

## Shrimpers and Turtles on the Gulf Coast

The Formation of Fisheries Policy in the United States

E. Paul Durrenberger

University of Iowa

*ABSTRACT* I describe the on-going case of fisheries policy making in the United States that involves administrative agencies, federal and state legislatures, and courts in a complex set of issues surrounding the Endangered Species Act. Environmentalists support gear regulations that prevent turtles from drowning in shrimp trawls. Shrimpers oppose these regulations because the devices diminish their catch, are dangerous, and expensive to use. Shrimpers are against any reduction of catch because shrimp prices are low due to un-taxed imports.

This case provides an example of the complexities of fisheries regulation in the United States and shows how regulations may influence the livelihoods of people who are not their immediate object of concern. It further emphasizes the necessity to understand modern fisheries in their broadest political and economic contexts.

### Introduction

There is an emerging consensus that fishing cannot be understood in terms of boats or even communities, but that it must be understood in terms of its wider social, political, and economic context, the actions of other segments of the population, near or distant, that affect any aspect of the fishing industry, fishermen, the waters they fish, or the fish in them.

"Fishing communities are often thought of as remote enclaves of highly independent people, whose cultures separate them from neighboring populations" (Cook 1987:5). This is true of the United States as of any of the tribal or peasant contexts discussed in the same issue of *Cultural Survival Quarterly*, which is largely devoted to discussions of small scale fishing around the world. "Alabama shrimpers often give the impression that they lead a lonely life at sea, where day after day, night after night, is spent in solitary pursuit of shrimp" (White 1988:1). White shows not only that collective activities such as fleet fishing are fundamental to shrimping but also that the Bon Secour shrimp industry has been shaped by outside historical forces.

Smith (1988:30) writes that "the dynamics generated from the economic, political and technological contexts within which commercial fishing operates today" rather than storms or demons "pose the most critical 'clear and present dangers'." Orbach and Johnson (1988:9) conclude that the fishing industry in the Florida Keys "... is only a small part of an increasingly expanding and increasingly complex coastal environment." They point out, as Harris (1986) does, that the majority of the social science literature on fishermen has focused on fishing communities or the fishing industry itself and not on the policy processes that bring about changes. They argue that increasingly in the U.S. "public policy

MAST 1988, 1(2): 196-214

decisions external to the fishery itself have significant effects on the prosecution of the fishing industry" (Orbach and Johnson 1988:2). Meltzoff concludes that in the Florida Keys the "most important factor informing allocation and management of resources is the politics of conservation" (1988:23).

Orbach and Johnson (1988:9) argue that social scientists should go "beyond traditional cultural ecology approaches" to incorporate the role of public policy processes and its actors. Sinclair (1986:38) in his review of theoretical issues in the sociology of fisheries, suggests the importance of the question of how participants in fishing are linked to the wider economic system.

Fisheries all over the world are dynamic, not simply the conservative aspect of a shore based economy. Befu (1980) documents changes in the fishing industry of the Inland Sea of Japan and shows how they were directly related to matters of national and local policy.

Shrimpers on the Gulf of Mexico are involved in a complex tangle of legislative, regulatory, and judicial action whose origins are far from local and whose consequences promise to be significant for them.

The United States passed a law to protect endangered species. It also passed legislation to regulate fishing out to its 200 mile boundary and gave the National Marine Fisheries Service (NMFS) the duty to administer fisheries and protect endangered species in the 200 mile management zone. NMFS is a branch of the National Oceanic and Atmospheric Administration (NOAA), which is in the Department of Commerce.

When a kind of sea turtle that visits the waters of the Gulf of Mexico was placed on the list of endangered species to be protected, NMFS was responsible for ensuring its safety. Sometimes shrimpers catch such turtles in their trawl nets. Under pressure from environmentalists, NMFS made rules that required that Gulf shrimpers use a device to allow turtles to escape their nets. Shrimpers protested that the device is dangerous, costly to operate, and diminishes their catches.

Representatives and Congressmen from affected areas attempted to modify the law concerning endangered species. The state legislature of Louisiana passed a law to forbid its personnel to help the United States law enforcement agencies enforce the regulations, and their attorney general filed suit to revoke NMFS's administrative rules. A Federal court stayed the rules while the case was in review. An Alabama senator blocked legislative action to fund the Endangered Species Act until the court upheld the rules. Then the senator negotiated an amendment to the Act which would delay the rules while new studies are done.

The main impetus for these actions has nothing to do with fishing or shrimping. The consequences for shrimpers are by-products of other processes and concerns about the politics of the environmentalist movement and the continuing struggle for power between the United States Government and its constituent states and local politics within states.

### Background

In 1976, the United States Congress passed the Federal Fisheries Conservation

and Management Act which gave the Federal government regulatory authority from three miles to two hundred miles offshore and created eight regional fishery management councils under the Secretary of Commerce. One of the regional management councils is the Gulf of Mexico Fishery Management Council which covers the Gulf of Mexico, including Alabama. The Commissioner of Alabama's Department of the Marine Resources designates a Director of the Marine Resources Division to represent Alabama on the Council. One other representative and six at-large members are selected by the Secretary of Commerce from a list furnished by the Governor. The Regional Director of NMFS (National Marine Fisheries Service) is also a voting member of the Council. There are non voting members including representatives of the U.S. Fish and Wildlife Service, Department of State, Coast Guard, and Gulf States Marine Fisheries Commission.

University and government personnel with appropriate technical knowledge constitute a scientific and statistical committee (see Paredes 1985). Advisory panels are composed of persons who know about various aspects of fishing, and the Council is coordinated by a full-time executive director, whom the Council employs, and a staff.

The Marine Resources Division of the Alabama Department of Conservation and Natural Resources regulates fishing in salt waters out to three miles, the state boundary. They determine seasons, restrictions on fishing gear, and size limits. The Department Commissioner has authority to establish rules and regulations.

The Alabama legislature is responsible for license fees, regulating certain methods of fishing, aspects of oyster management, and has ultimate authority in all conservation matters (Wallace and Hosking 1987). The regulating authority of the Commissioner of the Department of Conservation and Natural Resources is restricted by the partial regulation of oysters, shrimp, and finfish by legislated statute (Wascom 1987).

The five Gulf states (Florida, Alabama, Mississippi, Louisiana, Texas) belong to the Gulf States Marine Fisheries Commission, which is to assist the states to coordinate their regulation of their territorial fisheries. Each state is represented by its top fisheries administrator or his designee, a legislator, and a knowledgeable citizen appointed by the Governor. The Commission is to study Gulf fisheries and recommend joint legislation (Wascom 1987). Explaining its composition and functions, one of its administrators commented to me that the Commission is the institution that most closely resembles the Confederacy of the American Civil War.

Johnson (1987a:24) laconically states that "the existence of multiple institutions with overlapping claims to manage migratory marine fishery resources has created an unnecessarily complex political situation."

### Coastal Alabama

The Mobile river branches into a floodplain delta on its way to Mobile Bay, one

of several bays along the northern Gulf of Mexico. Wherever rivers run into such bays, there are areas of marsh where primary production of the food chain begins. They provide nursery areas and habitat for the young and juveniles of commercially important species (Stout 1979). Shrimp spawn offshore. The young larvae enter the bays, develop in the marshes, and leave the bays as young adults to spawn in the Gulf and start the cycle over (Wallace 1986).

The shrimp fishery is the most important commercial fishery in Alabama and the other Gulf states. 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; Swingle 1979; Maril 1983). 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, 70 miles or more. Trawling at such depths requires larger boats and heavier gear (Perkins 1987a).

The Alabama Department of Conservation and Natural Resources manages shrimp by protecting young shrimp in the marshes and when they begin to move into the Gulf. To allow juvenile shrimp to grow and protect their marsh environment, some of the marshes where shrimp grow, are permanently closed to all shrimping. Department of Conservation and Natural Resources personnel monitor the size of shrimp, and close areas to shrimping until they reach harvestable size of 68 or fewer per pound. These practices are meant to insure that sufficient adults survive to spawn offshore and provide the next year's population of larvae which will grow into shrimps (Wallace 1986).

Management decisions must match shrimper perceptions fairly closely to be effective (Crouch and Miller 1987), as recent events in Jackson County Mississippi indicate. Waters within half a mile offshore had been closed because shrimp had not attained legal size. Several fishermen began taking shrimp in spite of the closure and were arrested. They claimed that shrimp in the Pascagoula River had reached legal size, but the area had not been opened to shrimpers. The Mississippi Bureau of Marine Resources does not have a sampling station in the Pascagoula River or channel, but agreed to test the shrimp there after about four shrimpers were arrested and eleven others cited. One of them said, "I did it . . . because it's a just cause. We're fighting to get the river open" (*Mobile Register*, 17 October 1987).

The viability of shrimp populations does not appear to be affected by fishing pressure as each female produces between half a million and a million eggs. Only a small portion of the eggs survive the migration inshore to the marshes and predators in the marshes. The catch of shrimp in any year is not affected by the number of shrimp the previous year. The major factors that control shrimp populations are not fishing pressure but environmental factors such as large amounts of fresh water from spring floods and cool water temperatures (Wallace 1986).

### The Policy Formation Process

One of the most debated fisheries management issues in the Gulf Coast region is not in the hands of the states but the United States Congress, the National Marine Fisheries Service, and the courts.

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

The first device to allow turtles to escape from shrimp trawls was a 1980 adaptation of the 'cannonball shooter,' which has been used for a long time to clear shrimp nets of cannonball jellyfish and rubbish (Fee 1987). Although there are several varieties of turtle excluder devices (TEDs) (Edwards 1987) the National Marine Fisheries Service TED is a wire cage about three feet on a side, with a top hinged at the front. A chute composed of bars runs from the bottom front to the top back. The motion of the water through the trawl washes any sizeable object such as a turtle or fish that enters the front of the box up the chute and through the hinged top to freedom. The shrimp are supposed to continue through the bars of the chute into the bag of the trawl behind it (Taylor *et al.* 1985).

NMFS developed the TED and tested it, hoping that it would be attractive to shrimpers since it would eliminate much of the unwanted by-catch of jellyfish, finfish, and trash as well as turtles. In 1983 NMFS promoted a voluntary TED program. They argued that only the widespread voluntary use of the devices could avoid disastrously expensive legal confrontations with the conservationists determined to support the 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.

The shrimping community . . . not only refused to welcome this gift but, after a close look, sent it packing. Baffled environmentalists were at once puzzled and irritated. Shrimpers, it seemed to them, were not only ambivalent about the welfare of the turtles, but also apparently indifferent to their own opportunities (Edwards 1987:37).

In February 1986, the regional director of the U.S. Fish and Wildlife Service in Atlanta, Georgia, joined with conservation groups and appealed to the Gulf of Mexico Fishery Management Council to require the use of TEDs on all Gulf shrimp trawlers. In July, the Shrimp Committee of the Gulf Council recommended that TEDs be used at certain times and places. In August, a National Oceanic and Atmospheric Administration administrator, Tony Calio, summoned representatives of the Gulf shrimp industry to Washington for a briefing on proposed regulations to require TEDs in Texas and Florida and other areas.

Two days later, the Center for Environmental Education, a private environmentalist group, informed the Department of Commerce it intended to sue NOAA and NMFS to have all shrimp trawlers equipped with TEDs by January

1987. The next week, on 29 August, Calio invited the Southeastern Fisheries Association and the Texas Shrimp Association to participate in mediation of the TED issue with conservation groups.

From October to early December there were four negotiating sessions, and on 12 December a report was issued. In February 1987, there was a 45 day period of public hearings on TED regulations. Hearings were scheduled at Galveston, Port Aransas, and Brownsville, Texas; New Orleans, Houma, and Cameron, Louisiana; Mobile, Alabama; Key West, Florida; Savannah, Georgia; Charleston, South Carolina; and Morehead City, North Carolina (Fee 1987).

In these hearings and in other contexts it has become clear that NMFS technical personnel and shrimpers do not agree in their interpretations of the results of using TEDs (Blanchard 1987). Edwards (1987) spoke with shrimpers who had used TEDs on the Atlantic, Texas, and Louisiana Coasts where the original 'shooters' had been developed to eliminate unwanted by-catch from the trawl-nets. He supposed that such shrimpers would see an advantage to TEDs beyond Federal regulations. He reports decreased catches with TEDs. A Texas shrimper said: "I've never been able to make them quit losing shrimp. That doesn't mean there aren't some people that can, I just was never able to." A Louisiana shrimper said: "I just wanted to see how they worked. I thought they had something better than mine. I'm always in favor of any kind of improvement, and if theirs were better than mine, I was going to pull theirs." (Edwards 1987:39). Edwards concludes that many innovators are trying to develop better TEDs as there will be a market for them. He wonders why such innovation did not begin sooner in the nine years since NMFS "declared war on turtle drownings" and (1987:39):

Far more apparent is the host of widespread complaints about the NMFS TED, criticism based on sincere efforts to make it work. The device is now widely branded as both impractical and dangerous. Thus by concentrating R&D (research and development) and promotion efforts for so long on its own TED, NMFS actually appears to have increased, rather than lessened, shrimpers resistance to mandatory use of turtle excluders.

Jay Johnson, the assistant general counsel for the National Oceanic and Atmospheric Administration, who was involved in negotiating the TEDs rules, reports that the meetings were for gathering and presenting data. Everyone, he says, agreed that any means should be used to prevent the extinction of Kemp's ridley sea turtles and prevent the decimation of other species. A secondary consideration was to minimize adverse effects on the economics of the shrimp industry "as much as possible." They heard about every turtle sighting and capture that had been recorded.

And NMFS continued to supply information throughout the negotiation process. The government took no other role, nor did we indicate what we wanted in the way of the regulation - except that we wanted an immediate solution. And for that reason, we just stood back and let the environmentalists and the industry have a go at each other (Johnson 1987b:236).

Shrimpers were represented by representatives of four shrimping associations

and two shrimpers, one lawyer, and one former government bureaucrat. The environmentalists were represented by the former head of the United States' Justice Department's Wildlife and Natural Resources section, a former staff director for the House of Representatives' Merchant Marine and Fisheries Committee (both lawyers who represented the Center for Environmental Education), a representative from the Monitor International Fund for Animals who had worked in the State Department, and a representative from Greenpeace.

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

Johnson admits there are doubts about whether TEDs save turtles, whether turtles are caught in shrimp nets, and whether shrimpers lose shrimp, but says they used the best data that exist. He says there was a problem with representation. "The vehemence of the opposition of Mr. Tee John Mialjevich (a representative of a Louisiana shrimpers' association) and his membership has been absolutely amazing. I have never seen more people get involved in any fishery issue - ever" (Johnson 1987b:237). He summarizes the attitude of opposing Louisiana shrimpers as: "a) we don't catch turtles, b) TEDs don't work; or c) we can't make money if we use them" (ibid.:238).

Patti, a shrimper, fleet owner, and processing house owner, in Pensacola, Florida, just east of Mobile, characterizes the NMFS data Johnson called the "best available," as "quasi-scientific and semi-factual" (1987:15). He points out that of 6,030 boats shrimping in the Gulf, only 865 or less than 15% were represented in the negotiation, while larger groups were not invited to participate. He continues that:

All the groups are very localized, and no central core group exists to represent all the shrimpers. We certainly were not able to put together the type of think tank that the environmentalists assembled. In fact, it has been almost impossible to find a good environmental lawyer to represent us, since most of these special attorneys are on retainer to an environmental group or are on the staff of one (1987:34).

This is Patti's description of the process Johnson described above:

The representative shrimpers went to the meeting prepared to negotiate in good faith on behalf of their members' welfare and the well-being of the turtle. The proceedings began, and while the industry spokesmen were in private caucus, Dr. Tony Calio, administrator of NOAA, told them that if they did not come to terms with the environmentalists in the meetings, he would hand down a federal mandate requiring TED use on all vessels, in all waters, 365 days a year.

This ultimatum totally stripped the shrimpers of all bargaining power. Instead of the administration providing unbiased mediation, they intimidated the industry representatives and forced them to yield. The shrimpers then did what they could and attempted to cut the best deal possible, allowing for restriction of seasonal TED use (ibid.).

In June 1987, he reported the outcry among shrimpers against the promulgated regulations in public meetings. "Thousands of shrimpers have shown up at TED meetings, and thousands of others support them but were not able to attend. (They must fish in the daytime, when the meetings are held.)" (ibid.).

A large number of shrimpers are publicly militant about the use of TEDs and plan direct defiance of the rules at whatever cost. The militant faction is quickly growing and will soon reach the boiling point. Only the removal of the TED requirements will defuse them now (ibid.).

He continues, in a letter to his senator:

These shrimpers do not wish to defy the law. They are honest, hardworking and law-abiding, but required use of the TED will destroy the only way they have of making a living. Many families have been shrimpers for generations. Most shrimpers are not fleet owners but rather single-boat owner/operators barely able to make a decent living. Many times, a trip will not even pay fuel and crew cost. Many of these people are uneducated and are not able to understand or fight government regulations (ibid.).

He welcomes NMFS research, offers shrimping industry cooperation, support for a turtle hatching program, and matching funds (with environmentalists and government) for such programs; supports gear research for TEDs and sanctions against turtle harvesting countries; and asks for legislative relief from the executive branch's regulations that hurt shrimpers and do not help turtles.

Under the regulations, all boats 25 feet or longer would have to use TEDs while trawling in offshore waters. Smaller boats would have to limit towing time to 90 minutes or less unless they were equipped with an excluder device.

In 1985 the legislation that authorized the Endangered Species Act expired. For three years, the program has been supported with emergency appropriations while the Act has been debated. The reauthorization bill would authorize 56 million dollars per year with 4.3% increases each year through 1992 to study 3,000 species and protect 1,000 species listed as endangered.

In 1987, Johnson wrote (1987b:238)

I don't think that a protest is the way to stop the government from going forward. Too much momentum exists right now. The regulation probably won't be modified significantly, but the Endangered Species Act might. This is a sensitive issue that happened to arise at a time when the Endangered Species Act was up for reauthorization. I sometimes think that the biggest danger to an endangered species is to have the case for an exception presented while Congress is considering amending the Act. It may well be that Congress will do something to stop these regulations from entering into force. I am not expecting this, but it is certainly a possibility.

In November 1987, the Merchant Marine and Fisheries Committee of the United States House of Representatives, in its debates on amendments to the extension of the Act, voted against an amendment to delay the requirement that Gulf shrimpers use TEDs, but approved an amendment to postpone the requirement

for two years in in-shore waters such as bays and sounds. The chairman of the committee introduced the in-shore amendment because there are few turtles in bays and sounds. He opposed the broader exclusion of TEDs, as he said, because of:

the practical politics of the thing as I read it. The environmentalists, who we have to contend with whether we like it or not, would approve my amendment but would not agree to the other amendment. So to get a bill through, we had to take this position (*Mobile Register*, 20 November 1987).

The amendment to delay TEDs was supported by representatives from Florida, Texas, Alabama, and Louisiana. The Texas and Louisiana representatives told the committee that NMFS data were from the Atlantic, where conditions are different from the Gulf. They argued that TEDs would reduce catch, demand extra fuel, and higher insurance rates and that the combined effects of these consequences would be to put many shrimpers out of business.

A Rhode Island representative suggested that there were too many shrimpers and too few shrimp. A representative from Massachusetts supported NMFS observations and projected them to the Gulf to conclude that shrimpers catch and kill 3,000 turtles of endangered or threatened species.

The Texas and Louisiana representatives maintained to the contrary, that shrimpers' experiences contradict such findings, and proposed the alternative of turtle hatcheries as more effective and less expensive. The amendment failed on the House floor, when the House approved reauthorization of the Endangered Species Act by a vote of 399 to 16.

The Attorney General of Louisiana filed a lawsuit against the U.S. Department of Commerce on behalf of the state. He sought a judicial review of the regulations governing the shrimping industry, especially those that require TEDs. He indicated the regulations are not supported by data, are arbitrary and capricious, and that NMFS, a branch of the National Oceanic and Atmospheric Administration of the Department of Commerce, failed to follow administrative procedures. He also charged the regulations were impossible to enforce, deprived shrimpers of their livelihoods, and its negative economic consequences created an undue burden on the state and shrimpers.

A participant in the seafood industry said the TEDs legislation was not about turtles at all, but a continuation of years of attempts of sports fishermen to eliminate trawling in the Gulf. Shrimpers reported losses of 30% of their catch as opposed to the NMFS estimate of 10% or insignificant losses.

The Alabama Sea Grant Extension Service held workshops in February 1988 in Bon Secour and Bayou La Batre to help shrimpers cope with the regulations, which were to go into effect on the first of March 1988.

Howell Heflin, a senator from Alabama, put a hold on legislation to renew the Endangered Species Act in the Senate. The legislation could not be brought to the Senate floor without informing Heflin so he could offer amendments and raise objections. Such a 'hold' acts as an informal agreement with the Senate

majority leader to delay action on the bill. The bill was delayed from reaching the Senate floor until Heflin removed his hold. Environmentalists remained opposed to amendments that would weaken the endangered species law or establish a precedent for congressional action to overturn administrative decisions.

Shrimpers from Florida to Texas continued to complain and to request NMFS conduct local studies. NMFS officials said they would sponsor more workshops to explain to shrimpers how to use the devices.

As the March 1, 1988 implementation deadline approached, shrimpers and processors reiterated estimates that they would lose between 25% and 50% of their catch, and that the regulations had nothing to do with turtles, but were meant to eliminate trawling to protect finfish for sports fishermen. Such estimates were common in the media. In my visits with shrimpers in western Florida, southern Alabama, and southern Mississippi, I heard the same story repeatedly. Shrimpers would lose up to half of their catch. They could not survive if they were forced to use TEDs. Someone was trying to drive them out of business.

The Coast Guard and the National Marine Fisheries Service were to enforce the regulation that TEDs be used on trawls of boats 25 feet or longer in waters out to 15 miles. There were few federal agents to enforce the new regulations, and some state agencies were approached to help. The Louisiana legislature passed a law that state agents could not help federal agents enforce TEDs regulations. The department applied to the state attorney general for a ruling as there is a contradiction between federal and state laws. The attorney general and the Concerned Shrimpers of America, meanwhile, had sued to reverse the TEDs regulations. A U.S. District Court Judge found against him, and he said he would appeal.

In late April, a U.S. District Judge in New Orleans granted a stay on enforcing federal TEDs regulations until the attorney general's lawsuit was resolved. Again, shrimpers repeated that they suffered significant reductions in catch when they used TEDs and that they were not a threat to endangered species of turtles.

On June 7, 1988 the president of the National Audubon Society urged Senator Heflin to remove his hold. He said:

Sen. Heflin is holding the Endangered Species Act hostage, protesting the requirement that American shrimp fishermen use special devices to prevent threatened and endangered sea turtles from drowning in shrimp trawls (*Mobile Register*, 8 June 1988).

Heflin said figures the environmental groups had provided showed that shrimpers cause only about one percent of turtle deaths and injuries.

Alabama environmentalists started a letter writing campaign urging Heflin to stop blocking the renewal of the Endangered Species Act. National environmentalist groups reported that thirty-nine (of one hundred) senators signed a request that the Senate Majority Leader move the bill. An Audubon Society wildlife specialist maintained that TEDs "were under the act and it's time for Heflin to back off." A member of the Mobile County Audubon Society agreed,



"I don't know why he's being so reluctant." The executive-director of the Alabama Conservancy concurred, "it's ridiculous that he's holding up the Endangered Species Act. He's repeatedly given us (environmentalists) problems," called him an obstructionist on environmental issues, suggested he had sided with strip miners and timber interests in the past, and now he was siding with shrimpers (*Mobile Register*, 15 June 1988).

The next day, the Mobile newspaper reported that environmental groups "flayed" Heflin. A spokesman for the Center for Environmental Education (a party to the original TEDs negotiations) held a press conference in Washington at which he charged that Heflin was factually wrong, incoherent, and presented no alternatives to save sea turtles. Heflin responded that his data came from governmental and environmental groups sources and maintained that TEDs imposed unfair economic hardships on shrimpers. He called for further testing before the regulations should be enforced. He suggested that shrimp eaters and the shrimp industry were endangered species as well as the turtles. He concluded, "that all the data being used in this discussion is suspect and therefore a full study be conducted by unbiased researchers" (*Mobile Register*, 16 June 1988).

Heflin's office argued that the bill had been held up for two or three years, that it would continue under existing law, and that the Department of Interior had received funds the past two years. Environmentalists countered that the new bill would provide more adequate funding, and increase funding for state agencies (*Mobile Register*, 19 June 1988).

The National Marine Fisheries Service reported that within a week after shrimping season opened on June 8, 1988, five dead sea turtles were found along the Alabama Gulf Coast. Under the current Endangered Species Act, accidental catching of an endangered species is illegal. An Orange Beach (Alabama) resident announced that if TEDs regulations were not enforced, he would sue the Federal Government for failing to enforce the Endangered Species Act.

Early in July lawyers for the Justice Department and the Center for Environmental Education urged the U.S. Circuit Court of Appeals to revoke the April injunction that blocked enforcement of the TEDs regulations. One of the judges pointed out that it was the middle of the shrimp season and shrimpers would have to start using TEDs overnight. A Center for Environmental Education lawyer replied that there was no surprise, that the regulation had been on-again and off-again for ten years and that shrimpers had the TEDs ready for use. A lawyer for the Louisiana attorney general's office repeated that TEDs reduce shrimp catches and do not protect turtles. The U.S. Justice Department lawyer replied that he was being selective in the studies he cited and maintained that other studies have shown that shrimp trawling is dangerous to the turtles and that TEDs reduce shrimp catches only 5 percent. The assistant attorney general of Louisiana contested that finding and argued that the TEDs law discriminates against shrimpers because dredging and beachfront building kill more turtles than shrimpers do.

On July 11 the federal appeals court affirmed the lower court's dismissal of the Louisiana attorney general's lawsuit that challenged the TEDs law and or-

dered shrimpers to begin using them on the first of September. This decision, issued without opinion, revoked the stay on the TEDs enforcement.

Meanwhile, in Washington, Senator Heflin and the chairman of the Senate environmental protection subcommittee worked on a compromise agreement that non-governmental scientists would conduct studies of endangered turtles and the effectiveness of TEDs to determine whether the turtles are actually endangered, whether TEDs are effective, and how TEDs affect shrimp catches. Enforcement of the TEDs law would be delayed until May 1989 in offshore waters and May 1990 in nearshore waters. With such a compromise, as an amendment, Heflin removed his hold on the Endangered Species Act, and it was voted on in the Senate. The agreement is similar to the one rejected in the House of Representatives earlier in December.

Mrs. Jackie Taylor, president of the Alabama Chapter of Concerned Shrimpers of America, said she did not expect shrimpers to accept the court decision without a struggle, but that the decision was not in the political arena rather than the courts. She suggested that a test of the effectiveness of the law would be for shrimpers to refuse to use the devices, but hoped that the TEDs requirement could be removed from the Endangered Species Act. She contended that "It's going to be a war in the Gulf of Mexico," (*Mobile Register*, 13 July 1988), and that shrimpers saw the regulation as an injustice that would destroy their industry.

At a meeting of shrimpers, she announced that shrimpers were happy with Heflin's compromise amendment since it was what shrimpers have been asking for and indicated shrimpers' support for the amendment. Senator Mitchell of Maine, chairman of the Senate environmental protection subcommittee, accepted Heflin's amendment and the Senate passed it on July 25.

At that point an Idaho senator, with support from other western senators, offered two other amendments to allow controlled hunting of wolves and grizzly bears and to make the process of listing new species as endangered more difficult. Since the schedule of the Senate was crowded and there were more pressing matters, the legislation, along with the TEDs amendment, was withdrawn until July 28 when the Senate voted by 93 to 2 to renew the Endangered Species Act, and it is expected to pass the House of Representatives soon.

Differences between House and Senate versions of the bill may not be resolved before the first of September, the date TEDs regulations are supposed to go into effect under the court order from New Orleans. A Texas representative introduced a bill in the House of Representatives to delay the date of the regulations so that the Congress will have time to act on the legislation.

John Fitzgerald of the Defenders of Wildlife said that Senator Heflin's amendment would "cause the death of a number of sea turtles," and suggested that the studies mandated by the amendment will show that they are seriously endangered. Senator Heflin opined that the turtles would be found not to be endangered and that other measures would be more effective than TEDs (*Mobile Register*, 29 July 1988).

Senator Heflin's press secretary told me that while the Senator's stand on

TEDs has won him friends among shrimpers and may have made enemies among environmentalists, the environmental groups have agreed to the compromise amendment so they could offer no political opposition. He suggested that while it is impossible to keep everyone happy, politics is the art of compromise, and that the Heflin amendment is a good compromise for turtles, shrimpers, and environmentalists.

Whether shrimpers must use TEDs depends on a number of complex decisions, many of which are not directed at shrimping or the conservation of turtles. It depends on court decisions, on the strength of opposition from states, on the power of environmental groups, on election year politics, on local politics, and many other dimensions.

### The Context of Opposition

The response of shrimpers to TEDs is not unique. Rather, it is to be expected as an economic issue is transformed into a political one in conditions of hardship. Given the difficult conditions, the issue takes on an additional symbolic load, and in a binary rhetoric that links together science, progressiveness, and purity on the one hand against folklore, conservatism, and pollution on the other, the regulators and their supporters the environmentalists become 'bad guys.' As shrimpers escalate their rhetoric, and environmentalists escalate their threats on behalf of the turtles, there is further alienation, and each side backs farther into its corner of its own purity against the danger of the other and mutual understanding, even toleration, becomes less and less plausible.

There are many historic parallels, but the Cow War of Iowa in 1931 is a good example of a similar process. Milk from tubercular cows was spreading the disease. Public health and agricultural officials instituted a policy of herd testing and elimination of diseased animals. This benefited farmers by improving the productivity of their dairy herds, and it was a good public health measure, and farmers were indemnified for any cattle they lost. At first there was no opposition, but as the economic depression widened and more farmers lost their lands to banks, the opposition grew in the form of letters, pleas from organizations, calls for legislative relief, marches on the state capital, court cases, all familiar in the TEDs case, to resistance and finally the program was completed under martial law. This was in Iowa, a state noted then as now for its law abiding, honest, and hardworking politicians and people.

Analysis of the farming household economies shows that dairy money was necessary to keep farm families going from day to day. When their herds were threatened, their daily income was threatened. This did not matter if they had an annual income from their farms, but in the depression they were like shrimpers who cannot get enough shrimp to pay for crew and fuel. The farms could not survive the period between condemnation of their herds and their indemnification without daily income. Thus they resisted and sought relief from courts and the legislature. When these measures failed, they became militant (Durrenberger 1987).

Their militance was not a consequence of any militant ideology, but of their household situations and the general economic conditions. Shrimpers are now facing similar conditions with relatively few shrimp, a shaky price structure threatened on all sides by imports, and low prices. About seventy percent of shrimp consumed in America is imported. A sea-grant marine resources specialist summed it up: "They [coast shrimpers] are getting fewer shrimp, with lower prices and higher operating costs" (*Mobile Register*, 17 June 1988).

According to a local processor, given the low prices and other considerations, banks are loath to advance loans to shrimpers or processors, because the last thing a bank wants is a shrimp boat. Troubled boat owners approach processors and suppliers for help. This adds a burden to processors, who are in their second year of facing competition from low priced imports. It is increasingly difficult for processors to make money when imports sell for considerably less than local shrimp. Again one hears the echo of farmers who argue they cannot sell their crops for less than the cost of production. Not only are imported shrimp cheaper than local shrimp, they are often more attractive. Chinese shrimp are not just crammed into cartons, but hand packed, tails all in the same direction.

Miller and Van Maanen (1979) described the response of Gloucester (Massachusetts) fishermen to newly introduced regulations. In 1977 they opposed the restrictions of various management schemes. There were significant distinctions between new and less recent immigrants, gear types, boat sizes. Miller and Van Maanen conclude that because management policies ignored local social and occupational distinctions among fishermen, the fishermen viewed them as unwelcomed intrusions. Many fishermen saw them as irrational, implausible, impractical, unjust, and unenforceable, and violated the regulations.

Kafka (1984) documents the regulation of the bluefin tuna fishery on Prince Edward Island (Canada) and shows that the determinations of the policies have not taken account of fishermen's interest and have sometimes been quite removed from issues of the fishery itself. The discrepancy in incomes of licensed fishermen and those who were excluded created economic and social divisions among fishermen and there was widespread violation of regulations and laws. The policy was changed because a minister decided to change it over lunch. Subsequent meetings with fishermen were less to allow them to participate in planning than to allow the federal government to inform them of the new policy of wider access.

Davis says that in Nova Scotia:

... to the small boat fishermen, many fisheries policies and regulations appear to threaten their way of fishing and insult their understanding of specific fisheries. The content of fisheries policies, as well as the methods of implementation, imply that decision makers in DFO (Department of Fisheries and Oceans) regard small boat fishermen as short-sighted, if not basically self-centered and ignorant (1984:134).

These and other studies (Lamson 1984, Barrett 1984, Kearney 1984) suggest the importance of variation among fishing operations from large vertically integrated firms to household economies that rely on fishing for part of their annual

income, the differences between large and small economic units and their organizations and motives. This comparative evidence suggests that one of the most pressing needs of fisheries social science research on the Gulf of Mexico is to determine the range of this variation; the types, scales, organization, and motives of economic units; the social, political, and economic dynamics of each; and how each responds to various policies.

### Conclusions

This case is complex as it involves state and federal levels of administration and legislation, as well as judicial review. First the Endangered Species Act was passed, a legislative act. Then various sea turtles were classified as coming under the purview of the act, an administrative act. NMFS was given the responsibility for protecting the turtles as an executive agency whose function it is to carry out legislation. Private groups threatened NMFS with lawsuits if they did not require the use of TEDs. After token negotiations, NMFS promulgated a TEDs policy under this threat of judicial action. Legislators attempted to change the law. One attempt failed. Another succeeded. A court stayed the enforcement of the administrative orders at the behest of a state agency and another court upheld the rules.

Three sources of law are apparent: legislation, administrative practice, and judicial review. In the legislative process, legislators at the state legislature, the U.S. House of Representatives or U.S. Senate, represent what they see to be the interests of their constituents in a process that is recognized as intensely political. Given conflicting interests among their constituents, they must make some judgment about which interests to favor in their attempts to shape legislation. Senator Heflin and Representative Callahan of Alabama and other Gulf States legislators have represented the desires of Alabama shrimpers against the desires of various environmental groups. The compromise amendment is supposed to satisfy both groups. Individuals with common interests can band together into special interest groups and advance their interests to legislators and attempt to gain legislative power for their points of view by any number of means or appeals to legislators.

The formulation of administrative procedures is similar whether it be at the level of city councils, the state, or the Federal Government. The administrative process does not represent interests in the same way, but is conceived of as a technical process. The administrators see some problem that requires regulation. They call on experts, scientists, and technicians to define the issues and propose regulatory measures. The regulations are formulated in a technical, rather than an explicitly political, context. After the regulations are formulated, then the affected public are invited to comment directly on the issue, to represent their own interests to the policy makers. As with fishery regulations from NMFS, the proposed regulations are, by definition, by law, formulated in terms of the best available scientific data.

The third source of law is the courts, which have several functions. One is to

insure that proper procedure is followed. Another is to interpret such matters as areas of jurisdiction.

In each of the three processes, the rhetoric of scientific analysis is highly valued. Shrimpers have reported their experience but this does not have the impact of scientific findings, with the imprimatur of a University, a research facility, and a Ph.D. researcher. Shrimpers recognize this problem explicitly and, according to Patti (1987), are willing to spend money to rectify it.

Patti (1987) points to some of the reasons that fishermen are under-represented in the rules-making process and Smith (1988) tells the same story: fishermen fish for a living. They do not make a living by going to meetings. Smith reports that when a New England skipper thought it necessary to attend New England Regional Fisheries Management Council meetings "his crew grumbled at the lost fishing days, his wife nagged about decreased household monies, and the buyer to whom he regularly sold, complained about short landings" (1988:36).

Given that the management process rests on scientific rhetoric, and that of all participants in this process, the fishermen have least access to scientific work and personnel, they are confined to "degrees of tokenism" or "non participation" in their level of participation as Kafka (1984) calls such relationships in Canada.

One of the reasons shrimpers are less than eager to sacrifice any part of their catch is that the price of shrimp is low. One of the reasons the landing price of shrimp is low is the United States' economic and foreign policy on imports. To make up for lower prices, shrimpers attempt to catch more rather than fewer shrimp. Thus, the TEDs exaggerate what shrimpers see to be an already bad situation, itself largely caused by matters of policy that are not directed at shrimpers or the fishery but have negative consequences for them.

Though this case seems resolved for the time being, for the next year, at least, nothing has been settled. More studies will be done. Comments of environmentalists and supporters of shrimpers already show that the results will be controversial. If they show that the turtles are not endangered, the environmentalists will challenge the studies as unscientific and flawed. If they show that TEDs result in little or no loss of shrimp to shrimpers or that turtles are endangered and only TEDs can save them, shrimpers will say the studies are contrary to their experience and common sense. In a year's time, TEDs will once again be in dispute.

### Acknowledgements

Work on this paper was supported by the Graduate College of the University of South Alabama, Mobile, Alabama, Brad Davis, Dean, and the Coastal Research and Development Institute, Robert Shipp, Director. I thank them.



## References Cited

- Barrett, Gene L.  
1984 Capital and the State in Atlantic Canada: The Structural Context of Fishery Policy Between 1939 and 1977. In: Cynthia Lamson and Arthur J. Hanson (Eds.), *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*. Halifax: Dalhousie Ocean Studies Programme. Pp. 77-104.
- Befu, Harumi  
1980 Political Ecology of Fishing in Japan: Techno-Environmental Impact of Industrialization in the Inland Sea. *Research in Economic Anthropology* 3:323-47.
- Blanchard, Walton  
1987 Setting Records Straight on TED Trials. *National Fisherman*, June 1987:7 et seq.
- Cook, Jane  
1987 Fishing: Folklore to Foreign Policy. *Cultural Survival Quarterly* 11:5-6.
- Crouch, Ben M. and Mark Miller  
1987 Lacey Act Enforcement in the Texas Gulf: A Sociological Analysis. In: M.C. Jarman and D.K. Conner (Eds.), *Proceedings of the Conference on Gulf and South Atlantic Fisheries: Law and Policy*, March 18-20, 1987, New Orleans. Mississippi-Alabama Sea Grant Program 87-013. Pp. 121-35.
- Davis, Anthony  
1984 Property Rights and Access Management in the Small Boat Fishery: A Case Study from Southwest Nova Scotia. In: Cynthia Lamson and Arthur J. Hanson (Eds.), *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*. Halifax: Dalhousie Ocean Studies Programme. Pp. 133-64.
- Durrenberger, E. Paul  
1987 Household Economies and Agrarian Unrest in Iowa - 1931. In: Morgan Maclaughlan (Ed.), *Household Economies and their Transformations*. New York: University Press of America. Pp. 198-211.
- Edwards, M.L.  
1987 Shrimpers Say all TEDs Have Drawbacks. *National Fisherman*, July 1987:38-41.
- Fee, Russ  
1987 Turtle Excluders Rankle Shrimpers. *National Fisherman*, April 1987:4 et seq.
- Harris, Craig K.  
1986 Toward a Sociology of Fisheries. In: C. Bailey et al. (Eds.), *Proceedings of the Workshop on Fisheries Sociology*. April 26-27, Woods Hole Oceanographic Institution Technical Report WHOI-86-34. Pp. 1-30.
- Heath, Steven R.  
1979 Shrimp Assessment and Management in the Mobile Estuary. In: H.A. Loyacano, Jr. and J.P. Smith (Eds.), *Symposium on the Natural Resources of the Mobile Estuary, Alabama*, May 1979. Mobile: U.S. Army Corps of Engineers. Pp. 201-09.
- Johnson, Jay S.  
1987a Interjurisdictional Conflicts: How Conservation Programs are Compromised by the Political Process. In: M.C. Jarman and D.K. Conner (Eds.), *Proceedings of the Conference on Gulf and South Atlantic Fisheries: Law and Policy*, March 18-20, 1987, New Orleans. Mississippi-Alabama Sea Grant Program 87-013. Pp. 24-24.
- Johnson, Jay S.  
1987b Sea Turtle Mediated Negotiations: A New Approach. In: M.C. Jarman and D.K. Conner (Eds.), *Proceedings of the Conference on Gulf and South Atlantic Fisheries: Law and Policy*, March 18-20, 1987, New Orleans. Mississippi-Alabama Sea Grant Program 87-013. Pp. 234-38.

- Kafka, John  
1984 Politics of the Bluefin Tuna Fishery: Prince Edward Island. In: Cynthia Lamson and Arthur J. Hanson (Eds.), *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*. Halifax: Dalhousie Ocean Studies Programme. Pp. 205-34.
- Kearney, John  
1984 The Transformation of the Bay of Fundy Herring Fisheries, 1976-78: An Experiment in Fishermen-Government Co-Management. In: Cynthia Lamson and Arthur J. Hanson (Eds.), *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*. Halifax: Dalhousie Ocean Studies Programme. Pp. 165-204.
- Lamson, Cynthia and Arthur J. Hanson (Eds.)  
1984 *Atlantic Fisheries and Coastal Communities: Fisheries Decision-Making Case Studies*. Halifax: Dalhousie Ocean Studies Programme.
- Maril, R.L.  
1983 *Texas Shrimpers: Community, Capitalism, and the Sea*. College Station: Texas A&M Press.
- Meltzoff, Sarah K.  
1988 Politics of Conservation in the Florida Keys. Paper presented at Marine Resource Utilization: A Conference on Social Science Issues, Mobile, Alabama, May 1988.
- Miller, Marc L. and John Van Maanen  
1979 "Boats Don't Fish, People Do": Some Ethnographic Notes on the Federal Management of Fisheries in Gloucester. *Human Organization* 38:377-85.
- Orbach, Michael K. and Jeffrey C. Johnson  
1988 The Transformation of Fishing Communities: A Public Policy Perspective. Paper presented at Marine Resource Utilization: A Conference on Social Science Issues, Mobile, Alabama, May 1988.
- Paredes, J. Anthony  
1985 "Any Comments on the Sociology Section Tony?" Committee Work as Applied Anthropology in Fishery Management. *Human Organization* 44:177-82.
- Patti, Frank  
1987 Insider Airs Shrimpers' Views on TEDs. *National Fisherman*, June 1987:14 et seq.
- Perkins, Brian E.  
1987a Royal Red Shrimp. *Mobile: Alabama Sea Grant Extension Bulletin* MASGP-87-017.
- Perkins, Brian E.  
1987b Needs Within the Commercial Seafood Industry. In: M.C. Jarman and D.K. Conner (Eds.), *Proceedings of the Conference on Gulf and South Atlantic Fisheries: Law and Policy*, March 18-20, 1987, New Orleans. Mississippi-Alabama Sea Grant Program 87-013. Pp. 70-84.
- Sinclair, Peter R.  
1986 Theoretical Issues in the Sociology of Fisheries. In: C. Bailey et al. (Eds.), *Proceedings of the Workshop on Fisheries Sociology*. April 26-27, Woods Hole Oceanographic Institution Technical Report WHOI-86-34. Pp. 31-40.
- Smith, M. Estelle  
1988 Fisheries Risk in the Modern Context. *Maritime Anthropological Studies* 1:29-48.
- Stout, Judy P.  
1979 Marshes of the Mobile Bay Estuary: Status and Evaluation. In: H.A. Loyacano, Jr. and J.P. Smith (Eds.), *Symposium on the Natural Resources of the Mobile Estuary, Alabama*, May 1979. Mobile: U.S. Army Corps of Engineers. Pp. 113-21.
- Swingle, Hugh A.  
1979 Commercial Fisheries and the Mobile Estuary. In: H.A. Loyacano, Jr. and J.P. Smith

- (Eds.), *Symposium on the Natural Resources of the Mobile Estuary, Alabama*, May 1979. Mobile: U.S. Army Corps of Engineers. Pp. 85-88.
- Taylor, Charles W., Anthony F. Serra, John F. Mitchell, and Rodney C. Sawyer  
1985 *Construction and Installation Instructions for the Trawling Efficiency Device*. NOAA Technical Memorandum NMFS-SEFC-71. Pascagoula: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Fisheries Centre, Mississippi Laboratories.
- Wallace, Richard K.  
1986 *Shrimp in Alabama*. Mobile: Mississippi-Alabama Sea Grant Consortium Circular MASGP-86-012.
- Wallace, Richard K. and William Hosking  
1987 *Marine Fishery Management: The Regulatory Process*. Mobile: Mississippi-Alabama Sea Grant Consortium Circular CRD-17 MASGP-87-003.
- Wascom, Michael W.  
1987 Fisheries Jurisdiction in the Gulf and the South Atlantic. In: M.C. Jarman and D.K. Conner (Eds.), *Proceedings of the Conference on Gulf and South Atlantic Fisheries: Law and Policy*, March 18-20, 1987, New Orleans. Mississippi-Alabama Sea Grant Program 87-013. Pp. 10-23.
- White, David R.M.  
1977 *Social Organization and the Sea: A Gulf Coast Shrimp Fishery*. PhD dissertation, Department of Anthropology, Southern Methodist University, Dallas.
- White, David R.M.  
1988 *Knocking 'em Dead: The Formation and Dispersal of Work Fleets Among Alabama Shrimp Boats*. Paper presented at Marine Resource Utilization: A Conference on Social Science Issues, Mobile, Alabama, May 1988.

## Announcement

### International Scientific Symposium

#### Research and Small-Scale Fisheries

Montpellier (France), July 3-7, 1989.

Organized by:

ORSTOM (Institut Français de Recherche Scientifique pour le Développement en Coopération) and IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer).

#### Presentation

Taking into account the importance, in terms of biology, economics, social and legal aspects, of small-scale fisheries in the world, the aim of this symposium is to create an opportunity for research workers from various disciplines and origins to assess collectively the present state, the compulsions and perspectives of research. This symposium will deal with the relevance, the possibilities for a generalization of problems and of the methods used, from a scientific point of view. Whereas, so far, scientific conferences dealing with small-scale fisheries tended to take as an objective the improvement of the management and the development of fishing activities, this symposium intends to deal with research problems, instead of analyzing the constraints linked with the development of fishing activities, thus presenting an opportunity for a methodological reflection. This reflection will be centered on the various questions raised by each discipline: heterogeneity, variability . . . or on questions all disciplines are now being confronted with, such as interventions in the field of fishing activities.

#### Themes

##### 1. *The Present State of Research and Identification of Questions*

Papers presenting the present state and development of research in different regions of the world. The papers will be supported by multi-disciplinary bibliographies.

##### 2. *Research and the Structure of Small-Scale Fisheries*

- research and variety of environments, resources, modes of exploitation, and economical, social and cultural contexts
- relationships between the various components of artisanal fishery system: fishermen and resources, capital and labour, production and marketing.

##### 3. *Research and Dynamics of Artisanal Fisheries*

- adaptation to natural variability, to market variability (investment dynamics, employment)
- resources/fishing fleets dynamics
- competition and complementarities: small-scale/large-scale fisheries; small-

- scale fisheries/on land activities; local market/export market
- knowledge of markets and technology by the economic actors.

#### 4. Research and Interventions

- entry into the fisheries
- means and ways of settling conflicts
- organization and role of credit
- customary laws, national administration and international organizations
- unwanted or unexpected effects of interventions for development.

#### 5. Prospects of Research

- research priorities
- multidisciplinary research and problem solving
- research in its environment: professionals, administration and financing institutions.

#### Organizing committee

Dr. J. Lemoalle,  
Symposium Pêches Artisanales,  
ORSTOM - BP 5054,  
34032 Montpellier Cedex France,  
Tel.: 67.61.74.00,  
Telex ORST MPL 485 507 F.

#### Books Received

- Acheson, James M.  
1988 *The Lobster Gangs of Maine*. Hanover: University Press of New England.
- Andersen, Raoul & Cato Wadel (Eds.)  
1972 *North Atlantic Fishermen. Anthropological Essays on Modern Fishing*. ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Papers No. 5.
- Anthropologie  
1984 *Anthropologie Maritime. Description des procès de travail*. Bulletin No. 1. Paris: Centre d'Ethno-Technologie en Milieux Aquatiques.
- Anthropologie  
1985 *Anthropologie Maritime. Actes du colloque 1984 "Le littoral, milieu et société"*. Cahier No. 2. Paris: Centre d'Ethno-Technologie en Milieux Aquatiques.
- Artisanal  
1988 *Artisanal Fishermen: A Neglected Target Group*. Wageningen: Internationaal Agrarisch Centrum.
- Aubaille-Sallenave, Françoise  
1987 *Bois et Bateaux du Vietnam*. Ethnoscience 3. Publié avec le concours du CNRS. Paris: Selaf.
- Breton, Yvan et al.  
1988 *Pêcheries et Municipalisation: Old Fort/Blanc Sablon, Une Vision Anthropologique*. Rapport préliminaire. Université Laval, Qué.; Département d'anthropologie.
- Brox, Ottar  
1983 *Newfoundland Fishermen in the Age of Industry. A Sociology of Economic Dualism*. 2nd pr. St. John's: ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Studies No. 9.
- Byron, Reginald  
1986 *Sea Change. A Shetland Society, 1970-79*. St. John's: ISER, Memorial University of Newfoundland.
- Geistdoerfer, Alette  
n.d. *Recherches et documentations. Anthropologie Maritime*. Paris: Ichtyologie générale et appliquée. M.N.H.N.
- House, J.D. (Ed.)  
1986 *Fish versus Oil: Resources and Rural Development in North Atlantic Societies*. St. John's: ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Papers No. 16.
- Levine, Hall B. & Marlene Wolfzahn Levine  
1987 *Stewart Island: Anthropological Perspectives on a New Zealand Fishing Community*. Wellington: Department of Anthropology, Victoria University of Wellington. Victoria University Occasional Papers in Anthropology No. 1.
- McCay, Bonnie J. & James M. Acheson (Eds.)  
1987 *The Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: The University of Arizona Press.
- Ruddle, Kenneth  
1987 *Administration and Conflict Management in Japanese Coastal Fisheries*. Rome: Food and Agricultural Organization. FAO Fisheries Technical Paper No. 273.
- Ruddle, Kenneth & Tomoya Akimichi (Eds.)  
1984 *Maritime Institutions in the Western Pacific*. Osaka: National Museum of Ethnology. Senri Ethnological Studies No. 17.

Ruddle, Kenneth & R.E. Johannes (Eds.)

- 1985 *The Traditional Knowledge and Management of Coastal Systems in Asia and the Pacific*. Jakarta Pusat: UNESCO.

Sinclair, Peter R.

- 1985 *From Traps to Dragnets. Domestic Commodity Production in Northwest Newfoundland, 1850-1982*. St. John's: ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Studies No. 31.

Tijdschrift

- 1988 *Tijdschrift voor Zeegechiedenis*. May 1988.

Wright, Guy

- 1984 *Sons and Seals: A Voyage to the Ice*. St. John's: ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Studies No. 29.

Zulaika, Joseba

- 1981 *Terranova. The Ethos and Luck of Deep Sea Fishermen*. St. John's: ISER, Memorial University of Newfoundland. Newfoundland Social and Economic Studies No. 25.

[Zwollo, Carel]

- 1988 *Aspects du développement de la pêche dans la retenue de Lagdo aperçu du projet pêche Féd. Cameroun*. Nimègue: HASKONING.