the three sectors differ considerably in their level of complexity and development, all three systems are essentially based on territoriality. That is governing the spatial distribution of fishing effort. This is not surprising. Most other studies of lobster fishing in the Northwest Atlantic (Acheson 1988; Davis 1984, 1991; McMullan *et al.* 1993) have uncovered the same emphasis on territoriality as the primary management tool. The most extensively documented situation is the Maine lobster fishery studied by Acheson (see Acheson 1975a, 1975b, 1979, 1987, 1988, 1996).

PART I

ESTABLISHED TENURE:

THE TRADITIONAL INSHORE LOBSTER FISHERY

Not unlike the neighbouring Maine lobster fishery, territoriality is the backbone of the Grand Manan informal management system in the inshore zone. Although the geographical distribution of fishing effort in the traditional inshore fishery clearly correlates to a fisherman's home port, this was not immediately apparent. There was a great reluctance on the part of the fishermen to admit that they had functional boundaries lines in their waters. Willy, an inshore and below-the-ledges trawl fisherman, remarked regarding the inshore, "We can fish anywhere we want; there are no boundaries to stop us. Seal Covers can fish where we do and we can fish where they do." Despite the recognition that fishermen *can* fish anywhere they want, inshore fishermen from Grand Manan generally do not fish wherever they want. The ease and precision with which most fishermen could describe the boundaries of village territories together with the infrequency of cross-territory fishing demonstrated the existence of a true pattern of territoriality.

Beyond following this general fishing pattern of staying within village territories, most inshore fishermen utilise the same individual fishing area from year to year. Therefore, there does not appear to be considerable roaming within the village territories either. As Tom and Peter, a father and son crew of inshore fishermen, told me, "Even though there are probably a lot of places that are catching more lobsters than we do, we fish to the eastward and that is where we fish." Albert also remarked, "You pretty nigh know where everybody is going to set. It is quite a job to break away from it . . . Different times I thought next year I am going to change it a little bit but

you always end up setting the same as you ever did. A few of the novice fishermen I spoke with described setting their traps in the same locations every year. These locations were those first shown to them by their mentors.

Many, if not most fishermen, admit to fishing in the same spots every year. For the most part, individual areas are shared and overlap with areas used by other fishermen. In the traditional inshore zone, a general pattern of territoriality exists, guided by a complex matrix of rationales influenced by logistics, local knowledge, and social pressures.

Logistics

One rationale for the inshore territoriality is simply that it is more convenient and cost-effective to fish close to home. Although distance obviously plays a role in determining where each boat fishes, in itself it is not a sufficient motive for territoriality, as some of the areas fishermen use are not those closest to home.

Another logistical concern affecting spatial fishing patterns is the likelihood of gear entanglement. Accidentally setting traps on top of another fisherman's gear is a fairly common occurrence in the inshore lobster fishery. Gear entanglements cause fishermen to lose valuable equipment and time. Whereas the fishing grounds are quite crowded during peak fishing times, once gear is set in one area it may be difficult to move without it getting tangled in another man's gear. The prevention of gear entanglement plays a role, albeit a minor one, in territoriality.

Local Knowledge

In addition to logistic rationales, personal knowledge influences the maintenance of inshore territoriality. It is imperative for a fisherman to have an in-depth knowledge of the area in which he is fishing. As Flint, an experienced inshore fisherman, explains, **All fish a lot of the same places I always have. The season is so short that you can't gamble with the areas that you don't know.** There are several aspects of the fishery and ecosystem that fishermen need to know in order to be successful in their pursuit of lobsters. These include an in-depth knowledge of tidal currents, bottom topography, lobster migration patterns, and the effects of weather on lobster behaviour. All of this knowledge is experiential and is passed down orally from generation to generation. As a result, the knowledge of most fishermen is directly related to the knowledge of their father, uncle, grandfather or other mentor. In many cases, this knowledge is specific to a very small proportion of the fishing zone. In this way the familial line of a fisherman affects his local knowledge which in turn influences where he fishes.

The most notable example of the importance of local experiential knowledge involves the extreme tides characteristic of the Bay. In order to fish effectively in this region, an in-depth knowledge of the tidal movements, timing, and the effects of the tides on fishing gear is imperative. Most local fishermen describe lobster fishing as **“tide work”**. Traditional lobster gear can only be hauled during the periods of slack water, that is at high tide or low tide. At other times when the tidal currents are running strong, the force of the water pulls the lobster buoys beneath the water's surface. When the buoys are submerged they are invisible to the fishermen

and, therefore, cannot be hauled. The force of these tidal currents varies with location and time of day. Not only do some areas exhibit an overall stronger tidal current than others, but slack tide will arrive in different areas at slightly different times that range from a few minutes to as much as an hour. It is imperative that a fisherman understand the intricacies of tidal movements in his fishing area. In order to be efficient, a fisherman must know when to arrive at each string of traps so as to find his buoys exposed and be able to haul that gear.

Nicholas explains his reasons for fishing in a familiar area in terms of the tide problem,

If I went outside Gannet to fish where I have never fished, the tide is totally different there . . . by the time their slack is over our slack is just beginning. So you have to learn what time of tide to be in what place all over again. And probably if you called on them guys on the radio and said, Awhat time should I be outside of Gannet to get that string of traps?@ They might tell you and they might not. They=ll probably beat around the bush . . . sounds like they are telling you something but really they are not telling you anything.

As is evidenced in Nicholas= account, discriminative knowledge sharing is yet another control factor contributing to territorial patterns. Sharing of key knowledge, such as tidal movements, is generally limited to family members and close friends. Fishermen protect their fishing areas from intruders by this secrecy.

Family traditions and oral history guide the acquisition of the experiential knowledge required to be a fisherman. Many fishermen I spoke with fish in the same area that their fathers, grandfathers, uncles, or nonfamilial mentors fished. When I asked Matthew, an experienced offshore fisherman who learned to fish inshore as a young man, how he chose his inshore fishing grounds, he replied, AJust where we=ve always fished. If you know a piece of ground and its tides and its hazards . . . I suppose if my father had of fished out of Seal cove, I would have fished out of there, because that=s where I learned it.@ It should be noted that twenty-five years ago, the whole Grand Manan lobster fishery was comprised of what is now the inshore sector. At that time high-tech equipment such as Loran C was just beginning to effect fishing patterns. Landmarks were used to locate traps and for orientation. Painstaking work with lead lines revealed the contours of the sea floor. Most fishermen did not venture far from home in the stormy weather characteristic of the lobster season. During this time (pre-1970), village territories were much more distinct and there was less overlap than we see now.

The geographical fishing pattern of this previous era has had a determining effect on the fishing patterns of today since young men are learning from, and taking over for, the previous generation of fishermen. In many Grand Manan families, fishing has been the mainstay for generations. When I asked Donald how many generations of fishermen were in his family, he gave a familiar response: AIt goes back as far as fish was around, I guess. It goes back as far as I=ve been told.@ The village territorial patterns evident in the inshore fishery reflect the historic familial continuity of fishermen and their transfer of local knowledge through the generations.

Social Factors

In addition to logistics and local knowledge, there are social factors guiding where a man fishes in the inshore sector. Most people do not want to upset their neighbours, less for fear of physical retribution in the form of trap cutting or gear damage, as is known to occur in the Maine (Acheson 1988) and Nova Scotian (Davis 1984; McMullan *et al* 1993) lobster fisheries, than for fear of social ostracism. As Tom, a master inshore fisherman put it, *“In the long run it don’t pay to do something you shouldn’t to the other guy because you might need him someday.”* Despite modern transportation and telecommunication, isolation is still a strong factor in the lives of the island’s inhabitants. Most of the fishermen I interviewed conveyed to me an important social principle in their community which was most often described as *“Don’t step on your neighbour.”* Neighbours rely on each other to a high degree, be it for deer meat, mechanical work, advice on fishing, or social interaction. To not get along with one’s neighbours could cause considerable grief for a Grand Manan resident as Willy describes, *“It is a very small community and you have to live with your neighbour and you don’t want your neighbour, all your neighbours, down on you because it is hard to live in a place like this.”*

In times of need, good will is common among island neighbours, although it is generally reserved for those who adhere to the social rules of the community. Wilbur describes an incident involving a fisherman who violated an important community rule,

People don’t talk to them . . . One fella did it [poached undersized lobsters] and he beat it in court but people don’t like him and if he has traps out, they don’t bring them into him later or nothing. Like if he was missing a trap, if you seen it you won’t bring it in to him. He’s just out a trap.

Beyond the general rule of *“Don’t step on your neighbour,”* there is a more specific social restriction which says, *“Never touch another man’s traps unless absolutely necessary.”* This is really an extension of the first principle. Maliciously pulling or cutting another man’s traps is what I perceived to be the worst social violation a fisherman could commit. This often occurs innocently in cases where gear is accidentally snarled and one fisher has to cut the lines of another’s gear to get it unsnarled. In this instance, it is perfectly acceptable to cut another man’s line and tie it back together. However, if a gear tangle is the result of a fisherman getting too close to their neighbour’s gear he may be given a warning.

Such gear snarls can cause a good deal of contention. Fishermen use a variety of warning signals in situations where a fellow fisherman is encroaching on their gear and causing snarls. Albert describes one incident which occurred a few years ago, *“We were snarled and I guess that he probably didn’t take the time to clear it. I think he cut it off and put what we call a cow’s tail on it, just an overhand knot. Although it held, but that was probably a message to me, that I was getting too close.”* Henry describes the use of cow’s tails further, *“You just take and tie an overhand knot but you leave the ends real long and when it goes through the hauler it will slat and whip like an old cow’s tail . . . some of them get upset when somebody does that to them.”*

Although such warnings are acceptable, deliberate trap cutting or stealing lobsters from another man’s traps is prohibited. As Albert describes,

You can trust most fishermen a long long ways, but the last thing he'll do is put a knife to you to cut your traps off. A good fisherman would never cut anyone's traps off. But sometimes there is a few that does it. I don't know but people know who they are too. You know it just gets out, I don't know how. You couldn't prove it. It is a bad thing. It is a horrible thing.

In this quote, Albert conveys the seriousness of trap cutting as a social crime. It is important to note that he also alludes to social ostracism, a common punishment for such a crime when he says, "people know who they are too . . . it just gets out." Nicholas also explains the use of ostracism as a punishment for hauling another man's traps, "If you brand a man that way amongst your fellow fishermen then he gets a bad name and he could carry that the rest of his life."

Interestingly, these social rules play an important role in the Grand Manan lobster fishery and distinguishes it from the lobster fisheries of neighbouring regions (i.e., Maine and Nova Scotia) where territory defence is a management tool. Most Grand Manan fishermen were familiar with the aggressive territory defence of the Maine lobstermen, and noted a distinct difference between the fishing patterns of the two areas. Although territorial trap cutting is an exceedingly rare occurrence on Grand Manan, mild conflicts over spatial fishing patterns are common. The fishermen recognise that they have no formal or legal hold on the area they are fishing, but are often annoyed by anyone who invades their space. Punishment for not obeying the territorial rules most often consists of poor relations with neighbours and in extreme cases, social ostracism.

What has emerged from this discussion of territoriality and other regulatory norms in the inshore lobster fishery is a picture of a complex, community-imposed system governing fishing practices. The Grand Manan lobster resource is governed to some extent by the informal communal management system. The fishermen themselves create and enforce local rules, and a variety of diverse factors contribute to the complex territorial system.

PART II

PROVISIONAL TENURE: THE OFFSHORE LOBSTER FISHERY

The Grand Manan offshore lobster fishery began about twenty years ago when a young entrepreneurial fisherman began fishing in an area of deep water southeast of the Grand Manan archipelago. This fishery is exclusively a trawl fishery targeting large mature lobsters. Harsh weather and rough seas characterise the offshore fishing grounds requiring larger boats, more durable gear, and electronic navigational aids. The small group of fishermen who work in this sector have organised themselves and consciously developed a communal management system,

again based on territoriality, to govern the offshore fishery. Although this system is less developed and relatively unstable compared to that of the inshore fishery, for the present time it is functional.

The Lottery System

In the fall and winter of 1996, six boats were fishing full-time in the offshore sector. These same six boats had been fishing in the offshore for the last ten years or so. A few years prior, the six boat captains devised a lottery system which divided and distributed the fishing grounds among the boats in an equitable way. The initial idea was the brainstorm of one fisherman, though they all participated in a co-operative planning process as Mike, one of the offshore fisherman, describes,

I was the only guy to give them any opposition I think. Because I wanted them to divide the area into three sections and give us so much fishing area in each section. That way the chances are better of being where there are some lobsters. That is the only thing I wanted them to change about it and they did.

All decisions related to the creation and refinement of the lottery system are made on a consensus basis. According to Henry ~~that's~~ the only way it will work, if you know who is going to be there and they agreed to it. And everybody agreed to it. @

The resulting system involves the division of the offshore fishing grounds into three sections (inner, middle and outer). Each section is partitioned into lanes one tenth of a mile wide, following the Loran lines. Each year at the start of the lobster season, the offshore captains draw an equal number of lanes in each section. For example, one boat may draw four lanes in each of the three sections. These lanes then comprise the fishing territory of that boat for the duration of the season. The offshore fishermen like this system because it is fair and it greatly reduces the pressure and competition to claim prime ground early in the season, often before the lobster even arrive in the area. Although the lottery system has only been in place for the last three years, the fishermen have been discussing the formation of such a system for several years.

The lottery system differs considerably from the system of territoriality present in the inshore fishery in that personal territories are very distinct in the offshore. Although, it may appear that the offshore lottery system is based on private property rights, it is not. In the offshore fishery communal ~~use rights~~ still govern the resource. Individual territories are not permanent, but rotate randomly from year to year among the group. This convention is also seen in other communal management systems. For instance, a similar lottery system has been used in Newfoundland communities to distribute cod trap berths (Martin 1979; Matthews 1993).

One reason the lottery system is well-liked by the offshore fishermen is the increased efficiency it affords. Before the lottery system was in place, the offshore fishery functioned similarly to the inshore fishery. On opening day, the boats would race to the offshore fishing area to secure prime fishing locations. However, since the offshore harvest is very small in the early fall -- mid-winter is the peak harvest time for this sector -- the gear used to sit in the offshore waters for weeks before it caught many lobsters. As Henry told me, the lottery system ~~save[s]~~ that free

for all . . . You didn't have to go right for the first, you could go when you wanted to and you save taking a lot of gear out there when it is not fishing. All of the offshore fishermen I spoke with were pleased with the increased efficiency they gained from participating in the lottery system.

The lottery system was also lauded on the basis of fairness and safety. Mike described his view of some of the values of the lottery,

It is just a good system. If a gang of guys sets out to set their pots and your engine breaks down, you still got your good prime ground to fish on. Everyone has the same chance. It is good insurance . . . There is some guys that have smaller boats than the others and he can't carry many pots. He has the same chance as the biggest gun fishermen. It is a good fair system.

Matthew alludes to the enhanced safety conditions resulting from the lottery system, It's a safety factor too. No one would go out in bad weather to get a spot because you can fish whenever you want. These fishermen do not favour a highly competitive fishery but would rather work co-operatively to improve efficiency and safety in their fishery.

PART III

ABSENCE OF TENURE:

THE BELOW-THE-LEDGES TRAWL FISHERY

The ordered territoriality of the inshore fishery functions adjacent to the new, highly dynamic below-the-ledges trawl fishery. The recent popularity of this sector of the Grand Manan lobster fishery is inducing drastic changes to the character of the lobster fishery in general. The evolution of trawl fishing below the ledges was quite complex and at the present time has created a lawlessness characteristic of fishing practices in this new sector. Many inshore and below-the-ledges fishermen have concerns regarding the rapid growth of trawl fishing in this area. As a result there is some talk of instituting rules in this new sector, to thwart the problem resulting from this lawlessness.

In the past few years, inshore fishermen from the southern half of the island have begun to exploit lobster fishing grounds south of the archipelago. This is an area of deep water (50 fathoms on average) with a muddy bottom. In the past, Grand Mananers did not fish lobster extensively in this area due to the depth of the water and strong tidal forces. Fishing with traditional single and pair traps is very difficult here. Extremely long, and therefore expensive, ropes are required. The fierceness of the tides in this area, which could easily shift the light single and pair traps, was another force to contend with. Today fishermen are exploiting this area with the help of trawl gear technology. As in the offshore, by using trawl gear, the rope requirement is substantially reduced and the weight of a whole string of traps is enough to keep the gear from drifting with the tide.

Lawlessness Below the Ledges

The new trawl fishery below the Murr Ledges differs dramatically from the traditional inshore fishery not only in geography and gear type but also in social order. Several fishermen I spoke with described the below-the-ledges fishery as a 'free-for-all'. That is to say, there is little order to the spatial arrangement of fishing gear. Boats from all the inshore fishing villages on the southern half of the island utilise this area. As Tom and Peter describe it, 'Below the ledges it is all mixed up.'

Any territorial patterns which appear to exist in the area below the ledges are dependent purely on logistics rather than local knowledge, or social rules. For the most part, those fishing below the ledges will go wherever it is fuel efficient to go, irrespective of the location of other fishers. Where inshore territoriality is rooted in local history, the recent colonising of this new area is devoid of historic precedent. For this reason, there is an absence of territorial rules below the ledges making it essentially an open-access situation.

The lack of regulation in this newly established fishing sector is consistent with the findings of other researchers. According to Feeny *et al.*, in communal resource systems, new fisheries tend to begin as open-access, but develop communal management restrictions as the problems of open-access are realised (1990). The offshore fishery was also devoid of communal management during its early years, before the lottery system was instituted. However, it should be noted that the cost of offshore equipment together with the hazards associated with mid-winter fishing in offshore waters deterred most fishermen from entering that sector of the fishery.

Today the problems of open-access below the ledges are intensifying. The biggest dilemma in this area is gear entanglement. With trawl gear a wider berth is needed between strings of lobster traps to avoid ensnarement. Not only are snarls more common among trawl gear but they tend to be much worse than tangles among single and pair traps. I am told that most fishermen space trawls at least one Loran lane (one-tenth of a nautical mile) from each other. Such rules of courtesy are not always adhered to by the fishermen and there are constant reports of gear conflicts below the ledges. Wilber, a young inshore fisherman, gives his impression of the situation, 'They set on numbers but they seem like they have a racket. By listening on the radio [I hear] people [talking] over each other and swearing at each other.' Ernest, an experienced inshore fisherman, describes the situation similarly, 'When I hear them talking on the radio that they are all snarled up with their trawls, I have no desire to go down.'

The real problem below the ledges is overcrowding. The use of trawl gear requires more space than the use of traditional lobster gear. There are simply too many boats fishing in an area too small to accommodate them. Without a territorial system in place, there is no way to limit the people working in this area. Two fishermen who fish heavily below the ledges confirmed this observation. As Nicholas explained, 'Of course there is quite a lot of trouble with trawl to trawl conflict too when you get a lot of them in a small area down there all trying and competing for the same piece of bottom.' Willy similarly speaks from experience, 'You don't have any room to manoeuvre and the next thing you know you are wound up. It is hard on the equipment. You lose traps off the trawls.' Although there is considerable concern over the lack of rules governing the below-the-ledges fishery, as of yet it remains a 'free-for-all'.

CONCLUSION

Although the open-access nature of the below-the-ledges sector of the lobster fishery is resulting in a complete lack of territoriality and local order, the impetus for the formation of rules to confine this lawlessness exists among the fishermen, many of whom participate in both the inshore and the below-the-ledges fisheries. The other two older sectors of the lobster fishery, the inshore and offshore sectors display clear patterns of territoriality which function to manage access to the lobster resource. The formation of the lottery system in the offshore fishery clearly demonstrates the capacity for fishermen to organise themselves for the purpose of designing and implementing communal management strategies. The complex system of territoriality that exists in the traditional inshore lobster fishery of Grand Manan is an indication of a long-standing and highly developed communal system.

Since the three lobster fishery sectors have functioned in the community for varying lengths of time, the Grand Manan situation offers a valuable opportunity to examine the developmental stages of communal management from the stability of a century-old fishery to the emergence of a new fishery. These three stages of organisation present in the Grand Manan lobster fishery correspond to the length of time each sector has existed in the community. The newest sector, the below-the-ledges trawl fishery, is essentially an open-access system. Access to the older offshore sector is governed communally, although its system of rules is less firmly established than that of the century-old inshore fishery which exhibits a highly complex system of territoriality.

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