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Cod, God, Country and Family

The Portuguese Newfoundland Cod Fishery

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ABSTRACT Why the Portuguese Newfoundland cod fleet persisted in dory fishing until the late 1960s, when the superior productivity of trawler fishing was well known, is examined from three points of view: the state's, the merchant-owners' and the fishermen's. It is argued that industrial technology was not adopted because none of the three parties involved perceived that the new technology would be advantageous to their interests. Archives of state and industry records and interviews with cod fishermen are the sources used to argue that production was increased instead through the extraction of unremunerated effort from the fishermen. A case study of fishermen from one village and two oral narratives document the dorymen's experience.

Introduction

The abundance of cod on the Grand Banks appears to have been known to the Portuguese by 1472 and maps of the period identify Newfoundland as "Codfish Land" (*Terra dos Bacalhaus*). The Portuguese discovery of the Grand Banks cod occurred as part of their search for a sea route to Asia and Portuguese knowledge of Newfoundland preceded by several years John Cabot's so-called discovery of the territory for King Henry VII of England in 1497.[1] Between 1510 and 1525 the Portuguese attempted to found a colony in Atlantic Canada the exact location of which has not been determined but is thought to have been either in the Bay of Fundy (*Baia Funda*) or on Cape Breton Island. In any event it was short-lived. The Portuguese are also thought to have attempted settlement on Sable island in 1567-68. In 1567, the King of Portugal, Dom Sebastião sought nominations for a man to hold the post of civil governor of Newfoundland (*Terra Nova*) suggesting a Portuguese interest in claiming sovereignty over the territory (Anderson and Higgs 1976; Azevedo 1982; Manso and Cruz 1984). But during the sixteenth century Portuguese interest in finding an Atlantic route to Asia declined in part due to the successes of the annual India fleet that sailed around the African coast and in part due to the losses of men and boats and the apparent desolation of the North American Atlantic coast. The one attraction of the North Atlantic was the codfish. Salted and dried it was portable, longlasting, and a valued source of protein for the predominantly agricultural country.

Portugal and France pioneered the trans-Atlantic fishery at the beginning of the sixteenth century and were joined by English fishing boats only in the 1570s. Portugal formally launched its cod fishery in 1501 and by 1506 the king, Dom Manuel, had regulated the collection of cod tithes. By 1578, although fewer in number than the French, the Portuguese cod fleet was larger than the English

and a significant element in the sixteenth century cod fishery (Innis 1940; Mannion and Barkham 1987).[2] The Portuguese also had abundant sources of salt especially in the Aveiro area and they carried on a significant trade in salt on the Grand Banks. The northern ports of Aveiro and Viana do Castello prospered and some historians believe that by 1550 in these two ports there were between 100 and 150 ships outfitted for the Newfoundland fishery (Amzalak 1923; Centeno 1940; Mouro 1985). Like the French, Basque, and English fleets, the Portuguese fished in coastal waters and landed for fresh water, bait, and food. The Portuguese concentrated on the Avalon Peninsula, fished from April to July, and preserved their fish "green" or simply salted. By 1572 a commercial *seca* (fish-drying enterprise) was established in Aveiro where the salted green Newfoundland cod was sun-dried. By the third-quarter of the sixteenth century, the Portuguese fleet annually produced 3000 tons of fish and generated an average of 100 *cruzados* in revenue to the state through taxation, a considerable amount for the period. By this time cod had become a staple in the Portuguese diet (Azevedo 1982).

In 1580 Portugal was annexed to Spain under Phillip II and subsequent hostilities between Spain and England contributed to the harassment of the Portuguese fleet by the English in St. John's harbour, which the Portuguese used as a fishing base. In 1582, they suffered from the piracy of Richard Clarke, and Portuguese fishermen were among those who accepted Sir Humphrey Gilbert's proclamation on 5 August 1583 that established Newfoundland as the property of Queen Elizabeth I. The Portuguese continued to fish off the coast of Newfoundland but they no longer landed, as they had formerly, at the coves between Bonavista and Cape Race, and between 1614 and 1620 there were violent clashes between English and Portuguese fishermen (Prowse 1895). By the time Portugal regained independence from Spain in 1640, England had firm control over the Newfoundland fisheries and the Portuguese fleet had been largely destroyed in the Spanish Armada and through English piracy. The silting over of Aveiro, the major Portuguese port, also contributed to the decay of the cod fleet. By the mid-seventeenth century, Portugal had abandoned the Newfoundland fishery and passed from being a major producer to being a major importer of cod.[3] Not until almost two centuries later did Portugal attempt to revive its Newfoundland fishery (see Table 1).

New interest in the Newfoundland fishery began in 1829 when the Portuguese consul in North America sent a directive home urging that the cod fishery be revived. By 1835, a small company based in Lisbon, the *Companhia de Pescarias Lisbonense*, had equipped nine vessels for the cod fishery and by 1848 it had nineteen vessels and employed 325 men. The company disbanded, however, in 1857. For a few years after 1866, a company based on the Azores sent two vessels to Newfoundland, but this effort too was short-lived. Then, in 1886, Mariano & Irmãos, a company in Figueira da Foz, outfitted two vessels for the Newfoundland cod fishery and the following year ten boats from Lisbon accompanied them. These twelve vessels constituted the entire Portuguese cod fleet at the beginning of the twentieth century. Annual cod production was little more than

Table 1. *The Portuguese Cod Fleet from the 16th to the 20th Century.*

Year	No. of Boats	No. of Men
16th Century:		
1550	150*	
1578	50	
17th and 18th Centuries**		
none by 1640		
19th Century:		
1835	7	
1848	19	325
1857	0	
1866	2	
1886	2	
1887	12	
1896	12	
20th Century (up to 1929 and the New State):		
1901	12	
1903	17***	462
1910	28	949
1915	38	
1920	30	
1925	44	

Sources: Amzalak (1923), Leone (1903), Moutinho (1985), Souto (1914).

* Numerous sources mention that there were between 100 and 150 ships outfitted for the cod fishery in the ports of Aveiro and Viano do Castelo. This number seems disproportionately large and it is now known how many actually went to Newfoundland that year.

** This hiatus in the development of the Portuguese cod fleet was due largely to destruction of the fleet in the Spanish Armada.

*** The 1903 cod fleet included the first vessel from Aveiro in over 300 years; the rest of the fleet was from Figueira da Foz. In the twentieth century, Aveiro emerged again as the major port for the cod fleet.

2,000 tons, and more than 22,000 tons of cod were imported. By 1925 the fleet had increased to forty-four ships. Domestic production had doubled but still only represented 12 percent of the cod consumed in the country (see Tables 1 and 2). Portugal was one of the largest consumers of cod in the world. It was a maritime nation with a strong tradition of fishing but its cod fleet was small and unproductive.

Concern over the low productivity of the domestic fleet and the high volume of cod imports led the Portuguese state in the 1930s to undertake a major restructuring of the fishery and by 1965, domestic production of cod represented 76

Table 2. *Domestic Production as a Percentage of Total Volume of Cod Consumed, 1900-1980.*

Year	Vol. of Domestic Production (tons)	Vol. of Cod Imported (tons)	Total Vol. (tons)	Domestic Cod as % of Total Volume
1900	2,313	22,086	24,399	9
1905	2,480	22,238	24,718	10
1910	4,913	–	–	–
1915	3,899	22,575	26,474	15
1920	1,678	31,268	32,946	5
1925	5,032	35,619	40,651	12
1930	3,559	40,830	44,389	8
1935	9,372	43,441	52,813	18
1940	20,541	27,578	48,119	43
1945	28,309	9,238	37,547	75
1950	51,472	23,426	74,898	69
1955	68,537	18,954	87,491	78
1960	61,787	20,285	82,072	75
1965	65,726	20,697	86,423	76
1970	59,201	38,501	97,702	61
1975	33,693	46,130	79,823	42
1980	17,746	25,035	42,781	41

Source: Amzalak (1923), Azevedo (1982), Centeno (1940), GANPB (1952/53-1970/71), Moutinho (1984), Silva (1957), Souto (1914).

percent of consumption. Unlike other countries such as France, however, Portugal increased cod production not through the development of trawler-fishing but instead through elaboration of the traditional line-fishing from one-man dories (*a pesca à linha*). The state sponsored the design and construction of a new type of vessel, the "motor-ship" (*navio-motor*), especially for dory fishing. Archival records show, however, that the first trawler was used in the Portuguese fleet as early as 1938 and that the relative advantages of trawlers were generally acknowledged even at that time: trawlers had greater carrying capacity, increased production, required fewer men, and could make two annual voyages. But trawlers were not widely used in the Portuguese cod fleet until the late 1960s.

My objective in this paper is to examine the reasons the Portuguese persisted in dory fishing. Written documentation of the twentieth century cod fishery has been controlled by the state, however, and tends to defend the policies and initiatives of the state. Most of the sources that exist are annual reports of state-sponsored associations or commissions or are documents written by officials responsible for the cod fleet. An additional problem with sources is that there has been little written from the perspective of the dorymen themselves. For this reason, in 1988, in conjunction with archival research, I undertook fieldwork in Vila da Praia (a pseudonym), a fishing village on the north coast of Portugal

where I had previously conducted extensive research in the local fishery during 1984-85. My earlier research focussed on the women of the community who were, or had been, active in fishing, fish-selling and the production of seaweed fertilizer. During my work with the women I had learned that almost all of their husbands had made numerous voyages to the Newfoundland fishery (*"aos Bancos"*). I resolved at that time that I would return to the community to interview the men about their experience as Grand Banks dorymen, and this is what I undertook during the summer of 1988. In this paper, based on both interviews and archival sources, I consider the development of the twentieth century cod fishery from the points of view of the three major actors involved in the fishery: the state, the merchant-owners of the cod fleet, and the fishermen.[4] I begin, however, with the narratives of two Vila da Praia fishermen, Joaquim and Manuel, who will introduce us to the experience of the dorymen.

"It was a slave's life": Narratives of Two Dorymen

Joaquim[5]

Joaquim, like the majority of Vila da Praia fishermen, has made numerous voyages to the Newfoundland cod fishery. He owns his own boat, the *Três Marias*, and fishes daily with a partner who is also a boat-owner. The men fish one week in one man's boat and the next week in the other man's boat; each brings his own gear, nets, traps or lines depending on the season. "This way we are equal to one another," they say. Their wives also work together on the beach. They unload the boat, sort the fish, sell some directly to neighbours on the beach, and auction the remaining fish in the *lota* (fish auction) to local women fish vendors or to merchants who come from the nearby cities of Matosinhos and Porto. The wives keep an account book of all expenses and earnings of the fishing operation and every Saturday the two couples get together and divide the week's earnings equally between them. They maintain equitable relations between the two households by having an equal investment of capital and labour.

Joaquim and his wife Maria consider that they have a strong marriage and view themselves as partners in the household fishing enterprise. In Vila da Praia they are known as hard workers; when they are not working on the beach, they are making or mending nets in the yard outside their house. They have six children, three sons and three daughters. The daughters all work as seamstresses in a nearby garment factory, two sons work in house construction, and one son is a fisherman. Two daughters and a son live at home and hand over their wages to their mother to manage for the household.

Joaquim remembers:

> I made my first voyage to Terra Nova in 1958. I was nineteen years old, a *pobre*, and had just married. My wife was seventeen and pregnant. I knew that I would not be able to support a family by fishing in Vila da Praia. I wanted to go to the cod fishery (*a pesca do bacalhau*) to earn money. I also wanted to avoid the army. I wanted to be earning money for my wife

and the army didn't pay. I discussed it with my wife and she wrote to her cousin in Angola asking him to write to David R. here in Vila da Praia. David owed him a favour and she asked him to ask David to take me with him to Terra Nova. David arranged a place for me and after that I did the same for others. My son was born that first year I was in Newfoundland.

I went to the Newfoundland fishery every spring for twelve years and was gone for six to eight months each time. It was a long time to be away from my wife and family. There were always two great blows for me each year when I left for Terra Nova. The first was leaving my children behind here in Vila da Praia. We left them with my wife's mother and my wife came to Lisbon to be with me until the fleet left for Terra Nova. The second was saying goodbye to my wife in Lisbon.

The first few days at sea were very hard. Then the time started to be filled with hard work – sometimes around the clock – and there would be little time for thinking. They were the worst of times. Always dirty. Eating poorly. Working hard. Living in very cramped quarters: bunks with very little space above or below them. We earned some money. More than here. But it was very hard. It's possible that if we needed the money, I'd go again. I've only just turned fifty. I am still strong and a good worker. But it was a hard life, very hard to be away from my wife and children. That's no way to live. If my wife could've gone with me there and if we were coming ashore every few days or every weekend like the trawlers do nowadays that would be different. But to be there for six months and my wife here: that's no life. I'd sooner be here in my own house with my family than earning money there.

My first seven voyages were in a terrible boat. The captain was very bad, mean. The food was bad: for the men, it was beans and potatoes; for the officers, it was steak. And then, after fishing in Newfoundland, we went to fish in Greenland before coming home. Then I got a place on the *Vila do Conde*. The *Vila do Conde* only fished in Newfoundland – on the 'Rocks,' the Baixas. Almost all the men from here were fishing on the *Vila do Conde* then. It was a good boat. Good captain. Fair. Good food. I made my last five voyages in the *Vila do Conde*. I went for the last time in 1969. That was the year we rescued bodies from a Canadian ship that had sunk after a fire. When I saw those bodies I began to think of never seeing my wife and family again. I thought: 'This could happen to me one day and my wife and children would be left without support, without the money that I earn.' I was also just tired of the life: it was no way to live, so many months separated from my wife. I discussed it with her and we thought that we could make it by fishing regularly on the beach here. We'd not be rich but we'd have just enough to get by. To be able to live with one's wife and children ...

In 1961 we had bought a piece of land here to build a house on. By 1969 we had a house and a boat of our own and we thought we could get by by fishing here. That's how we've been living and we live well. We live day by day. For today we are fine. Who knows about tomorrow?

There were some good times. I was in St. John's for the procession when Our Lady of Fátima came to Newfoundland. When we were in port, I used to hang out with the other Portuguese in the park where the statue of Corte Real is. And the people of Newfoundland were always very kind and friendly. But the life was very hard.

Manuel

I will tell you about my life as a cod fisherman (*um bacalhoeiro*). I want to help you with your work. I want to tell you how it really was because you will not get the truth from books. You can not know how it really was because of the politics (*a política*). The government told

lies about the fishery. I can only talk about the time of dory fishing (*pesca à linha*), because I made my last voyage in 1969 before the trawlers. I made twelve voyages between 1958 and 1969. I stopped going because the owner (*o patrão*) refused to give me the amount of money under the table that I asked for when I went to register in March 1970 – and I was in the first line (*a primeira linha*) of the cod fishermen! Instead I joined other fishermen from Vila da Praia and went to fish for a company in Germany. Then I got better work paving highways in Germany for ten years. They paid well there. Now – sine 1982 – I work in a soy oil factory in Vila do Conde. I can only talk about what it was like during the time when I was a cod fisherman. And it was very bad. It was a slave's life. It was in the time of fascism, the time of Salazar.

I was born in Vila da Praia in 1937. My father and my grandfather were both *pescadores* (fishermen). My mother was a *jornaleira* (an agricultural day labourer). She worked for the *lavradores* (landowning peasant farmers) in their fields. She also harvested seaweed to sell, and she carried fish inland to sell to the *lavradores* there.

I went to school until the fourth grade and by the time I was thirteen I was fishing full-time. I fished with my father and when I was fourteen I took out my fishing license. In those days (the 1950s) the fishing here in Vila da Praia was very poor (*não dava p'ra nada*). The boats were small. We were still fishing without motors and there were many days especially during the winter when the weather was bad and the sea was high and we could not go out fishing. And when we could not go to sea, we had no fish to sell and therefore no food to eat. The *pescadores* were not like the *lavradores* because they owned land and we didn't.[6] And when we could not go to sea because of bad weather, we had no food for our children. But the *lavradores* always had food to eat; they always had corn to make bread. The *pescadores* had to beg from the *lavradores*. Also, it was after the War. You could not make a living and most of the fishermen emigrated, or they signed on the boats going to the Banks (*os Bancos*) for the cod.

I made my first voyage to Newfoundland in 1958. I was nineteen and still unmarried. I went with Domingos. He was the first fisherman from Vila da Praia to go in the *Vila do Conde*. He was an excellent worker and fisherman so the company wanted more Vila da Praia men. Each year Domingos brought more men with him to the *Capitania* (local marine authority) to be registered until there were sixteen men from Vila da Praia fishing together aboard the *Vila do Conde*. The other men aboard came from different fishing villages along the coast including the Algarve. There were no Azoreans on our boat but there were Azoreans on other boats.

So, I signed on to fish for the cod because it was impossible to make a living here. Life was a misery here on the beach (*na praia*). I was unmarried when I made my first voyage but I already had a sweetheart (*já namorava*). We married in March 1959 when I signed up for my second voyage. Maria was pregnant with our first child and she was living with her mother. Our son was born four days before I returned from Terra Nova. He was born on 18 October and I got home on 22 October. After that, I kept going to the cod fishery because we needed the money. All the men were anxious to go because they would earn more there than fishing here. Although they knew it was slave's life (*uma vida de escravidão*) and poorly paid for how hard they had to work, they wanted to go because they could still earn more than they would here. It was even worse here. My wife and I discussed it. She didn't want me to be away but she knew it was necessary. We were both elder children in our families so neither of us would be inheriting a house. We would have to build a house of our own. Soon we had five children to feed. So we needed the money. My wife moved into a rented house and in 1962 with the help of loans from my wife's family we bought a shack (*barraca*) here on the beach. It was two rooms and she lived here with five children. We gradually built

this new house on the same site as that shack.

When I was away, my wife worked harvesting seaweed with her mother and her aunt. If she needed money she would borrow from them. Her aunt [mother's sister] owned a boat that she had inherited from her father, my wife's grandfather, and she hired men to fish for her. My wife's family also owned a small grocery shop on the beach. So we would borrow from them if she had to. I would come home with money in October and the first thing I would do was to put 1000 *escudos* away in a drawer. My wife would sell her seaweed in November. I would get the remainder of my earnings from the cod fishing – about 20 per cent – around Christmas time. I could also earn a little something fishing here when I was home. I didn't have my own boat but I would fish for others. Then in March when I matriculated I got 3000 *escudos* to buy my gear for the voyage – clothes, wine, soap, shaving supplies – and if there was any leftover I gave it to my wife to spend for the family. This 3000 *escudos* was the only money we were guaranteed. The rest of our earnings depended on how much fish we caught.

About the only good thing about being a cod fisherman was the medical care. We got better care then than we do now. We got free medical care through the *Casa dos Pescadores*. Three times a week there was clinic held in Vila da Praia so our wives and children were always looked after when we were away. And at any time we could call the doctor who lived in a neighbouring village and he would come to our house. We got excellent care – better than nowadays. There was also the *abono* (family allowance). My wife would get twenty *escudos* for each child.

So, in March we would go to the *Capitania* in Vila do Conde to register. Several men would go together and our wives would come too. The women wanted to make sure that we got good contracts, that we would be well paid. The women would always protest about the contract – that the wages were too low. But we had to sign. If we didn't they would call the police, the PIDE, and they would make us sign or go to jail. Also, on the first or second Sunday in March we would go with our wives and families by bus to one of the saints' shrines. Mine was Santa Maria de Adelaide. Others went to São Bento da Porta Aberta or São Torcato or Santa Alexandrina. It was a type of pilgrimage. We made *promessas* (votive offerings) so that we would have a good voyage, so that we would be lucky in the fishing (*ter sorte na pesca*) and bring home lots of money. We had that faith (*aquela fé*) then. Nowadays some people still do this but it's more for fun, a diversion.

Then in early April we'd go down to Lisbon with our wives in a bus paid for by the company and we'd stay in a hotel (that we paid for) for four or five days waiting for our departure. Meals were prepared by the cook aboard the ship in port and we would either take our wives aboard with us to eat or, as I preferred to do, go and get the prepared food and take it back to the hotel to eat by ourselves. I didn't like to take my wife into the ambiance (*aquele ambiente*) aboard the ship.

The cod fleet assembled in Lisbon – all of the boats from Aveiro and Viana and Porto and Figueira da Foz were there. And, on the Sunday before the departure and with our wives still there with us, there was the blessing of the fleet (*a benção*). All of the boats would anchor on the Tejo River at Belem, the same place where Vasco da Gama left from and where he is buried, and Cardinal Segueira, who was Salazar's right-hand man, would say a mass. As I say, we had that faith then. Now I don't have anything to do with priests or bishops or cardinals but we used to like to have that mass said before we started our voyage and before we began the long months of work and deprivation. Then, when the day of departure came we would embrace our wives for the last time. Some of the women would come on board hoping to have just a few more minutes with their husbands but they would be ordered to return to shore. Then we would set sail for Newfoundland and our wives would go north

back to Vila da Praia in the bus. It was usually about mid-April.

On the first day at sea we would take turns on one-hour watches (*a vigia*). And I should mention that this went on for the whole six or seven months of the voyage: we were all responsible at various times for a one-hour watch. On the second and third days we began to get our dories and our lines and hooks ready. The dories were assigned by lot and each man put a mark on his dory to signify that it was his. The company supplied each fisherman with all the lines, hooks and bait that they would need during the voyage. Each man received 25 lines each 50 metres in length and 50 hooks for each line. As well, each man received a six-months supply of tobacco.

After eight or ten days we arrived at the Banks. We would fish there until about the end of June and then we would go to the Baixos (the 'Rocks') to fish until the end of the summer. The Baixos or Lejos were extremely shallow and the Portuguese were the only ones who fished there because we were the only ones who did the dory fishing then. Around this time when we had used up the bait we had brought from Portugal usually in July we would stop in St. John's to buy fresh squid for bait. And again in August we would go into St. John's to buy capelin. If it was a good year we would head home with a full ship in late August or early September. Other years it took until October to fill the boat and some years the boats came home only half full. Those were bad years for the fishermen. We were paid for the fish we caught, not for our time.

Once we arrived at the Banks, we began the routine that we would follow until we headed home for Portugal again. The wake-up call was at 4 a.m. After a breakfast of milk or coffee or cocoa or soup – whatever you wanted – each fisherman took a lunch (*um farnel*) of marmalade, bread, olives, or figs. By 5 or 6 a.m. all the dories were launched and each man was rowing or sailing away from the boat, each going where he wanted to to fish. The captain would watch the dories through binoculars. Each man fished alone in his dory but usually with a colleague in another dory nearby. A 'green' (*verde*) would fish with an experienced fisherman who might be his sponsor on his first voyage. Or two men who had made numerous voyages together on the same ship would fish near one another, looking out for each other. I always fished with José C. If a man filled his dory right away, he would return to the ship to unload, and if the weather was good he would go out again for a second load. On a normal day, the boat would call the dories back about 4 p.m. The captain would raise a flag if it was a clear day; on a foggy day, he would sound the ship's siren or fire a gunshot and the dories would head back to the ship.

Dinner was in two shifts because of the large number of men. And after dinner began a second day of work. Each fisherman also did one of the jobs involved in storing the day's catch. There were four tasks: splitting the fish; removing the head and cleaning the innards; scaling the fish; putting the fish in the salt in the hold. I was a salter (*salgador*). I did this every night. We worked until all the fish were salted and in the hold – sometimes until after midnight and getting up again at 4 a.m. Sometimes we worked around the clock if the weather was good and there was lots of fish.

The *Vila do Conde* was a motor-ship (*navio-motor*) and there were fifty-eight fishermen each of whom was also a cleaner (*escalador*) or *salgador* and one of whom was also the *contramestre* (boatswain or bosun). There were three officers: one captain (*capitaão*), one mate (*imediato*) and one pilot (*piloto*). There were three cooks, one nurse, four motorists (*motoristas*), and ten *moços* (young men servants). The *moços* had a different contract from the fishermen. They were either young boys from the School of Fisheries in Lisbon or they were men who didn't want to fish or whose families didn't want them to fish because of the danger but who wanted to avoid the military service. Their jobs were to shovel the salt and look after the cargo, to manage the lowering, lifting and storage of the dories, to ration

the bait and hand it out each morning at 4.30 a.m. to the fishermen, to salvage the tongues and faces and other parts of the codfish left from the splitting and store them in barrels to be sold later by the company. And this is an important point. I am against fascism. It was our fish – not their fish – but they appropriated the codfish parts as pure profit. They took these parts of our fish to sell for themselves. They also took the cod liver oil. This was fascism.

I worked with three captains in my career. José dos Santos (*dos Chatos*, 'The Squabbler', we called him), Manuel Pata, and Ernesto Costa ... all from Ílhavo. Manuel Pata was the nicest. Even he was bad but he was the best there was. If you fell asleep on your watch he would just say. 'Go get some sleep.' Others would beat you or write out a report on you. One day, José dos Chatos discovered that the ship's cook had made a cake because it was his wife's birthday and he threw it down and stepped on it yelling, 'Who said you could do this?' All of the men felt so bad for the cook. He was lonely and was missing his wife. The captains were bad, very bad. They treated us as if we were animals (*faziam de nos animais*). They treated us like dogs – as if we weren't human like them. They called us elephants, dogs, and so on. We were like the blacks in Africa had been in the 1920s.

In the time of fascism, the fishermen were not allowed to organize and strikes were against the law. The government established the *Casas dos Pescadores* and told the fishermen that this was their organization and that they were to be grateful to the *Grémio* and to Tenreiro [Commander Henrico Tenreiro]. Tenreiro was in charge of all this. Each fisherman received a card identifying him as a member of a *Casa dos Pescadores*. This card entitled him and his family to medical care and the *abono*. Our *Casa dos Pescadores* is in Vila do Conde. Although it's true that we were better looked after then than we are now, we were very subjugated (*muito subjugados*). The *Grémio* was for the owners, for the companies. Tenreiro was in charge of it; he was the commander. The *Grémio* united companies, the employers, but there was no union for the fishermen. They had the power (*a força*), we had the weakness (*a fraqueza*). The government established the price of fish and all of the companies paid that price to the fishermen. The fishermen had no control over the price of their fish. Some companies owned the *secas* (companies where the codfish was dried) as well as the boats. They bought the fish from the dorymen, dried it, and sold it again. The government controlled both the price that they paid for the fish and the price that they sold the fish for.

As I've said, in March when we went to the *Capitania* to register, we were given 3000 *escudos* up front to buy our supplies for the voyage and this was the only money we were guaranteed. We were paid according to the fish we caught. The captain's eyes were the weigh scales. Each day when the dories returned to the ship the captain would estimate the number of quintals each man caught. He did this by looking at the volume of fish that filled each section between the thwarts in the dory. Then he would record 60 per cent of this weight because that was considered to be the weight of the fish after it had been cleaned, split, and salted. Each fisherman also tried to keep a record of the fish that he caught. But a fisherman would have little recourse if the captain recorded a smaller catch than he recorded. All captains had their favourites and those they disliked, and they would record more or less fish accordingly. An unfavoured fisherman might suggest that the captain had made a 'mistake' ('*tu enganaste*') but could never say that he had been robbed. But it was robbery.

On my first voyage in 1958 when I was a 'green' I earned 8000$00 including the 3000$00 advance and I had fished very well.[7] We were paid 20$00 per quintal up to 100 quintals, 40$00 per quintal after 100 quintals and 80$00 per quintal after 200 quintals. It was an incentive to fish more: we were paid more for fish after 100 quintals. In 1969, my last voyage, I earned 34000$00 (6000$00 advance, 20000$00 at the end of the voyage and 8000$00 at Christmastime after the fish had been dried and sold). We were paid 80$00 per quintal up to 100 quintals and 180$00 per quintal after 200 quintals. I earned 34000$00 and I was one of the top ten. Others earned half of that. For six months work the best would not earn 50000$00. It was very little money for the hard work. It was robbery. But it was far more money than I could've earned in Vila da Praia.

There was rivalry among the fishermen: each wanted to be the best – like a bicycle race – but it was competition, not conflict. Conflict was between the fishermen and the captains. The fishermen were united against the captain. The living quarters of the fishermen were in the bow of the boat (*a proa*) and the officers lived in the stern (*a ré*) where they had servants to serve their meals and do their laundry. The officers had different, better, food than the fishermen. We lived like animals. We slept two men to a bunk. We'd put our clothes down on the bunk to make a mattress – dirty clothes at our feet. We brought enough clothes for six months and never did laundry so the dirty clothes increased during the voyage. We each brought a blanket from home. We'd put one beneath us on top of the clothes and one over top of both of us. Generally we slept with someone we knew. On our first voyage when we were 'greens' the captain would assign us a bunk partner but after that we could usually choose our partner. It was a kind of family – we were more than friends (*mais do que amigos*) – and it had to be that way: six months in voyage. We had to be very disciplined and respect one another in order to work and live side-by-side. Of course there were squabbles (*chatisses*) but my wife and I also have our squabbles – typical family relations. In the *proa* there were good relations among the men. During bad weather at sea we might cook meals of special foods that we had brought from home or when we were in port we might invite Vila da Praia men from other boats to come and eat with us on the *Vila do Conde*. The cook was good about that.

There was one time in 1966 when the cod fishermen tried to hold out for more money. Fishermen from the Algarve called fishermen in Aveiro who called others in Vila do Conde who told us to ask for more money when we went to the *Capitania* to matriculate. So in March when we went into Vila do Conde we all said that we wanted to be paid more for our fish than the contract offered. The *Capitania* called in the PIDE and we were forced to sign. They said 'sign or go to jail.' As I say, in those days under fascism we were very subjugated. I never voted until after 1974. And, on the ship, the captain had all the power, we had none.

I'm outside that life now and I don't want to know about it. I'm only talking about it because I want to help you with your work. But it was a slave's life. I don't want to remember it.

The Salazarean New State and the Newfoundland Fishery

> "Father, what is the New State?"
> "Son, the New State is a Government that helps us, that gives us work, that gives us bread."[8]

The Portuguese Newfoundland fishery in the twentieth century can only be understood in the larger context of the corporate structure of the Salazarean New State (the *Estado Novo*). The New State came into being after a military coup terminated the First Republic on May 28, 1926 and it held power until the Revolution of 25 April 1974. It was an authoritarian, nationalistic, Christian (Roman Catholic), anti-capitalist and anti-communist state, and was strongly influenced

by Italian and Spanish fascism and later by Nazi Germany. The rise of fascism in Portugal in the form of the New State was related to post-World War I fears of liberalism, democracy, populism, mass society, and industrialization and the form that it took was in large part due to its founder, Dr. Oliveira Salazar.[9]

Oliveira Salazar was a thirty-nine year old professor of economics, founder of the Catholic Party (the *Centro Académico de Democracia Cristã*), and had been elected to Parliament once before he became Minister of Finance in the military dictatorship in 1926. He was a well-known deputy of conservative, Catholic interests and had published numerous articles and books on economics and finance in which he had outlined the virtues of the balanced budget that became a trademark of his government. Already in 1929 he was speaking freely on non-financial matters and was a strong nationalist coining the now-famous slogan "Nothing against the Nation, all for the Nation." By 1932 the military dictatorship had ended peacefully and Salazar had formed a government with himself as Prime Minister, a position he held until he suffered a brain hemorrhage in 1968 and was replaced by Marcelo Caetano.

In regular speeches to the nation, Salazar outlined his view of society and of the role of the state. He saw the family as the fundamental cell of the state and the virtues of family were a constant theme. The state was "like a great family" with a father (himself) at its head (Leeds 1984:17). The state was an organism with each segment in its proper place obedient to both authority and to the traditions of the past. Salazar's belief in the value of tradition translated into romanticization of what he called the "stability" and "order" of rural life, and a denial of the poverty of the rural population. He believed, then, in a strong and paternalistic state based upon order and discipline. And, to this end, he abolished all unions and political parties, strongly enforced censorship, and created, among other groups, the PIDE (*Polícia Internacional e de Defesa do Estado*), a secret police force trained by German and Italian experts.

Salazar rejected the inevitability of class struggle and regarded it as thoroughly opposed to the principles of the New State. He spoke, instead, of "class harmony" and envisioned the interests of both employers and employees as united morally and economically in "corporations" that worked for a common "national" interest. The corporatism of the New State became, then, not only a device for consolidating an authoritarian political system, but also an instrument of class rule. Each industry was organized into a *grémio* (guild) that brought together individual employers and companies. Rural unions – the *Casas do Povo* – were established and their members included both employers and workers. Associations of fishermen and their employers – the *Casas dos Pescadores* – were also created. As well, a number of pre-corporative bodies were established for each industry to coordinate the relationship between the state and the corporations. These were: regulating commissions (*comissões reguladoras*) to control imports; national boards of trade (*juntas nacionais*) to develop and control exports; and, "institutes" to supervise and officially guarantee the quality of exports.

The reorganization of the Newfoundland cod fishery during the 1930s exhibits

many of the features of the New State that dominated Portuguese society for almost half a century. The fishery was state-controlled and not market regulated; it was hierarchically organized in a corporate structure established by state decree; and, it was part of a larger national policy that aimed to constrain industrialization and keep the population rural and uneducated, and available as a docile and cheap labour force. The costs to the state in incentives and subsidies to develop and reproduce this rural and dependent labour supply may have been greater than the costs of subsidizing the modernization of the fleet would have been, and are indicative of a general state fear of politicization of the population through industrialization.

In the 1920s, the cod fishery was characterized by poor organization, low production, and heavy foreign competition. As noted earlier, domestic cod production in 1920 was only 5 per cent of cod consumption and domestic production never exceeded 12 per cent of consumption prior to 1930 (see Table 2). Huge volumes of cod were imported annually (31,268 tons in 1920 alone) primarily from England but also from Norway and Sweden. The restructuring of the cod fishery by the state was motivated by two concerns: the first was to reduce imports and the second was to create employment that would maintain a rural population.

In 1921 a commission established by the Republican government to study the cod fishery had recommended revitalization of the industry through state intervention in a variety of forms including: subsidies and loans to cod merchants and shipbuilders to modernize the fleet; incentives to fishermen to establish the labour supply; and abolition of taxes on domestic cod to make domestic cod prices competitive (Amzalak 1923). Fifteen years later the New State acted on these recommendations and established the *Comissão Reguladora do Comércio de Bacalhau*, the CRCB, in 1934 and the *Grémio dos Armadores de Navios da Pesca do Bacalhau*, the GANPB, the following year.

The CRCB was responsible for regulating cod imports and ensuring that wholesalers purchased domestic cod in proportions and at prices annually fixed by the Commission. The CRCB controlled the classification, quality, and sale of all cod, and established the price. Cod would be considered "domestic" if it had been fished by boats whose owners were registered in the GANPB and if it has been fished in conformity with CRCB regulations. No boat could leave for the fishery without prior authorization from the CRCB. All owners were required to declare to the CRCB within fifteen days of returning from a voyage the volume of green cod carried by each of their ships. A margin of loss (*quebra*) due to the transformation of green to dried cod was established by the CRCB.

The CRCB regulated the market, ensured that shipowners were paid a competitive price for their fish, and stabilized the sale price of dried cod to consumers. Between 1934 and 1965, the size of the fleet increased from 43 ships to 71 ships and the capacity of the fleet increased from 11,362 tons to 74,160 tons (see Table 3). Domestic production that had been only 8 per cent of cod consumption in 1930 had increased to 76 per cent of cod consumption by 1965 (see Table 2). By the 1950s, Portugal's cod production was second only to Canada's

Table 3. *The Cod Fleet, 1926 to 1979.*

Year	Total No. Boats*	Total Tonnage	Total Crew	No. Trawlers**	No. Dory-Fishing Boats Luggers	Motorships	Total***
1926	39	9,777	-	0	36	0	36
1934	43	11,362	1,944	0	43	0	43
1936	51	16,489	2,157	1	50	0	50
1940	48	19,454	2,228	4	42	2	44
1945	50	-	2,861	6	37	7	44
1950	63	47,857	4,018	18	34	11	45
1955	70	61,941	4,928	22	25	23	48
1960	72	71,029	5,490	23	-	-	49
1965	71	74,160	-	32	8	31	39
1970	63	75,330	5,200	39	-	-	24
1974	57	81,951	-	55	-	-	2
1979	30	-	-	30	0	0	0

Sources: Azevedo (1982), Castro (1969), GANPB (1940), Mouro (1985), Moutinho (1985), Silva (1957), Teiga (1982), Villiers (1951).

* Attrition of the fleet was also a factor. A number of boats were discontinued each year due to age, fire, and shipwrecks.

** Trawlers had an average tonnage of between 1200 to 1500 tons and the majority made two annual voyages departing in February and August.

*** In 1936 the average tonnage of a dory schooner (the traditional three- and four-masted luggers, (*lugres*) was 356 tons, each carried an average of 37 dories, and less than half had auxiliary motors; in 1950, the average tonnage was 455 tons, each vessel carried an average of 43 dories, and only 3 vessels were without auxiliary motors. After 1939, the dory fishing fleet also includes the state-sponsored motorships (*navios-motor*). The breakdown into luggers and motorships was not available for the years 1960, 1970 and 1974.

and first among the European countries fishing in the North Atlantic. Nonetheless, the fishery was still precarious and domestic production still was not able to meet national needs. During this time, five national conventions were held to discuss the problems of the cod fishery. Debate centred on technology, and on the problem of maintaining the supply of cod.

In 1938 the president of the CRCB, Higino Queiros, reported that the cod fishery suffered from poor administration, lack of technical competence, poor return from cod, and poor processing of cod that resulted in poor quality. The greatest problem in his view, however, was the age of the boats and their small capacity. In 1938, 70 per cent of the fleet (33 of 47 boats) was over ten years of age. He attributed the poor state of the fleet to the persistence in line-fishing and blamed the shipowners for not developing trawler-fishing. In 1938 only four shipowners had built new boats and of those four boats only one was a trawler; the other three were traditional luggers (*lugres*) with less than 800 tons capacity. Queiroz estimated that in order to increase domestic production to even 60 per cent of national cod consumption, the capacity of the fleet would have to double.

And, by the end of the 1930s, the primary objective of government policy had become to renovate the fleet (Centeno 1940; Lanhoso 1949). Curiously, although Queiroz prioritized doubling the capacity of the fleet and increasing production, and although he acknowledged the superior production and capacity of trawlers, he was reluctant to advocate abandonment of traditional line-fishing from dories (Mouro 1985; Teiga 1982). In his 1939 annual report he wrote:

> The truth is that not only are other methods [i.e., linefishing] equally productive but it is necessary to consider that while trawler-fishing is productive in fish of average size it is not possible to catch larger fish that are also demanded by the market. All indications are that we ought to adopt a mixed situation allowing the development of trawler fishing without affecting existing methods. This is not to prejudice the fundamental idea that our fleet and our methods require renovation...

This ambivalence plagued the entire project to renovate the fleet with the result that by 1961, although 66 new boats had been built, two-thirds (44) of these were designed for doryfishing and only 22 were trawlers.

Files of the CRCB between 1939 and 1943 show that there was tremendous indecision within the Commission about how to proceed with the renewal of the cod fleet. There was discussion of the difficulty of obtaining materials, especially steel and petrol, during wartime but most discussion centred on what kind of ship design to authorize. The CRCB wanted to centralize the designing of ships, the use of technical expertise, and the purchase of materials. It considered it most economical (and therefore desirable) to construct a number of boats of the same design but there was no agreement on what that design should be. In any event, the Commission was hesitant to endorse the building of trawlers. The Commission finally adopted the *Renovação* design, a boat that could be built of local wood (and therefore of smaller dimensions than boats built of imported steel) and later converted to trawlers. By 1943 the CRCB had abandoned the idea of building any trawlers at all due to the cost and difficulty of obtaining materials. The President of the CRCB recommended that the design of the *Renovação* be kept but that it be recognized that these boats would never be converted to trawlers. He authorized four shipbuilding yards to proceed with construction of eleven boats of the *Renovação* design. A year later, however, he was authorizing the building of trawlers again. The vacillation of the CRCB continued until the late 1960s. In 1955 the Commission had refused to authorize the building of any trawlers but by 1960 it had reversed this decision and had authorized the conversion of 15 dory fishing boats to trawlers. In 1967, the protectionist control of the CRCB was terminated and the cod market was deregulated. The sale of cod would no longer be subjected to fixed prices; wholesalers were authorized to import cod; and, the quota system that had regulated the distribution of domestic cod was abolished.

Despite the increased capacity and production of the fleet and the relatively successful, if temporary, reduction of imports, the industry remained in constant crisis. The state was unable to develop an effective plan for reorganizing and

modernizing the fleet and was reluctant to abandon dory fishing. Dory fishing was economical when labour was abundant and offered a means of employment that would guarantee the reproduction of rural communities and of a rural labour force.

The Merchant-Owners of the Fleet

The preamble to the 1935 legislation that established the GANPB (the *grémio* of the owners of the cod fleet), noted:

> Recognition of the value that cod consumption represents to the national economy and of the necessity to protect domestic cod from the excessive and not always fair competition of foreign cod, taking care of the interests of consumers as well, led the Government to establish on 5 June 1934, the CRCB. After one year in operation, it has already attained its objectives: the market has been disciplined and domestic shipowners are assured a remunerative price for their fish and a stable price that enables them to proceed with the processing [i.e. drying] of their cod.

This preamble was intended both to encourage the shipowners to invest in the cod fleet and to suggest the advantages to them of state regulation of the industry that included the organization of the shipowners themselves into a *grémio*.[10]

The GANPB was to:

1 develop, control and direct the fishing, drying and sale of domestic cod and the utilization and sale of the byproducts;
2 assist its members (the shipowners) to develop the fishery and related industries;
3 develop insurance policies for boats, gear and cargo;
4 establish the terms of work (contracts) for each voyage subject to superior approval; cooperate in the establishment of institutions designed to protect those who work in the industry in case of illness, infirmness, or involuntary unemployment, and also to guarantee retirement pensions;
5 guarantee protection against accidents and risks of the profession

The income of the *Grémio* was generated by a tax to the shipowners on green domestic cod – a tax they continually protested was too high. As well, the shipowners complained that the price of domestic cod did not match the costs of production, and that there were too many services and insurance schemes for the fishermen and none for the owners (which was untrue). But their greatest complaints were about the government's plans for renovation of the fleet. Shipowners argued that wooden ships of the *Renovação* design would not significantly increase the capacity of the fleet and most considered that trawlers were too costly to build because they required expensive imported winches, cables, electrical installations, nets and engines. Only the owners of the *Empresa de Pesca de Aveiro* (who in 1938 had commissioned the building of the first Portuguese trawler in Denmark) continued to build trawlers and went on to develop

the stern trawlers that would eventually become widely used in the Portuguese cod fleet (Teiga 1982). Most of the merchant-owners, however, shared the view of one who wrote to the President of the CRCB in October 1943:

> ... this company does not wish to build a single ship according to the general plan ... the cost of construction has exceeded by thousands of *contos* the estimates of eighteen months ago when this plan to increase the fleet was initiated; we would prefer to build boats of steel that, although more expensive, have greater intrinsic value and larger cargo capacity.

Shipowners such as this one were prepared to increase their capital investment in order to increase cargo capacity but not to make the capital investment needed to transform the technology of fishing itself; they preferred to modernize the ships used in dory fishing. To increase production and continue dory fishing, they only needed to increase the capacity of their ships, the number of men and dories, and the length of time at sea (after fishing in Newfoundland, they went on to fish in Greenland before returning to Portugal). Whereas trawlers carried an average of 70 men, made two trips annually, and had an average tonnage of 1273, the motorships required more men, had smaller capacities and made only one voyage annually. Steel motorships carried an average of 95 men and had an average tonnage of 1114; wooden motorships carried an average of 72 men but had an average tonnage of only 706. The traditional luggers carried an average of 60 men and had an average tonnage of 523 (calculations based on Silva 1957: Appendix). The abundant supply of cheap labour in rural Portugal thus became a form of capital for the shipowners. They perceived no need to invest in the technology of trawler-fishing when they could increase production and realize large profits by intensifying the exploitation of the labour supply they had available to them – a labour supply that was, as we shall see, maintained by the state through incentives and subsidies.

Regardless of the type of vessel built, the shipowners absorbed little of the cost of renovating the cod fleet. They claimed to be in financial difficulty and unable to repay government loans, but they were also highly subsidized. Through a state-run cooperative they obtained all supplies for the fishery, including bait, at reduced prices and on credit. The state also absorbed the costs of shipbuilding through subsidies to the shipowners and through long-term, low-interest loans that were rarely repaid. In fact, institutional records of the GANPB indicate that profits to the companies were respectable in even the poorest years and very significant when the ships returned with full cargos. Again, profits were secured by exacting increased effort from the fishermen. In order for the ships to return full, the captain merely had to prolong the voyage for a few weeks or even months, the only expenses to the owners being food for the fishermen (notoriously poor and small in portions) and petrol. This means of increasing production represented a reduction in the hourly wage of the fishermen who were then required to work up to several hundreds hours more.

Thus, until the late 1960s, the profits gained by the owners of the cod fleet were achieved through intensified exploitation of labour and not through

modernization of fishing technology. The shipowners were reluctant to invest in trawlers when, by extracting unpaid effort from the fishermen, they could secure healthy profits for low investment. There is little doubt, however, that if the shipowners had not had at their disposal a population with a standard of living so low that they would accept starvation wages and inhuman working conditions, they would have invested in technology in order to increase production. The relationship between the supply of cheap labour and the reluctance to make capital investments in technology became clear in the late 1960s when fishermen began to emigrate in large numbers to northern Europe where they would be paid higher wages (wages are discussed in the following section; see also Castro 1969:38). The labour supply then became a problem for the cod fishery and shipowners rapidly increased the number of trawlers in their fleets.

Contracts and Paternalism

The *Grémio* represented the interests of merchant-shipowners, the CRCB represented the state, but no organization protected the interests of fishermen. According to state officials, the interests of the fishermen were protected by the *Grémio* and embodied in the *Casas dos Pescadores*, centres located in coastal villages where fishermen and their families could go for social and medical assistance. The state created numerous other incentives that, on the one hand, appeared to address the needs of poor, rural fishermen and their families, and on the other hand, served to develop and maintain the labour supply. These incentives (to be further discussed below) included an adjustable piece-rate so that men who landed more fish (regardless of the time spent fishing) were paid at a higher rate for their cod, and cash advances that were adjusted according to skill and experience. Incentives also included social services that were offered to the fishermen and their families and that were not generally available in Portugal until after 1974. These social services included: free medical care, a family allowance (the *abono*), pensions upon retirement, subsidized new housing (in theory but rarely in practice), and education for the sons of fishermen who wanted to become fishermen. Men who made six consecutive cod voyages were also exempted from compulsory military service.

State paternalism was accompanied by continual reminders of the fishermen's subservience to, and dependence upon, the state – reminders that appear to have been intended to induce the fishermen to accept the poor wages and working conditions. Slogans conceived and published in various contexts and media controlled by the state reminded the fishermen of the primary principles of the New State – God, Country and Family – and of the virtues of hard work, austerity and discipline. Details of contracts – of wages and hours of work – were not to concern the fishermen because the state was protecting their interests and because work was noble in itself and honour was one's reward.

The following examples are quotations from speeches made by Salazar and Commander Tenreiro and later published in the *Jornal do Pescador*, a state-authorized magazine that was circulated free to the fishermen through the *Casas dos Pescadores*:

Fisherman, think well! God, Country, Family and the Sea ought to be for you, Fisherman, the four cardinal points that guide your life.

Fisherman! Don't view work as punishment because it is the noblest and most honourable occupation of man.

Fisherman! In the struggle to contribute to your country, there are no lowly professions; all are equally honourable when the Love of work exists.

The greatest virtue of the worker and the soldier is discipline.

Be disciplined in everything: towards your superiors and your colleagues; in your commitments, in the family and in society. Discipline is the road that leads to triumph.

Your home, your children, your wife and your Country – you can only serve them in one way: working.

Fisherman! All of the assistance and aid provided by the *Casas do Pescadores* is possible due to the corporate action of the New State instituted by our leader – SALAZAR.

The *Grémio* is your protector; if you have a complaint or grievance, take it to the *Grémio* through the intermediary of your *Casa dos Pescadores* and rest assured that you will receive justice.

Respect the hierarchies, that is to say the levels; you should make your claims/complaints to the *Grémio* only after you have presented them to your Captain. After this you should complain to the Shipowner and only afterwards should you resort to/appeal to the *Grémio* and even so this should be through the intermediary of your *Casa dos Pescadores*.

Your best friend is your employer; he thinks more about your well-being than you can imagine.

Prior to the reorganization of the cod fishery by the New State, individual captains had recruited men for particular boats, and contracts and methods of payment were also individual arrangements. After the restructuring, recruitment for the whole fishery was undertaken by the *Grémio*, and the method of payment was established by an annual contract drawn up by the GANPB. Once a man signed up for the cod fishery he was required by law to make six consecutive voyages regardless of the terms of employment. And, if he did not register each March, the local marine authorities would call the state police to go to the man's home and bring him in to sign up. If a man complained about the contract and refused to sign, the police were also called. In Lisbon, the GANPB maintained a central file in which all fishermen were registered (by 1974, 23,400) and where notes were kept on each man that included not only the boat embarked on and the volume of fish each man caught on each voyage, but also notes on a man's comportment and "discipline."

The contract of 1955 was typical. The fleet was divided into three categories of ships. "A" ships were those with a capacity greater than 8,000 quintals; "B" ships were those with a capacity between 6,000 and 8,000 quintals; and "C" ships were those with a capacity of less than 6,000 quintals. Fishermen were divided into five gradations: "Specials," 1st Line, 2nd Line, 3rd Line, and "Greens" according to the amount of fish they had caught on their last voyage. For example, in "B" ships, "Specials" were those who caught more than 190 quintals; the 1st Line caught between 160 and 190 quintals; the 2nd Line caught between 120 and 160 quintals; the 3rd Line were those who caught between 80 and 120 quintals; and the "Greens" (*Verdes*) caught less than 80 quintals of cod. "Greens" were fishermen making their first voyage and were required to be over 18 and under 25 years of age. In "A" ships, "Specials" were those who caught more than 240 quintals and "Greens" were those who caught less than 100 quintals; in "C" ships, "Specials" were those who caught more than 153 quintals and "greens" were those who caught less than 60 quintals. Thus, to be a "Special" on an "A" ship, a fisherman had to catch almost 100 quintals more fish than did "Specials" on "C" ships, the ships with the smallest capacity. The GANPB moved men up to "A" ships based on their individual landings and the GANPB ensured that each dory-fishing ship had approximately 20 per cent "Specials," 30 per cent 1st Line, 30 per cent 2nd Line, 10 per cent 3rd Line and 10 per cent "Greens" (GANPB 1955).

A fisherman's pay was made up of lump sums paid in advance and payment on his catch in quintals estimated by the captain each day at the time the fish was taken aboard the ship from the dory. Because the fish were not weighed and because the fishermen did not trust the captains, they considered this to be another method of exploitation. Every doryman was also a splitter or salter, or a general labourer during the nightly fish-cleaning. Splitters and salters were graded in classes according to their experience and speed of working and received an adjustable lump sum advance. For example, a doryman in 1955 would receive an advance of 5,000$00 plus an additional lump sum of 500$00 if he were a first class salter (450$00 if he were a second class salter, 350$00 if he were a third class salter, or 400$00 if he were a first class splitter, 350$00 if he were a second class splitter, or 250$00 if he were a third class splitter; general labourers received 50$00 to 150$00). His earnings above this were proportional to the volume of fish he landed and the piece rate was adjustable: fisherman who landed more fish were paid more per quintal. The adjustable piece rate in 1955 was:

- For each quintal of green cod up to 100 ..... 20$00
- For each quintal of green cod from 101 to 150 ..... 25$50
- For each quintal of green cod from 151 to 200 ..... 32$50
- For each quintal of green cod over 200 ..... 35$00

The men received their pay in three installments: in March upon signing, in October based upon the captain's estimate upon disembarking, and in December after the fish had been dried and sold. The method of payment never worked to the advantage of the fishermen. For example, one fisherman caught 250 quintals of cod in 1967 and earned 32,490$00 for six months' work. In 1970, if he had caught the same amount he would have earned 43,750$00 but due to the scarcity of fish that year he caught only 150 quintals and earned only 26,500$00 or 18 per cent less than he had earned three years before.

Fishermen were paid for the fish they caught, not the time they worked. The contract was always vague about the hours of work and this was another source of grievance. The standard clause on hours of work in the contract was as follows:

> Hours of duty aboard will be organized so that, during the fishing, each crew member will have, at least, four consecutive hours of rest in addition to the hours of rest that their duties permit and one-half hour for each meal, *except in those duly justified cases where the special circumstances of the fishing do not permit* (GANPB 1955) [emphasis mine].

Hours worked aboard ship were, therefore, dependent entirely on the goodwill of the captain. A major complaint of the fishermen was that they often went weeks without four hours of sleep in twenty-four, that they lived and worked in a constant state of fatigue that was aggravated by the poor food and crowded quarters (where they slept two men to a bunk). The quality of life aboard depended on the captain and, like Joaquim and Manuel, few fishermen can remember a good captain. Instead the harshness of the captains was renowned. Nicknames for captains abound, nicknames such as: "Light Breeze" (*O Araginha*) because even in strong winds he would make the fishermen launch their dories saying it was only a "light breeze"; or "Beater" (*O Pancadaria*) because he used to beat the fishermen on his ship.

A strict hierarchy existed between the captains and ship's officers and the dorymen – a hierarchy that was evident in the social structure of life aboard ship and that was maintained by the differential pay structure. As Joaquim and Manuel described for us, the captains lived in the stern (*a ré*) of the ship where they had comfortable quarters, good food, and servants to care for their laundry, bathing, and other personal needs. The fishermen lived in the bow (*a proa*) in crowded quarters with no servants and no fresh water for bathing and where they were fed different and inferior food than the officers. Where fishermen were paid by the piece, ship's officers were paid a lump sum and an adjustable share of the ship's total cargo in green cod and cod-liver oil. Captains received a monthly salary payable throughout the year in addition to a share of the catch of the cod, and a share of the take of cod-liver oil, tongues, cheeks, and other cod parts (a share that dorymen like Manuel strongly resented). Many captains invested their shares in boats to eventually become owners, and many owners were former masters.

The Dorymen: Family, Household, and Gender Constructs

The commander of the first support ship the *Carvalho Araujo* that accompanied the Portuguese fleet to Newfoundland in 1923 reported first-hand on the condi-

tions of the lives of the dorymen on the Grand Banks, conditions that, as Joaquim and Manuel described, were still unchanged in the 1960s. He called the conditions deplorable and wretched (*desgraçados*), the work arduous and dangerous, and the life horrible (*horroroso*). He considered that men would subject themselves to such living and working conditions only out of "necessity, adventurousness or unconsciousness" (*por necessidade, aventura ou inconsciência*). He was also one of the earliest critics of the Portuguese persistence in linefishing and argued that dory fishing only produced good results when fish were abundant; otherwise the labour required of the men was far in excess of the results achieved.[11]

Who were the dorymen? Why did they go to the Newfoundland fishery? Why did they accept the poor wages and working conditions? And, how did they view their experience?

Like Joaquim and Manuel, the majority of the dorymen were inshore fishermen from small coastal villages in northern Portugal, the Azores, and the Algarve. To answer these questions, then, we need to know more about village life and family and household organization in Portugal under the New State. I use Vila da Praia, the village in which I conducted fifteen months' fieldwork during 1984-85, as representative of the kind of community that produced the labour necessary for the Portuguese Newfoundland cod fishery.

Vila da Praia is located on the north coast of Portugal about twenty-three kilometres north of Porto, Portugal's second largest city. In 1930 its population was 926; by 1960, its population had grown to 1,933, and by 1985, its population was almost 3,000. From the turn of the century until the 1960s, one-third of the village population was engaged in the local inshore fishery, and the remainder were employed in agriculture. But during the 1960s wage employment opportunities became available and began to attract young men and women, and by 1985 only 8.7 per cent of parish households engaged in fishing and only 7.2 per cent engaged in agriculture; the majority of households were now dependent upon wages earned in nearby factories or in construction work. In 1985, only 29 women and 53 men were employed full-time in local fishery, the men fishing and the women unloading the boats and selling the fish. No household relied solely upon income from fishing. All except two of the households that engaged in fishing also had teenage sons and daughters employed in wage work and depended upon their additional cash earnings. Only two households had dependent children and, in 1985, the men from these households decided to make trips with the Portuguese cod fleet because they needed the cash. An additional eight men were making annual voyages with the cod fleet and fished locally with relatives when they were home. Although only eight men in 1985 described themselves as *Bacalhoeiros* (cod fishermen), all except one of the 53 inshore fishermen in Vila da Praia had at one time or other fished with the Portuguese Newfoundland cod fleet: some had made the minimum six voyages, many had made between ten and twenty voyages, and, one man was making his thirty-ninth voyage to Newfoundland when I was in Vila da Praia in 1988. The demography and history of the fishing households of Vila da Praia may, then, be summarized as follows:

until the 1960s, one-third of the households in the community depended upon fishing and all except one of these households had sent men to the Newfoundland fishery at one time or other. By the 1960s, wage employment opportunities were attracting young people and the number of men employed in both the inshore and the cod fisheries was decreasing. By the time I was conducting fieldwork in the 1980s, the parish population had increased dramatically and young people appeared to be abandoning fishing; the majority of the men and women engaged in the local fishery were over forty years old and their teenaged children were contributing wages to the household economy. Nonetheless, a few households continued to send men to the Newfoundland fishery.

How could villages like Vila da Praia support and accommodate the long absences of men that the Newfoundland fishery required? At least three characteristics of rural fishing households like those in Vila da Praia enable them to withstand prolonged periods of male absence. The first is that fishing households are "woman-centred."[12] The second is that local people interpret the Newfoundland cod fishery within the context of a long history of male emigration from rural Portugal. And the third is that the dorymen and their families viewed their commitment to the cod fishery as part of a larger household strategy to reproduce the local fishery.

Fishing households in Vila da Praia are woman-centred. Although marriage is considered a partnership and husband and wife say that they confer with one another in decision-making, the household is managed by the woman. An almost-endogamous system of marriage and uxorilocal residence at marriage is practised among the fishing households. Marriages between maritime and agricultural households are rare: sons and daughters of fishermen marry sons and daughters of other fishermen (and of other land-poor households), and sons and daughters of the agricultural households of Vila da Praia marry children of other agricultural (and land-owning) households.[13] A young couple lives with the woman's parents until they can establish themselves in a house of their own. If the woman is the youngest daughter or the last to marry, the couple will remain in her parents' home for she will inherit the house and the fishing boat and gear and she will be responsible for caring for her parents in their old age. If a woman will not inherit her parents' house, she and her husband will build a house of their own, usually close to the houses of the woman's parents and sisters. As a result of these patterns of marriage and residence, bonds among consanguineally related women are strong, and women are able to offer one another mutual support during the absences of their husbands. Manuel described well how this mutual support system worked for his own wife. Women also have an economic autonomy that enables them to meet their own daily needs and those of their children. In addition to managing the economic resources of the household, they generate additional income through their monopoly of the harvest of seaweed and the production and sale of seaweed fertilizer. Women also own property such as houses, boats, and garden plots that they have acquired either through inheritance or purchased with their own savings.

In this cultural context, men marry into their wives' families. Although men

are close to their wives and children, they often are, and feel themselves to be, peripheral to the running of the family and household. Men are expected to earn money to contribute to the household but they have almost no other roles or responsibilities in the household. The cultural ideal is that a wife is "a hard worker and a good manager of the household" (*"muito trabalhadeira e uma boa governadora da casa"*) and a husband is "a hard worker who gives the money to his wife to manage for the household" (*"muito trabalhador e entrega a dinheiro à mulher"*). Men work and when work is done, they go to centres of male social activity, centres which are outside the home and usually in the tavern. Here they play cards and dominoes, drink wine and beer, talk about fishing and weather, and stay out of the way of their wives. Men who go to the Grand Banks fishery thus fulfil local cultural ideals and gender constructs: they work hard and hand over their money to their wives to manage for the household.

The long history of male emigration from rural Portugal has also been important to the development of the cultural values and women-centred institutions that enabled the absence of men at the Newfoundland fishery for prolonged periods. Emigration has been endemic in Vila da Praia and throughout Portugal since the late nineteenth century and has been described as "emigration to return" – that is, men emigrated in order to accumulate cash and with the intention of returning home to their villages (Brettell 1986). In Vila da Praia during the first half of this century it was common for husbands and fathers to emigrate to Brazil frequently (perhaps seven or eight times) during the early years of their marriages each time for a period of a few years. After 1960, northern Europe became the primary destination, and because of its proximity, larger numbers of men were willing to take the gamble of emigration. A different pattern of emigration also emerged after 1960 but one that still involved men leaving their wives and families: men emigrated to wage work (often in construction) and would come home twice a year, once for a vacation and once for Christmas. They lived on their own in France or Germany and their wives and children remained in Vila da Praia. They invested their wages in their homes, properties, and families in Vila da Praia, and they planned to return home to retire.

Emigrants from rural villages like Vila da Praia thus accept low wages, long hours, and poor living and working conditions in foreign countries because they view this work and life as temporary. They accept the work and status of emigrant because in their view (as in the view of generations of Portuguese emigrants) they are working in order to return one day to their homeland with a higher status and a more secure income than they would have achieved had they not emigrated. The social construction of masculinity, then, in rural Portugal incorporates this long history of male emigration and, along with it, the notion that one will have to leave one's homeland and family and endure hardship in order to advance one's socio-economic status and in order to offer a better future for one's children. The decision to go to the Newfoundland cod fishery should be understood within this tradition and as part of this male gender construction.

But the men also joined the cod fishery to achieve specific goals that they defined within the context of the local household economy: they wanted to avoid the military draft and they wanted to earn cash to build a house or to buy a small fishing boat. The majority of men, like Joaquim and Manuel, signed on their first voyage just before or soon after marriage and continued fishing during the years their children were small. Once they owned a house and a boat and they and their wives agreed that the household could subsist on earnings from local fishing and household production, the men rarely hesitated to quit the Newfoundland fishery. Their investment in the cod fishery was, therefore, short-term. Their short-term commitment to the industry produced an ambivalence in their interpretation of their experience as dorymen: on the one hand, they were acutely aware of their exploitation (they described themselves as "like the slaves in Africa") and they abhorred the hierarchical corporate structure that privileged captains and employers and that left the fishermen with co recourse. On the other hand, they were not interested in modernizing technology in order to increase production. Increased production would, from their point of view, only have meant fewer jobs and even lower prices for their fish. Individual earnings would not have increased. The men's philosophy was to endure the hardship – as generations of Portuguese men had done before them – and to return home.

The dorymen, then, did not see themselves as workers whose lives were intimately tied to the fortunes of one industry. Instead, they saw themselves as workers in a household economy and each voyage as part of a household strategy, necessary in order to realize immediate objectives. The dorymen came from land-poor fishing households in small, coastal villages like Vila da Praia. In these villages the fishing households were intimately linked to the local agricultural households: historically, fishermen were the non-heirs of peasant agricultural households and had taken up fishing out of necessity. Fishing households retained many of the characteristics of peasant households – especially a strategic approach to household subsistence – thus, in the Portuguese context, dorymen may be understood as peasants who work for cash to contribute to a household economy. Fishermen represented the lowest social strata of these primarily agricultural communities and their dependence upon an unprivatized common property resource allowed them little possibility of increasing their cash earnings. The wages earned in the Newfoundland fishery – although in no way remunerative of their labour – still represented larger cash earnings than they could earn locally.

Conclusion

The Portuguese cod fleet persisted in line-fishing from dories because none of the three parties involved perceived a benefit from the new technology of trawler-fishing. The state was interested in providing jobs that would keep the Portuguese population rurally-based and unpoliticized. Industrialization of the cod fishery was inconsistent with this objective and the state offered numerous incentives to the cod fishermen in order to maintain the labour supply. The merchant-shipowners were not interested in modernizing technology because they could

intensify the exploitation of available labour and secure healthy profits without increased capital investment. And the fishermen, although they recognized they were poorly remunerated for their effort, were not interested in new technology and increased production for several reasons. They had no long-term commitment to the industry for they saw themselves not as industrial workers but as contributors to a household economy. They joined the cod fleet as part of a household strategy and usually with specific short-term goals in mind: to avoid military service, or to earn cash to buy property – perhaps a small fishing boat or a piece of land on which to build a house. Once they had achieved these goals the majority quit the fleet and resumed fishing at home. Furthermore, the increased production through new technology not only would have decreased the number of jobs available but because the price of cod (the piece rate) would have been lowered, the earnings of individual fishermen would not have increased. In the late 1960s, however, when northern European countries welcomed Portuguese workers and offered higher wages than either employment in Portugal or the Newfoundland cod fishery offered, fishermen emigrated, labour was in short supply, and soon thereafter the cod fleet converted to trawler-fishing.

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Notes

1. By 1472, two Portuguese explorers, João Vaz Corte Real and Alvaro Martins Homem, had reached Greenland or Newfoundland which they called Terra dos Bacalhaus. Others followed during the 1480s and 1490s. By 1495 Pero de Barcelos and Jaão Fernandes Lavrador, whose last name would later be applied to the Canadian coast, had discovered or rediscovered Greenland. In 1500 Gaspar Corte Real thoroughly explored Newfoundland. On a second trip a year later he disappeared and his brother, who tried to find him in 1502, also disappeared (Oliveira Marques 1972:221-27).

2. Anthony Parkhurst's letter to Richard Hakluyt, written in 1578, describes the European cod fleets: "But of Portugals there are not lightly above 50 saile, and they make all wet in like sorte, whose tonnage may amount to three thousand tuns, and not upwarde. Of the French nation and Bretons are about one hundred and fiftie sailes, the most of their shipping is very small, not past fortie tunnes, among which some are great and reasonably well appointed, better than the Portugals but not so well as the Spaniards, and the burden of them may be some 7,000 tunne. Their shipping is from all parts of France and Brittaine, and the Spaniards from most parts of Spaine, the Portugals from Aviaro and Viano, from 2 or 3 parts more. The trade that our nation hath to Island maketh, that the English are not there in such numbers as other nations" (quoted in Anderson and Higgs 1976:11).

3. A Newfoundland planter, however, reported that Portuguese ships were fishing there as late as 1676 (Anderson and Higgs 1976:11). Systematic archival research on this early period still needs to be done.

4. The perspective of the merchant-owners is the least developed here perhaps because I had assumed a coincidence of interests between the merchants and the state under Salazar's New State. Although this assumption may not be valid (but I do not think it is entirely invalid), I believe we can know quite a lot about the strategies of merchant-owners from the existing documents. Interviews with merchants should be conducted at a future stage of research.

5. All names are pseudonyms. The ethnographic present is 1988.

6. The fishing households were not always landless but they were land-poor. Most fishermen and women were squatters on the state-owned beach lands where they had built their houses and had reclaimed the dunes for small gardens. Some rented (from a *lavrador*) a small plot for a house and garden; others had inherited a plot. Fishing households emerged in Vila da Praia during the nineteenth century due to local inheritance practices that endeavoured to keep intact the *casa* (the agricultural household including all land, buildings, animals and other property). The *pescadores* (fishermen and women) historically were the sons and daughters of *lavradores*, those sons and daughters who had not inherited the *casa*.

7. In 1950, 8000 escudos (8000$00) was US $296.00 (27 *escudos*/US dollar). The average wage worker in Portugal earned about US $400.00 per year. It must be remembered, however, that at this time by far the majority of the population was not wage-employed but was engaged in peasant household (i.e. subsistence) economy. In 1969, 3400$00 was approximately US $1000.00. The average wage earner earned about $750.00 per year. The GDP per capita at current-year prices was: in 1950, 5000$00 (US $165.00); in 1960, 8200$00 (US $292.00; and, in 1970, 17,000$00 (US $612.00).

8. This quotation was taken from the cover of a 1943 issue of the *Jornal do Pescador*, and was accompanied by a photograph of a fisherman talking to his small son. All translations from Portuguese are mine.

9. There have been a number of publications on the history and legacy of the New State in recent years and the subject is a controversial one. For this section I have relied on the traditional sources of Delzell (1970) and Oliveira Marques (1972), as well as on Leeds (1984).

10. Despite the efforts of the CRCB and the GANPB to unite shipowners, in 1938 there were twenty-eight shipowners in the country of which seventeen had only one boat, six had 2 boats, four had 3 boats and only one had 6 boats. In 1955, there were still twenty-seven shipowners; eight had only 1 ship, ten had 2 ships, three had 3 ships, three had 4 ships, one had 5 ships, one had 6 ships, and one had 10 ships. The largest shipowning company was the *Sociedade Nacional dos Armadores de Bacalhau*, and the second and third largest were the *Empresa de Pesca de Viana* and the *Empresa de Pesca de Aveiro* (Silva 1957). The greatest number of these companies were located in Aveiro.

11. The deplorable conditions of the Portuguese fleet on the Grand Banks and the labour intensiveness of line fishing from dories was well-known (Lanhoso 1949; Mouro 1985; Teiga 1982). Observers writing during the time of the New State, however, tended to romanticize the life of the dorymen and to deny the poor wages and working conditions. They described the Newfoundland fishery as part of a long maritime tradition dating back to the fifteenth century and the Portuguese Golden Age of Discovery. They also attributed the persistence in dory fishing to what they variously called the "individualism," "conservatism," and even "resistance" to new technology, of the dorymen themselves (Centeno 1940; Simões 1942; Villiers 1951).

12. The structure and economy of the fishing households of Vila da Praia is elaborated in an article, "Women-Centred Households in a Portuguese Maritime Community" (Cole n.d.).

13. During the period 1911 to 1959, of 174 marriages of fishermen, only 10.3 per cent (18 marriages) were to daughters of agriculturalists; and of 51 agriculturalists who married only 3.9 per cent (2) married daughters of fishermen.

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Fisheries Management and Problems of Social Justice

Reflections on Northwest Newfoundland

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Introduction[1]

ABSTRACT This paper considers how the general interconnections between fisheries management strategies and the social structure of fishery-dependent communities necessarily turn fisheries policy into social policy. After a general discussion of (1) the impact of policy on forms of organization, (2) the relationship of fisheries management to regional development, and (3) the way that local social structure can constrain management objectives, the paper examines the experience of policy implementation in northwest Newfoundland. In effect, if not by design, licensing policy has favoured larger scale rather than smaller vessels. Quota controls and limited access licensing have not prevented overfishing. Although small boat fishers are suffering economically, there is no effective regional development strategy to provide alternative employment. In conclusion, a short-term support programme for small fishers is recommended in conjunction with a licence buy-back scheme for draggers. Some problems of implementing co-management in this area is also discussed.

This paper considers how the general interconnections between fisheries management strategies and the social structure of fishery-dependent communities necessarily turn fisheries policy into social policy. Since the 1960s, states have become increasingly involved as owners and managers of fisheries in response to problems of low catches and low incomes of fishing enterprises. It is not surprising that state officials would prefer to treat the difficulties they encounter as purely technical matters that require action either to protect stocks or bolster the economic efficiency of boats.[2] It would be much simpler if fisheries policy could be about fish rather than people, but, whether the participants face it or not, fisheries policy is also social policy. Neither the pursuit of higher profit levels nor even the protection of fish species can take place without having an impact, sometimes detrimental, on the people who live from the sea. As social policy, issues of fairness or justice in fisheries management cannot be wished away because they are difficult to deal with. The core point is that fisheries policy cannot be either fair or effective unless the management of the resource is connected to a broad understanding of how people in fishing regions make a living, what options they have, and what impact policy changes will have upon them. In this paper, my intent is to draw out some general implications of this position and to illustrate them with respect to the development of the fisheries on the northwest coast of Newfoundland and southern Labrador (see map 1).

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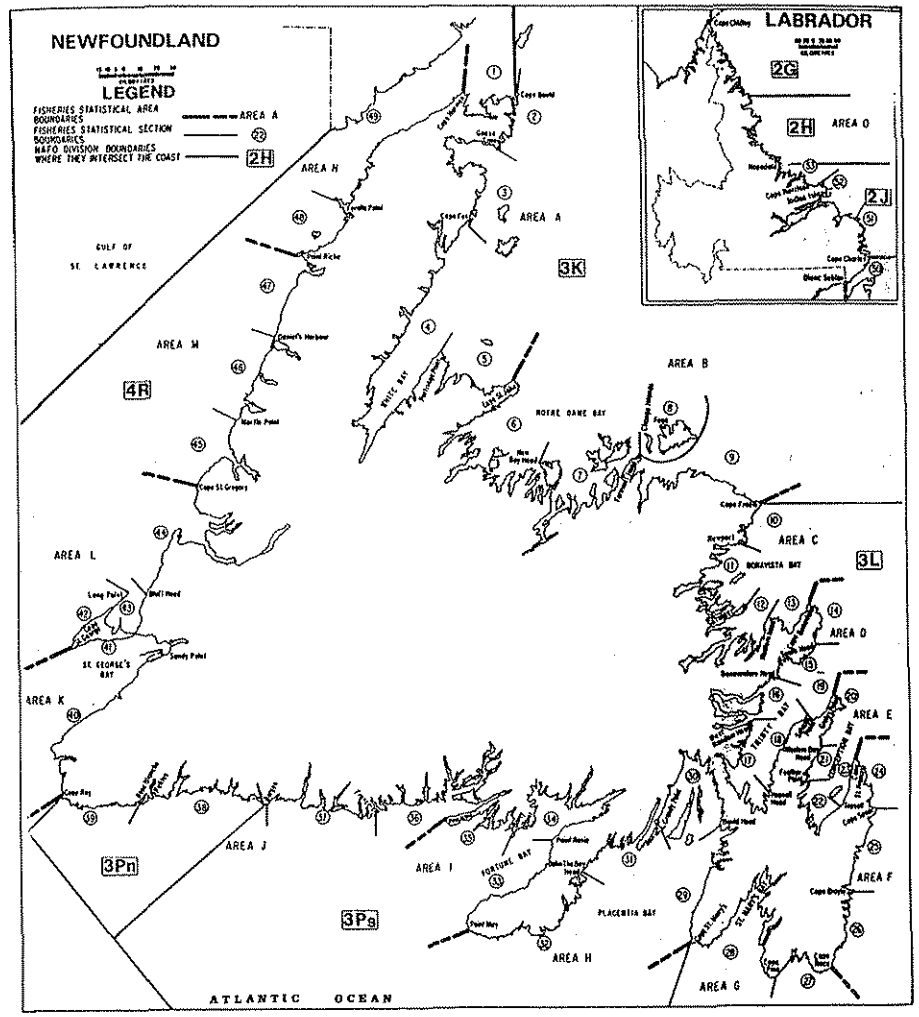


Map 1. *Fishing Zones*

In Newfoundland, where fishing has long been the only economic base for hundreds of coastal villages and small towns, it has never been possible, much to the chagrin of managers, to disconnect completely the technical and social issues. To give one preliminary example, the problem of social justice in fisheries management has come to the fore yet again in 1989-90 with reference to the federal government's decisions to reduce the "northern cod" quotas in NAFO areas 2J, 3K and 3L[3] from 266,000 tons in 1988 to 235,000 tons in 1989 and 197,000 tons in 1990 (*The Evening Telegram*, 9 February 1989, 2 January 1990). It should be stressed that this is an extremely important stock to the fishing communities of eastern Newfoundland because it has been the primary source of income for

thousands of inshore fishers and for the last twenty years has been central to the giant fish processing companies, which harvest this species in winter using deep-sea trawlers. Inshore fishers have received an allocation of 115,000 tons for several years with almost all the remainder going to Fishery Products International (FPI) and National Sea Products (NSP). For some time, inshore fishers have complained that they cannot catch their allocation because of overfishing by Canadian trawlers and by foreign vessels outside the 200 mile zone. Finally, federal scientists acknowledged that the stock is in such serious trouble that a reduction of the total allowable catch (TAC) to 125,000 tons was recommended in order to permit rapid rebuilding. In February, 1989, the federal government took the decision to cut back moderately to a level that would maintain the current biomass and to reserve further action until the report of a special advisory committee had been received later in 1989. Because the catches of inshore fishers usually fall well below their allocation, it is unlikey that a modest reduction would have any real conservation effect unless it came against the quota allocated to corporate enterprises. Hence FPI and NSP had to face lower quotas. With further reductions in 1990, these companies announced the closure of four major fish plants employing up to 2,000 people.

The point is that management decicions on fish quotas are also decisions about the social viability of different forms of enterprise and about the future of individual communities and households. Such decisions should not be made on purely technical criteria. Consequently, a basic problem is to devise a system of management that: (1) is conservationist in practice as well as in rhetoric or intent; (2) can be implemented without excessive expenditures on policing; and (3) as far as possible, is consistent with the cultural practices and economic needs of those who have depended on the resource in the past. A policy that is sensitive to the final point will contribute significantly to social justice. A policy that deepens social inequalities or that unnecessarily deprives people of old rights is, conversely, unjust. I shall not elaborate here on the moral basis of what I am calling social justice; rather, I shall sketch some general connections between fisheries management and social structure before turning to the concrete case of northwest Newfoundland in relation to these observations. I do so recognizing that the construction of fair policy requires an understanding of these connections and that this understanding will be better served by illustration than by abstract generalization alone.

General Issues

Impact on Forms of Social Organization

What are the social repercussions of fisheries management decisions, particularly those that control access to fish? Whether fishing rights go to communities, individuals, private companies, or cooperatives will support one form of organization or some combination rather than others. That is why, in Newfoundland, the distribution of the total allowable catch creates allies of those with similar

interests and produces intense lobbying and disputes between (1) inshore and offshore enterprises; (2) mobile and fixed gear within the inshore sectors; and (3) Newfoundland deep-sea companies and those from other provinces. Not only particular forms of enterprise, but whole settlements are implicated in these decisions. Indeed, without access to fish, survival is threatened in isolated, fish-dependent districts. It is then no surprise that fisheries management should be a source of almost constant, bitter controversy in which local people and politicians push arguments of social need against the technical vision of many policy makers.

Another way that management has an unequal impact upon different forms of organization is when decision imply expenditures for equipment. Sometimes continued participation in the fishery may be influenced by access to capital to meet management demands. One example is the problem of introducing quality controls, desirable in themselves, that would require expensive reconstruction of boats and change fishing practices, e.g., onboard boxing of fish, which has not been made compulsory in Canada.

Fisheries Management and Regional Development

Increasingly, the Canadian state has tried to limit access to fish through quotas and licensing policy. Obviously, such a policy will have implications for living standards that will vary according to the economic conditions of the area concerned. At the regional level, management strategies that reduce access should be integrated with regional programmes to provide alternative employment. Failure to do so must lead either to migration or to increased inequalities of income between those who have access to fish (and related processing work) and those excluded who have no alternative local employment. Elsewhere (Sinclair 1989) I have examined how Canadian fisheries policy blocks effective regional development strategy in Newfoundland because it does not make the province's employment problems a central concern. It focusses more on the fish than on the industry (including relevant manufacturing) that could be built on the resource. Moreover, fisheries policy has low national priority and decisions affecting fisheries management may be based on criteria that have nothing to do with the fisheries. In particular, the dispute with France over the extent of French jurisdiction around the islands of St. Pierre and Miquelon has been conducted in such a way as to sacrifice fish stocks to promote a more conciliatory French attitude on the boundary question.

Social Structure as a Constraint on Management

The interconnection between state and fishing people is not entirely a matter of state domination, because the state is itself constrained by values and collective action of those it seeks to control. How can the local structure of fishing communities affect management of fisheries? Rules considered illegitimate or inconsistent with past social practices may be broken where possible. Whenever

outside rules lack social support, policing will become a major problem, particularly where rule breakers enjoy social status in part for their success in beating the law.[4] Although local culture can impede fisheries management, is can also strengthen a managerial policy that is viewed as legitimate. For example, where strong corporate traditions exist and inshore fisheries have been controlled at the local level by informal means (Acheson 1975; Dahl 1988; Davis 1984; Jentoft and Kristoffersen 1988), it may be possible to decentralize policing by giving communities of fishers' organizations the right to determine local access within the general framework of the fishing plan (for a successful example, see Jentoft and Kristoffersen 1988). That such co-management is seldom smooth and sometimes disheartening must also be recognized (see Kearney 1989 and McKay 1988 for North American examples).

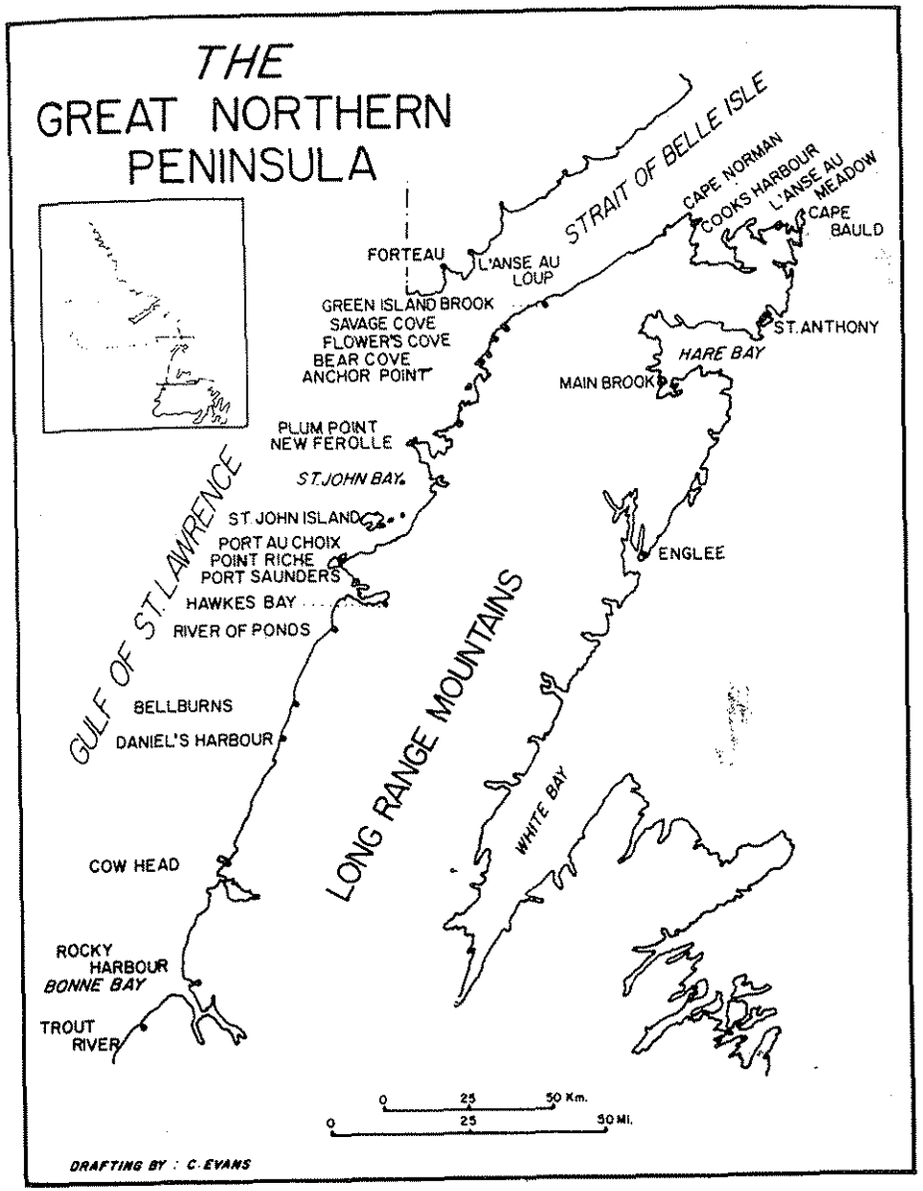
These connections between fisheries policy, social structure and equitable social policy may be explored further through a brief summary of the experience of the people along the northwest coast of Newfoundland as they have tried to cope with rapid change and an increasingly interventionist state.[5] In the conclusion, the potential of co-management to resolve the problems of this area (see Map 2) will be considered.

Northwest Newfoundland: Some Problems Illustrated

The Context

Jutting northeast from the core of the island and stretching some 300 kilometres towards Labrador, the Great Northern Peninsula of Newfoundland separates the Gulf of St. Lawrence from the Atlantic Ocean. The peninsula suffers from a harsh climate, with long snowy winters and harbours closed for months by ice. The growing season is short and soils are poor. The region's forests have supported a timber industry, but the pulpwood has been carried south to Corner Brook for processing in a pattern typical of underdeveloped regions. The old rocks of the Long Range Mountains may contain valuable minerals, but only zinc, mined at Daniel's Harbour, has actually been extracted, and that mine is soon to close.

This discussion concentrates on the northwest coast, bordering the Gulf of St. Lawrence where ocean resources are critical as the basis of the economy. Although there is some intermingling with Atlantic Ocean stocks, Gulf stocks are separately identified and managed independentely by the Canadian federal government. Cod is the most important groundfish in the northern Gulf of St. Lawrence, but redfish, turbot, plaice, halibut and witch are also landed. Herring and salmon are fished, and lobster are trapped along the southern part of the Gulf coast. Lobster have been important since the late nineteenth century, whereas the shrimp fishery dates only from 1970. Iceland scallops are harvested west and north of Anchor Point in the Strait of Belle Isle. Sealing, now of reduced commercial importance, takes place in early spring when the pack ice, bringing the seals with it, moves in from Labrador. The fisheries have given rise to a fish processing industry, which is the only type of manufacturing in the re-



Map 2. *The Great Northern Peninsula*

gion. It employs about 20 per cent of the labour force, most on a seasonal basis.

The Great Northern Peninsula is characterized by numerous indicators of marginality, such as low incomes, high dependence on welfare and unemployment insurance, a weak labour market, low levels of education, loss of youth who migrate in search of work opportunities, and minimal access to social serv-

ices. In most respects, the Peninsula is one of the least privileged areas of Newfoundland, which is itself disadvantaged in Canada as a whole. At the same time, it should be stressed that there is a wide range in living conditions from community to community on the Peninsula.

Unemployment is painfully high on the Peninsula – more than three times the national rate in 1986, although the labour force participation rate was higher than for the province as a whole and about the same as the national average. Reflecting the importance of the small boat fishing sector of the economy is the relatively high percentage of men who are self employed (13.5 per cent compared with 4.8 per cent for Newfoundland). The service sector of the economy is less well developed, whereas relatively more people are found in primary industry (mainly fishing) and manufacturing (almost exclusively fish processing). In 1986, 22.9 per cent of the labour force was engaged in primary industry and 20.8 per cent in manufacturing compared with Canadian figures of 6.6 and 16.8 per cent respectively. Incomes are low even by Newfoundland standards and, relative to Canada, male incomes are especially depressed. The 1986 median income for men was $11,489 (58 per cent of the Canadian median) and for women it was $6.957 (72.9 per cent of the Canadian median). Finally, the dependence on transfer payments in our research area is particularly high with 32.2 per cent of total income coming from this source compared with 21.2 per cent in Newfoundland and only 11.1 per cent in Canada.[6]

Expansion of State Management of the Fisheries

The Traditional Adaptation (Non-intervention)

From the establishment of settlement in the late nineteenth century until the major technological changes that date from about 1965, the region was characterized by a multi-dimensional economic adaptation at the level of the household. Most households depended on combined family labor to survive at a minimal level through fishing, sealing, logging and subsistence production according to the season. People built their own homes and furniture, and they provided most of their own food needs. Cash was a rare sight in a local economy dominated by the merchants who advanced supplies on accounts for which payment was taken in fish. Utilizing simple, low cost technology, the fishers caught cod, lobster and salmon, which were exchanged for goods that could not be provided by themselves – fishing gear, nails, molasses, tea, cloth and other basic items. The open boats and gear were typically owned within a household, which was also the source of labour wherever possible. In this domestic commodity form of production, accumulation of wealth was next to impossible for the fishing households.

No state controls existed on fishing, but access to prime fishing sites for cod trap berths was based on local custom – either inheritance or a lottery before the start of the season (Andersen 1979; Martin 1979). State support of the population in the first half the twentieth century was limited to meagre old age pensions and welfare payments during periods of severe shortage.

At the end of this period, most people on the Great Northern Peninsula functioned in a local economy that was based on domestic commodity production in fishing. In 1945, households in the St. Barbe district, which covered all the west side of the peninsula and included most of the population, were large, an average of 5.9 persons with an exceptionally high number of multiple family households – 18.8 per cent (Census of Newfoundland 1945, table 67). Of those gainfully employed, 71 per cent were classified as working on their own account, i.e. neither employing others nor selling their labour, and they earned an average of only $627 per annum. More than half the labour force was engaged in fishing and 1,299 of 1,418 fishers were classified as working on their own account (Census of Newfoundland 1945, tables 46 and 53).

State-sponsored Adaptation

After Newfoundland became part of Canada in 1949, the material circumstances of people on the Great Northern Peninsula improved in large part because of the introduction of the Canadian welfare state. Canadian pensions were more substantial and family allowance cheques meant a great deal to large households where previously cash incomes had been low. Unemployment insurance benefits were available to workers and by 1957 self-employed fishers also became eligible during the winter, when fishing is impossible due to ice conditions and the migration of the fish. Beyond unemployment payments, the initial interventions of the state in the fisheries included occasional price support and capital grants for processing plants as the industry began to switch from salt to frozen fish.

By the early 1960s, the survival or reproducton of households was based on the earlier multi-activity adaptation in conjunction with various forms of state transfer payments. All able bodied household members contributed their labour in some way to this process. Women attended both to domestic tasks – the housework, the child-care and gardening – and assisted in the processing of salt fish. Family allowance cheques were paid to the mothers. Men cut and hauled wood in winter and repaired boats and homes, while collecting unemployment benefits. Some worked for pay for logging companies. In late winter, sealing was usually possible. In the spring, lobster were caught inshore along the southern part of the coast. By June, capelin and cod moved close enough to be caught by traps, hand-lines and gill nets. Homes were built and gardens maintained where the soil allowed (Faris 1972; Firestone 1967; Philbrook 1966). This adaptation, it should be stressed, only permitted a low standard of living in comparison with the rest of the country. In 1960, men earned only 47.6 per cent of the Canadian average income and women, only 10.4 per cent of whom were in the labour force, earned 57.8 per cent of Canadian figure (Census of Canada 1961, Cat. 94-533). In this stuation, the arrival of mass media, improved education and communications served to raise local perceptions of what was desirable and possible.

State Managed Inequality

Beginning in the early 1960s, the social structure became more differentiated as some enterprising fishers managed to purchase or build bigger boats – longliners of some 12 to 14 metres that allowed the use of baited trawl lines and gill nets further from shore. These innovative fishers were no longer prepared to toil like their fathers, fishing lobster in miserable conditions for next to no income. By the early 1970s, scallop and shrimp dragging had started with Port au Choix as the primary centre. Gradually, vessel sizes and horsepower increased, as fishing success encouraged more investment, until they reached the legal limit for inshore boats (just under 20 metres in length). The best equipped, steel-hulled draggers now cost about $850,000-1,000,000 (see photo 1).

With the emergence of the draggers, the fleet structure has become more complex. There are no deep-sea trawlers based on the west coast of Newfoundland and southern Labrador, although French trawlers had fishing rights until 1986 and Canadian trawlers still operate in this zone. Based on the west coast of the island of Newfoundland and southern part of Labrador, there are now about 80 active, mobile gear vessels, under fisher ownership for the most part, and crewed by about 250 hired sharemen. These are essentially small capitalist enter-

Photo 1. *One of the most successful draggers in the 1980s in Port au Choix*

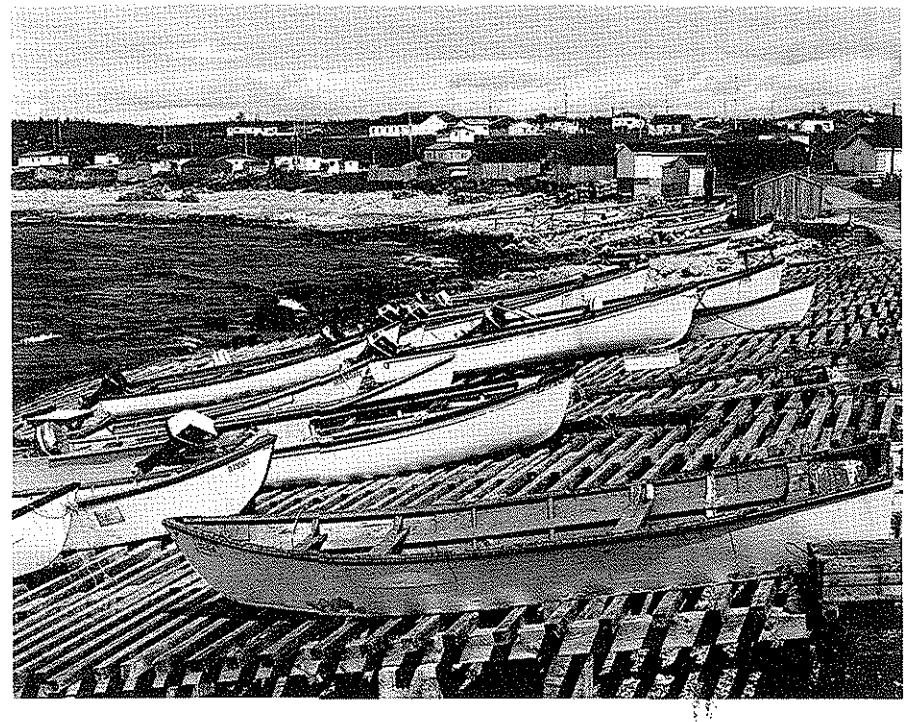


Photo 2. *Typical inshore boats in River of Ponds*

prises. Apart from a small number of decked "longliners" of 13-15 metres in length, most of the other 2,400 fishers in the region work from open wooden boats, powered by outboard motors and roughly 5 to 8 metres long (see photo 2). They fish with traps, gill nets, baited lines and jiggers in waters close to shore. A few larger vessels have inboard diesel engines. About 700 fishers have lobster licences, while half that number have commercial salmon licences. Slightly more than half the small boat fishers are classified as full-time.

As the early draggers became better equipped, their skippers more knowledgeable and their catches improved in the mid-1970s, others were attracted to the fishery. It was at this time that the state also became more involved as a manager. I shall not cover he history of management in this area in fine detail; only the key points. In Canada's federal structure, the central government is responsible for ocean fisheries. By the mid-1970s, Canadian fisheries managers had become convinced of the economists' attack on the evils of common property – principally that it promoted excess capacity, economic inefficiency, loss of resource rent, and overfishing of the stocks. Consequently, they were willing to intervene in various ways to control access when the Atlantic coast fisheries fell into one of their periodic crises in 1973-74. The result in the Gulf of St. Lawrence was the creation of limited access licensing to fisheries of relatively high value – principally cod and shrimp dragging, lobster and salmon having been restricted a few years earlier.

In 1983, the licensing system changed in response to concerns over poor quality and over-capitalization as licensed draggers scrambled to get the largest possible share of the quotas allocated to their fleet sectors. Canada divided groundfish quotas by fishing area and according to type of vessel. Thus deep-sea trawlers, smaller mobile gear vessels, and inshore open boats had separate quotas. The mobile gear fleet was technically capable of catching much more than its season quota, which meant that there was a strong incentive for all skippers to catch fish as quickly as possible. This rush led to gluts of poor quality fish, due to improper handling on board, especially in the winter fishery off southwest Newfoundland, where the fish tend to be densely concentrated (in area 3Pn – see map 1).[7] At times, either the buyers or the federal government imposed daily trip limits, but the most interesting step was the introduction of seasonal, non-transferable boat quotas. This system appears to have been accepted by the skippers and remains in force (Groundfish 1990).

Contemporary Policy and Social Organization

But all is not well. I have argued that licensing and quota policy will favour some forms of social organization rather than others. This has been the most obvious social consequence of the policy in northwest Newfoundland. Although they do not say so publicly, interviews with senior fisheries managers indicate that they see no future for the small open boats of the traditional fishery, which they view as insufficiently productive to create adequate incomes. They also believe there are too many larger vessels for precisely the opposite reason: the catching capacity of these vessels is so great that, collectively, they can threaten the fish stocks on which all depend. In my judgment, the policies implemented are designed to restrain the larger vessels without giving any encouragement to small fishers that they can count on adequate fish in the future. The vessel and gear licensing system restricts access to the most productive technology in the name of economic efficiency and thus protects a class of affluent skippers and draggermen at the expense of those who have to rely on older technologies. Income disparities are enormous, in the range of 10:1, and are visibly reflected in the homes and other material possessions of the fishers, although this past prosperity is now threatened.

It is now clear that the control strategy of the last fifteen years has not protected the resource from overfishing, although the quality of scientific evidence is now seriously questioned (Harris 1989). The strategy generates social conflict and threatens the viability of many household enterprises, which are denied access to fish. As indicated in figure 1, the catches of small fixed gear vessels, on which the majority of fishers depend, have collapsed since 1985, falling to under 12,000 tons by 1989. Because the social inequalities are buttressed by state policy, they are particularly resented by those who cannot benefit. Social resentment is created not simply because one group is well off, but also because the fishing elite is thought to behave illegally and treat other fishers unfairly by catching so much that there is next to nothing left for open boat operators. There is no

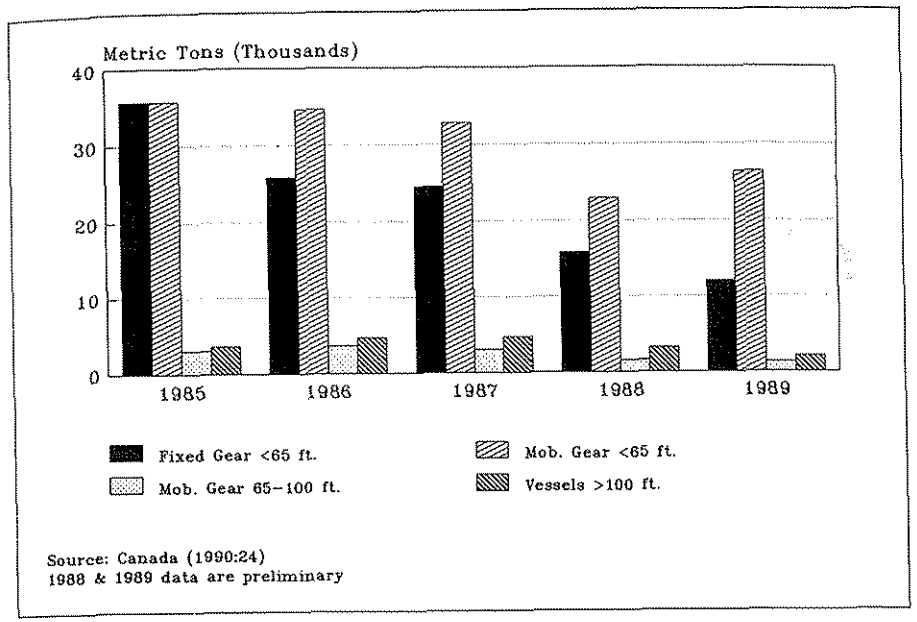


Figure 1. *Cod Landings, Areas 4RS and 3Pn, The Eastern Gulf of St. Lawrence*
Source: Groundfish (1990:24)
1988 & 1989 data are preliminary

point in small boat fishers receiving a quota if the fish do not reach their nets any more.

Although all full-time fishers (draggers skippers, sharemenworkers and open boat operators) are part of a single union, the Fisherman, Food and Allied Workers, that negotiates such matters as the minimum price of fish, open boat fishers often complain that they have no influence compared with dragger skippers and that the union does nothing for them. The tension and conflict became so strong that the small fishers have formed an independent Fixed Gear Association to lobby for new management rules that might afford them some protection.

Overfishing by trawlers appears to have decimated the stocks, and the total cod quota in the eastern Gulf of St. Lawrence (areas 3Pn and 4RS) has been cut by 25 per cent from 73,900 to 55,360 tons for 1990. Mobile gear vessels face a cut from 30,665 tons to 23,000 tons. Thus overfishing will certainly have an impact on draggers as well as small boat fishers. Marcel O'Brien, a dragger skipper, says many will be forced to leave the fishery:

> The only thing saving a lot of fellows is the good season they had the year before last. That held us through the last two years, but I'd say half the fleet is close to going under (*Northern Pen*, 10 January 1990; see also Dwight Spence, quoted in *The Sunday Express*, 7 January 1990).

But Pat Cabot, president of the Fixed Gear Association, wanted bigger cuts, a ban on fishing in spawning areas in order to rebuild the stocks faster, and a large uniform mesh size to reduce the number of small fish being caught *Northern Pen*, 10 January 1990). To him, the long-term interests of the majority of fishers are still being neglected.

Relationship to regional development is the second critical social dimension of fisheries management. It is socially damaging to implement a limited entry management system in an area like northwest Newfoundland because there are no alternative sources of employment sufficiently large to absorb those excluded from financially viable fisheries. Moreover, levels of education are low, especially among fishers, such that the displaced or excluded labourers have restricted opportunities elsewhere if they are willing to move. Still, a regional survey in 1988 showed that 31.1 per cent of all adults had considered moving away within five years.[8] This state of insecurity demonstrates the significance of the general need to co-ordinate fisheries and regional development policies.

State policy at present clearly supports the petty capitalist dragger fishery against the household or domestic commodity form of production that is represented by the open boat fisheries. But the management policy is also relevant to the very survival of villages in the area, because the privileged fleet is concentrated in only a few harbours: Port au Choix, Port Saunders, and Anchor Point. When the small boat fishers are deprived of fish, the culture and structure of their villages are threatened. They are increasingly becoming rural welfare ghettoes.

Parsons Pond, for example, is a small fishing community in which government transfer payments accounted for 48.6 per cent of total income in 1986 (data supplied by Statistics Canada). When the fish stay away and the fish plant is shut, unemployment benefits become more difficult to obtain and people are forced to rely on provincial government welfare systems that are destructive of morale. Subsistence production simply cannot compensate adequately for lost income, although it does make a difference to standards of living. But the house building, domestic work, hunting, wood cutting, etc., that supplements money income to a major extent itself depends on a cash income adequate to provide equipment and materials for this home production (Felt and Sinclair 1990). Without fish, that basic, minimal cash income (dependent on both fish sales and unemployment insurance benefits) is threatened.

The third general problem is the impact of community on policy, that is, the extent to which local groups can hinder managers' programmes. Although they bitterly resent present quota rules and enforcement practices, small boat fishers are largely powerless to help themselves. They simply do not have the vessels and gear to compete for scarce fish in any serious way. The key problem for implementing management plans in the Gulf of St. Lawrence is controlling the small draggers, who favour restricted access, but often try to get round other controls. In some cases this desire to catch as many fish as possible is based on a drive to accumulate wealth coupled with the prestige that comes from being a "highliner". In other cases, the high debt load on their vessels forces skippers to fish in bad weather and to break fishing regulations, especially when they feel their quotas are too small.

Open boat fishers often protest that fish are now scarce inshore because of illegal fishing by greedy dragger operators who exceed their quotas and also encroach on the fixed gear areas when, as is usually the case, no fisheries patrol vessel is in sight. I have on several occasions observed draggers operating illegally in the Strait of Belle Isle by fishing almost against the shoreline where cod traps were moored. Occasional fines do not seem to deter some skippers. Moreover, several skippers were charged in 1988 with overfishing when they reported that fish caught in the Gulf had actually been taken in the Atlantic off Labrador, where there is also quota for this fleet sector. This is one example of how fishers can avoid the intent of regulations. Another is the illegal use of small mesh liners inside the trawl so that excessive numbers of small fish are caught. For this reason, the winter fishery was closed for a time at the end of January, 1990 (*Northern Pen*, 31 January 1990). There are also rumours, impossible to substantiate, of widespread falsification of landings through collusion between buyers and skippers.

Conclusion

If the preceding analysis is accurate for the Great Northern Peninsula, it follows that employment preservation should be as much a priority as fish preservation and profitable fishing. If small boat fishers' incomes are considered as part of a total socio-economic adaptation that involves subsistence production and other seasonal employment, a case can be made that they should be protected at least until the regional economy can be diversified. This would mean severely restricting the larger vessels and their otter trawling technology in the cod fishery. Yet, it is difficult to see how to correct the problems created by previous decisions. Simply to ban the draggers would be unfair to those who do fish within the rules and who made what appeared to be rational decisions to invest in new technologies. There is no indication that anyhthing so drastic is being contemplated; instead, reductions are being made in vessel quotas with the result that some dragger skippers may be forced out of the fishery. For 1990, the individual vessel quotas have been reduced from roughly 300 to 225 tons. If skippers do not have access to shrimp, their previous success is certainly threatened, unless there is an unexpected jump in the price of fish; some may indeed go bankrupt, as they have claimed. For those without shrimp licences, a generous scheme to buy back otter trawl licences would be ideal, though expensive. The cost of policing the remaining vessels would be high as well, but it would give both the small fishers and the fish a better chance of surviving.

It is tempting to argue that some form of co-management is required if a fair and equitable fisheries management programme is to have any chance of success (for recent reviews see Jentoft 1989 and Pinkerton 1989). In this way, the fishers who have been affected by the previous policies would become the decision makers either in conjunction with the state or by themselves in areas where responsi-

bilities have been delegated to them by the state. The logic behind co-management is that policy must be seen as legitimate by those involved in the industry; otherwise, boat and plant owners will seek, usually successfully, to avoid the regulations as they pursue their own interests. Rules are more likely to be considered reasonable and legitimate when those affected by them have taken part in their construction. In Atlantic Canada, there now exist consultation bodies, such as the various quota advisory boards, in which some fishers' organizations are represented, but these boards are not the decision makers. That power remains with the Department of Fisheries and Oceans. Decisions should have greater legitimacy in a system of co-management and should reflect the interests of the resource users.

The problem in the Gulf of St. Lawrence is that local conditions are not conducive to successful co-management. There is no single group of fishers with whom the state can negotiate and no sign that the Fishermen's Union can reconcile the conflicting views among its own members. Jentoft (1989) and Felt (n.d.) both argue that decisions are more likely to be considered legitimate when the resource users are relatively homogeneous and when participants have a prior history of cooperation and trust. These conditions are not evident in northwest Newfoundland. The type of issue is also unfavourable to resolution by co-management. Co-management seems to work best when fishers have responsibility for distributing their share of a quota and determining rules of access to fishing grounds in situations where conflicts of interest can be resolved in such a way that all groups can survive. When a situation has deteriorated to the point that each group (fixed and mobile gear fishers in this case) feels it cannot give any ground, it is unlikely that a viable strategy can be reached in a co-management forum. Unfortunately, it may be necessary for the situation to degenerate even more, to the point where many dragger skippers are losing their boats, before a compromise can be reached so that the remaining draggers are effectively prevented from destroying the livelihood of open boat fishers. Co-management might work if each group concerned has a chance of surviving based on a new stock management strategy, perhaps with areas reserved for specific types of gear. It has little chance in a situation like that of the Gulf coast where everyone needs more fish immediately.

Whatever the precise plans that are developed by fisheries managers to cope with this specific situation and with other areas in which stocks are threatened, the state should not manage the fish while ignoring the people who depend on fishing. Nor should management favour an elite and abandon the rest to migrate or swell the welfare rolls. Distrust and jealousy must be overcome by creating a structure for management that involves openness with regard to information and policy formation. Management practices that appear to protect resources and treat people fairly, as they define it, have some chance of success (though a common understanding of what is fair may be difficult to attain). At least this is what we should work towards in the more isolated, fisheries-dependent areas. Fisheries policy must also be social policy.

Notes

1. An earlier version of this paper was presented to the Project Prospero Seminar on Fisheries Management at KFA, Jülich, Federal Republic of Germany, 17-19 May 1989. I am grateful to Larry Felt for his helpful advice.

2. In their work on salmon fishers in New Brunswick, Pool and Stewart (1988:175) put the point strongly: "The bureaucrats are there *to protect the fish* and so they devise rational management plans completely outside the community context of commercial fishing."

3. These are the fishing areas off southern Labrador and eastern Newfoundland, including most of the Grand Banks (see map 1). The stock is known locally as northern cod.

4. An excellent example of the conflicting visions of management and fishers is resistance to turtle excluding devices among Gulf of Mexico shrimp fishers (Durrenberger 1988; White 1989).

5. These observations are based on research on the fisheries conducted from 1981 to 1983 followed by a recent period of research (1988-90) on the general problem of underdevelopment in the area. For a more extended treatment of the earlier research, see Sinclair (1983, 1985, 1986).

6. All data in this paragraph refer to the 1986 census and are based on Population (1988).

7. Every year the small trawlers head south in December in preparation for the winter fishery based on Port aux Basques.

8. With Lawrence F. Felt I have surveyed all adults in 250 households on the Northern Peninsula. This was a multi-stage, cluster sample designed to represent the peninsula as a whole.

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Levels and Profiles of Job Satisfaction Among Former and Current Distant Water Fishers in Nova Scotia

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ABSTRACT In the distant water fishery both job setting and work schedule are distinct from those of typical industrial occupations. Nevertheless corporate managers of distant water fishing enterprises attempt to impose a "scientific" management model on this occupation. This change in management style has greatly influenced working conditions on distant water vessels. In this article we compare levels and profiles of job satisfaction of former fishers ("leavers") with those workers now employed ("stayers") in the distant water fishery. Both the "stayers" and the "leavers" uniformly value monetary rewards and non-monetary benefits relating to the job setting itself – being out on the water, healthfulness, working outdoors, and the company of fellow workers. The grueling work schedule, the long hours away from home, and the loss of autonomy, all characteristics of a more "scientific" management system, are common sources of dissatisfaction among "leavers."

Introduction[1]

Three key undesirable features of work for distant water fishers are health and safety hazards (Horbulewicz 1972; Poggie 1980), high stress (Horbulewicz 1972) and extended separation from home (Horbulewicz 1972). It is increasingly difficult to recruit and retain fishers[2] in the distant water sector of the Nova Scotian fishery (Binkley 1989). These characteristics may underlie this difficulty.

Yet in very fundamental ways, these explanations are incomplete and unsatisfying. They mask how corporate management in the fisheries has attempted to impose a work regimen that in itself increases safety risks, stress and job dissatisfaction. They fail to stress that these factors are themselves the product of human agency. The size of enterprise allocation, the fluctuation of market demands, the needs of the fish processing plants and the introduction of new fishing technology all conspire to introduce discordant rhythms into the pace and lives of the fishers themselves.

In our study, there is a high accident and injury rate: over seventy-five per cent of those workers interviewed left the fishery because of accidents and injuries. Our starting assumption is that accidents are not randomly distributed. Their rates are predictable. Stress and fatigue, for example will increase accident rates. Control over the work process and worker satisfaction with a variety of aspects of fishing will decrease it. The perception of the nature of the rewards for work influences the attitudes of people to their work. These rewards include both

monetary and non-monetary benefits. There is an inherent trade-off between these two types of benefits. Previous research (Anderson 1980; Smith 1981; Thiessen and Davis 1988) documents that fishing traditionally has been an occupation pursued particularly for its non-monetary rewards – attachment to fellow workers and community, a sense of personal control, the opportunity to work outdoors, and being on the water. The erosion of these non-monetary rewards leads to lower job satisfaction especially when monetary rewards do not compensate for their loss (Binkley 1990; Thiessen and Davis 1988). These findings suggest that attitudes toward working conditions is a fruitful starting point for exploring the question – "What are the underlying factors that contribute to a fisher's decision to leave or to stay in the distant water fishery?"

In this article, we contrast the perceptions of and attitudes to working conditions of two groups of distant water fishers. The first group, whom we call "stayers" are fishers now involved in the distant water fishery. The second group, whom we will call "leavers," are persons who have left the distant water fishery sometime during the last five years. These people still live in Nova Scotia but now work in other economic pursuits; some work in other fisheries either as fishers or plant workers; some work in other industries; still others collect social assistance (i.e., workers compensation, unemployment insurance, welfare).

Our aim is to examine two main topics: the level of job satisfaction associated with different aspects of distant water fishing, and the profiles of job satisfaction among various sub-groups of "stayers" and "leavers." We begin by describing the Nova Scotia distant water fishery. We then describe the data and the concepts used in this study. Next, we present the findings on the levels and profiles of job satisfaction. We conclude with a discussion of the implications of these findings.

A Brief History of the Nova Scotia Fishery

Before World War II, the Nova Scotian fisheries, like all of the Atlantic Canada fisheries primarily consisted of a coastal small boat fishery and a distant water schooner fleet. In both types of fisheries, most boats fished out of the harbours where their crews lived. In line with the recommendations of a 1920s Royal Commission report on the fisheries, the federal government of the day severely restricted the development of the domestic distant water trawler fleet. Following World War II government opinion changed dramatically to favour an industrialized and technologically advanced trawler fleet. This signalled the demise of the obsolete schooner fleet, the rapid expansion of a distant water fleet, and the beginning of additional difficulties for the coastal fleet.

By the early 1970s the prevailing view in public policy divided the fisheries into two categories: one economic and the other social. The economic fishery was seen as the distant water fishery and the social as the coastal one. In one sense this viewpoint was correct: the income derived from coastal fishing was hardly sufficient for survival, whereas the income earned in distant water fishing ranged from modest to lucrative, depending on boat ownership, crew-captain

status (Davis and Thiessen 1986) and fortunate markets. These economic advantages exacted a price. First was lessened job satisfaction. With almost all aspects of their job, distant water fishers were less satisfied than their coastal counterparts (Apostle et al. 1985; Thiessen and Davis 1987; Binkley 1987). In addition, community solidarity was weakened. In the coastal fisheries, fishers came from the local communities and continued to fish out of local harbours. This produced a strong sense of community attachment; reciprocally, the community provided social supports to the fishing households. The necessities of distant water fishing substantially weakened these ties. Vessels sailed from fewer harbours and the crews came from farther and farther afield. The discovery of offshore oil and the establishment of nearby industrial plants such as Michelin Tire in the 1970s reinforced this trend. Both of these developments siphoned recruits away from the distant water fishery, creating a scarcity of crew members. Companies had to increase recruitment from more distant villages and from Newfoundland.

Craft or Industrial Enterprises

Nova Scotian distant water fishers can be separated into two groups based on the levels of capitalization of the enterprise they work in. We defined these groups as:

1) Craft: those who work for an independent owner/operator or a small company based in a specific community which employs persons from that community, and who do not belong to a union; and

2) Industrial: those who work for a medium to large size company based in a specific community which usually employs persons from many different communities, and who are usually union members. These enterprises may be vertically integrated companies and may be located in different communities.

Craft and industrial enterprises have structural similarities. Both types are capital intensive. They use similar gear and technology to catch fish. They draw upon the same work force to run their vessels. They differ importantly in the organization of and relations to work. The crucial difference is control of the means of production, which determines the management of the enterprise and the level of bureaucratization (cf. Clegg and Dunkley 1980; Pfeffer 1981).

Work organization profoundly influences the structure of the fishing enterprise. Norr and Norr characterized the organization typical of a fisher-controlled (craft) enterprise (1978:169). Such enterprises recruit for skill and compatibility.[3] They emphasize achievement. They de-emphasize formal authority distinctions, lack administrators, and they consult across status levels. Hierarchy is absent. They encourage teamwork and equity, with the crew taking part in decision making. The Nova Scotian craft fishery shares all of these characteristics.

The organization of the craft enterprise is personal. Nor is this necessarily a family-based fishery.[4] The operator-owner directly controls the enterprise and relies on community members without any outside intermediaries. Crews form and dissolve by informal agreement. Each member has a personal set of obligations to the captain and other crew members. In return the worker receives an agreed upon portion of the catch. This is the share system. The underlying premise in this system is that all participants take risks in the voyage, and all reap the profits of the venture. (The traditional term was co-adventure.) After the owner-operator has deducted the expenses of the trip and of the boat, including such costs as mortgage and loan payments, each person receives a predefined share of the net proceeds.

The work schedule of these vessels is sensitive to a variety of imperatives: individual, family, economic, weather, which reflect resource and community rhythms and schedules. Decisions on these vessels result from discussion among the crew members, with the skipper making the final decision. The crew works in common to process the fish and to do other tasks. Usually there is no rigid schedule of off- and on-shifts. The quantity and quality of the fish caught determines the rhythm of work. With this flexible work schedule, workers can be in phase with community rhythms and family schedules. They can participate in community activities. Their work with other members from the community strengthens local ties and commitments. This mode of work organization strengthens the social bonds among these workers by giving them a strong sense of identity. It promotes integration of crew members of the same community. It promotes group solidarity through common experiences, goals and shared values. It gives workers a sense of personal control of their working conditions.

Workers in the craft based fishery assume that its security and its future are not assured. Traditional values are strong and closely tied to job satisfaction: trip times, personal responsibility, small tightly knit crews, challenge, freedom to choose, "high" earnings for the region. Rising costs of vessels and gear, and falling quotas because of exhaustion of stocks, increased efforts of vessels from other sectors of the distant water fleet, and greater harvesting capacity all indicate economic uncertainties ahead. These pressures threaten safety, economic well being, and the values of the fishery.

The industrial enterprise is substantively different. Corporate management practices permeate these enterprises. This includes recruitment practices, the character and pace of work, the sense of personal control, the method of payment and the integration of workers into their home community. This system of management takes forms which allow the managers, who are not present on the vessels, to control and manage the company (Chandler 1977).

The industrial enterprises emphasize formal training, credentials and hierarchy. Authority distinctions are formalized with little consultation across status levels. The crew is not involved in decision making. They encourage teamwork and specialization in particular jobs among the crew. These fishing companies hire workers for particular positions and specific skills rather than for their general characteristics. Hiring procedures are based on positions with pre-existing structures and descriptions. Management officials at the company's home port recruit and screen workers. They choose crews from a list of available workers based on qualifications, training and sea rotation, and not personal prefer-

ence. Although captains (called "Masters") of vessels have the final say on who crews for them, this prerogative serves more as a veto of workers than as a positive choice of crew.[5]

Most of these workers are members of unions (i.e., Canadian Brotherhood of Railway Transport and General Workers, United Fishermen and Allied Commercial Workers, Canadian Fishermen and Allied Workers). They have collective agreements with the companies which define the duties, job status and pay of workers. Earnings are negotiated through the collective agreement or contract. Incomes reflect both a worker's position in the hierarchy and the quality of fish caught. They are usually a combination of wages/salaries and bonuses.

The needs of the company dictate the schedule of the vessel. Persons working on the industrial enterprises have little control over their schedules. Work shifts on board are structured and rigidly defined, usually six hours on and six hours off. This schedule continues uninterrupted throughout the trip except when the fish are heavy. Then the crew work through their off-shift, sometimes for as long as eighteen hours.

This type of work organization reduces the workers' sense of personal control. It does little to promote solidarity among crew members. Many crew members in this setting feel isolated from the decision making process, and alienated from the officers and captain of the vessel and the management of the company. Workers spend most of their time off "recovering" from the work shift. They have little time to become involved with their children, sports, or school and church groups. This lack of participation reduces community solidarity and alters the nature of community life. There is little time to develop relationships with spouse, children, or other family members and friends, or to develop social and recreational interests. This stress can surface as drug and alcohol abuse, family breakdown, and child or spousal abuse.[6]

The Nova Scotia distant water fishery is rapidly industrializing. The fleet includes trawlers and scallop draggers over 65 feet, but most of the vessels are 100 feet and over. All vessels have corporate ownership. Even the nominally "owner-operator" vessels have corporate money invested in them. Most companies are vertically integrated. Three are international. Most operate year round. The average trip is ten to fourteen days at sea followed by forty-eight hours shore leave.[7]

Current Workers Sample

In 1986, 334 captains, officers and crew were surveyed. Jobs were divided into three categories; captain/mate, other officers, and crew. The "captain/mate" category also included substitute mates or captains. The "other officers" category included first and second engineers, bosuns, cooks, and substitutes for these jobs. The "crew" category includes trawlermen, deckhands, dicers, winchmen, and learners. All were full-time fishers. For over eighty-one per cent, fishing provided the sole family income. Captains and officers had substantially higher incomes than other crew members.

Eighty-four per cent of the workers were married (including common-law), while eleven per cent were single, and five per cent were separated, divorced or widowed. The average age was thirty-three years. The average level of education was just under nine years of schooling. Although captains and officers were only slightly better educated than other crew members, they were significantly older than the rest of the crew.

Former Workers Sample

Our sample consists of ninety-two workers (all English speakers). They had worked full-time for at least one year in the distant water fishery, and they had left this fishery during the last five years. Of these fishers, three out of four left because of an accident or injury. The remainder left for other reasons ranging from illness to economic incentives in the other fisheries.[8] While working the distant water, thirty per cent of the sample had been either an officer or a captain: seventy per cent had been a crew member. The majority of crew members (73 per cent) left because of injuries, while captains and officers left mainly for economic reasons.

Seventy-six per cent of the workers were married (including common law) while ten per cent were single, and fourteen per cent were divorced, separated or widowed. The average age was forty years. The average level of schooling was just under eight years. The captains and officers were older. The average captain/officer was forty-seven years old whereas the average crew member was ten years younger. The level of education for both groups was the same.

In Table 1 we summarize selected demographic characteristics of the two samples. The variation in the mean age and the age distribution of these samples is substantial. The distant water is a young man's fishery. Most workers say they entered the fishery straight from school. As one informant said, "If you aren't out by forty-five, you should be." Therefore the nature of the fishery is reflected in the samples age distribution.

Measures of Job Satisfaction

Earlier studies on job satisfaction of North Atlantic fishers, used a battery of job satisfaction questions. In this study, the twenty-six job satisfaction questions used for both surveys replicated the twenty-two items used by Poggie and Pollnac (1978), Pollnac and Poggie (1979), and the twenty-six items employed by Apostle and co-workers (1985). Gatewood and McCay (1988) also used these items. Response categories ranged from (1) to (5), with higher scores representing greater satisfaction.

Because of the large number of job satisfaction items, previous researchers have used two approaches to reduce the complexity of the findings. First, they have used factor analysis (Apostle et al. 1985; Binkley 1990; Poggie and Pollnac 1978; Pollnac and Poggie 1979). Although the results are not entirely consistent, they do suggest several stable dimensions such as "control," "earnings," and "work quality." We will at times use this approach to summarize various patterns that emerge.

Table 1. *Comparison of Demographic Characteristics of Distant Water Fishers by Turnover Status*

Demographic Characteristics	Current Workers	Former Workers
Mean Age (in years)	33	40
% under 40	60	25
% between 40 & 50	30	25
% 50 and over	10	50
Marital Status (in percentage)		
Married	84	76
Single	11	10
Divorced/Separated	5	14
Education (in years)	9	8

A second approach is to impose a theoretically-informed classification on the various items. For example, Gatewood and McCay (1988) and Binkley (1990) organize their job satisfaction items according to Maslow's (1954) "hierarchy of needs."

We will introduce a third technique, Q-correlations, to summarize patterns. In this approach, the "cases" are the twenty-six job satisfaction items and the "variables" are combinations of occupational position and turnover status.[9] This technique will permit us to assess the similarity/difference of job satisfaction profiles of various sub-groups of "stayers" and "leavers."

The Data in Context

In comparing the job satisfaction of fishers now employed in the distant water with those who have left, several considerations must be kept in mind. First, those who have left the distant water are recalling how satisfied they were with various aspects of distant water fishing. Their recollections are likely to be coloured by the features of their current situation: presently employed, unemployed or disabled.[10] In other words, their present situations act as anchoring points for their reconstruction of job satisfaction at their former jobs. If, for example, the level of autonomy is now greater, they will express less satisfaction with this component when evaluating their distant water experience. Therefore we must exercise caution in making any causal inferences. If those who left express greater dissatisfaction with certain aspects of their distant water job than those still fishing in that sector, this cannot be assumed to be a reason or cause for leaving distant water fishing. It may signify nothing more than a reconstruction of the past in comparison with the present.

To emphasize the problematic nature of recall data, we postulate that former fishers will evaluate their distant water experience less positively than current workers. Such a proposition has the merit of being congruent with expectations from social psychological theories such as cognitive dissonance, balance, and self-perception theory (Bem 1972; Festinger 1957; Taylor 1970).

Second, distinctly different working conditions characterize the different occupational positions of captains/mates, other officers and crew members (Gatewood and McCay 1988). Each of these jobs has a specific status in the social pyramid. The Captain is at the top of the social pyramid. Officers (Mate, Engineers, Bosun, and Cook) are in the middle. The crew (Trawlermen, Deckhands, and Learners) are at the bottom. There is a basic social cleavage between officers and crew. Work is divided into jobs with defined activities and positions in the social pyramid. These differences are sufficiently great that patterns of job satisfaction need to be explored separately for each of these positions.

Third, in view of the issue of comparison levels, it is important to provide a description of the current life situations of former distant water workers. All of the former captains/mates are still fishing, many as independent owner-operators of smaller vessels. Most of the former officers are also still fishing. Many do not have sufficient capital or access to licences to become independent owner-operators. Thus they are now crewing for these small enterprises. Crewmen who have left the distant water are now in a variety of situations. Many are working in land-based occupations, such as tire plants; some work in other fisheries; others are collecting workmen's compensation or unemployment insurance benefits.

The Findings

Table 2 compares the mean levels of job satisfaction of current with former distant water fishers. As expected, current distant water fishers express more satisfaction with many aspects of their work than do former distant water fishers.

Since previous research shows that occupational status influences the working conditions and consequent job satisfaction (Gatewood and McCay 1988), we will examine each of the occupational positions separately. The first two columns of Table 2 provide the mean level of satisfaction reported by current and former captains/mates. The patterns here are straightforward. First, all statistically significant differences are in the expected direction – former captains and mates express less satisfaction than current ones. On ten components, such differences are statistically significant. Former captains/mates describe distant water fishing as particularly stressful, with significant differences on "job safety," "physical fatigue," "mental pressures," "peace of mind" and "trip length." They also recall limited autonomy, scoring lower on "ability to come and go as you please" and "opportunity to be your own boss." Finally, they are less satisfied with "doing deck work on vessel" and "regular income."

Researchers consider the forced absence from family and friends required by distant water fishing to be the most important difficulty with the occupation.

Table 2. *Mean Job Satisfaction of Current and Former Distant Water Fishers by Occupational Position*

Job Satisfaction Component	Captains/ Mates		Other Officers		Crewmen	
	Stayed	Left	Stayed	Left	Stayed	Left
Physical fatigue	3.92[c]	3.00	3.82	3.29	3.67[a]	3.00
Fellow workers	4.46	4.45	4.34	4.64	4.34	4.46
Mental pressures	3.70[c]	2.82	3.88	3.43	3.87[a]	3.07
Healthfulness	4.41	4.09	4.34	4.29	4.14	3.80
Crowding	4.59	4.27	4.47	4.46	4.43[a]	3.77
Challenge	4.57	4.55	4.13	3.93	4.21[c]	3.81
Regular income	4.07[c]	3.27	3.88	3.73	3.59	3.33
Hours spent working	4.20[a]	2.91	4.24	4.00	4.07[a]	3.29
Community in which you live	4.56	4.71	4.52	4.40	4.49	4.54
Time for family activities and recreation	3.51	3.13	3.03	2.58	2.82	2.71
Doing deck work on vessel	4.24[c]	3.55	3.83	3.69	4.29	4.09
Performance of federal and provincial officials	2.40	2.40	2.58[c]	3.07	2.40	2.82
Time it takes to get to the fishing grounds	3.91	3.27	4.01	3.75	4.02[b]	3.52
Adventure	4.37	3.91	3.45[a]	4.42	4.00[c]	3.63
Your earnings	4.20	3.82	3.84	3.67	3.63	3.64
Being out on the water	4.40	4.36	4.06	4.40	4.18	4.30
Ability to come and go as you please	4.38[b]	3.36	4.34	4.00	3.80	3.47
Job safety	4.39[c]	3.00	4.12[c]	3.13	4.01[a]	2.55
Living conditions on board	4.46	4.00	4.16[b]	4.71	4.09	3.88
Time away from home	3.39[b]	2.09	3.25	2.50	2.95	2.68
Opportunity to be your own boss	4.52	3.55	4.23[c]	3.50	3.71[a]	3.02
Peace of mind	4.20[c]	3.30	3.85[c]	2.93	3.90[a]	3.20
Feeling you are doing something worthwhile	4.51	4.09	4.34	4.27	4.18[a]	3.56
Cleanliness	4.35	4.09	4.09[a]	4.79	3.89	3.68
Working outdoors	4.65	4.82	4.38	4.33	4.67	4.63
Trip length	4.21[c]	3.50	4.07	3.57	3.86[c]	3.45
Minimum N	99	11	67	14	156	51

[a] $p<.001$.
[b] $p<.01$.
[c] $p<.05$.

Our findings support this view in that "time away from home" and "hours spent working" receive the lowest ratings among "leavers," with mean scores less than the neutral point of 3.0. In addition, both "time away from home" and "hours spent working" are significantly lower among former than current distant water workers.

Equally illuminating are those job satisfaction components that do not differentiate between "stayers" and "leavers." First, community and crew attachment is strong for both groups. The job satisfaction scores with "fellow workers" and "community in which you live" are as high for the "leavers" as for the "stayers." Second, both current and former distant water fishers are highly satisfied with the environmental aspect – "working outdoors" and "being out on the water." Third, satisfaction with both the general "living conditions on board" and the specific "cleanliness" is about the same for the "stayers" and "leavers."

In contrast to the captains and mates, job satisfaction of current and former other officers is more complex. For this occupational position, there are seven statistically significant differences, but on four of these former officers report greater satisfaction than current ones. Former officers recall greater satisfaction with the general "living conditions on board" and specifically with "cleanliness." They seem to miss the "adventure" of their former jobs, recalling greater satisfaction with this than current officers. Finally, on the issue of "the performance of federal and provincial officials," the "leavers" recall less dissatisfaction than the "stayers."

The final two columns of Table 2 contrast current and former crew members. On twelve components, former crew members recount significantly less satisfaction than their current counterparts. As with the captains, there are no issues on which former crew members recall significantly greater satisfaction than current crew members. Satisfaction with the physical and mental demands of distant water (i.e., "physical fatigue," "crowding," "hours spent working," "job safety," "trip length," "time it takes to get to the fishing grounds," "mental pressure" and "peace of mind") fishing clearly differentiates "stayers" from "leavers." In addition, current crewmen value more the "challenge," sense of "adventure" and "feeling you are doing something worthwhile" than former crewmen do.

A close examination of Table 2 suggests that there are some common components of the work environment that differentiate "stayers" from "leavers" irrespective of their occupational position. These appear to be stress, both physical and mental, the time demands of the job, the health and safety hazards of distant water fishing, and the limited independence in the distant water sector. To explore this more systematically, we constructed indices to measure these aspects of job satisfaction (see Table 3).[11]

On the first four factors listed in Table 3, "leavers" report significantly less satisfaction than "stayers." This is true not only for the sample as a whole, but also for each of the three categories of occupational status. This consistency suggests a common dynamic which link features of the work environment to the termination of distant water fishing. We suggest that the fishing schedule of long trips with forced absence from social familiars interacts with the limited control distant water fishers exercise on these schedules and on their routines to create high stress levels, such as mental pressures and physical fatigue. Under conditions of high stress, accidents occur more often, forcing some fishers out of the

Table 3. *Mean Levels of Job Satisfaction Among Former and Current Distant Water Fishers*

Job Satisfaction Index	Component Items	Current Workers	Former Workers
Control	Ability to come and go as you please, Opportunity to be your own boss	4.07[a]	3.40
Time	Trip length, Time away from home, Time it takes to get to the fishing grounds, Time for family activities and recreation, Hours spent working	3.67[a]	3.11
Safety/Health	Healthfulness, Job safety	4.21[a]	3.34
Stress	Peace of mind, Physical fatigue, Mental pressures	3.85[a]	3.07
Earnings	Your earnings, Regular income	3.82	3.57
Adventure	Challenge, adventure	4.15[b]	3.86

[a] $p<.001$.
[b] $p<.01$.

occupation. Not surprisingly, in retrospect these "leavers" express greater health and safety concerns.

On the fifth factor, "earnings," there are no statistically significant differences between "stayers" and "leavers." Former fishers are aware that in economic terms, distant water fishing compares well with available alternatives. Finally, there is a tendency for "leavers" to report less satisfaction with the "adventure" component of distant water fishing. This is the case primarily among crewmen.

In our description of the two samples, we mentioned that former fishers on the average were older than current ones. This raises the possibility that differences in levels of satisfaction are a function of age rather than turnover status. To test this possibility, we computed Pearson's correlations between age and each of the six factors. Age differences do not account for the reported findings.

Similarities and Differences in Profiles

We turn now to assess the similarities and differences in the job satisfaction profiles. Our first approach to developing these profiles is to compute the "five worst" and the "five best" aspects of distant water work as reported by "stayers" and "leavers" in each occupational position. This is done in Tables 4A and 4B respectively.

Among current workers, the "performance of federal and provincial officials," "time away from home," and "time for family activities and recreation" are seen as the three worst in each of the occupational positions. Two of these

Table 4A. *Items Showing the Least Job Satisfaction by Turnover Status and Occupational Position*

	Current Workers	Former Workers
CAPTAINS/MATES	Performance of federal and provincial officials	Time away from home
	Time away from home	Performance of federal and provincial officials
	Time for family activities and recreation	Mental pressures
	Mental pressures	Hours spent working
	Time it takes to get to the fishing grounds	Job safety
OTHER OFFICERS	Performance of federal and provincial officials	Time away from home
	Time for family activities and recreation	Time for family activities and recreation
	Time away from home	Peace of mind
	Adventure	Performance of federal and provincial officials
	Physical fatigue Job safety	
CREWMEN	Performance of federal and provincal officials	Job safety
	Time for family activities and recreation	Time away from home
	Time away from home	Time for family activities and recreation
	Regular income	Performance of federal and provincial officials

Table 4B. *Items Showing the Most Job Satisfaction by Turnover Status and Occupational Position*

	Current Workers	Former Workers
CAP./MATE	Working outdoors	Working outdoors
	Crowding	Community in which you live
	Challenge	Challenge
	Community in which you live	Fellow workers
	Peace of mind	Being out on the water
OTHER OFF.	Community in which you live	Fellow workers
	Crowding	Crowding
	Working outdoors	Adventure
	Fellow workers	Community in which you live
	Healthfulness	Working outdoors
CREWMEN	Working outdoors	Working outdoors
	Community in which you live	Community in which you live
	Crowding	Fellow workers
	Fellow workers	Being out on the water
	Doing deck work on vessel	Doing deck work on vessel

– "time away from home" and "performance of federal and provincial officials" are also among the five worst components for all three groups of "leavers." As one might expect, "job safety" is among the worst five for all three groups of "leavers" but is not among the worst five for any of the three groups of "stayers."

Turning to those items that provide the greatest satisfaction, "working outdoors" and "community in which you live" are among the top five in all six groups. In addition, "crowding" is among the five best for all groups of "stayers" whereas "fellow workers" is among the five best for all groups of "leavers."

In many respects, the working conditions of our distant water sample are similar to those of the workers on scallopers and draggers, and to some extent as well as those of the workers on longliners studied by Gatewood and McCay (1988). The three components of job satisfaction rated lowest among our current

workers ("performance of federal and provincial officials," "time away from home" and "time for family activities and recreation") were found to be among the six worst for those fisheries reported by Gatewood and McCay (1988). Likewise, "working outdoors" and "community in which you live" are among the most satisfying items for both our "stayers" and their scalloper and dragger workers. This also corroborates a tendency documented by Apostle and co-workers (1985), that attachment to community and to fellow workers is particularly pronounced among Nova Scotian fishers.

There is only one instance where an item which appeared among the worst five for one group also appeared among the best five for any other group. This is "adventure" which is among the top five for former other officers and among the bottom five for current other officers.

The findings discussed so far suggest that both occupational position and turnover status are associated with job satisfaction profiles. To explore this more systematically, we created six groups by combining turnover status with occupational position (captains/mates, other officers and crew). Q-correlations will be used for this purpose. In such an analysis, the twenty-six components of job satisfaction are the "cases" while the mean job satisfaction scores for the six groups are the "variables." That is, we computed the Pearson's correlations on a twenty-six by six matrix where the cell entries are the mean job satisfaction scores on a given component (row) for a given group (column). Such a procedure ignores absolute differences in levels of job satisfaction among the different groups but captures relative differences. It answers the question "To what extent are those job satisfaction components that one group rates high also rated high by another group; and vice versa, how similar are those that one group rates low?"

Table 5 shows the job satisfaction similarity profiles in the form of Pearson's correlation coefficients among the six groups.[12] Three patterns emerge:

(1) The profiles of the three groups of current distant water workers are most similar to each other, with all three possible intercorrelations identical at 0.88.

(2) Likewise, the profiles of the three groups of former distant water workers are most similar to ach other; these correlations range from 0.80 to 0.88.

(3) In every instance, the profiles of groups with like turnover status but unlike occupational position are more similar than for any groups of like occupational position but unlike turnover status.

Discussion and Conclusions

As stated previously, former workers left the distant water either because of an accident or because of their dissatisfaction with the balance between monetary and non-monetary benefits. This manifests itself in the different profiles and patterns of levels of job satisfaction between current and former workers. The combination of long working hours, the loss of autonomy while working, the physical and mental stress of the work, and safety concerns are common areas

Table 5. *Similarity of Job Satisfaction Profiles among Combinations of Turnover Status and Occupational Position (Pearson's Q-correlations)*

		Current Workers			Former Workers		
CURRENT WORKERS		(1)	(2)	(3)	(4)	(5)	(6)
	(1) Captains/Mates	---					
	(2) Other Officers	.88	---				
	(3) Crewmen	.88	.88	---			
FORMER WORKERS							
	(4) Captains/Mates	.77	.66	.77	---		
	(5) Other Officers	.66	.66	.72	.80	---	
	(6) Crewmen	.61	.58	.75	.87	.80	---

of dissatisfaction for all former workers but how these concerns are manifest depends partly on the occupational position of the worker. The link of having left the distant water seems to produce more common concerns than the link of occupational position. That is, the configurations of satisfaction/dissatisfaction among former distant water workers of different occupational positions are more similar to each other than are the configurations of "stayers" and "leavers" who held identical occupational positions.

Most captains said they left because they had become disillusioned with the distant water fishing industry. Captains are now expected to be site managers, as well as fish hunters and navigators. They must take their direction from the onshore managers. Companies now tell captains where to fish, what species to catch, and how much to bring back. Captains who leave see the company's attempt to control the operation at sea as an infringement of their rights as captain.[13] As one captain who had worked the distant water for twenty years put it:

> The company I worked for didn't appreciate me ... There should be no boat quota. The fun was taken out of it. There were no highliners. It was just like going shopping at Sobeys [a local food store]. So I just quit.

When these workers leave the distant water they either buy their own vessel or work for a small independent owner. Here the captain enjoys final control over when, where and with whom to fish. The trips are significantly shorter and the time between trips substantially longer. Status distinctions are not emphasized. These vessels are much smaller, with cramped living quarters, smaller work

decks and less safety equipment. With no large company to run interference, captains must deal directly with federal and provincial fisheries officers. Workers trade off these less pleasant working conditions for shorter sea time, increased flexibility in working conditions and increased autonomy.

The other officer group presents a more complicated picture. These fishers have left the fishery because of injury, physical stress or stifled ambition. The majority do not possess sufficient resources to become an owner/operator but they hope to upgrade to mate or captain. They suffer a loss of status. They must now direct fewer workers on a smaller deck or in cramped fishrooms. They must bunk with the rest of the crew. Their higher level of job satisfaction with distant water living conditions and the general physical environment can be traced to their current working environment. These fishers trade off the less pleasant working conditions for shorter sea time, more autonomy and input into their working conditions, and better possibilities of advancement.

The crew members leave the distant water fishery because of an accident or illness. Many face long-term disability, and many will never return to the fishery although they long to. As one injured worker put it:

> I had it in my mind all along that I was going back fishing and then the compensation cut me down ... I couldn't live on that. There's no way I could do it. So then they told me to put in for the Canada Pension. So I put in for Canada Pension and thank God I got that ... I wanted to go back to fishing. I had it in my mind I wanted to go back but my report came back from Halifax one hundred per cent disabled from any fishing or heavy lifting. So it hit me hard. It changed my life all over. I didn't know what to do with myself. I even thought about trying to make away with myself.

The distant water is a grueling and stressful environment where good money can be made by workers with low education. Many of the men we interviewed said they knew that they weren't keeping up, but they also knew that their job prospects for similar paying work were low if not non-existent. Therefore they kept on working, trying to maintain the pace. Many felt their accident was inevitable and that it was the only way they could get out of the fishery.

Two features of distant water fishing are at the heart of the patterns of problems examined in this paper. The first is the work schedule which typically consists of ten days at sea and forty-eight hours on shore. This is how one worker describes it:

> What I find is you're always trying to catch up – make up for lost time. Trying to live in 48 hours what the guy ashore does in 10 days or 2 weeks. Drink, drive, run around, watch TV, there's no time for sleep. You have to keep going, going all the time.

Such a schedule is too demanding, creating both physical and mental stress. The limits on the allowable deferment of trips exacerbated this situation. It is particularly hard on families. Here is how one fisher's wife expressed it:

> With the union they're given certain times home: Boxing Day, New Year's, they used to be gone. Before you had children you'd look forward to New Year's, but they didn't have it, they had nothing. Now they stay home Christmas and New Year's. But other family times, Mary's graduation for example, he had to lose a trip ... First communions, baptisms, all the family things you want to do together, he has to take a trip off... The contract gives you three trips off. So you take one for graduation and another if someone is ill, come summer when we want to be gone, he's still there. And then it's winter.

The second feature is the loss of worker control over the work processes both on the deck and in the wheelhouse. Increasingly, these decisions are made by management or determined by the technology. The lack of control over the technology used, combined with the demanding work schedule is a dangerous combination that results in high accident rates.

To what extent are these two features intrinsically necessary to maintain an efficient distant water fishing industry? Phrased differently, what produces and maintains these two features? Part of the answer is the vertical integration of distant water fishing companies. In the context of enterprise allocation, companies must integrate harvesting at sea with processing on shore. One component of this strategy is to maintain a strict control of harvesting in order to coordinate it with processing needs. Another part of the strategy involves technological advances in fishing. The rhythm and pace of work is premised less on human capacities than on creating a "conveyer belt" regularity and predictability to which the worker must adapt. Both developments result in an alienation of fishers from their work.

Although the sources of the difficulties are easy to see, the solutions are not. Thus, at first glance it seems clear that the solution to the stress problem is either to decrease the time at sea or to increase the time on shore. Interviews with the fishers make it clear that the problem was not the length of time at sea, but rather the short time on shore. However, they stated categorically that they would be unwilling to take a lower income in order to have longer shore leave. It is unlikely that the companies would be willing to offer the same income for less work.

The solution to the technology problem is equally difficult. Technological developments have made distant water fishing more efficient and profitable. But technological improvements have paid little regard to human limitations. For example, the containerization of fish (boxing) into plastic boxes, that hold approximately seventy or one hundred and ten pounds of fish plus ice, leads to a better quality of fish. But the fishers working in the hold must lift and carry these boxes by walking on the narrow edges of boxes stored in the constantly moving hull. The rate the boxes are filled is not controlled by the men storing the boxes. If troubles ensue, there is no way of halting the process short of shutting down the whole process. But this action produces backlogs in the earlier process of gutting and preparing the fish. This labour-intensive method of storing fish has been associated with increased health risks. Accidents due to lifting (e.g., hernias, back problems), slips and falls (e.g., sprains, strains and fractured limbs), and the tumbling of boxes (e.g., crushed body parts), and illnesses associated with the cold and damp working environment (e.g., rheumatism, colds) have been attributed to boxing. Clearly, a redesign of some of the technology according to ergonomics is essential and this work is now being done in Scandinavia (H. G. Andersen 1989, personal communication).

The solution to the management problem is the most complex and difficult. Benefits from the introduction of scientific management have included the increased quality of fish, increased safety related to stability of vessels, and the regularization of work schedules, sea time and income. These strategies have had profound results on the organization of work on board vessels. The needs of the men on board are suppressed while the needs of the plants, which are responding to market pressures, are paramount. The enhanced control of the workplace has increased worker's dissatisfaction and continued the exodus of fishers from the work force. Neither companies nor employee groups have fully appreciated or investigated these effects.

In the introduction we asked "What are the underlying factors contributing to fishers decision to leave the fishery?" This question is an intriguing and complicated one. Our study suggests that, for uninjured workers who leave, changes in working conditions associated with scientific management erode job satisfaction and upset the equilibrium between monetary and non-monetary benefits associated with the job. For these workers the long time away from home and family, and the level of stress combined with economic incentives in other sectors of the fishery push them out of the distant water as inevitably as those injured workers are pushed out.

Notes

1. Marian Binkley supervised the collection of the information used in this paper. The project was supported by The Social Sciences and Humanities Research Council of Canada - No. 410-85-0479 and No. 410-87-0548. An earlier version of this paper was presented at the 1989 annual meetings of the Atlantic Association of Sociology and Anthropology in Sydney, Nova Scotia. The authors would like to thank the Editors of *MAST*, Richard Apostle, and Jack Crowley for their helpful comments.

2. We use the non-sexist term "fisher" to denote people who work in the fishery even though there are no women now working in the distant water fishery.

3. For a fuller treatment of recruitment practices in the community based distant water fishery, see Thiessen and Davis (1988). For a discussion comparing kin based recruitment with contract recruitment, see Stiles (1971). For an ethnographic account of a community based fishery with both inshore and distant water fisheries, see Davis (1985).

4. Brothers may work side by side, but this is not the norm. The nature and physical demands of this type of work, coupled with the social costs of spending long periods at sea, puts too much strain on families (Thiessen and Davis 1986:12-13).

5. An important exception is the First Mate position where Masters may compete openly to hire a particular person.

6. For further discussion concerning family life in distant water fishers' families, see Binkley and Thiessen (1988).

7. For a more comprehensive discussion on the organization of the fishery and working conditions see Binkley (1989).

8. The specific reason for leaving the distant water fisheries could influence the reported levels of job satisfaction. Therefore a series of difference-of-means tests were performed contrasting the job satisfaction of those who left due to illness or accident with those who left for other reasons. Only one statistical difference emerged. Since that is the same number as would be expected by chance (over twenty comparisons were made), this distinction is not retained in the analysis.

9. Turnover status refers to whether a respondent is a former or a current distant water fisher. In other words, this variable simply indicates the sample – "stayers" or "leavers" – of the respondent.

10. This is a general problem in retrospective interviews. Past methodological studies have repeatedly indicated that for most topics recollections are considerably biased. Respondents might be willing to tell a researcher what they thought about something that happened several years ago, but the responses are usually poor reflections of what they actually thought at the time about the topic.

11. Apostle et al. (1985) and Marian Binkley (1990) used factor analysis on these job satisfaction items. There is considerable similarity between their dimensions and our indices. The main difference is that safety/health considerations did not emerge as a factor in their studies; it is clearly an important domain for our topic. Also, in the context of our study, the factor "work quality" is better renamed "stress."

12. It is of course possible to compute these similarity profiles using other measures of association such as Spearman's rank order coefficients. As its name implies, this procedure converts the means into ranks from 1 to 26 for each of the six groups and then correlates the ranks. We, like Bohrnstedt and Borgatta (1985) consider the assumptions made in this "non-parametric" technique to be at least as problematic as the assumptions of normality and interval measures made when computing Pearson's correlation coefficients. In particular, the Spearman's procedure forces a minute difference in two adjacent means to be given the same "weight" as a large difference between another adjacent pairs of means. Since our scores are means, it is reasonable to give more weight to large differences than to small ones. Spearman's correlation coefficients were nevertheless computed with mixed results. That is, the patterns reported in Table 5 for the Pearson's correlations are also manifest when Spearman's r's are computed, but less clearly.

13. For a fuller discussion of the implications of the enterprise allocation and its concomitant management practices on the working conditions in the distant water see Marian Binkley (1989).

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Policy, Power and Science

The Implementation of Turtle Excluder Device Regulations in the U.S. Gulf of Mexico Shrimp Fishery

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ABSTRACT For the past decade shrimpers, environmentalists, sport fishermen, and fisheries administrators have been involved in legislative, legal, and administrative battles over the use of devices to exclude sea turtles from shrimpers' trawl nets to prevent their drowning. In the summer of 1989, the regulations requiring such devices began to be enforced. To protest, shrimpers blockaded several ports along the Texas and Louisiana coast. I describe what appears to be the final implementation of the turtle excluder device (TED) regulations on the Gulf of Mexico. Because it is central to the rhetoric of many policy discussions, I analyze the role "science" and scientists have played in this process.

The Blockade

On 23 July 1989, a week after shrimping season opened in Texas, angry shrimpers drew their boats into lines to block egress from and access to ship channels at Galveston, Port Arthur, Port Aransas, and Brownsville, Texas, and Cameron, Louisiana. At Aransas Pass, 150 or more shrimp boats overwhelmed the Coast Guard and caught their cutters in the blockade. The Coast Guard attempted to break the blockade by blasting shrimpers with water and cutting their anchor cables. They failed. About 200 other shrimping craft blockaded the Houston and Galveston ship channels. Some surrounded the ferry from Galveston and forced it to stop (*Dallas Morning News*, 23 July 1989).

Sport fishing boats were held inside their ports or not allowed back in. This disrupted weekend fishing competitions and interrupted charter boat operations, depriving them of weekend income and turning some against the shrimpers. While some large offshore oilrig service boats and tenders ran the blockade, other boats were delayed.

Shrimpers would lose between $2,000 and $5,000 income every day they kept their boats on the blockade instead of fishing. They could not sacrifice their income for a long time (*Corpus Christi Caller-Times*, 23, 30 July 1989).

Hoping the shrimpers would "take it as a victory of some sort and ... relax a little," the Coast Guard broadcast the news that Gulf coast congressmen would meet with the secretary of Commerce to negotiate a resolution (ibid., 23 July 1989). The blockade broke up about noon the next day when the Coast Guard promised negotiations would be held. Shrimpers vowed to resume the blockade if negotiations were unsuccessful.

What precipitated this drastic action was the announcement that the Coast

Guard had been instructed to enforce a regulation that requires shrimpers to install devices in their nets to allow turtles to escape from them.

Shrimpers were as surprised as anyone else at the success of the spur-of-the-moment blockade. One shrimper said, "This is the first time in thirty-something years that the Texas fishermen have been together on anything" (ibid., 24 July 1989). The Gulf states – Florida, Alabama, Mississippi, Louisiana, and Texas – open their shrimping seasons at different times. Shrimpers gather for each opening, hoping for quick and relatively easy catches for at least a few days before the shrimps become scarce and more difficult to catch. As the shrimp supply diminishes, boats must trawl longer to fill their nets and trawl more to fill their holds. Shrimpers from the other Gulf states had converged on Texas ports for the opening of the Texas shrimp season.

Vietnamese and native Gulf coast shrimpers from all Gulf states joined in the blockade. No organization such as Concerned Shrimpers of America had organized the action. It developed literally over night as shrimpers expressed their outrage to one another on their radios (Cooper 1989a).

After a decade of uncertainty, the shrimpers are being required to modify their nets so that sea turtles cannot drown in them. Doing so, they reduce their catches significantly. This is not just an economic problem for shrimpers, but has become a political issue among environmentalists and coastal politicians.

Science has become a political weapon because environmental groups have sufficient funds to retain their own biologists and lawyers to put science in their own service. "Science" has become symbolic of the purity, awareness, and progressiveness of environmentalists and sport fishermen as against the pollution, ignorance, and backwardness of shrimpers. With no scientists working for them, shrimpers are powerless to create a favorable ideological atmosphere for commercial fishing. Bureaucratic science, by its very nature and conditions, serves the ends of policy rather than objective truth and its use is to justify decisions rather than to inform them (Mills 1959). These patterns are consequences of several historical developments: the growth of shrimping with otter trawls, the expansion of shrimping areas to distant waters in the Gulf of Mexico, the increasing size and expense of boats and gear, the deteriorating economic conditions of shrimpers, the disbanding of shrimpers' unions, and the inability of fishermen to affect policy processes. Fishing policy is supposed to be based on the best available scientific evidence. Scientific research became bureaucratized and used to justify policy rather than as a basis for policy formulation. In the process "science" has become a political weapon.

History

Shrimp trawls were first introduced around 1918 along with motorized boats, and in the 1950s small inshore boats began to be replaced by larger Gulf boats capable of longer offshore trips (White 1977). Internal waters provided a smaller percentage of the total catch as the offshore catch increased. This process of using larger boats to seek shrimp farther from shore has continued as shrimpers

have begun to trawl royal red shrimp, discovered in 1960, and other species at deeper depths and farther from shore, seventy miles or more. Trawling at such depths requires larger boats and heavier gear (Perkins 1987).

The current system of shrimping began about 1950 with the location of new more distant fishing grounds in the Gulf, the development of mechanical processing equipment and freezing technology, fisheries research programs, and larger shrimp boats with new trawling gear. Local catches as well as imports increased. Within a few years shrimpers were caught in a squeeze between being able to pay off increasing debts for new technology and low prices for shrimp.

United-States-funded development programs in several areas of the Third World have helped construct, improve, and expand shrimp aquaculture operations. The United States now imports about 80 per cent of its shrimp. As imports have increased, prices for domestic shrimp have declined. As prices have declined, shrimpers have tried everything they can think of to increase their catches. They have invested in ever-larger boats and rigs to fish ever further out in the Gulf. As the price declines, they need to catch more. Their catch is such a small part of the total shrimp supply on the world or U.S. market that it does not affect prices.

From about 1915 to 1955, Gulf Coast shrimpers were organized into local and regional unions which negotiated with packers to set prices each season. With their new technology and debts, shrimpers were willing to take whatever price they could get rather than risk a strike. As this process developed, there were fewer and fewer price setting negotiations until 1955, when a Mississippi shrimpers' union was found to be in violation of antitrust legislation and outlawed. In 1922, the Capper-Volstead Act exempted farm cooperatives from the provisions of antitrust legislation (Cochrane 1979:114); Durrenberger 1984), but such legislation was not developed to exempt fishermen. Various courts found that shrimpers and other fishermen are firms, which antitrust laws preclude from colluding to set prices for their products. In the eyes of the law, a fisherman and his boat are a firm in the same sense as General Motors or ITT. Today shrimpers are noted for their "independence" and fisheries bureaucrats, the general public, processors, and the fishermen themselves think it impossible that they could ever operate collectively on any issue.

In 1920, only two years after the first use of trawl nets in inshore waters, sport fishermen organized to try to ban trawling. They argued that the trawls caught and killed numerous other species besides shrimp, among them the species recreational fishermen wished to pursue. This pressure has continued to the present day, and sport fishermen have become increasingly forceful and well organized. The powerful Gulf Coast Conservation Association is a group of doctors, lawyers, local and regional elites, and other influential, wealthy, dominant, determined, energetic individuals. They retain their own biologists and Washington lawyers, have well-defined legislative programs, and are a political force on the Gulf.

Other groups of conservationists and environmentalists have united such issues as industrial pollution of air and water, resource conservation, nuclear and

other waste disposal, preservation of marine and other animals and plants, global warming, and many other matters that relate to quality of life, health, diet, recreation, and the welfare of the human and other species. While they have not organized like the Green movement in Europe, they exert considerable informal political influence through legislative measures and court cases. They have successfully located themselves rhetorically on the side of "purity" against the many and varied forces of "pollution." Greenpeace and the Sierra Club are two such groups which have different histories but increasing funds and power, which they have used to propose and support legal and legislative measures to institute Turtle Excluder Device (TEDs) regulations and enforce them. The Audubon Society, named after the famous American naturalist, is another group with environmental interests. In most counties, cities, and towns, it has local organizations whose major interests center on amateur ornithology and an annual census of birds in North America. It also has a national organization that charters local groups, publishes a journal, and participates in environmental politics. Other environmentalist groups include the National Wildlife Federation, the Center for Environmental Education, Defenders of Wildlife, and the Monitor International Fund for Animals. There are many other groups of sportsmen-conservationists such as Ducks Unlimited and the Isaac Walton League.

Turtle Excluder Devices: Proponents and Opponents

In 1978, marine turtles were included in the Endangered Species Act, and the National Marine Fisheries Service (NMFS) charged to protect them at sea.

The NMFS developed and tested a Turtle Excluder Device (TED), hoping it would attract shrimpers by eliminating much unwanted by-catch of jellyfish, finfish, and trash as well as turtles. The NMFS TED is a wire cage about three feet on a side, with a top hinged at the front. A chute of bars runs from the bottom front to the top back. The motion of the water through the trawl washes any sizable turtle or fish that enters the front up the chute and through the hinged top to freedom. The shrimp continue through the bars of the chute into the bag of the trawl behind it (Edwards 1987; Taylor et al. 1985).

In 1983 NMFS promoted a voluntary TED program. They argued that only widespread voluntary use could avoid disastrously expensive legal confrontations that would result as environmentalists were determined to support enforcement of the Endangered Species Act (Fee 1987). By January 1986, it was clear that the voluntary program had failed after five years of effort (Edwards 1987:37).

In August 1986, the National Oceanic and Atmospheric Administration (NOAA) informed representatives of the Gulf shrimp industry about proposed regulations to require TEDs. A private environmentalist group, the Center for Environmental Education, immediately told the Department of Commerce it would sue NOAA and NMFS to have all shrimp trawlers equipped with TEDs by January 1987. NMFS invited shrimpers to discuss the issue with conservation groups (Durrenberger 1988).

The agreement required the use of one of four TEDs, each of which had passed NMFS tests confirming that they allow most turtles to escape the trawl nets. Even though representatives of the shrimping industry were involved in the decision, shrimpers have since repudiated the agreement (Johnson 1987).

In 1985 the Endangered Species Act expired. For three years, the TED program had been supported with emergency appropriations while the Act was debated.

In July of 1988 Alabama Senator Heflin and the chairman of the Senate environmental protection subcommittee worked on a compromise agreement that nongovernmental scientists would conduct studies of endangered turtles and the effectiveness of TEDs to determine whether the turtles were actually endangered, whether TEDs are effective, and how TEDs affect shrimp catches. Enforcement of the TED law would be delayed until May 1989.

It appears that Heflin had in mind new studies, though he did not specify just who should conduct them. There was an ambiguity that led to two distinct opinions. Fisheries bureaucrats, who arranged the studies, understood them to be reviews of existing work to determine whether they were methodologically acceptable or biased. Shrimpers, on the other hand, envisioned new studies based on new data collected by scientists from the National Academy of Science.

In early April 1989, 3,500 shrimpers gathered at a mass meeting of Concerned Shrimpers of America in Thibodaux, Louisiana. Shrimpers and speakers alike expressed confidence that the new studies by objective (not NMFS) scientists would show that they did not catch turtles. The scientists would see that the bottom was mud, not sand, as the bottoms had been where the original tests were done. The scientists would be able to observe the 30 to 50 per cent decrease in catch the TEDs cause. Shrimpers here and elsewhere have indicated that they think the scientists will collect new data, make new studies, observe them in their work situation. They are convinced that scientists of the American Academy of Science will tell the truth and the truth will vindicate the shrimpers. Their faith in science and its power seems almost religious. No speaker at the mass meeting said anything different.

Tee John Mialjevich, president of Concerned Shrimpers of America, the Attorney General of Louisiana, United States representative from Louisiana Billy Tauzin, Governor Roemer of Louisiana, and others addressed the meeting. The governor said that state wildlife agents should ignore TED laws until studies showed conclusively that TEDs work. He said he would take the issue to Washington and "tell George Bush to read my lips." Congressman Tauzin said, "We are going to win this war eventually. A fishing family deserves to live every bit as much as a farming family" (*New Orleans Times-Picayune*, 9 April 1989).

In another context, a Texas shrimp boat fleet owner said, "We feel like when the study comes back from the National Academy of Science, it'll prove what we've said all along – that Texas shrimpers don't catch any turtles off our coast" (*Corpus Christi Caller-Times*, 25 July 1989).

Unbeknownst to shrimpers, the "studies" would only review studies NMFS had already completed. A committee would be appointed to review the methodology of the studies to detect any bias. By the end of summer 1989, the committee

had not yet convened. Several fisheries administrators expressed the conviction that there had been no bias, and the findings would be vindicated. The shrimpers and the bureaucrats had in mind two quite different processes.

In July 1989, a year after Heflin's 1988 compromise agreement, but before the scientific review had started, the NMFS (under threat of lawsuits from conservationists) began to enforce its previous TED regulations. This provoked the shrimpers' spontaneous demonstration.

Resolution

A delegation of senators and representatives from the coastal states met with Secretary of Commerce Robert Mosbacher and urged him to suspend the regulations. Representative Billy Tauzin had discussed the matter earlier with him and suggested that the regulations might lead to violence. During the blockade, Tauzin and others requested Mosbacher's help. "I told him he could help if he wanted to. But he says his lawyers were telling him he was on shaky ground, that he'd be sued if he modified the regulations. I said, 'so get sued, let the courts decide'" (Cooper 1989a:3). Mosbacher met with two dozen congressmen from the region and representatives who had discussed matters with shrimpers in Galveston (*Corpus Christi Caller-Times*, 30 July 1989).

The Coast Guard said it would file no charges against shrimpers, and Mosbacher agreed to suspend the regulations again for forty-five days. After that time, until the National Academy of Sciences study was completed, shrimpers would be allowed to keep their nets in the water no longer than ninety minutes at a time instead of the usual three hours, so as not to drown turtles. This announcement made shrimpers as happy as it made environmentalists angry (ibid., 25 July 1989).

Mosbacher is from Houston, Texas. After he suspended the regulations, a political scientist at Rice University in Houston, said, "It seems pretty political to me, Texas fishermen appealing to a Texan for help" (ibid., 30 July 1989).

A NMFS representative said that shrimpers were getting the wrong idea, thinking they would not have to use TEDs. He said they would have to use the devices eventually because economics was no consideration in the salvation of endangered species (ibid., 25 July 1989).

Within two days the national Audubon Society called for a shrimp boycott to protest the Gulf fishermen's refusal to use TEDs. It urged all Americans not to purchase or eat any shrimp products. No one thought a boycott would have any impact on shrimpers, because most shrimp in America are imported. An Audubon Society spokesman criticized the Secretary of Commerce for responding to the blockade and said it was outrageous, goonish hooliganism (ibid., 27 July 1989). Local Audubon Society leaders on the Gulf Coast repudiated the National Society's call for a boycott (ibid., 28 July 1989).

The National Wildlife Federation sued the Secretary of Commerce immediately, claiming that his proposal had no scientific basis and offered no protection to the turtles. They argued that he had responded only to threats of violence, that shrimpers would observe no time limits on trawling because it would cost them, and that the Secretary's suspension of the regulations was illegal (ibid., 3 August 1989).

A Federal judge ruled that the Commerce Department must implement rules to protect turtles, but did not specify what those rules would be. If the Department prepared no new regulations, shrimpers would have to use TEDs. The Department said it would use trawling time limits. Environmentalists were pleased that the judge recognized the danger to turtles, but displeased that he did not mandate a return to the TEDs regulations (ibid., 4 August 1989). The Commerce Department submitted new rules allowing a 105-minute tow instead of TEDs. This would allow 90 minutes to tow the nets, and 15 minutes to drop and retrieve them (ibid., 5 August 1989). There would be a 105-minute fishing period, a 30-minute break, then another fishing period, and so on through the day. Anyone fishing in the break times would violate the law (ibid., 8 August 1989).

The National Wildlife Federation went to court again, charging that the fishing-period scheme does not protect turtles. The courts refused to overturn the Secretary of Commerce's rule until September, when the time needed to promulgate rules elapsed. The judge argued that the rule had to be made before he could rule on it, and until such period of time had passed, the rule was not official (ibid., 31 August 1989).

Early in September, the Commerce Department announced that shrimpers must use TEDs. The Department found that the time limits were ineffective; the National Oceanographic and Atmospheric Administration that limited trawling times would not protect turtles; the Coast Guard that shrimpers did not comply with the time limits (ibid., 6 September 1989). The maximum penalty for failure to use a TED is a $20,000 fine (ibid., 8 September 1989).

When President Bush visited New Orleans, 400 to 500 shrimpers demonstrated to request his intervention. They wanted the TED requirement suspended until the National Academy study was completed (ibid., 10 September 1989).

The TED laws had been formulated and implemented. In September 1989, less than 10 per cent of the boat the Coast Guard boarded were violating them (Fee 1990). Jim Fullilove, editor of the monthly *National Fisherman*, tried to organize a meeting of fishermen and gear specialists at a boat and commercial fishing exposition in New Orleans to discuss how best to use TEDs. Shrimpers said they would listen if anyone could explain how to use them so they would work as NMFS had promised. Gear specialists said they did not want to risk it. Fullilove concludes:

> The standoff is intolerable and destructive. Bad feelings, anger and frustration run deep on both sides. Communications have broken down. Worse, many of the gear specialists are worried that they may be physically harmed. Time will sort out the TEDs battle, but there will be scars. If the struggle has accomplished anything positive, it is the example it provides of how not to solve a problem (Fullilove 1990:6).

It remains to assess the consequences of the new regulations.

Consequences

TED regulations will have economic consequences. In recent years, the Gulf shrimp fleet caught more shrimp to sell at higher prices. The number of boats increased, and each boat increased its effort. Boats also increased in size. The increase in shrimp catch owed to more and larger boats fishing more days.

From 1971 to 1977, the cost of fuel increased 208 per cent and fixed costs (insurance, overhead, depreciation, interest) 149 per cent. Proportional to catch, costs increased 115 per cent, and the consumer price index (a measure of inflation) 50 per cent. Net income depended on vessel size and material. Wooden vessels and medium-size boats did better than larger steel-hulled vessels (cf. Fishery 1981).

For some years increasing shrimp prices offset increased expenses, but in 1980 prices fell, causing a cost-price "squeeze." Fuel efficiency became an important concern in vessel design and construction. Medium-size craft, 51 to 65 feet long, made about twice as much gross revenue per dollar of fuel expenditure as vessels over 65 feet, and did better than small ones. Large wooden boats landed $7.65 of shrimp per dollar spent on fuel, while steel vessels of equal size landed only $5.88 (ibid.).

In the past, when the cost-price balance was favorable and shrimp prices were rising, investments in shrimp boats were more profitable than alternative uses for capital. When prices fell, shrimpers continued to operate as long as they could pay their operating costs. When they could not make enough to cover expenses, they tied up. At this point, an owner would try to sell out, but since shrimping was no more attractive to anyone else, there was no market for boats (ibid.). By the late 1970s, "It [was] clear that the management of the shrimp fishery to achieve economic optimums [sic] would necessitate a drastic reduction in the amount of effort applied in the fishery, end hence a reduction in the number of vessels allowed to fish" (ibid.:3-4).

Since then, the number of boats has not decreased, but increased with the influx of Vietnamese shrimpers. Success in periods of high prices prompts investments that have engendered losses during periods of price decline. The importation of shrimp has contributed to lower domestic prices for shrimp, and while low prices may hurt shrimpers, they benefit packers and processors, so imports are unlikely to be curtailed.

In 1980, the Secretary of Commerce stated that the shrimp industry was in a critical situation because of increased fuel costs, declining demand, and depressed prices. He offered an assistance program of low-cost loans and research (Fishery 1981).

U.S. shrimping inside Mexico's 200-mile limit was terminated in 1980. About 17 per cent of Texas's catch and 19 per cent of its revenues were from Mexican waters. Most of the Mexican catch was landed at Brownsville and Port Isabel. Forty-seven per cent of the landings at these two ports were from Mexican waters. For all Gulf states, about 10 per cent of effort was in and landings were from Mexican waters. Economists predicted correctly that the diversion of this effort from Mexican to U.S. waters would result in income losses (ibid.).

In sum, imports result in lower prices, and are uncontrolled. Fuel and other costs have increased more than shrimp prices. Because of the closing of Mexican waters and the influx of Vietnamese, more effort was directed to a fishery that was already overfished. Such factors do not affect all shrimpers in the same way. The effects are different for those with steel rather than wooden boats, larger or smaller rather than middle-size boats, those who are in deeper debt for their boats, those who own one rather than several or many boats.

TEDs will not have the same effect on all shrimpers. TEDs will reduce everyone's catches. How much catches will be reduced is debated and may never be established with certainty. TEDs will increase everyone's fuel expenditures because they add to the resistance of the gear and require more power to pull. TEDs may be responsible for accidents and may have an impact on insurance rates, though this will be differently felt as many owneroperators have no insurance since the rates for them are already prohibitively high.

It is certain, however, that given increasing costs, decreasing or stable prices, imports, increasing effort, increasing numbers of boats, the entrance of new fishermen into the fishery, and the closure of the Mexican waters, TEDs will not benefit anyone in the shrimping industry – fishermen, processors, or dealers.

Assuming that TEDs will have some positive impact on turtles, Patricia Sharpe (1988:105) asks the same question many shrimpers have, "Who pays for saving an endangered species?" As one shrimper put it, "Not one of those damn environmentalists would give twenty per cent of his paycheck for a turtle" (*Corpus Christi Caller-Times*, 30 July 1989).

Sharpe (1988:105) says, however, that "in the midst of rhetoric about the ruination of the shrimp industry, it's easy to ignore that other businesses bear the cost of regulations that provide a public good, such as clean air or safe workplaces." This analogy is false. It compares shrimp boats to large corporations, and it ignores social costs of polluted air and water that appear in rates of cancer, respiratory ailments, and other environmentally caused health problems as well as lost work, health care, and shortened human lives. Unsafe working conditions have similar social costs.

One reason TED regulations make no sense to shrimpers is that it is quite impossible to conceive of similar, parallel, or analogous social costs even if one or several turtle species become extinct. Because imports are so large a portion of the market that no possibility exists to pass the cost on to the consumer, shrimpers will pay the price of protecting turtles with TEDs. No wonder it appears unfair to them (White 1989).

In my 1988 article on TEDs I cited several studies that show the importance of variation among fishing operations from large forms to small household operations. I suggested that one of the most pressing needs of fisheries social science research on the Gulf is to determine the range of variation and the social, political, and economic implications of it. The economic and political response to TEDs will be determined by such factors. While the TED regulation is unlikely to destroy the Gulf shrimping industry, it is likely to make a significant difference

to some in the industry, and to alter its composition.

If the dispute continues, it is likely to focus on the National Academy of Science report when it is released. Shrimpers will be disappointed as it will do none of the things they are counting on it to do. Sport fishermen will not have achieved a Gulf of Mexico free of trawling or commercial fishing, and so will be likely to return to the fray for another round.

Science and TEDs

Each side appeals to science. The shrimpers are convinced that impartial scientific study of the issues would show that they are not the major threat to turtles and that TEDs do not work nearly as well as some claim. Environmentalists cite scientific studies by biologists. It is not immediately apparent how many of these studies have been done by biologists directly or indirectly connected to the environmental movement like those the Gulf Coast Conservation Association retain and pay.

The bureaucrats make repeated reference to "scientific studies" that show TEDs do not reduce the shrimp catch by more than 10 per cent. One fisheries bureaucrat confided to me that the tests were based on numerous short tows because the biologists wanted a large sample to make the study appear statistically legitimate. Having witnessed the data collection, the said the "scientists" were more concerned to make their study meet criteria of statistical soundness than anything else. Therefore they made many short pulls of about twenty minutes rather than a few long pulls of three hours to simulate the usual operating conditions of shrimp trawls.

I interviewed a number of shrimpers before the blockade. They were part of a random sample of Vietnamese and native shrimpers, not individuals I had heard about or identified on other grounds. During the interviews, I talked to some shrimpers who were angry about almost everything, including TEDs, bureaucrats, and imports. Others were self-possessed, unflappable, cool-headed and less worried about the effects of events on them. All, Vietnamese and native alike, indicated that TEDs were their major concern, but some had actively participated in testing TEDs.

Reports from shrimpers who cooperated with biologists making the studies agree with the fisheries bureaucrat. These shrimpers tried to be of assistance because they had faith in scientific methods and wanted to improve conditions of fishing for everyone. They were not suspicious of biologists, scientific methodologies, or government programs.

Some shrimpers I interviewed had conducted their own TED tests or participated in field tests with NMFS biologists. One who conducted independent tests under many conditions of weather, bottom, and depth showed me log books and reported that his volunteered data had been rejected. One who participated in NMFS field tests said that the results of observations made under working conditions had been systematically discarded and disregarded.

He related that a NMFS observer had accompanied him and under normal

working conditions he lost 20 to 25 per cent of his catch. "I never got the TED to work. I tried to get the results of the study they did with me. They didn't use my results. They did it to make the numbers look right."

He explained that a trawl is a funnel with a bag at the end, and that the TED lengthens the narrow end of the funnel, changing the flow of the water. The stream of the water through the trawl forces fish, trash, and shrimp to the inner surfaces of the bag. As things accumulate on the inner surface, they line the bag and impede the flow of water, which begins to flow through the narrow end of the funnel rather than through the bag. The bag then acts as a parachute. For the first twenty minutes or so, the TED makes no difference. After that, when the bag begins to act as a parachute, much of the catch is propelled through the opening of the TED. Thus short pulls are not representative of actual working conditions, and NMFS observers have not accurately reported results under working conditions.

The National Academy of Sciences committee will assess the scientific adequacy of NMFS studies on TEDs, which reportedly amount to several "piles of paper three feet high." If they use such criteria as acceptability of analytical methods, the studies may all be satisfactory. If they include such criteria as field methodology, they may not.

White (1989) presents data to show that Gulf coast shrimpers' perceptions of their catch rate and turtle mortality are realistic and reasonable. He concludes that shrimpers would be satisfied with regulations, even if they are not in their interest, if they "make sense" and are "fair."

> In the present instance, this would require (a) convincing them that turtles are in fact endangered, (b) presenting them with evidence that their activities are a significant threat, and (c) demonstrating that all culpable parties (whether beachfront developers, or foreign countries) are being proportionally burdened with responsibility for setting things right (White 1989:77).

The experience of shrimpers with NMFS personnel and other fisheries bureaucrats is not conducive to trust. When I interviewed shrimpers, many would ask initially whether I was a biologist. A number expressed hostility toward biologists. Various levels of policy-making bureaucracies have provisions for "public input." At least, there is usually some provision for publication, and a waiting period for public comments. There are often hearings. Consensus among fishermen and even fisheries bureaucrats is that such periods have little impact on policy once it is formulated. Based on their experience, fishermen take the stance of "what is the point, no one will listen." Smith (1988) has pointed out occupational barriers and Meltzoff (1988) has discussed cultural impediments that prevent fishermen from participating meaningfully. In the specific instance of TEDs their opinions have not been taken into account. They therefore see the regulation as unfair.

That some fisheries bureaucrats and scholars agree with shrimper perceptions suggests that shrimpers are not simply being disagreeable because of their struc-

tural position or their stake in the matter, though that may well shape their rhetoric.

As it happened, it was less important to convince shrimpers of anything than to convince judges and administrators. If there were no repetitions of the threatened violence of July after the regulations were in place, it was probably because shrimpers had already taken maximum advantage of the early season pulse of good shrimping and were less concerned about losses as the season progressed and catches declined.

Sport, Science, and Policy

Sport fishermen have been trying to outlaw trawling almost since it was introduced to the Gulf of Mexico. It remains to be determined how much pressure to preserve turtles through the use of TEDs has been brought to bear by sport fishermen. Sport fishing groups have started calling for additional devices on trawls to exclude finfish so they will not be killed as incidental by-catch (Cooper 1989b; Fullilove 1990). It is certain that such finfish are not endangered species by any measure. Sport fishermen argue that the fish should be preserved for their sport. Shrimpers widely suspect that the main motive for such regulations is less to protect turtles or fish than to prohibit trawling in the Gulf of Mexico. There has been considerable controversy and litigation about the promulgation of fisheries regulations in the Gulf of Mexico (Shelfer 1987; Oertel 1987). Oertel writes:

> As someone who represents the commercial fishing industry in Florida and confesses to such a bias, it is my impression that commercial fishermen want no more than a reasonable piece of the pie, while the recreational sector wants the entire resource for its exclusive use (1987:59).

The shrimpers' blockade was on a weekend and interfered with fishing tournaments and charter-boat operators. The businesses that cater to sport fishermen lost most of a weekend's income (*Corpus Christi Caller-Times*, 23 July 1989) and sued some of the shrimpers for restitution of losses (ibid., 10 August 1989). Sport fishermen and the enterprises that serve them were vocal in their opposition to interference with their pursuits and, when I was in Port Aransas during the blockade, had no good word to say for shrimpers.

While shrimpers may gain national-level support from a few local politicians such as those Representatives and Senators who come from areas with many shrimpers, especially coastal Louisiana, some parts of coastal Texas, and coastal Alabama, it is clear that at the national level political support for shrimpers is slight. Politicians can profit much more by supporting environmentalist causes, which have the aura of purity and virtue. Environmentalists castigated Alabama's Senator Heflin for his stance on TEDs (Durrenberger 1988). Most politicians can better afford to be against rather than for commercial fishermen of all kinds. Sport fishermen therefore have a much more powerful political hand than shrimpers at both state and national levels. As one fisheries bureaucrat put it in a conversation with me, the question is whether the Gulf of Mexico will

be a recreational lake for the rich or a place to make a living. This is probably the proper context for thinking about the political and ideological consequences of the TED issue.

In policy and courtroom discourse, science has ceased to have any objective value or use. It has become emblematic of the purity, awareness, and progressiveness of environmentalists versus pollution, ignorance, and backwardness of shrimpers. Environmental groups have sufficient funds to retain their own biologists and lawyers. They create science in their own service. Shrimpers have no scientists working for them to invent a favorable ideological atmosphere for commercial fishing. Because of the very nature and conditions of bureaucratic science, it serves policy ends (Mills 1959). The issues of methodology have become so complex that a committee of the Academy of Sciences has to be appointed to sort them out. I expect that they will not get far because they will probably not inquire into the actual conditions of field collection of data. They will not collect new data or consult with shrimpers or observe them to learn of their working conditions. Nor, I suspect, will they delve into the sociology of knowledge to analyze the underlying assumptions that guide the collection and classification of data, the definition of facts, the formulation of questions, and the ideological and political origins of such propositions.

Sport fishing even affects anthropological analyses. Pálsson points out that many anthropologists

> operate with a 'natural' model of fishing which emphasizes material context and ecological relations. Such a model draws attention to the adaptive significance of social organization, depicting the producer as an autonomous individual engaged in the technical act of catching fish. An alternative theoretical approach is needed which appreciates the differences between fishing economies and the social relations in which production is embedded (1989:1).

He relates the individualistic view to the fascination of the European leisure classes with the individualistic pursuit of mobile prey, terrestrial and aquatic. Fishing was for them, as it is for contemporary American sport fishermen, a nonsubsistence activity with recreational value. Pálsson goes on to quote Isaac Walton's *Angler* to exemplify this quality, and its nobility. In the United States, the Isaac Walton League, an association of sportsmen, takes his name and values. While the contemporary United States has no hereditary aristocracy, there is a class of wealthy and dominant who derive similar power and prestige pleasure from the pursuit of terrestrial and aquatic animals.

In the same way that agricultural "science" serves the interests of and ratifies the basic tenets and assumptions of agricultural policy (Durrenberger 1984, 1986), the "science" of fisheries authorizes and confirms policy. C. Wright Mills (1959) analyzed the dynamics of science in the service of policy. Administrators define the questions. Having defined the questions, they have also defined the presuppositions that give the questions their importance and meaning, the paradigmatic assumptions of any "research" to answer them.

An example of scientific ratification of policy is the economic analysis of fish-

ing boats based on the assumption that they are forms as the courts have defined them in the cases that broke the unions. The economic analyses of the *Fisheries Management Plan for the Shrimp Fishery of the Gulf of Mexico, United States Waters*, issued in 1981 by the Gulf of Mexico Fishery Management Council of Tampa, Florida, rests on such assumptions. As in agriculture (Durrenberger 1984, 1986), if one assumes the operating units are firms, one can develop such an analysis, but there is reason to doubt that fishing boats are firms in the classical economic sense. This ought to be a question, not an assumption. Policy-oriented research takes it as an established fact.

One fisheries bureaucrat, discussing "important topics for social science research" his agency might fund asked: "Why are shrimpers so conservative?" White (1989) shows that the stereotype of the conservative shrimper is seriously misleading. The bureaucrat had built the assumption of the conservative shrimper into his "objective research question" and only awaited its demonstration by some social scientist.

Paredes (1985) has described the workings of the Gulf Coast Fisheries Management Council Scientific and Statistical Committee (SSC), whose task it is to inform the Council if the proposals it considers are based on the best available scientific data, whether the interpretations and analysis are appropriate, and whether the conclusions are scientifically warranted. The Committee is concerned to maintain the scientific purity of the SSC and not contaminate it with political matters. Paredes conjectures that the possibility of court challenges to managerial measures is behind these procedural rituals. Indeed Leary (1985:185), in his comment to Paredes' paper, verifies this when he says:

> The use of the multidisciplinary, blue-ribbon panel of scientists as a review board has provided a position of strength in defense of plans and management regulations. Although there have been legal challenges to plans and the quality of data used, none has yet prevailed in court with respect to Gulf fishery management plans. The system seems to work.

Leary's criterion for "working" is procedural purity defensible in court. This takes for granted the point which Acheson (1985:183) makes explicit in the same context, that "it is impossible to promulgate any rules without causing some people to benefit and others to lose." While every administrator knows this from experience, it is just this experience which social scientists such as McCay (1985) try to describe when they point out, as she does, that these matters of allocation and distribution effects – political matters – are often what anthropologists are most competent to talk about, and that the issue of "big guys against little guys" is beyond the committee's purview. It is not that anthropologists or social scientists are the only ones to have noticed this, but that it is part of our subject matter, part of the data we try to understand while it is not part of the subject matter of biologists.

There are other criteria for whether a policy "works." A biological criterion is the state of the stocks managed. An economic one is the level of prosperity of fishermen, processors, or whomsoever the policy is meant to benefit. A political one is the degree of acceptance or unrest which greets the policy.

The TED issue is supposed to hinge on a study, now more than a year overdue. There is no agreement about the subject or scope of the study. I do not think this or any scientific study of any kind has had or can have any major impact on the process. The shrimpers do not have the power to make use of science. Science has been used to justify policy, not as the basis for its formulation.

Environmentalists are a significant pressure group. Their environmental legislation lists sea turtles. The NMFS of the Department of Commerce is therefore charged to protect the turtles. It is possible to control shrimpers, but not American foreign or trade policy affecting the foreign production of shrimp and their importation into the United States. It is impossible to control foreign shrimpers, and difficult or impossible to control industry and real-estate development (Stimpson 1990). Fisheries policy makers, charged to protect turtles, have little option but to try to control shrimpers, as court cases show. Hence TED regulations, which must be justified by scientific studies. Hence the production of confirmatory studies to insure procedural purity and protect the agency. They try to control those variables they can control, make policy to those ends, and justify it with "scientific" studies. In addition, environmentalists have used scientists and their evidence in their own rhetorical interests, not in any objective way.

I am not arguing that biologists have lied or manufactured data or concocted bogus studies. I suspect they have done conscientious work and do not favor anyone. Rather, the paradigmatic assumptions of their assignments have guided them to questions whose answers confirm policy, questions such as "Do TEDs save turtles?" The answer may well be "yes," but this may not be the most relevant question unless it has been predetermined that TEDs are to be used. When the question, "At what cost?" is asked, and the desired "correct" answer is "insignificant," confirmatory methodologies may be favored over equally or more plausible alternatives that might confirm considerable experience which suggests a substantial loss to shrimpers. In any case, as environmentalists point out, cost is irrelevant to the saving of endangered species.

Because of imported shrimp, this loss may be quite insignificant to the "industry as a whole." Alternatively, one could conceive of the industry as centered on domestic shrimpers rather than processors and dealers to arrive at a quite different assessment. The initial assumption of what "the industry" is determines the answer to the question and is an assumption, not a fact; a judgement, not a finding. Justificatory science is not a consequence of dishonest people but simply a mechanical result of the conditions of its production.

I do not think anthropologists or other social scientists are immune from the attractions and pressures of bureaucratic "science." When sociologists are handsomely paid to testify as "expert" witnesses for insurance companies in court cases to determine the potential income loss owing to shrimpers' injuries, they have an interest in estimating lower rather than higher earnings to insure their own future commissions.

College and university faculty members know that their administrators collect substantial "overhead" from whatever research funds they may obtain. They

have a stake in applying for and doing whatever is required of them to acquire awards whether it be to prove that shrimpers are conservative or that shrimpers are unaware of market conditions. Research results may condition their chances of continued agency funding, and administrative favor at their own institutions. Considerable institutional and individual effort is expended to divine what agencies "want," to learn and speak "the language of the agency administrators." The more insubstantial the finances of the university or college, the greater the pressure in this direction.

Those social scientists who work for agencies are subject to the same direct and indirect pressures as biologists and other scientists in similar positions. Applied anthropologists do not develop questions from the conclusions of their work but receive them from their superiors. The power to formulate the question is the power to determine the kind of answer it receives (Mills 1959). Applied anthropologists relinquish that power. As more and more American anthropologists have become dependent on government agency jobs or funds, there has been an increasing rhetoric of justification to combat the conclusion that "applied anthropology is bad anthropology." As the papers in this journal indicate, there are plenty of counterexamples and I enjoin independence rather than isolation.

No TED study has asked important and interesting scientific questions. Since the important questions remain unasked, their answers cannot affect policy. They include questions about the political power of conservationist groups, the cultural analysis of conservationist ideologies, and their impact on the assumptions of "scientific" work, along with questions of the nature of household production units and how they function in the shrimp fishery (Durrenberger 1984), and the response of household production units to various economic changes, including the dynamics of the translation of economic to political issues (Durrenberger 1987, 1988). One reason such central questions remain unasked is that fisheries agencies with research funds do not see such questions as having any bearing on "applied" research or policy, and do not consider such projects for funding, much less fund them. Thus, when an event such as the shrimpers' blockade happens, they are left puzzled, and fall back on stereotypes of conservative or violent fishermen.

When "science" becomes rhetoric in the service of policy, it no longer has the status of a way of knowing things. It becomes, rather, a political weapon in the hands of those powerful enough to afford it.

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Balancing Competition and Cooperation

Verbal Etiquette Among Maine Lobstermen

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ABSTRACT Maine lobstermen are competitors in a fishery in which one person's catch is likely to reduce the catch of others. They are also often neighbors and friends intertwined in a complex web of social ties. Balancing the inherent competition of the industry with the need for cooperation often requires delicate interactions. This paper examines some of the verbal etiquette used by lobstermen in two Maine lobstering communities to maintain this balance. It focuses on two types of interactions. The first is the management of information during radio conversations. The second type of interaction involves explanations of differences in success. Both of these types of interactions reflect the particular balance between competition and cooperation characterizing different social situations.

"Well Barney, I'm headed in."
"That's right Fred, we won't be far behind."
– Radio Conversation between two "Southern Harbor" lobstermen.

Introduction

Conversations like the one given above are common occurrences on the VHF radio frequency used by the lobstermen in a small harbor on the southern part of the Maine coast which I will refer to as "Southern Harbor" (see Palmer 1989, 1990). It is simply a conversation between two lobstermen as they prepare to return to the harbor after a day of lobster-fishing. The only complicating factor is that neither of the lobstermen is named Barney or Fred. There is nothing particularly unusual about the use of nicknames, but the use of "Fred" and "Barney" in the radio transmissions of Southern Harbor lobstermen is part of the verbal etiquette involved in a delicate balance between competition and cooperation.

Maine lobstering like many commercial fisheries, involves characteristics of a common property, or at least a "communal property," resource (see Wilson and Acheson 1980; Wilson 1975; Acheson 1987). Usually all of the lobstermen from a given harbor compete for the lobsters in a small territory, and most lobsters are caught shortly after reaching legal size (Wilson and Acheson 1980; Acheson and Reidman 1982; Acheson 1975). The lobstermen's view that one person's catch is at the expense of the other people lobstering in the same territory is therefore fairly accurate (Acheson 1975, 1987). Lobsters are also usually found in only certain areas, and remain in one location long enough for competitors to move traps into the area (see Wilson and Acheson 1980; Martin and Lipfert

1985). In this situation, one individual's success is not only likely to lessen someone else's, but success can be greatly increased by gaining knowledge of where and when others are successful. This makes the economic competition between lobstermen a social phenomenon as well. Social interactions that provide useful information to competitors are economically disadvantageous to the provider of the information. Interactions that hinder competitors, on the other hand, are economically beneficial. Hence, other researchers have given sound economic reasons for the the fact that the suspiciousness and secretiveness of Maine lobstermen are "legend all along the coast" (Wilson and Acheson 1980:246; see also Acheson 1975; Stuster 1978).

Another reason that the competition of Maine lobstermen must be seen as a social, as well as economic, behavior is because the lobstermen of a community "measure themselves against one another in determining success and skill" (Acheson 1988:49). For some lobstermen, particularly the more successful lobster catchers in a harbor (usually referred to as "highliners"), this social aspect of competition may become primary. Acheson states that

> For these men, fishing is not just a way to make a living. They strive to beat the others and avoid being beaten by them (1988:54).

Acheson also points out that this social aspect of competition causes men to fish in inclement weather and do other "things they would not otherwise consider" (ibid.:54).

While the competition between lobstermen may sometimes become "vicious," there are also counteracting social forces at work in lobstering communities. Maine lobstermen typically live in small coastal communities dominated by a few well-established families and possessing a strong sense of community identity (see Acheson and Lazarowitz 1980; Lazarowitz and Acheson 1980). In such a social environment, fishermen are dependent on each other for more than just information, materials, labor, and rescues. Byron's description of Shetland fishing society also applies to many Maine communities:

> Fishermen of different crews and their families ashore interact not only in the context of fishing, but also in other social fields involving a wide range of face-to-face exchanges ... People who are competitors and rivals in fishing may be helpmates and allies in other social settings. These crosscutting ties ensure that the relations between crews, and within them, are tempered by a comparatively broad range of mutual interests and interdependencies. The maintenaince (sic) of these intricate networks of interdependencies requires careful management and diplomacy (Byron 1988:14; see also Acheson 1988; Löfgren 1989).

Just as the primarily economic competition among lobstermen has social aspects, the cooperative social interactions between lobstermen may also have economic repercussions. As previously mentioned, cooperating with a competitor in a way that helps him catch more lobsters may entail some type of economic sacrifice. This paper examines the verbal etiquette used by Maine lobstermen

to diplomatically balance competition and cooperation in two types of interactions: information management during radio conversations, and explanations of differences in success. It will compare these types of interactions in two Maine lobstering communities with different social and ecological conditions. This comparative approach will be used to help identify some of the more specific conditions that promote either competition or cooperation among lobstermen.

The Study Sites: Middle Harbor and Southern Harbor

Although it is located in the rapidly growing southern part of the state, Southern Harbor remains a quiet fishing village where most of the lobstermen come from families that have been in the area since the 1870s (see Palmer 1989, 1990). These lobstermen have managed to maintain a nearly "perimeter-defended territory" with almost no overlap with fishermen from other harbors until well off-shore (see Acheson 1975, 1987). One reason for this success in territorial defense is the fact that Southern Harbor is located on a section of Maine coast characterized by relatively straight sand beaches. This is in stark contrast to the convoluted pattern of narrow peninsulas and inlets that form the vast majority of Maine coast line. Such an irregular coast line makes territorial defense difficult because of the conflict resulting from up-river and down-river lobstermen attempting to gain access to fishing areas outside of the inlets (see Acheson 1975, 1987). The ocean bottom of Southern Harbor's territory is also unusual for Maine in that it is largely sand. However, over 75 per cent of the lobster traps in the territory are on the areas of rocky bottom. Traps are usually set as "singles" (one trap per buoy) in the shallower areas and "doubles" (two traps per buoy) in the less congested deeper waters. Longer trawls of traps are prohited in the Southern Harbor territory by the Department of Marine Resources (D.M.R.). The full-time lobstermen in the area fish between seven hundred and one thousand traps.

The vast majority of full-time lobstermen in Southern Harbor are well-known to each other. Most of them attended the same school system and belong to the same church and fraternal organizations. There has also been little change in the number of lobstermen in Southern Harbor over the past fifteen years. In fact, the number of lobstermen fishing out of Southern Harbor decreased from thirty-two in 1988 to twenty-eight in 1989, and only fifteen of these were full-time lobstermen. All of the Southern Harbor lobstermen use the same radio frequency, and they are the only lobstermen in this part of Maine who use this frequency.

The second study site, which I will refer to as "Middle Harbor," is a major tourist area located near the middle of Maine's coast line approximately 80 miles by car from Southern Harbor. The harbor lies in a small inlet between two peninsulas and the territory includes numerous islands and large areas of rocky ocean bottom. Middle Harbor has only a "nuclear defended area" (see Acheson 1975, 1987) with much of its territory overlapping with the territories of one or more harbors located on the nearby peninsulas. While the lobstermen of each harbor typically use their own radio frequency, the frequencies of the other harbors are known and can be easily listened to. Trawls of five to ten traps are used extensive-

ly in the Middle Harbor territory except in one small cove where they are prohibited by the D.M.R. Typical full-time Middle Harbor lobstermen also fish between seven hundred and one thousand traps.

Middle Harbor also has its core of lobstermen descended from families living in the area for generations. However, Middle Harbor is also now fished by over fifty full-time lobstermen and over twenty-five part-timers during the summer months. The significance of this difference in the number of lobstermen was revealed when I asked one well-established Middle Harbor lobstermen if he knew all of the lobstermen there. He replied, "I make it my business to know them all." The fact that knowing one's competitors, even if it is just their names, requires considerable effort in Middle Harbor is in contrast to Southern Harbor where nearly all of the lobstermen have known each other since childhood.

These differences should have important implications for social interactions such as radio conversations. Compared to the lobstermen in Southern Harbor, those in Middle Harbor are competing with nearly four times the number of full-time lobstermen from the same harbor, and additional lobstermen from neighboring harbors with whom they are likely to have only a few, if any, social relationships (see Acheson and Lazarowitz 1979; Lazarowitz and Acheson 1979). Thus, there are many more competitors with whom they have little or no contact. In Southern Harbor, however, many or even most of the competitors are also friends intertwined in a web of social relationships based on kinship, residence, and a number of civic, religious, and recreational activities. To the extent that these differences in social organization influence information management, the lobstermen of Middle Harbor should be much more reluctant to share information on the location of lobsters in radio transmissions than are the lobstermen of Southern Harbor.

Radio Communication

On the basis of only economic considerations, the competitive nature of the Maine lobster fishery should be manifested in extreme secrecy and deceit during radio communications. This is because studies of information sharing in other fisheries have found that information is particularly valuable to competitors when it concerns a prey species that is concentrated in a small area (Gatewood 1984b; Orbach 1977; Stiles 1972) and likely to stay in that area for an extended period (Wilson and Acheson 1980; Acheson 1988; Acheson et al. 1980; Forman 1967; Stuster 1978). Not only do lobsters fit these criteria, but there is also only limited opportunity to visually verify information on catch success in a particular area (see Stiles 1972; Andersen 1979, 1980; Orbach 1977). This gives lobstermen many opportunities to conceal or distort information about where they are catching large numbers of lobsters.

Acheson (1988) reports only three situations in which open and honest information sharing should occur. These are exchanges between close kinsmen, reciprocal exchanges with individuals who can provide at least equally valuable information, and the giving of information in exchange for future support in

attempts to gain leadership roles within the "harbor gang" (see Acheson 1988:57). However, all of these exceptions require that the information given be privately received by a specific individual selected by the transmitter (see Ball 1968). Radio transmissions, in the absence of secret codes or frequencies, are public communications that make information available to a large number of unselected receivers who can benefit from the information at the transmitter's expense (see Andersen 1972, 1973, 1980, 1982; Stiles 1972; Andersen and Stiles 1973; Tunstall 1962; Martin 1979; Davenport 1970; Goodlad 1972; Orbach 1977; Stuster 1978; Gatewood 1984b; Orth 1987; Byron 1988). Hence, to the extent radio transmissions among Maine lobstermen are determined by economic competition, they should be dominated by secrecy and/or deceit.

To test if these factors actually produced radio communications characterized by secrecy and deceit, I coded over fifteen hundred radio conversations made by lobstermen in the two Maine harbors. Radio communications were observed and coded in Southern Harbor during 1988 and in both areas during 1989. Four hundred and forty-two Southern Harbor conversations were coded on 36 days between 3 June and 19 August 1988 (see Palmer 1990). Another 503 Southern Harbor transmissions were observed during 44 days between 3 June and 12 September 1989. All of the Southern Harbor observations were made while working as a sternman on a lobster boat in Southern Harbor. Once or twice a week during the 1989 study period I would also travel to Middle Harbor and observe radio communications. I observed and coded 565 transmissions during 16 days in Middle Harbor. The Middle Harbor transmissions were observed as either a passenger on a local lobster boat or from a ground location on one of the peninsulas extending into the Middle Harbor territory.

The transmissions were first divided into those that contained information about the location of lobsters (in the form of catch size reports) and those that did not. Reports containing information about the location of lobsters were further divided into positive and negative reports. Positive reports were those that indicated the presence of lobsters in numbers that were greater than the typical catches that had been occurring. Reports consisted of either the number of lobsters caught in an area, an average number of lobsters caught per trap, or customary expressions (see Löfgren 1972). The customary positive expressions were "a few," "better," "not bad," and "some"; while the typical negative expressions were "nothing," "terrible," and "poor."

There were many similarities in the format and content of radio conversations in the two areas. While a majority of lobstermen were heard on the radio in both areas, well-established lobstermen were much more frequent radio users (see Palmer 1990). In terms of information management, however, there were striking differences. The radio conversations in Middle Harbor met the expectations of secrecy and deceit that would appear to be the best competitive tactic (see also Löfgren 1972). Only 51 (9.0 per cent) of the 565 radio conversations coded in Middle Harbor included any reference to catch sizes. Further, only 11 (1.9 per cent) of the conversations included a positive report about catch sizes that would be of particular value to competitors. Not only were positive reports about lob-

sters rare, these positive reports were quite unenthusiastic except for one exception discussed below. The only time I was able to clearly evaluate the honesty of a Middle Harbor transmission occurred on a day when the skipper of the boat I was on had just told me he was experiencing the best fishing of the year. When he was asked over the radio "if there were any lobsters?" he responded "No, it's terrible; nothin', absolutely nothin'."

Evidence of more cooperation in the radio communications among Southern Harbor lobstermen was found during studies in both 1988 (see Palmer 1990) and 1989. While there was some evidence of moderate underreporting of catch sizes, and an increasing vagueness in catch reports when an abundance of lobsters made information particularly valuable, the evidence did not support predictions of extreme secrecy and deceit. During 1988, 216 (48.9 per cent) of the 442 transmissions included references to catch size. There were also 54 (12.2 per cent) positive reports of lobsters in specific areas. The conversations coded during 1989 supported the 1988 results. Reports on the location of lobsters were included in 224 (44.5 per cent) of the 503 conversations and 52 (10.3 per cent) of these conversations included positive reports. Perhaps the clearest evidence that this radio information provided useful information in Southern Harbor is the fact that the skipper of the boat I worked on based eleven trap movement decisions during the two study periods explicitly on radio information. The following conversation from 2 August is a typical example of the apparently non-economical information sharing between two of the more frequent users of the radio in Southern Harbor (all names are pseudonyms):

> "Anything inside there, John?"
> "Nothing on the edges, but we had a pound to a trap between the islands."
> "Gee, that's good news. We haven't done anything down here."

Table 1 illustrates the different ways information is managed in the two harbors. Despite the one observed example of deceit, secrecy clearly dominates radio communication in Middle Harbor as information about the location of lobsters is only mentioned very rarely on the radio. Such a secretive tactic can be seen as simply an attempt to maximize economic gains while avoiding the conflict that could result from being caught giving deceptive information on the radio. Instead of secrecy, at least some of the Southern Harbor lobstermen follow a tactic in which they routinely provide useful information on the radio. I suggest that this tactic of sharing information with some potential economic value goes beyond mere conflict avoidance, and may be a means of promoting close social ties between some of the competing lobstermen (see Palmer 1990). Some of the interaction patterns and subtle verbal techniques used to maintain the different balances between competition and cooperation in the two harbors will now be described.

Table 1. *Number of Each Type of Transmission in Southern Harbor and Middle Harbor.*

	Non Catch	Negative Catch	Positive Catch	Total
Southern Harbor 1988	226 (51.1%)	162 (36.7%)	54 (12.2%)	442 (100%)
Southern Harbor 1989	279 (55.5%)	172 (34.2%)	52 (10.3%)	503 (100%)
Middle Harbor 1989	503 (89.0%)	51 (9.0%)	11 (1.9%)	565 (99.9%)

Verbal Etiquette: Indirect Questions and Evasive Answers

Andersen (1979) found that the transmissions of deep-sea trawlers took the form of extended monologues in which numerous questions are imbedded. This form of communication allowed the receiver to ignore certain requests for information without being overly obvious about the evasion. This is in contrast to the short transmissions of Maine lobstermen that typically consist of only a single statement or question. However, the directness of inquiries about the location of lobsters still varies.

As illustrated in the previous example, conversations about the location of lobsters in Southern Harbor are usually quite direct. References to catch success in Middle Harbor are both less frequent and usually less direct. This indirectness gives the receiver more room for evasion. A typical Middle Harbor inquiry about catch success begins with the question: "So, how's it goin' today?" Although all of the lobstermen are aware that this question is usually followed by a report on the number of lobsters caught, it is occasionally answered with other information such as: "Not bad, there's not much wind."

A receiver of even the most direct inquiry about catch success still has socially acceptable options to minimize the amount of information he gives. The most commonly used information management technique is to use a jargonistic qualitative response such as "terrible," "not much to it," "not too bad, nothing great," or "a little better I guess." Ten of the eleven positive reports in Middle Harbor consisted of standardized and unenthusiastic responses. Another socially acceptable evasive tactic, used in seven of the eleven Middle Harbor responses, is to give little or no information on location. Southern Harbor reports, in contrast, nearly always included the location in which the lobsters were being caught. For example, on 11 August 1989 one lobsterman pinpointed his report of four or five lobsters in each of four or five traps "right between the islands." This information is sufficient to allow any of the other lobstermen to find the string of traps denoted in the conversation.

However, even Southern Harbor lobstermen have their limits. This is illustrat-

ed in the following conversation that occurred right at the beginning of "shedder season" in 1989 when the lobstermen were eagerly awaiting the appearance of concentrations of lobsters:

> "Ain't much to it, is there John?"
> "Yea, its pretty bad alright. Although I did hit one hot spot. I had six in one trap, and the other four [traps] around it had one [lobster] each."
> "Gee, where was that?"
> "The island."

The "island" in question (actually two islands close together) makes up a major sub-area of Southern Harbor's territory. Some lobstermen may have nearly half of their traps somewhere around the island. References to location almost always specify which side of the island (i.e., "westward," "eastward," "front," "back," or "in between"), and often specify the distance from the island (i.e., "in close," "out on the edges"). By only answering "the island," the lobsterman did not explicitly refuse to reveal the location of his hot spot, but he revealed it in a way that provided no useful information. In so doing, he avoided being obviously selfish and uncooperative, but he also avoided an economic loss the next time he hauled his traps in the "hot spot." Interestingly, this conversation was reversed between the same two lobstermen nine days later when the other lobsterman reported seven lobsters in one trap. When asked about the location, he also replied "the island." These two conversations were the only examples of evading a direct inquiry about the location of lobsters that I observed in Southern Harbor.

When an inquiry into the abundance of lobsters in a location is given, the asker almost invariably reciprocates in both Harbors. I have only recorded two instances, both in Southern Harbor, in which this did not occur. Hence, to ask someone about the location of lobsters implies that you are willing to give some information. While this might give the appearance of a simple reciprocal exchange, it must be remembered that many other competitors are "listening in" to receive the information without reciprocating anything. This is why I suggest that the important entity being exchanged is not information *per se*, but the communication of a willingness to sacrifice for the other person.

Verbal Etiquette: Jokes

Many of the radio conversations of Maine lobstermen involve humor (see Van Winkle 1975; Brown 1985). Some of these "jokes" concern exaggerated reports about the number of lobsters being caught (see also Andersen 1973). Robert Paine (personal communication) has pointed out that these are similar to the tall-tales, known as "cuffers," told by Newfoundland fishermen. Both of these types of verbal interaction involve the detection of falsehoods and may be a means of promoting social relationships by drawing attention to the depth of knowledge that the participants have about each other (see Faris 1966, 1970).

The following example from Southern Harbor is typical:

> "How is it down there?"
> "Oh we're ass deep in them!"
> "Yea, and they're green and spiny, right?"
> "Yea, that's right."

This joke was successful because the lobsterman was able to correctly guess that the positive report referred to "green and spiny" sea urchins instead of lobsters. Perhaps the most successful joke occurred when a Middle Harbor "highliner" responded to the question "How they look?" with "They look real good." After a moment of stunned silence, the inquirer figured out that the "highliner" must be on the radio back at the store at the fishermen's co-op and responded with "You must be looking at those candy bars [in the store]." The "highliner" confirmed the joke with "Yea, that's right." The key to such jokes is that they use acceptable jargon and involve just the right amount of overstatement. Too little exaggeration keeps the joke from being recognized as a joke, too much exaggeration makes the joke too easy to detect. Hence, how extreme a positive report has to be in order to make a successful joke depends on what the typical reports are in a harbor. The statement that "they look real good" only made a successful joke in Middle Harbor because they are normally so secretive about any degree of catch success. That response would not be detected as a joke in Southern Harbor because that exact expression was often used to describe catches when no joke was intended. Hence, a joke in Southern Harbor required a much more extreme statement such as "we're ass deep in them."

Verbal Etiquette: Transgressions

The norms of radio usage are also revealed in instances when they are transgressed. In some cases lobstermen will show their disapproval of a radio conversation by clicking their microphone buttons or, to express more extreme outrage, giving the offenders "the diesel" by placing their microphone next to the engine. However, these reprimands are typically reserved for non-lobstermen. The most energetic use of these tactics that I have observed was directed towards two women traveling on yachts who had an extended radio conversation about the hardships of being without tonic water. The transgressions of lobstermen concerning the proper norms of information management are met with more complex types of reprimands.

The Middle Harbor norm of secrecy appeared to have been violated when a relatively new lobsterman reported that he had been catching 20 to 30 lobsters in a "string" (five to ten traps). Such fishing would be very good for that time of year, but not unreasonable. His tone of voice also indicated that he intended it as a non-joking communication. Before the lobsterman he had called could respond, the highliner who made the candy bar joke quoted above broke in with the following call to another highliner: "I don't believe that for a minute, no-

body would say anything if they were catching lobsters like that." I suggest that this was an indirect reprimand of the new lobsterman to avoid a precedent of information sharing that the highliner was not willing to follow. At least this is the effect it had, since the original lobstermen never finished their conversation.

As secretive as the Middle Harbor lobstermen are on the radio, their competitive tactics are still subject to a certain cooperative etiquette. Not only are statements censored that share too much information, but so are statements that make their competitive secrecy too obvious and unsocial. The risk of such a transgression increases whenever there is deviation from the normal jargon of exchanges. For example, one Middle Harbor lobsterman was asked if he had "seen" any lobsters that day. He immediately answered, "Yea, I see one right now in my trap." His tone of voice suggested that he was attempting to be witty, but the silence that followed indicated that he had not been successful. He evidently realized that his response might have been taken as an offensive evasion of the question. Hence, he quickly added "No Bob, we haven't done nothin', its been terrible." The quick retreat to customary jargon smoothed over the situation even though no useful information had been given. This is another example of the fact that Middle Harbor radio communication appears to be aimed at avoiding conflicts without having to sacrifice any information.

Fred and Barney

The importance of cooperation among Maine lobstermen, and the importance of including this fact in explanations of lobstermen's behavior, is illustrated by the apparently non-economical sharing of information found in Southern Harbor. Instead of focusing on Southern Harbor lobstermen as an uniform group, an understanding of this altruism requires a focus on the unique relationships between individuals in Southern Harbor (see Chiaramonte 1970).

During the first year as a sternman on a lobsterboat in Southern Harbor, I noticed that numerous radio transmissions were directed to "Fred" or "Barney." It soon became apparent that these names were being used for several different people, none of whom were named Fred or Barney. Further, conversations were sometimes between "Fred" and "Fred" or between "Barney" and "Barney." In fact, conversations would sometimes start out being between "Fred" and "Fred" and end between "Barney" and "Barney." I first assumed the names must have something to do with the cartoon television show called the "Flintstones." While some of the lobstermen may also make this association, I later learned that the actual origin of the names was to be found in the history of Southern Harbor.

"Fred" had been a sternman on one of the Southern Harbor boats during the early 1970's. Being of unusual temperament and personality, he became the subject of numerous stories and tall tales (see also Brown 1985). After he left the area, "Fred" was transformed from the hero of various escapades to a general form of address used in radio transmissions. As one lobsterman stated "For

some reason, we just started calling each other Fred." The name "Barney" also traces its history to an eccentric person from Southern Harbor's past. Besides having very distinctive personal hygiene habits, the man was famous for making-up names for everyone in the community, but used "Barney" as an all-purpose name for anyone he knew on a personal basis. Some of the lobstermen of Southern Harbor have simply adopted this ritualistic greeting and continued it for over twenty years since the man's death.

The important point about the use of "Fred" and "Barney" in radio transmissions is that I have only heard it used by five Southern Harbor lobstermen during radio exchanges. These five lobstermen have certain characteristics in common. They are all successful and come from families that have lived in the community for generations. Three of them live within one block of each other, and two of these are related as uncle and nephew. Three of them belong to the same church and fraternal organization. All five of the men often hunt, fish, and go to stock car races together. They also dominate the radio conversations in Southern Harbor, particularly conversations that share valuable information. Conversations between some pair of these five lobstermen made up 383 (40.5 per cent) of the 945 conversations coded in Southern Harbor in 1988 and 1989. Their dominance of conversations exchanging information on the location of lobsters was even greater as they made up 276 (62.7 per cent) of the 440 calls that included some type of information about the location of lobsters. The dominance of these five lobstermen was still more complete in regard to the conversations that gave positive reports of concentrations of lobsters. Eighty- five (80.2 per cent) of the 106 conversations containing positive reports were made between pairs of these five lobstermen.

Instead of saying that information sharing is much more common in Southern Harbor than Middle Harbor, it is more accurate to say that a handful of lobstermen in Southern harbor engage in a very high degree of information sharing. In fact, it could be said that information about the location of lobsters is shared, and almost only shared, between "Fred" and "Barney." I suggest that the exchange of valuable information and the use of these generalized nicknames both serve the same social function. They reinforce the shared history and complex web of social relationships that have built up over generations among the core members of the Southern Harbor community. These social relationships require the continued cooperation between these lobstermen, and the altruistic sharing of information may be a major means in which these cooperative social relationships are maintained in an otherwise highly competitive industry.

Explanations of Differences in Success

The importance of promoting, or at least protecting, social relationships is also evident in the verbal etiquette used during interactions among lobstermen when discussing differences in success. It was once generally assumed that differences in fishing success were largely due to differences in the skill of individual fishermen (see Barth 1966; Forman 1967; Davenport 1970; Heath 1976). The impor-

tance of such a "skipper effect" has recently become the subject of considerable debate (Pálsson and Durrenberger 1982, 1983, 1984; Durrenberger and Pálsson 1983, 1985, 1986; Jepson, Thomas & Robbins 1987; Gatewood 1984a; McNabb 1985; Pálsson 1988). Although there is evidence that an objective skipper effect does exist in Maine Lobstering (see Acheson 1977, 1980, 1988), there are still interesting variations in the types of explanations used by the lobstermen themselves to explain differences in success. The use of different explanations in different circumstances is also part of the verbal etiquette needed to balance competition and cooperation in the industry.

Previous studies have explained talk about the importance of a skipper's skill as an attempt to maximize the responsibility of the skipper for the success or failure of his boat. However, Pálsson and Durrenberger also point out that references to "mystical" skill (i.e., hunches, dreams, and intuitions) do not imply as much responsibility as do references to "rational" skill. These authors refer to instances when "the skipper's decisions are said to be the result of 'hunches' over which he has little or no control" in order to "minimize personal responsibility for success or failure" (Pálsson and Durrenberger 1982:240; see also Park 1963; Henricksen 1973). While references to "mystical" abilities reduce the skipper's responsibility, the possibility that he might have some control over these events attributes more responsibility to the skipper than do references to "luck" (in the sense of random chance). The use of luck in avoiding responsibility is clearly stated by Zulaika (1981): "luck ensures that fishermen are less responsible for their lack of success" (Zulaika 1981:77; see also Byron 1988; Löfgren 1989; Orbach 1977). Hence, reasons for fishing success or failure based on rational skill, mystical skill, and luck form three descending levels of responsibility. The following examples illustrate how these different types of explanations are used in different situations depending on whether the social setting is predominantly one of competition or cooperation.

Example One: Explanations of an "Old Timer's" Poor Fishing

During recent years, one of the Southern Harbor lobstermen has consistently caught a smaller number of lobsters than most of the other full-time lobstermen. Much of the reason for this is clearly due to his advanced age since it is normal for lobstermen to reduce effort and equipment near the end of their careers (see Acheson 1988). However, I have observed several distinctly different reasons given for his lack of success.

In the presence of the lobsterman, other lobstermen will attempt to lessen the lobsterman's responsibility for his low catches by typically attributing his poor success to "bad luck." This helps to maintain cooperation with the less successful lobsterman whose family has been an integral part of the community for generations. The bad luck is sometimes couched in terms of being a "Jonah," following the old testament character who brought great misfortune on his fishing boat by disobeying the Lord. Such bad luck is also sometimes said to be an inherited trait. However, when the lobsterman is not present, other lobstermen

will competitively attempt to increase their own relative prestige by attributing the lobsterman's lack of success to skills inferior to their own.

Example Two: Explanations of a "New Kid's" Success

One of the younger lobstermen in Southern Harbor built a reputation for being particularly successful one spring. There was general agreement among the other lobstermen that this was due to his placement of traps closer to the rocky shore than the other lobstermen dared to fish. When the "new kid" was present, the other lobstermen just tried to ignore his large catches. When he was not present, the older lobstermen attempted to maintain their superior status by telling each other that the "new kid's" success was actually the result of a lack of skill and experience: "He'll learn. Those big catches won't seem like much when he catches a wave wrong and has to swim for shore."

Example Three: Explanations of a "Dub's" Failure

A young man lobstering for the first time experienced very poor fishing during his first season in Southern Harbor. He quickly became the object of jokes emphasizing his lack of skill and knowledge. He was particularly famous for asking if "sea urchins made good bait" and believing a more experienced lobsterman when he said they did. The new lobsterman persevered for several seasons and eventually gained some limited success and even some acceptance among the other lobstermen. While they never claimed that he possessed skill, as he began to form social relationships with the other lobstermen they began to tell the new lobsterman that his poor catches were only the result of "bad luck." Among themselves, however, they continued to attribute the new lobsterman's lack of success to his inferior skill.

Example Four: Explanations of a Southern Harbor Highliner's Success

One lobsterman in Southern Harbor is considered by many of the lobstermen to be particularly successful in catching large numbers of lobsters. The other lobstermen explain this success in a number of different ways. When talking to the highliner, lobstermen would often attribute his success to a quasi-mystical ability to "smell lobsters" or even "think like a lobster." However, when the highliner was not present, other lobstermen were more likely to attribute his success to his particular kind of trap and the fact that he simply "fished so many traps he can't remember where they all are." Some of the lobstermen who particularly resented the highliner's success would combine explanations based on his effort and equipment with clear derision of the man's actual skill: "he just dumps traps any old place; he has to since he has so many."

Example Five: Explanations of a Middle Harbor Highliner's Success

Although my ability to observe explanations of success in the interactions of Middle Harbor lobstermen was limited by the shorter time I spent there, several relevant conversations were observed. The Middle Harbor lobsterman who took me out on his boat for radio observations was known to be a major highliner. His reputation as a successful lobster catcher was even known to a few of the Southern Harbor lobstermen who had relatives or other acquaintances in Middle Harbor. When I mentioned his name to one moderately successful Southern Harbor lobsterman, the lobsterman commented: "Yea, I guess he's been a highliner down there for years. They really know how to catch'em down there." However, when I mentioned the large size of one of his catches to a Southern Harbor highliner, a different explanation was given: "Oh yea, I've heard about him. But hell, they fish so damn many traps with those trawls, anybody can catch lobsters there." The same differences in explanations were also heard in Middle Harbor. When I told Middle Harbor lobstermen who I was going out with, I would invariably hear a response like: "Well, that's good, he's a good fisherman." One day while waiting on the docks, however, I observed two other lobstermen give a different explanation of the highliner's success. The two lobstermen, who were unaware of my relationship with the highliner, were examining some of the highliner's traps left on the dock. The first lobsterman remarked on how the highliner was always buying the newest kind of trap, and attributed his success to his superior equipment. The second lobsterman then stated "Yea, he has to [keep buying new traps], he can't even remember where half his strings (trawls) are."

Discussion

Previous explanations of variation in talk about the importance of differences in individual skill in determining catch success have looked at inter-societal differences. Such an approach assumes that each fishing society is uniform in regard to explantions of success. The above examples demonstrate that this is not the case in the Maine lobster industry, and suggest that folk explanations of differences in catches must be studied in their specific social context (see Goffman 1959). In this case, there are no discernable differences between the two harbors. This suggests that explanations of success may depend on the cooperative or competitive nature of the specific social situation as much, or more, than they do on larger social variables. When cooperation is of primary importance in an interaction, the other individual is held responsible for his success while his failures are claimed to be the result of bad luck. When competition is the goal of the interaction, another lobsterman's success becomes a matter of luck while he is held responsible for his failures. The examples given above indicate that explanations of success can often be explained in terms of conflict avoidance in that the presence or absence of the person who is the subject of the conversation appears to be a major determinant of what kind of explanation is given. However, many other factors, particularly the relationships between the individuals in the interaction and their own standing in the hierarchy of the harbor, are likely to be involved.

Conclusion

Maine lobstering, like nearly all commercial fisheries, is both an economic and social activity. This paper supplies information relevant to the relation between economic and social aspects of Maine lobstering in two ways. The first concerns the management of information among competitors for a commmon property resource. While previous studies have attempted to explain differences in information management in terms of economic factors, the current study suggests the importance of also including variations in the social environment. In addition to its economic consequences, attention needs to be paid to the ways in which information sharing can be used to avoid conflict and even promote cooperation between fishermen. The second issue concerns debates over the social function of talk about a skipper effect. While previous studies have demonstrated interesting inter-societal variations in talk about a skipper effect, this paper demonstrates that intra-societal variability based on a particular situation's balance between cooperation and competition also exists. An inclusion of the causes of this intra-societal variation is probably necessary for a full understanding of the social functions of different explanations of success in fishing and other endeavors.

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On the Nomenclature of Dutch Inland River Craft

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ABSTRACT The name Dutch bargemen choose for their vessels are predominantly female names, combinations of surnames and/or christian names of themselves and their wife, or names which reflect human attitudes and attributes. The "surface meaning" of these names can partly be found in the socio-economic developments in inland navigaton since the twenties. More important, however, is their "hidden meaning": the perception by bargemen of their ship as a female being and as their own body. It is through this meaning, it is argued, that we can understand their behaviour towards their ships.

Introduction

Every vessel which travels on the inland waters of the Netherlands has a name. The nomenclature of these craft is remarkable. Generally speaking, there are three categories of names: names which refer to attitudes and qualities (such as Hope, Perseverance, Dependent, Rival); names which consist of elements of the first names and/or surnames of bargemen and their wives (e.g. Jo-Cor, Gerco, Adfra, Lenie D, Joke S); and female first names (e.g. Anna, Maria, Margaretha, Johanna Jacoba). Apart from these three main categories there are a number of less well-represented ones. Bargemen also name their craft after places, rivers or seas, mythological or biblical figures (usually associated with water and wind), the signs of the zodiac, wellknown individuals (John F. Kennedy), animals (rarely birds), or they give them names referring to an ownership situation (The Three Brothers). Sometimes they use names referring to water (e.g. Aquanaut) or simple numbers.[1]

This article concentrates on two of the above categories: the female names and the combined names. I am unable to believe that the preference displayed by bargemen for names of this kind is just chance. Of course, they choose names for their craft to distinguish them from other vessels and thus to make them recognisable, but this in itself is not enough to explain the preference for a particular type of name.

Others have wondered how the choice of female names should be interpreted:

> In many cases the boat is named after a woman. It has jokingly been suggested that this is due to a resemblance between women and boats: both items of equipment cost a lot of money. We do not share this view. Instead, we claim that bargemen like to honour their wives by having their name in gold letters borne over the waters (*Schuttevaer* 1936,27:4).

By concentrating on the combined names as well as on the female names, I shall

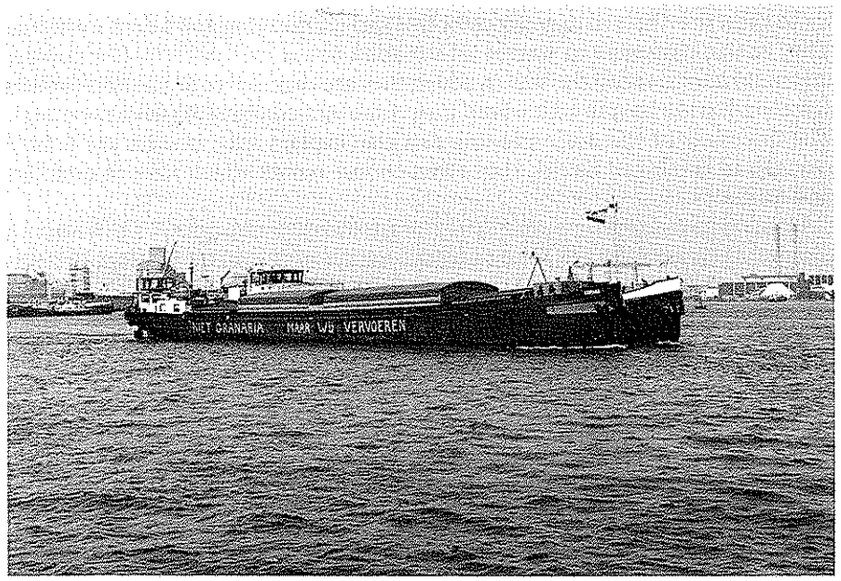
try to show that these names convey both a surface meaning and a deep meaning. They enable bargemen to convey information about their activity (the surface meaning) *and* to reveal the way in which they see themselves in relation to their vessel and to the people with whom they come into contact (the deep meaning). The discovery of the deep meaning can also explain why, besides the female names and combined names, they often choose names which refer to qualities and attitudes.

First we have to relate a number of phenomena to one another if we are to discover their significance. These are: the nature of inland navigation, the language of the bargemen and their conceptions of their craft.

Inland Navigation

Inland navigation in the Netherlands is as old as the rivers themselves. From time immemorial people have transported goods by water. Regular routes came into fashion in the middle ages, when bargemen travelled to and fro between specific domestic and foreign locations at set times. Those who wanted to become bargees were subject to strict guild regulations. This kind of inland navigation did not die out in the Netherlands until the nineteenth century. As a result of the increased volume of freight caused by commercialisation and industrialisation, more and more people tried to meet the demand outside the existing regular services. After 1880 it was no longer seen as a contravention; in fact, it was even legalised. Since then the Netherlands has had its irregular services on the inland waters. Bargees no longer followed fixed routes, but went where their freight had to be loaded or unloaded. Before then it was customary for a bargeman to have a house on shore where his family lived, even if he sailed to international destinations, but now the situation changed rapidly. Bargemen came to live on their boats, taking their women and children with them. It is thus not the case that Dutch bargees and their families have always lived a nomadic life. It only took place on a large scale in the second half of the nineteenth century after the abolition of the restrictions on inland navigation.

At that time virtually all inland navigation was by sail; the Rhine was the only river where steamships and steamboats went up and down stream with a long train of barges in tow (vessels without a sail or engine room). In the 1920s and 1930s bargemen began to fit their vessels out with engines or to buy new engine-driven craft. While the accommodation on the sailing craft was extremely cramped, it was more comfortable on the new vessels. Besides being larger, they were better ventilated and lighter, because (small) windows were used instead of portholes, and more comfortable because the bedrooms, living rooms and kitchen areas were separated from one another more clearly than before. Naturally they were not all the same. Thus vessels from the larger tonnage categories had more room for good living quarters than the smaller craft could offer. The big Rhine barges sometimes even had salons furnished with items which would have been hard to find in many middle class homes. All the same, generally speaking the accommodation in Dutch inland craft was (and is) on the small side.[2]



The "Adriana" and another inland river vessel in the harbour of Amsterdam.

At the same time that the fitting out of inland craft with engines began to gather momentum, in the early 1930s, the government decided to relieve the distress which had arisen in numerous bargee families as a result of the economic crisis by introducing the system of equitable freight distribution. By this system, bargemen must report to the markets once they have delivered a cargo, and they cannot start on a new assignment before all the bargemen who were registered before them have sailed out. Taxi drivers have a similar system; they patiently wait their turn to take customers. In a situation in which the supply of bargemen outstripped the demand for freight transport, the government hoped that this system would mean the fairest possible distribution of work among the bargees.

Despite this equitable freight distribution, the number of private inland bargemen has dropped drastically in the course of the present century. At the beginning of the century there were tens of thousands of them; now there are about 4,500. The total tonnage of the vessels has increased, however, because the size of the craft which sail the Dutch inland waters has been steadily rising. Nowadays the vessels weigh between 500 and 800 tons on average and they are fitted out with all kinds of technical refinements. It is quite normal for the steering cabin to contain a radar, a mariphone (a wireless system for communication with other boats and with the shore), hydraulic steering, a river bend indicator, a depth gauge, and sometimes even an automatic pilot. These innovations, particularly those in the field of telecommunications, have a paradoxical effect. On the one hand, they make it easier to establish contact, but on the other hand they have reduced the number of face-to-face contacts. A bargeman no longer

has to moor at a lock to arrange a passage with the lock-keeper; while he is still some kilometres away he can contact the lock-keeper and his colleagues through the mariphone and make the arrangements from a distance.

It is a fairly recent development to carry a car on board. Hardly a boat is to be seen these days without a car on the deck or on the roof of the living quarters. The car has had a profound effect on the frequency of contacts with relatives who sail and those who do not (any more). While the mariphones have reduced direct contact with lock and dock personnel, direct contact with relatives has increased thanks to the car. The bargemen themselves, however, see its major function as strengthening the links with their children in boarding schools on land. The car has given land routes an importance in the eyes of bargees too. A bargeman used only to travel through the country by water, and what he knew was primarily the waterside. His geographical knowledge was based on rivers and their routes, as well as loading and unloading sites. The anecdotes of children who traced the vessel of their parents by walking along canals and asking at the locks are telling in this respect.[3]

To sum up, in less than a century far-reaching changes have taken place with respect both to the living quarters on board the inland vessels and to the forms of communication of bargemen with their colleagues and others. On the one hand, contact with relatives on the water and on land has become more frequent; on the other hand, a dilution has taken place in meetings with people with whom there was frequent contact earlier on.[4]

The improvements in the methods of communication are of no use to the bargemen in getting orders. They still have to attend the market in person and to wait their turn, at least as far as domestic freight is concerned. The procedure there is supervised by local officials. Since 1975 this system also applies to the Belgian and French routes, for in that year a number of bargemen introduced a voluntary system of taking it in turns for the North-South traffic. The only exception to this system is transport over the Rhine. Bargees do not have to wait their turn for this route, and can unconditionally accept any freight they are offered, as long as they have a suitable craft at their disposal, possess certain documents (a Rhine licence), and agree to the terms and price for transporting the cargo.

For all domestic and international trips, whether the freight is a "free" one or of a different kind, the trips (or cargoes) are always tendered by carriers: people whose job it is to mediate between, on the one hand, those who need room on board to carry a cargo, such as manufacturers and merchants, and on the other, bargemen who have room at their disposal. These carriers are also to be found in the markets beside the bargees and market officials, where they carry out their work in small offices. Bargemen have the most contact with them and view them in a very ambivalent way. On the one hand, they depend on the cargoes which the carriers tender on the market, so that it is advisable to stay on friendly terms with them. On the other hand, bargees view carriers as exploiters who always try to keep payments to a minimum.

The "Annie" built in 1926 in the harbour of Amsterdam.

The Division of Labour on Board

A feature of contemporary Dutch inland navigation is that bargemen and their wives do not just live on the same boat, but they both sail it too. In general a bargee's wife runs the household and does not concern herself with the acquisition of freight or with maintaining contacts with the onshore figures such as loaders, carriers, shipping agents, recipients, loading and unloading personnel. They all form the preserve of her husband, the bargeman. She stays on board when he goes to the market. But there is a whole range of activities during loading, unloading and sailing which she carries out jointly with her husband. For instance, she may help him to open the hatches on to the quay and to cover up the hull again; she warps the boat if necessary and manoeuvres it in and out of locks, while he stands in the prow to tie or untie the ropes. She may count as an official sailor on routes where the presence of a sailor is legally prescribed, such as on the Rhine. In other words, inland navigation is generally not a one-man job, but a man-and-wife concern in which the female partner performs essential functions to ensure the smooth running of the business. This is exactly what names like Jo-Cor and Lenie D express. By giving his craft a name like this, the bargeman indicates that the vessel with which he earns a living for himself and his family belongs to him and to his wife. In both cases the name of the vessel is formed from elements of their first and/or surnames. In the case of Jo-Cor, we are dealing with an abbreviated form of the names Johannes and Corrie or Johanna and Cornelis. In the case of Lenie D, we see the first name of the bargee's wife and the initial of the bargee's surname. In the first case the order of the man's and the woman's name can be reversed, but in the second only one sequence is possible. One might imagine a name like D Lenie, but it never occurs in the world of inland navigation. I see a connection between the fact that the first name of the woman is used in full in combination with only the initial of the man's surname and the common practice of giving craft exclusively female names; I suggest that this case represents a specific variant.

As far as the dating of the combined names is concerned, it is striking that the Jo-Cor type came into fashion in the 1930s (cf. *Schuttevaeralmanak* 1936:339), while names of the Lenie D type only came in from the mid 1970s onwards and were mainly used by young bargemen. The use of combined names is not a chance occurrence, but it coincides with changes in inland navigation itself. In the 1930s the wages of deck hands rose so high that they disappeared from sight. Moreover, it became increasingly common in this period for bargemens' children to go to school on land, although education was only made compulsory for them in the 1960s. Activities on board which used to be performed by deck hands or children were increasingly taken over by bargemens' wives in this period. The choice of a name like Jo-Cor was a statement by the bargee and his wife that inland navigation had become a business for two. It is not so easy to connect the "modern" combined name with changes in inland navigation. When I asked bargemen why they had chosen a name of this kind, they just emphasised that they saw their craft as "something feminine" and had therefore

An inland river craft with a "mustache."

given it a woman's name. If we combine this with the fact that many vessels only bear a female first name, it leads us on to the deep meaning of shipping nomenclature. I should emphasise in advance that bargemen have never pointed this out to me themselves. All the same, I would like to suggest that one may deduce the existence of a meaning of this kind from a number of aspects which I shall now proceed to review.

"And then I Sank Her"; Deep Meanings

It is striking that bargemen apply the terms used for limbs of the human body to refer to parts of a boat. For instance, a boat has a head ("a friendly face" or "an ugly one"), ribs, a belly, flanks, eyes (hawseholes) and a rump. There are a lot of jokes which refer to the latter association, which are especially popular to floor people who are unfamiliar with the world of navigation: "now I'm going to take off my best trousers to tar my arse". A boat also has a skin: the plating on the flanks and surface.

These terms suggest that it is not far-fetched to assume that bargemen see their craft as a body. But what is the gender of this body: male or female? I put this question to a number of bargemen and received the following reply from most of them: "a boat feels like a woman" and "a boat is like a woman." One bargee explained at great length and in full seriousness that a boat takes as much paint as a good-looking woman. According to him, a bargeman cherished it as a lovely lady. This is pregnantly expressed in the words of a bargeman who refused to

let his vessel fall into the hands of the occupying force during World War II:

> And then I sank her. It was a painful experience. I can hardly describe what it feels like for a bargemen to sink his own boat. [...] She was my past and my future and I loved her (Berman 1985:104).

The vision of a boat as a woman also emerged from a conversation I had with a bargeman about a colleague who had called his vessel Only Son. "It's not right, a name like that, because a boat is a woman." This immediate association is also expressed in a bargee's ditty with the following chorus:

> Oh Neeltje Jacoba with your beautiful stern,
> Your sturdy flanks and your charming bottom.
> Your heart is iron and your hair rope,
> But in my eyes you are the most beautiful woman of all.

The common practice of giving boats female names seems to me to be directly related to the feelings which bargemen have for their craft.

Although the vessel may bear the name of the bargeman's wife, this is not always the case. This indicates that the expression of the experience of the boat as "something feminine" is more important than the identification of the boat with the bargeman's own wife. This identification is made on occasion and can be explained against the background of the customary practice of not sailing for oneself until one is married. In view of the feminine associations of the craft, the association of the first boat with the first wife is natural enough.

The claim that boats are viewed as females is not novel. In a lively article on the symbolism of the launching of seagoing vessels Sylvia Rodgers states:

> From being a numbered thing at her launch, the ship receives her name and all that comes with the name. This included everything that gives her an individual and social identity, her luck, her life essence and her *femininity* [my emphasis, JV]. [...] Most of us know that sailors refer to a ship by the feminine pronoun. But the extent of the metaphor of the ship as a living, feminine and anthropomorphic being is not, I think, appreciated. (1984:2)[5]

However, inland navigators do not just see their craft as women, but they also strongly identify with the boats they sail. Once again their language is revealing. If a lock-keeper asks how big the boat is in order to determine the sequence of boats in the lock, the bargeman will rarely or never reply with: "my boat is thirty-eight metres long and five metres wide." Instead he will say: "*I'm* thirty-eight metres long and five metres wide." Nor do they say that their boat is loaded or unloaded, but that *they* are loaded or unloaded; and it is they, not their boat, who are empty. A typical expression is: "I'm carrying 480 tons of tapioca" to indicate that their boat is loaded with that fodder. Nor do they say that their boat is moored next to their neighbour's, but that *they* are moored. The number of expressions in which bargemen identify themselves with their boat is as large

as that of the expressions identifying it with a woman. It is therefore difficult to believe that we are here confronted with an insignificant coincidence.[6]

If we now combine the two equations 1) boat = woman and 2) boat = bargeman, it might be supposed that a bargeman identifies with a female body, or even that he often expresses the fact that he feels like a woman. I realise that this is a provocative statement which is likely to arouse bitter opposition from the bargemen themselves, but I consider that it holds water in view of additional data which support it.

It is common for bargemen to refer to carriers (*bevrachters*) as "inseminators" (*bevruchters*) or, less commonly, "rapists" (*verkrachters*). These go-betweens make them "pregnant" (*bevruchten*) with their cargoes (*vrachten*). These terms have an unmistakably sexual character. They suggest that bargemen see themselves as "women" in relation to the carriers and that they are approached in order to become "pregnant." It is also striking in this connection that *double entendre* jokes are made about waiting one's "turn," after the "release" of what they had "inside" them. All the ambiguities which hinge on the presentation of the bargeman as a woman who can be made pregnant can only be understood if one realises both that a bargee sees his boat as a woman and that he identifies with it. *Vis-à-vis* the carriers and other bargemen he is both boat and bargeman. Not only does he run a man-and-wife concern together with his wife, but he also has a perception of self in which clearly feminine elements can be distinguished beside the masculine ones. This is expressed in the name of his boat and in his language.[7]

The result of this survey of a particular kind of shipping nomenclature may also help us to understand the ways in which bargemen behave toward their own craft and those of others, as well as their verbal and non-verbal behaviour toward colleagues on water and in the market, carriers and others with whom they come into contact. Of course, other "factors" play a part too, such as the nature of their physical environment, but I will leave that out of the present discussion.

If we assume that bargemen view their boats as women and at the same time identify with them, it is understandable that they are so enraged when their craft are discussed, boarded or touched by others in an insulting fashion. Just as there are parts of a bargeman which must not be touched (such as the belly), there are parts of a boat which must be avoided to keep out of harm's way. Certain rules of respect for the bargeman and his boat are observed when stepping from boats which are moored next to one another alongside the quay in order to reach a boat further away. Even though it means going out of one's way, one has to keep as far away from the stern as possible, i.e. from the private part of the vessel, and to walk over the prow, i.e. the public area. This rule is also familiar to non-bargees, as can be seen from the instructions given to the riot police in 1981 when they were to break up a blockade: they must only take up positions on the prows of the boats.

For a bargeman, walking over the hatches of his boat is as much an insult as a slap on the belly: it is an affront to or assault on his physical integrity. In general, he will treat every irregular contact with his boat as a personal attack, and is prepared to respond with physical violence. Whoever touches his boat touches his (woman's) body and - paradoxically - can count on an exaggeratedly masculine reaction.

To sum up, the identification of the boat with the body of the bargeman accounts for a whole range of reactions to words and actions of others which concern the craft. The bargemen care for and protect their boats like women or as they do for themselves in a fashion which recalls the way in which Mediterranean males watch over their wives and daughters and, in the last instance, their physical integrity.

The identification also explains why, besides the female or combined names, vessels are often given the names of human qualities or attitudes. By calling his boat Perseverance, a bargeman indicates that he is persevering; by calling it Dependent, he indicates how dependent he feels himself to be on the favours of the carriers who have it in their power to "inseminate" him.

I hope to have demonstrated that the choice of shipping nomenclature among inland navigators is no random choice. They use it to express the fact that their craft mean more to them than just material objects. Boats are experienced as (female) bodies, with which the bargemen identify themselves to such an extent that in their everyday language they no longer distinguish between themselves and their boats. They treat their vessels as bodies which are as precious as their own and expect others to follow suit. The proxemic rules of inland navigation, the movements of bargemen *vis-à-vis* one another and their boats, are to a large extent understandable in terms of this perception, which is specific to this professional group.

These considerations could lead one to formulate a broader thesis: it is very probable that professional groups which tend to give names to the means of production from which they earn a living (many fishing vessels and lorries also have female names) view their means of production as bodies. This finds expression in their behaviour toward them and in their expectations of the behaviour of others.

Acknowledgements

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Notes

1. These findings are based on a scrutiny of the names of vessels contained in the Central Register of Inland Craft of the Ministry of Transport and Public Works for 15 January 1981. This contains all vessels belonging to companies and private individuals which sail with a licence. There were about 6,000 at that time. For the present article I have categorised all the names of vessels belonging to bargemen or shipowners whose surnames began with A, B, C, D, S, T, U or V. These totalled 3,182 vessels, i.e. roughly 50 per cent of the full list. Of these, almost 50 per cent fell into one of the three main categories, while the rest belonged to the less well-represented categories. It is very likely that

the percentage would be higher if the vessels belonging to shipowners were to be discounted. Shipowners tend to give their vessels names with a geographical colouring or prosaic combinations of letters and numbers. A number of names cropped up in my sample which defied categorisation. In some cases a highly complex combination of first names and surnames had probably taken place.

2. The dimensions can be gauged from the following passage, taken from a government report on the inland navigation problem from the beginning of the present century: "In this connection the Commission points out that there is very good accommodation for the bargeman and his family in the barges of the last twentyfive years and in the clippers; even the barges constructed recently satisfy the highest demands of comfort and hygiene [...] they have a salon and other conveniences. These fresh and comfortable living quarters form a sharp contrast to the afterhold of *tjalken*, flatboats and other wooden vessels and of the smaller iron ships; a whole family lives, sleeps, cooks, spends the whole day if the weather is poor, and carries out all the household chores in a space which on land would be deemed unsuitable for a person living alone. The surface of the afterhold in old-fashioned vessels of around 40 tons is approximately 1.50 × 2.00 metres, and the height of such a space is between 1.40 and 1.50 metres. The more recent vessels generally have afterholds in the deckhouse. These are higher and broader, but they take up more of the cargo area. The larger the ship, the larger the afterhold. Nevertheless, only a big *tjalk* will have an afterhold that is 2 metres long, 3 metres wide and 1.80 metres high" (Verslag 1911:168).

3. The cognitive map of a bargeman is determined not only by the waterways but also by the location of docks and factories: the loading and unloading sites. He is familiar with parts of the country where landlubbers seldom come, and as a result his experience of the built-up areas is very different. His life runs in a space which is literally organised in a different way, often bound by fences and railings, filled with technical installations, warehouse stores and factory floors, usually far from the "inhabited world." The manoeuvres which bargemen, their women and children have to make in order to reach the inhabited world are often perilous and demand a lot of skill. The way in which they have to keep on leaving their homes or moving into new ones is fundamentally different from that of the sedentary landlubber.

4. At the risk of exaggeration, it could be claimed that the improved transport and communication facilities have contributed to the internal integration of the world of the inland navigators and to its external isolation. This isolation is also due to the fact that industrial estates and docklands tend more and more to be situated in remote spots. This development is aptly summed up in the following bargeman's song:

Beneath the eternal flame in the Europort
Beneath the eternal flame, under the smoke of Rotterdam,
Tanks full of oil around me
We arrived on Friday the 13th
After a tiring trip.
We wanted to stop off in the city of Rotterdam
But there was no place for the boat.
We were sent further and further away from the city
And now we're here in this stinking neighbourhood.
Beneath the eternal flame in the Europort
Beneath the eternal flame, under the smoke of Rotterdam.

My car's parked useless on the roof
For how can I ever get out of here?
We're imprisoned in our own boat
In this miserable and desolate place.
No fisherman, neighbour or human being to be seen.
I wonder why I deserved this.

So this weekend drags to a close.
Sometimes my wife looks at me without saying anything.
She doesn't say much, but I know what she's thinking.
Is this a bargeman's life?
After TV we go to the bunk bed.
My wife's so beautiful by the light of the flame.

5. *Why* ships are perceived as (female) bodies is an intriguing question. According to Rodgers, the fact that seamen generally see their ships as omnipotent mothers, protecting their helpless young, and/or as enchanting women you can never be sure of, is directly related to the dangerous circumstances in which they live. "This environmental context is crucial when we look for reasons for the feminine nature of the ship. [...] It is easy to understand that the oceanic environment exacerbates the need for mystical protection that emanates from women. In addition, in circumstances where uncertainty and the likelihood of sudden death is increased, the symbol of rebirth in the form of the mother would be particularly welcome" (1984:3). Generally speaking I can follow Rodgers in her heavily psychological approach, but she overemphasises the importance of the environment – which is much less dangerous for inland bargemen than for seamen – and underplays the association of a ship with a woman as far as reproduction is concerned. At the risk of exaggerating, I would claim that a ship is a means of reproduction for an inland navigator. As a woman reproduces labour power or life by bearing children, so the loading and unloading of a ship reproduces the situation and life of the bargeman. Incidentally, it should be noted that the christening of a ship ("an artifact" in Rodgers' terminology) with wine instead of water should probably be seen as an attempt to inspire life into an inanimate object by means of a spiritual fluid.

6. The Dutch language also contains a large number of expressions in which it is not ships which are compared with people, but people with ships. For example, *een zwak schip* (= an ailing woman); *een mal schip* or *een lastig zeeschip* (= a strange or difficult woman); *iemand dwars voor de boeg komen* (= to cross someone's path); *de lading in hebben* (= drunk); *de kont tegen de krib gooien* (= dig one's heels in); *op de helling moeten* (= to review), etc. The comparison of a human being with a ship can also be seen in proverbs like the following: "Man is like a ship, the world like a sea/The bible my compass, heaven the road." It is remarkable that bargemen's wives do not talk about vessels as their husbands do. They say, for example, "*we're* loaded with tapioca" and "*we're* forty metres long and six metres wide" or "*we're* moored in the Houthaven." Conversations with bargemen's wives did not yield any associations between craft and female bodies, although they followed their husbands in referring to the skin, belly, flanks, face and rump of their boat.

7. To put it more abstractly, it might be claimed that bargemen have an androgynous cognitive structure or mentality, which is directly connected with the nature of their work. The fact that they call some of the decorations to the prow of the boat (a series of horizontal lines) *snorren* [whiskers] is indicative. A moustache is not a feminine attribute, but a particularly masculine one. In doing so, they turn their craft into "a woman with a moustache": a bargeman.

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The Difficult Transition from Subsistence to Commercial Fishing

The Case of the Bijagòs of Guinea-Bissau

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ABSTRACT This article seeks to explain factors behind the continued subsistence orientation of Bijagò fishermen in Guinea-Bissau. The lack of a transition to a commercial adaptation cannot, it is argued, be explained by factors inherent in the artisanal fishery sector itself. Foreign fishermen pursue a highly productive fishery, and access to necessary factors of production as well as demand for fish exist. The explanation is to be found in processes of change in the socio-cultural environment of the Bijagòs, set in motion by the increased options for individual economic strategies and capital accumulation.

Introduction

Transition from subsistence to commercial fishing among traditional fisherfolks is difficult for a number of well known reasons. The investment required is considerable, with capital being necessary for the purchase and maintenance of both boat or canoe, gear and motor. Fishing societies are typically marginally located in relation to larger markets of exchange, which inhibits sales and capital accumulation. The insecurity involved in fishing makes access to credit limited and conditions often hard. In addition, fisherfolks are typically poor, making involvement in several systems of production, and hence only part-time or seasonal involvement in fisheries, the optimal risk-reducing strategy (Pollnac 1978; Smith 1979; Acheson 1981; Tvedten 1986).

In West-Africa we find some of the major exceptions to the general picture of a deprived fisheries sector. In countries like Senegal and Ghana there are examples of communities where fishing is highly profitable and specialized, based on advanced means of production, market integration and extensive migration (FAO 1988; Everett 1986).

The Nhominkas of Senegal is one group which has gone through the type of transiton in question. External preconditions for this transition seem to have been the introduction of the purse-seine and outboard motors in the 1950s and 1960s, while the internal market and commercial tradition in Senegal largely explain why the new technologies had such a profound impact on production. (Chaveau and Samba 1989; Fernandés 1987).

Around 150 Nhominkas have been operating from the Bijagò Islands in Guinea-Bissau from the late 1950s. There they live semi-permanently and produce considerable surpluses through a fishery involving advanced means of production, a variety of high-yielding technologies, and with considerable in-

vestments of both time, labour and capital. The fishermen themselves are not involved in other economic activities, while women process and market fish in addition to doing domestic work.

The Bijagò ethnic group make up the large majority of the 15000 people living on the Bijagò Islands. They represent a typical case of subsistence fishermen, combining a number of alternative economic activities, primarily producing for domestic consumption and using small non-motorized canoes and simple technologies.

Now in the present case of the Bijagòs, the reasons for the predominance of a subsistence oriented fishery are not readily traceable to the factors mentioned in the first paragraph. Means of production are accessible either through development projects located on the islands or through parallel markets in Guinea-Bissau, Senegal and Guinea-Conacry. Though there are no traditional credit institutions (middlemen and middlewomen) accessible and formal credit institutions are reluctant to give loans to fishermen, credit is obtainable through personal social relations and the projects sell gear on favorable credit conditions. With the general improvement of transportation to the mainland and townsmen coming to the Bijagò Islands to collect fish at sales points, the capital Bissau has become accessible as a major market for the exchange of fish. In addition, after years of interacting with and working for the Nhominkas, the Bijagò fishermen are well aware of the methods and potential inherent in a more capital-intensive fishery.

Also, there are no alternative sources of subsistence and income which explain the non-investment in fisheries. Agriculture is the dominant activity, but is mainly for subsistence due to low productivity and lack of a ready market. Products that are marketable (groundnuts, palm-wine, palm-oil) are also characterized by a low level of productivity, and are in addition largely exchanged through non-capital relations of reciprocity.

At the same time the need for cash income is increasing, both because traditional investments (in productive means, clothes, certain foodstuffs, etc.) are becoming more expensive, and because new needs are emerging (taxes, transportation, capital goods, etc.).

In the following we will argue that the major reasons for the non-investment in fisheries by the Bijagòs are not to be found in the artisanal fishery sector itself nor in characteristics of the alternative sources of subsistence and income. Rather, the option of producing surplus value through fisheries has set in motion socio-cultural processes of change between the traditional powerholders in Bijagò society and fishermen. For the time being, these effectively inhibit a transition from subsistence to commercial production.

The case clearly demonstrates the importance of analyzing artisanal fisheries (as other systems of primary production) within a broad social, economic and cultural context.

The Artisanal Fishery at the Bijagò Islands

The Bijagò archipelago consists of 53 islands of which 19 are inhabited by a population of around 15000 people. Most of these (90 per cent) belong to the Bijagò ethnic group. Other groups are Mandingas, Beafadas, and Papeis. The Bijagòs live in small villages of 100-200 persons, with the extended household, matrilineal clans and age-grades as the central socio-cultural institutions (see below).

The actual number of fishermen on the Bijagò Islands is not known. A total of around 450 (390 nationals and 60 foreigners) have actually been in contact and registered with the Bubaque Project on the island with the same name.[1] However, with a few exceptions these come from Bubaque itself and the 3 closest islands of Rubane, Ilha de Soga and Ilha de Galinha. An estimate of 900 fishermen seems reasonable given the population distribution in the archipelago. Of these around 150 are Senegalese, mainly operating from the islands of Rubane and Soga.

For the same reason the 150 canoes registered at the project is likely to be an underestimate. The real number is probably around 300, with 250 being of a small traditional type and 50 of the larger Senegalese type. Only about 60 of the canoes are thought to have outboard motors, including all those belonging to the Senegalese.[2]

No scientific data on the resource situation in the archipelago are available, but the fishermen themselves do not regard the access to resources per se as a major constraint. Registered individual catches of 1-3 tonnes of both pelagic and demersal fish indicate a satisfactory access to fish. The most common species are mullet (tainha/*mugil capurri*), bonga shad (djafal/*etmalosa fimbriata*), barracuda (bicuda/*sphyraena quanchanco*) and croakers (corvina/*scianidade*). The total catch of 699 tonnes/year in 1988 delivered to the Bubaque Project neither represents potential nor actual production, as a large part of the catch is used for subsistence or distributed outside official channels. However, the statistics reveal considerably higher entries for foreigners than for nationals, which supports our point that the former produce more and are more involved in markets of exchange.

Looking at the labour process of artisanal fisheries on the Bijagò Islands (i.e. the physical and technical arrangements of productive activity), most of the fishing is carried out within the confines of the archipelago. One obvious reason is the limited range of most of the production units, but also the more mobile motorized units normally fish within this area. The main exception are the so-called fishing campaigns *campanhas de pesca*, where one or more production units set up a camp, fish and market catches in other areas for periods of 1-4 weeks. Normally the camps are located closer to the larger markets, such as Bolama, Bissau, and Cacheu. Although the more distant locations are only accessible by motorized canoe, the most important ones can also be reached by non-motorized units.

As regards productive means, two basic types of canoe are utilized. One is

the smaller dugout canoe (*pailão*), with a length of 5-10 meters and a carrying capacity of up to 1 tonne. This is the traditional canoe of the Bijagò Islands, and costs 250-300.000 PG.[3] The other is the larger Senegalese canoe (*pirogue*), with a length of 10-17 meters and a carrying capacity of up to 3 tonnes. These are made of a base-trunk and planks, and presently cost 5-7 million PG. There are two carpenters on the Bijagò Islands on a professional basis making canoes. Although the prices are high, there are no significant constraints to the access to the material and labour necessary for building canoes.

Outboard motors are expensive and hard to get hold of. The main sources are the parallel markets in Guinea-Bissau and Senegal, for a cost of approximately 3 million PG. Running costs are also considerable, with present gasoline prices of 850 PG/liter. However, the Bubaque project has supplied a number of motors the past ten years both at a cheaper rate and under favorable repayment conditions.

The gear used is also of two main types, one of which is related to the traditional fishery on the island and the other was introduced by the Senegalese immigrants.

The first type consists of mechanical fishing gear such as traps, lines and snares, hand cast nets and smaller gill- and entangling nets. The latter cost around 200.000 PG. The second type consists of large beach-seines and driftnets. These cost around 1.2 million PG. Bottom set nets have not been common, probably due to the strong tidal currents in the canals between the islands.

Credit for buying productive means is not available through the channels normally associated with artisanal fisheries in West Africa. There is no class of middlemen and middlewomen, and formal credit institutions are generally closed to fishermen. However, credit is available through parallel markets (normally based in Senegal, Gambia or Guinea-Conacry), and through the artisanal fishery projects mentioned above. In the latter case, repayment conditions are favorable.

Beach-seining (for djafal) and driftnets (for bicuda) are clearly potentially the most productive fishing methods, with catches recorded of 1-3 tons per day of fishing. Based on data on foreign fishermen from the seven artisanal fishery projects in the country, and a qualified guess of the number of trips and registered production (representing 50 per cent of total), we have estimated the average number of fishing trips per month to be eight and the average catch per trip to be 520 kilograms. This makes an average monthly production per unit of 4160 kilograms (Tvedten, Båge et. al. 1989). The average includes the 3-4 months a year when the Nhominkas return to their natal villages in Senegal and do not fish.

Traditonal adaptations, like the smaller gill- and entangling nets do, however, have potential for a considerably larger production. On the basis of the same project data mentioned above we have estimated the average number of trips per unit per month for national fishermen to be four and the average catch per trip to be 200 kilograms. This makes a monthly production of 800 kilograms (ibid.). Also national fishermen leave the occupation for 3-4 months a year, partly to carry out agricultural work and partly to fulfil socio-cultural obligations (see below).

Moving now to the relations of production, we may note that the larger operation based on motorized canoes and beach-seines/driftnets are mainly controlled by the Senegalese fishermen. The technologies demand working groups of 8-10 and 3-4 persons respectively.

The means of production are normally owned by the household head, and the core of the crew consists of one son or other dependent in addition to the owner himself. Typically, the Nhominkas select one son to become a fisherman while others are sent to Senegal for other types of training or education. The selected son will accompany the fishermen from the age of 3-4 years, and will participate in the actual fishing from the age of 10-12 years. At the age of 25-30 most Nhominka men involved in the sector will have their own operation.

In addition to the core group, the crew consists of employed Bijagò fishermen. These are often young and the Nhominkas consider them to be unprofessional and unstable. One obvious reason is the low pay, but the hard and the consecutive work is also a reason for them only working for short periods of time. For the Nhominkas these relations mean high profitability, but the lack of stable and able crew also puts restrictions on the operations.

The fishing operations of the Bijagòs are normally family-based, with the owner typically staying on shore while 2-4 children or other dependents fish. In cases where the crews consist of brothers, new groups tend to be formed as the sons of individual crew members grow up and form the basis for a new family-based production group. Only for the few practising beach-seining does the unit of production normally not correspond to the nuclear or extended household group, due to the large number of people involved. For those producing a surplus beyond what is needed for consumption and local distribution, the profits seem to be fairly equally distributed among crew-members, with shares also being allotted to boat, motor and gear. There are no distinct rules regarding who may or may not invest in a new operation.

The distribution of fish among the Bijagòs has traditionally been geared towards consumption for the immediate family. With the large number of people involved in fishery in some way or another, the importance of fish for bartering or other types of reciprocal relations does not seem to have been very pronounced. The prices obtained locally have also been very low, due to the limited purchasing power of the population.

During the past ten years, however, market exchange has become more common. The need for cash income has increased as the Bijagò Islands have become increasingly involved in the national economy. Traditional objects of investment like productive means, clothes, certain foodstuffs, etc., have become more expensive, and new requirements have emerged (taxes, transportation, capital goods).

For the national fishermen the project established on the island of Bubaque became the first real option for cash sales. The private markets in Bissau and other population centers represent the second option. First it was mainly utilized by the Senegalese fishermen going into Bissau with their large motorized canoes, but the market has also become more easily accessible to smaller units as intermediaries are increasingly establishing marketing points within the archipelago

itself. Moreover, the distance between two of the islands (Ilha Formosa and Ilha das Galinhas) and Bissau is fairly short, making direct sales possible.

The prices in the three marketing types identified (i.e. local exchange, project exchange and capital market exchange) vary considerably. Local prices are constrained by restricted demand and low purchasing power, those paid by the project have increased in the past couple of years, but are still subject to official control, and the prices on the main markets for exchange have increased significantly with the economic liberalization following the present structural adjustment program.

The average prices obtained on the external markets of exchange of 700 PG/kg for 1st and 2nd quality fish and of 400 PG/kg for 3rd and 4th quality fish imply a considerable potential monthly income. Seen in relation to the general cost of living, and options and constraints identified in the artisanal fishery sector, increased investments and efforts seem to be a viable option for the national fishermen. The viability of the Nhominka operations clearly indicate that such a strategy is feasible. When such a transition has not taken place, we will have to look for explanations elsewhere.

Alternative Sources of Subsistence and Income

Alternative sources of subsistence and income will often give clues to the economic strategies pursued in one particular sector. From the point of view of the fisherman, allocation of both labour, time and resources may best be made in other sectors either for economic or socio-cultural reasons.

In the present case, fishing activities are carried out in combination with four other principal sources of subsistence and income. These are arable agriculture, the extraction of palm tree products, the raising of domestic animals (cattle, goats, sheep, pigs and fowl), and wage labour. In addition to these hunting and the production of handicrafts are potential options, but they both involve a very limited number of households and the options for capital accumulation are small.

Arable agriculture is the basic production system of the Bijagòs, and it also occupies a central position in their socio-cultural life. The primary crop is rice, produced by slash and burn cultivation. Rotation every second year is practised. Access to land is communal and tied to village membership, but soil is of poor quality and increasingly scarce. As cultivation is rainfed without the use of artificial irrigation, crops are also vulnerable to variations in precipitation. More and more of the cultivation is carried out on the uninhabited islands of the archipelago, where birds and other animals represent a constant threat to the crops. In addition to the staple rice, secondary crops like cassava, sweet potatoes, peanuts, beans, maize, yam, and squash are produced on private plots closer to the village settlements.

The basic unit of production in agriculture coincides with the household, except in peak seasons where external relations of production are entered into by those having larger operations and the means to do so. Women do most of the

time-consuming tasks like planting, weeding, birdscaring and harvesting during the 4-5 months (June-October) of the agricultural season. The men are primarily involved in clearing the land (burning and destumping), which is normally carried out during a period of 4-6 weeks between March and June.

Given these conditions agricultural productivity is low, and only in rare cases surpasses subsistence requirements. The exchangeability of most of the agricultural crops is also limited, because most households grow rice, the local purchasing power is low, and the distance to the major markets is too long to cover the additional costs. Only for export crops like peanuts and cashew nuts is there a ready market, but here productivity is limited and commercial buyers operating in the rest of the country only rarely come to the Bijagò Islands due to the limited production and inaccessibility of their production areas.

Agriculture, then, does not significantly conflict with fishing activities and the sector does not represent an alternative object of investments. In fact, as most households cannot produce above subsistence needs the requirement for cash to buy agricultural products is often considerable, particularly in the final phase of the agricultural cycle.

The season for extraction of palm-tree products (palm wine and palm kernels) is from December to March and June-July respectively. Both represent an important potential source of income, and the work is done mainly by the men. However, the work is short and hectic as no initial cultivation of the plants is carried out, and most households only have access to a limited number of trees. Hence this activity does not significantly interfere with fishing, nor does it does not represent a viable alternative for investment and income, except for the few who control a larger number of trees.

The production of domestic animals is, with a few exceptions, also carried out on a small scale and mainly for consumption or local bartering.

This leaves wage labour as the last potential source of income. On the Bijagò Islands payed work is available at the development projects, commercial stores and a hotel. There are also government institutons, but the education and social contacts needed for acquiring these jobs make this option irrelevant for all but a few Bijagòs. Alternatively, jobs may be obtained by moving to other areas like Bissau. Hardly any of the Bijagòs has done that, largely for the same reasons of insufficient education and social network.

Thus while the Bijagòs do pursue a diversified economic adaptation, and this seems plausible given the low productivity, this does not explain why men do not invest more in fisheries. It seems possible to invest considerably more labour, time and resources than is the case. Higher incomes would relieve some of the strains related to both subsistence requirements and the increasing need for cash accounted for above.

The Socio-Cultural Setting

Having shown that reasons for the lack of transition from subsistence to commercial fisheries among the national fishermen of the Bijagò Islands are not evi-

dent in the fishery sector itself or in its relation to alternative systems of production, we now turn to the socio-cultural organization of the Bijagòs for possible explanations (see Silva 1984; Scantamburlo 1978; Kristiansen 1988; Tvedten, Båge et. al. 1989; Caballero 1987).

The traditional seclusion of the Bijagò Islands from the mainland is still evident in a number of socio-cultural traits separating them from the rest of Guinea-Bissau. In the interior there are the stratified, centralized, Muslim societies of the Fula and Mandinga, while in the coastal areas the Senegambian speakers (Manjacos, Balantes, Felupes, Brames, and Papeis) have egalitarian, uncentralized, non-Islamic societies. The Bijagòs do not have a central political authority, but form social entities that are both interdependent and stratified.

The British and German settlers living in the archipelago until around 1920, and the Portuguese colonizers who remained until the 1970s had only a limited impact on the socio-cultural life of the Bijagòs, partly due to their small number, active resistance, and the concentration of their activities on the island of Bubaque. Only since the last half of the 1970s have stronger processes of change been set in motion. The establishment of schools, a number of development projects, general stores and increased contact with the mainland generally have changed both people's own evaluations as well as aspects of their social organization. The latter changes include less strict exogamous marriage and post-marital residence rules and an increase in the number of female headed households. However, the basic socio-cultural structure is still intact and the indications of change are most evident among a relatively small group of people having direct economic or other contacts with the mainland.

The socio-cultural institutions that form the basis of Bijagòs daily social and economic life are the village, the clans, the household and the age-grades.

Each village (*tabanca*) has 100-200 inhabitants, belonging to the same matrilineal clan. The geographically separated villages villages are largely interrelated in socio-cultural and economic matters. Each village is divided into sections or wards, each occupied by an extended family.

The four existing exogamous clans (*geraçôes*) are important for regulating marriage alliances, and access to land and other productive resources is tied to clan membership. Furthermore, political leaders are elected on a clan basis, and specific clans regulate cultural institutions like ceremonies connected with production cycles.

The household (*larga*) is a semi-autonomous unit, consisting of a senior male member with 2-3 wives, brothers or sons, and adolescent girls and children. Men usually remain in the village where they were born. With post-marital residence, being virilocal, sisters and daughters move to their husband's homes. They will, however, move back in case of the husbands death of divorce. Men and women are relatively equal in daily decision making, including economic matters.

Formally there is also a state committee (*comité do estado*) in each village, but in reality these have little impact either because they are marginal or because they merge with traditional institutions.

The socio-cultural institution most relevant for our analysis, however, is that

of age-grades (*classes de idade*). Age-grades (or age-classes) are social categories based on age through which individuals pass in the course of the life cycle.[4] The relations between members of the same age-grade are often as intimate as those between close relatives, and just as important for the individual. There is a strong solidarity among those belonging to the same grade, and this increases as they advance through life and their grade or class acquires a more dominant position in society.

The age-grades have implications for rights and duties of both an economic and social nature. In specific periods of their lives, both men and women use a significant part of their time, labour and resources following the behavioural rules prescribed for their grade.

Basic to the functioning of the cultural institution of age-grades is the notion of age-grade secrets, which are open only to those having earned the right to know by advancing to the age-grade in question. Age-grade secrets involve both socio-cultural matters (knowledge necessary to relate to the authority of ancestors, the history and mythology of the Bijagòs, and socio-economic conditions (ritual undertakings necessary to improve the fertility of land, knowledge about flora and fauna, knowledge about conditions related to productive activities). Revealing secrets to persons who have not achieved the right to know are believed to have serious repercussions, both for the individual who gives away the secret and the one who receives if. The repercussions are normally mediated through whitchcraft accusations that may result in ritual death through loss of one's soul to demons (*korandes*), physical injuries or death, or harvest losses.

The interest in preserving the hierarchical system obviously lies in the rights and duties that membership imply. These are fairly well defined, and fall broadly into three periods. The first is an early period of socialization and leisure lasting until the age of 20-25. While the economic responsibility for the family and village is small, so are the rights over the resources that may be accumulated. Ideally nothing acquired before the initiation into the second age-grade can be kept, including children. The middle period is marked by a heavy economic responsibility, but still with few rights beyond one's own household. Both men and women are expected to contribute to the maintenance of their own household, as well as to other expenses attached to the clan and the village. The final age-grade (*ocotò*) is that of the elders, which is characterized by prestige, authority and the right of economic support from other household members, the clan and the village.

Recruitment to the different age-grades is carried out through an elaborate system of ceremonies. These include prolonged periods of seclusion from people not yet introduced to the relevant age-grade secrets, and ultimately large feasts involving initiation rites, material offerings and lavish consumption. Such occasions cause movement of a large number of people both between different villages and between different islands. Women have their own cultural ceremonies parallel to those of men, but while men successively acquire greater responsibility both in cultural and economic matters, the women's influence is more informal, through checks on the way men exercise authority. They may apply sanc-

tions in a number of ways including moving back to their natal village. The female head of the village also has a seat on the council of elders.

The ceremonies involve considerable investment for those being introduced into a new age-grade: both physically, by being removed from their normal social setting for up to several months at a time, and economically, through the requirements for ceremonial contributions (*grandessa*). The payment of *grandessa* is a ritualized presentation of local products or money. The goods involved will be partly consumed during the ceremonial occasion itself, but will also be used over time by the *ocotòs* and their immediate families and redistributed to others as part of the elders' fulfilment of social obligations and their attempt to maintain their status and influence.

The amount to be paid is decided by the elders, and people aspiring to a higher age-grade may struggle for a long period of time to collect sufficient goods and money. The demands, particularly those on the men, are heaviest on central ceremonial occasions like the transition from youth to manhood (*fanado*) and from manhood to the status of elder (*orebok*), but as we shall see, demands are also made fairly continuously from the community at large. Though the actual obligations involved are rather obscure for outsiders, estimates indicate that the contributions may amount to as much as 50-75 per cent of the total cash expenditure of a household (Kristiansen 1988).

The articulation between traditional Bijagò society and external economic influences is presently manifesting itself in the very institution of transitional ceremonies and the payment of *grandessa*. As we have noted, moreover, these influences are primarily mediated through artisanal fishery, with its link to the national economic context and its inherent options for capital accumulation.

The processes of change in question represent a dual pressure on traditional institutions and relations. On the one hand they have altered the value system and socio-cultural aspirations particularly of the younger men. Ceremonial secrets do not have the same hold on people as their own cosmology changes, as they spend larger parts of their lives in socio-cultural contexts with other value systems and as they become economically less dependent on adhering to socio-cultural rules.

At the same time, new options for individual income generation have threatened the material basis of the age-grades and the power of the *ocotòs*. This has largely rested on the capacity to decide over land and tribute labour in agriculture formally through the oldest member of the land controlling *orega* clan in the council of elders. That agriculture has been the economic sector around which the socio-cultural institutions and ceremonies of the Bijagòs have been built has to do with its economic importance and the fact that the collective nature of agricultural operations easily lends itself to institutionalization.

The immediate response to the new situation on the part of the traditional powerholders has been to attach artisanal fishery and fishery income to the ceremonial cycle. Artisanal fishery has previously not been central for the socio-cultural life of the Bijagòs for reasons diametrically opposed to those which made agriculture important. The economic significance of fishing beyond that

of subsistence has been small, and the individual nature of the adaptation has not easily lent itself to collective action.

Demands on surpluses are now strong, as are the socio-cultural sanctions against fishermen not adhering to the norms and expectations. Sanctions are related to both a general normative pressure for gifts and contributions from relatives and other people not in a position to accumulate money, and for *grandessa* to *ocotòs*. In the former case the sanctions take the form of social and economic isolation, like not being allowed to share leisure time with people in the same age-grade and not receiving the necessary assistance in economic operations. And in the latter the sanctions are both of an economic nature (refusal of land allocation and apparently also of access to fishing sites) and cultural ones including witchcraft accusations. Fear of *korandes* and a belief in the power of the elders to inflict harm is still strong, even among the most "progressive" of the fishermen.

The implications of this situation for the Bijagò fishermen is that while they are trying to save and stave off demands, the rest of the population continue trying to get what they consider themselves entitled to given their conception of the norms of reciprocity. Most fishermen now argue that it is little use working hard and investing in fisheries as long as they live within the Bijagòs, as so much has to be used for non-productive ends. A normal line of events for younger fishermen having tried to invest in boat, motor and gear seems to be that the demands on surpluses makes it difficult if not impossible to maintain the means in productive shape and repay loans. Ultimately they give up, and either retreat to subsistence production or leave the sector altogether. At the same time, leaving the Bijagòs is still difficult. Besides the emotional and social problems of marginalization, most fishermen are dependent on family members or other relatives for crew and the insecurity involved in artisanal fishery still makes it pertinent to maintain access to land and other local resources should the need arise.

It is, then, in the socio-cultural institution of age-grades that we find the main obstacle to increased efforts and investments in artisanal fisheries among the Bijagòs. For a person wanting to get more involved in the sector the socio-cultural demand for shares in the surplus production and the social costs involved in neglecting the expectatons inherent in the age-grade system are still too significant for increased investments to be carried through. And the elders, who are in a position to make the necessary investments and maintain viable operations, are really not interested. They have finally reached the stage in life when they may rest and count on the support of others.

notes

1. The Bubaque project – initiated in 1979 and the largest of the seven artisanal fishery projects in Guinea-Bissau – is mainly financed by the Swedish International Development Authority (SIDA).

2. The total number of marine artisanal fishermen in Guinea-Bissau has been estimated to be 6000, the number of canoes 1200, and the number of motorized canoes 240 (Tvedten, I., H. Båge et al. 1989).

3. Official exchange rate $1.00 = 650 PG.

4. Age-sets are also categories based on age, but here one remains in the same age group as it becomes progressively more senior rather than moving up a ladder of categories.

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Book Reviews

McCAUGHAN, Michael and John APPLEBY (Eds.) *The Irish Sea: aspects of maritime history*. Belfast/Cultra: The Institute of Irish Studies, the Queens University of Belfast/The Ulster Folk and Transport Museum, 1989.

This book contains fifteen papers presented at the Irish Sea maritime history conference organised by its joint-publishers the Institute of Irish Studies, Queens University of Belfast, and the Ulster Folk and Transport Museum, Cultra, Country Down which was held at the museum in September/October 1986. They prove to be a fascinating collection which ranges chronologically from the Vikings, through the Middle Ages and subsequent centuries to the present day. The subjects cover Irish trade with the rest of the British Isles and the Continent, smuggling and piracy, the fishing industry and shipbuilding, as well as a case study on an Armada wreck and an account of the maritime records in the Public Record office of Northern Ireland. Given such a varied selection few readers could fail to have their interest aroused or to be given a new perspective on Irish maritime history.

The first six essays progress from a geographical description of the Irish Sea itself through to the nineteenth century thus making the collection something of an unified historical account. Given the number of papers and the variety of subjects it would be invidious to select one or two for detailed attention. My eyes were opened to the extent of Irish trade with Europe in the fourteenth and fifteenth century and to the bulky nature of some of the commerce – but each reader will respond to the papers according to their own particular interests and prior knowledge. I am sure that few will be disappointed. I felt that the one shortcoming in terms of content was the brevity of some papers, fifteen papers in less than 150 pages of printed text (excluding footnotes, etc.,) means that some papers are very brief indeed.

It was, perhaps, this occasionally too brief treatment of some subjects which left me reflecting on the purpose and benefits of the widespread practise of publishing conference papers as a book. Clearly such papers are an invaluable indication of the content and direction of the latest research which has not been, and may not be, published separately, or would be published in specialist journals not readily available to a wider readership. The number of contributors represent a great deal of research experience and their sources can provide invaluable references to the sources available for study. They can provide a guide and starting point for new students and researchers and as such brevity is not necessarily a defect. Indeed, many of these papers provide a bibliography and footnoted sources which indicate where and how the topic can be followed-up.

It is, however, in this area that I have some minor criticisms of the book. I was left with dissatisfactions which more editorial intervention might have prevented. Time and again I wished for a map, perhaps even more than one. All history has its geographical element, and maritime history more than most, and although one can always go to an atlas and find places, for those not intimately familiar with the small ports of Ireland a map or two would have clarified a great deal. Given the huge span of papers perhaps the desire for an introductory essay would be asking too much, but a consolidated bibliography would have been welcome. As it is, a "Select Bibliography" on pages 163-64 refers only to chapters two and three, which two chapters, along with chapter fifteen give no footnotes to their sources.

Nevertheless, to raise such issues is to ask for what was not included, what is there

makes this an informative and worthwhile purchase for anyone interested in maritime history. Its relevance goes far beyond the history of Ireland to include aspects of European history.

Trevor Lummis

PLATTEAU, J-Ph The Penetration of Capitalism into Small-Scale Third World Fisheries: An Investigation of Historical Processes and Organizational Forms. *Cahiers de la Faculté des Sciences Economiques et Sociales de Namur. Série Recherche* 82. Facultés Notre Dame de la Paix, 1988. 46 p., table, bibliography.

This compact and readable synthesis is very timely for students of traditional and modern fisheries as well as economic processes and development policies. The study is comparative and treats fisheries as complex systems. For many case studies Platteau isolates elements of fishing systems from developing nations around the world to analyze the relatonships among them. States have preferred to support industrial over small-scale fisheries. The ultra-modern industrial sector has not threatened the viability of small producers where links have developed to incorporate them into the world market. Industrial and household producers operate by different rationales, but far from reactionary conservative traditionalists, artisanal fisheries, especially when supported or not hindered by national policies, have adopted innovations which have proven more successful in many ways than the industrial sector. Platteau reveals the intricate relationships among economic, political, historical, institutional, cultural, and ecological factors and suggests several general hypotheses relevant to fisheries everywhere.

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