

"The Trawler Wreck All": Political Ecology
and a Belizean Village

by

James P. Crawford

Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTERS OF SCIENCE

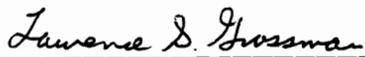
IN

GEOGRAPHY

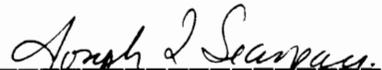
APPROVED:



Bonham C. Richardson, Chairman



Lawrence S. Grossman



Joseph L. Scarpaci

June 1995

Blacksburg, Virginia

Key Words:

Political Ecology, Geography, Belize, Garifuna, Subsistence Fishing

"THE TRAWLER WRECK ALL": POLITICAL ECOLOGY
AND A BELIZEAN VILLAGE

by

James P. Crawford

Bonham C. Richardson, Chairman

Geography

(ABSTRACT)

Forces of development are constantly affecting rural communities in the expanding world economic system. My research with the Garifuna fishermen of Hopkins, Belize, demonstrates the systematic articulations among national export-oriented economic development strategies, rural impoverishment, and environmental degradation. Within a political ecology framework, I document the impact of a shrimp trawling program on the subsistence fishermen of Hopkins, Belize, its impact on the effective marine environment of the subsistence fishermen, and their responses to it.

The data gathered for this micro-level study are based on a total of six weeks of on-site, participant observer research in Hopkins on two separate trips. Taped interviews with approximately three-quarters of the active fishermen of Hopkins, along with interviews with other Hopkins residents and government fisheries officials, fishery production and export records from three sources, (the World Bank, the Belize Department of Statistics and the Belize Department

of Fisheries) and my own observations provide the documentation of the trawlers impact on the marine environment and the subsistence fishermen of Hopkins.

Much of the work of other geographers on Third World development issues shows that rural communities have suffered from political, economic, environmental, and cultural factors that threaten their way of life. My work reveals the current situation in Hopkins, Belize, as part of this process.

ACKNOWLEDGMENTS

I want to thank the people of Hopkins, Belize for their generous sharing of their lives and thoughts. I do not speak their beautiful language, Garifuna, but, at all times, they were kind enough to speak a second language, English, with me. For this, I am indebted.

My return to academia, culminating with this work, is a product of the love, guidance and support of my parents, Robert E. and Helen B. Crawford and my stepmother, Annah Lee Crawford. This support extends from my entire family and friends, and for this I am fortunate and grateful. I wish to especially thank Cathy Crawford, my traveling companion and mate, for her unwavering support, wisdom, and confidence in my research and the thesis writing process. Special thanks to Bob Crawford for his help with the maps for this thesis and to Mary Bishop, Beth Macy and Tom Landon for their helpful comments on earlier drafts and editorial expertise.

I wish to thank the office of University Outreach and International Programs along with the Geography Department for providing funding for airfare for my first trip to Belize. I want to thank Vanessa Scott and Jane Price, who keep the Geography Department functioning smoothly, for being there for me with assistance and warm advice.

A special thanks to Bon Richardson, my advisor and committee head, for his encouragement, patience and intelligent comments and suggestions in writing this thesis. Thanks, also, to Larry Grossman

and Joe Scarpaci for their suggestions and genuine interest in my research.

I dedicate this thesis to the Garifuna people of Hopkins, Belize and wish them Godspeed.

"The Trawler Wreck All": Political Ecology
and a Belizean Village

Table of Contents

	<u>Page</u>
Chapter One--The Problem	
Scope of Study	1
Political Ecology, Theoretical Overview	7
Fishing Literature	12
Political Ecology and the Case of Hopkins	16
Chapter Two--The Belizean Setting	
Geography of Belize	22
Colonial History	25
Belize, Independence and IMF Issues	28
Role of Fisheries in Belizean Economy	34
License to Honduran Trawlers	39
Chapter Three--Hopkins Village	
Overview	48
Geography of Hopkins	52
Description of Life in Hopkins	55
Chapter Four--Hopkins Fishing	
Fishing and Its Changes in Hopkins	68
"...they destroyed us."	85
Conclusion	90
Bibliography	93
Maps	107
(1) General Location Map	107

(2) Cultural Fishing Practices	108
(3) Tourist Map of Hopkins	109
(4) Hopkins Marine Environs	110
(5) Location of Hopkins Fishing Areas	111
(6) Location of Shrimp Trawling Area	112
(7) Overlay of Fishing and Shrimp Trawling Areas	113
 Charts	 114
(A) Belize Annual Fisheries Exports	114
(B) Exported Lobster, Shrimp and Conch: Comparison of Production and Dollar Value	115
(C) Major Domestic Exports by Value, 1992	116
(D) Fishermen's Responses to Trawling Question	117
 Tables	 118
(1) Table of Fish Prices	118
(2) Summary of Answers to Interview Questions	119
 Appendix One--Interviews of Hopkins Fishermen	 121
Appendix Two--Ethno-History of Garifuna	146
Photographs	152
Vita	156

Chapter One

The Problem

Scope of Study

In 1986, the Belizean government issued licenses for trawling shrimp to Honduran trawlers in a joint venture between Honduran shrimpers from Roatán and Belizean fishing cooperatives. The resulting trawling has drastically modified subsistence fishing in Hopkins, Belize. According to the Garifuna fishermen of Hopkins, they do not catch as many fish as before the trawling, though they have to fish longer and travel farther. This pressure on their resources marginalizes the subsistence fishermen, forcing many to seek wage labor jobs and temporary migration to obtain money to buy food that in the past was obtainable by fishing.

This study demonstrates how intervention by the International Monetary Fund (IMF) and the resulting structural economic adjustments at the national level have negatively impacted the marine environment, and thus the livelihoods of the Garifuna subsistence fishermen of Hopkins, through the operation of the shrimp trawlers in their traditional fishing grounds. The concessions from the government to the Honduran trawlers for added tax income and for increased export income has in no way benefited the Garifuna of Hopkins.

The environmental degradation of the marine ecosystem by the trawlers is reducing the fish catches of the subsistence fishermen of Hopkins, who rely on fish for 60 to 65 percent of the animal protein intake in the village (Castillo 1994). Interviews with 60 percent of the fishermen of Hopkins document the decline in fish catches in the waters near the shore, the area fished by the subsistence fishermen. Furthermore, most fishermen are aware that the trawling is the cause of the decline in fish catches, but they are unable to stop the trawling in their traditional fishing waters.

Prior to the shrimp trawling program, subsistence fishermen in small paddling dories, along with children and older villagers, caught fish from the waters directly off shore of Hopkins. Now, this area is not productive for these fishermen, and they are forced to paddle farther to catch fish around estuaries and lagoons along the coastal zone. Fishing from the shore at Hopkins has virtually ceased.

Officials of the Belize Department of Fisheries are aware of the destruction caused by the trawlers to the marine environment in the Inner Channel. Although officially charged with managing the fisheries of Belize, they are unable to stop the trawling program because it is a political decision that rests in the hands of the Minister of Agriculture and officials of the cooperatives.

Another destructive aspect of the trawlers, besides the killing of tons of fish species per net hauling, is the ecological damage to the sea bottom. The bottom trawling nets rake the bottom, turning the bottom over, destroying vital marine habitats of many organisms,

and the ecological balance of the sea bottom (Garber and Canfield 1994).

The shrimp trawling program is part of the Belizean government's economic development strategy intended to encourage economic growth through export diversification (Moberg 1992a; personal interviews). The world economic recession of the early 1980's affected nearly all the Central American countries (Barry 1992; Long 1992; Stonich 1991 and 1993; Moberg 1992a). Belize experienced severe balance of payment deficits due to its heavy reliance on imported goods and the drop in worldwide prices in the sugar markets. Sixty percent of Belize's domestic export income was based on sugar production in 1980. By 1984, sugar accounted for 45 percent of total exports (Long 1992). Facing a budget debt crisis, the Belize government accepted an economic stabilization agreement with the IMF. Under conditions of the IMF financing, the government was required to reduce domestic expenditures and increase exports income (Moberg 1992a). The government of Belize enacted the 1985-89 Development Plan, which advocated increasing income from the export of non-traditional crops. Citrus and banana production received the bulk of investment attention along with proposals to increase export income from Belize's small fishing industry (Long 1992).

One year after enacting the development plan, Belize began the licensing of shrimp trawlers from Roatán, Honduras, to trawl in Belizean waters. By 1987, this shrimp production produced \$1.4

million Bz. (Bz. \$1.00 = US \$0.50) export income for Belize. This represented 8.5% of the total fisheries exports for that year and was the peak year of shrimp production. By 1993, sea shrimp exports totaled \$839,000.00 Bz., a reduction of 40%, despite an increase in the number of licenses to trawlers (Department of Fisheries). (See Chart A). These figures indicate that the shrimp stocks in the trawling area are being seriously depleted.

Three other factors involving the Garifuna of Hopkins are key to understanding the full impact of the shrimp trawlers:

(1) The politically and economically marginalized Garifuna fishermen almost exclusively use handlines for two reasons; it is traditional, and there is less risk involved. This risk avoidance limits capital investment, fish production and influence on national-level decision making, thus continuing their marginalized status.

(2) Cultural traditions, including handlining, which assured Garifuna fishermen a sustainable connection to the sea while limiting their involvement in economic and political decision-making at the national level, were instrumental factors leading to the government's location of the destructive, export-oriented shrimp trawling program. The decision to locate the shrimp trawling in the traditional fishing waters of the Garifuna is a political and economic decision. Much of the coastal continental shelf waters of Belize inside the barrier reef share the same potential for shrimp trawling, but these fishing grounds are worked by groups with more political and economic influence. The northern waters are home to the bulk of the members

of the National and the Northern fishermen's cooperatives, the two largest and most politically powerful fishing cooperatives. The shrimp trawling joint venture is with these cooperatives. The southern waters are controlled by the influential Caribeña and Placencia fishermen's cooperatives. The central coastal areas, where the trawling is located, are traditional fishing regions of the Garifuna. The Hopkins fishermen's cooperative is in debt and is barely functioning, in part due to factor (3) below. The decision to locate the shrimp trawling in this area was the least damaging option, both politically and economically, for the national government.

(3) The Garifuna's response to the shrimp trawling program is severely restricted by political partisanship evident in the village. The village is divided physically by those loyal to the United Democratic Party (UDP) to the north, and those who support the Peoples United Party (PUP) to the south. Loyalty is won by political patronage from the national party in power. Supporters of the party in power receive favors, such as expedited land applications, access to government secured loans, construction of feeder roads on farms, and consideration of government jobs (Moberg 1992b). The result of this patronage is a factionalization within the village such that UDP and PUP supporters often will not speak to each other, much less work together for a common good (personal interviews; Moberg 1992b). UDP fishermen do not support the fishermen's cooperative because the cooperative is managed by those aligned with the PUP. The division cripples their ability to organize a unified response to

the shrimp trawling program. Protests have been addressed to fisheries officials, but mainly by those who were in opposition to the national party, and these protests have generally gone unheeded. This party-based factionalism limits the ability of the Garifuna of Hopkins to effectively protest the shrimp trawling program, furthering their political and economic marginalization.

Political Ecology, Theoretical Overview

The analytical framework I use in this study of environmental deterioration in Belize is the integrated perspective of political ecology, which seeks to combine two major theoretical fields in contemporary geography, cultural ecology and political economy.

The explanation most often used by geographers of political ecology is presented by Blaikie and Brookfield (1987) in their book Land Degradation and Society. Political ecology includes these essential elements: (1) It "combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself," thus integrating human and physical approaches to environmental destruction (p. 17); and (2) The approach to the explanation of land degradation follows a "...chain of explanation. It starts with the land managers and their direct relations with the land. Then the next link concerns their relations with each other, other land users, and groups in the wider society who affect them in any way, which in turn determines land management. The state and the world economy constitute the last links in the chain" (p. 27).

Blaikie and Brookfield focus on three key concepts in examining the intersection of human and physical contexts with political and economic contexts. First is the concept of political-economic and ecological marginality, in which environmental

degradation is the result of rational survival strategies of marginalized households responding to changes in physical and political-economic contexts. The second is the concept of pressure of production on resources, where surplus extraction and exploitation among classes or individuals may impose excessive demands on the environment. The third is the concept of "landesque" capital, where the investment in land beyond the life of the crop only takes place when other factors of production are present (Pickles and Watts, 1992).

Political Ecology states that these two concepts are significant in Human-Environment relations: (1) the role of the state, and (2) differential control over wealth. Key to understanding Human-Environment relations is the examination of the influence of political-economic structures involved. It is important to ask what the role of the state is in situations of environmental degradation. Also significant in Human-Environment relations is the concept of differential control over wealth. The negative impact of environmental degradation is experienced more by those with less control over wealth, who are less able to adjust to changes in their environment (Grossman 1994; Bassett 1988; Blaikie 1985).

The political ecology approach of Blaikie and Brookfield, while formulating an advance over other approaches to development, such as structural Marxism, dependency and world-systems theories, constitutes a framework for analysis that has been improved and expanded upon by others. Blaikie and Brookfield, for example, place

political economic factors as exogenous to land-use decision making (Blaikie and Brookfield 1987: 70). Other researchers have expanded this understanding to argue that environmental and social factors at the local level interact with and affect the larger political economy (Bassett 1988; Blaikie 1985; Bryant 1992; Grossman 1993; Stonich 1991 and 1993; Zimmerer 1991).

Researchers using the political ecology framework to analyze many differing development contexts demonstrate the importance of the approach to Third World microlevel studies. There is variation in emphasis within political ecology studies. Some researchers (Schmink and Wood 1987; Blaikie 1985; Bassett 1988; Stonich 1993) approach their particular problem from a structuralist political economy emphasis while still considering social factors. Others (Grossman 1993; Zimmerer 1991; Bryant 1992) lean more toward the human side of the political ecology spectrum, approaching their studies emphasizing social/cultural factors within the larger macro scale political economy context.

Piers Blaikie (1985) expands on a fundamental theoretical assumption of political ecology that environmental degradation can be explained in terms of surplus extraction through the social relations of production and in the sphere of exchange. There are three interlocking concepts which describe this process; marginalization, proletarianization and incorporation. In the context of the peasantry, marginalization implies the process by which they lose the ability to control their own lives. This comes about because

of their incorporation into the world economic system. Implicit in this process of incorporation is its significance for changing relations of production and the process of proletarianization. This means, in the peasant context, the loss of independently controlled land, livestock, implements and direction of its own labor by the peasant household itself, and the enforcement of some sort of wage labor for others who own or control the means of production (Blaikie 1985).

Grossman (1993: 347) states, "a political-ecological perspective should highlight not only the impact of political-economic relationships on resource-use patterns but also the significance of environmental variables and how their interaction with political-economic forces influences human-environment relationships." This perspective brings historical context into equilibrium with political-economic variables which lends credence to its use in micro-level studies, where recognition of complex social factors are often the key to a better understanding of the issues influencing human-environment relations (Grossman 1993).

Bassett (1988: 456) stresses the use of a political ecology approach to "provide a framework for human ecologists interested in examining the interrelationships between local patterns of resource use and the larger political economy." In his work with the Ivorian economy, Bassett used the concept of the "disarticulated" economy which is applicable to many Third World agricultural-based, export-oriented economies that are experiencing balance of payments crises linked to the "disarticulated" structure of their economy. This is

characterized by few backward and forward linkages in its industrial structure and insufficient domestic demand for its goods (Bassett 1988).

Fishing studies that use the political ecology perspective shed light on issues of marine resource use and the interconnections with national political economy issues. Most political ecology studies focus on land degradation, especially to its impact on agriculture, but political ecology is instructive in understanding marine resource use as well.

The works of Susan Stonich (1991; 1993) use a political ecology approach to examine Central American promotion of non-traditional agriculture as a instrument of economic growth and increasing income among the region's small producers. She concentrates her analysis on the development of shrimp mariculture in the coastal areas along the Gulf of Fonseca in Honduras. Her review of the political economic structures of Honduras and the country's regional context shares some of the same structural pressures I have found in Belize, especially the economic collapse of the 1980's and subsequent efforts to rekindle the economy through the promotion of non-traditional exports. With findings similar to my study of the impact of the shrimp trawling program on the village of Hopkins, Stonich finds systematic interconnections among the dynamics of agricultural development, patterns of capitalist accumulation, rural impoverishment and environmental degradation (Stonich 1991; 1993).

Fishing Literature

The following studies are not formulated as political ecology studies but can be considered relevant to the issue of marine degradation and Human-Environment relations. Forman (1967), like Schmink and Wood (1987), found cultural structures in place, (location and secrecy of individual fishing spots) to help ensure that the limited resources are not over-fished, thus ensuring production for the entire village. In Forman's study, cultural traditions provide the mechanisms that prevent the decline of the environment -- and not political entities or outside forces. This study demonstrates differences between land resource use and marine resource use. Land resources are spatially fixed. Issues of ownership and control are fundamental to questions of land management and use, with political entities always a factor. Marine resources are a moving resource in a fluid medium which often functions as a commons under little or no political control. As these studies show, in Third World situations, cultural traditions often have more influence over marine environment use than do outside forces.

Berleant-Schiller (1981) uses a regional approach to describe the effects of development on the artisanal fishermen of Barbuda. She reports that the development plans of the Caribbean fisheries tended to emphasize larger-scale commercial fishing ventures that include larger vessels, more mechanization, new marketing systems, new cold-storage facilities and processing units, and increased capital

input. The World Bank was instrumental in the formulation of the plans and was the source of start-up capital. The development plans often report the need to preserve the artisanal fisheries of the countries and the preserving of the marine environment by a gradual implementation of the new development plans, but Berleant-Schiller finds that each individual country tended to embrace the more capital intensive development schemes, regardless of the economic or ecological realities of the individual country.

Similar development plans elsewhere in the Caribbean area are not always soundly based on ecological realities. Berleant-Schiller states that evidence of the damage done both to fish and fishers by inappropriately large scale technology in the Caribbean is indisputable. One example is mechanization in the Grenadines, which now threatens the lobster and conch stocks (Adams 1970; 1972). It has also been shown by the introduction of gill netting into Barbados (Bair 1962). Although the Barbadian flying fish catch increased almost threefold between 1955 and 1962, the higher cost of fishing with powered craft concentrated the means of fishing among fewer owners, many of whom were not fishers themselves, while less productive fishing sites fell out of use. Mechanization created market gluts, fisher debt, and strain on the flying fish population (Berleant-Schiller, 1981).

Berleant-Schiller then focuses on Barbuda and its artisanal fishery. Examination of this fishery is instructive, not because it demonstrates conclusively that small local fisheries are inevitably

destroyed by mechanization and intensified exploitation, but rather because it has never been mechanized or developed and is still an effectively functioning element in local society and economy.

Fishing, she states, is a part of the complex of the household economy, along with Swidden agricultural plots. Artisanal fishing supplies local needs, redistributes cash within the island, does not pressure the resources beyond what they can bear, and permits Barbudans to spend time on other necessary productive activities because their cash investment in fishing equipment is minimal. The work organization of fishing also reinforces village social organization (Berleant-Schiller 1981).

Berleant-Schiller discusses the concept put forward by Julian Steward called the "effective environment," meaning that environment whose resources can be reached via culture and technology (Berleant-Schiller 1981). This useful concept reinforces the connections among spatial, environmental, and technological factors. Subsistence fishermen's effective environment is smaller than that of the artisanal fishermen, who are equipped with outboard motors. Berleant-Schiller then notes the positive effect a limited effective environment has on the environment and sustainability of the limited resources of the Barbudian subsistence fishermen. She states that, thus far, there is a balance in the interaction of environment, artisanal technology and economy in Barbuda. Much care must be used before increased mechanization is applied to the artisanal fisheries so as not to disturb this balance,

though at the same time the aspirations of the developing state is important. To Berleant-Schiller this transition is the critical problem in developing countries (Berleant-Schiller, 1981).

McGrath, et al., (1993) report the situation in their study area is different from trends in fisheries development elsewhere. They find the intensification of commercial fishing has not led to the breakdown of traditional management systems (McGoodwin 1990), but to the development of new management strategies that work to control the increased pressure on the local fisheries (McGrath et al. 1993).

Russell and Pooptetch (1990) take a different look at the issue of small scale fishing. Their approach is an economic ecology which discusses forms of production as the important variable in looking at the issues affecting fishermen. Russell and Pooptetch use the concept of petty commodity production as a way of distinguishing between kin-based and non-kin-based forms of commercial fishing in capitalist economies.

This economic approach is different than the earlier articles that emphasize the cultural and environmental as well as political considerations to the subject of subsistence fisheries. Russell and Pooptetch do not portray an outside force as affecting the lives of the fishermen, only local market demands and the adjustment of the fishermen to the market.

Political Ecology and the Case of Hopkins

The political ecology framework is important in the case of Hopkins because the trawling occurring in the Inner Channel is an environmental reality influenced by state policy. The trawling arrangement on paper appears to be a benign fisheries program. But using the political ecology perspective, which includes environmental/cultural and political-economic considerations, the trawling is revealed to be a destructive agent on the marine environment, negatively affecting the lives of the Garifuna subsistence fishermen. The situation presently unfolding with the subsistence fishermen of Hopkins is then more completely revealed by studying the interconnections between the national and international forces that precipitated the trawling program, the cultural/social factors of the Garifuna fishermen in Hopkins, and the resulting environmental degradation occurring in their waters.

Belize's unique history also represents an important element in my study. Its colonial past is unlike the other Central American countries and differentiates Belize from other fishing studies in the rest of the isthmus. While other countries on the isthmus have experienced considerable civil strife under militarized governments, Belize has enjoyed a relatively peaceful recent history (Barry 1992). Even so, Belize cannot be extracted from its regional context, nor is it immune to political economic forces at work in the region. After Belize's independence in 1981, the United States' involvement in the

economy of Belize increased dramatically (Moberg 1992a; Barry 1992). During the 1980s, the United States' geopolitical interests and initiatives were also prevalent in the rest of Central America. The United States was involved in funding and support of the Contras in the conflict in Nicaragua. An interesting side effect of the war was the conservation of marine resources in the coastal waters of Nicaragua. The richest fishing grounds in the Caribbean Sea off the coast of Nicaragua had "been protected from over-exploitation because of the (contra) war." The resource piracy of shrimp and lobster boats, many from Roatán, Honduras was halted due to danger from heavy patrolling of the coastal waters by the Sandinista Air Force, which was looking for incursions of men and arms into Nicaragua from the sea (Nietschmann 1993b).

At the same time, according to the United States' AID 1986 Country Development Strategy Statement:

Belize plays a strategic role as a stable, democratic bridge between the Caribbean and Central America regions. More importantly, it is poised on the edge of foment in Central America, where it serves as an important counterpoint to the unstable political and economic situations of its neighbors... Belize also tends to look increasingly to the United States for economic and political support... the government firmly supports US policies in the Caribbean and Central America.

The decision by the Belize government to begin the shrimp trawling program in 1986 with shrimp boats from Roatán, Honduras may be interconnected with regional political/economic pressures, resulting from the war in Nicaragua. The shrimp trawlers from Roatán, Honduras, being prevented from fishing the coastal waters of Nicaragua due to the conflict there, needed other waters to trawl for shrimp. The geopolitical interests of the United States centered on maintaining stability of the governments in the region, including the Honduran government and economy (Stonich 1993). The shrimp trawling program represented a win-win situation for all the governments involved. Honduran shrimp trawlers acquired waters to trawl, Belize gained much needed export income for its struggling economy and the United States maintained its geopolitical interests in the region. This scenario emphasizes the multitude of possible international and national forces, beyond the economic restructuring required by the IMF after the economic collapse of the early 1980s, that conditioned the start of shrimp trawling in Belizean waters and indicates the importance of a regional political ecology approach to understanding the full implications of the trawling program.

Political ecology is also helpful in understanding the cultural interconnections among the Garifuna. The externally-driven shrimp trawling does not occur on a neutral field but is played out on the complex cultural seascape of the Garifuna of Hopkins. Their attachment to the sea, fishing methods, and traditional ways of life

all are being threatened by local expressions of political economic decisions that are made in distant seats of power. Without a framework that includes and recognizes these cultural factors as important, this study might be considered a political economic problem of resource degradation. The fact that it is happening to the Garifuna, a politically marginalized people, anchors this to a micro-level study influenced by macro-level forces.

This study of environmental degradation and its impact on the subsistence fishermen of Hopkins differs from most other political ecology studies in two ways: First, the environmental degradation of concern in this study is the degradation of the marine environment. Differences between marine and land environments are obviously many, but of particular significance to this study are the issues of ownership and control of resources. The marine environment and its resources of this study lie within the 12-nautical-mile territorial sea controlled by the national government. Fishing grounds are not privately owned, but function as a commons managed by the Belizean Department of Fisheries. Second, many political ecology studies explain environmental degradation with a bottom-up approach, beginning with the land manager or owner. Implicit in this approach is that environmental degradation is caused by the land manager in response to political economic forces (Pickles and Watts 1992). In the case of Hopkins, outside forces are the perpetrators of the marine degradation that is affecting the livelihoods of the subsistence fishermen. The fishermen of Hopkins

are not causing the environmental degradation. Indeed, the fishing techniques of the Garifuna continue to be controlled by cultural factors that are resource sustainable.

Garifuna of Hopkins participate in political patronage in order to gain economic advantage. Political patronage is part of a set of compensatory strategies by which these marginalized people adjust to reductions in the capability of their marine resources. Other strategies include keeping small garden plots and seeking occasional wage labor jobs with citrus companies in the Stann Creek District or other temporary jobs, such as working as construction helpers. But political patronage also carries potential harmful effects. Because political patronage divides the village fishermen, it weakens the ability of the Garifuna subsistence fishermen to control their environment and livelihood.

These survival strategies are commensurate with the adaptability of the Garifuna peoples to adjust to political and economic change. Their experiences since arriving in Central America in 1796 from St. Vincent have reinforced this survival behavior. The overwhelming theme in many interviews with Garifuna from Hopkins is the individual nature of their survival. During many of the Hopkins adults' lives, survival meant adapting and individually providing for oneself and family. (See appendices one and two). The political and economic world outside the village was as changeable as the sea and its resources and required the same adaptive skills to survive on one's own. To fish with handlines

out of wooden dories was to embrace adaptable behavior in order to survive. To dwell on a bad day of fishing did not help, no matter what the cause. In my talks with Hopkins fishermen, even though their fishing grounds had been ruined, few expressed frustration or resentment about the situation. Mostly there was resignation over the trawling and the resulting loss of fish catches near the village.

Resignation was also a common response when talking to Hopkins villagers about the political divisions within the village. This behavior is the survival strategy of marginalized people, disarming the individual's social power and breeding a passionless acceptance and resignation to that which is deemed beyond their control. It is a refinement of what Schmink and Wood (1987) declared as the basic organizing principle of peasant producers: the maximization of security and the minimization of physical expenditure. This behavior continues the marginalized status of the Garifuna of Hopkins and is an important component in understanding the overall picture of the marine degradation in the waters off the Belizean coast.

Chapter Two

The Belizean Setting

Geography of Belize

Belize is a small country on the eastern coast of the Yucatan Peninsula, bordering Mexico to the north, Guatemala to the west and south and the Caribbean Sea to the east. At its extreme points, Belize measures 174 miles (451 km) from north to south and 68 miles (109 km) from east to west. Belize has 516 km of land boundaries, shares a 266-km border with Guatemala and a 250-km border with Mexico. The Hondo and the Sarstoon rivers form the northern and southern boundaries, while the western boundary follows no natural features and crosses through lowland forest and highland plateau on a north-south course.

Belize's slightly irregular coastline measures 286 km and Belize claims a 12-nautical-mile territorial sea in the north and a 3-nautical-mile territorial sea in the south, from the mouth of the Sarstoon River to Ranguana Caye. This adjustment in territorial marine waters was enacted by the Belize Maritime Areas Act of 1992 to provide a framework with which to negotiate territorial differences with the Republic of Guatemala. Belize covers an area of 8,867 square miles (22,965 square kilometers) of land and inland water, and is the only Central American country without a coastline on the Pacific Ocean.

Even though Belize is a small country (approximately equivalent in area to Massachusetts), it encompasses a varied geography. The north half of the country is a limestone plateau of lowland and mangrove swamps which has fertile soil and an annual rainfall of 40 to 60 inches. Eighteen rivers and many perennial streams drain these low-lying areas. The coastline is flat and marshy, with many lagoons, especially in the northern and central regions of the country (Merrill 1992).

In the southern half of the country, the Mayan Mountains, a low mountainous region, rise to a height of 3,680 feet (1,122 meters) at Victoria Peak. The annual rainfall in these tropical rain forest mountains averages between 100 and 160 inches. A narrow, low-lying coastal plain separates the mountains from the Caribbean Sea, and on a clear day, the mountains are plainly visible from the coast, giving a striking panorama as one faces west from the shore.

Belize enjoys a tropical climate with an annual mean temperature of 79 degrees Fahrenheit and a humidity of 83 percent. Coastal areas get some relief from the high humidity with the prevailing easterlies blowing off the Caribbean Sea most of the year. The exception to this is known as the "mauger" season, which occurs around August for a several-week period, when the air is calm and the sand flies and mosquito prevail. The rainy season in Belize lasts from May to February and the hurricane season, which can be devastating (Belize City, home to 40 percent of Belizeans, is barely above sea level), lasts from September to December.

The most unique geographical feature of Belize is its vast coral barrier reef and caye system which is the second longest in the world. The Belize barrier reef extends from the border with Mexico in the north, southward 220 kilometers to the Sapodilla Cayes and ranges in distance from nearly adjacent to shore at Ambergris Caye in the north, to more than 40 kilometers from shore in the south (DuBois 1983).

The barrier reef system is comprised of three interrelated features--atolls, barrier islands and cayes. The barrier reef crest lies atop coral rubble at the eastern edge of the continental shelf. Three large atolls; Turneffe Islands, Lighthouse Reef and Glovers Reef, lie outside the barrier reef crest. A multitude of small cayes, numbering around 400 in Belizean waters, lie in the relatively shallow shelf waters inside the reef. The marine environment inside the barrier reef encompasses many different environments. The northern shelf lagoon is broad and shallow, with many cayes and sea-grass beds. This area supports the bulk of the lobster fishery, although lobster are caught throughout the reef-caye system. The southern shelf lagoon is deeper and narrower and contains a patchwork of faroes (shelf atolls), fringing reefs and patch reefs (Perkins 1983). The southern shelf lagoon is referred to as the Inner Channel and extends from Belize City to Placencia, a distance of approximately 65-nautical-miles. The lower 35-mile portion of the Inner Channel, from Dangriga to Placencia, is the designated area for shrimp trawling. (See Map 6).

Colonial History

The arrival of Spanish colonialists, English pirates and buccaneers began the colonial period of Belize in the early seventeenth century. The barrier reef offered excellent cover for British pirate ships to ambush the Spanish ships on their way to the Central American isthmus. In the second half of the seventeenth century, the British began exporting logwood. Logwood was valued in Europe for making dye, especially for woolen articles in the colors of gray, black, purple and red. In 1763 the Treaty of Paris legitimized Spanish claims to the territory but gave the British the right to cut logwood (Barry 1992). The British used black slaves brought in from Jamaica and Bermuda and Mosquito Indians from the coast of what is now Honduras for labor in the logging camps (Gonzalez 1988). The Spanish were forced out of Central America in the early 1820's, but the British did not declare Belize a colony until 1862. In the interim, Guatemala made claims on the territory and the disputes over Belize's territory have continued until the present (Barry 1992).

The early colonial history of Belize up to the 1950's is marked by its economy resting solely on the harvesting of logwood and mahogany from its tropical forests. Logging reached its peak in the late 19th century. Though logging lost its leading place in Belize's economy in the 1950's, and forestry now accounts for only 3 percent of Belize's export income, this single-commodity dependence has left

its imprint on the development of the Belizean economy to the present. Logging's legacy is still felt in Belize in the ownership and utilization of land. It is estimated that half the potentially productive agricultural land is owned by foreigners (Barry 1992).

The colonial period was marked by little economic infrastructure development in the country, most notable by the lack of highways. Since the logging operations used the river systems out of the mountains to transport lumber to the coast, a network of highways was not developed. Figures for highway infrastructure in 1993 demonstrate this continued lack of infrastructure. The total length of highways was 1,680 miles (2,710 km) with only 310 miles (500 km) of paved roads, 992 miles (1,600 km) of gravel roads, 186 miles (300 km) of improved earth roads and 192 miles (310 km) of unimproved earth roads (World Fact Book 1995).

Along with its colonial history, the Belize economy has been shaped by its geography perhaps more than any other country in the region. Its 240-mile coastline is protected by the second longest coral barrier reef in the world. This immense barrier reef and caye system is navigable only by lighter, shallow draft ships. Belize, for most of its political existence, has not had a deep water port nor enjoyed the economic development benefits that a deep water port carries. In the late-1980's, a shipping channel was dredged and a shipping dock was extended out into the deep channel at Big Creek south of Dangriga. This port is used extensively for the export of citrus concentrate and bananas and has helped expand the export

production of these commodities. Prior to the construction of this deep water port, bananas had to be shipped to Honduras by barge then transferred to ships for other market destinations. The port of Belize City (once the capital of Belize) is the most active port in Belize, but shipping is transacted by off-loading products onto barges to transfer them to larger ships waiting outside the barrier reef. It is easy to understand the lack of industrial development that would require raw material to be shipped in and the finished product to be shipped out, in light of the difficulties caused by the hazardous barrier reef and the shallow littoral zones blockading Belize's ports to all but shallow draft ships. The impact of the barrier reef, especially as it concerns industrial development, has been overlooked by researchers in Belize. Ironically, the barrier reef is reversing its role from spoiler to savior as the centerpiece of the country's growing eco-tourism trade and the government's economic plans for the future.

Belize, Independence and IMF Issues

Belize presently has a population of approximately 230,000 people with a small, open economy that depends upon world trade to cope with balance of payments problems. Belize has the lowest population density in Central America and one of the lowest in the world at 16 persons per square mile (10 persons per square kilometer). The limited domestic market is unable to provide the necessary economic stimulus to maintain sustainable development (Barry 1992).

The decade of the 1980's was pivotal in the history of Belize and the Belizean economy. Not only did Belize become officially independent of Great Britain in 1981, but a worldwide economic recession severely weakened the Belize economy. Also, in 1981, the price of sugar began a downward slide, and a decline in the U.S. sugar quota forced Belize to sell its sugar on the open market where the prices were much lower than the prices Belize had enjoyed from Great Britain and the U.S. This dire economic situation precipitated a decline in sugar production. In 1980 sugar accounted for nearly 60 percent of total domestic exports but by 1984 domestic exports for sugar decreased to 45 percent of total exports. This negatively affected economic growth and jobs, with the average unemployment rate in 1983 rising to 14 percent, and reaching 24 percent in the Stann Creek District (Long 1992).

In 1983, the International Monetary Fund (IMF) intervened with an emergency loan at a time when the Central Bank of Belize only had a few weeks worth of foreign exchange left. This emergency loan was followed by an IMF standby arrangement under which the government agreed to raise interest rates, reduce its budget, increase taxes, freeze public sector wages and follow other austerity measures (Barry 1992). Under these structural adjustment and austerity measures, the Belize government undertook a development model that relies on the region's "comparative advantage" of low-cost labor (Moberg 1992). This is demonstrated by the government's removing of earlier producer price incentives for staple crop production, while at the same time keeping price control ceilings in place at the retail level.

In response to the IMF performance criteria, Belize enacted the 1985-1989 Development Plan, which advocated increasing the output of non-traditional crops and other agro-industrial growth. The plan stressed the need for agro-industrial growth, especially export industries. The patterns of capital accumulation that occur in peripheral economies such as Belize's, and are the defining attributes of underdevelopment, have been reinforced by the government's responses to the IMF's standby agreement. The structural adjustment Belize undertook in response to the IMF intervention demonstrates the government's commitment to a low-wage export-guided development strategy (Moberg 1992a).

The net effect of this development approach is to reinforce differential capital accumulation and cause growing disparity between staple crop production for local markets and export crop production. These income disparities increase community stratification resulting from changing production strategies at the village level (Moberg 1992a). My research shows the shrimp trawling program, begun in 1986, is a product of this development model that emphasizes export production at the expense of local commodity and subsistence production.

The period from 1985-1991 saw the Belize economy rebound to an average annual growth rate of 7 percent. This period was characterized by increased exports, (especially of the non-traditional crops of citrus, bananas and seafood), increased tourism, rapid economic growth and rising investment. Also playing a role in easing the balance-of-payments crisis were massive amounts of U.S. bilateral funds (Barry 1992).

Long (1992) cites four key factors in Belize's growth of non-traditional agriculture during this period: investment concessions, duty-free access, privatization initiatives and increased land acreage brought into production. Forty-seven investment concessions between 1985-89 were granted to agriculture, mostly for citrus and banana producers. The concessions granted to local and foreign companies for farm investment included duty-free concessions on machinery and equipment and tax-relief incentives (Long 1992).

Also helping the Belize economy was the enactment of the 1984 Caribbean Basin Initiative (CBI) , through which the United States eliminated the 30 percent import duty on most agricultural products. By 1990, Belize's citrus exports increased to three times the value of citrus exports of 1980. Simultaneously, a major citrus crop failure in Florida opened up the U.S. market to Belize's citrus exports. This growth in citrus exports was a result of large increases in land brought under citrus and banana production in Belize (Long 1992). In 1984 there were 12,000 acres of land under citrus cultivation and by 1990 this increased to 40,000 acres. These land conversions were aided by Belize's sparse population and available land that is relatively cheap and easy to bring under cultivation (Barry 1992).

In 1985, Tate and Lyle, the British-owned sugar giant, closed its Libertad sugar processing plant and divested 90 percent of its holdings in its Tower Hill plant. The government responded with financial assistance and investment incentives to revive the processing plants which are now owned by Petrojam and Belize Sugar Industries. Petrojam is a Jamaican-owned state oil company that produces molasses for ethanol production. The Tower Hill plant is owned by the Belize Sugar Industries (BSI), a Belizean company that enjoys a favorable marketing arrangement with Tate and Lyle (Barry 1992). While sugar production still accounts for 30 to 40 percent of Belize's export income, its successes are tied to favorable trading agreements with the United States, Canadian, and European

markets. The U.S. sugar import quotas system currently offers Belize a quota of U.S. sugar imports that is tied to the size of the U.S. shortfall in sugar production. The sugar protocol of the European Community gives Belize a fixed sugar import quota. In both the U.S. and European markets, the prices received by Belize are twice as high as the prices of sugar on the open world market. The sugar industry in Belize, plagued by low efficiency and higher production costs, would be in dire straits if these preferential arrangements were lifted, which is the direction the United States is headed in its GATT and NAFTA trade agreements (Barry 1992).

In an economy of Belize's scale, even small fluctuations in the international market can have large impacts on the \$350 million economy. Belize relies heavily on imports, in part as a consequence of being a former British colony accustomed to importing nearly everything it consumed. Another contributing factor is the government's lack of support for staple crop production in favor of agro-export commodities. Belize regularly has a large annual trade deficit as a result of this reliance on imports. In 1982, the trade deficit was \$37 million; in 1992 the deficit rose to \$147 million. Belize manages to cover this trade deficit with foreign loans and assistance, coupled with remittances from Belizeans living in the United States, estimated to account for \$20 million annually (Barry 1992).

Agricultural commodities account for the majority of Belize's exports. Of the top five export products in 1992, four are agriculture

products that account for 84 percent of the country's exports. The nearest major non-agricultural export is apparel products at 14 percent. Sugar and citrus products account for 66 percent of exports, and bananas and seafood for 19 percent. (See Chart C). Shipping delays due to the barrier reef are an important causal factor in statistics such as these. The new deep-water port constructed to speed the export of citrus products and bananas is located in the Stann Creek district, near the citrus and banana processing centers. This is a privately owned port, built in a joint venture between banana growers and Fyffes, and not useful for any products manufactured in the north around Belize City.

Belize embarked on a major infrastructure development program in the late 1980's which continues today. The program receives 60 percent of its assistance in the form of foreign concession loans, and is designed to boost agro-export agriculture and tourism. The Southern Highway is currently under construction to replace single-lane wooden bridges, to widen many sections, and to pave the section from Dangriga to Punta Gorda. This highway construction will greatly improve transportation into southern Belize and will give access to new areas for agricultural expansion. Given the trend in Belize's agro-export production away from staple crop production, this investment will serve to hasten the expansion of agro-export production, to the detriment of the poor rural farmers (Moberg 1992a).

Role of Fisheries in Belizean Economy

Belize is blessed with an abundant tropical coastline and the longest coral barrier reef system in the northern hemisphere. Since the 1960's, fishing has played an important role in foreign exchange and as a vital source of protein for the domestic market.

Government control over the fishing industry is achieved through fishing cooperatives. There are five fishing cooperatives in Belize at present: National, Northern, Placencia, Caribena and Hopkins. The first two are the largest producers while the Hopkins cooperative is barely functioning. Besides independent fishermen, other fishery products producers are the Independence Fishermen, Toledo North, Laguna Madre Company and Nova Company, the latter two being shrimp mariculture farms.

The Belizean fishing cooperatives have a total membership of around 800. The cooperatives provide productive members with lines of credit for operating costs and capital investment in new equipment or boats. Fishing cooperatives also offer members refrigerated storage facilities and a marketing organization. The relationship between the government and the fishing cooperatives is non-adversarial. The cooperatives respond to government pricing initiatives and development proposals with a rubber stamp. This is largely due to political patronage. The leaders of the cooperatives are politically appointed by the government in power, so there is little difference between the positions of the cooperative and the

positions of the government. This concentration of power at the national political level is symptomatic of many Third World developing countries, and Belize is no exception (Barry 1992).

The Belizean fishing fleet is characterized by a small, under-capitalized and independent cast of fishermen. Along with the 800 or so fishermen belonging to the fishing cooperatives, the government reports at least 400 independent fishermen who fish for local markets. This figure doesn't include the rural subsistence fishermen in the many small villages along the coast. Fishing for the cooperatives is mainly done around the caye and reef systems and on fishing banks just inside the cayes. Belize has no deep-water fishing fleet, though this has been suggested as an area of the fishery that could be developed. Lobster fishing occurs mainly in the northern waters around the cayes, with moderate lobster catches in the cayes to the south. Lobster traps are employed by some, although diving for lobster is also a popular technique.

The central portion of the Belizean caye/reef area is fished largely for scale fishes and conch. The Garifuna fishermen fish this area and almost exclusively fish with handlines. This area is also the assigned fishing area for the Honduran shrimp trawlers that have been trawling since 1986 in the Inner Channel between the coast and the cayes. In the south, the Placencia fishing cooperative is very active, with a small shrimp trawling fishery and a scale fishery that competes with Guatemalan and Honduran fishermen in the same

waters. The shrimp mariculture operations are both located in the southern Toledo district.

Government development for marine resource management is geared toward marine-export production. Lobster, conch and shrimp are the main export marine commodities, and programs aimed at harvesting these products receive the bulk of government development assistance. These are emphasized over scale fisheries because of the high unit price attained, especially for lobster and shrimp, on the export market. Most of the lobster, conch and shrimp are exported to the United States and U.K. markets. The government controls the price of fish on the domestic market at rates 20 to 40 percent below international prices. Fishermen are required to sell a percentage of total production on the domestic market at the controlled price; this requirement works out to 10 percent of the conch and 5 percent of the lobster catch be sold on the domestic market (Belize Economic Report 1984).

The government sets the season for lobster fishing and the size limitations of lobster. Enforcement of regulations is difficult due to the small size of the marine enforcement unit and the hundreds of cayes and atolls under Belize's control. Illegal exports of fish and lobster are a growing problem due in part to the controls on domestic prices. The growing tourism industry has also provided an illegal market for under-sized lobster (Barry 1992). This resource management difficulty will expand as tourism increases and the legal-sized lobster becomes more overfished. Enforcement of fishery

regulations and laws will need to be stepped up before this situation worsens.

The 1980-1990 period saw the doubling of export income from lobster, conch and shrimp, but this was due to increased prices on the export market, as production during this period actually remained constant. The amount of conch and lobster caught declined in the 1980's, even though the number of fishermen increased (Barry 1992). (See Chart B). The introduction of shrimp trawling more than doubled the shrimp catch in the 1986-1990 period, but the catch is declining and licenses to trawlers have been reduced from 11 to 5 to make the season cost-effective for the trawlers (Lewis interview 1995). (See Chart A).

There is growing concern that the marine reserves of the country are being depleted (Barry 1992). Because of declining catches in lobster, conch and shrimp in the last three years, there is an effort to extend the environmental conservation movement of land resources (more than 30 percent of Belize is in land conservation reserves) to the marine environment. The Hol Chan Marine Reserve and Half Moon Caye National Monument are government attempts to control over-fishing of conch and lobster and to protect the encompassed reef areas from damage due to tourism. This effort is being lead by private groups and non-governmental organizations, (NGOs) who demand that marine resources be managed in a sustainable manner. (For more on marine resource management strategies, see Wildes 1992). The government

gives lip service to these efforts because of its increasing emphasis on tourism as a leading income generator. At the same time, the government is encouraging the shrimp, lobster and conch fisheries. Nowhere is this development-over-conservation approach more evident than in the program to license Honduran shrimp trawlers. This program is a result of the agro-export development emphasis the government embraced after the IMF bailout in 1984, and continues today, despite evidence that the program is damaging the marine ecosystem.

Today, fisheries are still an important element in Belize's small arsenal of export-earning industries, earning 9.8 percent of the Gross Domestic Product in 1992. (See Chart C). The government is studying the viability of a deep-water fishery and giving incentives for expanding shrimp mariculture programs. There are studies, financed by U.S. AID, looking into the feasibility of a lobster mariculture program. It is obvious that government interest (in the form of investment) in fisheries is in the high dollar, export-oriented products of shrimp, lobster and conch. However, the marine resources are limited and are showing signs of depletion.

License to Honduran Trawlers

In 1986, the government of Belize, through the institution of the Ministry of Agriculture and Fisheries, began a shrimp trawling program that operated in the southern waters of the country. There were no Belizean owned shrimp trawlers operating in Belizean waters at the time. The shrimp fleet is comprised of shrimp trawlers of the standard Gulf of Mexico type from Roatán, Honduras. They operate in Belizean waters through a joint venture licensing agreement with the Belizean fishing cooperatives which requires the trawlers to sell their shrimp to the cooperatives in Belize City at controlled prices. The cooperatives then export the shrimp to the United States and U.K. markets. The government regulates the number of licenses issued. During most of the trawling program, eleven licenses were issued each season, meaning eleven trawlers were operating in Belizean waters. In the first two years of the program, nine licenses were issued to trawlers.

The shrimp trawling season lasts from mid-August through mid-April. In the last two years, the season was shortened by one month, from the 15th of December to the 14th of January. Studies by the Belizean Fisheries Department found that many small shrimp were being caught during this period. The shrimp trawlers supported this because they were able to return to Honduras for the Christmas and New Year holidays.

The trawling licenses allow the trawlers to operate on the continental shelf, from the shore to the cayes, in an area called the Inner Channel, which ranges in width from 5 to 8 miles. The northernmost limit of the trawling area lies opposite Dangriga, and extends southward in the channel to Placencia, a distance of some 35 miles. The trawlers can also operate in the short and narrow Victoria Channel near the southern terminus of the Inner Channel trawling area. (See Map 6). The Inner Channel is relatively flat-bottomed, with soundings ranging from 20 to 70 feet in depth, and an average depth of around 40 feet. The trawlers do not operate too close to the cayes and reef areas which mark the outer edge of the Inner Channel because the bottom becomes "rocky" with coral reef outcroppings that would damage the nets. This has saved the fish stocks within the caye/reef area from the destruction the trawlers inflict on the marine environment. This protection from the trawlers offered by the caye/reef complex enables the artisanal fishermen from Hopkins to maintain their handline fishing livelihood in and around the cayes.

The shrimp trawlers operate during the night, using lights to attract shrimp toward its dragging nets. During a typical night of trawling, the net is pulled along the bottom for 3 hours at a time before it is hauled in. This occurs three or four times a night. Each time the net is hauled in, an average of 80 to 100 pounds of shrimp are caught. Also caught in the net are several tons of "trash fish." In this by-product of the shrimper's net are many species of fish not commercially used. Also included with these trash fish are hundreds

of pounds of commercial-quality fish such as snapper, lobster, grouper and yellowtail. The trawlers are not allowed to keep any fish except the shrimp (although several fishermen report that the shrimpers keep and sell the quality fish), so tons of fish are dumped overboard, most of them dead or dying from the trauma of being dragged in the net and compressed with increasing numbers of fish and bottom debris. This "non-selective" component of trawling is one of the key problems with this fishing production technique. The two to three tons of fish and marine biomass destroyed in order to harvest 100 pounds of shrimp caught is an ecological tragedy. Everything is caught in the trawling net and very little of it survives. Hopkins residents tell of recurring instances of dead fish littering the beach in front of Hopkins. In many interviews with fishermen, the destruction caused by the trawlers, and the impact on fishing in Hopkins was discussed. The following interview with a fisherman who has taken a job in the citrus groves characterizes Hopkins' fishing:

Crawford: Have you noticed or have fishermen said that there is a change in the amount of fish between here and the cayes?

"As I told you the other day, as I told you before, the trawlers, they come way to the inside in night time. I mean they lose their control man, they come way here and

trawl, and they mess up the little fish that we caught out there, we cannot caught nothing except for the trawlers, right? And they ruined the waters, they caught them small fishes, them, you know."

Crawford: How close in did they get?

"Man, about, at least about two or three hundred feet away from here. Yeah man, close man, close, terrible. You know, and, ah, big trawlers, and they trawl, they rake everything, yeah man, they rake every goddamn thing here man. So that is why they got the changes. Now, when you go out there fishing, you barely can catch a fish, you barely catch the fish. That's bad for the fishermen here in Hopkins, right."

Crawford: Do you think that the trawling has affected where the fishermen go now?

"Yeah man, it affects, it really affects everything. Cause when that trawls, it came from Dangriga four o'clock, some go that way to Belize and some go this way to Placencia, way down south, right. And sometimes they find, they trawl, they trawl, and sometimes when men from here, like, maybe you go out

there, you catch a fish, you know, and there is men from, say, Seine Bight fishing around the area. Sometimes you go there about ten or fifteen minutes times, you caught a lot of fish. But after the trawlers came in and they past through, so they rake everything, fish barely bites, you know. So you have to go way out where you can catch a fish now to eat. Like right here, you barely can catch a fish, you shouldn't have to gone way down, way down to the cayes to caught something. But now, it affects man, it really affects."

Crawford: Have you noticed in Hopkins that there are less fish?

"Yeah man, less fish right now, the fishes getting less right now. You know it isn't like one time. One time, well, whoof, you go out there, sometimes right in front of beach side, you throw your line, you're catching fish, good fish."

Crawford: And this was when?

"And that was, whoa, in 1979. Right from here, you throw your line and catch fish, right. After the trawlers they came in, so they take our waters."

Another aspect of the damage caused by shrimp trawlers' nets, which many of those interviewed mentioned, is the devastation to the marine environment. The nets drag along the bottom, raking and turning the bottom over in a plume of sediment, destroying small marine organisms and vital marine habitats. In one marine research project, the University of Maine's Darling Center documented the destruction of trawling on both the food that fish eat and the shelter that young fish need to hide from predators. In an area undisturbed by trawling, researchers counted as many as 125 species and 4,000 animals per square meter, including food that fish like to eat, such as worms, shrimp, and brittle stars. In a similar area that was heavily trawled, researchers found only a half-dozen species and a few hundred individuals per square meter. They found that trawling not only reduces the number of species on the ocean bottom, but it also destroys large structures such as sponge communities and small structures like worm tubes. These structures provide shelter for juvenile fish and in the case of the worm tubes, small fish feed on them. According to their research findings, no other environmental factor, including chemical pollution, is as destructive, or as immediate, to the marine biome as bottom trawling (Garber and Canfield 1994).

The Belize Fisheries Department is studying the impact of the shrimp trawling program on the marine environment and found a "very, very big problem with it". In an interview with a Fisheries

official, the official admitted that if it were up to the Fisheries Department, they would stop the trawling, but the decision to give permits to the trawlers rests in the hands of government officials. Though it is officially the agency chartered to oversee and control fisheries management, the Fisheries Department is powerless to change the present shrimp trawling program. Approval of the program is a political decision made by government officials and leaders of the fishing cooperatives who are concerned with increasing export earnings for the country by continued operation of the shrimp trawling program. The following transcript of an interview I conducted with a Fisheries Department official demonstrates their knowledge of the destruction caused by the trawlers:

Crawford: Do you have a program to assess the effects of the trawling on the fishing?

"Well yes, there was a study done and we realize that there is a very, very big problem with it. What we are planning to do or what we are trying to do, is phase out shrimping as much as we can. That is the reason why we only have four or five licenses out for this year."

Crawford: You have cut back this year?

"Yeah, we are trying to cut back as much as we can. Cause it has really been a lot of damage. I mean, for every trawl they do, they put down three hours and then

pull up. They would pull up about seventy-five, ah, you know, on average about seventy-five to a hundred pounds of shrimp and they have about two or three tons of trash fish and it just goes overboard back. You know, dead fish."

Crawford: How long will this be continued?

"I have no idea. That's because it is the Minister that does the permitting, so that's up to him, you know. If it was up to us, we would like to stop the shrimping."

The Caribbean is noted for the fragile resilience of its fishery resource. This compounds the damage caused by the shrimp trawlers in these waters. Tropical waters are less productive than temperate waters because they lack the convection that encourages the growth of phytoplankton and brings nutrients up to the surface (Whiteheather and Brown 1945). Craig also noted the fragility of the marine environment of Belize, especially the littoral biogeographic zone which is the area fished by Hopkins' subsistence fishermen. The present situation of declining fish catches experienced by the subsistence fishermen confirms Craig's pre-trawling observations that these shore areas and river mouth bars are areas where anadromous fish congregate, however, these are also marginal fishing areas which may be physically limited by exploitation (Craig 1966).

This portion of the Inner Channel has been under unprecedented pressure from the trawlers for the last nine years.

When the shrimp trawling program began in 1986, nine shrimpers were licensed to trawl. The program developed in the familiar pattern witnessed in other fisheries worldwide. Arnason (1994), describes the pattern as "excessive fishing capacity." When the program began, the shrimp stocks were high and the initial catches were good. Then the government, encouraged by the initial profits, increased the number of licenses to 11 trawlers, thus expanding the capacity of the shrimping effort. This expanded capacity hastened the reduction of the shrimp stock and by 1990, shrimp catches declined significantly per unit of effort. (See Chart A). In 1994, the number of licenses was reduced to five trawlers because the shrimp stock was depleted to the point that it was no longer economically feasible for 11 shrimp trawlers to operate in the Inner Channel (Lewis interview 1995).

Shrimp export figures from the Department of Agriculture and Fisheries depict this pattern of large initial catches and then (as the number of trawlers increased) a marked drop in shrimp exports. These figures also indicate a trend of reduced exports of finfish from these cooperatives over the period of the shrimp trawling program. (See Chart A).

Chapter Three

Hopkins Village

Overview

The Garifuna have traditionally settled by the sea as fishermen and farmers, and their ties to this littoral zone are strong. The only Garifuna village located inland from the sea is the village of Georgetown. Georgetown was a government project to help settle Garifuna survivors who had been driven inland by Hurricane Hattie in 1961. Located 12 miles inland, it was conceived as an agricultural community, but the project failed because it was located away from the sea, to which the Garifuna are culturally and emotionally tied (Gonzalez 1988). This same story, illustrating the importance of fishing to the Garifuna, was related to me in Hopkins. Even today, Georgetown fishermen leave their boats at Riversdale and ride bicycles or walk to their boats in order to continue their livelihoods of fishing (Williams interview 1995).

Each of the six Garifuna settlements in Belize has its distinct social, historical and environmental settings that affect the social patterns within each village, and generalizations about the Garifuna are thereby problematic. Gonzalez, who feels the Garifuna culture is declining, did much of her research in Dangriga, a town of 12,000, with 55 percent being Garifuna. Social patterns are much different in Dangriga than Hopkins or other Garifuna communities. Residents

of Dangriga, Garifuna, Creole and others, are more involved in commercial activities, and are influenced more by wage labor involvement. Gonzalez, in noting the decline of the Garifuna culture, cites the lack of women still making cassava bread and how this cultural knowledge is dying out. This was not my experience in Hopkins, where I witnessed three different groups of women baking cassava bread on several occasions. Cultural changes are occurring in Hopkins, but this village has maintained more traditional and cultural ties to daily life than Dangriga or other less homogeneous Garifuna settlements.

The site of Hopkins Village corresponds to the traditional settlement patterns of the Garifuna as observed by Thomas Young (1842). He noted that the Garifuna fishermen selected their village sites with care and the factors that influenced their choice included a suitable beach for hauling out of dories, an ample supply of potable water and the proximity of well-drained ground for the planting of subsistence crops.

These conditions exist at the Hopkins site, though the well-drained ground currently used for agriculture is an hour or more walking distance from the village across the swampy marsh. Before the road was put in, the farm plots were along the Freshwater Creek and reached by foot or dory. The drinking water used by villagers came from the Freshwater Creek Reservoir, and several shallow wells provided washing water. But the most important factor in site selection for Hopkins village is its suitable beach for hauling out

dories. The location of Hopkins is an indication of Garifuna cultural and emotional ties to the sea and of fishing as a way of life, as well as the importance of fish in the diet of Hopkins residents. Sixty to sixty-five percent of meat consumed in Hopkins is fish that has been caught locally by Hopkins fishermen (Castillo interview 1994).

In 1961, Hurricane Hattie struck Belize with devastating force. Most of the houses in Hopkins were destroyed and the elevation of the sand bar was lowered 3 to 4 feet (Lewis interview 1994). The small Garifuna village of Newtown, several miles north of Hopkins, was destroyed and much of the sandy littoral land on which the settlement rested was washed away. The government formally declared Hopkins a resettlement area for the survivors from Newtown.

Hopkins was an isolated village for many years, since there was no road into the village. The main contact to the outside was by dory, paddling or sailing along the coast. In 1965, the government built a road connecting the Southern Highway to Hopkins. The land on both sides of the road was surveyed and divided into ten acre lots. This land, formerly Carib Reserve Land, had been re-designated Government Land in the 1950's (Bliss 1992). The road opened this newly accessible land to farming. Once surveyed, the land along the road was made available by the government to Hopkins farmers for lease and they moved from small plots along Freshwater Creek to the new plots along the road. Once a farmer secures a lease to the land, the farmer has the option to buy the land after planting a permanent

crop. Many farmers consider that they own the land once they acquire the lease, and several farmers I spoke with told of plans to lease more land.

Geography of Hopkins

Hopkins is located on the Caribbean coast in the Stann Creek District, some 18 miles by road from the district capital of Dangriga and about 45 miles by sea from Belize City. The road into Hopkins is a newly improved dirt road that runs the 4-mile distance from the southern highway intersection, in a plumb line, due east. For three miles the road cuts through tropical pine and hardwood forests and high bush, and the clearings of small farm plots that edge the near level approach into Hopkins. A single electric wire is strung along the road on recently placed pine poles. Two miles from the village the road opens out of the high bush and trees into a low marshy swamp. The built-up road crosses this wet terrain into Hopkins Village, intersecting the village about halfway along the north-south length of the village. (See Map 3 and Map 4).

Hopkins village is situated on a large, palm and coconut tree dotted sand bar that extends from Freshwater Creek, which is about 300 yards north of the last homes in the village, southward for about two miles down the beach to the last group of buildings, which belong to the Sandy Beach Lodge. The sand bar is relatively narrow and long, with a maximum elevation of six to eight feet. Thus the village is long (about two miles) and narrow (about 100 yards). The village is oriented in a near north-south direction with the Caribbean Sea being directly to the east. The marsh forms a natural border on its western side and stretches to the west for two miles before the

land rises 3 to 5 feet to the elevation of the flat coastal tropical forest. During heavy rains of tropical storms, the marsh waters cover the road, leaving village access in or out only by paddled dugout.

The sandy land upon which Hopkins rests was formed over many centuries by the outflow of the Freshwater Creek and carried southward along the coast by the swift prevailing sea currents. Though called a "creek", the estuary is 20 yards wide where it meets the sea. Several hundred yards upstream from the sea lies the Freshwater Creek Lagoon, a large freshwater lagoon (about ten acres). The outlet from the lagoon carries a moderate outflow of water into the sea. The river bar, the confluence of the creek and the sea, is shallow and can be navigated only by small boats and this only during times of little outflow. During times of heavy rain, the river often runs chocolate brown and the bar is difficult to navigate. I observed the outflow from the creek after a heavy period of rain and the sea directly in front of Hopkins was brown from the runoff. This corresponds to charts (Craig 1966) indicating the direction of the currents along the shore, flowing north to south. Another indication of the prevailing current is the inordinate amount of debris that washes ashore along this section of shoreline. The volume and type of debris (plastic toys, clothing, rubber sandals, etc.) implicates Dangriga, eight miles by sea to the north.

Hopkins lies nestled in the bend of Commerce Bight. To the north, the lighthouse at Commerce Point can be seen, five miles off. Just around the snub-nosed point is the town of Dangriga, the district

capital of Stann Creek District. Though out of sight around the point, the lights of the town dimly light the northern rim of the night sky. The view to the south of Hopkins reveals the arching, palm-edged bight ending at False Sittee Point. Sittee Point is just out of view around the point another 2 miles.

Looking seaward from Hopkins, the barrier reef lies approximately 13 miles to the east from Hopkins at the closest point. On very clear days six or seven cayes of the Cockney Range appear as dark thin spots on the horizon to the southeast. The littoral zone around Hopkins is characterized by small waves and short sandy beaches. Two inlets into the Freshwater Creek Lagoon offer variety to the marine biome of this edge of the Inner Channel. The Inner Channel in front of Hopkins is relatively flat at a depth of 15 to 25 feet. Patches of sea grass show up a deep blue tint to the normally clear water and the areas of open sand appear turquoise. The closest set of cayes are the Cockney Range to the southeast of Hopkins and about six miles east of Sittee Point. In calm sea conditions this trip is made in about 45 minutes in a large dory equipped with an outboard motor. From these cayes it is another five miles, passing by other cayes and over patch reef areas, to the barrier reef crest. Due east from this point lies the immense atoll, Glovers Reef, 14 miles beyond the reef crest.

Description of Life in Hopkins

Hopkins is a culturally homogeneous village with a population which fluctuates around 1,200 persons, about 98 percent of whom are Garifuna. Hopkins has grown over the years, although it is difficult to determine the exact population presently. Family members who have moved to Belize City or other areas for work, or those who have migrated to the United States, are counted by villagers as residents of Hopkins. My own observations and estimates, based on a counting of inhabited building structures (240), along with an averaging of numbers given to me by villagers, place the current population of people living in Hopkins as of my last visit in January 1995 at around 1,200 men, women and children. A census from the Belize Center for Environmental Studies, conducted in Hopkins in 1988, states the population of Hopkins at 1,050, with 189 families.

In 1992, the government installed electric lines from Dangriga to Hopkins. Previously, the Hopkins Fishermen's Cooperative had provided erratic and inadequate electricity from its generators to a few homes in the village. The Fishermen's Cooperative was created in 1986, with a multilateral Canadian grant and government money for the generators and ice storage rooms. With the arrival of electricity from Dangriga to the whole village, there have been many changes in the life in Hopkins. Besides lighting, refrigerators, and fans, there are more than 20 television sets in the village. Television

in Belize consists of intercepted satellite transmissions from the U. S. retransmitted throughout the country and spliced with a few Belizean programs on one of the channels. This increasing contact with American culture further expands Hopkins residents' awareness of their big neighbor to the north. Many have relatives living in the U.S., and a few have visited the United States. Remittances, mostly from the United States, also play some part in many household economies.

The layout of Hopkins Village is typical of other Garifuna settlement patterns of small fishing and farming communities in Central America. The 200 or so structures are arranged in a rectilinear pattern. This differs from other non-Garifuna fishing communities of the region in that there is no central plaza nor a principal street facing the shoreline (Craig 1966). The main north-south dirt road transits the western side of the village near the edge of the marsh. Secondary dirt streets at uneven intervals come off this main road and extend the short distance to the sea. Houses are situated along the main road and secondary streets, but this pattern is more pronounced on the northern side of the village. The houses on the southern side of the village are spaced farther apart and there are fewer cross streets to the sea. (See Map 3). Six or so new cement block homes, highly valued by Hopkins residents, have recently been built. Most homes are built on stilts with wood clapboard siding and metal roofs. Ten homes still have the traditional palm leaf thatched

roofs. There is an absence of public docks, central markets, and there are only a few public buildings in the village.

The center of the village is at the intersection of the main road from the highway and the long road that transits the entire length of the village from north to south. This point also marks the unofficial political division line between supporters of the United Democratic Party (UDP) on the north and the Peoples United Party (PUP) to the south.

Hopkins Village has a few public amenities within the community. Located near the intersection with the road to the Southern Highway is a community center that serves as a polling center and a place for other community events such as dances and music performances. Near this block building fronting the sea is a traditionally built building with a palm thatch roof that is called the Temple. In this building Garifuna religious ceremonies are held, such as the Dugu, a three-day ceremony reenacting their ancestors arrival from St. Vincent. The Dugu, the Feasting of the Dead, is the most sacred Garifuna ceremony and demonstrates the Garifuna's respect and communion with the Ancestors (Cayetano 1990).

There are two community telephones in the village, one on the northern side and one on the southern side. The largest building in the village is the public school, a two-story cinder block structure that houses classrooms for grades through the elementary school level. High school students travel by bus to Silk Grass to attend classes. On the southern side of the village near the school a well-

used cement-paved basketball court serves as a gathering area for young men to play basketball and soccer.

There are no public restrooms in the village. There was a two-hole outhouse perched at the end of a dock twenty feet out over the sea which gained some notoriety in Belize travel guides, but it was demolished in a storm in October, 1994. The issue of whether to rebuild the structure (which was located very near the center of the village) is a contentious matter that pits those who see nothing wrong with the old way of taking care of bodily functions with those (mainly businessmen and UDP) who see this old way as a deterrent to tourism and a public health problem. Around thirty households have no indoor facilities and it is not uncommon to witness the use of the beach or the bush for such matters. Issues as fundamental as this are made difficult to resolve because of deep animosity between the two political factions in the village.

Hopkins has no central business area. There are six small stores scattered throughout the village, most of them adjacent to the living quarters of the owner. These businesses are managed mainly by men with the help of wives, children and young people. The merchandise includes soft drinks, canned foods, bulk rice, bulk beans, some cleaning goods, and a few household supplies. The stores are restocked weekly as needed. Most goods are bought in Dangriga and transported by the local transport or by arrangements with the owners of private vehicles that are going to Dangriga or Belize City. Some locally produced goods are sold in the stores also,

such as small loaves of "Creole" bread, coconut pastries, chicken parts, vegetables and fruit.

A dozen or so residents own vehicles, but the main transportation into Dangriga or other destinations for most residents is on the "transport" truck. The transport truck leaves for Dangriga at 6 a.m. Monday, Wednesday, Friday and Saturday and returns to Hopkins at 12:30 p.m. The truck can carry up to 40 people sitting on wood planks in the canvas-covered back. A round-trip fare to Dangriga costs 3 dollars Belize (one dollar and fifty cents U.S.). The transport is used by many Hopkins residents to get supplies of all types including food, clothing, building supplies, gas for outboard motors (in 5-gallon containers) and other household items. Dangriga has several food stores supplying staples and bulk food at lower prices and greater selection than found in Hopkins. There are two bus stations in Dangriga providing the main public transportation to points north and south. The bus that operates from Dangriga to Punta Gorda in the southern region of Belize will drop off travelers to Hopkins at the intersection of the Southern Highway and the Hopkins road, where one can walk the remaining 4 miles into Hopkins or wait for a vehicle (most likely a pickup truck) to happen by for a lift into the village. (See Map 4).

Alcohol consumption, especially among men, is often a daily activity. This observation has also been made by other researchers in Hopkins (Gonzalez 1988). One Hopkins resident put it this way, "Alcohol is the main job here". There are two bars operating in

Hopkins that also serve food and one recently opened small restaurant. (In August there were three bars, but one of them, owned by an American expatriate, closed). One of the bar owners sells 50 cases of beer a week, which seems a large amount when considering a bottle of beer costs from \$2.00 to \$2.50 (\$1.00 to \$1.25 U.S.). This particular owner allowed people to run up a tab if they were working regularly, and I saw many men drinking a day's wages in one evening. Men also gather at the beach front to sit under a palm tree on an overturned dory and drink rum and talk. One popular beach side spot is Junco Park, comprised of two fallen palm logs at right angles and plenty of shade.

Income potential from the sale of alcohol should not be overlooked, because it brings large profits to those few with circumstances and capital to invest. At least two stores buy 55-gallon drums of a cheap 120-proof sugar rum made in Corazal, in northern Belize. This rum is cut with an equal amount of water. A drum costs \$3,000.00 Bz, and the fifty-fifty brew is sold at \$2.50 for 6 ounces of rum. A quick calculation in the field gives a \$2,800.00 Bz profit on the investment. The customer supplies an empty bottle (often a soft drink bottle), and the proprietor ladles out a 6 ounce (or 12) amount with the aid of a funnel into the bottle. If requested, and it usually is, he adds a like amount of cool water to mellow the bitter taste. Often people add herbs and bitters to this concoction, calling it "bitters."

The community appears to accept drinking as nothing to be concerned about. I was invited to attend a mass held for a Hopkins family's deceased uncle and grandparents. The ceremony was conducted by a Catholic priest (from Dangriga) in the family's yard. Thirty or so family and friends attended the service honoring the memory of the ancestors. One gentleman, being in the cups, began mimicking the priest noisily and laughing. He was shushed by several people and at one point an older woman gave him a punch to the body, but he refused to leave and only slightly quieted his revelry. The priest continued and at the conclusion of his part in the ceremony the family offered all those attending an alcohol punch and food. No one continued to be upset at the inebriated man and the incident was dismissed with no apparent ill will.

Hopkins has no police station. The station with jurisdiction in Hopkins is located 6 miles away in the inland Creole farming community of Silk Grass. I met a policeman from Silk Grass in Hopkins inquiring about a domestic matter. He had walked the six-mile distance into Hopkins dressed in jeans and shirt and carried no gun. Later, he was at the crossroads waiting to hitch a ride in a vehicle leaving the village. This example indicates the lack of crime and the pace of things in Hopkins.

Most households use propane stoves, but twelve households continue to perform the household cooking over an open fire. Dried coconut husks and wood are used as fuel, which is relatively plentiful, but the labor involved in these households for cooking is

significant. The mode of production of these households is at the subsistence level, and these households are most susceptible to fluctuations in food supply and job availability.

The water system, which includes a water treatment and pumping station at Freshwater Creek and an elevated water storage tank in the village, was installed by the state over the last five years. Safe water is available to houses with indoor plumbing or from stand pipes at each lot. Traditionally, water was carried from surface wells located near the Freshwater Creek or water was taken directly from the river. On one of my trips to help work on the Nuñez farm with two men from that household, I learned a piece of Hopkins' history by re-enacting it. One man, Tin Skin, 76 years old, was a master drummer, known throughout Belize as a drummer and a teacher of ceremonial drumming. I asked them before we left the village if there was any drinking water at their farm and they assured me there was, saying, "It's the same water we drink in Hopkins." We walked the road out of Hopkins an hour before getting to the farm. Around mid-day in August, working with a machete and a forked stick to clear and burn a plot of bush, I realized that the drinking water was to be drawn straight from the Freshwater Creek in a plastic Tide detergent jug. I reluctantly, but necessarily, had to drink the water just as Hopkins residents had for many years.

Daily economic life in Hopkins is centered around three areas of activity: fishing, farming, and occasional wage labor. Fifty percent of working-age males and females work outside the village on a part-

time basis (Bliss 1992). Wage labor is mostly centered around seasonal jobs in the banana and citrus industries located in the Stann Creek District. These industries hire both men and women for different tasks in the planting, harvesting and processing stages of the operations. Another wage labor opportunity, mainly available to men, is construction. Men are hired as laborers for occasional house construction work in the village or in nearby areas.

A recent source of construction labor jobs has been the "Jaguar Reef Lodge," located two miles south of the village on the coast. The resort lodge project is Canadian-owned but the construction contract is with an American firm. Construction began on this project in 1993 and will take several years to complete the first stage of a planned multistage resort lodge and community complex. In an effort to appease concerned Hopkins residents, the contractors agreed to use labor from Hopkins. In August of 1994, eight to ten young men from Hopkins were picked up each morning to work digging earth and working with concrete on the site. The pay was \$30.00 Belize a day (\$15.00 U.S.). When I returned in January of 1995, there had been a wage disagreement with the contractor and he had laid off all the Hopkins workers. The contractor had then brought in workers from the Cayo district in western Belize.

Farming activity and intensity in Hopkins are seasonally dictated. Most Hopkins agricultural plots are located on either side of the road into Hopkins on the higher dry ground. The small plots of cleared land are in the 1/8-acre size range. New plots are cleared in

the dry season from January to May, mostly by men. Planting is done by women, men and children in the early spring which is the busiest time of the year for the farmers (Bliss 1992). In the period from June to December, which is the wet season, most of the planting is completed, and weeding and some harvesting are the tasks at hand. This requires only two to four trips a week out to the plots.

Women traditionally are involved with the planting and harvest of staple crops such as plantain, cassava and yam. Men typically grow rice and corn and almost exclusively engage in growing commercial crops such as citrus (Bliss 1992). Produce is sold in the village to neighbors and by word of mouth, as there is no central market area in Hopkins. Some produce is transported to Dangriga to sell in the market there.

Belize is divided into six political districts: Belize, Cayo, Orange Walk, Stann Creek and Toledo. Hopkins village is in the Stann Creek district and under the authority of the municipal council in Dangriga. The elected seven-member municipal council oversees sanitation, streets, sewers, parks, public markets, building codes and land use issues throughout the district.

Hopkins village has an elected council, as do most villages and towns in Belize. The village council, which promotes village development concerns, educational needs and civic activities, operates as an informal local government but is not vested with any legal powers and functions. Hopkins village council elections occur every two years by secret ballot. The village council elections in

Hopkins are a highly politicized affair and in the previous two elections the national government stationed police in the village to maintain order between the two partisan political factions in the village (Moberg 1992b). I was present at the last village council election and witnessed no overt tension. The Peoples United Party (PUP) won the majority of council seats in this election, as they have since the village council system was established. (The national party in power is the United Democratic Party, UDP). Village council elections tend to be very partisan and amount to a referendum on the national party in power (Moberg 1992b).

The village council consists of seven officials. In the 1994 elections, there were 13 Hopkins men running for the seven council positions. Around 190 people cast their votes, each voting for up to seven choices. Though not endowed with legal authority, council membership signifies a modicum of political authority within the community.

The present PUP-dominated village council is seen by UDP supporters (many of whom are businessmen) as being cautious and unsupportive of development in Hopkins. The village council can act as a spokesperson for the village to try to attain government projects in the village, but its control over village activities is very limited. According to one businessman, the local businessmen overstep the village council regularly and have directly petitioned the municipal authorities in Dangriga and national authorities to acquire zoning and building permits within the village.

Political partisanship and party-based factionalism are active forces in every aspect of Hopkins community life, affecting social and economic organizations and decisions to the smallest detail. This factionalization causes the village to be unable to cooperatively and democratically act in the interest of the village as whole. Thus, no organization exists within Hopkins that is not implicitly aligned with one or the other national political parties. Cooperation is non-existent between the two factions and this has had a crippling impact on the village. An understanding of the pervasiveness of this political partisanship is essential to the understanding of contemporary activity within the community.

A prime example of this partisanship is the administration and operation of the Hopkins Fishermen's Cooperative. The Hopkins Fishermen's Cooperative is a PUP-affiliated organization. The manager of the cooperative is politically active in the PUP and the seven to ten fishermen who comprise the most active members of the cooperative are PUP supporters. Fishermen who are active UDP supporters do not support the cooperative. They sell their fish on the beach or if they have a large catch, they take their fish to Dangriga or to Belize City to sell.

The Hopkins Fishermen's Cooperative has suffered periods of closures and is presently barely functioning as a cooperative. A successful fishing cooperative, such as the National and Northern Fishermen's Cooperatives in Belize City, is one in which the fishermen are paid slightly less than market value price for their fish, and then

at the end of the year they are given another check that is a portion of the profits of the cooperative based on the individual's production for the year. Also, the cooperative makes inexpensive loans available to fishermen for equipment (such as a new motor, boat repairs or a new boat). The loan can be paid off gradually with portions of the fisherman's catch. For Garifuna fishermen this is often their only means of securing investment loans. The cooperative in Hopkins was never able to provide this type of service to its members.

A major reason for this is the crippling impact of partisan political factionalism in a village with a limited number of fishermen owning large dories capable of making the necessary trip to the caye/reef areas. Only fishing there can support productive commercial fishermen. The cooperative has 10 active fishermen members who fish from five motorized big dories--not enough producers to allow the cooperative to function profitably. The cooperative is barely able to pay for the electricity it consumes to make ice and keep the fish fresh before it is sold.

Chapter Four

Hopkins Fishing

Fishing and its Changes in Hopkins

If I had conducted this research in 1985, I would be describing an entirely different scene in Hopkins, of children and older men fishing from the beach and others in small paddling dories fishing nearby, close to shore. The question of having enough fish to eat would be on few villager's minds, if at all.

But my work in Hopkins occurred ten years later and the scene in Hopkins is radically different. In the last nine years shrimp trawlers have wrecked the waters and destroyed the fishery of the coastal subsistence fishermen of Hopkins. Now, there is very little fishing activity taking place directly off-shore of Hopkins because there are so few fish to be caught. The fish have either been killed in the trawler's nets and cast overboard or have left the trawling area because the marine bottom has been raked by the nets, destroying their habitats. This is a new development in the lives of the fishermen of Hopkins. Many fishermen told me of catching "fish, big fish" right in front of Hopkins off the beach. This fishing activity was available to many men and children because no dory was required. But this situation has changed, forcing the Garifuna fishermen of Hopkins to adapt their livelihoods to the destruction of their traditional waters.

The following interview with a thirty-eight year old Hopkins fisherman reveals his understanding of the trawler's damage and its impact on fishing in Hopkins:

"...They can rake everything that's on the bottom, whatever is there, it took it, you know."

Crawford: What size are these trawlers?

"Well they are big trawlers. They are not the ones for outside the reef, they are just for inside here."

Crawford: What length do you think they are?

"About 60 feet, yeah. And they have some huge nets man. When they throw those nets in, wow, you see a lot of small fishes, they are all dead out. It look pretty sickening to me because I know sooner or later all the fishes will be, you know, they are declining. It really destroys the fishes. I don't much like it, you know, because, man, we have been trying to get the government to stop it, you know. Hoping soon, you know, I hope it won't be too late when they stop it, you know."

Crawford: What was it like when you were young?

"Man, right from the beach you throw your line out there, man, you caught some good fishes. Right from the beach. But now you can't do that."

Crawford: So you didn't even need a boat?

"You didn't need a boat, you know, those days, yeah, right from the beach, you catch fish."

My research highlights several cultural traits that influence the fishing activities of the Garifuna fishermen of Hopkins. These center around the continued use of traditional Garifuna fishing areas, and the traditional fishing practice of handlining. These cultural traditions are important components in the articulation between political and ecological factors that delimit how the shrimp trawling program came to be, where it came to be, the effects on the Hopkins fisherman and their responses to them.

The Belize coast retains the three distinct fishing cultures that Craig (1966) observed. (See Map 2). The different fishing practices of these groups Craig attributes to a diverse settlement history in which cultural controls were predominant. Cultural controls are the main reason why the Garifuna continue to maintain the traditional fishing practice of handlining. Reasons cited by the fishermen as to

why they continue to handline are: it is traditional, there is less risk involved due to loss of equipment from theft or storms, it requires no capital investment, and they are certain of getting some amount of fish. This apparent conservatism of the fishing practices of the Garifuna is best understood as what Lipton (1977) termed "survival algorithm." There is a certain tendency toward risk aversion in the fishing practices of the Garifuna. One fisherman described to me the certainty of handlining this way:

"Well, you are more sure that when you feel when the fish picking your line, that picking is a definite, and you don't want to miss that fish."

Another artisanal fisherman describes why he still handlines, even though he would like to use traps, in order to avoid the risk of theft of his gear and to avoid the danger that would result if he did find someone stealing his gear:

"Oh, I prefer handlining because whenever you go out there with that handline, you save yourself from danger. When I say danger, if you have, if you are fishing with traps you have to stay out there. And whenever the fisherman came, if you are

not there, they are going to steal your traps, so you might as well be fishing with that handline. So, whenever you are fishing you just ball up that line and (whistle), so you don't let anything behind. So otherwise, that's why I always say that I wouldn't like to catch, ah, I really want to get into trap line, but sometimes when I realize I just don't want to put myself into trouble. Cause, maybe I would find somebody hauling my trap, you know, hey, so I rather my handline."

Two fishermen out of 21 fishermen interviewed had tried fish traps. One had his gear stolen and the other lost 130 traps in Hurricane Hattie and has not recovered from the financial blow. He is a subsistence fisherman now.

Garifuna rarely use fish traps. They fish in the waters that have traditionally been Garifuna fishing areas, using techniques that avoid risk and uncertainty and, not coincidentally, are resource-sustainable, even in this somewhat fragile marine environment. Handlining is a very selective fishing technique. The fish are caught one at a time, and small fish and undesirable fish are released. Occasionally, if bait fish are scarce, a few of the smaller fish are cut up as bait. The possibility of the Hopkins fishermen over-fishing the area is very slim, due to the small number of fishermen and the

predominance of their handline fishing technique. Also, the area the Hopkins fishermen use is very large and dotted with numerous cayes and reef heads and families traditionally have their own cayes where they fish.

Fishing in Hopkins falls into several categories based on whether the fisherman owns a boat, the size of the boat, and whether he owns a motor. Of the fifty or so self-professed fishermen in the community, fewer than 30 possess boats. Of their craft, there are ten large wooden dories with outboard motors, one or two large dories without motors (which are not used) and the rest are smaller dories that are paddled. There are two plywood skiffs powered with outboard motors and one fiberglass "Mexican Whaler" with an outboard motor. The large dories are generally carved from yemmer or mahogany logs. They average 30 feet in length with a beam of 48 inches. A dory of this size, equipped with a 25- to 40-horsepower outboard motor, is capable of safely making the trip to the various Garifuna fishing grounds, 6 and 30 miles from Hopkins.

The marine ecosystem of the reef and mangrove cayes areas, which are out of reach of the small paddling dories of the subsistence fishermen, offer a favorable demersal fishery habitat (Craig 1966). The nature of the reef (a rocky, uneven bottom) and mangrove cayes is physically unsuited to high production fishing techniques such as trawlers or gillnetting. This is the area fished by the artisanal fishermen of Hopkins who have larger dories equipped with outboard motors. (See Maps 4 and 5). The majority of these

fishermen still continue to fish with handlines, thus assuring a sustainable fishery.

If the fishermen are going out for several days, the dories carry a large ice box capable of hauling 1,000 pounds of ice out to the cayes. This enables the fishermen to stay out three to five days, giving them time to catch a full load of fish, around 1,000 pounds, and keep it from spoiling until they get back to Hopkins. Presently, five or six of these dories are owned by fishermen who sell their fish to the cooperative. Two or three men go fishing in a dory. The owner of the dory customarily gets a higher percentage, but arrangements vary with the owners. The artisanal fisherman in Hopkins who fishes regularly makes around \$7,000 to \$8,000 Bz per year (\$3,500 - \$4,000 U.S.).

The frequency and length of fishing trips vary with the season. The Hopkins fishery is mainly a demersal fishery that depends on snapper and grouper. The best months for snapper fishing are April, May, June, and July, while the best time for grouper fishing is December, January and February. During these periods, the artisanal fishermen go out to the cayes more frequently. During the peak grouper or snapper season, in the week to ten days around the full moon, the fishermen stock up on supplies and ice and go to Glory Caye, Southern Long Caye or to Glovers Reef. On these trips the fishermen stay out five to 10 days, because this is the time the fish bite well. They return to Hopkins or to Belize City to sell their fish, get supplies and ice, and return immediately to the fishing grounds.

During these peak periods, they may bring in several thousand pounds of fish. After the peak period, when the fish landings decline, the fishermen return to Hopkins and there is a lull in their fishing activities.

In the times between the seasonal peak fishing, the length and number of trips out to the cayes shorten. Sometimes a fisherman in a big dory will go out to the nearby Cockney Range with two or three others to fish for a day. These trips begin around 4 a.m. so that they arrive at the cayes early (5:30 a.m.) to cast their bait net for small "sardines" in the shallow edges of a mangrove caye. The small fish are cut in two or three pieces and used to bait the hooks on the handline. Once the bait is netted the fishermen move to fish in channels and holes around the coral reef in waters 15 to 25 feet deep. An anchor holds the boat in the desired spot and the fishermen are quick to bait the two to three hooks on the handline and drop the line overboard. If the spot is not productive, the anchor will be hauled and another spot located.

The handline used by Hopkins fishermen, subsistence or artisanal, is typically a 20-pound test monofilament line with two or three hooks on short leaders near the end. A sinker is at the end of the line. As the line is dropped to the bottom, the fisherman feels for when the sinker hits the bottom, then he keeps the line drawn up so that the hooks are just off the bottom. The line is held between the index finger and thumb and considerable skill is needed for the fisherman to sense the fish taking the bait in its mouth. At this

moment, the line is jerked, and if the hook is set, the fisherman swiftly pulls the line hand-over-hand, letting it lay in the bottom of the boat. When the fish reaches the surface, sometimes it needs to be played out, but, as the situation merits, the fish is hauled into the boat. If the fish is a large grouper or barracuda, a net (if one is available) is used to land the fish. The type of fish caught in these off-season periods tends to be small and those that are six inches or larger are kept, while smaller ones are thrown back into the water. The fish caught most often are yellowtail, black snapper, red snapper, jacks, grunts and jimmy hinds.

Traditionally, the ideal time to return from one of these day trips is just before noon because the noon meal is the largest meal and the fish are fresh. But now, since it takes longer to catch enough fish to make the trip worth the cost of fuel for the outboard (\$40.00 to \$60.00 Bz for a short trip), the boats usually get in around three or four in the afternoon. A typical day trip (not in peak season) would bring in around 60 pounds of fish. Fish from these day trips are most often sold on the beach rather than at the cooperative because the fisherman can get more money per pound on the beach and with the small number of fish (compared to the amount of fish gotten on a three- to five-day trip), this maximizes income. On the beach, Grade-A fish (snapper and grouper over a pound) are sold for \$2.10 to \$2.25 Bz a pound and fish under a pound bring \$1.75 Bz a pound. This compares to \$1.75 (Grade-A) and \$1.50 prices given to the fishermen at the cooperative. (See Table 1).

When the dory returns to Hopkins, its arrival is anticipated by many family and friends. They appear to help pull the dory ashore and up beyond the short, sloped beach to level sand, using small logs as rollers. The owner of the dory quickly sticks a pole into the sand and props it against the dory's sheer-strake. From this pole is hung a set of scales. As he does this, people select their fish from the dory, and wait to weigh the fish and pay for them. This is done rather quickly, as people clamor for the larger fish. The fishermen often set aside choice fish for themselves, and often there are a few small fish that nobody wants which the fishermen divide also.

Few written records exist of fish production of the Hopkins Fishermen's Cooperative. The records were poorly kept over the years and most of the records were "destroyed by insects" (Lewis interview 1995). I was able to hand-copy incomplete records of two years from the Hopkins Cooperative's receipt records of fish purchases from fishermen. Though interesting archival material, the records are inadequate to determine if fishing production among the artisanal fishermen who sell to the cooperative declined after the shrimp trawling began.

The Hopkins subsistence fishermen who own small paddling dories number around 20, although only around eight to ten are presently fishing regularly. Their craft are unable to safely cross the channel to the cayes. Therefore, the subsistence fishing areas presently are the littoral zones on either side of Hopkins. (See Map 5). These shore areas and river mouth bars are areas where

anadromous fish congregate, such as the snook, tarpon and jack crevalle, along with snapper and yellowtail. There are four main areas these fishermen use. To the north of Hopkins, men paddle to an area just beyond the bar at Freshwater Creek up to another small estuary that opens to the sea several hundred yards further north. Another fishing zone to the north of the village is in the Freshwater Creek Lagoon. Several men fish this area from the shores at night with a light, hoping to catch a snook lying in the shallows, killing it with a machete. To the south of the village, the two areas fished are around the mouth of the Sittee River and the Sapodilla Lagoon. These two areas take at least an hour to paddle (Sapodilla Lagoon, one and a half hours).

Typically, the fishermen leave the village around four in the morning and return around 11:30 a.m. with their catch. This fishing is almost always for immediate consumption by the fisherman's family. In my dozen or so witnessings of these fishermen's catches, the largest catch was about 20 small fish (black snappers and grunts, less than a pound). Often, the number of fish caught were not enough for the fisherman's family.

The most compelling evidence of the destruction of their fishing grounds by the shrimp trawlers, and the heart of my data documenting the impact of the shrimp trawlers on the subsistence fishermen of Hopkins, are taped interviews of 21 Hopkins fishermen during the period from January 2 through 13, 1995. (See Appendix

One). These fishermen account for approximately 60 percent of the animal protein consumed in the village (Castillo 1994).

Of the 21 fishermen interviewed, fourteen are artisanal fishermen and seven are subsistence fishermen. Table 2 summarizes the fishermen's responses to eight questions I asked during the interviews. The responses of artisanal and subsistence fishermen are grouped separately. (See Table 2).

In Hopkins, there are around 25 to 30 fishermen engaged in artisanal fishing. Ten to twelve men own large dories that are capable of making the trip to the cayes, which is the production area of the artisanal fishermen. The other artisanal fishermen are fishing partners of these large dory owners. There are some 20 men in the village who consider themselves subsistence level fishermen, but some of them do not own a small dory and have not fished recently. Many artisanal and subsistence fishermen also work small farm plots or seek seasonal outside wage labor jobs (interviews 1995).

Of the 14 artisanal fishermen interviewed, seven owned their own large dory, two owned large Mexican Whalers, and the other five fished on these or other large boats. Six of the subsistence fishermen owned their own small paddling dories.

The responses to the questions varied as to whether the fisherman fished the cayes (artisanal) or whether he fished along the shore (subsistence). Most of the artisanal fishermen reported some change in the number of fish they caught (Question 6), in that they had to fish longer to catch the fish. This portion of an interview with

an artisanal fisherman expresses the increased effort and time spent fishing which they are now experiencing:

"We are out there now. Sometimes you go out there now and you spend a lot of money. You go out there and when you come in scarcely to pay your expenses. Yeah, so things are poor in fishing now."

(Crawford) Why do you think that is?

"Well, maybe, I don't know. You see, when we start fishing out there, we usually caught fishes and then in day and a half time, two days time, and then we can be coming back home again. We can go and look for sales and so forth, then we go out every now and again. But this time here, you have to take about three or four, nearly about a week, to full up our ice boxes with fish, before you come. Sometimes you can stay there for week and, ah, ten days before you can full up our ice boxes. Yeah, things are poor."

Some fishermen saw no change in the number of fish they caught, besides what they felt were seasonal variations. A successful fishing year for the artisanal fishermen depends on large catches

during the grouper and snapper seasons. During these peak seasonal fishing periods, the fishermen stay at camps on the cayes for sometimes two weeks at a time. These fishing grounds in the cayes and at Glovers Reef are not trawled by the shrimpers, and the fishing during these peak periods is reported to still be good by the fishermen.

To the question: Has the shrimp trawling affected the fishing out of Hopkins (Question 7), there were again mixed responses. Half the artisanal fishermen, in general, thought the trawling had little affect on their fishing at the cayes, and the other half felt strongly that the trawling had indeed affected their fishing.

The subsistence fishermen all felt the shrimp trawling affected their fishing along the coast. (See Chart D). Their thinking is best summarized in an interview I had with an official of the Hopkins Fishermen's Cooperative, I asked him: "What impact do you think there has been to the Hopkins fishermen from the shrimp trawling?" This is his reply:

"Yes, the impact is mixed. One, it doesn't affect the commercial fisherman, but it affects the fisherman that goes out there to catch their fish for today's meal or tomorrow's meal, so we call them subsistence fishermen. Because the trawlers operate on the flat, yeah, it is muddy and the like. And that is where

the boys here, or the old men who go out there to catch a fish or two for today's meal are affected. The entire ecosystem out there, the entire food chain out there has been destructed by the shrimp trawlers, you know, and we have noticed a considerable decline in catch out there."

The subsistence fishermen all reported having to change the areas where they fished (Question 8). Before the trawling, they were able to catch fish in the waters in front of the village, but, now there are very few fish caught in front of Hopkins. Fishing for the daily meals in the shore areas in front of Hopkins was also the occupation of children. The children learned the skills of fishing and the local knowledge of waters and were positively reinforced with their successes by providing food for their families. These segments of interviews with two artisanal fishermen are a testament to the impact of the shrimp trawling on the coastal areas in front of Hopkins and subsistence fishing.

First interview:

Crawford: Have you noticed a change in the fishing, like right in here, from the old days to now?

"Yeah, there is quite a lot of change. Because in the old days, when I remember, I quite remember, before we used to go to school, you know, we just drop out there man, in no time you are back again with quite a lot of fishes. Pretty fishes, you know. At that time, mommy go to farm, when she come back, lot of fishes are home and, you know, we go to school, come back again in the evening, same thing, but you can't do that now."

Second interview:

Crawford: Have you noticed a change in the number of fish right out here?

"Yeah, well, they come up smaller. The trawlers are wrecking the area. So that's why I notice that in front of Hopkins here, the trawlers destroy a lot of fish here."

Crawford: How long ago did they start this trawling?

"They start to trawl around seven o'clock, when the sun go down, and that's all night. And definitely, out there they trawl for the night, and it's no joke, man. You can't

catch fish from in front of Hopkins like one time, you know."

Crawford: How many years ago did that change occur?

"When, that about 15 years aback. One time when I was younger, just off the beach, man, the biggest of snapper, biggest as Jew fish, big as a shark. But now all the fish they are gone. The trawler wreck all."

The fishermen reported seeing the trawlers at night trawling in close to the shore. Their estimates of how close ranged from 200 feet to a quarter-mile off the shore. Now, in Hopkins, there are few fish for the children to catch. Occasionally a group of children is seen with sticks, strings and bait, catching a few crabs in the shallow waters just off the beach.

Because of this destruction of fishing in front of Hopkins, subsistence fishermen have to paddle their small dories to the river bars on either side of the village, some areas taking an hour or more paddling time to reach from the village. (See Map 5).

"...they destroyed us."

Economic systems do not grow with production based on risk aversion. They thrive on risk takers. This is especially the case in Belize, which is under pressure, due to the IMF bailout in 1982, to restructure its economy to meet performance criteria through export diversification (Moberg 1992a). Fisheries became an important export producer. In order to increase its export productions, the powerful Northern and National Fishermen's Cooperatives (along with the government) pressured the Fisheries Department to initiate the current shrimp trawling program with Honduras. The area chosen to be trawled is, not coincidentally, the traditional fishing areas of the politically marginalized Garifuna people. Map 7 gives graphic evidence of the overlay of the fishing grounds of the Garifuna and the area the government sanctioned for this export-oriented resource extraction.

Regions such as the marine area under the conservative stewardship of the Garifuna (and thus still environmentally sound, and of plentiful resources) are vulnerable to government programs for resource extraction and over-exploitation. The Garifuna, who are culturally conditioned to avoid risk, and also are a minority, are not influential in political/economic matters. Since economic development and growth depend on risk-taking and uncertainty, those who engage in this activity maximize their capacity for production by investing in additional equipment in order to increase

profits. This economic activity compounds itself and is recognized and rewarded by others engaged in these capitalist activities-- financiers, as well as those in political power. A certain amount of power is conferred by the government to those who have invested capital, thus becoming players in the larger economic arena. The Garifuna have very little political power, either by strength in numbers or in economic wealth, thus the resources with which they have lived in some balance for the last sixty years are now subject to over-exploitation from outside forces and their livelihoods are threatened.

The fishermen I interviewed were aware of the political and economic factors behind the government's decision to allow the shrimping. Some traveled to Belmopan, the capital, to complain directly to the Minister of Fisheries, Melvin Hous, of the damage the trawling was causing to the fishing in Hopkins. The following excerpts from interviews speak to this point.

Crawford: At this coop, have you let the Department of Fisheries know your feelings on this?

"Oh yes, there have been delegations to Belmopan to express our deep concern about the impact of the trawlers."

Crawford: Have you yourself gone?

"Yeah, sure. As a matter of fact when I was a senator, when I used to be in cabinet meetings."

Crawford: What year was this?

"That was between 1989 and 1993, you know. But special interests, the cooperatives, were able to wield considerable influence by pointing out the foreign exchange that the shrimp fishing brings into the country, right? So, the amount of foreign exchange back into the country was very attractive and that was what the fishing cooperatives used to convince the government that the shrimp trawlers, they worth the while."

Other fishermen interviewed seemed equally aware of the political forces that drove the government's program and the irony of their situation: Their government began an economic program of resource extraction for export, the product of which they cannot afford, and the operation of the program is destroying their subsistence fishery and threatening their way of life.

The following artisanal fisherman describes this situation and another aspect of the trawling that many other fishermen complained of--the fact that the trawlers were observed keeping the quality fish and selling them at lower prices on the local markets.

Crawford: What year was that?

"I don't remember what year the shrimp boats came in here."

Crawford: I've heard around '88, does that sound right?

"I suppose around that time. Yeah, our government has given them the concession to go through, but they destroyed us. And as a matter of fact, the shrimp boats affect the fisherman also, because, ah, you take the shrimps and then keep the fishes there. Yeah, and I was told that these fishes shouldn't be sold but what they do, they sell them. And the local fishermen, now they don't get out, you know, they are not given that privilege of selling their fish because there are shrimp boats selling them on a lower rate. So it destroyed on all points. And the shrimps go away from here, they are exported. And they are very costly too for you to buy them here, very costly."

The response of the Hopkins fishermen to this situation has been hampered because the village is unable to unite in one voice to

approach the Minister of the Fisheries. Political factionalism divides the fishermen of the village by their allegiance to either the UDP or the PUP parties and weakens what little political strength they possess. The voices of protest over the shrimping program have come mainly from individual fishermen aligned with the opposition party. When the shrimp trawling program began in 1986, the United Democratic Party (UDP) was in power, but was defeated by the Peoples United Party (PUP) in 1989. The UDP regained the presidency in 1994. The New Testament parable, "And if a house is divided against itself, that house will not be able to stand", is nevermore apparent than the divided political house of Hopkins.

The government response to the concerns of the Hopkins fishermen has been to make changes to ensure that Belizeans (instead of Hondurans) would work on the shrimp boats. Also, the fishing cooperatives purchased two or three shrimp boats so that some of the trawlers now are not foreign-owned. These responses do not speak to the fishermen's concerns about the destruction of their fishing grounds, and the Hopkins fishermen seem resigned to the situation. This resignation results from their marginalized position in the Belizean economic and political matters and is compounded by political factionalism.

Conclusion

This research reveals the importance of political ecology in understanding the many articulations of international, regional, national, cultural, and environmental factors that explain the marine degradation caused by shrimp trawlers from Roatán, Honduras and resulting negative impact on the fishermen of Hopkins.

Key to understanding Human-Environment relations, as political ecology maintains, is the examination of the role of the state in situations of environmental degradation. Also significant in Human-Environment relations is the concept of differential control over wealth. The poorest people are most affected by environmental degradation, since they are least able to adjust to changes in their environment (Grossman 1993; Bassett 1988; Blaikie 1985).

In this study, the role of the state is significant because the development of the shrimp trawling program is a result of the state's acceptance of the IMF bailout and its economic performance criteria. The Belizean government's economic development response to these criteria, which emphasizes increasing income from non-traditional agriculture export production, including fishery products, is a political-economic decision. Though officially charged with managing the fisheries of Belize, the Belize Department of Fisheries management policies are ultimately controlled by the government. Political-economic influences on the creation and continuation of the shrimp trawling program do not include the

environmental/ecological perspectives that are essential to the management of a sustainable fisheries program. This study demonstrates the environmental degradation caused by the shrimp trawling is directly linked to the role of the state in beginning the shrimp trawling program and the continued operation of the trawlers in Belizean waters.

This study also shows the location of the shrimp trawling is a result of political economic decision-making. The trawling occurs exclusively in the traditional fishing waters of the Garifuna, who are politically and economically marginalized, and whose objections to the trawler's destruction of their traditional fishing waters have gone unheeded.

The concept in political ecology of differential control over wealth is pertinent to this study. The destruction to the waters of the Inner Channel affects the subsistence fishermen of Hopkins more than the artisanal fishermen. The subsistence fishermen do not have money to obtain large dories and outboard motors that would enable them to go to the cayes where fishing is less affected by the shrimp trawlers. The artisanal fishermen, who have more control over wealth, are able to adjust to the marine degradation by traveling to the cayes to fish.

The implications of this study to political ecology research are important in several areas. The focus of most political ecology studies is on the land manager who causes environmental degradation due to pressures from population growth or maladaptive

land use practices in response to political-economic forces. In this study, the fishermen are not creating the marine degradation, but are responding to environmental degradation caused by outside forces. The fishing technology used by most Hopkins fishermen, handlining, is a sustainable fishing method.

This study confirms political ecology's assertion that land degradation directly consumes the product of labor (Blaikie and Brookfield 1987; Nietschmann 1973) and that this concept applies to marine environmental degradation as well. Fishermen have to travel farther and fish longer than before the shrimp trawling began.

The current situation in Hopkins shows, in microcosm, a tragedy for the subsistence fishermen. The peripheral effect of exploitative technologies, such as trawling, on the tropical fisheries is here revealed. Two-and-a-half tons of "trash fish" for every 100 pounds of exported shrimp is an ecological disaster in progress. Even from the most impersonal cost accounting perspective, the shrimp trawling program makes little economic sense. Furthermore, the resulting toll inflicted on the marine waters is too high a price to pay. The shrimp trawling program should be halted to end the destruction of the waters of the Inner Channel, and to relieve the resulting pressures on those who depend on the marine resources for their daily sustenance and livelihood.

Bibliography

Adams, John E. 1970.

Conch Fishing Industry of Union Island, Grenadines, West Indies. Tropical Science 12: 279-88.

Adams, John E. 1972.

The Lobster Fishing Industry of Mt. Pleasant, Bequia Island, West Indies. Proceedings of the 24th Annual Session of the Gulf and Caribbean Fisheries Institute. J. B. Higman, ed. pp. 126-33. Coral Gables: University of Miami.

Allsopp, W. H. L. 1985.

Fishery Development Experiences. England: Fishing News Books Ltd.

Arnason, Ragnar 1992.

Fishery Management in Iceland. World Bank Discussion Paper 217.

Bair, Annette 1962.

The Barbados Fishing Industry. McGill University Geography Department Publication no. 6. Montreal: McGill University.

Barry, Tom 1992.

Inside Belize. The Inter-Hemispheric Education Resource Center. Albuquerque, New Mexico.

Bassett, T. 1988.

The Political Ecology of Peasant-Herder Conflicts in the Northern Ivory Coast. Annals of the Association of American Geographers, 78: 453-72.

Belize, Economic Report, 1984.

A World Bank country study.

Belize External Bulletin, 1994.

Central Statistical Office, Ministry of Finance, Belmopan, Belize C.A., Quarterly Bulletin 44, December.

Belize Fisheries Exports, 1980-93.

Belize Department of Fisheries, Belize City, mimeographed copy.

Belize Production of Fishery Products, 1980-93.

Belize Department of Fisheries, Belize City, mimeographed copy.

Berleant-Schiller, Riva 1981.

Development Proposals and Small-Scale Fishing in the Caribbean. Human Organization, Vol. 40, No. 3.

Bernstein, H. 1979.

African Peasantries: A Theoretical Framework. Journal of Peasant Studies, 6: 421-43.

Blaikie, P. 1985.

The Political Economy of Soil Erosion in Developing Countries. Harlow: Longman.

Blaikie, P. and Brookfield, H. 1987.

Land Degradation and Society. London and New York: Methuen.

Bliss, Elaine 1992.

Adaptation to Agricultural Change Among Garifuna Women in Hopkins, Belize. Caribbean Geography, 3: 160-74.

Bolland, O. Nigel 1986.

Belize, a new nation in Central America. Boulder, Co.: Westview Press.

Brown, Jim 1989.

Plank-on-Frame Dugouts: New Boats for La Mosquita.

WoodenBoat, number 88, May/June.

Bryant, Raymond L. 1992.

Political Ecology, An Emerging Research Agenda in Third World Studies. Political Geography, 11: 12-36.

Castillo, Rodney 1994.

Past Chairman of Hopkins Fishermen's Cooperative. Interview by author. 30 July, Hopkins, Belize.

Cayetano, Sebastian, R. 1990.

Garifuna History, Language, and Culture of Belize, Central America, and the Caribbean. Belize.

Chapin, Mac. 1992.

The View From the Shore; Central America's Indians Encounter the Quincentenary. Grassroots Development, vol. 16, pp. 2-10.

Chapin, Mac. 1993.

Discussions at Rights and Resources office, Washington DC, November 16, 1993.

Country Profile, 1986-94.

Belize, Bahamas, Bermuda. The Economist Intelligence Unit,
United Kingdom.

Craig, Alan K. 1966.

Geography of fishing in British Honduras and adjacent coastal areas. Coastal Studies Institute Technical Report No. 28 Baton Rouge: Coastal Studies Institute, Louisiana State University.

Dansereau, Pierre 1966.

Ecological impact and human ecology. In *Future environments of North America*, edited by F. Fraser and J.P. Milton. pp. 425-462. Garden City: The Natural History Press.

Davidson, William V. 1976.

Black Carib (Garifuna) Habitats in Central America. In Helms and Loveland. eds., pp. 86-94.

Denniston, Derek 1994.

Defending the Land with Maps,
World Watch, vol. 7 no. 1, January/February.

DuBois, R. 1983.

Coastal and Marine Sector Analysis of Belize: A Background Paper for the Belize Country Environmental Profile.

Washington, D. C. : International Institute for Environment and Development.

Ford, Peter 1991.

Around the Edge; A Journey Among Pirates, Guerrillas, Former Cannibals, and Turtle Fishermen Along the Miskito Coast.

Viking Penguin.

Forman, Sheperd 1967.

Cognition and the Catch: The Location of Fishing Spots in a Brazilian Coastal Village. Ethnology Vol. 6: 417-426

October.

Foster, B. 1986.

Heart Drum: Spirit Possession in the Garifuna Communities of Belize. Belize: Cubola.

Garber, Andrew and Canfield, Clark. 1994.

Empty Nets Sinking Hopes. Portland Press Herald, Vol. 107, No. 9, Portland, Maine.

Gonzalez, Nancie L. 1988.

Sojourners of the Caribbean: Ethnogenesis and Ethnohistory of the Garifuna. Urbana, Ill.: University of Illinois Press.

Gragson, Ted L. 1992.

Strategic Procurement of Fish by the Pumé: A South American "Fishing Culture". Human Ecology Vol. 20, No. 1.

Grossman, Lawrence S. 1993.

The Political Ecology of Banana Exports and Local Food Production in St. Vincent, Eastern Caribbean. Annals of the Association of American Geographers, 83(2).

Grossman, Lawrence S. 1984.

Peasants, Subsistence Ecology, and Development in the Highlands of Papua New Guinea. Princeton University Press.

Hyndman, David 1993.

Sea Tenure and the Management of Living Marine Resources in Papua New Guinea. Pacific Studies, Vol. 16, No. 4.

Internet 1995.

World Fact Book, Belize.

Lefever, Harry G. 1992.

Turtle Bogue: Afro-Caribbean life in a Costa Rican village.
Associated University Presses, Inc.

Leonard, Jeffrey H. 1987.

Natural resources and economic development in Central America- a regional environmental profile, Transitional Books,
Rutgers University Press.

Lewis, Conrad 1995.

Present Chairman of Hopkins Fishermen's Cooperative.
Interview by author. 10 January, Hopkins, Belize.

Lipton, Michael 1977.

Why Poor People Stay Poor: A Study of Urban Bias in World Development. Cambridge: Harvard University Press.

Long, Frank 1992.

Unexpected Harvest. Ceres 135: 45-47.

McGoodwin, J. R. 1990.

Crisis in the World's Fisheries. Stanford University Press,
Stanford.

McGrath David G., Fabio de Castro, Celia Futemma, Benedito Domingues de Amaral, and Julianna Calabria 1993.
Fisheries and the Evolution of Resource Management on the Lower Amazon Floodplain . Human Ecology Vol. 21, No. 2.

Merrill, Tim, ed. 1993.
Guyana and Belize, Country Guides. Federal Research Division, Department of the Army.

Moberg, Mark 1992a.
Structural Adjustment and Rural Development: Inferences from a Belizean Village. The Journal of Developing Areas, 27: 1-20.

Moberg, Mark 1992b.
Continuity Under Colonial Rule: The Alcalde System and the Garifuna in Belize, 1858-1969. Ethnohistory 39: 1-18.

Morrill, Warren T. 1967.
Ethnoichthyology of the Cha-Cha. Ethnology Vol. 6: 405-416
October.

Nietschmann, Bernard 1993a.
Nicaragua's New Environmental Alliance for Indian-Latin America. Research and Exploration, 9(3).

Nietschmann, Bernard 1993b.

"The Interdependence of Cultural and Biological Diversity: Conservation in Central America". Lecture at Virginia Tech, September 28, 1993.

Nietschmann, Bernard 1972.

Hunting and fishing focus among the Miskito Indians, Eastern Nicaragua. Human Ecology 1, no. : 47-67.

Nietschmann, Bernard 1973.

Between land and water: The subsistence ecology of the Miskito Indians, Eastern Nicaragua. New York: Seminar Press.

Nietschmann, Bernard 1979.

Caribbean Edge, The coming of Modern Times to Isolated People and Wildlife. The Bobbs-Merrill Company, INC.

Nietschmann, Bernard 1974.

When the turtle collapses, the world ends. Natural History 83. no. 6: 34-43.

Paus, E. 1988.

Struggle Against Dependence: Nontraditional Export Growth in Central America and the Caribbean. Boulder Co.: Westview Press.

Perkins, J. S. 1983.

The Belize Barrier Reef Ecosystem: An Assessment of its Resources, Conservation Status and Management. New York: New York Zoological Society.

Pickles, John and Watts, Michael J. 1992.

Paradigms for Inquiry? In *Geography's Inner Worlds*, ed. Ronald F. Abler, Melvin G. Marcus, Judy M. Olson. Rutgers University Press, New Jersey.

Place, Susan 1993.

Tropical Rain forest, Latin American Nature and Society in Transition, Scholarly Recourses Books.

Rauscher, Freya 1991.

Cruising Guide to Belize and Mexico's Caribbean Coast. ed. Julius Wilensky, Wescott Cove Publishing Co., CT.

Russell, Susan D. and Maritsa Poopetch 1990.

Petty Commodity Fishermen in the Inner Gulf of Thailand. Human Organization, Vol. 49, No. 2.

Schmink, M. and Wood, C. H. 1987.

The "Political Ecology" of Amazonia. In *Lands at Risk in the Third World: Local Level Perspectives*, ed. P. Little and M. Horowitz, pp. 38-57. Boulder, CO: Westview Press.

Stonich, Susan C. 1991.

The Promotion of Non-traditional Agricultural Exports in Honduras: Issues of Equity, Environment and Natural Resource Management. *Development and Change*, Vol. 22: 725-755.

Stonich, Susan C. 1993.

"I Am Destroying the Land!": The Political Ecology of Poverty and Environmental Destruction in Honduras. Boulder, CO: Westview Press.

Taylor, Douglas MacRae 1951.

The Black Carib of British Honduras. New York, Wenner-Gren Foundation For Anthropological Research.

Thrupp, Lori-Ann 1989a.

Politics of the Sustainable Development Crusade: From Elite Protectionism to Social Justice in Third World Resource Issues. Unpublished Manuscript, University of California Berkeley Energy and Resources Group, March.

Thrupp, Lori-Ann 1989b.

Legitimizing Local Knowledge: "Scientitized Packages" of Empowerment For Third World People. Monograph, March.

West, Robert C. 1964.

Surface configuration and associated geology of Middle America. In *Handbook of Middle American Indians*, edited by R.C. West. Vol. 1, pp. 33-83, Austin: Univ. of Texas Press.

Whiteheather, R. T. and Brown, Herbert H. 1945.

An experimental fishery survey in Trinidad, Tobago, and British Guiana with recommended improvements in methods and gear. Washington, D. C., Anglo-Caribbean Commission.

Wildes, Fred T. 1992.

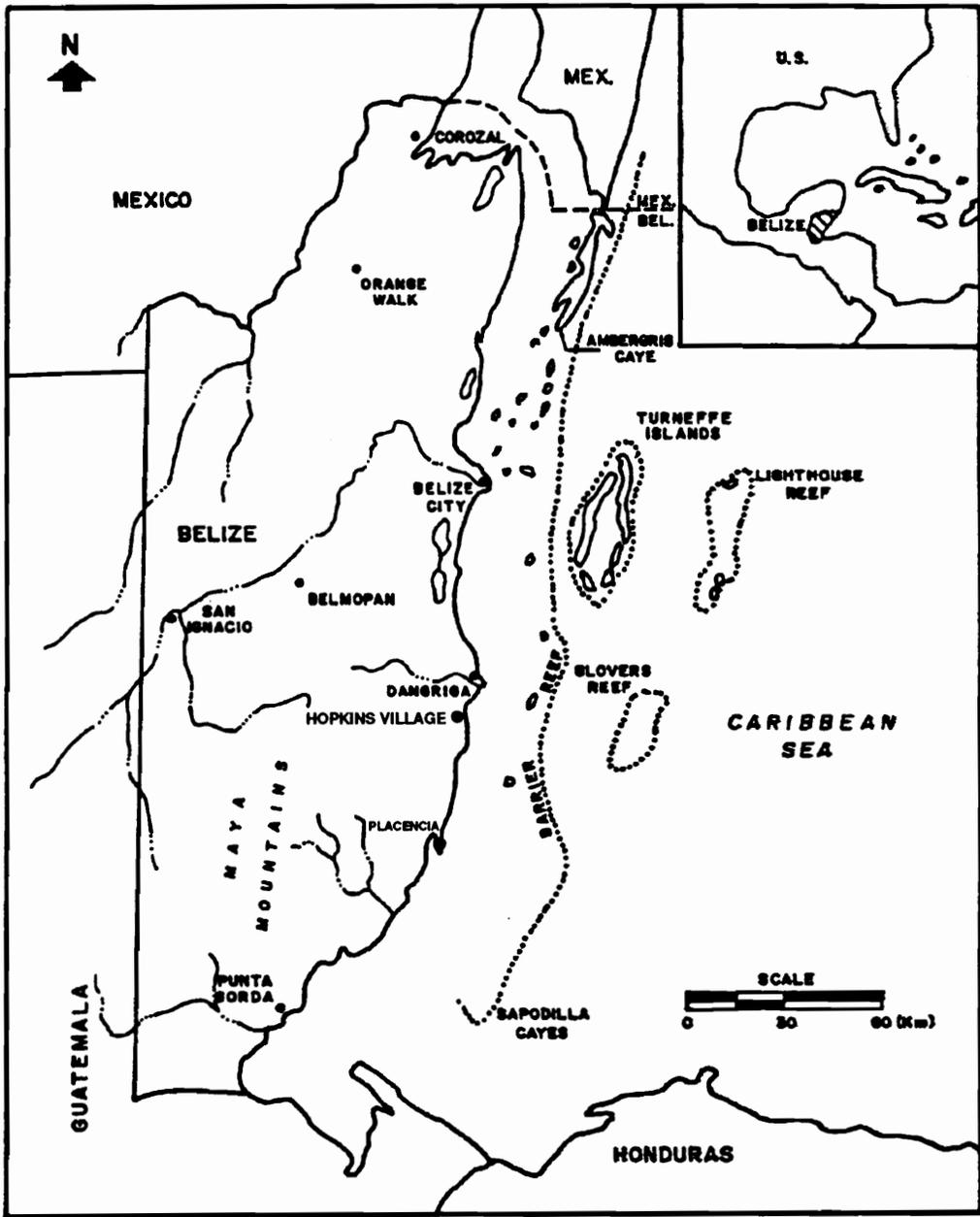
A Resource Management Strategy for the Belize Barrier Reef System. Masters Thesis, Department of Geography, Virginia Tech.

Young, Thomas 1842.

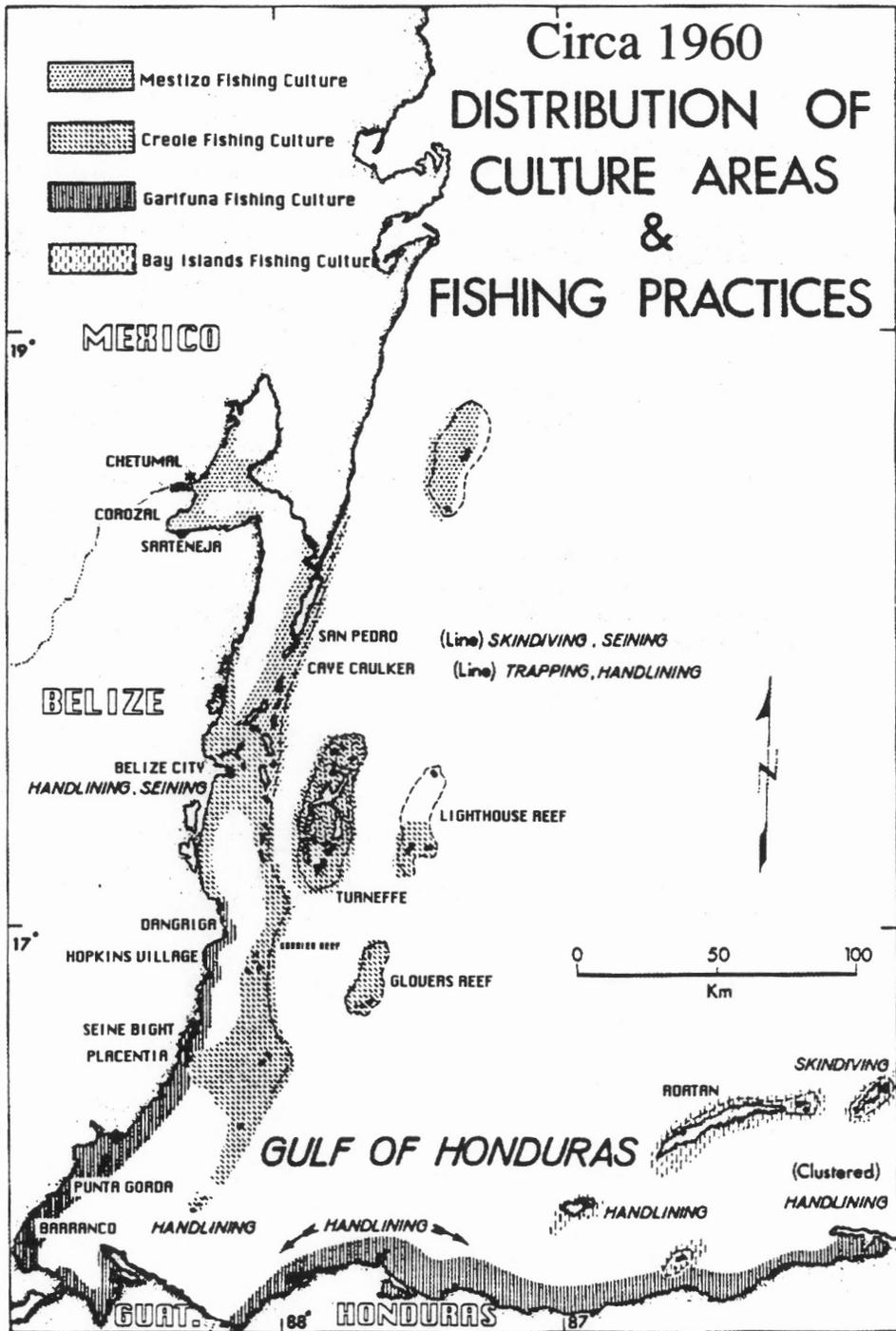
Narrative of a residence on the Misquito shore during the years 1839, 1840, and 1841: with an account of Truxillo, and the adjacent islands of Bonacca and Roatán. London, Smith, Elder, and Co.

Zimmerer, K. 1991.

Wetland Production and Landholder Persistence: Agricultural Change in a Highland Peruvian Region. Annals of the Association of American Geographers, 81: 443-63.

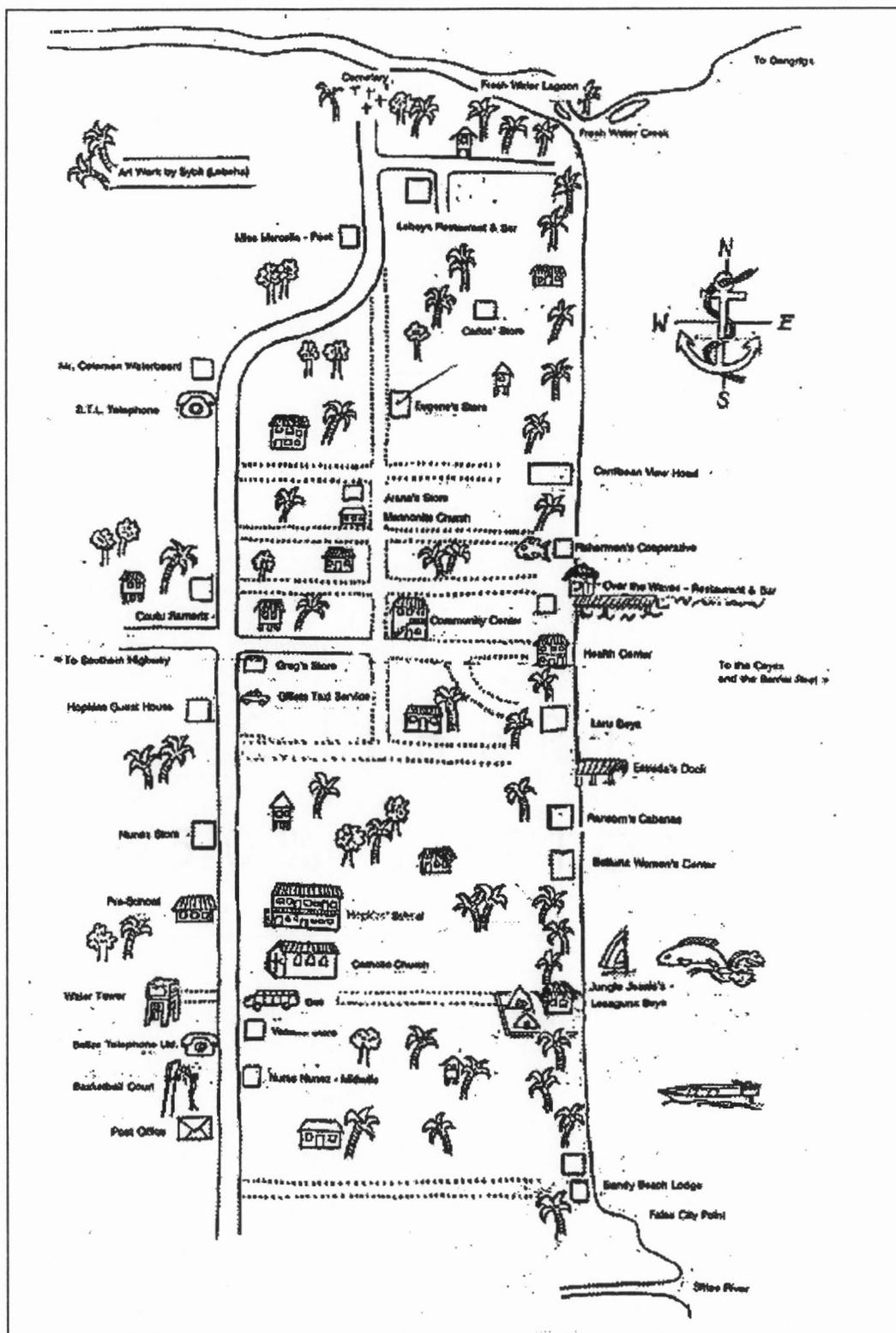


Map 1. Map of Belize

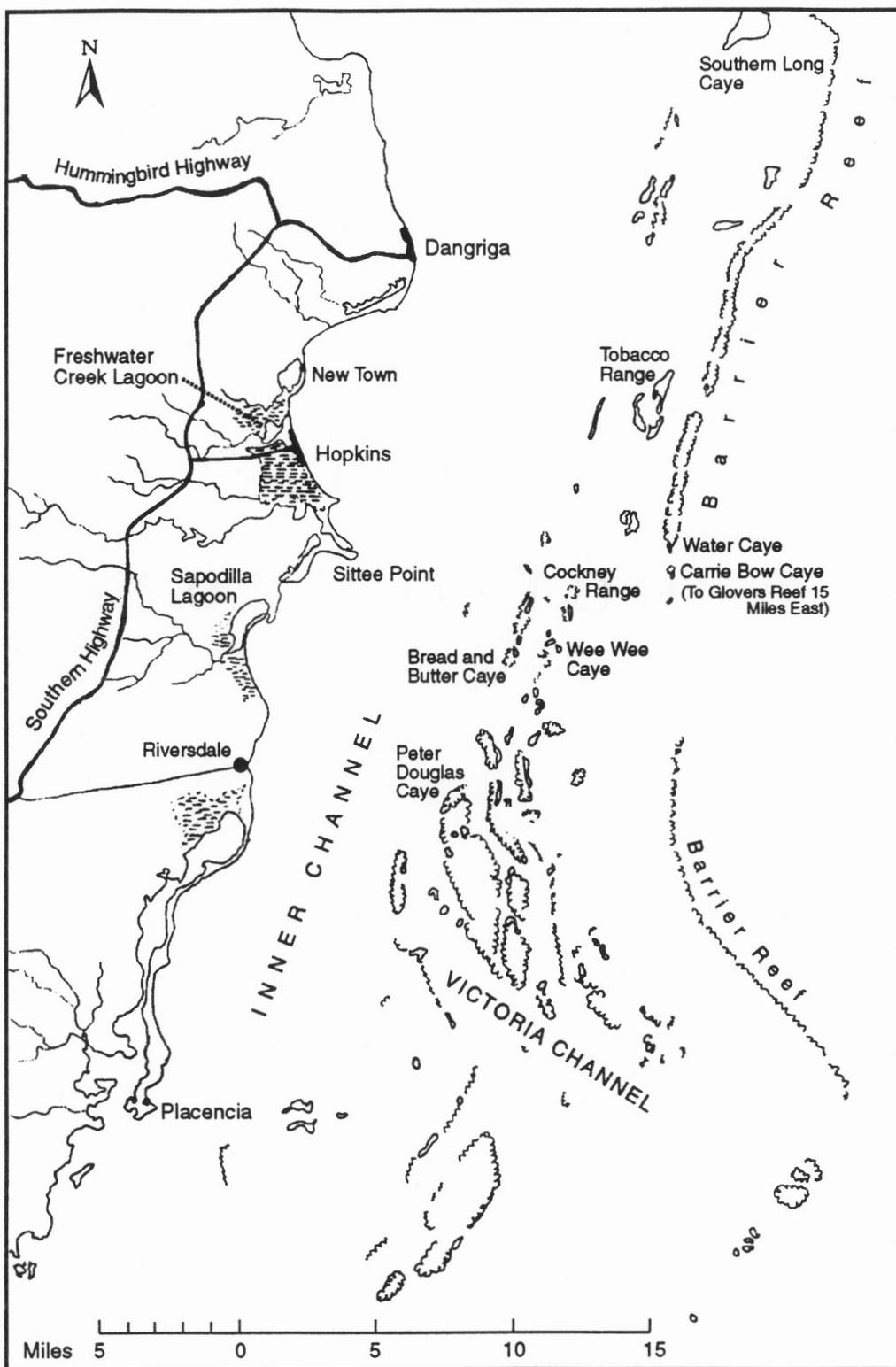


Adapted from Geography of Fishing in British Honduras and Adjacent Waters, by Allen K. Craig

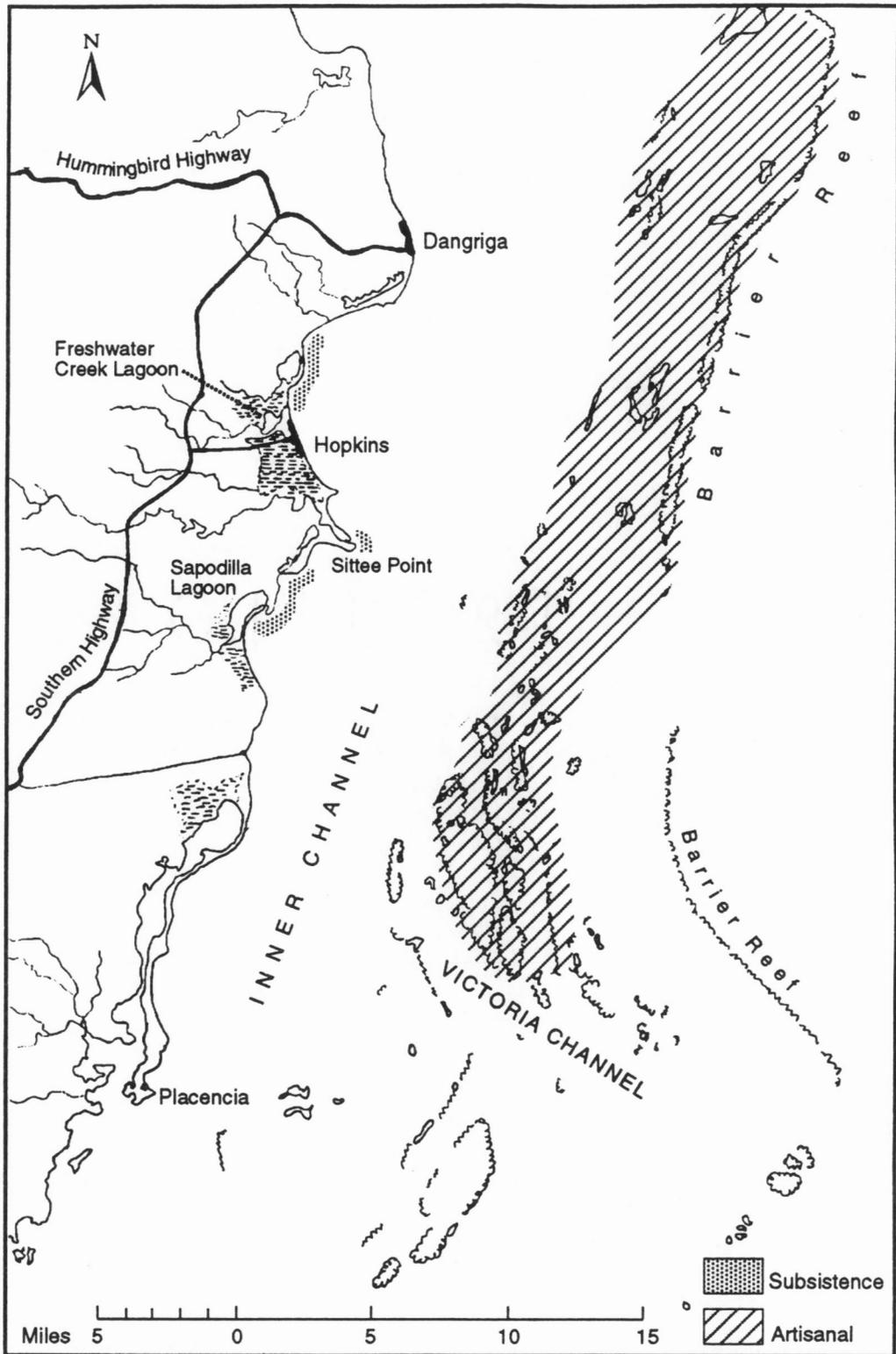
Map 2



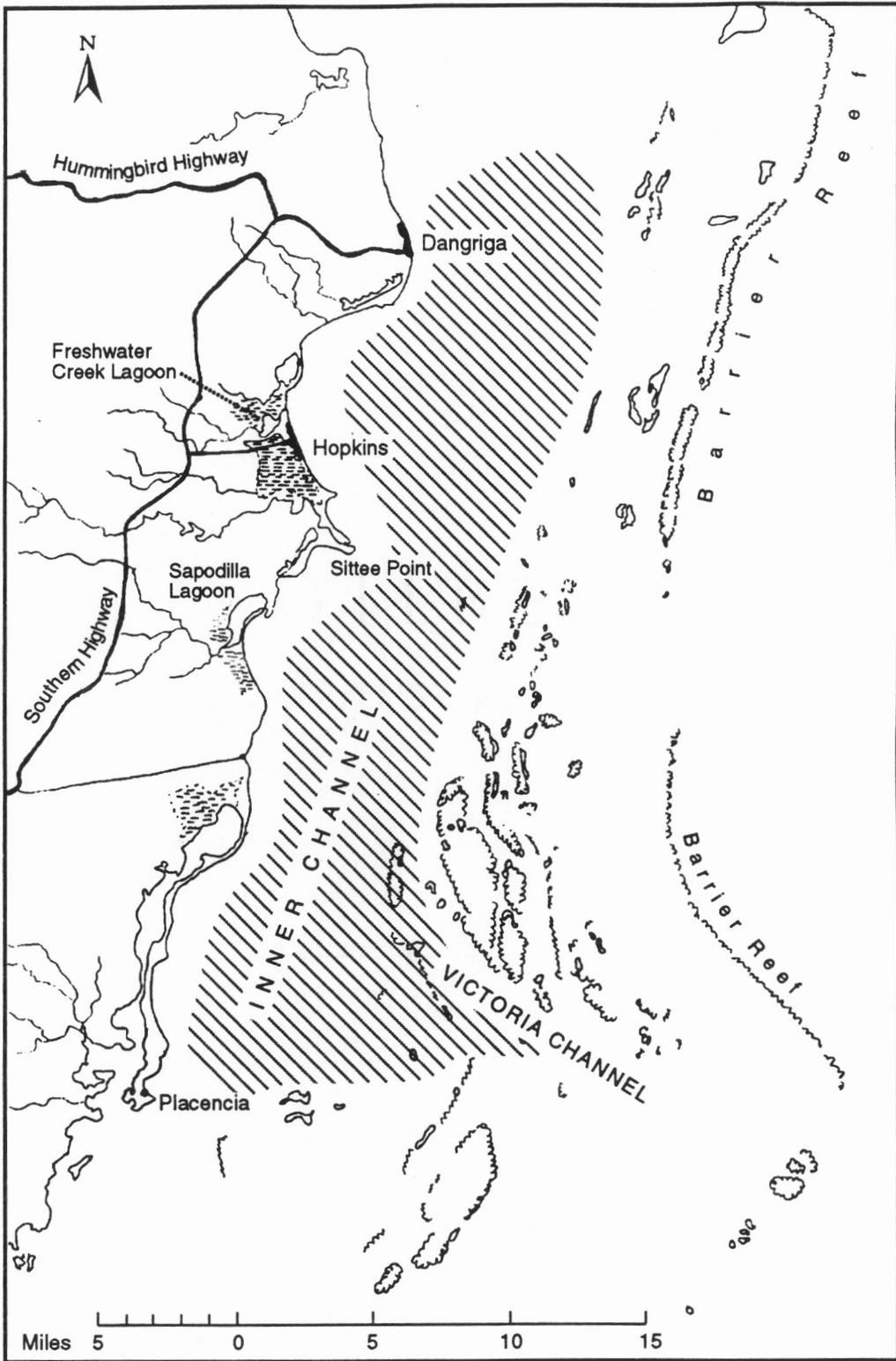
Map 3. Hopkins Village (map from tourist brochure)



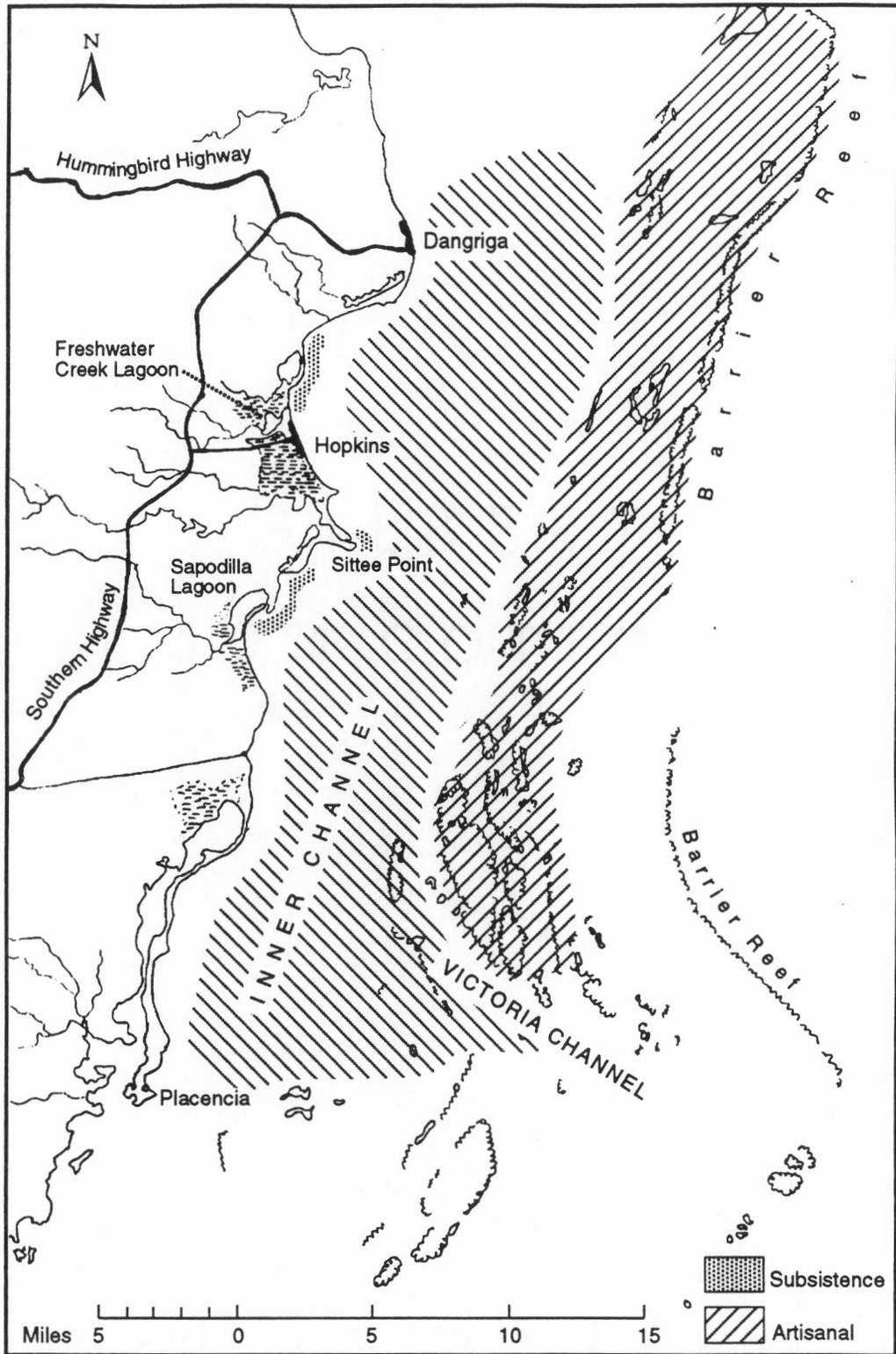
Map 4. Hopkins Marine Environs



Map 5. Location of Hopkins Fishing Areas

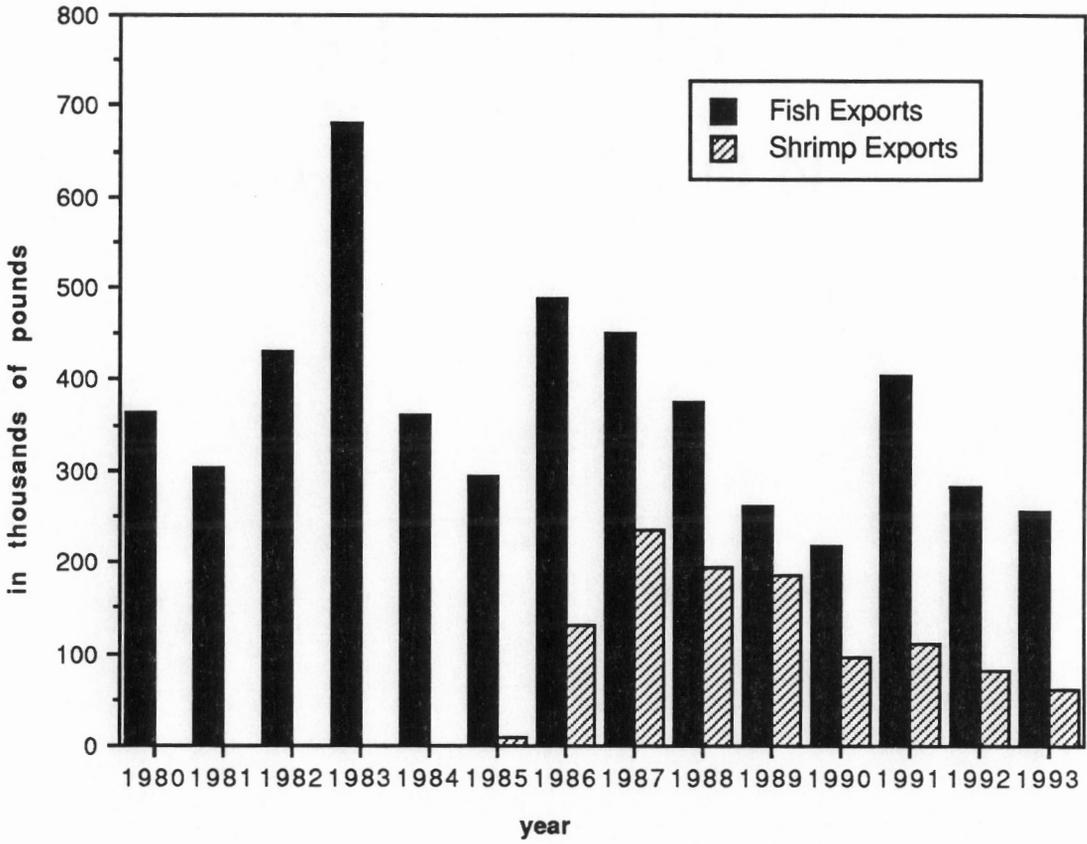


Map 6. Location of Shrimp Trawling Area (Shaded)



Map 7. Overlay of Fishing and Shrimp Trawling Areas

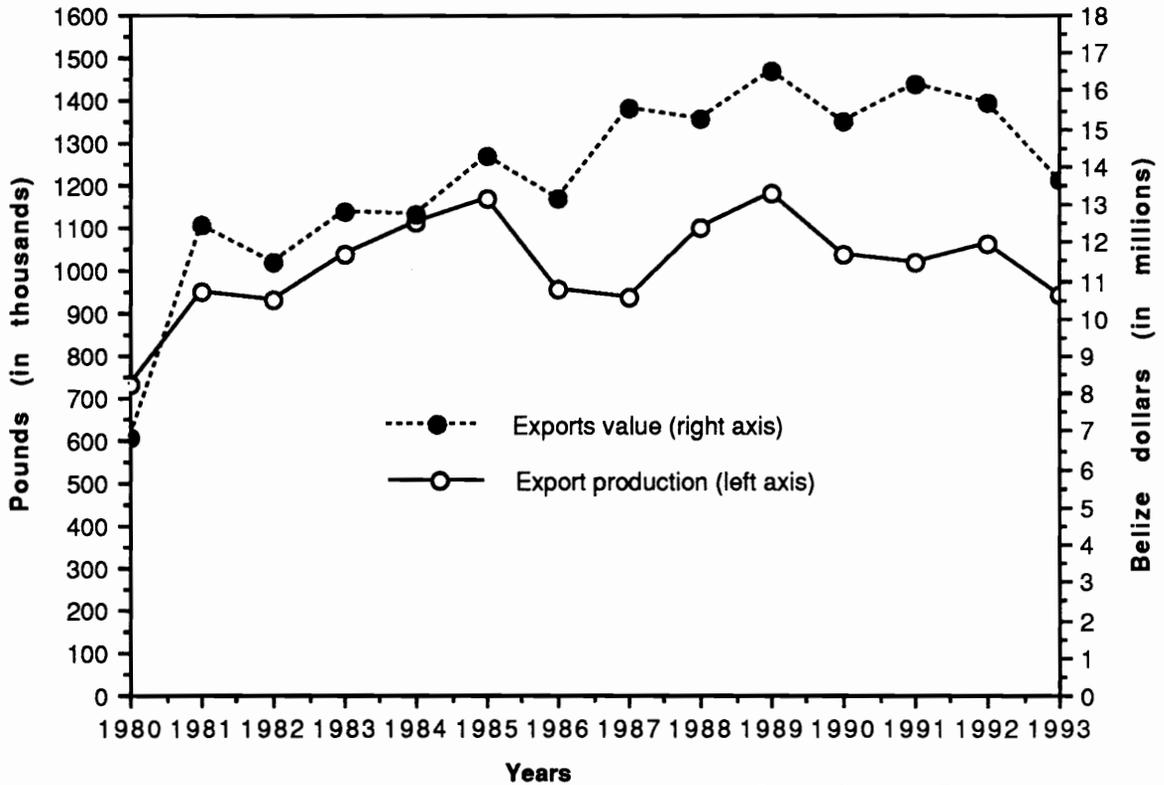
**Belize Annual Fisheries Exports
For National and Northern Fishermen's Cooperatives**



Source: Belize Fisheries Department

Chart A

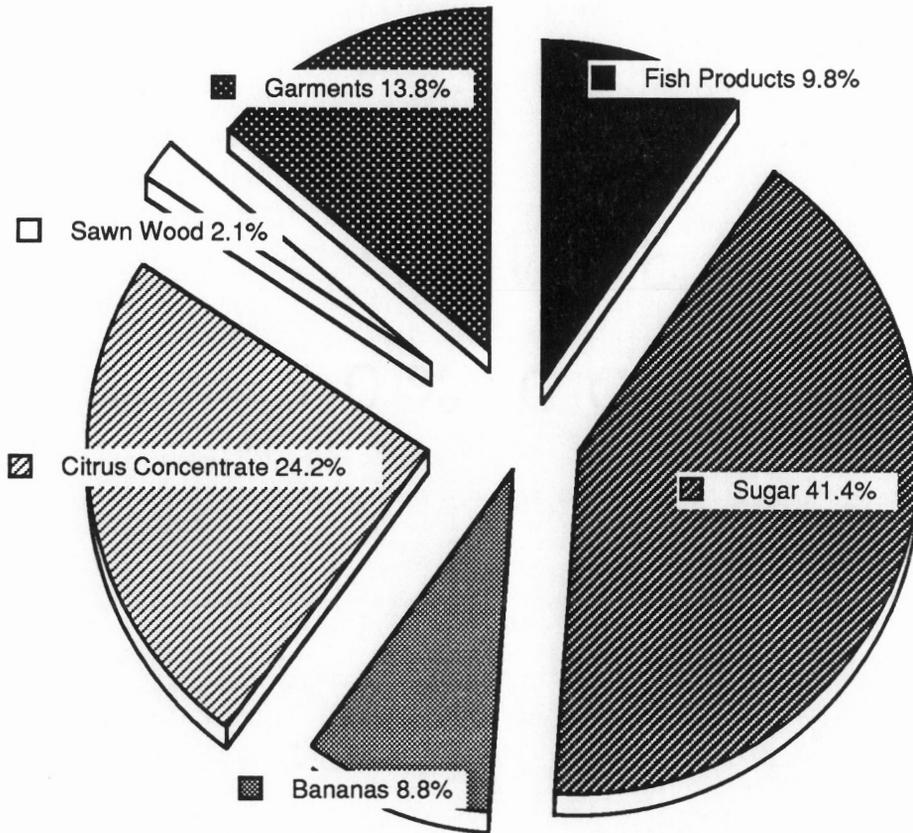
**Exported lobster, shrimp and conch:
Comparison of production and dollar value**



Source: Belize Fisheries Department

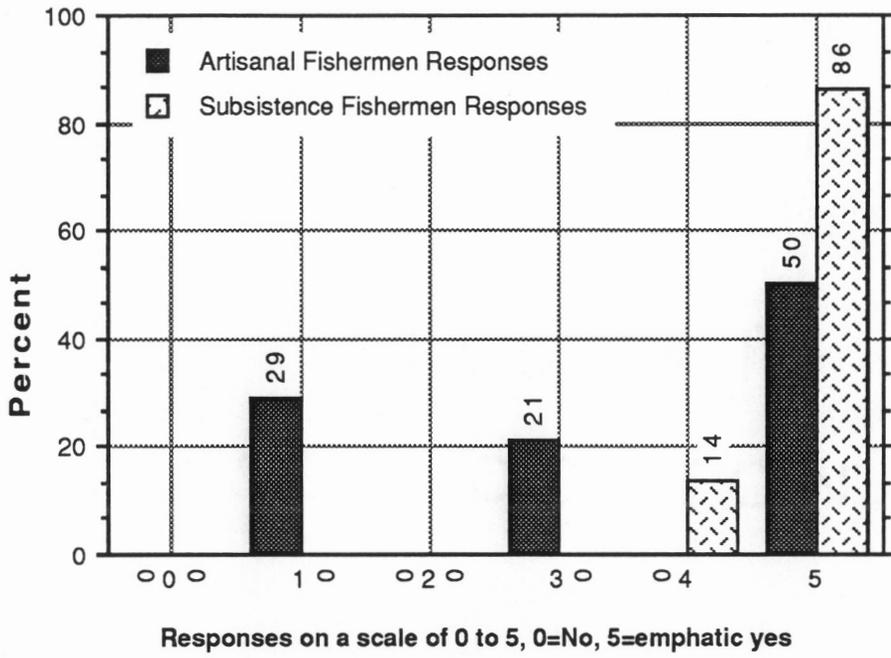
Chart B

Major domestic exports by value, 1992



Source: 1993/94 Country Profile
The Economist Intelligence Unit

Chart C



**Graph of Responses to Question:
Has the shrimp trawling affected
the fishing out of Hopkins?**

Chart D

Table 1

PRICE LIST		
1/2 lb 44¢		
1 lb 85¢		
1 lb 91.5¢		
YELLOW TAILS:	D. SNAPPERS:	C. ROUPER:
1 lb 1.75	2 2.25	3 1.75 - SMALL
2 lb 3.50	3 4.50	100 3/4 lb
3 lb 5.25	4 6.75	2.25 per lb
4 lb 7.00	5 9.00	
5 lb 8.75	6 11.25	Shrimp & PARGY
6 lb 10.50	7 13.50	41.50 per lb
7 lb 12.25	8 15.75	KING FISH
8 lb 14.00	9 18.00	42.50
9 lb 15.75	10 20.25	CONCH FILLET
10 lb 17.50	11 22.50	94.50 7.00
BARRACUDA	12 5.50	LOBSTER TAIL
31.75 per lb	13 8.13	320.00 per lb
	14 10.68	FILLET - 4.50 per lb

Price List at Hopkins Fishermen's Cooperative

Table 2

Summary of Answers to Eight Questions asked of Hopkins Fishermen

Twenty one fishermen interviewed,
14 artisanal fishermen
7 subsistence fishermen

Question 1

How long have you lived in Hopkins?

artisanal : Average years: 30

subsistence: Average Years: 36

Question 2

How long have you been a fisherman? Subsistence/Artisanal?

artisanal : Average years: 19

subsistence: Average years: 19

Question 3

Do you own a dory and what size is it?

artisanal : 9 own large dory

subsistence: 6 own small dory

Question 4

How often do you fish and where do you fish?

artisanal : Most fished weekly around Cockney Range, or Emily Caye area. 2 fished regularly at Stann Creek Long Caye for 2 week periods

subsistence: 1 fished once a week, 3 fished twice a week, 1 fished three times a week, and 2 fished five times a week
Most fished around Sittee River, one fished around the Freshwater Creek bar

Question 5

What fishing technique do you use?

artisanal : all used handline, 3 used some lobster traps and 1 dove for lobster

subsistence: all handline

Question 6

Have you noticed a change in the number of fish you catch?

artisanal : 11 reported some change, either that they have to fish longer or they catch less fish

2 report no change at the cayes

subsistence: all 7 report less fish

Question 7

Has the shrimp trawling effected the fishing out of Hopkins?

artisanal : (On a scale of 1 to 5, 5 being emphatic), 1 said not the large fish, 3 said yes at 1 on the scale, 3 said yes at 3 on the scale, and 7 said yes at 5 on the scale

subsistence: 6 yes at 5 on the scale and 1 yes at 4 on the scale

Question 8

Have you had to change where you fish because of the trawling?

artisanal : 5 report changing cayes, 7 report no change in fishing area

subsistence : all 7 report changing areas

Appendix 1

Interviews of Hopkins Fishermen

January 2 - 13, 1995.

Conrad Lewis

Crawford: What is your position with the Coop?

"Just the secretary."

Crawford: How long have you lived in Hopkins?

"Since birth, I mean the only time I moved out of Hopkins, the times I moved out, were when I went to high school, when I went to teachers college, and that's about it, you know, when I actually lived away from Hopkins. But I haven't lived away from Hopkins, other than goes to do errands."

Crawford: How old are you?

"I am forty."

Crawford: Were you a fisherman at any point?

"Well, not by profession, but as a kid I enjoyed it a lot and during summer holidays in my school days, I spend most of my time out there, even thereafter I spend some time out there."

Crawford: Tell me the history of the Hopkins Coop?

"Well, that coop was very start in 1983 and it got a grant from Canada, I can not recall off hand the name of the agency. But we were able to buy the equipment that we presently have. But the grant was for fixed capital. We never did get money for working

capital, and because of that, working capital was difficult to obtain from the banks because there was not that reputation. It was a new business and it had been risky and even the history of cooperatives in Belize isn't too glamorous because we have had many, many cooperatives that were registered and never survive for a long period, except Northern and National, you know. We have Sartene-- its dead; we have Caribena-- that is just barely surviving, Placencia is barely surviving. I mean, several attempts were made in Dangriga, I mean, they didn't work, and several other villages, you know, so there is a history of failures when it comes to fishing cooperatives. Consequently, the banks are really edgy, you know, to provide working capital."

Crawford: When did it close down?

"Yes, there were periods of closures, you know, and this cooperative has not worked for, let's say, ah, continuously for two years."

Crawford: Are you up and working now?

"I am not optimistic, ah, no matter how well intentioned or how versatile a person is, to manage this cooperative it would be like making bread out of stone, ah, for various reasons. One, the production level is not there, the operation costs exceeds revenue from production, ah, and that is primarily because of the fishing habits of the fishermen. The fishermen do not spend more time out fishing. They spend more time on land than out there and because of

that our expenditures always exceeds our income. So it is impossible for us to survive that way."

Crawford: How many fishermen are working out of Hopkins now?

"Right now we have about, lets say, five fishing boats. Big dories, yes, that are always fishing and those five would contain an average of two men, so you could say we have, on average, ten fishermen and I would say active, you know, because, I mean, they are not that active to really insure a steady inflow of product. But, they are the ones who do go out and bring in something, so, at least it has allowed us to pay our electricity bills and other things."

Crawford: How many do you think you would need to start breaking even?

"OK, at this juncture, for us to say that we would get some money to keep this cooperative fishing, we would first have to change the way we fish. Because no matter how much funds are injected into the cooperative, if the fishermen continue fishing that way, ah, it would be another slide downwards."

Crawford: Are you speaking of handlining?

"Yes, its only handlining. The high value product like lobster and conch, I mean, its only one fisherman doing that, all the rest they do handline fishing."

Crawford: Why do you think they stick with that fishing technique?

"It is traditional, number one, and number two, they do not have the capital to get improved technology to go deep sea fishing

and the like. That is the only method that they are comfortable with."

Crawford: What is the frequency of trips now on average?

"OK, right now is December (sic), I mean the grouper season is on now. Right now we only have two fishing vessels out there and, ah, we expecting to have, I mean, all the five be out there soon. But, I mean, after that there will be a lull again. You know, you have bills to pay, you know, as a result you only go deeper and deeper into the hole. So, it is a gargantuan task to be involved with the fishermen here, I mean, I'm not doing it for any personal gains and they are persistent because I thought that they could earn a decent living off of fishing if they would do the right thing. But apparently tradition is very, very hard to change, consequently, ah, the prospects are dim."

Crawford: Have they increased the number of trips they make, say, in an average year from the past compared to now?

"I don't think so, as a matter of fact I'm prepared to say that there is a decrease in the frequency of fish trips."

Crawford: As far as the size of their catches, are they catching the same amount as in the past or how are they doing on that level?

"I don't think there is any noticeable change in the catch, however, when it comes to the grouper, and since it is seasonal, it's cyclical too. There are times where the grouper really rush, there are times when it is slow, it is cyclical. I don't see any noticeable change in the amount of catch."

Crawford: Do you think there has been an impact from the shrimp trawlers on the fishermen here in Hopkins?

"Well, ah, there is indeed, ah, a considerable impact, but "(tape ends - new tape begins, I repeat the question slightly differently).

Crawford: What impact do you think there has been to the Hopkins fishermen from the shrimp trawling?

"Yes, the impact is mixed. One, it doesn't affect the commercial fisherman, but it affects the fisherman that goes out there to catch their fish for today's meal or tomorrow's meal, so we call them subsistence fishermen. Because the trawlers operate on the flat, yeah, it is muddy and the like. And that is where the boys here or the old men who go out there to catch a fish or two, for today's meal are affected. The entire ecosystem out there, the entire food chain out there has been destructed by the, ah, shrimp trawlers you know, and, we have noticed a considerable decline in catch out there."

Crawford: How many fishermen are trying to fish at that level in Hopkins?

"Practically about, lets say, I could say over 50 fishermen. Because here, probably one out of every five has a paddling dory, and that paddler is used to go right out from there to catch today's meal. And that is also the reserves of school children. Because I remember as a little boy, I have my small canoe, and after school in the evening I would go there, try catch some fish for supper, during the weekends we would go a little farther out, you know."

Crawford: And were you able to catch fish?

"Oh yes, I mean, the catches that time were much , much plentiful than today's, you know, catch."

Crawford: When did that trawling, what is the history of the trawling?

"I wouldn't be able to give you the precise dates, but this trawling came into effect in the eighties, the mid eighties. When the cooperatives pressured the government to get them to joint venture with the trawl owners from Honduras specifically. But then, nobody was concerned about the ecological impact. Nobody was concerned about this. All the cooperatives were looking at what's to maximize the profit you know, by exporting shrimp, you know, but now the toll inflicted on our waters by the trawlers has far exceeded, the cost of it, has far exceeded the profit that the cooperatives have generated from the shrimp trawlers."

Crawford: At this coop, have you let the Department of Fisheries know your feelings on this?

"Oh yes, there have been delegations to Belmopan to express our deep concern about the impact of the trawlers."

Crawford: Have you yourself gone?

"Yeah sure. As a matter of fact, when I was a Senator, when I used to be in cabinet meetings."

Crawford: What year was this?

"That was between 1989 and 1993, you know, but special interests, the cooperatives were able to wield considerable influence by pointing out the foreign exchange that the shrimp fishing brings

into the country. Right? So, the amount of foreign exchange back into the country was very attractive and that was what the fishing cooperatives used to convince the government that the shrimp trawlers, they worth the while."

Crawford: Specifically who did you make that known to?

"To the minister of fisheries. He is not still the minister, but I can recall the present minister of Agriculture and Fisheries, when he was in opposition, strenuously voiced opposition to the shrimp trawlers, but now, since he is a minister, there is a different situation now, there is, there is a loud disquiet from him, you know (laughter)."

Crawford: So how many trawlers worked out here over those years?

"Apparently, there is a reduction in the number of trawlers in Belize, but I do not think it is because of the pressures of the environmentalists. I think it is because the number, I mean, the amount of shrimp out there, I mean the stock of shrimp has been reduced considerably, and it wouldn't be profitable for the usual number of shrimp trawlers to come to trawl for the shrimps. So, because the stock of shrimps has been depleted, consequently, they're are doing fewer trawlers right now."

Crawford: When they started this, did Belizeans own trawlers?

"No, there were joint ventures, if Belizeans own any trawler, probably it was one or two. But the vast majority are Honduran vessels."

Crawford: As far as you know, are they still trawling?

"Yes I see trawling."

Crawford: When is the season, when were they doing the most trawling, what times of the year?

"I think that season closes in March, but don't quote for that because you know, but right now they are trawling for shrimp." (Here Conrad gets me the coop records for 1994 (partial) and I ask him to give me the names of several fishermen that exemplify an average amount of catch).

"Luke Nunez, is the most active. Then you have Cadel Nunez, he is average. Then you have, say ah, Dudley Maximo he is lower than average."

Crawford: What does this sales book cover?

"From mid '94 (July) to the end of this year (1994)."

Crawford: Would you have an early one, say from 1988, to get a comparison from the past to now, I doubt that Luke or Cadel would be there.

"Let me try. They were poorly kept. Once the books were destroyed by insects, but let me see what I can find." (*Conrad goes across the way to look for records at the coop, he returns*). "I think this may be able to help you. This one goes back to 1986. You can have this tonight so you can do some analysis."

Crawford: What do you see as the future of Hopkins, the fishery here?

"There can be a bright future, but the fishermen will have to change the way they fish, I'm talking in terms of, they have to decide

if they want to make a livelihood from fishing or something else, but they can not do it on an easygoing basis. Either they get into it seriously or they will have to do something else."

Crawford: Do you think they need to change their technique? Like traps or..?

"Yes, traps, right, not gillnets because it is not selective, that's the problem with shrimp trawlers, you know. You can catch a dolphin, you know, and you won't use that. I think the handline and the trap are sustainable means of fishing."

Crawford: So, you would like to see those two technologies used more often?

"Yes exactly, but the traps, the fish traps, will make a lot of difference."

Crawford: Some of them tell me that they just don't have the capital.

"Yes, that is the situation. There are lots of constraints."

Crawford: Tell me why there aren't more fishermen coming to the Hopkins Coop?

"All right. First of all, we have fishermen who think that we are buying from them at a cheap rate. And they sell them at a better price than for what Hopkins is buying. So most of them are going, are trying to maximize their earnings."

Crawford: Are you talking about prices in Belize City?

"In Belize City and Dangriga, of course out here, the fish that they buy for (Bz.) \$1.25 sold out here for \$1.50 (on the beach)."

Crawford: It seems that if you can get the volume of fishermen up, some could sell on the beach, but the rest could come to the coop.

"Yeah, yeah, on that end too. You have people that come to Hopkins to buy fish from Cayo District and, ah, they normally offer a higher price to the fishermen, so the fishermen tend to sell them their fish for a higher price."

Crawford: Where does the coop sell its fish?

"We sell our fish as now a percentage locally, but the vast majority of the product is sold to people that come from other districts and right now we are not catching enough fish to meet the demand. As a matter of fact, we have a market in Miami that we cannot satisfy."

Crawford: Do you take fish to Belize City to export?

"Sure, we have done that before, but as I said earlier, we are not getting the volume that warrants exporting the fish."

Crawford: As far as the future goes, do you think it is pretty bleak?

"I think so, I think so."

Crawford: Thanks so much. We finally did get together.

"Indeed, indeed, indeed."

Dudley Maximo

Crawford: How many years have you been a fisherman?

"So I have been fishing for a good while, but we try our best."

Crawford: How many years?

"About twenty eight."

Crawford: Do you have a large dory?

"I got a good big dory. You can see it right over there. So, we have been trying our best. When we start to fishing, well, we find fishing good, but now things are very poor in fishing because fish don't want to bite good, like how it is for us. And then, even lobsters, occasionally we catch lobsters, even conchs they are scarce now. Right up to now we are forcing ourselves to fishing because that is our livelihood, right? So, we are just fishing now, just to keep up our living. So, our cooperative there, we got a cooperative here in Hopkins, but, just to keep it here, I don't know, because every now and then, we don't go out fishing steady, steady, steady, just one in and one out, one in and one out. Because right up to now, our cooperative is full, because due to the circumstances, for the, only fishing. We are out there now, sometimes you go out there now and you spend a lot of money, you go out there and when you come in scarcely to pay your expenses. Yeah, so things are poor in fishing now."

Crawford: Why do you think that is?

"Well, maybe I don't know, you see. When we start fishing out there we usually caught fishes and then in day and a half time, two days time and then we can be coming back home again. We can go and look for sales and so forth, then we go out every now and again. But this time here you have to take about three or four, nearly about a week, to full up our ice boxes with fish, before you come. Sometimes you can stay there for week and ten days before you can full up our ice boxes. Yeah, things are poor."

Crawford: Do you think the shrimp trawling has anything to do with that?

"Well, maybe, because the shrimps there, maybe the fishes there feed on the shrimps and the trawling boat is out there catching these shrimps and so forth and maybe that's why they are getting this case where the fish is dead. So that is why they are getting this case, right."

Crawford: Where did you used to fish when you first started fishing?

"Well, we used to fish from south, from Gladden Caye, way out to the reef there, right by Pancarry reef, we used to fishing mutton snappers and so forth, right there. Sometimes we fishing deep water, deep water fishing red snappers, jacks, all kind of fishes. Then from there we cross over to Glovers Reef, we do the same thing again, sometimes we go out there, go fishing, groupers, mutton snappers, all kind of fishes. Then, from there, we go to Emily. We start to fishing groupers, right front of Stann Creek Long Caye over there. Every year we fish there, a seasonal thing, grouper season. Then, this time

here, we be going next week. We going back there for this moon here, we try the groupers again."

Crawford: Do you handline?

"Yeah, only handline."

Crawford: Why do you handline?

"Because only that can we afford to."

Crawford: Do people prefer fish caught on handlines?

"Yeah."

Crawford: Are they better fish than those caught in traps?

"Yeah, they are better fish, that's why they want to catch that way."

Crawford: Explain that to me.

"Because the traps, what we mean by traps they traps or gill nets, no we rather handline than gill line because gill lines, sometimes when we set it out there, maybe bad weather comes. We comes and see it every now and then, right, and then maybe from the time I left it there, I catch one or two fishes and catch one or two fishes and the bad weather come, and maybe in about three four hours we can go there and see the fishes, they start to get spoil, right. And then by the time you reach there, take all the fishes out of that gill net, ah, you see the gills they start to get white. Sometimes, when you get them from there, then go back and try to clean them, by the time you start to clean them, you see the kind of badness on it. Sometimes the fish there and the gillnet is sometimes gillnet squeeze the fishes right, so they jerk their bodies so by the time you

get there the gillnet try to catch them, catch them, maybe by the weather roughness and things like that you stay three hours, four hours without we go and fish. Well, the fishes they start to get wreck out there. So we learn how to fishing with handline, without the fish with fish traps. Sometimes you find bad fishes because maybe you netted them, you know, for two days fishes they start to die out there and then sometimes nurse fish gets into that, and then they try to come out, the fish in there, so the fishes they get spoiled."

Crawford: How many fishermen do you think work out of Hopkins?

"Well we got about, let me see, about majority of Hopkins they fish. But some of them don't take it to be their living, all right, like some of them only go out there, catch one or two fish to eat and so forth."

Crawford: Has the number of fishermen declined over the years, are there less fishermen than in the past?

"Yeah, yeah, yeah, yeah, yeah. There are less fishermen than in the past because some of them are getting out. Some of them don't have equipment to go out, just like boat, material and so forth, that's a few of us now got boats, motors and so forth to go out to fishing."

Crawford: How big is your dory? How long is it?

"Four feet six and, ah, thirty and a forty machine."

Crawford: So you think that there is a connection between the shrimp trawling and there being less fish here?

"Uh-huh, yeah, but perhaps if they decide to get big trawlers to go out by the ocean there for trawling, I think that would be much better than to trawl around these areas."

Crawford: Have you seen the trawlers?

"Yeah, yeah, yeah. They go around here and so forth."

Paulino Castillo

Crawford: What is your name?

"Paulino Castillo."

Crawford: Were you born in Hopkins?

"No, I was born in New Town. It was way back in 1926. I came to Hopkins in 1941, after the hurricane."

Crawford: What was the name of that hurricane?

"Well, it doesn't have a name for any hurricane at that time."

Crawford: How long have you been fishing?

"Well, I started fishing from when I was a kid, after leaving school right, and I'm still fishing. Then I left out fishing because I went and joined the army in 1944. We call the army at that time the British Honduras Army."

Crawford: How often do you go out fishing?

"When the weather is fine, everyday, from Monday to Friday."

Crawford: What time of day do you leave to go out?

"Well, I usually go out about five o'clock in morning and come back about around eleven, sometimes when we went with machine we come back one, two o'clock."

Crawford: Have you noticed a change from in the past to now of how many fish are out here and have you had to adjust to this?

"I can tell this. Because way back in 1986, oh fish were plentiful before these trawlers come around. And since after that, well up to this present time, fish are very scarce, very scarce. And

the trouble is here sometimes, with these trawler that are trawling about, sometimes they, ah, catch the fish, then what they don't want they throw it away. And I think that 'cause the fish to move farther out or to disappear or something."

Crawford: When did they start trawling?

"Oh, well, ah, they started in 1980s."

Crawford: Have you had to adjust where you go, did you normally fish right out here?

"No, no, we fishing sometimes at the bank near by the caye, right, out there about three or four miles from the caye, so we have a bank. And then we usually fishing in there, we're fishing for snappers, then we trolling for king fish, etcetera."

Crawford: Do you handline?

"Handline, yes."

Crawford: Why do you handline?

"We don't use traps, none of that, no time do we use traps, we just, ah, handline fishing."

Crawford: Are the handline fish preferred over traps?

"Oh well some may say that when they set the trap they catch more fishes right, but with the handline, sometimes, too, we catch them, sometimes we didn't."

Crawford: In the past you caught more fish?

"Yes, in the past definitely caught more fish than now."

Crawford: Are you having to stay out longer to even catch enough fish?

"Oh well, ah, those days gone by we just only went for maybe three or four hours, we have a load and come back in."

Crawford: Where do you fish now?

"Right out here."

Crawford: How many fishermen do you think are working now out of Hopkins?

"Well, ah, let me see, I, my son, my brother, say, lets say about a dozen fishermen. They called fishermen, say about a dozen."

Crawford: Does that include the men with the large boats?

"Yeah."

Crawford: You have a 13 foot dory?

"Yeah."

Crawford: So, you can't take that out to the cayes?

"No, no, no."

Crawford: How many men, with the smaller dories, do you think are fishing?

"Oh, a lot of them, but they are not doing it all the time."

Crawford: Has anybody tried to tell the national government that the shrimp trawling has hurt the fishing here in Hopkins?

"Well, ah, we complain right, we, the fishermen complain, not to the government, well, lets say we can say government too. Because we told the minister right, the minister of, the local minister in charge of the rural areas."

Crawford: Who is that?

"That, ah, Hous, Melvin Hous. He was the one in charge of the rural area. So we made a complaint to Hous about this trawling, that it was wrecking the coast. Then they stop it for a little while and then they allow the trawlers to come in back again. Ah, a fellow from the fisheries came here sometimes ago, we told him about the same thing. Then he said that they have send the trawlers out and then they initially going to use trawler that is from Belize, work, ah, the trawler who is working is Belizean, that working on the trawler right. So when the trawler is brought, I don't know where they brought the trawler from, but the trawler was brought into the Belize coop. One trawler only. All of a sudden ,I see about 13 more trawlers come in. So I don't know what was the arrangement that they made up, I don't know."

Crawford: When you made that complaint to the minister, how long ago was that, do you think?

"Lets say about a year and a half ago."

Crawford: When did the minister come here?

"Well, ah, at times, at times they come here, not very often."

Crawford: When he said that there would be just one trawler was that a year ago or...?

"No, no, no. It just about a month ago when the member of the fisheries came here. We made him the complaint. That's the time he said there is only one trawler working, a Belizean trawler. Since then, I have seen about eight or nine trawlers by Stann Creek, also by Stann Creek."

Crawford: Do you vary where you go seasonally, or do you pretty much fish the same area?

"Well, ah, right now we are, we be forcing to go out on a camping dory for grouper season. A week or two from now we be out on grouper bank."

Crawford: How old are you?

"68."

Crawford: Do you normally get enough fish for your family?

"Oh yes, every time I go out I get enough fish for my family."

Crawford: Do you often get extra to sell?

"Oh yes, sometimes when the luck comes about, I sell sometimes."

Crawford: In the past would you have gotten more fish?

"Oh yes, more fish, more fish, more fish."

Crawford: Are there fewer fishermen that are fishing out of Hopkins than there were a few years ago?

"Well, ah, lets say, ah, yes, we have less fishermen, from the time when, ah, a lot of fishermen were out fishing. Many of them died out. And they are not being replaced by other fishermen."

Crawford: What are people doing if they are not fishing? Are they farming?

"They are farming, sometimes farming, and some working out."

Crawford: You have five daughters in Chicago, right? Do they send money back to you?

"Oh yeah, well, yeah. That helps a lot, my fishing and the little they send, helps a lot."

Robert Nasario

Crawford: So, the last time you went out was a month and a half ago. Do you think you will get your engine fixed soon?

"Yeah, perhaps soon, but my son-in-law have gotten one and we supposed to be going out maybe Sunday, or Monday for the grouper."

Crawford: How long have you fished in Hopkins?

"About twenty years. I used to do it when I was small, with my father. We used to start fishing with him, in a sail boat, we never used machine, in a sail boat."

Crawford: In those days where did you fish?

"Right close by Peter Douglas, by Cockney Range, there I usually fish."

Crawford: Are you still fishing in that area?

"Yeah, because it is closer to there from Sittee Point, its about a half hour drive from Sittee Point to Peter Douglas.

Crawford: Have you noticed a change in the number of fish from the old days to now? Oh yes, there is a big difference now. First time you go out, you don't waste time, you get there in one spot, you catch all the fish you want and you come home. But now it is difficult. Now you have to change about five or six times before you catch enough. It is a big difference there.

Crawford: What would you attribute that difference to?

"Because one time, we just used conch bait we never used sardines. Now we have to use sardines before we catch fish, good fish. Or shrimp bait."

Crawford: Have you noticed a change since the shrimp trawling began?

"Yeah, big changes, big changes. Fish started to move out you know, because the bank we just used to fish, the trawler raked the place. Raked all the rocks and the grass where the fish used to lay or feed they move out. But that's a big change."

Crawford: Have you complained to anybody at the fisheries?

"Yeah, we did."

Crawford: Have they said that they would stop it?

"Yeah they said that they want to stop it from last year, but there were, at one time, there were about a dozen. Right now, there are about five or six anymore."

Crawford: Where are they from?

"From Roatán, Honduras."

Crawford: Have you seen them lately?

"Yeah, they were here about Christmas. They leave about a week before Christmas."

Crawford: Do you think that trawling has affected the fishing here at Hopkins?

"Oh yeah it did, it did, it did. Because it trawls right around here."

Crawford: How far out did they trawl?

"About three or four miles sometimes."

Crawford: How many fishermen are working in Hopkins?

"About two dozen."

Crawford: And that is with how many big dories?

"About two dozen dories."

Crawford: Do they all have motors?

"Yeah, they all have motors."

Crawford: Compared with twenty years ago, are there more or less fishermen?

"There are more fishermen right now. Because one time we weren't using machine, they are using sail boat. Now people getting machine, so we have more machine than sailboats right now. We don't have no sail boats, just lone machine."

Crawford: Do you think your sons will be fishermen?

"Oh yeah, I have two of them working with me sometimes."

Crawford: What was your son's name that we fished together?

"Clinton."

Crawford: Are you catching more fish than you used to?

"Less fish."

Crawford: Is it harder to make a living at it?

"Sometimes I have to go and camp out, you know, stay out about a week, a week and a half before I come in. Then you make good, camping. But when you go out and come back you don't make nothing, sometimes just for gas".

Crawford: You sort of have to stay out?

"When you go out, you carry an ice box, you fish, you do this hours, maybe later. Sometime you have to fish in the night, you know. When you don't find any in the night, then you'll find them in the moon."

Appendix 2

Ethno-History of Hopkins' Garifuna

The Garifuna people are descendants of Carib Indians of the Lesser Antilles in the Caribbean and of Africans who had escaped from slavery. They consider St. Vincent or "Yurumein", its Garifuna name, to be their homeland. In ceremonies performed today, they still enact the arrival of their ancestors to the shores of Central America from Yurumein.

The Caribbean region, including the Garifuna homeland, was first populated by Amerindian peoples migrating northward from South America around 5000 BC. and probably reached the Greater Antilles, the furthestmost northward migration, around 2000 BC. Later phases of migration occurred around 160 AD. when Arawak Indians from Guyana, Surinam, and Venezuela migrated to the Greater Antilles. In 1220 AD., Carib Indians, from the same regions of South America, invaded and conquered these islands, but chose to settle on the smaller islands of the Lesser Antilles. From this period until Spanish contact in 1497, the Caribs dominated the region carrying out raids on Arawak islands, killing the males and capturing the Arawak women as potential wives (Cayetano 1989). This situation led to a spoken language that had females using Arawak and males using Carib words for the same objects. The words are distinctly different, yet mutually understood. This pattern of different male and female words has survived in the Central American Garifuna language (Cayetano 1989).

The Lesser Antilles were colonized by Europeans in a pattern typical of the Caribbean region. The Spanish were first to make contact with the islands in 1496, but their involvement with the Carib Indians mainly consisted of some trading and slave-raiding endeavors. This pattern of trade and periodic conflict extended to other Europeans, namely the French and English, for the next two centuries, yet the Caribs survived. The fortunes of the less militaristic Arawak and Tainos peoples differed greatly from their Carib neighbors. It is estimated there were around one million Arawak and Tainos living in all of the West Indies in 1496, but 40 years later only 500 remained (Gonzalez 1988).

The Caribs, having developed a more militaristic social system, were able to repulse Spanish and later, English and French encroachments on their territory of the Lesser Antilles through the mid-1600's (Cayetano 1989). The French and the British entered into the Treaty of 1660 with the Caribs, granting them ownership of Dominica and St. Vincent. But, eight years later, the British began a period of aggression against the Caribs which would continue for the next 135 years. In 1795, the Caribs, lead by Chief Chatoyer, began what was to be the final confrontation with the British. Chief Chatoyer was killed in a sword duel with a British officer (Major Leith) and the war dragged on another year until finally the Caribs (lead by Chatoyer's brother, Du Valle) surrendered to the British in June, 1796 (Cayetano 1989).

During this early colonial period, the Carib population of St. Vincent was undergoing a major transformation. In 1635, two Spanish ships carrying slaves destined for the New World, shipwrecked near Becquia, Saint Vincent. The slaves survived and were welcomed by the Caribs of Saint Vincent and thus began an intermingling of Africans and Island Carib Indians. The descendants of these two peoples became known as Black Caribs and are now called Garifuna (Cayetano 1989). The Garifuna culture incorporates features from both their Carib and African roots. In particular, the language of the Carib Arawak was adopted, along with Carib traditions, occupations, music and traditional religion, while, aside from darker skin pigmentation, African influences include practice of ancestor worship and the use of African native drums for secular and sacred music (Cayetano 1989).

After the defeat of the Garifuna, in 1796, the British forcefully deported 2,248 Garifuna from St. Vincent transporting them to Roatán island off the coast of Honduras. Records indicate only 2,026 Garifuna survived the passage. The survivors were off loaded there, with some provisions, and left to fend for themselves. From this small uprooted group of people were preserved the language, traditions, customs and beliefs that survive in the Garifuna culture of today (Gonzalez 1988).

Shortly after landing on Roatán, the Garifuna were relocated, with the aid of the Spanish authorities, to the adjacent mainland of Honduras. They migrated rapidly westward along the coast,

establishing a series of fishing settlements. The Garifuna fishermen quickly gained a reputation as fine seamen and dory builders. By the 1840's, Garifuna boatbuilders were supplying dories to the Creole and white inhabitants from Honduras to Dangriga, Belize (Craig 1966). Today, in Honduras there are 42 Garifuna settlements, Guatemala has three communities and there are six Garifuna communities in Belize. Population estimates for the number of Garifuna living in Central America are around 80,000 and there are 20 to 50 thousand Garifuna living in the United States, primarily in Los Angeles, Chicago and New York (Cayetano 1989; Gonzalez 1988).

The Garifuna presence in Belize began around 1800 when early migrants came from Honduras to fish, trade and work in the logging camps. Eventually, their families followed and settled along the coast. As the logging industry slowly declined in the 1940's, the men made their way back to the coast to settle in small fishing villages where they became subsistence fishermen and farmers. This movement of Garifuna loggers to the coast corresponded to a second unrelated migration of Garifuna fishermen from Honduras who settled in the southern coastal areas of Belize (Craig 1966). The period from 1831 to 1836 marked the first permanent Garifuna settlements in Belize (Davidson 1976).

The founding of the town of Dangriga and the village of Hopkins, were tied to political incidents in Honduras in 1834, 26 years after the Garifuna arrived in Honduras. During this time, many Garifuna males had enlisted in the army of their hosts and ruling

colonial power, the Spanish Loyalists. The Honduras Ladinos, who opposed and fought against the Spanish domination in the period from 1823 to 1832, defeated the Spanish in 1832. In retaliation against their supporting the Spanish Loyalists, the Garifuna were hunted and massacred by the Honduras Ladinos. To escape these atrocities, 30 adults and a dozen children fled in dories to Belize. They were granted political asylum and began a settlement on the coast, now called Dangriga (Cayetano 1989).

Hopkins was first settled when the antagonism between Ladino and Garifuna erupted again in 1937 in San Juan Village in Honduras. This time, 22 men were forced to dig their own graves and were massacred as "traitors" by soldiers of the Republic of Honduras. One man, and the remaining women and children escaped to Belize, with the aid of a sea captain, and founded Hopkins Village (Cayetano 1989).

These early settlers from both migrations practiced subsistence fishing, small scale farming and part time wage work. The Garifuna had already adjusted their living patterns to include some dependence on foreign products and the cash needed to buy them (Gonzalez 1988). Logging, and some plantation work, offered temporary and recurrent styles of wage labor migration for Garifuna men. Social patterns developed that reflected this periodic absence of men from the village life. With the men absent, Garifuna women supplied most of the food through subsistence level agriculture (Bliss

1992). The time demands of fishing, which is solely a male activity, including periodic absences, also contributed to these social patterns.



Artisanal fisherman handlining at the cayes



Artisanal fisherman selling fish on the beach



Subsistence fisherman returning mid-day to his waiting family. His catch this day is small.



Subsistence fisherman's family
dividing his morning catch

VITA

James P. Crawford was born in 1951 in Cambria, Virginia. He graduated from Virginia Polytechnic Institute and State University in May of 1992 with a Bachelor of Science degree in Sociology. This was his chosen major when he began college in 1969 at Wheaton College in Wheaton, Illinois. Mr. Crawford also attended Roanoke College for a year in 1976.

Mr. Crawford owned and operated Sunergy Systems, a solar design and construction company from 1978 to 1987. After that, he built his own woodworking shop and earns his living as a cabinetmaker. Mr. Crawford is also a musician and songwriter and plays the guitar professionally.

Mr. Crawford has traveled to the Central American countries of Costa Rica, Guatemala, Honduras, and Belize. In 1988, he traveled on a sloop from Fiji to New Zealand and Australia. He recorded many hours of travelogue and interviews for WVTF Public Radio in Roanoke, Virginia.

After returning to academia to complete his Bachelor of Science degree in Sociology, Mr. Crawford was awarded a teaching assistantship and earned a Masters of Science degree in Geography in 1995 from Virginia Polytechnic Institute and State University.

A handwritten signature in black ink that reads "James P. Crawford". The signature is written in a cursive style with a large, sweeping initial "J".