

Belize Fisheries Sector

SUMMARY OF RESEARCH



I. Overview of the Fisheries Sector in Belize

The fishery sector is a major productive component of the Belizean economy, and fishermen and the fishing industry play a large, visible role in Belizean society. In 2006, the most recent year for which data is available, the entire fishery sector exported 25.6 million pounds of seafood, earning US\$53.4¹ million in revenue.² Fishery products were the third largest foreign exchange earner in 2003, contributing 5% of Belize's GDP. The most significant element of the fishery economy is farmed shrimp. Lobster and conch are the most productive wild catch fisheries. 90% of the lobster, conch and shrimp produced in Belize are sold directly to foreign markets, mostly to the United States.

The tourism industry in Belize is rapidly growing and demand for seafood supplies for local markets is projected to increase. According to the Food and Agriculture Organization (FAO), this local demand has grown so much that imported seafood now supplements local supplies, particularly for finfish. Belize fisheries still operate under open access permitting, and as seafood prices have been rising, exploitation has increased, and less seafood is available for local consumption. However, the Belize Fisheries Department has been implementing experiments with limiting access to traditional fishermen at Gladden Spit and Glover's Reef. Other fishing communities have been advocating the same for their traditional fishing grounds, particularly in southern Belize.

¹ Financial figures in this paper are reported in US Dollars.

² This data includes aquaculture and wild catch fisheries. Of this total, 95% of the production and 80% of the revenue was from farmed seafood. Data is available only for exported produced because there is no tracking of seafood distributed to local markets or consumed for subsistence.



According to the Belize Fisheries Department, the primary fishing sector employs 1,672 active fishermen and aquaculture workers. There are a total of 2,131 licensed fishermen in Belize. Unlike the large commercial fleets exploiting deep-sea and pelagic stocks, Belizean fishermen are directly dependent on

“Belizean fishermen are directly dependent on national stocks and they cannot easily relocate if stocks decline.”

national stocks, and they cannot easily relocate if stocks decline. The secondary sector, fishermen cooperatives, employs 123 workers. The primary role of cooperatives in Belize is the commercialization and export of the catch from members. The cooperatives also have a key role in advising the government on fisheries policy. More than 50% of all licensed fishermen are members of one of the five cooperatives in Belize. Many fishermen are unlicensed, particularly in southern Belize. However, the growth of local, community-based fishermen’s

associations, bodies which act to represent the local interests of fishermen, has recently emerged. The associations are growing in prominence as recipients of funding and partners to NGOs. Environmental Defense Fund’s initial research in the Mesoamerican Reef (MSA) region has found that both the cooperatives and associations are important actors in the fisheries sector and must be partners to any reform initiative. There are tensions between the cooperatives and associations over their roles representing the interests of the fishermen.

The fishing fleet includes 552 artisanal boats (open boats, sail sloops, and canoes) plus a maximum of 8 industrial shrimp trawlers.³ More than 50% of fishermen are between 15 and 35 years of age. Most are from impoverished rural and coastal communities. Many young fishermen and plant workers have only an elementary-level education. Often times the fishermen are the sole income earners for each household.⁴ Lack of access to capital is a major issue for fishermen livelihoods both on an individual and collective level. Individually, fishermen do not have the funds available to make necessary repairs and upgrades to equipment. Fuel is not subsidized by the government, and is the highest cost center for them. At a collective level, lack of access to capital has prevented the cooperatives from developing a domestic processing capacity which could add value to export.

II. Administration of Belizean Fisheries

The Belizean Fisheries Department, a unit of the Ministry of Agriculture, Fisheries and Cooperatives (MAFC), oversees the fishing sector. The Department divides Belizean waters into six fishing zones. The zones were determined by contracted scientists who saw a distinct difference in habitat. Northern Belize is characterized by a shallow, narrow continental shelf. Southern Belize is characterized by a wider, deeper continental shelf. The laws governing fisheries vary by species and location, with stricter prohibitions and enforcement occurring within Belize’s marine reserves. Coral, bonefish, shrimp, conch,

³ Belizean law allows a maximum of eight trawlers active in Belizean territorial waters.

⁴ FAO of the United Nations, Fishery and Aquaculture Country Profile, Belize (http://www.fao.org/fi/website/FIRetrieveAction.do?xml=FICP_BZ.xml&dom=countrysector&xp_nav=6).



lobster, and turtles have specific legislation governing fishing seasons, effort, and/or allowable catch. In September 2008, the government began issuing sport fishing licenses for Tarpon, Bonefish and Permit – these species will be “catch and release” only. The Fisheries Department together with Coastal Zone Management will co-manage the sport fishing license.

The five fishermen’s cooperatives are significant actors in the administration of the fishing sector since they are the exclusive vehicles for accessing the most lucrative international markets. The two biggest cooperatives, Northern and National Cooperative, are the only entities authorized to export fish products. The other three smaller cooperatives sell their product to either Northern or National. Collectively, the cooperatives handle lobster, conch and many different types of finfish including snapper, grouper, and jacks. The Belize Fisherman’s Cooperative Association (BFCA) is the representative body for the cooperatives, except for Northern.



Belizean fishermen cleaning catch.

Fishermen can sell their catch to their own cooperative, other cooperatives directly or via another member, or directly to local restaurants. Today, all of the cooperatives report a declining active membership and reduced influence in the fisheries sector; this is a major source of concern to the government which views the cooperatives as important entities for managing the fisheries coherently. The three smaller cooperatives reported in interviews that they are concerned about their relevance and

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ongoing existence. In addition, the cooperatives have problems related to loan abuse. In interviews with Environmental Defense Fund, a cooperative board member estimated that 70% of its membership was in debt. Northern Cooperative has been particularly plagued by financial woes. The UDP government elected in spring 2008 has announced plans to restructure the Northern Cooperative.

In recent years, the cooperatives created incentives to continue fishing despite declining catches. These incentives include direct subsidies for fishing supplies such as ice, and low-interest loans and indirect subsidies, which create perverse incentives to fishermen including the abuse of loans and providing a landing site to nonmembers of cooperatives. This artificially changes the market risks, rewards, and costs of fishing. Additionally, fishing has become economically constrained by investment and fuel costs making it difficult to overcome environmental constraints. Economic incentives have only succeeded in sustaining production in the short term. The cooperatives are now economically dependent on maintaining or increasing production and rely on these economic incentives. In other words, more money is required to support an ever more complex structure to maintain status quo in terms of harvest. The



National Cooperative, the most robust and healthy of all five cooperatives, reports that in order to operate successfully they need at minimum 200,000 pounds of lobster and 200,000 pounds of conch.

The two species most critical to the economy of the Belizean fishery sector are lobster and conch. Their importance has increased as finfish populations, grouper and snapper in particular, along the Mesoamerican Reef have been overfished and depleted. The sustainability, economic, and policy considerations around lobster and conch are now particularly important.

Lobster

The total value of exported Belizean lobster in 2006 was \$7.4 million, accounting for approximately 405,000 pounds of lobster. 90% of spiny lobster caught in Belize is exported. Lobster landings peaked at 750,000 pounds in 1981. Legal methods for catching lobster include traps, free diving, and lobster shades. Fishermen have been deploying lobster shades to create aggregation sites. The season is closed from February 15th to June 14th, limiting lobster fishing to eight months.

Due to its clearer waters and the proximity of the reef to shore, northern Belize is a major nursery area for lobster. Yet lobsters captured in the north tend to be smaller than those in the south. 40% of lobster production comes from north of Belize City. The majority caught have less than five ounce tails. Catches in the south typically see six-ounce tails. Belizean minimum take for lobsters is a three-inch length between horns and the beginning of the tail, and a 4-ounce minimum tail weight. This has been a sustainable practice for Belize according to the Fisheries Department, as evidenced by a lobster fishery which has been fairly stable. Although the practice results in the taking of juveniles which have not reached sexual maturity, the Fisheries Department reports that there are plenty of spawning lobsters in Belizean waters because deep water lobster taking is restricted by prohibitions against assisted diving. Therefore, a robust stock of reproducing lobsters remains.



National Cooperative employees packing lobster.

A major emerging issue for the Belizean lobster fishery is that the U.S. Department of Commerce is likely to establish a five-ounce tail weight minimum which would disqualify a large portion of Belize's lobster catch. The U.S. move is supported by and advocated for by Nicaragua and Honduras, who will benefit from the higher weight minimum as they allow deep water taking with assisted diving and hooks. According to the Fisheries Department, Belize has no plans to change their lobster laws and will seek out other markets if the minimum five-ounce is adopted in the U.S.

Conch

In 2006, conch exports valued \$3.4 million for 699,000 pounds. Conch landings have declined from a peak of 1.2 million pounds in 1972. The only legal form of conch collection is free diving; assisted diving is prohibited. The closed season is from July 1st to September 30th, limiting conch fishing season to nine months.

The Belize Fisheries Department has a total allowable catch (TAC) for conch. The TAC is determined through field studies every two years; in 2006 the TAC on conch was set at 620,000 pounds (282 MT). Since the TAC was implemented in the 2004-2005 season, the Belize Fisheries Department reports a slight increase in conch production, and also reports that the fishermen and cooperatives are satisfied with the system⁵. Northern and National Cooperatives are allocated a share of the TAC based on their historical catch. Once they meet their quota, they are required to stop receiving conch from the fishermen. However, the fisheries department estimates 90% of fishermen do actually stop taking conch, but 10% will continue taking and selling to local restaurants and resorts at a much lower value market.



Belizean fisherman prying conch from its shell.

Aquaculture in Belize

The other major fishery sector worth noting is Aquaculture, which today is the major productive component of the Belizean fishery sector. There are 15 operational aquaculture initiatives in Belize, which employ 853 full-time and 206 part-time workers. The two biggest products in aquaculture are shrimp (valued at \$42.1 million in 2004) and tilapia (valued at \$485,000 million in 2004). Industry experts also predict that there is soon to be a boom in cobia farming.

For the five years leading up to 2004, aquaculture has surpassed lobster and conch earnings, which are traditionally the highest revenue generators for the Belizean fishery sector. The growth of shrimp farming is reflected in the increase in production for export from 189,000 pounds in 1990⁶ to 24.3 million pounds in 2004⁷. Belizean farmed products face competitive pressures from cheaper production in Asia and elsewhere in Latin America, reflected in the worldwide decline in shrimp prices over the past five years. However, shrimp farms are finding a viable market in regional CARICOM countries due to free trade agreements.

⁵ This conclusion has not been verified; moreover local and international NGOs working in marine conservation in Belize have expressed skepticism that there has been an increase in production, and question the justification for the recent increase in the conch TAC.

⁶ "The Status of Aquaculture in Belize", 2002

⁷ Belize Fisheries Department Statistical Report, 2003

III. Challenges and Issues for Fishing Communities

Based on interviews with a range of organizations and agencies in Belize, including fishermen, fishing cooperatives and associations, the Government of Belize, and Belizean NGOs, the key obstacles facing fisheries can be grouped into three key issues: ecosystem impacts, limited access to capital and declining returns, and the lack of enforcement and respect for territorial waters.

Ecosystem Impacts

Overfishing, coastal development, climate change, and coral bleaching are creating habitat damage to key fishery habitats in Belize. This damage reduces the productivity of the fisheries, and reduces the resiliency of the reef and other habitats to recover from ecosystem shocks.⁸ Hurricane Dean in August

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2007 destroyed significant amounts of fishing gear, particularly lobster traps and shades, and damaged lobster and conch habitat. The Government of Belize and international community provided financial assistance to help fisherman recover lost materials, but the damage to habitat will have adverse impacts on catches into the future. A growing body of academia and conservation practitioners is developing methodologies to target conservation efforts to sites or species which demonstrate a higher resiliency.

In meetings with fishermen over the past year, they argue that fishing is only a minimal contributor to fishery depletion, and point to coastal development in particular. NGO’s and conservation initiatives that engage the fishermen need to develop a coherent, convincing response to this perspective – one that acknowledges that there is strong evidence that coastal development is damaging fishery health, but is not the major contributor.

Economic Conditions

The increased cost of supplies combined with a decline in market demand has resulted in reduced profit margins for individual fisherman and cooperatives. Fishermen claim that not only are fuel costs too high, but the cost of multiple licenses and taxes they are required to pay are also burdensome. Although more cost-effective fishing techniques have been deployed, such as traps, shades, nets, and streamlining of transport to storage and production facilities, the overall economics of most fisheries make profit margins very thin, both for individual fishermen and the cooperatives. Belizean fishermen are therefore exposed to systemic shocks beyond their control. A decline in lobster prices would have adverse impacts on their livelihoods. Moreover, many fishermen fear the impacts of a decline in the influence of the cooperatives due to changes in the market and their loan default track record.

⁸ Peter Mumby, University of Exeter, “Coral Reef Resilience and Climate Change”, February 2008



Economic pressures also emanate from the growth of the tourism industry, which affects sport fishing and aquaculture. Tourism and private housing developments for wealthier foreigners are reducing access to fishing grounds, pressuring fishermen into other livelihoods, and increasing the costs of doing business. Further, limited access to capital on an individual basis makes it difficult for fishermen to make repairs to equipment, buy more efficient technology, and recover from natural disasters such as hurricanes. On a collective basis, the lack of access to capital means that cooperatives and fishermen associations cannot develop a processing capacity which will increase product value, or make investments that will help them access higher-end markets to obtain price premiums.



Community meeting of Belizean fishermen discussing catch shares.

Institutional Enforcement and Respect for Territorial Waters

There are several sub-issues in terms of territorial rights that pose obstacles for effectively implementing some of the incentive/market-based fishery reform tools that have been successfully implemented by EDF. They include:

- A lack of respect amongst fishermen for historical, traditional fishing grounds;
- Migratory nature of Belizean fishermen who use nearly the entire reef for fishing;
- Weakness of cooperatives and diffuse local market;
- Increased incursion into Belizean territorial waters from illegal Guatemalan and Honduran fishermen; and
- Lack of effective enforcement of fisheries laws and regulations of illegal fishing and other violations.

In addition, there are political/structural challenges facing fisheries in Belize, including multiple jurisdictions managing marine resources and governing fishermen behavior. The Belize Fisheries Department is genuinely interested in reform on behalf of the fishermen, but they have limited staff and are entrapped in a bureaucracy. Their main focus in the past few years has been establishing Marine Protected Areas (MPAs), and some well-managed MPAs have been established, particularly those co-managed by local NGOs in Southern Belize. The Fisheries Department has recently begun to shift their attention to fisheries reform. The Belizean Coast Guard has the best human and equipment capacity for enforcing marine laws because they have received international aid from the U.S. However, this aid necessitates a focus on preventing drug trafficking, not illegal fishing.

Overall, there is little evidence of political will to actually implement reform. Recent examples of reform occurred at Gladden Spit where a critical snapper spawning area was changed from open access to limited

access, and the beginning of a process to reduce permits for fishing at Glove's Reef. The Fisheries Department has voiced support for market-based reform efforts which have support of fishermen.

The Fisheries Department had implemented a TAC for conch, but this has gone without enforcement and according to local NGOs, the TAC has been raised irrespective of data on conch population health. The Department also asserts that a TAC for lobster and efforts to close access to lobster and conch fisheries could be implemented.

IV. Solutions

NGOs, government, fishermen, and funders have implemented and proposed a range of solutions to the fisheries crisis in Belize with varying success. Since the spring of 2008, several developments offer a window of opportunity to bring these, and other innovative ideas, to the forefront in Belize. The new UDP government has given signals of interest in conservation and fisheries, a ministerial post for a former fisherman and a CEO post for a former member of the NGO community. Moreover the government convened a group from the environmental community to develop a slate of recommendations for action. Some of the key thinkers and actors on fisheries conservation were convened by the Oak and Summit Foundations in June 2008 for a "Meeting of the Minds". From this meeting came a report which identified the major barriers to fisheries sustainability in Belize and developed preliminary solutions and action plans.

Environmental Defense Fund's analysis of the region leads us to conclude that incentive-based management and other market incentives could add new, valuable tools to marine conservation in Belize; in particular when implemented in combination with no-take zones, marine protected areas, innovative enforcement strategies, community-based capacity-building and other ideas stemming from "Meeting of the Minds" and other sources.

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